

**TAKE NOTICE THAT A REGULAR MEETING
OF THE BOARD OF COMMISSIONERS
OF THE CITY OF PHARR, TEXAS
WILL BE HELD AT CITY HALL, COMMISSIONERS' ROOM,
118 S. CAGE BLVD., 2ND FLOOR, PHARR, TEXAS
COMMENCING AT 4:00 PM ON
MONDAY, NOVEMBER 1, 2021**

The City of Pharr has called this meeting as allowed pursuant to Texas law, city charter, and city ordinances. The governing body may recess from day to day when it does not complete consideration of a particularly long subject as authorized by law. All persons desiring to address the governing body must register with the presiding city clerk prior to the scheduled meeting.

1. CALL TO ORDER:

A) Roll call and possible action on the excusing of any absent member of the governing board.

B) Pledge of Allegiance/Invocation

2. PROCLAMATIONS:

A) Proclamation proclaiming Mayors' Monarch Pledge Day.

3. PUBLIC TESTIMONY: (Ordinance No. O-2019-45). A person intending on addressing the governing body may speak at a scheduled meeting of the governing body following registration with the presiding clerk and prior to the scheduled meeting. A registered speaker may speak only on items on the agenda and may not exceed 1.5 minutes when addressing the board regarding an agenda item. A registered speaker may not donate time to another speaker. A sign-in form for public testimony shall be promulgated by the presiding clerk and be made available at the city clerk's office. A person may sign up for public testimony beginning at the time the agenda is posted for the meeting. A person may not sign up later than one hour before the posted meeting is scheduled to begin. No registered speaker may be allowed to speak regarding an item once the public testimony portion of the agenda has ended.

4. PUBLIC HEARINGS: (Ordinance No. O-2019-31). A registered speaker during the public hearing may not exceed 1.5 minutes when addressing the board. A sign-in form for participation in public a hearing shall be promulgated by the presiding clerk and be made available at the city clerk's office. The public hearing sign-in form shall include the person or entity's name, address, telephone number, other contact information, organization if applicable, and other notices, authorizations, and acknowledgements as may be allowed by law from time to time. No registered speaker may be allowed to address the governing body once the public hearing has closed.

A) Public hearing on development services cases.

5. CITY MANAGER'S REPORTS: *(City Manager's Administrative Reports and discussion, if any, with governing body. The City Manager may also assign a designated spokesperson for any particular listed topic)*

A) City Engineer's Report

B) Submission of 4th Quarter 2020-2021 City of Pharr Investment Report.

6. CONSENT AGENDA: *(All items listed under consent Agenda are considered to be routine and non-controversial by the Governing Body and will be enacted by one motion. Any Commissioner may remove items from the consent agenda by making such request prior to a motion and vote on the Consent Agenda)*

A) Approval of minutes for August 2, 2021 Regular Called Meeting; August 16, 2021 Workshop Meeting and August 16, 2021 Regular Called Meeting. (ADMINISTRATION)

B) Consideration and action, if any, on Ordinance amending Ordinance O-2021-45 relating to the number of authorized civil service positions within the Fire and Police Departments. **(3rd and Final Reading)** (ADMINISTRATION)

C) Consideration and action, if any, authorizing the City Manager to advertise for City-Wide Landscape Maintenance Services. (PARKS)

D) Consideration and action, if any, on Development Services Cases:

1. Topgolf USA Pharr, LLC., is requesting renewal of the Conditional Use Permit and Late Hours Permit to allow the sale of alcoholic beverages for on-premise consumption in a General Business District (C). The property is legally described as being a 15.347 acre tract of land, more or less, out of Lot 1, Top Golf Pharr Subdivision, Pharr, Hidalgo County, Texas. The property is located within the 1900 Block of West Interstate Highway
2. **CUP#170846** (DEVELOPMENT SERVICES)

PLATS:

1. SAMES Engineering, representing Maria Del Carmen Pacheco, Member for Encarlen, LTD, is requesting preliminary plat approval of the proposed Master Plan Villa España Estates Phase IV & V Subdivision. The property is legally described as being a 5.36 acre gross, 4.35 acre net, tract of land out of Lot 8, Block 9, A.J. McCOLL Subdivision, Pharr, Hidalgo County, Texas. The property is located within the 2700 Block of South Jackson Road. **SUB#210832** (DEVELOPMENT SERVICES)

REGULAR AGENDA - OPEN SESSION:

7. ORDINANCES AND RESOLUTIONS:

A) Consideration and action, if any, on Ordinance authorizing and allowing, under the act governing the Texas Municipal Retirement (TMRS) System, "Updated Service Credits" in said system on an annual basis for service performed by qualifying members of such system who at the effective date of the allowance are members of the City of Pharr; and establishing an effective date for the ordinance. **(1st Reading)** (HR)

AGENDA REGULAR MEETING
November 1, 2021

B) Consideration and action, if any, on Resolution authorizing the Pharr Police Department to submit a grant application to Officer of the Governor, Homeland Security Grants Division - Operation Lone Star Grant Program. (POLICE)

C) Consideration and action, if any, on Resolution adopting the Hidalgo County, Texas Multi-Jurisdiction Hazard Mitigation Action Plan Update 2021 (HMAP2021). (ENGINEERING)

D) Consideration and action, if any, on Resolution appointing two (2) alternate members to the Planning and Zoning Commission. (DEVELOPMENT SERVICES)

E) Consideration and action, if any, on Resolution appointing/reappointing of board member to the Parks and Recreation Advisory Board. (PARKS)

8. PURCHASING:

A) Consideration and action, if any, on counter-offer for land. (ADMINISTRATION)

B) Consideration and action, if any, authorizing City Manager to purchase furniture for the Pharr Aquatic Facility from DC Interiors from San Antonio, TX in the amount of \$142,579.66 through OMNIA Partners Purchasing Cooperative Contract # R180402 (PURCHASING)

9. CONTRACTS/AGREEMENTS:

A) Consideration and action, if any, on Change Order No. 1 in the amount of \$3,938.57 and final acceptance of the Pharr City Hall First Floor Renovations (Project No. 1920-40-510-C008-755) with NM Contracting LLC, and release of final payment and retainage of \$117,657.08. (ENGINEERING)

B) Consideration and action, if any, on a Memorandum of Understanding (MOU) between the City of Pharr and the Consejo Mexicano de Comercio Exterior del Noreste, A.C. (COMCE NORESTE). (BRIDGE).

C) Consideration and action, if any, on Change Order No. 2 in the amount of \$48,928.00 for the Various Parking Lot Improvements Project. (ENGINEERING)

D) Consideration and action, if any, authorizing City Manager to extend the Service Contract with Denali Water Solutions, LLC from Russellville, AR for Sludge Management Services. (PURCHASING)

E) Consideration and action, if any, authorizing City Manager to extend the Service Contract with Pro-Tech Exterminating Services from McAllen, Tx for City Wide Pest Control Services. (PURCHASING)

F) Consideration and action, if any, authorizing City Manager to extend the Service Contract with INSULNATION, LLC. from Mission, Tx for City Wide HVAC On-Call and Maintenance Services. (PURCHASING)

AGENDA REGULAR MEETING
November 1, 2021

G) Consideration and action, if any, authorizing City Manager to extend the Service Contract with Purpose Driven Polygraph Investigative Consultants, LLC. from Weslaco, Tx for Polygraph Services. (PURCHASING)

H) Consideration and action, if any, authorizing the City Manager to enter into a Contractual Agreement with La Feria Irrigation District Cameron County No.3 for the Purchasing of (1,000 acre feet) of Water Rights in the amount of \$3,000,000.00. (PUBLIC UTILITIES)

10. CLOSED SESSION: *In accordance with Chapter 551 of the Texas Gov't. Code, the Pharr Board of Commissioners hereby gives notice that it may meet in a closed (non-public) executive session to discuss the items listed on the public portion of the meeting agenda in accordance with the following below:*

Pursuant to Section 551.071, the Board may convene in a closed, non-public meeting with its attorney and discuss any matters related to **legal advice on pending or contemplated litigation, settlement offer, and/or on a matter in which the duty of the attorney to the governmental body under the Texas Disciplinary Rules of Professional Conduct of the State Bar of Texas clearly conflicts with this chapter.** The City and its attorney may also discuss such issues with the appropriate staff so as to obtain necessary and relevant information so that such discussion is informative and developed.

Pursuant to Section 551.072, the Board may convene in a closed, non-public meeting to discuss any matters related to **real property and deliberate the purchase, exchange, lease, or value of real property as such would be detrimental to negotiations between the City and a third party in an open meeting.** The City and its attorney may also discuss such issues with the appropriate staff so as to obtain necessary and relevant information so that such discussion is informative and developed.

Pursuant to Section 551.074, the Board may convene in a closed, non-public meeting to discuss any matters related to **appointment, employment, evaluation, reassignment, duties and discipline or dismissal of a public officer or employee and to hear any complaints or charges against an officer or employee.** The City and its attorney may also discuss such issues with the appropriate staff including members so as to obtain necessary and relevant information so that such discussion is informative and developed.

Pursuant to Section 551.076, the Board may convene in a closed, non-public meeting to discuss any matters on the **deployment, or specific occasions for implementation, of security personnel or devices.** The City and its attorney may also discuss such issues with the appropriate staff so as to obtain necessary and relevant information so that such discussion is informative and developed.

Pursuant to Section 551.084, the Board may convene in a closed, non-public meeting to discuss any matters involving an **investigation and may exclude a witness from hearing during the examination of another witness in the investigation.** The City and its attorney may also discuss such issues with the appropriate staff so as to obtain necessary and relevant information so that such discussion is informative and developed.

Pursuant to Section 551.087, the Board may convene in a closed, non-public meeting to discuss any matters regarding **economic development issues.** The City and its attorney may also discuss such issues with the appropriate staff so as to obtain necessary and relevant information so that such discussion is informative and developed.

AGENDA REGULAR MEETING
November 1, 2021

11. RECONVENE: *into Regular Session and consider action, if necessary, on any items(s) discussed in closed session.*

12. ADJOURNMENT:

NOTICE OF ASSISTANCE AT THE PUBLIC MEETING

City Hall is wheelchair accessible and accessible parking spaces are available. Requests for accommodations or interpretive services must be made 48 hours prior to this meeting. Please contact the City Clerk's Office at 956-402-4100 Ext. 1007 or FAX 956-702-5313 or E-mail dianna.valdez@pharr-tx.gov/imelda.barrera@pharr-tx.gov for further information. Braille is not available.

I, the undersigned authority, do hereby certify that the above notice of said Regular Meeting of the City Commission of the City of Pharr was posted on the bulletin board at City Hall and on the City's web page at www.pharr-tx.gov. This Notice was posted on October 29, 2021 at 4:00 p.m. and will remain posted continuously for at least 72 hours preceding the scheduled time of said Meeting, in compliance with Chapter 551 of the Government Code, Vernon's Texas Codes, Annotated (Open Meetings Act).

WITNESS MY HAND AND SEAL, this 29th day of October 2021.





DIANNA VALDEZ

CITY CLERK

I certify that the attached notice and agenda of items to be considered by the City Commission was removed from the bulletin board of City Hall on the _____ day of _____, 20____ by,

Title: _____

Proclamation



WHEREAS, the monarch butterfly is an iconic North American species whose multigenerational migration and metamorphosis from caterpillar to butterfly has captured the imagination of millions of Americans; and

WHEREAS, 20 years ago, more than one billion Eastern monarch butterflies migrated to Mexico, but when compared to today's numbers, the population has dropped by more than 80%; and

WHEREAS, cities, towns and counties have a critical role to play to help save the monarch butterfly, and the City of Pharr has played a leadership role by dedicating a significant amount of park acreage to native fauna and flora; and

WHEREAS, every citizen of the City of Pharr can make a difference for the monarch by planting native milkweed and other nectar plants to provide habitat for the monarch and pollinators in locations where people live, work, learn, play and worship; and

WHEREAS, on behalf of the people of City of Pharr who have already joined me in creating health habitat for these magnificent butterflies, I am honored to continue to lead the way by signing the National Wildlife Federation's Mayors' Monarch Pledge; and I encourage other city officials across our great nation to take a stand with me so that the monarch butterfly will once again flourish across the continent.

NOW THEREFORE, I, Ambrosio Hernandez, Mayor of the City of Pharr, Texas, by the virtue of the authority vested in me and on behalf of the Commission do hereby proclaim November 1, 2021 as:

"Mayors' Monarch Pledge Day"

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the City of Pharr to be affixed on this 1st day of November, 2021.

CITY OF PHARR

Ambrosio "Amos" Hernandez, Mayor

ATTEST:

Dianna Valdez, City Clerk



AGENDA MEMORANDUM



BOARD: City Commission

AGENDA ITEM #: 4.A.

DATE SUBMITTED:

MEETING DATE: November 1, 2021

FROM: Imelda Barrera, Assistant City Clerk

DEPARTMENT: Administration

DIRECTOR:

Agenda Item: Public hearing on development services cases

Classification: Regular

(* If closed session, City Attorney must review and approve.)

Issue:

Fiscal Consideration:

Staff Recommendation:

Alternatives:

Exclude Material from Public Packet? No

Reason:

ROUTING:

Imelda Barrera
Karla Saavedra
Patricia Rigney
City Management Office

Created -



AGENDA MEMORANDUM



BOARD: City Commission

AGENDA ITEM #: 5.A.

DATE SUBMITTED: October 27, 2021

MEETING DATE: November 1, 2021

FROM: Omar Anzaldua, City Engineer

DEPARTMENT: Engineering

DIRECTOR: Omar Anzaldua

Agenda Item: City Engineer's Report

Classification: Regular

(* If closed session, City Attorney must review and approve.)

Issue: City Engineer's Report

Fiscal Consideration: N/A

Staff Recommendation: City Engineer's Report

Alternatives: N/A

Exclude Material from Public Packet? No

Reason: N/A

ROUTING:

Omar Anzaldua

Omar Anzaldua

City Management Office

Created/Initiated - 10/27/2021

Approved - 10/29/2021

Final Approval - 10/29/2021



Report on Capital Improvement Project Activity November 2021

City Engineer - Omar Anzaldua Jr., PE, CFM, PMP, CCM
Monday, November 01, 2021



Pharr
Engineering



CIP MEETING



Construction

1. Bridge Facility Expansion Phase II (NTP 02/15/2021)
2. Northside Community Center (NTP 12/02/2020)
3. City Hall 1st Floor Renovations (NTP 07/23/2020)
4. Aquatic Facility (NTP 11/01/2019)
5. Bridge Northbound Lane Expansion and 2nd BSIF Exit (NTP 09/08/2020)
6. Lift Station No. 30 (BO 02/02/21)
7. WWTP Oxidation Ditch No. 2 and Electrical Improvements Project Phase I (NTP 10/19/2020)
8. Various Parking Lot Improvements (BO 01/19/2021)
9. Javelina Drive Monument Signs (BO 06/08/2021)



Pharr
Engineering



OVERVIEW

Architect: The Warren Group Architects, Inc.
Contractor: International Consulting Engineers
CM: Easton Acquisitions, Inc.
Notice to Proceed: Feb. 15, 2021
Contract Time: 120 + 35 (ETC July 20, 2021)
SC:
FC: 184 (118.71%)
Time to Date: 259 (167.10%)
Contract Amount: \$598,000.00
Change Orders: \$58,562.00
Current Contract: \$656,562.00
Placed to Date: \$491,070.00 (74.79%)
Description: The project generally consists of additional improvements that include parking, southwest entrance, curtain wall, fence, roof, exterior lighting, and exterior finish. Location is at 9901 S. Cage Blvd.
Status: A final walk-thru was conducted on August 18, 2021.
Next Step: Finish punch list and close-out project.



Bridge Facility Expansion Phase II (1/1)



Pharr
Engineering



CONSTRUCTION

Architect: The Warren Group Architects, Inc.
Contractor: Davila Construction, Inc.
CM: Brownstone Consultants, LLC
Notice to Proceed: Dec. 2, 2020
Contract Time: 273 (ETC Aug. 31, 2021)
Time to Date: 334 (122.34%)
Contract Amount: \$7,500,000.00
Change Orders: \$0.00
Current Contract: \$7,500,000.00
Placed to Date: \$4,865,300.35 (64.87%)

Description: The project generally consists of a new 12,990 sq. ft. community center that will house a lecture hall and computer lab, a French garden with reflective pool and walking trail, and an amphitheater. The location is at 1121 E. Nolana Lp.

Status: Restrooms in garden are enclosed. Flatwork around the fountain is complete. Drywall inside the Community Center is complete.

Next Step: Wiring will be run inside the Community Center. Concrete will be poured at the amphitheater for the stage.



Northside Community Center (1/1)

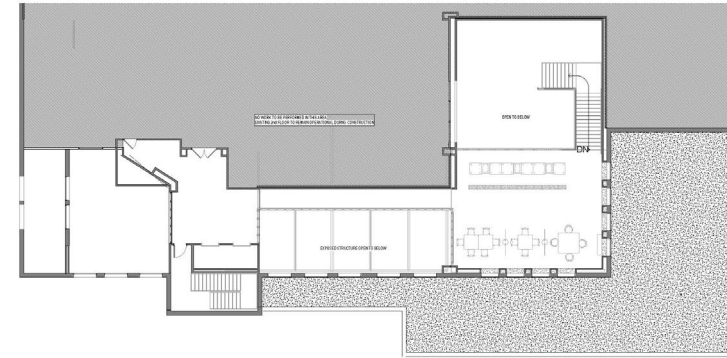


Pharr
Engineering

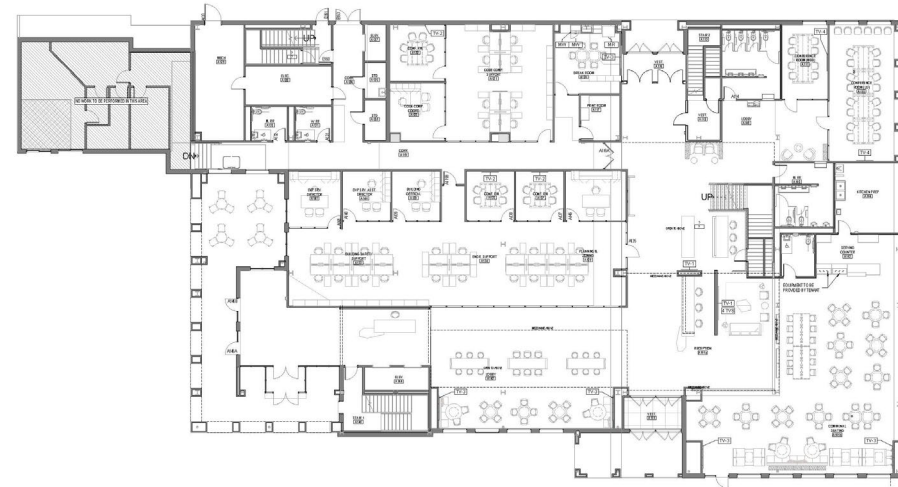


CONSTRUCTION

Architect: **GOERO International, LLC**
Contractor: **NM Contracting, LLC**
CM: **Brownstone Consultants, LLC**
Notice to Proceed: **July 23, 2020**
Contract Time: **207**
SC: **Feb. 14, 2021 (207 = 100%)**
FC: **March 01, 2021 (222 = 107.25%)**
Time to Date: **438 (211.59%)**
Contract Amount: **\$2,349,203.00**
Change Orders: **\$0.00**
Current Contract: **\$2,349,203**
Placed to Date: **\$2,206,389.17 (93.92%)**
Description: The project generally consists of renovations to 17,629 sq. ft. of City Hall 1st Floor. Renovations include a new mezzanine, deli, offices, assembly areas, and sprinkler system.
Status: Contractor has completed the project.
Next Step: Change Order No. 1 in the amount of \$3,938.57 and final acceptance will be considered at the November 01, 2021, CC meeting.



L1 | MEZZANINE FFE PLAN



A1 | FIRST FLOOR FFE PLAN

City Hall 1st Floor Renovations (1/1)

Architect: The Warren Group Architects, Inc.
Contractor: D. Wilson Const. Co.
CM: Easton Acquisitions, Inc.
Notice to Proceed: Nov. 1, 2019
Contract Time: 550 + 60 + 101 (ETC
October 2021)
Time to Date: 731 (102.81%)
Contract Amount: \$23,165,208.00
Change Orders: \$1,383,391.59
Current Contract: \$24,548,599.59
Placed to Date: \$22,906,771.55 (93.31%)

Description: The project generally consists of approximately 72,796 sq. ft. of new aquatic facility with an alternate second level build out of 1,212 sq. ft. Features include a 50-meter competition pool, diving pool, and spectator seating. The project also includes site work, landscaping, and irrigation. The location is at 3001 N. Cage Blvd.

Status: Contractor has started applying plaster to the diving pool.

Next Step: Contractor will finish plastering the diving and competition pools, and then fill the pools with water to cure the material.



10-26-2021

Aquatic Facility (1/1)



Pharr
Engineering



CONSTRUCTION

Engineer: **TEDSI Infrastructure Group, Inc.**
Contractor: **International Consulting Engineers**
CM: **Brownstone Consultants, LLC**
Notice to Proceed: **Sept. 8, 2020**
Contract Time: **545 + 26 (ETC April 02, 2022)**
Time to Date: **419 (73.38%)**
Contract Amount: **\$7,463,934.37**
Change Orders: **\$48,137.23**
Current Contract: **\$7,512,071.60**
Placed to Date: **\$ 3,651,458.21 (48.61%)**

Description: The Northbound Lanes generally consists of constructing two (2) additional northbound lanes and super wide load north roadway. The 2nd BSIF Exit generally consists of constructing two (2) new exit truck lanes to the BSIF facility. Improvements also include primary and secondary inspection booths, canopies, and reshaping & regrading of a drain ditch.

Status: Concrete piers and columns for the toll booths are complete.

Next Step: Contractor will be putting up the steel for toll booths.



*Bridge Northbound Lane Expansion and
2nd BSIF Exit (1/1)*

CONSTRUCTION



Pharr
Engineering



Engineer: J&R Engineering, LLC
Contractor: Saenz Brothers Construction, LLC
CM: City of Pharr

Notice to Proceed: July 6, 2021 (new)
Contract Time: 120 (ETC Nov. 03, 2021)
Time to Date: 118 (98.33%)

Contract Amount: \$1,494,704.00
Change Orders: \$0.00

Current Contract: \$1,494,704.00
Placed to Date: \$120,000.00 (8.03%)

Description: The project generally consists of replacing an existing dry pit-wet pit lift station with a new submersible pump station and constructing a new 10-in and 8-in pressure sewer force main piping systems from LS 30 to Thomas Rd. The project is located at 7409 S. Oro Lane.

Status: Contractor is continuing to dewater and excavate.

Next Step: Pour foundation of wet well.



Lift Station No. 30 (1/1)



Pharr
Engineering



CONSTRUCTION

Engineer: **Carollo Engineers, Inc.**
Contractor: **Ferguson Service Systems, Inc.**
CM: **Brownstone Consultants, LLC**
Notice to Proceed: **Oct. 19, 2020**
Contract Time: **300 + 50 (ETC Oct. 03, 2021)**

Time to Date: **378 (108.00%)**
Contract Amount: **\$1,065,000.00**
Change Orders: **\$2,500.00**
Current Contract: **\$1,067,500.00**
Placed to Date: **\$237,900.00 (22.29%)**

Description: The project generally consists of constructing a new WWTP digester area motor control center and replacement of the existing digester area MCC. The project is located at 2400 S. Veterans Blvd.

Status: The MCC building has been set in place.
Next Step: Start pulling wires into the MCC building.



*WWTP Oxidation Ditch No. 2 and
Electrical Improvements Phase I (1/1)*
CONSTRUCTION



Pharr
Engineering



Architect: City of Pharr
Contractor: RDH Site & Concrete, LLC
CM: City of Pharr
Notice to Proceed: May 4, 2021
Contract Time: 90 + 74 (ETC Oct. 15, 2021)
Time to Date: 181 (110.37%)
Contract Amount: \$616,150.50
Change Orders: \$130,259.50
Current Contract: \$746,411.00
Placed to Date: \$292,715.75 (39.22%)
Description: The project generally consists of constructing various new parking lot facilities at a) 202 S. Aster St., b) 1000 E. Eldora Rd., c) 106 N. Cage Blvd., d) 906 E. Sam Houston Ave., and e) 1900 S. Cage Blvd.
Status: Contractor has completed the Overflow and Downtown Parking Lot.
Next Step: Contractor will be starting on the parking lots on W. Moore Rd., E. Sam Houston Ave., and at PD.

Downtown Parking Lot



10-18-2021

Various Parking Lot Improvements (1/1)



Pharr
Engineering



CONSTRUCTION

Architect: Alvarado Architects & Associates, Inc.

Contractor: Facility Solutions Group

CM: City of Pharr

Notice to Proceed: July 26, 2021

Contract Time: 90 (ETC Oct. 24, 2021)

Time to Date: 98 (108.89%)

Contract Amount: \$124,330

Change Orders: \$0.00

Current Contract: \$124,330

Placed to Date: \$0 (0%)

Description: The project generally consists of new monument signs at the two east corners of S. Cage Blvd. and E. Javelina Dr.

Status: Staking has been completed and work has begun on the monument foundation. Concrete is being poured and work is about 50% complete.

Next Step: Project should be complete by end of November.



Javelina Drive Monument Signs (1/1)



Pharr
Engineering



CONSTRUCTION



DEPARTMENT MISSION STATEMENT

“To enhance health, safety and welfare in the City by providing economical, responsive and effective professional engineering and architectural services.”



Pharr
Engineering



END



AGENDA MEMORANDUM



BOARD: City Commission

AGENDA ITEM #: 5.B.

DATE SUBMITTED: October 27, 2021

MEETING DATE: November 1, 2021

FROM: Karla Saavedra, Finance Director

DEPARTMENT: Finance

DIRECTOR: Karla Saavedra

Agenda Item: Submission of 4th Quarter 2020-2021 City of Pharr Investment Report.

Classification: Regular

(* If closed session, City Attorney must review and approve.)

Issue: This is report is to comply with the Public Funds Investment Act Reporting requirements. In the past, we used to report Investments in the Quarterly Report. Finance is now recommending to issue a separate report as part of City Manger's Report every quarter.

Fiscal Consideration: n/a

Staff Recommendation: n/a

Alternatives: n/a

Exclude Material from Public Packet? No

Reason: n/a

ROUTING:

Karla Saavedra

Created/Initiated - 10/27/2021

Karla Saavedra

Approved - 10/29/2021

Karla Saavedra

Approved - 10/29/2021

Patricia Rigney

Approved - 10/29/2021

City Management Office

Final Approval - 10/29/2021

City of Pharr Investment Report 4th Quarter FY 2020-2021



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City of Pharr, TX

Investment Report Summary

September 30, 2021



COMPLIANCE

This report complies with the requirements of the Public Funds Investment Act as well as the City of Pharr's adopted investment policy. The City is in compliance with all provisions of the Public Funds Investment Act and the City of Pharr's investment policy. The City's investment portfolio includes activity in demand deposits, Certificates of Deposits and Investment Pools.

LIQUIDITY

The greatest length of maturity for all of our investments is 418 days. The weighted average maturity including demand deposits is 12.28 day and 11.40 day without demand deposits. Both of these amounts are within legal and City requirements.

CHANGE IN BOOK AND MARKET VALUE

The investment book value was roughly **\$110.82 million** and had increased by approximately \$24.46 million from the previous quarter. This increase is mainly due to the bond proceeds recently issued for the Bridge Twin Expansion Project.

PORTFOLIO YIELD

The portfolio yield of 1.17% was higher than the benchmark yields on the six month T-Bill and Average Federal Funds Rate, which were 0.08% and 0.07% respectively (per Federal Reserve website yield postings). The spread between the portfolio yield and the benchmark yield is mainly due to the depository's favorable interest rate. Safety and liquidity is a greater concern than yield.

INVESTMENT MATURITIES/PURCHASES

The attached schedules are also a part of this investment report.

Karla Saavedra, CGFO
Finance Director



City of Pharr, TX

Comparison of Portfolio to Policy Limits

as of September 30, 2021

Limits on Types of Securities	Target Investment Level	Portfolio Cap	Actual Percentage of Portfolio	Positive/(Negative) % Variance Policy Limits
Demand Deposits	N/A	N/A	93.00%	N/A
Certificates of Deposits	10%	30%	0.56%	29.44%
U.S. Treasury Obligations	30%	80%	0.00%	80.00%
U.S. Government Securities	30%	50%	0.00%	50.00%
Public Funds Investment Pools	30%	80%	6.45%	73.55%

Limits on Maturities	Minimum Allowable % of Portfolio	Actual Percentage of Portfolio	Positive/(Negative) % Variance Policy Limits
Available within 1 month	25%	93.00%	68.00%
Available within 3 months	33%	93.00%	60.00%
Available within 6 months	50%	93.27%	43.27%
Available within 1 year	70%	94.93%	24.93%
Available within 2 years	100%	100%	N/A

	Maximum Allowable	Maximum Actual Maturity	Policy Limit Days Available
Days to Maturity	730	296	434

City of Pharr, TX Market Value Analysis September 30, 2021

Beginning Value-June 30, 2021

\$86,351,672

Investment Activity:

Purchases _____

Net Changes in Market Price _____

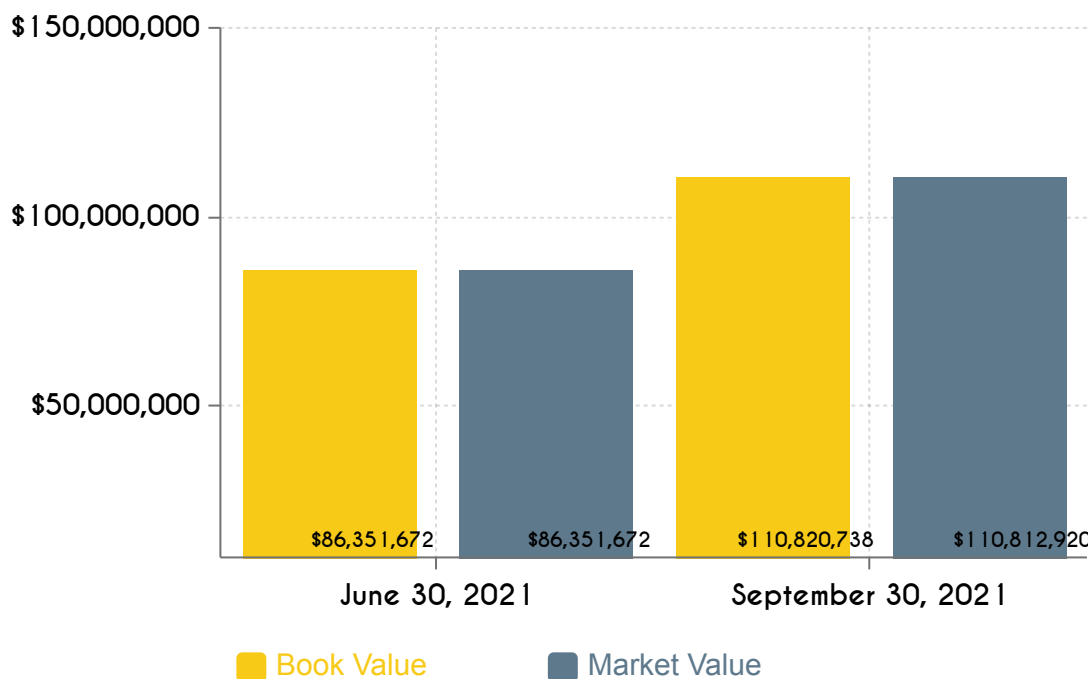
\$7,818

Bank and Pooled Investment Deposits/(Withdrawals)-Net _____

\$24,461,248

\$110,820,738

Ending Value-September 30, 2021





93.00%

or \$103 Million
in Demand Deposits
at Lone Star National Bank
at 1.25% YTM



.56%

or \$619,437 thousand
in Certificates of Deposit
at Lone Star National Bank
at 1.5% YTM



6.45%

or \$2.14
in Investment Pool at TexPool
.09% YTM

12.14

Weighted Average Days to
Maturity

12.14

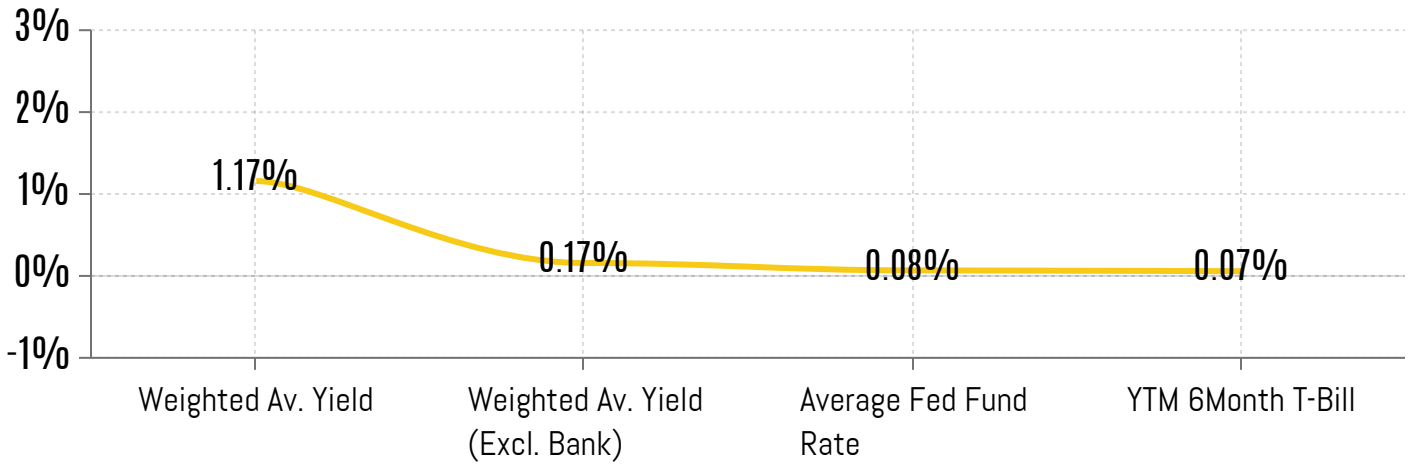
Weighted Average Days to
Maturity-(Excl. depository bank)

City of Pharr, TX

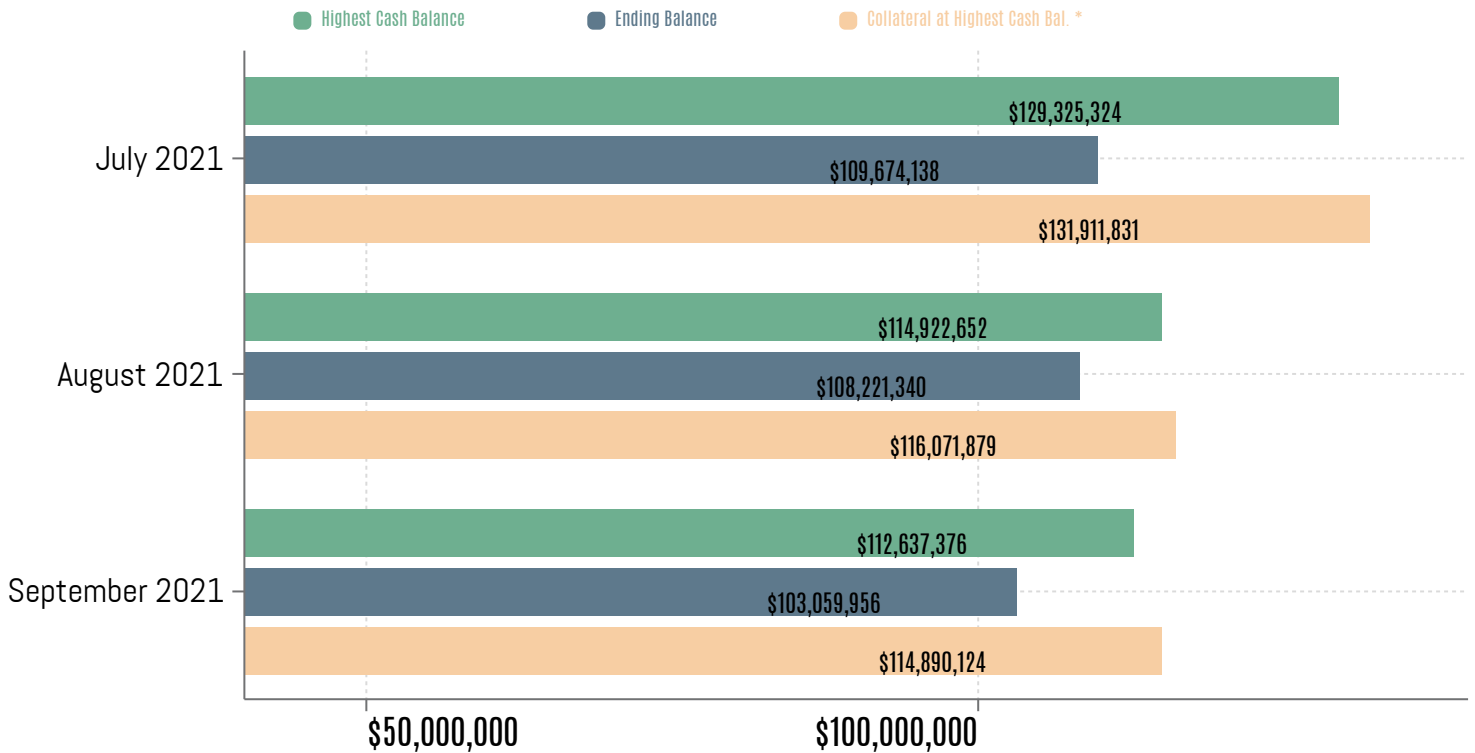
Market Value Analysis

September 30, 2021

Benchmark Rates



Depository Security Collateral Analysis



* Calculated as percentage above highest cash balance per LSNB



AGENDA MEMORANDUM



BOARD: City Commission

AGENDA ITEM #: 6.A.

DATE SUBMITTED: October 29, 2021

MEETING DATE: November 1, 2021

FROM: Imelda Barrera, Assistant City Clerk

DEPARTMENT: Administration

DIRECTOR: Edward Wylie

Agenda Item: Approval of minutes for August 2, 2021 Regular Called Meeting; August 16, 2021 Workshop Meeting and August 16, 2021 Regular Called Meeting.

Classification: Consent

(* If closed session, City Attorney must review and approve.)

Issue: Approval of minutes for August 2, 2021 Regular Called Meeting.

Fiscal Consideration: N/A

Staff Recommendation: Approval of minutes.

Alternatives: N/A

Exclude Material from Public Packet? No

Reason: N/A

ROUTING:

Imelda Barrera
City Management Office

Created/Initiated - 10/29/2021
Final Approval - 10/29/2021

**MINUTES
BOARD OF COMMISSIONERS
REGULAR CALLED MEETING
MONDAY, AUGUST 2, 2021
118 SOUTH CAGE 2nd FLOOR**

The Board of Commissioners of the City of Pharr, Texas, met in a Regular Called Meeting on Monday, August 2, 2021 and following is the record of attendance.

BOARD OF COMMISSIONERS PRESENT: Mayor Ambrosio Hernandez
Comm. Eleazar Guajardo
Comm. Roberto “Bobby” Carrillo
Mayor Pro Tem Daniel Chavez
Comm. Flores

BOARD OF COMMISSIONERS ABSENT: Comm. Ramiro Caballero
Comm. Ricardo Medina

STAFF PRESENT: Edward Wylie, Interim City Manager
Imelda Barrera, Assistant City Clerk
Omar Anzaldúa, City Engineer
Karla Saavedra, Finance Director
Veronica Ramirez, HR Director
Juan Villescas, Municipal Judge
Andrew Harvey, Police Chief
Pilar Rodriguez, Fire Chief
Roland Gomez, Interim Dev. Svcs. Director
Olga Garza, Public Works Director
Ruben Rosales, Public Utilities Director
Isaac Escobedo, Asst. Parks & Rec. Director
Cynthia Garza, CDBG/External Affairs Dir.
Jose Pena, I.T. Director
Luis Bazan, Bridge Director
Ignacio Amezcua, Purchasing Director
Ben Martinez, Asst. E.M.S. Chief
Kenneth Ennis, Public Safety Comm. Dir.
Marcela Beas, Chamber President
Melanie Cano, O.S.E. Director

CITY ATTORNEY Patricia Rigney, City Attorney

ITEM 1. CALL TO ORDER

A) ROLL CALL AND POSSIBLE ACTION ON THE EXCUSING OF ANY ABSENT MEMBER OF THE GOVERNING BOARD.

Mayor Hernandez called the meeting to order at 4:00 p.m. Roll call established a quorum.

August 2, 2021

Comm. Guajardo **moved** to excuse absent members. Comm. Carrillo seconded the motion and when put to a vote, it carried unanimously.

B) PLEDGE OF ALLEGIANCE/INVOCATION

Luis Bazan, Bridge Director, led the pledge of allegiance and said the invocation.

ITEM 2. PUBLIC TESTIMONY

There were no comments from the public.

ITEM 3. PUBLIC HEARINGS

A) PUBLIC HEARING ON DEVELOPMENT SERVICES CASES

Ed Wylie, Interim City Manager, opened the public hearing. There being no comments from the public, the public hearing was closed.

ITEM 4. CITY MANAGER'S REPORTS

A) CITY ENGINEER'S REPORT

Ed Wylie, Interim City Manager, introduced the item and stated all projects were on time and on budget. He further stated City Engineer was available and questions could be entertained at this time.

Ed Wylie, Interim City Manager, recognized Public Utilities Director Ruben Rosales and staff for receiving the Water Systems Helping Water Systems Award for the City of Pharr Public Utilities Department from Texas Commission of Environmental Quality. Mr. Wylie stated there were four categories; Mentoring, Emergency Response, Operations Training & Equipment and Consolidation of Mergers. He further stated the City had met all four categories and the Public Utilities Department was being recognized for the efforts during the freeze in February for assisting neighboring cities in providing laboratory services.

Ruben Rosales, Public Utilities Director, recognized his staff for their hard work and efforts in assisting other cities stay in compliance.

Mayor Hernandez and City Commissioners presented award to Public Utilities staff and thanked them for their hard work.

ITEM 5. CONSENT AGENDA

August 2, 2021

- A) **CONSIDERATION AND ACTION, IF ANY, ON ORDINANCE AMENDING O-2016-34 AND ADOPTING THE DEVELOPMENT AND MAINTENANCE CODES 2017 AND 2018. (3RD AND FINAL READING)** (DEVELOPMENT SERVICES)
- B) **CONSIDERATION AND ACTION, IF ANY, ON ORDINANCE AMENDING ORDINANCE O-2021-17 RELATING TO THE NUMBER OF AUTHORIZED CIVIL SERVICE POSITIONS WITHIN THE FIRE AND POLICE DEPARTMENTS. (2ND READING)** (HR)
- C) **CONSIDERATION AND ACTION, IF ANY, ON DEVELOPMENT SERVICES CASES:**
1. **GILBERTO ESPINO HAS FILED WITH THE PLANNING AND ZONING COMMISSION A REQUEST FOR A CHANGE OF ZONE FROM AGRICULTURAL AND/OR OPEN SPACE DISTRICT (A-O) TO GENERAL BUSINESS DISTRICT (C). THE PROPERTY IS LEGALLY DESCRIBED AS BEING 0.5 ACRES, OUT OF THE SOUTH 5 ACRES, MORE OR LESS, OUT OF LOT 236 KELLY PHARR SUBDIVISION, PHARR, HIDALGO COUNTY, TEXAS. THE PROPERTY IS PHYSICALLY LOCATED AT 2816 S. CAGE BLVD. COZ#210637** (DEVELOPMENT SERVICES)
 2. **GILBERTO ESPINO HAS FILED WITH THE PLANNING AND ZONING COMMISSION A REQUEST FOR A CHANGE OF ZONE FROM AGRICULTURAL AND/OR OPEN SPACE DISTRICT (A-O) TO RESIDENTIAL MULTI-FAMILY DISTRICT (R-MF). THE PROPERTY IS LEGALLY DESCRIBED AS BEING 4.19 ACRES, OUT OF THE SOUTH 5 ACRES, MORE OR LESS, OUT OF LOT 236 KELLY PHARR SUBDIVISION, PHARR, HIDALGO COUNTY, TEXAS. THE PROPERTY IS PHYSICALLY LOCATED AT 2816 S. CAGE BLVD. COZ#210638** (DEVELOPMENT SERVICES)
 3. **RUDY'S TEXAS BAR-B-Q, L.L.C./CARLOS TORRES, D/B/A RUDY'S COUNTRY STORE BAR-B-Q, IS REQUESTING RENEWAL OF THE CONDITIONAL USE PERMIT TO ALLOW THE SALE OF ALCOHOLIC BEVERAGES FOR ON-PREMISE CONSUMPTION IN A LIMITED INDUSTRIAL DISTRICT (L-I). THE PROPERTY IS LEGALLY DESCRIBED AS BEING LOT 1, LOS HOTELES SUBDIVISION, PHARR, HIDALGO COUNTY, TEXAS. THE PROPERTY'S PHYSICAL ADDRESS IS 209 WEST NOLANA LOOP. CUP#040644** (DEVELOPMENT SERVICES)
 4. **CARLOS R. ELIZONDO, D/B/A SEPI'S, IS REQUESTING RENEWAL OF THE CONDITIONAL USE PERMIT TO ALLOW THE SALE OF ALCOHOLIC BEVERAGES FOR ON-PREMISE CONSUMPTION IN A BUSINESS DISTRICT (C-2). THE PROPERTY IS LEGALLY DESCRIBED AS BEING LOT 22, BLOCK 30, PHARR ORIGINAL TOWNSITE, PHARR, HIDALGO COUNTY, TEXAS. THE PROPERTY'S PHYSICAL ADDRESS IS 212 WEST STATE STREET. CUP#190641** (DEVELOPMENT SERVICES)

PLATS:

1. **BARRERA INFRASTRUCTURE GROUP, INC., REPRESENTING JACINTO ANDRES GARCIA, OWNER, IS REQUESTING FINAL PLAT APPROVAL OF THE PROPOSED ANDRES GARCIA SUBDIVISION. THE PROPERTY IS LEGALLY DESCRIBED AS BEING A 1.00 ACRE GROSS TRACT OF LAND LYING AND BEING THE EAST PORTION OF LOT 5, BLOCK 11, A.J. MCCOLL SUBDIVISION, PHARR, HIDALGO COUNTY, TEXAS. THE PROPERTY IS LOCATED WITHIN THE 1200 BLOCK OF WEST GREG DRIVE. SUB#201032** (DEVELOPMENT SERVICES)

August 2, 2021

2. MELDEN & HUNT INC., REPRESENTING HUMBERTO TIJERINA AND EVANAGELINA A. TIJERINA, TRUSTEES, ARE REQUESTING PRELIMINARY PLAT APPROVAL OF THE PROPOSED MASTER PLAN CIRCLE K PHARR SUBDIVISION. THE PROPERTY IS LEGALLY DESCRIBED AS BEING A 6.998 ACRES SITUATED IN THE CITY OF PHARR, CONSISTING OF 6.498 ACRES OUT OF LOT 220 KELLY-PHARR SUBDIVISION AND 0.500 OF ONE ACRE BEING ALL OF LOT 1, ORDONEZ SUBDIVISION, PHARR, HIDALGO COUNTY, TEXAS. THE PROPERTY IS LOCATED WITHIN THE 1800 BLOCK OF SOUTH. SUB#210513 (DEVELOPMENT SERVICES)
3. MELDEN & HUNT INC., REPRESENTING ROSA MARIA A. VIGON, MANAGER FOR F.H. INVESTMENTS, LTD, A TEXAS LIMITED PARTNERSHIP, IS REQUESTING PRELIMINARY PLAT APPROVAL OF THE PROPOSED MASTER PLAN TRACTOR SUPPLY SOUTH PHARR SUBDIVISION. THE PROPERTY IS LEGALLY DESCRIBED AS BEING A 13.355 ACRES OUT OF LOT 317 KELLY-PHARR SUBDIVISION, PHARR, HIDALGO COUNTY, TEXAS. THE PROPERTY IS LOCATED WITHIN THE 6800 BLOCK OF S. CAGE BLVD. SUB#210617 (DEVELOPMENT SERVICES)

Ed Wylie, Interim City Manager, introduced the item and recommended approval of consent agenda.

Comm. Guajardo moved to approve as recommended. Comm. Carrillo seconded the motion and when put to a vote, it carried unanimously.

Ordinance No.'s O-2021-41, O-2021-42 and O-2021-43 are filed with the City Clerk's Office.

At this time, Mayor Hernandez, stated they would deviate and go into closed session. There was no objection.

ITEM 10. CLOSED SESSION

The time being 4:09 p.m., Mayor Hernandez stated the commission would be entering into closed session in accordance with Chapter 551 of the Texas Govt. Code to discuss agenda items listed in the public portion of the agenda and Pursuant to Sections 551.071, 551.072, 551.074, 551.076, 551.084 and 551.087

ITEM 11. RECONVENE

The time being 4:16 p.m., Mayor Hernandez stated the commission would be resuming the open meeting.

ITEM REGULAR AGENDA - OPEN SESSION

ITEM 6. ORDINANCES AND RESOLUTIONS

August 2, 2021

A) CONSIDERATION AND ACTION, IF ANY, ON ORDINANCE ADOPTING A FEE SCHEDULE FOR MUNICIPAL FIBER OPTIC SERVICES. (3RD AND FINAL READING) (DEVELOPMENT SERVICES)

Ed Wylie, Interim City Manager, introduced the item and recommended approval.

Comm. Guajardo moved to approve as recommended. Comm. Carrillo seconded the motion and when put to a vote, it carried unanimously.

Ordinance No. O-2021-44 is filed with the City Clerk's Office.

B) CONSIDERATION AND ACTION, IF ANY, ON RESOLUTION FOR COMMUNITY DEVELOPMENT BLOCK GRANT ACTION PLAN 2021. (GMCD)

Ed Wylie, Interim City Manager, introduced the item and stated he would like to move \$17,500 from Affordable Homes of South Texas to Code Enforcement, to total \$50,000. He further recommended approval.

Comm. Guajardo moved to approve as recommended. Comm. Carrillo seconded the motion and when put to a vote, it carried unanimously.

Resolution No. R-2021-46 is filed with the City Clerk's Office.

C) CONSIDERATION AND ACTION ON RESOLUTION AUTHORIZING THE PHARR POLICE DEPARTMENT TO APPLY FOR THE EDWARD BYRNE MEMORIAL JUSTICE ASSISTANCE GRANT (JAG). (POLICE)

Ed Wylie, Interim City Manager, introduced the item and recommended approval.

Comm. Carrillo moved to approve as recommended. Comm. Guajardo seconded the motion and when put to a vote, it carried unanimously.

Resolution No. R-2021-47 is filed with the City Clerk's Office.

D) CONSIDERATION AND ACTION, IF ANY, ON RESOLUTION APPOINTING/REAPPOINTING SEVEN (7) MEMBERS TO THE PHARR PUBLIC FACILITIES CORPORATION NO. 1 BOARD. (ADMINISTRATION)

Ed Wylie, Interim City Manager, introduced the item and stated members for this board were currently expired and were the previous Commission. He further recommended current Commission for members to this board.

Comm. Carrillo moved to appoint Ambrosio Hernandez, Eleazar Guajardo, Roberto "Bobby" Carrillo, Ramiro Caballero, Daniel Chavez, Ricardo Medina and Itza Flores as members to Pharr Public Facilities Corporation No. 1 Board. Comm. Chavez seconded the motion and when put to a vote, it carried unanimously.

August 2, 2021

Resolution No. R-2021-48 is filed with the City Clerk's Office.

E) CONSIDERATION AND ACTION, IF ANY, ON RESOLUTION APPOINTING/REAPPOINTING SEVEN (7) MEMBERS TO THE PHARR PUBLIC FACILITIES CORPORATION NO. 3 BOARD. (ADMINISTRATION)

Ed Wylie, Interim City Manager, introduced the item and stated members for this board were currently expired and were the previous Commission. He further recommended current Commission for members to this board.

Comm. Carrillo **moved** to appoint Ambrosio Hernandez, Eleazar Guajardo, Roberto "Bobby" Carrillo, Ramiro Caballero, Daniel Chavez, Ricardo Medina and Itza Flores as members to Pharr Public Facilities Corporation No. 3 Board. Comm. Flores seconded the motion and when put to a vote, it carried unanimously.

Resolution No. R-2021-49 is filed with the City Clerk's Office.

ITEM 7. ADMINISTRATIVE

A) CONSIDERATION AND ACTION, IF ANY, TO APPROVE THE SELECTION COMMITTEE'S RANKING OF REQUEST FOR PROPOSALS (RFP), PHARR COMPREHENSIVE PEDESTRIAN SAFETY & WELLNESS PLAN, AND AUTHORIZE CITY MANAGER TO NEGOTIATE AND ENTER INTO AN AGREEMENT WITH TOP-RANKED RESPONDENT, HALFF ASSOCIATES, INC. (ENGINEERING)

Ed Wylie, Interim City Manager, introduced the item and recommended approval.

Comm. Carrillo **moved** to approve as recommended. Comm. Flores seconded the motion and when put to a vote, it carried unanimously.

ITEM 8. PURCHASING

A) CONSIDERATION AND ACTION, IF ANY, AUTHORIZING CITY MANAGER TO NEGOTIATE AND ENTER INTO A CONTRACT WITH GRAYBAR FROM FORT WORTH, TX ON THE PURCHASE OF THE MATERIAL FOR THE FIBER OPTIC NETWORK - CORE BUILD PHASE II PROJECT IN THE AMOUNT OF \$556,032.11 THROUGH OMNIA PARTNERS PURCHASING COOPERATIVE CONTRACT NUMBER EV2370 (PURCHASING)

Ed Wylie, Interim City Manager, introduced the item and stated this was in support of the broadband network project to every home. He stated this was for the fiber optic and recommended approval.

Comm. Flores **moved** to approve as recommended. Comm. Guajardo seconded the motion and when put to a vote, it carried unanimously.

August 2, 2021

- B) CONSIDERATION AND ACTION, IF ANY, AUTHORIZING CITY MANAGER TO NEGOTIATE AND ENTER INTO A CONTRACT WITH STX UNDERGROUND LLC FROM BROWNSVILLE, TX FOR THE LABOR OF THE FIBER OPTIC NETWORK - CORE BUILD PHASE II PROJECT IN THE AMOUNT OF \$1,019,593.00 THROUGH THE INTERLOCAL PURCHASING SYSTEM (TIPS) PURCHASING COOPERATIVE CONTRACT NUMBER 200201-3132 (PURCHASING)**

Ed Wylie, Interim City Manager, introduced the item and stated this was in support of the broadband network project. He stated this was for the labor of project to install the fiber and recommended approval.

Comm. Guajardo **moved** to approve as recommended. Comm. Flores seconded the motion and when put to a vote, it carried unanimously.

ITEM 9. CONTRACTS/AGREEMENTS

- A) CONSIDERATION AND ACTION, IF ANY, ON MEMORANDUM OF UNDERSTANDING BETWEEN HIDALGO POLICE DEPARTMENT AND PHARR POLICE DEPARTMENT OVER JURISDICTIONAL AND INTERAGENCY SUPPORT. **(TABLED)** (POLICE)**

Ed Wylie, Interim City Manager, introduced the item and stated it was a tabled item.

Comm. Guajardo **moved** to un-table item. Comm. Carrillo seconded the motion and when put to a vote, it carried unanimously.

Ed Wylie, Interim City Manager, introduced the item and recommended approval as per Police Chief.

Comm. Guajardo **moved** to approve as recommended. Comm. Carrillo seconded the motion and when put to a vote, it carried unanimously.

- B) CONSIDERATION AND ACTION, IF ANY, AUTHORIZING CITY MANAGER TO EXTEND THE SUPPLY CONTRACT WITH DPC INDUSTRIES, INC. FROM CORPUS CHRISTI, TX FOR THE PURCHASE AND DELIVERY OF CHLORINE & CALCIUM HYPO-CHLORITE. (PURCHASING)**

Ed Wylie, Interim City Manager, introduced the item and stated this was for the Water Plant. He recommended approval to extend supply contract for an additional one (1) year.

Comm. Flores **moved** to approve as recommended. Comm. Carrillo seconded the motion and when put to a vote, it carried unanimously.

August 2, 2021

- C) CONSIDERATION AND ACTION, IF ANY, AUTHORIZING CITY MANAGER TO AMEND THE CONTRACT WITH SEA CONSULTING ENGINEERS FOR PROFESSIONAL ENGINEERING SERVICES FOR THE DESIGN AND RELATED CONSTRUCTION PHASE SERVICES FOR THE 2ND SPAN OF PHARR-REYNOSA BRIDGE PROJECT. (ENGINEERING)**

Ed Wylie, Interim City Manager, introduced the item and stated this was for the design and related construction phase services at an additional \$3,988,334.00. He further recommended approval.

Comm. Carrillo **moved** to approve as recommended. Comm. Chavez seconded the motion and when put to a vote, it carried unanimously.

- D) CONSIDERATION AND ACTION, IS ANY, ON COLLECTIVE BARGAINING LABOR AGREEMENT BETWEEN PHARR POLICE OFFICERS ASSOCIATION AND THE CITY OF PHARR FOR FY2021-2022 THRU FY2023-2024 (ADMINISTRATION)**

Ed Wylie, Interim City Manager, introduced the item and recommended approval.

Typo to agenda wording was corrected to reflect year 2024.

Comm. Carrillo **moved** to approve as recommended. Comm. Chavez seconded the motion and when put to a vote, it carried unanimously.

- E) CONSIDERATION AND ACTION, IS ANY, ON COLLECTIVE BARGAINING LABOR AGREEMENT BETWEEN PHARR PROFESSIONAL FIREFIGHTERS' ASSOCIATION AND THE CITY OF PHARR FOR FY2021-2022 THRU FY2023-2024 (ADMINISTRATION)**

Ed Wylie, Interim City Manager, introduced the item and recommended approval.

Typo to agenda wording was corrected to reflect year 2024.

Comm. Carrillo **moved** to approve as recommended. Comm. Chavez seconded the motion and when put to a vote, it carried unanimously.

ITEM 12. ADJOURNMENT

There being no other business to come before the board, Comm. Guajardo **moved** to adjourn. Comm. Chavez seconded the motion and when put to a vote, the motion carried unanimously. Meeting adjourned at 4:22 p.m.

CITY OF PHARR

AMBROSIO HERNANDEZ
MAYOR

**STATE OF TEXAS
COUNTY OF HIDALGO
CITY OF PHARR**

ON THIS THE 2nd DAY OF AUGUST 2021 the Board of Commissioners of the City of Pharr, Texas convened in a **REGULAR CALLED MEETING** at the Commissioner's Room located at 118 S. Cage, 2nd Floor, Pharr, Texas. The meeting being open to the public and notice of said meeting, giving the date, place, subject, hereof, having been posted in accordance with Chapter 551, Texas Government Code (Open Meetings Act) and there being present a quorum, I, **IMELDA BARRERA, ASSISTANT CITY CLERK**, of the City of Pharr, Texas, certify that this is a true and correct copy of the minutes.

ATTEST:

IMELDA BARRERA, ASSISTANT CITY CLERK

APPROVED:

**MINUTES
BOARD OF COMMISSIONERS
WORKSHOP MEETING
MONDAY, AUGUST 16, 2021
118 SOUTH CAGE 2nd FLOOR**

The Board of Commissioners of the City of Pharr, Texas, met in a Workshop Meeting on Monday, August 16, 2021 and following is the record of attendance.

BOARD OF COMMISSIONERS PRESENT: Mayor Ambrosio Hernandez
Comm. Eleazar Guajardo
Comm. Ramiro Caballero
Comm. Roberto “Bobby” Carrillo
Comm. Ricardo Medina

BOARD OF COMMISSIONERS ABSENT: Mayor Pro Tem Daniel Chavez
Comm. Itza Flores

STAFF PRESENT: Edward Wylie, Interim City Manager
Imelda Barrera, Assistant City Clerk
Omar Anzaldua, City Engineer
Karla Saavedra, Finance Director
Veronica Ramirez, HR Director
Juan Villescas, Municipal Judge
Andrew Harvey, Police Chief
Pilar Rodriguez, Fire Chief
Roland Gomez, Interim Dev. Svcs. Director
Olga Garza, Public Works Director
Ruben Rosales, Public Utilities Director
Sergio Alanis, Parks & Rec. Director
Cynthia Garza, CDBG/External Affairs Dir.
Jose Pena, I.T. Director
Luis Bazan, Bridge Director
Ignacio Amezcua, Purchasing Director
Danny Ramirez, E.M.S. Chief
Kenneth Ennis, Public Safety Comm. Dir.
Marcela Beas, Chamber President
Michelle Lopez, Chief Comm. Officer
Melanie Cano, O.S.E. Director

CITY ATTORNEY Patricia Rigney, City Attorney

ITEM 1. CALL TO ORDER

A) ROLL CALL AND POSSIBLE ACTION ON THE EXCUSING OF ANY ABSENT MEMBER OF THE GOVERNING BOARD. (ADMINISTRATION)

Comm. Guajardo **moved** to excuse absent members. Comm. Carrillo seconded the motion and when put to a vote, it carried unanimously.

August 16, 2021

ITEM 2. PUBLIC TESTIMONY

There were no comments from the public.

ITEM 3. ADMINISTRATIVE

A) WELCOMING REMARKS BY CITY MANAGER AND/OR MAYOR.

Ed Wylie, Interim City Manager, welcomed everyone in attendance and briefly went over this year's budget process.

Ed Wylie, Interim City Manager, introduced Danny Ramirez, Emergency Medical Services Chief, to give a brief discussion on weather conditions.

Danny Ramirez, Emergency Medical Services Chief, gave brief update on Tropical Storm Grace.

Mayor Hernandez made comments on informing the public about weather conditions and preparations via phone messages and social media outlets. Furthermore, he mentioned the maintenance of the drainage canals be kept clean for any and all collection of water from these weather conditions.

Ed Wylie, Interim City Manager, introduced Melanie Cano, Office of Organizational and Strategic Excellence Director.

Melanie Cano, Office of Organizational and Strategic Excellence Director, went over Budget Priorities Citizen Survey results. She stated there were 892 responses regarding key product offerings to include Quality of Life, Public Safety, Customer Service and Economic Development. Mrs. Cano stated the top three (3) services mentioned to invest were Afterschool Program, Athletics Programs and Animal Services. She stated the top three (3) services mentioned for reduction/elimination were None of the Above, Tierra Del Sol Golf Course and Volunteer Services.

Brief discussion and questions were held regarding these services amongst Mayor Hernandez, City Commission and staff in attendance.

B) DISCUSSION OF PENDING AND/OR PROPOSED CITY PROJECTS, PROGRAMS AND INDIVIDUAL DEPARTMENTAL DIVISIONS, DUTIES, ROLES, STRUCTURE, EVALUATION; DISCUSSION OF THE FISCAL YEAR 2021-2022 BUDGET FOR ALL CITY GENERALLY AND INCLUDING THE FOLLOWING ENTITIES; TAX INCREMENT REINVESTMENT ZONE (TIRZ); TAX INCREMENT REINVESTMENT ZONE II (TIRZ II); PHARR ECONOMIC DEVELOPMENT CORPORATION II (PEDC II); PHARR HOUSING FINANCE CORPORATION (PHFC); PHARR HOUSING FINANCE CORPORATION JACKSON PLACE APTS.; AND PHARR PUBLIC FACILITIES

August 16, 2021

CORPORATION; DISCUSSION ON CAPITAL PURCHASES, CAPITAL IMPROVEMENTS PROJECTS, PERSONNEL, AND DEBT. (ADMINISTRATION)

Ed Wylie, Interim City Manager, introduced the item and called upon Karla Saavedra, Finance Director, for presentation on the city-wide budget.

Karla Saavedra, Finance Director, gave a recap of Fiscal Year 2021 – 2021 budget and current budget challenges. She also went over the new Fiscal Year 2021 – 2022 city-wide budget.

Pilar Rodriguez, Fire Chief, presented brief overview of Fleet Lease Proposal for City of Pharr non-emergency fleet and emergency fleet.

Karla Saavedra, Finance Director, continued with overview of Fiscal Year 2021-2022 city-wide budget changes to include capital outlay purchases. In summary, she reported the city-wide total budget was \$306,002,800.

Omar Anzaldua, City Engineer, went over Capital Improvements Project Fiscal Year 2021 – 2022 and gave an overview of projects currently under design & construction and proposed projects for capital outlay funding.

Mayor Hernandez left the meeting at this point of the agenda. The time being 11:25 a.m.

ITEM 4. CLOSED SESSION

The time being 11:44 a.m., Comm. Carrillo stated the commission would be entering into closed session in accordance with Chapter 551 of the Texas Govt. Code to discuss agenda items listed in the public portion of the agenda and Pursuant to Sections 551.071, 551.072, 551.074, 551.076, 551.084 and 551.087

ITEM 5. RECONVENE

The time being 2:05 p.m., Comm. Carrillo stated the commission would be resuming the open meeting.

ITEM 6. ADJOURNMENT

There being no other business to come before the board, Comm. Medina **moved** to adjourn. Comm. Guajardo seconded the motion and when put to a vote, the motion carried unanimously. Meeting adjourned at 2:05 p.m.

CITY OF PHARR

AMBROSIO HERNANDEZ
MAYOR

**STATE OF TEXAS
COUNTY OF HIDALGO
CITY OF PHARR**

ON THIS THE 16th DAY OF AUGUST 2021 the Board of Commissioners of the City of Pharr, Texas convened in a **WORKSHOP MEETING** at the Jose “Pepe” Salinas Memorial Civic Center, 1011 W. Kelly Ave., Pharr, Texas. The meeting being open to the public and notice of said meeting, giving the date, place, subject, hereof, having been posted in accordance with Chapter 551, Texas Government Code (Open Meetings Act) and there being present a quorum, I, **IMELDA BARRERA, ASSISTANT CITY CLERK**, of the City of Pharr, Texas, certify that this is a true and correct copy of the minutes.

ATTEST:

IMELDA BARRERA, ASSISTANT CITY CLERK

APPROVED:

**MINUTES
BOARD OF COMMISSIONERS
REGULAR CALLED MEETING
MONDAY, AUGUST 16, 2021
118 SOUTH CAGE 2nd FLOOR**

The Board of Commissioners of the City of Pharr, Texas, met in a Regular Called Meeting on Monday, August 16, 2021 and following is the record of attendance.

BOARD OF COMMISSIONERS PRESENT: Mayor Ambrosio Hernandez (Arrived @ 4:05pm)
Comm. Eleazar Guajardo
Comm. Roberto “Bobby” Carrillo
Comm. Ramiro Caballero
Comm. Ricardo Medina
Comm. Itza Flores

BOARD OF COMMISSIONERS ABSENT: Mayor Pro Tem Daniel Chavez

STAFF PRESENT: Edward Wylie, Interim City Manager
Anali Alanis, Assistant City Manager
Imelda Barrera, Assistant City Clerk
Omar Anzaldua, City Engineer
Karla Saavedra, Finance Director
Veronica Ramirez, HR Director
Juan Villescas, Municipal Judge
Andrew Harvey, Police Chief
Pilar Rodriguez, Fire Chief
Roland Gomez, Interim Dev. Svcs. Director
Olga Garza, Public Works Director
Ruben Rosales, Public Utilities Director
Sergio Alanis, Parks & Rec. Director
Adolfo Garcia, Library Director
Jose Pena, I.T. Director
Luis Bazan, Bridge Director
Ignacio Amezcua, Purchasing Director
Ben Martinez, Asst. E.M.S. Chief
Kenneth Ennis, Public Safety Comm. Dir.
Marcela Beas, Chamber President
Melanie Cano, O.S.E. Director

CITY ATTORNEY Patricia Rigney, City Attorney

ITEM 1. CALL TO ORDER

A) ROLL CALL AND POSSIBLE ACTION ON THE EXCUSING OF ANY ABSENT MEMBER OF THE GOVERNING BOARD. (ADMINISTRATION)

August 16, 2021

Alternate Mayor Pro Tem Carrillo called the meeting to order at 4:02 p.m. Roll call established a quorum.

Comm. Guajardo **moved** to excuse absent members. Comm. Medina seconded the motion and when put to a vote, it carried unanimously.

B) PLEDGE OF ALLEGIANCE/INVOCATION (ADMINISTRATION)

Luis Bazan, Bridge Director, led the pledge of allegiance and said the invocation.

ITEM 2. PUBLIC TESTIMONY

There were no comments from the public.

ITEM 3. PUBLIC HEARINGS

A) PUBLIC HEARING ON DEVELOPMENT SERVICES CASES

Ed Wylie, Interim City Manager, opened the public hearing. There being no comments from the public, the public hearing was closed.

ITEM 4. CITY MANAGER'S REPORTS

A) SUBMISSION OF PROPERTY TAX COLLECTION REPORT FOR JULY 2021.

Ed Wylie, Interim City Manager, introduced the item. He reported the City of Pharr had an increase of .47% and 6.75% increase in delinquent tax collections.

B) SUBMISSION OF SALES TAX COLLECTION REPORT FOR AUGUST 2021.

Ed Wylie, Interim City Manager, introduced the item. He reported the City of Pharr had an increase of 32.84% for year-to-date compared to last year and 23.64% true growth.

ITEM 5. CONSENT AGENDA

A) CONSIDERATION AND ACTION, IF ANY, ON DEVELOPMENT SERVICES CASES:

1. LAS MARGARITAS RESTAURANT INC. REQUESTED A CONDITIONAL USE PERMIT TO ALLOW THE SALE OF ALCOHOLIC BEVERAGES FOR ON-PREMISE CONSUMPTION IN A BUSINESS DISTRICT (C-2). THE PROPERTY IS LEGALLY DESCRIBED AS BEING ALL OF LOTS 7-10, BLOCK 28, PHARR ORIGINAL TOWNSITE SUBDIVISION, PHARR, HIDALGO COUNTY, TEXAS. THE PROPERTY IS PHYSICALLY LOCATED AT 106 NORTH CAGE BOULEVARD. CUP#210740

August 16, 2021

2. **GABRIELA'S HEAVENLY WINGS, D/B/A WINGSTOP, REQUESTED A CONDITIONAL USE PERMIT TO ALLOW THE SALE OF ALCOHOLIC BEVERAGES FOR ON-PREMISE CONSUMPTION IN A GENERAL BUSINESS DISTRICT (C). THE PROPERTY IS LEGALLY DESCRIBED AS BEING LOT 2, PLEASANTON SUBDIVISION, PHARR, HIDALGO COUNTY, TEXAS. THE PROPERTY'S PHYSICAL ADDRESS IS 1701 SOUTH CAGE BOULEVARD, SUITE 105. CUP#100934**
3. **MARIO ALBERTO TORRES D/B/A ON THE GRILL RESTAURANT, REQUESTED A CONDITIONAL USE PERMIT TO ALLOW THE SALE OF ALCOHOLIC BEVERAGES FOR ON-PREMISE CONSUMPTION IN A GENERAL BUSINESS DISTRICT (C). THE PROPERTY IS LEGALLY DESCRIBED AS 0.075 OF AN ACRE, MORE OR LESS, OUT OF LOT 1, JACKSON RIDGE COURT SUBDIVISION, PHARR, HIDALGO COUNTY, TEXAS. THE PROPERTY'S PHYSICAL ADDRESS IS 1201 SOUTH JACKSON ROAD, SUITE 7. CUP#170740**
4. **SMOKIN' MOON, LLC., REQUESTED RENEWAL OF THE CONDITIONAL USE PERMIT AND LATE HOURS PERMIT TO ALLOW THE SALE OF ALCOHOLIC BEVERAGES FOR ON-PREMISE CONSUMPTION IN A HEAVY COMMERCIAL DISTRICT (H-C). THE PROPERTY IS LEGALLY DESCRIBED AS BEING ALL OF LOT 1-A AND THE EAST 26.7 FEET OF LOT 1, ALBRAD UNIT NO. 1 SUBDIVISION, PHARR, HIDALGO COUNTY, TEXAS. THE PROPERTY'S PHYSICAL ADDRESS IS 1617 WEST POLK AVENUE. CUP#180648**

Ed Wylie, Interim City Manager, introduced the item and recommended approval of consent agenda.

Comm. Medina **moved** to approve as recommended. Comm. Flores seconded the motion and when put to a vote, it carried unanimously.

ITEM REGULAR AGENDA - OPEN SESSION

ITEM 6. ORDINANCES AND RESOLUTIONS

- A) CONSIDERATION AND ACTION, IF ANY, ON ORDINANCE AMENDING ORDINANCE O-2021-17 RELATING TO THE NUMBER OF AUTHORIZED CIVIL SERVICE POSITIONS WITHIN THE FIRE AND POLICE DEPARTMENTS. (3RD AND FINAL READING) (HR)**

Ed Wylie, Interim City Manager, introduced the item and recommended approval.

Comm. Guajardo **moved** to approve as recommended. Comm. Flores seconded the motion and when put to a vote, it carried unanimously.

Ordinance No. O-2021-45 is filed with the City Clerk's Office.

- B) CONSIDERATION AND ACTION, IF ANY, ON ORDINANCE AMENDING APPENDIX A, ZONING, ARTICLE VII, SECTION 1.70, A(7), TO THE CODE OF ORDINANCES. (1ST READING) (DEVELOPMENT SERVICES)**

August 16, 2021

Ed Wylie, Interim City Manager, introduced the item and stated the City would like to be more developer friendly. He stated setback Ordinance for Expressway was 70' and recommended changing to 50' to allow for more room to build.

Comm. Guajardo **moved** to approve as recommended. Comm. Medina seconded the motion and when put to a vote, it carried unanimously.

C) CONSIDERATION AND ACTION, IF ANY, ON RESOLUTION APPOINTING/RE-APPOINTING THREE (3) MEMBERS TO THE PEDC II BOARD OF DIRECTORS. (PEDC II)

Ed Wylie, Interim City Manager, introduced the item and stated the terms for Ambrosio Hernandez, Ramiro Caballero and Ricardo Medina would be expiring soon and members were wishing to be reappointed.

Comm. Guajardo **moved** to re-appoint Ambrosio Hernandez, Ramiro Caballero and Ricardo Medina to PEDC II Board of Directors. Comm. Flores seconded the motion and when put to a vote, it carried unanimously.

Resolution No. R-2021-50 is filed with the City Clerk's Office.

ITEM 7. ADMINISTRATIVE

A) DISCUSSION AND ACTION FOR VOTE ON PROPOSED TAX RATE INCREASE AND SCHEDULE PUBLIC HEARING. (FINANCE)

Ed Wylie, Interim City Manager, introduced the item.

Karla Saavedra, Finance Director, stated this was for vote of proposed tax rate and schedule date for the public hearing. She stated the proposed tax rate was \$.7176 which was the same as last year but higher than the no-new tax revenue rate of \$.7899. Mrs. Saavedra announced the public hearing would take place on September 7, 2021 at 4:00 p.m. She further stated item required a record vote.

Comm. Guajardo **moved** to approve the proposed tax rate increase of .7176¢; Comm. Carrillo **moved** to approve the proposed tax rate increase of .7176¢; Comm. Caballero **moved** to approve the proposed tax rate increase of .7176¢; Comm. Medina **moved** to approve the proposed tax rate increase of .7176¢; and Comm. Flores **moved** to approve the proposed tax rate increase of .7176¢. The motion carried by majority vote.

ITEM 8. PURCHASING

August 16, 2021

- A) CONSIDERATION AND ACTION, IF ANY, AUTHORIZING THE PHARR POLICE DEPARTMENT TO PURCHASE TWO (2) 2020 BMW R1250RT-P POLICE MOTORCYCLES FOR A TOTAL OF \$54,806.72 FROM ALAMO BMW OF BOERNE, TEXAS (POLICE)**

Ed Wylie, Interim City Manager, introduced the item and stated this was for an additional two (2) motorcycles to be purchased with excess funds this fiscal year. He recommended approval.

Comm. Medina **moved** to approve as recommended. Comm. Flores seconded the motion and when put to a vote, it carried unanimously.

Mayor Hernandez arrived at this point of the agenda. The time being 4:05 p.m.

ITEM 9. CONTRACTS/AGREEMENTS

- A) CONSIDERATION AND ACTION, IF ANY, AUTHORIZING CITY MANAGER TO EXTEND INTERLOCAL AGREEMENT WITH CITY OF WESLACO FOR ANIMAL CONTROL OPERATIONS AND IMPOUNDMENT FOR AN ADDITIONAL YEAR. (PUBLIC WORKS)**

Ed Wylie, Interim City Manager, introduced the item and recommended to extend agreement for one (1) year at the same rate.

Comm. Guajardo **moved** to approve as recommended. Comm. Flores seconded the motion and when put to a vote, it carried unanimously.

- B) CONSIDERATION AND ACTION, AUTHORIZING THE CITY MANAGER TO ENTER INTO AN AFFILIATION AGREEMENT WITH THE SCHOOL OF EMS, TO ALLOW THEIR EMT STUDENTS TO DO CLINICAL RIDE OUTS WITH PHARR EMERGENCY MEDICAL SERVICES (EMERGENCY MEDICAL SERVICES)**

Ed Wylie, Interim City Manager, introduced the item and stated this was agreement for training hours with Pharr E.M.S. He recommended approval.

Comm. Medina **moved** to approve as recommended. Comm. Flores seconded the motion and when put to a vote, it carried unanimously.

- C) CONSIDERATION AND ACTION, AUTHORIZING THE CITY MANAGER TO ENTER INTO AN AFFILIATION AGREEMENT WITH THE ELITE MEDICAL TRAINING SOLUTIONS, TO ALLOW THEIR EMT STUDENTS TO DO CLINICAL RIDE OUTS WITH PHARR EMERGENCY MEDICAL SERVICES (EMERGENCY MEDICAL SERVICES)**

August 16, 2021

Ed Wylie, Interim City Manager, introduced the item and stated this was agreement for training hours with Pharr E.M.S. He recommended approval.

Comm. Flores **moved** to approve as recommended. Comm. Caballero seconded the motion and when put to a vote, it carried unanimously.

D) CONSIDERATION AND ACTION, AUTHORIZING THE CITY MANAGER TO ENTER INTO A LETTER OF UNDERSTANDING (LOU) BETWEEN THE CITY OF PHARR EMS AND U.S. IMMIGRATION AND CUSTOMS ENFORCEMENT (ICE) HEALTH SERVICE CORPS (IHSC) FOR PAYMENT OF MEDICAL CARE PROVIDED TO DETAINEES. (EMERGENCY MEDICAL SERVICES)

Ed Wylie, Interim City Manager, introduced the item and stated this was for guaranteed payment to City of Pharr when I.C.E. called for medical care for a detainee. He recommended approval.

Comm. Guajardo **moved** to approve as recommended. Comm. Medina seconded the motion and when put to a vote, it carried unanimously.

E) CONSIDERATION AND ACTION, AUTHORIZING THE CITY MANAGER TO ENTER INTO AN AFFILIATION AGREEMENT WITH THE TEXAS STATE TECHNICAL COLLEGE, TO ALLOW THEIR EMT STUDENTS TO DO CLINICAL RIDE OUTS WITH PHARR EMERGENCY MEDICAL SERVICE (EMERGENCY MEDICAL SERVICES)

Ed Wylie, Interim City Manager, introduced the item and stated this was agreement for training hours with Pharr E.M.S. He recommended approval.

Comm. Flores **moved** to approve as recommended. Comm. Medina seconded the motion and when put to a vote, it carried unanimously.

F) CONSIDERATION AND ACTION, IF ANY, AUTHORIZING THE CITY MANAGER TO AMEND THE LEASE AGREEMENT STYKER FOR EQUIPMENT FOR 7 NEW AMBULANCES. (EMERGENCY MEDICAL SERVICES)

Ed Wylie, Interim City Manager, introduced the item and stated this was to equip the seven (7) new ambulances with the same equipment. He recommended approval.

Comm. Guajardo **moved** to approve as recommended. Comm. Carrillo seconded the motion and when put to a vote, it carried unanimously.

G) CONSIDERATION AND ACTION, IF ANY, AUTHORIZING CITY MANAGER TO NEGOTIATE AND ENTER INTO A CONTRACT WITH HALFF ASSOCIATES

August 16, 2021

FOR PROFESSIONAL ENGINEERING SERVICES FOR THE PHARR INTERNATIONAL BRIDGE MAINTENANCE MASTER PLAN. (ENGINEERING)

Ed Wylie, Interim City Manager, introduced the item and stated a maintenance master plan was needed to assess pavement conditions and prioritize a list of maintenance projects for Pharr International Bridge. He further stated engineering fee was \$32,400 and recommended approval.

Comm. Guajardo **moved** to approve as recommended. Comm. Carrillo seconded the motion and when put to a vote, it carried unanimously.

H) CONSIDERATION AND ACTION, IF ANY, AUTHORIZING THE CITY MANAGER TO EXTEND THE MASTER SERVICE AGREEMENT FOR CONSTRUCTION MATERIAL TESTING (CMT) & GEOTECH SERVICES WITH THE GEOTECHNICAL FIRMS CURRENTLY ON THE CITY OF PHARR'S ROTATION LIST. (ENGINEERING)

Ed Wylie, Interim City Manager, introduced the item and stated this was to extend the rotation list one (1) more year. He recommended approval.

Comm. Guajardo **moved** to approve as recommended. Comm. Flores seconded the motion and when put to a vote, it carried unanimously.

I) CONSIDERATION AND ACTION, IF ANY AUTHORIZING CITY MANAGER TO ENTER INTO A SERVICE AGREEMENT WITH AIRGAS USA, LLC OUT OF MCALLEN, TX, TO SUPPLY OXYGEN TO PHARR EMS THROUGH TEXAS SMARTBUY CONTRACT NO. 430-M2 (EMERGENCY MEDICAL SERVICES)

Ed Wylie, Interim City Manager, introduced the item and stated this was for oxygen tanks and supply at stations. He recommended approval.

Comm. Medina **moved** to approve as recommended. Comm. Carrillo seconded the motion and when put to a vote, it carried unanimously.

J) CONSIDERATION AND ACTION, IF ANY, ON CONTRACT WITH DEEP IN THE HEART ART FOUNDRY FOR ADDITIONAL WORK ON GODDESS OF NIKE STATUE PROJECT. (ADMINISTRATION)

Ed Wylie, Interim City Manager, introduced the item and stated this was for additional work to statue for downtown Pharr area. He recommended approval.

Comm. Carrillo **moved** to approve as recommended. Comm. Guajardo seconded the motion and when put to a vote, it carried unanimously.

At this time, Mayor Hernandez, stated they would deviate and go into closed session. There was no objection.

ITEM 11. CLOSED SESSION

The time being 4:11 p.m., Mayor Hernandez stated the commission would be entering into closed session in accordance with Chapter 551 of the Texas Govt. Code to discuss agenda items listed in the public portion of the agenda and Pursuant to Sections 551.071, 551.072, 551.074, 551.076, 551.084 and 551.087

ITEM 12. RECONVENE

The time being 4:22 p.m., Mayor Hernandez stated the commission would be resuming the open meeting.

ITEM 10. LEGAL

A) CONSULTATION WITH LEGAL, AND ACTION, IF ANY REGARDING UNITED STATES OF AMERICA V. ACRES OF LAND, MORE OR LESS,, SITUATED IN HIDALGO COUNTY, TEXAS; HIDALGO COUNTY IRRIGATION DISTRICT NO.2, CITY OF PHARR, ET AL., (LEGAL)

Ed Wylie, Interim City Manager, introduced the item.

Comm. Guajardo **moved** to approve as discussed in executive session. Comm. Carrillo seconded the motion and when put to a vote, it carried unanimously.

ITEM 13. ADJOURNMENT

There being no other business to come before the board, Comm. Carrillo **moved** to adjourn. Comm. Guajardo seconded the motion and when put to a vote, the motion carried unanimously. Meeting adjourned at 4:22 p.m.

CITY OF PHARR

AMBROSIO HERNANDEZ
MAYOR

**STATE OF TEXAS
COUNTY OF HIDALGO
CITY OF PHARR**

ON THIS THE 16th DAY OF AUGUST 2021 the Board of Commissioners of the City of Pharr, Texas convened in a **REGULAR CALLED MEETING** at the Commissioner's Room located at 118 S. Cage, 2nd Floor, Pharr, Texas. The meeting

August 16, 2021

ATTEST:

APPROVED:



AGENDA MEMORANDUM



BOARD: City Commission

AGENDA ITEM #: 6.B.

DATE SUBMITTED: October 29, 2021

MEETING DATE: November 1, 2021

FROM: Dianna Valdez, City Clerk

DEPARTMENT: Administration

DIRECTOR: Anali Alanis

Agenda Item: Consideration and action, if any, on Ordinance amending Ordinance O-2021-45 relating to the number of authorized civil service positions within the Fire and Police Departments. **(3rd and Final Reading)**

Classification: Regular

(* If closed session, City Attorney must review and approve.)

Issue: In the most recent fire CBA both the City and Fire union agreed to add two new ranks within the Fire Department.

In addition, we are adding the positions authorized in FY 21-22 personnel budget for both departments.

Fiscal Consideration: approved with personnel budget FY 21-22

Staff Recommendation: Staff recommend approval.

Alternatives: n/a

Exclude Material from Public Packet? No

Reason: n/a

ROUTING:

Dianna Valdez
Anali Alanis
Karla Saavedra
Patricia Rigney
City Management Office

Created/Initiated - 10/29/2021
Approved - 10/29/2021
Approved - 10/29/2021
Approved - 10/29/2021
Final Approval - 10/29/2021

ORDINANCE NO. O-2021-_____

**AN ORDINANCE AMENDING THE CODE OF ORDINANCES NO. O- 2021-45 OF THE
CITY OF PHARR BY PROVIDING FOR AMENDMENT TO ARTICLE IX,
FIREFIGHTERS AND POLICE OFFICERS CIVIL SERVICE ORDINANCE BY
INCREASING THE AUTHORIZED POSITIONS IN THE DIFFERENT
CLASSIFICATIONS DECLARING ALL ORDINANCES IN CONFLICT NULL AND
VOID; DECLARING AN EMERGENCY; AND PROVIDING FOR AN EFFECTIVE
DATE**

**BE IT ORDAINED BY THE BOARD OF CITY COMMISSIONERS FOR THE CITY OF
PHARR, TEXAS AS FOLLOWS:**

SECTION 1: It is necessary for the Board of Commission to make amendments to Article IX, Firefighters and Police Officers Civil Service Ordinance relating to the number of authorized civil service position in certain specified ranks to better serve the needs of the citizens of the City.

SECTION 2: Therefore, the Code of Ordinance of the City of Pharr, Article IX, Firefighters and Police Officers Civil Service Ordinance is hereby amended to provide for the following modifications to the number of authorized and budgeted positions in the existing rank structure of the City Fire Department and City Police Department as follows:

1) an increase in the Police Department authorized strength, new total is as follows:

Police Department			
	Current Positions	Increase By	New Total
Police Officer	112	0	112
Sergeant	16	0	16
Lieutenant	7	0	7
Deputy Chief	2	0	2
Assistant Chief	1	0	1
Police Chief	1	0	1

2) an increase in the Fire Department authorized strength, new total is as follows:

Fire Department			
	Current Positions	Increase By	New Total
Firefighter	42	0	42
Engineer	22	0	22
Lieutenant/Asst. Fire Marshal	14	0	14
Captain	0	1	1
Battalion Chief	0	3	3
Deputy Chief/Fire Marshal	3	-1	2
Assistant Chief	1	0	1
Fire Chief	1	0	1

- 3) any vacancies created are to be filled by civil service procedures. Deputy Chief positions within the Police Department shall be filled in accordance to Memorandum of Understanding executed on 09/18/2020.

SECTION 3: The foregoing modifications to the number of authorized positions are hereby made so as to better serve the interests of the department and public and in keeping with the fiscal and administrative efficiency of the City of Pharr, Texas.

SECTION 4: The foregoing modifications made to the number of authorized positions at the rank of Firefighter will be effective only **after** the new positions of Engineer and Lieutenant/Asst. Fire Marshal are filled.

SECTION 5: Provisions of any Ordinances in conflict herewith are hereby expressly repealed.

SECTION 6: Nothing in the Ordinance is intended to modify or create any additional statutory or contractual rights or obligations of the employees of the Fire or Police Departments.

SECTION 7: This Ordinance shall take effect upon receiving final approval by the governing body following three (3) readings of the Board of Commissioners.

PASSED AND APPROVED ON FIRST READING BY THE BOARD OF CITY COMMISSIONERS OF THE CITY OF PHARR, TEXAS, on this the _____ day of _____, 2021.

CITY OF PHARR

ATTEST:

Ambrosio "Amos" Hernandez, Mayor

Imelda Barrera, TRMC Asst. City Clerk

PASSED AND APPROVED ON SECOND READING BY THE BOARD OF CITY COMMISSIONERS OF THE CITY OF PHARR, TEXAS, on this the _____ day of _____, 2021.

CITY OF PHARR

ATTEST:

Ambrosio “Amos” Hernandez, Mayor

Imelda Barrera, TRMC Asst. City Clerk

PASSED AND APPROVED ON THIRD READING BY THE BOARD OF CITY COMMISSIONERS OF THE CITY OF PHARR, TEXAS, on this the _____ day of _____, 2021.

CITY OF PHARR

ATTEST:

Ambrosio “Amos” Hernandez, Mayor

Imelda Barrera, TRMC Asst. City Clerk



AGENDA MEMORANDUM



BOARD: City Commission

AGENDA ITEM #: 6.C.

DATE SUBMITTED: October 29, 2021

MEETING DATE: November 1, 2021

FROM: Elva Guajardo, Administrative Assistant

DEPARTMENT: Parks

DIRECTOR: Sergio Alanis

Agenda Item: Consideration and action, if any, authorizing the City Manager to advertise for City-Wide Landscape Maintenance Services.

Classification: Regular

(* If closed session, City Attorney must review and approve.)

Issue: The current contract has expired and the City wishes to solicit proposals from landscape maintenance vendors.

Landscape maintenance includes all City facilities.

Fiscal Consideration: N/A

Staff Recommendation: City Commission approve this item

Alternatives: N/A

Exclude Material from Public Packet? No

Reason: N/A

ROUTING:

Elva Guajardo

Sergio Alanis

Ignacio Amezcua

Karla Saavedra

City Management Office

Created/Initiated - 10/29/2021

Approved - 10/29/2021

Approved - 10/29/2021

Approved - 10/29/2021

Final Approval - 10/29/2021



AGENDA MEMORANDUM



BOARD: City Commission

AGENDA ITEM #: 6.D.

DATE SUBMITTED:

MEETING DATE: November 1, 2021

FROM: Imelda Barrera, Assistant City Clerk

DEPARTMENT: Administration

DIRECTOR:

Agenda Item: Consideration and action, if any, on Development Services Cases:

Classification: Public Hearing

(* If closed session, City Attorney must review and approve.)

Issue:

Fiscal Consideration:

Staff Recommendation:

Alternatives:

Exclude Material from Public Packet? No

Reason:

ROUTING:

Imelda Barrera
Karla Saavedra
Patricia Rigney
City Management Office

Created -



AGENDA MEMORANDUM



BOARD: City Commission

AGENDA ITEM #: 6.D.1.

DATE SUBMITTED: October 27, 2021

MEETING DATE: November 1, 2021

FROM: Iris Mata, Secretary

DEPARTMENT: Development Services

DIRECTOR: Roland Gomez

Agenda Item: Topgolf USA Pharr, LLC., is requesting renewal of the Conditional Use Permit and Late Hours Permit to allow the sale of alcoholic beverages for on-premise consumption in a General Business District (C). The property is legally described as being a 15.347 acre tract of land, more or less, out of Lot 1, Top Golf Pharr Subdivision, Pharr, Hidalgo County, Texas. The property is located within the 1900 Block of West Interstate Highway 2. **CUP#170846**

Classification: Regular

(* If closed session, City Attorney must review and approve.)

Issue: Topgolf USA Pharr, LLC., is requesting renewal of the Conditional Use Permit and Late Hours Permit to allow the sale of alcoholic beverages for on-premise consumption in a General Business District (C). **CUP#170846**

Fiscal Consideration: n/a

Staff Recommendation: Development Services recommends **approval** of the request for renewal of the Conditional Use Permit and Late Hour Permit to allow the sale of alcoholic beverages for on-premise consumption in a General Business District (C) subject to site and applicant being in compliance with all City Ordinances and City Department requirements.

Alternatives: n/a

Exclude Material from Public Packet? No

Reason: n/a

ROUTING:

Iris Mata
Roland Gomez
Patricia Rigney
City Management Office

Created/Initiated - 10/27/2021
Approved - 10/28/2021
Approved - 10/29/2021
Final Approval - 10/29/2021



Pharr



MAYOR Ambrosio Hernandez, MD

COMMISSIONERS Eleazar Guajardo | Roberto "Bobby" Carrillo | Ramiro Caballero, MD | Daniel Chavez | Ricardo Medina | Itza Flores

Executive Summary Letter

November 1, 2021

Conditional Use Permit for **Renewal** for ABC –

Topgolf USA Pharr, LLC

Background:

Topgolf USA Pharr, LLC., is requesting renewal of the Conditional Use Permit and Late Hours Permit to allow the sale of alcoholic beverages for on-premise consumption. This request constitutes the 4th renewal for Topgolf USA Pharr, LLC.

The property is located at 1900 Block of West Interstate Highway 2. It is zoned General Business District (C) and is in conformance with the Future Land Use Plan. All required inspections have been conducted and have passed.

Recommendations:

Staff recommends **approval** of the request for renewal of the Conditional Use Permit and Late Hours Permit to allow the sale of alcoholic beverage for on-premise consumption subject to the site and applicant being in compliance with all City Ordinances and City Department requirements.

P:\Admin\CUPs\ABC-Topgolf USA Pharr LLC_2017



MEMORANDUM

DATE: MONDAY, NOVEMBER 01, 2021

TO: MAYOR AND CITY COMMISSION

FROM: ROLAND GOMEZ, INTERM DIRECTOR OF DEVELOPMENT SERVICES

THROUGH: EDWARD WYLIE, INTERIM CITY MANAGER

SUBJECT: CONDITIONAL USE PERMIT RENEWAL FOR ABC – FILE NO. CUP#170846 (TOPGOLF USA PHARR, LLC)
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GENERAL INFORMATION:

APPLICANT: Topgolf USA Pharr, LLC., is requesting renewal of the Conditional Use Permit and Late Hours Permit to allow the sale of alcoholic beverages for on-premise consumption in a General Business District (C).

LEGAL DESCRIPTION: The property is legally described as being a 15.347 acre tract of land, more or less, out of Lot 1, Top Golf Pharr Subdivision, Pharr, Hidalgo County, Texas.

LOCATION: The property is located within the 1900 Block of West Interstate Highway 2.

ZONING: The property is currently zoned General Business District (C). The surrounding area is zoned General Business District (C) to the north, south, east and southwest portion of the property and City of Pharr limits lie to the northwest portion of the property. This area is generally designated for commercial use in the Land Use Plan.

COMMENTS:	POLICE CHIEF:	Recommends approval of the Conditional Use Permit.
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FIRE DEPARTMENT:

Recommends approval of
the Conditional Use Permit.

**CODE COMPLIANCE
DIVISION:**

Recommends approval of
the Conditional Use Permit.

HEALTH DIVISION:

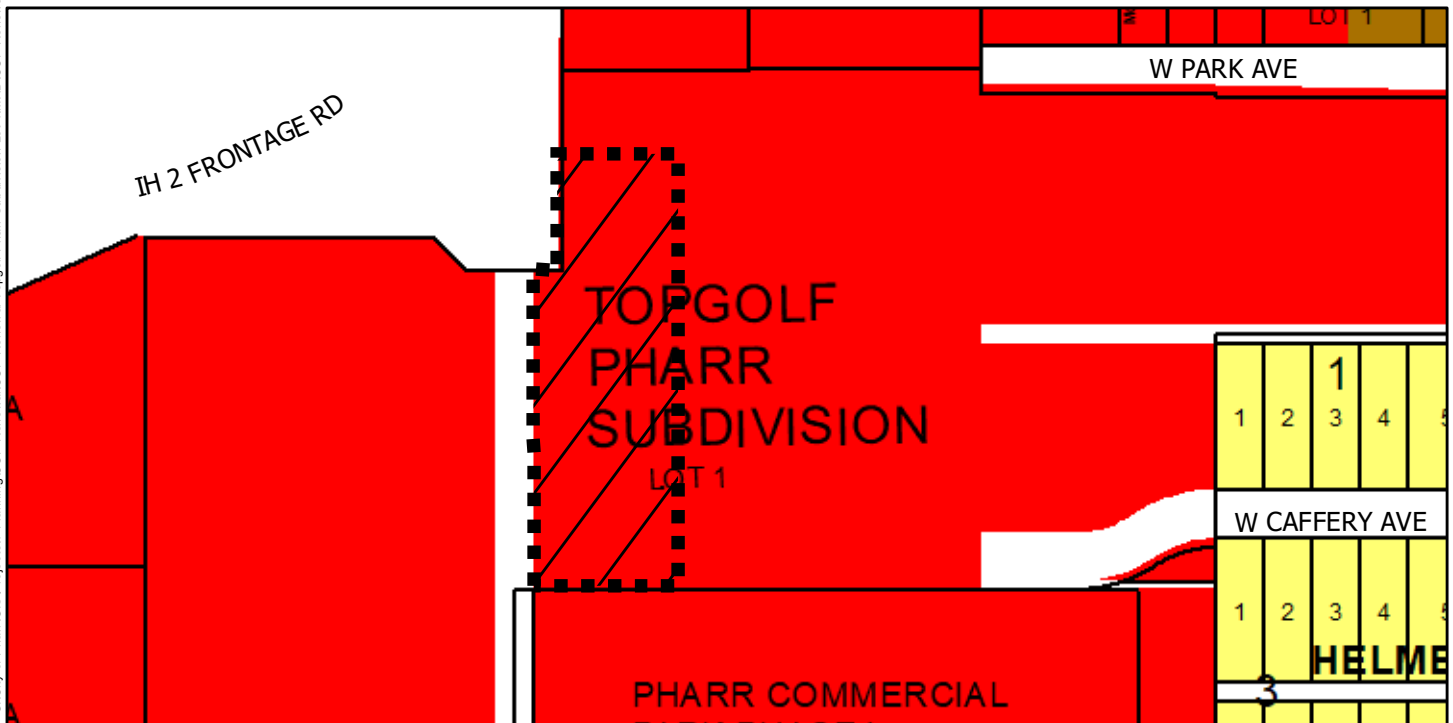
Recommends approval of
the Conditional Use Permit.

PLANNING DEPARTMENT:

Recommends approval of
the Conditional Use Permit.

**DEVELOPMENT
SERVICES
RECOMMENDATION:**

Development Services recommends **approval** of the request for renewal of the Conditional Use Permit and Late Hour Permit to allow the sale of alcoholic beverages for on-premise consumption in a General Business District (C) subject to site and applicant being in compliance with all City Ordinances and City Department requirements.



- | | | | |
|---------------------------------------|-------------------|-------------------------|--------------------------|
| Agricultural Open Space | Townhouse | Drainage Easement | PSJA ISD |
| Single Family | HUD Code | Heavy Commercial | Hidalgo ISD |
| Single Family Small Lot | Rail Road R.O.W | Heavy Industrial | Valley View ISD |
| Residential Multi-Family | Government Owned | Limited Industrial | Planned Unit Development |
| Residential Multi-Family High Density | General Business | Neighborhood Commercial | |
| Mobile Home | Business District | Office Professional | |





AGENDA MEMORANDUM



BOARD: City Commission

AGENDA ITEM #: 6.E.

DATE SUBMITTED:

MEETING DATE: November 1, 2021

FROM: Imelda Barrera, Assistant City Clerk

DEPARTMENT: Administration

DIRECTOR:

Agenda Item: PLATS:

Classification: Consent

(* If closed session, City Attorney must review and approve.)

Issue:

Fiscal Consideration:

Staff Recommendation:

Alternatives:

Exclude Material from Public Packet? No

Reason:

ROUTING:

Imelda Barrera
Karla Saavedra
Patricia Rigney
City Management Office

Created -



AGENDA MEMORANDUM



BOARD: City Commission

AGENDA ITEM #: 6.E.1.

DATE SUBMITTED: October 27, 2021

MEETING DATE: November 1, 2021

FROM: Iris Mata, Secretary

DEPARTMENT: Development Services

DIRECTOR: Roland Gomez

Agenda Item: SAMES Engineering, representing Maria Del Carmen Pacheco, Member for Encarlen, LTD, is requesting preliminary plat approval of the proposed Master Plan Villa España Estates Phase IV & V Subdivision. The property is legally described as being a 5.36 acre gross, 4.35 acre net, tract of land out of Lot 8, Block 9, A.J. McCOLL Subdivision, Pharr, Hidalgo County, Texas. The property is located within the 2700 Block of South Jackson Road. **SUB#210832**

Classification: Regular

(* If closed session, City Attorney must review and approve.)

Issue: SAM Engineering & Surveying, representing Maria Del Carmen Pacheco, Member for Encarlen, LTD, is requesting preliminary plat approval of the proposed Master Plan Villa España Estates Phase IV & V Subdivision. **SUB#210832**

Fiscal Consideration: n/a

Staff Recommendation: Development Services recommends preliminary plat approval of the proposed Master Plan Villa España Estates Phase IV & V Subdivision subject to the listed conditions.

Alternatives: n/a

Exclude Material from Public Packet? No

Reason: n/a

ROUTING:

Iris Mata
Roland Gomez
Patricia Rigney
City Management Office

Created/Initiated - 10/27/2021
Approved - 10/28/2021
Approved - 10/29/2021
Final Approval - 10/29/2021



Pharr

Development Services



MEMORANDUM

DATE: MONDAY, NOVEMBER 01, 2021

TO: MAYOR AND CITY COMMISSION

FROM: ROLAND GOMEZ, INTERIM DIRECTOR DEVELOPMENT SERVICES

THROUGH: EDWARD WYLIE, INTERIM CITY MANAGER

SUBJECT: MASTER PLAN VILLA ESPAÑA ESTATES PHASE IV & V SUBDIVISION FILE NO. SUB#210832

GENERAL INFORMATION:

APPLICANT: SAM Engineering & Surveying, representing Maria Del Carmen Pacheco, Member for Encarlen, LTD, is requesting preliminary plat approval of the proposed Master Plan Villa España Estates Phase IV & V Subdivision.

LEGAL DESCRIPTION: The property is legally described as being a 5.36 acre gross, 4.35 acre net, tract of land out of Lot 8, Block 9, A.J. McCOLL Subdivision, Pharr, Hidalgo County, Texas.

LOCATION: The property is located within the 2700 Block of South Jackson Road.

ZONING: The property is currently zoned General Business District (C). The adjacent zones are Single Family Residential District (R-1) to the east, City limits to the west, Neighborhood Commercial District (N-C) and Townhouse Residential District (R-TH) to the north and General Business District (C) to the South. The property is designated for commercial use in the Land Use Plan.

PROPERTY PROPOSED USE: Retail.

VARIANCES: None requested.

RECOMMENDATIONS: Development Services recommends preliminary plat approval of the proposed Master Plan Villa España Estates Phase IV & V Subdivision subject to the following conditions:

STREETS, PAVING AND R.O.W.: 1. Provide street light layout, 250' max spacing.

EASEMENTS: 1. Easements shall not overlap.
2. Show all existing easements.
3. City of Pharr easement shall read: 15' or 10' Exclusive easement to City of Pharr dedicated by plat.

**SIDEWALK:
ADA:** 1. Follow City of Pharr Construction Standards Manual.

FIRE PROTECTION: 1. See attached comments.

WATER: 1. See attached comments.
2. Follow City of Pharr Construction Standards Manual.

SEWER: 1. See attached comments.
2. Follow City of Pharr Construction Standards Manual.

DRAINAGE: 1. Drainage report to be reviewed and approved by H.C.D.D. No.1.

OTHER: 1. Show correct proposed lot numbers.
2. Verify, if water and sewer are within a City of Pharr Exclusive easement.
3. Add the "S" for S. Jackson Rd. and "W" for W. Hall Acres Rd.
4. Verify with H.C.I.D.#2, for the easement within S. Jackson Rd.
5. Moore Rd. 24" sanitary sewer improvements reimbursement: $\$402.90/\text{acre}(5.36) = \$2,159.54$.
6. Provide all pertinent City of Pharr details.
7. Add plat note: Owners to maintain R.O.W. and perimeter of subdivision.
8. Remove the extra bearings from plat layout and metes & Bounds.
9. See staff comments attached.

**PLANNING AND
ZONING
COMMISSION:**

The Planning and Zoning Commission voted unanimously to approve the preliminary plat of the proposed Master Plan Villa España Estates Phase IV & V Subdivision.

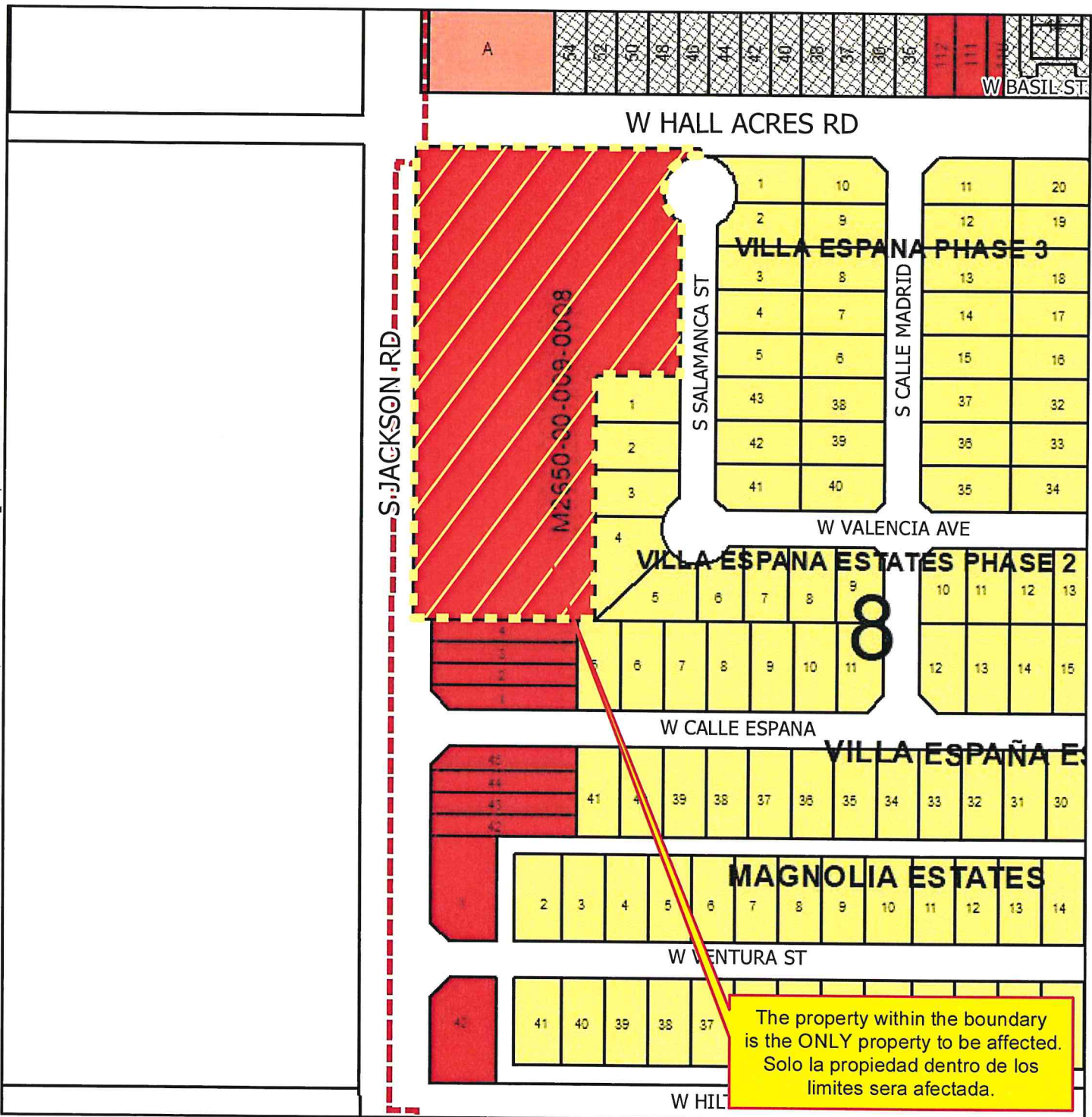


MASTER PLAN VILLA ESPANA ESTATES PHASE IV & V SUBDIVISION

METES AND BOUNDS

A 5.36 ACRE (314,847 SQ. FT.) TRACT, 4.35 ACRES (304,329 SQ. FT.) BEING THE LOT 1 & 2, 3 & 4, 5 & 6, 7 & 8, 9 & 10, 11 & 12, 13 & 14, 15 & 16, 17 & 18, 19 & 20, 21 & 22, 23 & 24, 25 & 26, 27 & 28, 29 & 30, 31 & 32, 33 & 34, 35 & 36, 37 & 38, 39 & 40, 41 & 42, 43 & 44, 45 & 46, 47 & 48, 49 & 50, 51 & 52, 53 & 54, 55 & 56, 57 & 58, 59 & 60, 61 & 62, 63 & 64, 65 & 66, 67 & 68, 69 & 70, 71 & 72, 73 & 74, 75 & 76, 77 & 78, 79 & 80, 81 & 82, 83 & 84, 85 & 86, 87 & 88, 89 & 90, 91 & 92, 93 & 94, 95 & 96, 97 & 98, 99 & 100, 101 & 102, 103 & 104, 105 & 106, 107 & 108, 109 & 110, 111 & 112, 113 & 114, 115 & 116, 117 & 118, 119 & 120, 121 & 122, 123 & 124, 125 & 126, 127 & 128, 129 & 130, 131 & 132, 133 & 134, 135 & 136, 137 & 138, 139 & 140, 141 & 142, 143 & 144, 145 & 146, 147 & 148, 149 & 150, 151 & 152, 153 & 154, 155 & 156, 157 & 158, 159 & 160, 161 & 162, 163 & 164, 165 & 166, 167 & 168, 169 & 170, 171 & 172, 173 & 174, 175 & 176, 177 & 178, 179 & 180, 181 & 182, 183 & 184, 185 & 186, 187 & 188, 189 & 190, 191 & 192, 193 & 194, 195 & 196, 197 & 198, 199 & 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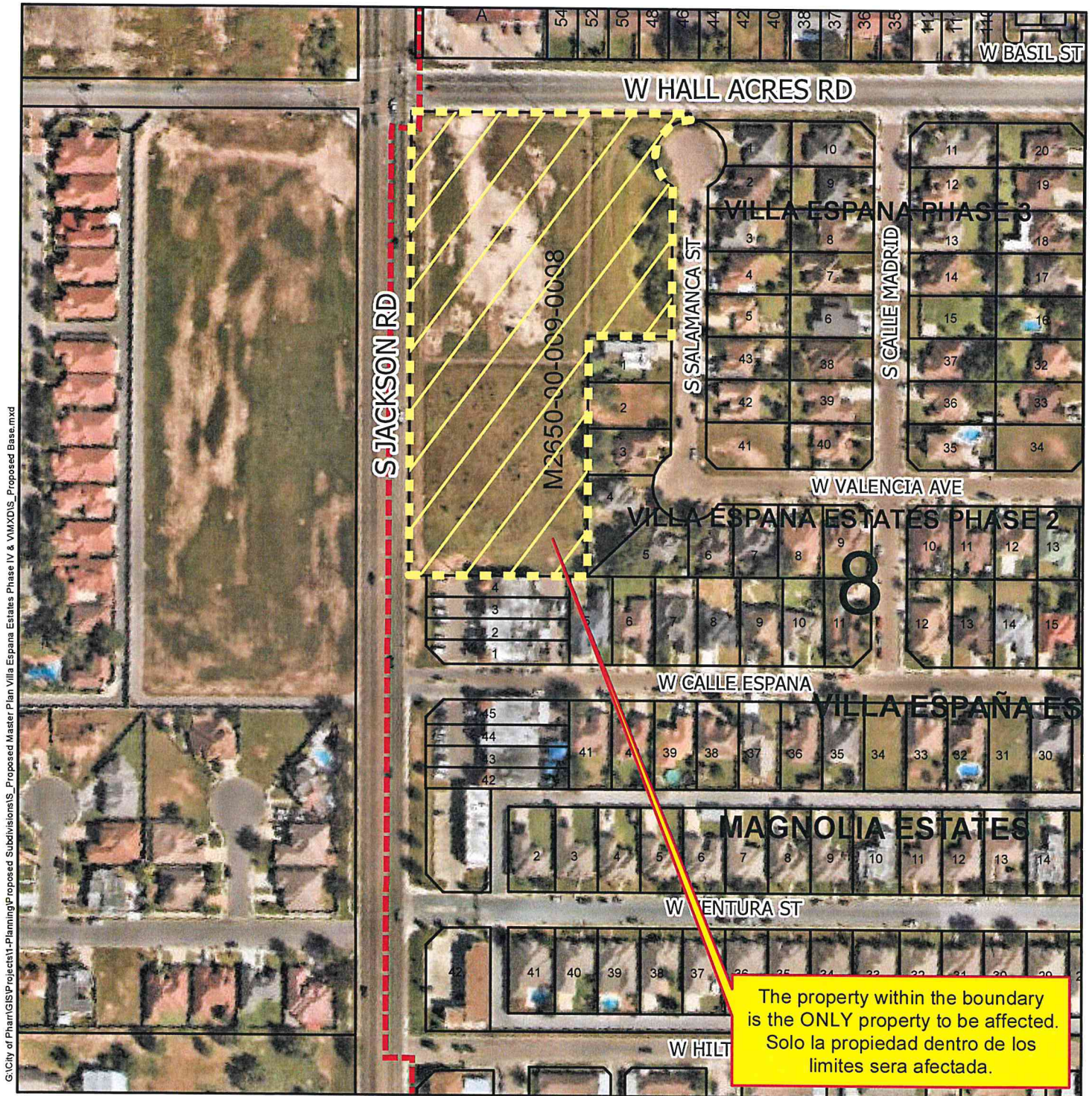
- Agricultural Open Space
- Single Family
- Single Family Small Lot
- Residential Multi-Family
- Residential Multi-Family High Density
- Mobile Home

- Townhouse
- HUD Code
- Rail Road R.O.W
- Government Owned
- General Business
- Business District

- Drainage Easement
- Heavy Commercial
- Heavy Industrial
- Limited Industrial
- Neighborhood Commercial
- Office Professional

- PSJA ISD
- Hidalgo ISD
- Valley View ISD
- Planned Unit Development





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|---------------------------------------|-------------------|-------------------------|--------------------------|
| Agricultural Open Space | Townhouse | Drainage Easement | PSJA ISD |
| Single Family | HUD Code | Heavy Commercial | Hidalgo ISD |
| Single Family Small Lot | Rail Road R.O.W | Heavy Industrial | Valley View ISD |
| Residential Multi-Family | Government Owned | Limited Industrial | Planned Unit Development |
| Residential Multi-Family High Density | General Business | Neighborhood Commercial | |
| Mobile Home | Business District | Office Professional | |



STAFF REVIEW MEETING FOR: *MASTER PLAN VILLA ESPAÑA ESTATES* *PHASE IV & V SUBDIVISION*

COMMENTS: Initials: J.R. / R. B. **OCTOBER 13, 2021**

WATER:

- Ok as proposed
- Follow City of Pharr Construction Standards Manual

SEWER:

- Ok as proposed
- Will need to show the correct location of the manholes
- Follow City of Pharr Construction Standards Manual

Developer/Owner/Responsible Party must comply with the conditions stated above. WATER METERS WILL NOT BE INSTALLED IF THERE IS A failure to comply with ANY OF THE conditions. METERS WILL BE INSTALLED UPON PAYMENT AND COMPLIANCE WITH ALL CONDITIONS STATED. By signing this you understand you must comply with the condition(s) or the water meter(s) will not be installed.

Print Name: _____

Signature: _____

Date: _____



Pharr

Fire Department



118 S. Cage Blvd. 3rd Floor

Pharr, Texas 78577

Phone: (956) 402-4400 Fax; (956) 475-3433

Subdivision: MASTER PLAN VILLA ESTATES PHASE IV & V SUBD.
PRELIMINARY

Reviewed by: DAGO SOTO

October 21, 2021

1. All designed waterlines shall be a minimum of eight (8) inches for residential and eight-twelve (8-12) inches in diameter for commercial and twelve (12) inches or better for industrial areas, unless fire flow requires larger lines for commercial areas.
2. All designed waterlines shall be looped on a Fire Department approved water main (Utilities shall be in place including fire hydrants before any construction above the slab).
3. Fire hydrant shall be installed at a maximum of 300 feet intervals in any mercantile district and every 600 feet in residential areas and shall be **FACTORY YELLOW** from the manufacture with a minimum arrangement being so as to have a hydrant available for distribution to hose to any portion of any building in the premises at distances not exceeding 400 feet, but in no case shall hose lengths be greater than 400 feet. The distance shall be measured on a roadway surface meeting the Fire Department access requirements of 503.1 International Fire Code 2012. Preferably Mueller Brand Fire Hydrant or equivalent.
4. All premises where building or portions of building are located more than 300 feet from a main street fire hydrant system shall be provided with approved on-site fire hydrant(s) and water mains capable of supplying adequate fire flow, approved by the Fire Officials.
5. Shall meet the Fire Flow rate of 20 psi of residual pressure for firefighting.
6. Street names shall be provided prior to or during the pre-construction meeting for review and approval. No street name shall be duplicated within the City of Pharr and its E.T.J. alignment of new streets with existing streets shall take precedence over new street name assignment.
7. During construction, when combustibles are brought on the site in such quantities as deemed hazardous by the Fire Official, access roads and a suitable temporary supply of water acceptable to the Fire Department shall be provided and maintained.
8. A \$25.00 fee for each **BLUE MARKER** to be affixed on payment by city to indicate location of the fire hydrant. FIRE HYDRANT COLOR MUST BE **FACTORY YELLOW** FROM MANUFACTURE PRIOR TO INSTALLATION.
9. Contractor testing waterlines shall dispose highly chlorinated water (Hazardous Waste).
10. Fire lanes must be painted **RED**: 15 feet on each side of hydrant (total of 30 feet). *With lettering at least 3 inches tall (FIRE LANE – TOW AWAY ZONE).
11. Any new subdivision with GATED COMMUNITY SECURITY SYSTEMS must obtain the Fire

Department approved Knox Box Switch – Rapid Entry System made by the Knox Company (phone: 800-552-5669 * fax: 949-623-4647) or an approved Fire Department siren system before subdivision's final approval of 503.5 in International Fire Code 2012; where security gates are installed, with a minimum of 20 feet (6096 mm) clearance shall be maintained and a means for emergency operations shall be provided and maintained as approved by the Fire Official.

12. Designed fire lanes or roads deemed necessary for Fire Department access by the Fire Official shall be established and maintained in an operable condition. 503.1 International Fire Code 2012; all weather surfaces must be in place before any final inspection is approved. Facilities, buildings or portions of buildings hereafter constructed shall be accessible to the department apparatus by the way of an approved fire apparatus access road with an asphalt, or concrete driving surface capable of supporting the imposed load of fire apparatus weighing at least 75,000 pounds.
13. Access road width with hydrant; where a fire hydrant is located on a fire apparatus access road, the minimum road width shall be 26 feet, exclusive of shoulders.
14. All water valves (hydrant and main) shall be open prior to final inspection.
15. Public Utilities personnel must be advised prior to opening and closing existing water valves.
16. Must meet City of Pharr Standards Manual Construction & Development Guide.

Additional Comments:

PLAT NOTE: ADDITIONAL FIRE PROTECTION MAY BE REQUIRED DURING THE PLAN REVIEW PHASE IN ORDER TO PROVIDE ANY ADDITIONAL FIRE PROTECTION REQUIREMENT.

- 1. FIRE HYDRANTS EVERY 300 FEET IN COMMERCIAL ZONES**
- 2. CALL EXISTING FIRE HYDRANT ON THE SOUTH SIDE OF SUBDIVISION ALONG SOUTH JACKSON ROAD.**



SUBDIVISION REVIEW COMMENTS

PHARR ENGINEERING • 118 S. CAGE BLVD., 1ST FLOOR • PHARR, TX 78577 • 956.402.4221

SUBDIVISION: Master plan Villa España
Estates Phase IV & V Subdivision

DATE: October 14, 2021

REVIEW: Preliminary (comments plans dated 9-20-2021)

PLAT

1. Add note--- Enforcements of all plat notes and dedications shall be the responsibility of the agency to whom the dedication is granted.
2. Add note---5.0'ft sidewalk with ADA wheelchair ramps and landings shall be constructed along all streets at the time of building permit phase."
3. Add note---Erosion and sediment control during construction shall be in accordance with Texas pollution discharge elimination system (TPDES).

SITE PLAN

1. Include all pertinent City of Pharr details (street cross-section, curb and gutter, concrete apron, sidewalk, storm sewer bedding, TY CC inlets, safety end treatment, water line bedding, waterline service, gate valve with concrete collar, fire hydrant, sanitary sewer bedding, sanitary sewer service line, sanitary sewer manhole).
2. Provide discharge permit for TX-Dot tie-in and TX-Dot permit for driveway.
3. Steel casing for waterline underneath concrete driveway will be required.

DRAINAGE

1. Drainage plan to be reviewed and approved at building permit stage.
2. Proposed 18"-in storm drain line to be outside of 30'-ft irrigation easement.

CLOSEOUT DOCUMENTS

- All As-builts must have the following requirements:
 - As-builts must reflect current field changes. Mark all field changes as existing.

- | |
|--|
| <ul style="list-style-type: none">• Must be Geo referenced, and in an AUTOCAD file.• Submit a physical and electronic copy (USB or CD). |
|--|

ADDITIONAL COMMENTS

- Access road must follow City of Pharr standards for paving.
- Testing will be required for concrete, paving and backfilling items.
- Curb and gutter must meet design strength of 3000 psi and must include continuous rebar.
- Sidewalk must meet design strength of 3000 psi and must follow City design standard.
- Driveway shall have a design strength of 4000 psi and concrete drive shall meet the appropriate design strength to prevent damage.
- All discharge points for drainage must have headwalls on both sides of drainage swale to prevent erosion of embankment. RCP must be flush with headwall as per City of Pharr standards.
- Drainage headwall shall include a footing on top and shall be a minimum 18"-in long.
- Headwall width from edge to edge of discharge pipe shall be 18"-in minimum.
- Sanitary sewer manhole lid shall be composite with City of Pharr logo.
- Gate valve concrete collar dimensions shall be 30"-in x 30"-in x 6"-in.
- Proposed fire hydrants shall be 6'-ft from back of curb.
- Show all utility crossings that may be present in this site plan.
- Sanitary sewer service wye requires concrete cradle.



Pharr Public Work



SUBDIVISION: Staff Review Meeting
Villa Espana Estates Subdivision
S. Jackson Rd.
Pharr Tx, 78577

DATE: 10/13/2021
5.36 Acres

Plat Notes:

- Replace line #13 Standard 5'ft sidewalk with ADA ramp and Landings

General Notes:

- Show Outfall and Connection details
- Attach Erosion & Sediment Control Plan to SW3P
- Attach Drainage Plan Details to SW3P must be approved by Engineer Department
- Must Obtain U.I.R. from TxDot
- Must submit a digital copy (in USB) for review and one (1) hard copy for finalization of the Stormwater Pollution Prevention Plan w/Notice of Intent (N.O.I) at pre-construction meeting. Will be reviewed and must be approved prior to any earthwork disturbance for Notice of Proceed (NTP) is issued.



AGENDA MEMORANDUM



BOARD: City Commission

AGENDA ITEM #: 7.A.

DATE SUBMITTED: October 29, 2021

MEETING DATE: November 1, 2021

FROM: Veronica Ramirez, HR Director

DEPARTMENT: HR

DIRECTOR: Veronica Ramirez

Agenda Item: Consideration and action, if any, on Ordinance authorizing and allowing, under the act governing the Texas Municipal Retirement (TMRS) System, "Updated Service Credits" in said system on an annual basis for service performed by qualifying members of such system who at the effective date of the allowance are members of the City of Pharr; and establishing an effective date for the ordinance.
(1st Reading)

Classification: Regular

(* If closed session, City Attorney must review and approve.)

Issue: N/A

Fiscal Consideration: 12.68% Contribution rate

Staff Recommendation: Staff recommends approval.

Alternatives: .

Exclude Material from Public Packet? No

Reason: N/A

ROUTING:

Veronica Ramirez

Anali Alanis

Karla Saavedra

Patricia Rigney

City Management Office

Created/Initiated - 10/29/2021

Approved - 10/29/2021

Approved - 10/29/2021

Approved - 10/29/2021

Final Approval - 10/29/2021



TMRS-USC R

TEXAS MUNICIPAL RETIREMENT SYSTEM

AN ORDINANCE AUTHORIZING AND ALLOWING, UNDER THE ACT GOVERNING THE TEXAS MUNICIPAL RETIREMENT SYSTEM, "UPDATED SERVICE CREDITS" IN SAID SYSTEM ON AN ANNUAL BASIS FOR SERVICE PERFORMED BY QUALIFYING MEMBERS OF SUCH SYSTEM WHO AT THE EFFECTIVE DATE OF THE ALLOWANCE ARE MEMBERS OF THE CITY OF PHARR; AND ESTABLISHING AN EFFECTIVE DATE FOR THE ORDINANCE.

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF PHARR, TEXAS:

Authorization of Updated Service Credits.

(a) On the terms and conditions set out in Sections 853.401 through 853.404 of SubtitleG of Title 8, V.T.C.A., Government Code, as amended, (hereinafter referred to as the "TMRS Act"), each member of the Texas Municipal Retirement System (hereinafter referred to as the "System") who has current service credit or prior service credit in the System in force and effect on the 1st day of January of the calendar year preceding such allowance, by reason of service in the employment of the City (hereinafter called the "City"), and on such date had at least 36 months of credited service with the System, shall be and is hereby allowed "Updated Service Credit" (as that term is defined in subsection (d) of Section 853.402 of the TMRS Act).

(b) The Updated Service Credit hereby allowed and provided for shall be **100%** of the "base Updated Service Credit" of the member (calculated as provided in subsection (c) of Section 853.402 of the TMRS Act). If the City has previously adopted, or if it hereafter adopts an ordinance authorizing Updated Service Credit for unforfeited credit for prior service or current service with any other participating municipality, the calculations and adjustments set forth in Section 853.601 of the TMRS Act shall apply to any such transferred service.

(c) Each Updated Service Credit allowed hereunder shall replace any Updated Service Credit, prior service credit, special prior service credit, or antecedent service credit previously authorized for part of the same service.

(d) The initial allowance of Updated Service Credit hereunder shall be effective on January 1, 2022, subject to approval by the Board of Trustees of the System. An allowance shall be made hereunder on January 1 of each subsequent year until this ordinance ceases to be in effect under subsection (e) of Section 853.404 of the TMRS Act, provided that, as to such subsequent year, the actuary for the System has made the determination set forth in subsection (d) of Section 853.404 of the TMRS Act.

(e) In accordance with the provisions of subsection (d) of Section 853.401 of the TMRS Act, the deposits required to be made to the System by employees of the several participating departments on account of current service shall be calculated from and after the effective date of this ordinance on the full amount of such person's compensation as an employee of the City.

Effective Date. Subject to approval by the Board of Trustees of the System, this ordinance shall be and become effective on the 1st day of January, 2022.

Passed and approved this the _____ day of _____, 20____.

ATTEST:

APPROVED:

City Secretary or Clerk

Mayor



September 13, 2021

Via Email

Ms. Anali Cantu Alanis
Assistant City Manager
City of Pharr
P.O. Box 1729
Pharr, TX 78577

Dear Ms. Alanis:

We are pleased to enclose a model ordinance for your city to adopt:

***100% Updated Service Credit
Annually Repeating***

By adopting this ordinance, the city will not have to adopt an ordinance each year to re-authorize calculation of this benefit; and the Updated Service Credit (USC) will remain in effect for future years until such time as it is discontinued by an ordinance adopted by the City Council.

With the adoption of this additional benefit, your city's contribution rate for 2022 will be **12.68%**.

Please send us a copy of this ordinance within 30 days of its adoption.

If you have any questions or concerns, please do not hesitate to contact me at 1-800-924-8677.

Sincerely,


Anthony Mills
Director of City Services



Plan Change Study

GRID 2022

For Informational Purposes Only

Effective Date - January 1, 2022

Report Date - September 13, 2021

01002 Pharr

Proposed Plans

Plan Provisions

	<u>Current</u>	<u>1</u>
Deposit Rate	7.00%	7.00%
Matching Ratio	2 to 1	2 to 1
Updated Service Credit	0%	100% (Repeating)
Transfer USC **	No	No
Annuity Increase	0%	0%
20 Year/Any Age Ret.	Yes	Yes
Vesting	5 years	5 years
Supplemental Death Benefit	A & R	A & R
<u>Contribution Rates</u>	<u>2022</u>	<u>2022</u>
Normal Cost Rate	5.09%	7.51%
Prior Service Rate	2.23%	4.99%
Retirement Rate	7.32%	12.50%
Supplemental Death Rate	0.18%	0.18%
Total Rate	7.50%	12.68%
Unfunded Actuarial Liability	\$8,570,582	\$20,960,782
Amortization Period	20 years	20 years
Funded Ratio	91.2%	80.9%
Phase-In Total Rate	N/A	N/A

**This is the addition to the Initial Prior Service Rate for USC for transfers. There were 54 eligible transfer employees on the valuation date.



AGENDA MEMORANDUM



BOARD: City Commission

AGENDA ITEM #: 7.B.

DATE SUBMITTED: October 20, 2021

MEETING DATE: November 1, 2021

FROM: Joel Robles, Assistant Police Chief

DEPARTMENT: Police

DIRECTOR: Andrew Harvey

Agenda Item: Consideration and action, if any, on Resolution authorizing the Pharr Police Department to submit a grant application to Officer of the Governor, Homeland Security Grants Division - Operation Lone Star Grant Program.

Classification: Regular

(* If closed session, City Attorney must review and approve.)

Issue: The Pharr Police Department seeks funding from the Officer of the Governor - Homeland Security Grants Division. The Grant operational period is from 03/01/2021 thru 08/23/2023. The funds requested would be designated for law enforcement overtime hours and specialized equipment to assist in homeland security.

Fiscal Consideration: N/A

Staff Recommendation: Staff recommends approval

Alternatives: Not approve this request

Exclude Material from Public Packet? No

Reason: N/A

ROUTING:

Joel Robles

Andrew Harvey

Anali Alanis

Karla Saavedra

Patricia Rigney

City Management Office

Created/Initiated - 10/20/2021

Approved - 10/29/2021

Approved - 10/29/2021

Approved - 10/29/2021

Approved - 10/29/2021

Final Approval - 10/29/2021

RESOLUTION NO. R-2021 _____

**OFFICE OF THE GOVERNOR, HOMELAND SECURITY GRANTS DIVISION FY2022
OPERATION LONE STAR GRANT PROGRAM**

WHEREAS, The city of Pharr finds it in the best interest of the citizens of Pharr to create the Below Unified Response to Border Security Project be operated from 03/01/2021 thru 08/31/2023; and

WHEREAS, The program aims to enhance interagency border security operations supporting Operation Lone Star, including the facilitation of directed actions to deter and interdict criminal activity and detain non-citizen inmates

WHEREAS, The City of Pharr City Commission agrees to provide applicable matching funds for the said project as required by the Office of the Governor Homeland Security Grants Division grant application; and

WHEREAS, The City of Pharr City Commission agrees that in the event of loss or misuse of the Homeland Security Grants Division funds, The City of Pharr City Commission assures that the funds will be returned to the Homeland Security Grants Division in full; and

WHEREAS, The City of Pharr City Commission designates City Manager as the grantee's authorized official. The authorized official is given the power to apply for, accept, reject, alter or terminate the grant on behalf of the applicant agency.

NOW, THEREFORE, BE IT RESOLVED that the City of Pharr City Commission approves submitting the grant application for the FY 2022 Operation Lone Star Grant Program to the Office of the Governor, Homeland Security Grants Division.

PASSED AND APPROVED BY THE BOARD OF COMMISSIONERS OF THE CITY OF PHARR TEXAS, THIS _____ DAY OF November 2021.

Grant Number: [4370701](#)

CITY OF PHARR:

Ambrosio Hernandez, Mayor

ATTEST:

City Secretary

Certification

The State of Texas

County of Hidalgo
City of Pharr

I, _____, duly appointed City Clerk of the City of Pharr, Texas, do hereby certify that the foregoing Constitutes a true and correctly copy of the original Resolution duly passed and adopted by the board of Commissioners of the City of Pharr, Texas, on the ____ day of October 2021, ad.

(Resolution no. _____)

In witness whereof, I have hereunto subscribed my official Signature and impressed the seal of the City of Pharr, Texas, This the __ day of October 2021, ad.

City of Pharr

City Clerk



AGENDA MEMORANDUM



BOARD: City Commission

AGENDA ITEM #: 7.C.

DATE SUBMITTED: October 25, 2021

MEETING DATE: November 1, 2021

FROM: Maria Rangel, Engineer in Training

DEPARTMENT: Engineering

DIRECTOR: Omar Anzaldua

Agenda Item: Consideration and action, if any, on Resolution adopting the Hidalgo County, Texas Multi-Jurisdiction Hazard Mitigation Action Plan Update 2021 (HMAP2021).

Classification: Regular

(* If closed session, City Attorney must review and approve.)

Issue: The Federal Emergency Management Agency (FEMA) has concluded its review of the Hidalgo County, Texas Multi-Jurisdiction Hazard Mitigation Action Plan Update 2021 (HMAP2021) and is Approvable Pending Adoption (APA). The next step is for the participating jurisdictions, including the City of Pharr, to adopt HMAP2021 by resolution.

A FEMA-approved HMAP is required for eligibility for grant funds through FEMA's Hazard Mitigation Assistance (HMA) programs, and FEMA also requires that HMAPs be updated every five years. In 2016, the City of Pharr adopted Hidalgo County's HMAP, and this year (2021) is time to update.

City staff have been involved at every phase of the planning process to ensure the City is prepared to apply for grant funding. Updates to HMAP2021 include analysis of previous actions in HMAP2016, addition of projects listed in the Drainage Master Plan, and addition of projects identified by various departments. A copy of the approved HMAP2021 is attached for reference. See Section 20: Previous Actions, Pages 231-240 and Section 21: Mitigation Actions, Pages 373-396.

Fiscal Consideration: No fiscal impact.

Staff Recommendation: Staff recommends approval of Resolution to adopt Update 2021 to the HMAP.

Alternatives: Pull out of Hidalgo County's HMAP and develop an independent HMAP for City of Pharr.

Exclude Material from Public Packet? No

Reason: No exclusion.

ROUTING:

Maria Rangel
Omar Anzaldua
Karla Saavedra
Patricia Rigney
City Management Office

Created/Initiated - 10/25/2021
Approved - 10/27/2021
Approved - 10/29/2021
Approved - 10/29/2021
Final Approval - 10/29/2021

HIDALGO COUNTY HAZARD MITIGATION ACTION PLAN



UPDATE 2021

Maintaining a Safe, Secure, and Sustainable Community



For more information, visit our website at:

<https://www.hidalgocounty.us/>

Written comments should be forwarded to:

H2O Partners, Inc.

P. O. Box 160130

Austin, Texas 78716

info@h2opartnersusa.com

www.h2opartnersusa.com

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SECTION 1: INTRODUCTION

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BACKGROUND

Hidalgo County, in South Texas, is bordered by Cameron County on the east, Brooks County on the north, Starr County on the west, and Mexico on the south. The county seat, Edinburg, is at the junction of U.S. highways 107 and 281.

Texas is prone to extremely heavy rains and flooding with half of the world record rainfall rates (48 hours or less).¹ While flooding is a well-known risk, Hidalgo County is susceptible to a wide range of natural hazards, including but not limited to tornadoes, hurricanes, drought, and winter storms. These life-threatening hazards can destroy property, disrupt the economy, and lower the overall quality of life for individuals.

While it is impossible to prevent an event from occurring, the effect from many hazards to people and property can be lessened. This concept is known as hazard mitigation, which is defined by the Federal Emergency Management Agency (FEMA) as *sustained actions taken to reduce or eliminate long-term risk to people and property from hazards and their effects*.² Communities participate in hazard mitigation by developing hazard mitigation plans. The Texas Division of Emergency Management (TDEM) is required to review the plan and FEMA has the authority to review and approve hazard mitigation plans through the Disaster Mitigation Act of 2000.

In 2016, Hidalgo County, along with the Cities of Alamo, Edcouch, Edinburg, Hidalgo, La Villa, McAllen, Mercedes, Mission, Palmview, Pharr, San Juan, and Sullivan City, participated in a multi-jurisdictional Hazard Mitigation Action Plan.

The Disaster Mitigation Act requires that hazard mitigation plans be reviewed and revised every five years to maintain eligibility for Hazard Mitigation Assistance (HMA) grant funding. Since FEMA originally approved the Hidalgo County, Texas Hazard Mitigation Action Plan in 2016, the County began the process of developing a Hazard Mitigation Action Plan Update in order to maintain eligibility for grant funding within the five-year window.

This Plan Update, hereinafter titled: “Hidalgo County Hazard Mitigation Action Plan Update 2021: Maintaining a Safe, Secure, and Sustainable Community” (Plan or Plan Update) was developed specifically for Hidalgo County and is a multi-jurisdictional Plan. The participating jurisdictions include Hidalgo County, and the cities of Alamo, Alton, Donna, Edcouch, Edinburg, Elsa, Granjeno, Hidalgo, La Joya, La Villa, McAllen, Mercedes, Mission, Palmhurst, Palmview, Peñitas, Pharr, Progreso, San Juan and Sullivan City, and the Santa Cruz Irrigation District #15. The City

¹ <http://www.floodsafety.com/texas/regional-info/san-antonio-flooding/>

² <http://www.fema.gov/hazard-mitigation-planning-resources>

SECTION 1: INTRODUCTION

of Weslaco and Hidalgo County Drainage District #1 did not participate in this Plan as they have current single jurisdiction Hazard Mitigation Plans.

Hazard mitigation activities are an investment in a community's safety and sustainability. It is widely accepted that the most effective hazard mitigation measures are implemented at the local government level, where decisions on the regulation and control of development are ultimately made. A comprehensive review to a hazard mitigation plan addresses hazard vulnerability that exists today and in the foreseeable future. Therefore, it is essential that a plan identify projected patterns of how future development will increase or decrease a community's overall hazard vulnerability.

SCOPE

The focus of the Plan Update is to identify activities to mitigate hazards classified as "high" or "moderate" risk, as determined through a detailed hazard risk assessment conducted for Hidalgo County and the participating jurisdictions. The hazard classification enables the participating jurisdictions to prioritize mitigation actions based on hazards which can present the greatest risk to lives and property in the geographic scope.

PURPOSE

The Plan Update was prepared by Hidalgo County, participating jurisdictions, and H2O Partners, Inc. The purpose of the Plan Update is to protect people and structures and to minimize the costs of disaster response and recovery. The goal of the Plan Update is to minimize or eliminate long-term risks to human life and property from known hazards by identifying and implementing cost-effective hazard mitigation actions. The planning process is an opportunity for participating jurisdictions within Hidalgo County, stakeholders, and the general public to evaluate and develop successful hazard mitigation actions to reduce future risk of loss of life and damage to property resulting from a disaster in Hidalgo County.

The Mission Statement of the Plan Update is, *"Maintaining a secure and sustainable future through the revision and development of targeted hazard mitigation actions to protect life and property."*

Participating jurisdictions within Hidalgo County, and planning participants identified twelve natural hazards and two man-made hazards to be addressed by the Plan Update. The specific goals of the Plan Update are to:

- Minimize disruption to participating jurisdictions within Hidalgo County following a disaster;
- Streamline disaster recovery by articulating actions to be taken before a disaster strikes to reduce or eliminate future damage;
- Demonstrate a firm local commitment to hazard mitigation principles;
- Serve as a basis for future funding that may become available through grant and technical assistance programs offered by the State or Federal government. The Plan will enable participating jurisdictions within Hidalgo County to take advantage of rapidly developing mitigation grant opportunities as they arise; and
- Ensure that participating jurisdictions within Hidalgo County maintain eligibility for the full range of future Federal disaster relief.

SECTION 1: INTRODUCTION

AUTHORITY



The Plan is tailored specifically for participating jurisdictions within Hidalgo County and plan participants including Planning Team members, stakeholders, and the general public who participated in the Plan Update development process. The Plan complies with all requirements promulgated by the Texas Division of Emergency Management (TDEM) and all applicable provisions of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Section 104 of the Disaster Mitigation Act of 2000 (DMA 2000) (P.L. 106-390), and the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004 (P.L. 108-264), which amended the National Flood Insurance Act (NFIA) of 1968 (42 U.S.C. 4001, et al). Additionally, the Plan complies with the Interim Final Rules for the Hazard Mitigation Planning and Hazard Mitigation Grant Program (44 CFR, Part 201), which specify the criteria for approval of mitigation plans required in Section 322 of the DMA 2000 and standards found in FEMA's "Local Mitigation Plan Review Guide" (October 2011), and the "Local Mitigation Planning Handbook" (March 2013). Additionally, the Plan is developed in accordance with FEMA's Community Rating System (CRS) Floodplain Management Plan standards and policies.

SUMMARY OF SECTIONS

Sections 1 and 2 of the Plan Update outline the Plan's purpose and development, including how Planning Team members, stakeholders, and members of the general public were involved in the planning process. Section 3 profiles Hidalgo County's population and economy.

Sections 4 through 18 present a hazard overview and information on individual natural and man-made hazards in the planning area. The hazards generally appear in order of priority based on potential losses to life and property, and other community concerns. For each hazard, the Plan Update presents a description of the hazard, a list of historical hazard events, and the results of the vulnerability and risk assessment process.

Section 19 presents hazard mitigation goals and objectives. Section 20 gives an analysis for the previous actions and Section 21 presents hazard mitigation actions for Hidalgo County and the participating jurisdictions. Section 22 identifies Plan maintenance mechanisms.

The list of planning team members and stakeholders is located in Appendix A. Public survey results are analyzed and presented in Appendix B. Appendix C contains a detailed list of critical facilities for the area, and Appendix D is dam locations. Appendix E contains information regarding workshops and meeting documentation. Capability Assessment results for participating jurisdictions within Hidalgo County are in Appendix F. Appendix G contains a list of drainage area projects for Hidalgo County Drainage District No. 1, and Appendix H contains the City of Mission's Comprehensive Storm Drainage Assessment report.³

³ Information contained in some of these appendices are exempt from public release under the Freedom of Information Act (FOIA).

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PLAN PREPARATION AND DEVELOPMENT

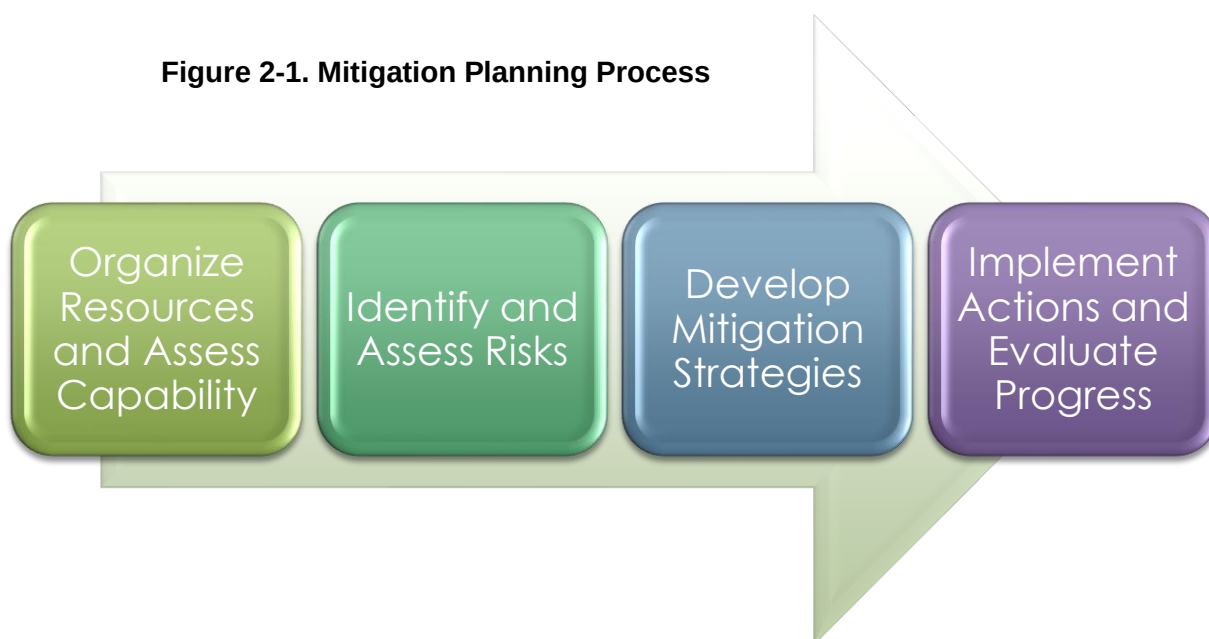
Hazard mitigation planning involves coordination with various constituents and stakeholders to develop a more disaster-resistant community. Section 2 provides an overview of the planning process including the identification of key steps and a detailed description of how stakeholders and the public were involved.

OVERVIEW OF THE PLAN

Hidalgo County hired H2O Partners, Inc. (Consultant Team), to provide technical support and oversee the development of the Hidalgo County Hazard Mitigation Action Plan Update 2021. The Consultant Team used the FEMA “Local Mitigation Plan Review Guide” (October 1, 2011), and the “Local Mitigation Planning Handbook” (March 2013) to develop the Plan Update. The overall planning process is shown in Figure 2-1 below.

SECTION 2: PLANNING PROCESS

Figure 2-1. Mitigation Planning Process



Hidalgo County, participating jurisdictions, and the Consultant Team met in March 2021 to begin organizing resources, identify Planning Team members, and conduct a Capability Assessment.

PLANNING TEAM

Key members of H2O Partners, Inc. developed the Plan Update in conjunction with the Planning Team. The Planning Team was established using a direct representation model. Some of the responsibilities of the Planning Team included: completing Capability Assessment surveys, providing input regarding the identification of hazards, identifying mitigation goals, and developing mitigation strategies. An Executive Planning Team consisting of key personnel from each of the participating jurisdictions within Hidalgo County, shown in Table 2-1, was formed to coordinate planning efforts and request input and participation in the planning process. Table 2-2 reflects the Advisory Planning Team, consisting of additional representatives from area organizations and departments from the participating jurisdictions within Hidalgo County that participated throughout the planning process.

Table 2-1. Executive Planning Team

ORGANIZATION / DEPARTMENT	TITLE
Hidalgo County	Chief of Staff
Hidalgo County	Assistant Chief of Staff
Hidalgo County	Deputy Emergency Management Coordinator
Hidalgo County	Emergency Management Coordinator
City of Alamo	Fire Chief / Emergency Management Coordinator

SECTION 2: PLANNING PROCESS

ORGANIZATION / DEPARTMENT	TITLE
City of Alton	Emergency Management Coordinator
City of Donna	Public Works Director
City of Edcouch	Fire Chief / Emergency Management Coordinator
City of Edinburg	Fire Chief / Emergency Management Coordinator
City of Elsa	Chief of Police / Emergency Management Coordinator
City of Granjeno	Mayor / Emergency Management Coordinator
City of Hidalgo	Code Enforcement Director
City of La Joya	City Manager
City of La Villa	Operations Manager
City of McAllen	Director of Engineering
City of Mercedes	Fire Chief / Emergency Management Coordinator
City of Mission	Emergency Management Coordinator
City of Palmhurst	Chief of Police / EMC Coordinator
City of Palmview	Planning Director
City of Peñitas	Emergency Management / EDC
City of Pharr	Deputy Emergency Management Coordinator
City of Progreso	City Manager
City of San Juan	Director of Utilities
City of Sullivan City	Chief of Police
Santa Cruz Irrigation District #15	REMD

Table 2-2. Advisory Planning Team

ORGANIZATION / DEPARTMENT	TITLE
Hidalgo County	Precinct 1 County Committee
Hidalgo County	Program Manager
Hidalgo County	Director of Field Operations

SECTION 2: PLANNING PROCESS

ORGANIZATION / DEPARTMENT	TITLE
Hidalgo County	Assistant Field Operations Director
Hidalgo County	Program Manager
Hidalgo County	Precinct 3 County Committee
Hidalgo County	Chief of Staff
Hidalgo County	Commissioner Executive Assistant
Hidalgo County	Precinct 4 County Committee
Hidalgo County	Precinct 4 Administrator
Hidalgo County	Chief Administrator for External Affairs
Hidalgo County	Public Affairs Specialist
Hidalgo County	County Executive Officer
City of Alamo	Police Chief / Assistant Emergency Management Coordinator
City of Alton	AEMC
City of Alton	Business Development Manager
City of Donna	Assistant Public Works Director
City of Donna	City Planner
City of Edcouch	Assistant Emergency Management Coordinator
City of Edinburg	Deputy Chief / Assistant Emergency Management Coordinator
City of Edinburg	City Engineer
City of Elsa	City Manager
City of Elsa	Human Resource Director
City of Granjeno	City Clerk
City of Hidalgo	Lieutenant / Emergency Management Coordinator
City of La Joya	Fire Chief
City of La Villa	Chief of Police
City of La Villa	City Secretary

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ORGANIZATION / DEPARTMENT	TITLE
City of McAllen	Drainage Engineer
City of McAllen	Assistant Emergency Management Coordinator
City of Mercedes	Deputy Emergency Management Coordinator
City of Mission	Grants Coordinator
City of Palmhurst	City Manager / EMC Asst. Coordinator
City of Palmview	Fire Chief / Emergency Management Coordinator
City of Peñitas	Project Manager
City of Peñitas	Fire Chief
City of Pharr	City Engineer
City of Pharr	Interim PW Director
City of Pharr	Engineer in Training
City of Progreso	Maintenance Director
City of San Juan	Fire Chief / Emergency Management Coordinator
City Of Sullivan City	City Manager
Santa Cruz Irrigation District #15	Professional Engineer (PE)

Additionally, a Stakeholder Group was invited to participate in the planning process via e-mail. The Consultant Team, Planning Teams, and Stakeholder Group coordinated to identify mitigation goals, and develop mitigation strategies and actions for the Plan. Appendix A provides a complete listing of all participating Planning Team members and stakeholders from participating jurisdictions within Hidalgo County by organization and title.

Based on results of completed Capability Assessment, participating jurisdictions within Hidalgo County described methods for achieving future hazard mitigation measures by expanding existing capabilities. For example, several of the participating jurisdictions do not have a community wildfire protection plan in place. Other options for improving capabilities include the following:

- Establishing Planning Team members with the authority to monitor the Plan and identify grant funding opportunities for expanding staff.
- Identifying opportunities for cross-training or increasing the technical expertise of staff by attending free training available through FEMA and the Texas Division of Emergency Management (TDEM) by monitoring classes and availability through preparingtexas.org.
- Reviewing current floodplain ordinances for opportunities to increase resiliency such as modifying permitting or building codes.

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- Developing ordinances that will require all new developments to conform to the highest mitigation standards.

Sample hazard mitigation actions developed with similar hazard risk were shared at the meetings. These important discussions resulted in development of multiple mitigation actions that are included in the Plan Update to further mitigate risk from natural hazards in the future.

The Planning Team developed hazard mitigation actions for mitigating risk from all of the hazards including potential flooding, hurricane wind, and extreme heat. The actions include but are not limited to drainage improvement projects, installing generators at critical facilities, and educating citizens to practice hazard mitigation techniques.

PLANNING PROCESS

The process used to prepare the Plan Update followed the four major steps included at Figure 2-1. After the Planning Team was organized, a capability assessment was developed and distributed at the Kick-Off Workshop. Hazards were identified and assessed, and results associated with each of the hazards were provided at the Risk Assessment Workshop. Based on Hidalgo County's identified vulnerabilities, specific mitigation strategies were discussed and developed at the Mitigation Strategy Workshop. Finally, Plan maintenance and implementation procedures were developed and are included in Section 22. Participation of Planning Team members, stakeholders, and the public at each of the workshops is documented in Appendix E.

At the Plan development workshops held throughout the planning process described herein, the following factors were taken into consideration:

- The nature and magnitude of risks currently affecting the community;
- Hazard mitigation goals to address current and expected conditions;
- Whether current resources will be sufficient for implementing the Plan Update;
- Implementation problems, such as technical, political, legal, and coordination issues that may hinder development;
- Anticipated outcomes; and
- How participating jurisdictions within Hidalgo County, agencies, and partners will participate in implementing the Plan Update.

KICKOFF WORKSHOP

The Kickoff Workshop was held on April 14, 2021. The initial workshop informed participating officials and key department personnel about how the planning process pertained to their distinct roles and responsibilities and engaged stakeholder groups including, but not limited to the Hidalgo County Drainage District #1, Independent School Districts, the Lower Rio Grande Valley Development Council, and surrounding counties. In addition to the kickoff presentation, participants received the following information:

- Project overview regarding the planning process;
- Public survey access information;
- Hazard Ranking form; and
- Capability Assessment survey for completion.

A risk ranking exercise was conducted at the Kickoff Workshop to get input from the Planning Team and stakeholders pertaining to various risks from a list of natural hazards affecting the

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planning area. Participants ranked hazards high to low in terms of perceived level of risk, frequency of occurrence, and potential impact.

HAZARD IDENTIFICATION

At the Kickoff Workshop, and through e-mail and phone correspondence, the Planning Team conducted preliminary hazard identification. The Planning Team in coordination with the Consultant Team reviewed and considered a full range of natural hazards. Once identified, the teams narrowed the list to significant hazards by reviewing hazards affecting the area as a whole, the 2018 State of Texas Hazard Mitigation Plan, and initial study results from reputable sources such as federal and state agencies. Based on this initial analysis, the teams identified a total of twelve natural hazards and two man-made hazards which pose a significant threat to the planning area.

RISK ASSESSMENT

An initial risk assessment for participating jurisdictions within Hidalgo County was completed in May 2021 and results were presented to Planning Team members at the Risk Assessment Workshop held on May 24, 2021 via Webinar. This workshop was originally scheduled for May 19, 2021, in person, however it had to be rescheduled due to severe weather. At the workshop, the characteristics and consequences of each hazard were evaluated to determine the extent to which the planning area would be affected in terms of potential danger to property and citizens.

Property and crop damages were estimated by gathering data from the National Centers for Environmental Information (NCEI) and National Oceanic and Atmospheric Administration (NOAA). The assessment also examined the impact of various hazards on the built environment, including general building stock, critical facilities, lifelines, and infrastructure. The resulting risk assessment profiled hazard events provided information on previous occurrences, estimated probability of future events, and detailed the spatial extent and magnitude of impact on people and property. Each participant at the Risk Assessment Workshop was provided a risk ranking sheet that asked participants to rank hazards in terms of the probability or frequency of occurrence, extent of spatial impact, and the magnitude of impact. The results of the ranking sheets identified unique perspectives on varied risks throughout the planning area.

The assessments were also used to set priorities for hazard mitigation actions based on potential loss of lives and dollar losses. A hazard profile and vulnerability analysis for each of the hazards can be found in Sections 4 through 18.

MITIGATION REVIEW AND DEVELOPMENT

Developing the Mitigation Strategy for the Plan involved identifying mitigation goals and new mitigation actions. A Mitigation Workshop was held on June 16, 2021. In addition to the Planning Team, stakeholder groups were invited to attend the workshop. Regarding hazard mitigation actions, workshop participants emphasized the desire for flood, hurricane wind, and thunderstorm wind projects. Additionally, the participating jurisdictions were proactive in identifying mitigation actions to lessen the risk of all the identified hazards included in the Plan Update.

An inclusive and structured process was used to develop and prioritize new hazard mitigation actions for the Plan Update. The prioritization method was based on FEMA's STAPLE+E criteria and included social, technical, administrative, political, legal, economic, and environmental considerations. As a result, each Planning Team Member assigned an overall priority to each

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hazard mitigation action. The overall priority of each action is reflected in the hazard mitigation actions found in Section 21.

Planning Team Members then developed action plans identifying proposed actions, costs and benefits, the responsible organization(s), effects on new and existing buildings, implementation schedules, priorities, and potential funding sources.

Specifically, the process involved:

- Listing optional hazard mitigation actions based on information collected from previous plan reviews, studies, and interviews with federal, state, and local officials. Workshop participants reviewed the optional mitigation actions and selected actions that were most applicable to their area of responsibility, cost-effective in reducing risk, easily implemented, and likely to receive institutional and community support.
- Workshop participants inventoried federal and state funding sources that could assist in implementing the proposed hazard mitigation actions. Information was collected, including the program name, authority, purpose of the program, types of assistance and eligible projects, conditions on funding, types of hazards covered, matching requirements, application deadlines, and a point of contact.
- Planning Team Members considered the benefits that would result from implementing the hazard mitigation actions compared to the cost of those projects. Although detailed cost-benefit analyses were beyond the scope of the Plan Update, Planning Team Members utilized economic evaluation as a determining factor between hazard mitigation actions.
- Planning Team Members then selected and prioritized mitigation actions.

Hazard mitigation actions identified in the process were made available to the Planning Team for review. The draft Plan Update was made available to the general public for review on the County's website, along with the participating jurisdictions' websites, with the chance to comment via sending an email.

REVIEW AND INCORPORATION OF EXISTING PLANS

REVIEW

Background information utilized during the planning process included various studies, plans, reports, and technical information from sources such as FEMA, the United States Army Corps of Engineers (USACE), the U.S. Fire Administration, National Oceanic and Atmospheric Administration (NOAA), the Texas Water Development Board (TWDB), the Texas Commission on Environmental Quality (TCEQ), the Texas State Data Center, Texas Forest Service, the Texas Division of Emergency Management (TDEM), and local hazard assessments and plans. Section 4 and the hazard-specific sections of the Plan (Sections 5-18) summarize the relevant background information.

Specific background documents, including those from FEMA, provided information on hazard risk, hazard mitigation actions currently being implemented, and potential mitigation actions. Previous hazard events, occurrences, and descriptions were identified through NOAA's National Centers for Environmental Information (NCEI). Results of past hazard events were found through searching the NCEI. The USACE studies were reviewed for their assessment of risk and potential projects in the region. State Data Center documents were used to obtain population projections. The State Demographer webpages were reviewed for population and other projections and

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included in Section 3 of the Plan. Information from the Texas Forest Service was used to appropriately rank the wildfire hazard, and to help identify potential grant opportunities. Materials from FEMA and TDEM were reviewed for guidance on Plan Update development requirements.

INCORPORATION OF EXISTING PLANS INTO THE HMAP PROCESS

A Capability Assessment was completed by key departments from the participating jurisdictions within Hidalgo County which provided information pertaining to existing plans, policies, ordinances and regulations to be integrated into the goals and objectives of the Plan Update. The relevant information was included in a master Capability Assessment, Appendix F.

Existing projects and studies were utilized as a starting point for discussing hazard mitigation actions among Planning and Consultant Team members. For example, the City of Edinburg has completed several drainage projects from the previous HMAP and are in the design phase of four holding pond drainage projects. The City of Granjeno received Hidalgo County Urban County funds for their 2019 Public Facility Project, which is in the process of starting the construction. The City of La Joya is currently in the design engineering phase of upgrading structural sewer lines throughout the city and manholes to mitigate the occurrences of wastewater backups and wastewater spillage in residential areas within the city. The City of McAllen has completed several drainage improvements. The City of Mission has acquired land to create retaining ponds in flood prone neighborhoods and has improved critical storm water infrastructure by maintaining, improving, and building runoff capacity city-wide. The City of Pharr has completed several drainage projects already, adopted a Master Drainage Plan, and has additional projects applied for and funding awarded.

Additionally, policies and ordinances were reviewed by several of the participating jurisdictions. These jurisdictions have included actions to develop and adopt higher building code standards. Other plans were reviewed, such as Emergency Operations Plan, to identify any additional mitigation actions. Finally, the 2018 State of Texas Hazard Mitigation Plan, developed by TDEM, was discussed in the initial planning meeting in order to develop a specific group of hazards to address in the planning effort. The 2018 State Plan was also used as a guidance document, along with FEMA materials, in the development of the Hidalgo County Hazard Mitigation Action Plan Update 2021.

INCORPORATION OF THE HMAP INTO OTHER PLANNING MECHANISMS

Planning Team members will integrate implementation of the Plan Update with other planning mechanisms for Hidalgo County, such as the Emergency Operations Plan. Existing plans for participating jurisdictions will be reviewed and incorporated into the Plan Update, as appropriate. This section discusses how the Plan will be implemented by the participating jurisdictions within Hidalgo County. It also addresses how the Plan will be evaluated and improved over time, and how the public will continue to be involved in the hazard mitigation planning process.

Participating jurisdictions within Hidalgo County will be responsible for implementing hazard mitigation actions contained in Section 21. Each hazard mitigation action has been assigned to a specific County or City department that is responsible for tracking and implementing the action.

A funding source has been listed for each identified hazard mitigation action and may be utilized to implement the action. An implementation time period has also been assigned to each hazard

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mitigation action as an incentive and to determine whether actions are implemented on a timely basis.

Participating jurisdictions within Hidalgo County will integrate hazard mitigation actions contained in the Plan Update with existing planning mechanisms such as ordinances, Emergency Operations or Management Plans, and other local and area planning efforts. Hidalgo County will work closely with area organizations to coordinate implementation of hazard mitigation actions that benefit the planning area in terms of financial and economic impact.

Upon formal adoption of the Plan Update, Planning Team members from the participating jurisdictions will review existing plans along with building codes to guide development and ensure that hazard mitigation actions are implemented. Each of the jurisdictions will be responsible for coordinating periodic review of the Plan Update with members of the Advisory Planning Team to ensure integration of hazard mitigation strategies into these planning mechanisms and codes. The Planning Team will also conduct periodic reviews of various existing planning mechanisms and analyze the need for any amendments or updates in light of the approved Plan Update. Participating jurisdictions within Hidalgo County will ensure that future long-term planning objectives will contribute to the goals of the Plan to reduce the long-term risk to life and property from moderate and high-risk hazards. Within one year of formal adoption of the Plan, existing planning mechanisms will be reviewed and analyzed as they pertain to the Plan Update.

Planning Team members will review and revise, as necessary, the long-range goals and objectives in its strategic plan and budgets to ensure that they are consistent with the Plan Update.

Furthermore, Hidalgo County will work with neighboring jurisdictions to advance the goals of the Plan Update as it applies to ongoing, long-range planning goals and actions for mitigating risk to natural hazards throughout the planning area.

Table 2-3 identifies types of planning mechanisms and examples of methods for incorporating the Plan into other planning efforts.

Table 2-3. Examples of Methods of Incorporation

Planning Mechanism	Incorporation of Plan
Annual Budget Review	Various departments and key personnel that participated in the planning process for participating jurisdictions within Hidalgo County will review the Plan and mitigation actions therein when conducting their annual budget review. Allowances will be made in accordance with grant applications sought, and mitigation actions that will be undertaken, according to the implementation schedule of the specific action.
Capital Improvement Plans	Participating jurisdictions within Hidalgo County have a Capital Improvement Plan (CIP) in place. Prior to any revisions to the CIP, County and City departments will review the risk assessment and mitigation strategy sections of the HMAP, as limiting public spending in hazardous zones is one of the

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Planning Mechanism	Incorporation of Plan
	most effective long-term mitigation actions available to local governments.
Comprehensive Plans	Participating jurisdictions within Hidalgo County have Long-term Comprehensive Development Plans in place. Since comprehensive plans involve developing a unified vision for a community, the mitigation vision and goals of the Plan will be reviewed in the development or revision of a Comprehensive Plan.
Floodplain Management Plans	Floodplain management plans include preventative and corrective actions to address the flood hazard. Therefore, the actions for flooding and information found in Section 5 of this Plan Update discussing the people and property at risk to flood will be reviewed and revised when participating jurisdictions within Hidalgo County update their management plans or develops new plans.
Grant Applications	The Plan will be evaluated by participating jurisdictions within Hidalgo County when grant funding is sought for mitigation projects. If a project is not in the Plan Update, an amendment may be necessary to include the action in the Plan.
Regulatory Plans	Currently, participating jurisdictions within Hidalgo County have regulatory plans in place, such as Emergency Management Plans, Continuity of Operations Plans, Land Use Plans, and Evacuation Plans. The Plan Update will be consulted when County and City departments review or revise their current regulatory planning mechanisms, or in the development of regulatory plans that are not currently in place.

Appendix F provides an overview of Planning Team members' existing planning and regulatory capabilities to support implementation of mitigation strategy objectives. Appendix F also provides further analysis of how each intends to incorporate hazard mitigation actions into existing plans, policies, and the annual budget review as it pertains to prioritizing grant applications for funding and implementation of identified hazard mitigation projects.

It should be noted for the purposes of the Plan Update that the HMAP has been used as a reference when reviewing and updating all plans and ordinances for the entire planning area, including all participating jurisdictions. The Emergency Management Plans developed independently by Hidalgo County, City of Alamo, City of Edcouch, City of Edinburg, City of Elsa, City of La Joya, City of La Villa, City of McAllen, City of Mission, City of Palmhurst, City of Peñitas,

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City of Pharr, City of Progreso, City of San Juan, and City of Sullivan City are updated every 5 years and incorporates goals, objectives and actions identified in the mitigation plan.

PLAN REVIEW AND PLAN UPDATE

As with the development of Plan Update, participating jurisdictions within Hidalgo County will oversee the review and update process for relevance and if necessary, make adjustments. At the beginning of each fiscal year, Planning Team Members will meet to evaluate the Plan and review other planning mechanisms to ensure consistency with long-range planning efforts. In addition, planning participants will also meet twice a year, by conference call or presentation, to re-evaluate prioritization of the hazard mitigation actions.

TIMELINE FOR IMPLEMENTING MITIGATION ACTIONS

Both the Executive Planning Team (Table A-1, Appendix A) and the Advisory Planning Team (Table A-2, Appendix A) will engage in discussions regarding a timeframe for how and when to implement each hazard mitigation action. Considerations include when the action will be started, how existing planning mechanisms' timelines affect implementation, and when the action should be fully implemented. Timeframes may be general, and there will be short, medium, and long-term goals for implementation based on prioritization of each action, as identified on individual Hazard Mitigation Action worksheets included in the Plan Update for participating jurisdictions within Hidalgo County.

Both the Executive and Advisory Planning Team will evaluate and prioritize the most suitable hazard mitigation actions for the community to implement. The timeline for implementation of actions will partially be directed by participating jurisdictions' comprehensive planning process, budgetary constraints, and community needs. Participating jurisdictions within Hidalgo County are committed to addressing and implementing hazard mitigation actions that may be aligned with and integrated into the Plan Update.

Overall, the Planning Team is in agreement that goals and actions of the Plan Update shall be aligned with the timeframe for implementation of hazard mitigation actions with respect to annual review and updates of existing plans and policies.

PUBLIC AND STAKEHOLDER INVOLVEMENT

An important component of hazard mitigation planning is public participation and stakeholder involvement. Input from individual citizens and the community as a whole provides the Planning Team with a greater understanding of local concerns and increases the likelihood of successfully implemented hazard mitigation actions. If citizens and stakeholders, such as local businesses, non-profits, hospitals, and schools are involved, they are more likely to gain a greater appreciation of the risks that hazards may present in their community and take steps to reduce or mitigate their impact.

The public was involved in the development of the Hidalgo County Hazard Mitigation Action Plan Update 2021 at different stages prior to official Plan approval and adoption. Public input was sought using three methods: (1) open public meetings; (2) survey instruments; and (3) making the draft Plan Update available for public review on participating jurisdictions' websites.

The draft Plan Update was made available to the general public for review and comment on participating jurisdictions' websites. The public was notified at the public meetings that the draft

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Plan Update would be available for review. No feedback was received on the draft Plan Update, although it was given on the public survey, and all relevant information was incorporated into the Plan Update. Public input was utilized to assist in identifying hazards that were of most concern to the citizens of the County and what actions they felt should be included and prioritized.

The Plan Update will be advertised and posted on Hidalgo County and participating jurisdictions' websites upon approval from FEMA, and a copy will be kept at the Hidalgo County courthouse.

STAKEHOLDER INVOLVEMENT

Stakeholder involvement is essential to hazard mitigation planning since a wide range of stakeholders can provide input on specific topics and from various points of view. Throughout the planning process, members of community groups, local businesses, neighboring jurisdictions, schools, and hospitals were invited to participate in development of the Plan Update. The Stakeholder Group (Table A-3 in Appendix A, and Table 2-4, below), included a broad range of representatives from both the public and private sector and served as a key component in Hidalgo County's outreach efforts for development of the Plan Update. Documentation of stakeholder meetings is found in Appendix E. A list of organizations invited to attend via e-mail is found in Table 2-4.

Table 2-4. Stakeholder Working Group

AGENCY	TITLE	PARTICIPATED
Brooks County	County Sheriff	
Cameron County	Emergency Management Coordinator	
Cameron County	Assistant Emergency Management Coordinator	
Cameron County	Assistant Emergency Management Coordinator	X
Kenedy County	County Sheriff	
Starr County	911 Coordinator	
Willacy County	Emergency Management Coordinator	
City of Brownsville	Emergency Management Coordinator	
Drainage District #1	District General Manager	
Drainage District #1	Operations Manager	X
Donna ISD	Superintendent	
Edcouch-Elsa ISD	Superintendent	
Edinburg CISD	Superintendent	
Hidalgo ISD	Superintendent	
Hidalgo ISD	Secretary to Superintendent	

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AGENCY	TITLE	PARTICIPATED
La Joya ISD	Superintendent	
La Joya ISD	Police Department EMC	X
La Joya ISD	Teacher	X
La Villa ISD	Superintendent	
McAllen ISD	Superintendent	
McAllen ISD	Executive Assistant	
Mercedes ISD	Superintendent	
Mission CISD	Superintendent	X
Monte Alto ISD	Superintendent	
Monte Alto ISD	CFO	
Pharr-San Juan-Alamo ISD	Superintendent	
Progreso ISD	Superintendent	
Progreso ISD	Secretary	
Sharyland ISD	Superintendent	
South Texas ISD	Superintendent	
Valley View ISD	Superintendent	
Weslaco ISD	Superintendent	
AEP	Manager, External Affairs	
American Red Cross	Executive Director	
GLO-CDR Intergovernmental Relations	Community Outreach Coordinator	X
HRA Associates	Grant Administrator	X
Lower Rio Grande Valley Development Council	Assistant Director of Homeland Security	X
Lower Rio Grande Valley Development Council	Executive Director	
Lower Rio Grande Valley Development Council	Director of Community and Economic Development	X
Lower Rio Grande Valley Development Council	Program Specialist	X
Texas Commission of Environmental Quality	Regional Director	

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AGENCY	TITLE	PARTICIPATED
Texas Commission of Environmental Quality	Local Government Compliance Assistance Specialist	
Texas Division of Emergency Management	District Coordinator	
Texas Department of Transportation	District Engineer	
Texas House District 35	Representative	
Texas House District 39	Representative	
Texas House of District 40	Representative	
Texas House of District 40	Representative	
Texas Senate District 20	Senator	
Texas Senate District 27	Senator	
Texas Senate District 36	Senator	
University of Texas Rio Grande Valley	Emergency Management Coordinator	

Stakeholders and participants from neighboring communities that attended the Planning Team and public meetings played a key role in the planning process. For example, flood was one of the concerns to stakeholders, so participating jurisdictions included actions to improve drainage system by channel and culvert improvements with new storm drainage system along with associated detention ponds to relieve areas from flooding.

PUBLIC MEETINGS

A series of public meetings were held throughout the Hidalgo County planning area to collect public and stakeholder input. Topics of discussion included the purpose of hazard mitigation, discussion of the planning process, and types of natural hazards. Each participating jurisdiction within Hidalgo County released information regarding the public meetings in their area to increase public participation in the Plan Update development process, through posting on their website, on social media sources including Facebook and Twitter, through the local media, and/or posting the information on bulletin boards in public facilities. A sampling of these notices can be found in Appendix E, along with the documentation on the public meetings. Representatives from area neighborhood associations and area residents were invited to participate.

Public meetings were held on the following dates and locations:

- April 14, 2021, Adobe Connect Webinar
- May 19, 2021, Adobe Connect Webinar
- June 16, 2021, Adobe Connect Webinar

PUBLIC PARTICIPATION SURVEY

In addition to public meetings, the Planning and Consultant Teams developed a public survey designed to solicit public input during the planning process from citizens and stakeholders and to obtain data regarding the identification of any potential hazard mitigation actions or problem

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areas. The survey was promoted by local officials and a link to the survey was posted on participating jurisdictions' websites. A total of 52 surveys were completed online. The survey results are analyzed in Appendix B. Participating jurisdictions within Hidalgo County reviewed the input from the surveys and decided which information to incorporate into the Plan as hazard mitigation actions. For example, many citizens mentioned concerns about flood and hurricane wind, and suggested drainage improvements and additional neighborhood meetings to allow for better communications. In response, several actions were added to the Plan to improve drainage within the participating jurisdictions through channel and culvert improvements, adding new laterals, widening them to add capacity, and upgrading road crossings as necessary to alleviate drainage in the area; implementing a routine tree trimming program that clears tree limbs near power lines along with removing dead trees from the rights-of-way and drainage systems on a scheduled basis; and to implement education and awareness programs to educate citizens of the hazards that can threaten the area and mitigation measures they can take to reduce injuries, fatalities, and property damage.

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OVERVIEW

Hidalgo County was formed in 1852 and named for Miguel Hidalgo y Costilla, who gave the “cry for Mexican independence” from Spanish rule. By 1852 the county had between forty and forty-five ranches. As land was parceled out from one generation to the next, the ranches located along the river developed into villages. In this way, ranches gave rise to the communities of La Habitación, Relampago, and Peñitas. Generally, inhabitants of the area, especially those in the north, made a living by stock raising, while those along the river were involved in transportation, agriculture, and trade with Mexico.

In 1852, La Habitación was renamed Edinburg and made county seat. The first county court convened on September 2, 1852, and as its first act issued licenses to ferries at Hidalgo, San Luis, Peñitas, and Las Cuevas.

Despite political turmoil and cattle rustling, the county population grew to 6,534 by 1890. Ranching reached its peak that year with 71,176 cattle; 20,906 sheep gave 41,074 pounds of wool. The Garza War came to an end in 1891, when Catarino Erasmo Garza and his men were defeated at La Joya in southwest Hidalgo County.

In 1886 Edinburg was washed away by a severe flood, after which it was moved to another flood-prone site about two miles north of the river.

Hidalgo County comprises of 1,583 square miles of the Rio Grande delta, of which 1,571 square miles is land and 12 square miles is water. It is in the South Texas Plains vegetation area, which features grasses, mesquite, live oaks, and chaparral. Native plants, reduced in recent years by extensive farming, include chapote, guayacan, ebony, huisache, Brazilwood, and yucca. Natural resources include caliche, sand, gravel, oil, and gas.

Figure 3-1 shows the general location of Hidalgo County along with the Cities that are located within the County.

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Figure 3-1. Location of Hidalgo County

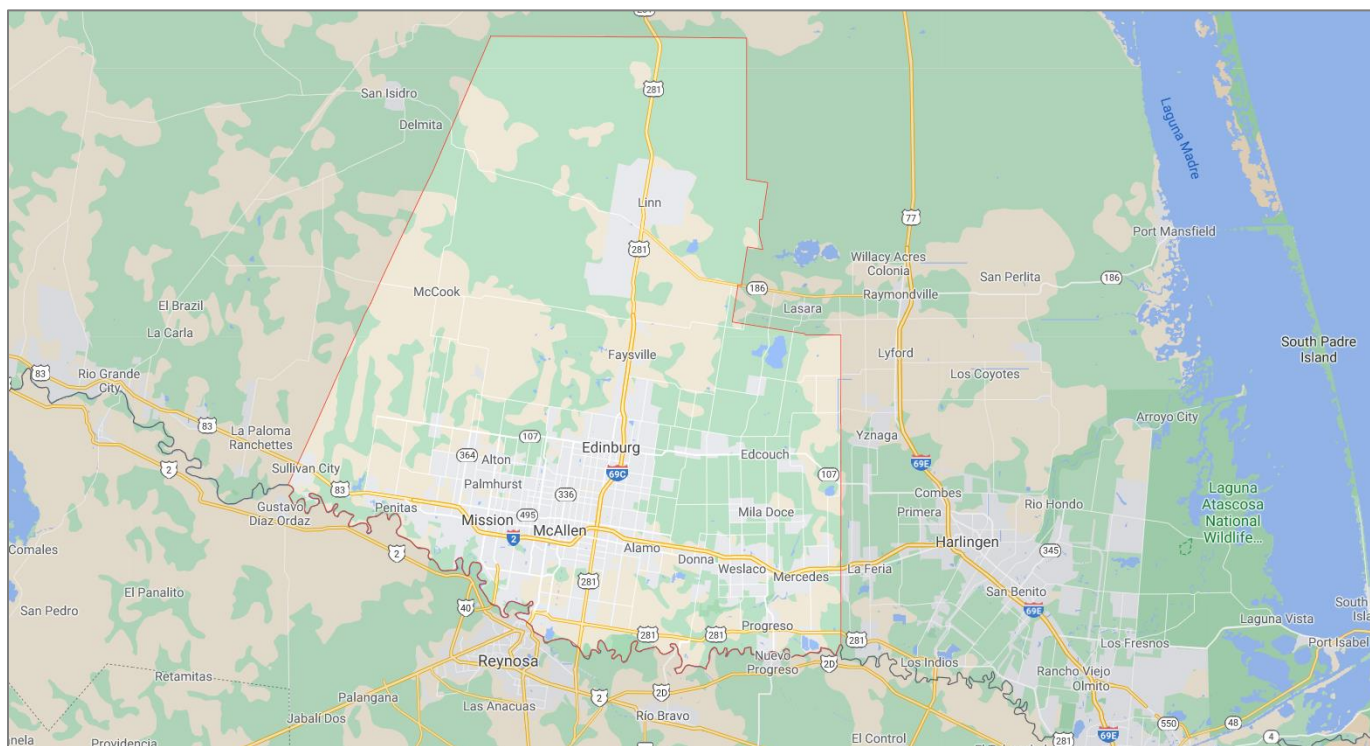
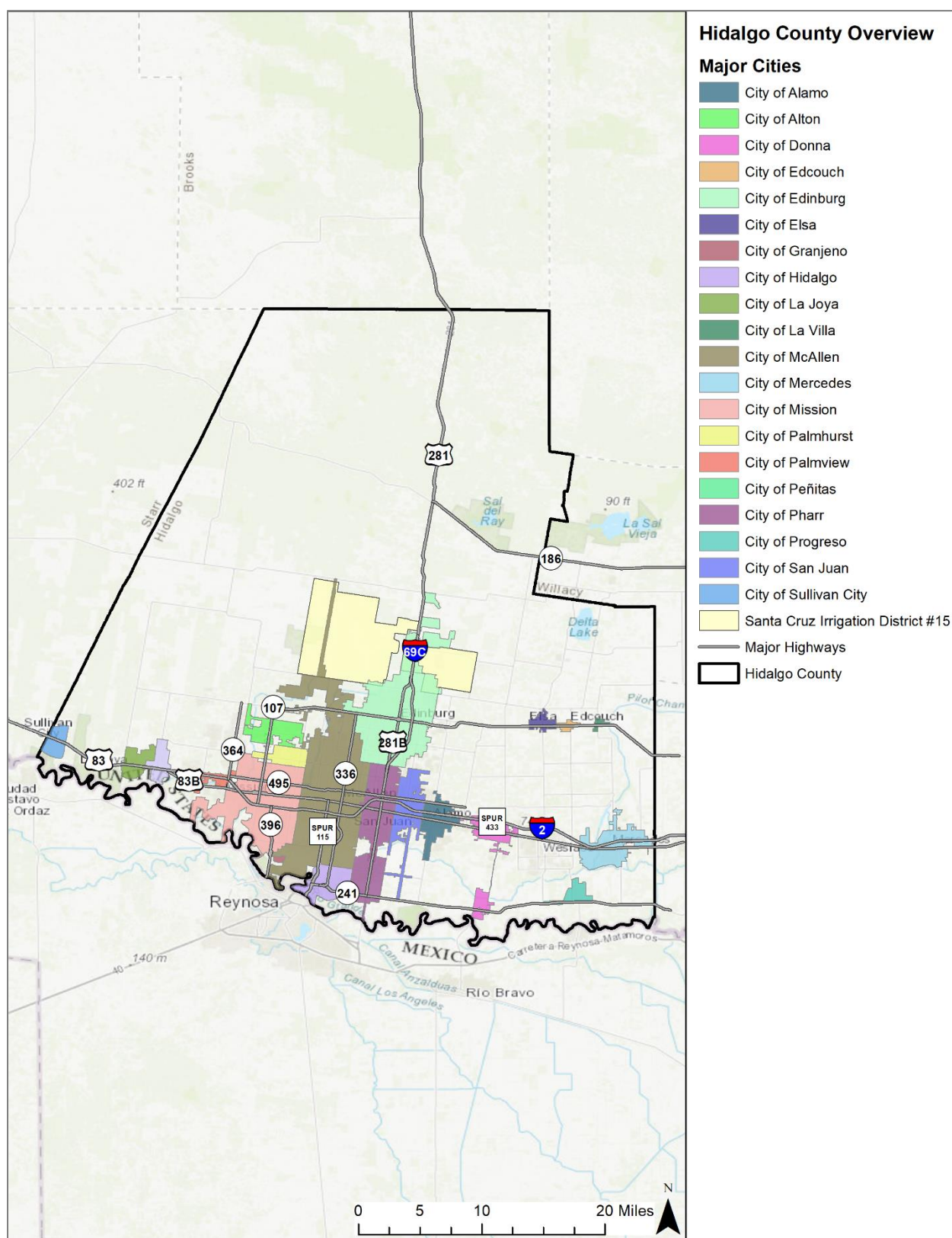


Figure 3-2 shows the participating jurisdictions within Hidalgo County that are covered in the risk assessment analysis of the Plan Update.

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Figure 3-2. Hidalgo County Planning Area



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Provided in Table 3-1 below is a listing of the jurisdictions in Hidalgo County that participated in the Hidalgo County Hazard Mitigation Action Plan Update 2021.

Table 3-1. Participating Jurisdictions

PARTICIPATING JURISDICTIONS		
Hidalgo County	City of Granjeno	City of Palmhurst
City of Alamo	City of Hidalgo	City of Palmview
City of Alton	City of La Joya	City of Peñitas
City of Donna	City of La Villa	City of Pharr
City of Edcouch	City of McAllen	City of Progreso
City of Edinburg	City of Mercedes	City of San Juan
City of Elsa	City of Mission	City of Sullivan City
Santa Cruz Irrigation District #15		

POPULATION AND DEMOGRAPHICS

In the official Census population count, as of April 1, 2010, Hidalgo County has a population of 774,769 residents. By 2019, the number was estimated at 855,176. Table 3-2 provides the population distribution by jurisdiction within Hidalgo County based on the 2010 Census information.¹

Between official U.S. Census population counts, the estimate uses a formula based on new residential building permits and household size. It is simply an estimate and there are many variables involved in achieving an accurate estimation of people living in a given area at a given time.

Table 3-2. Population Distribution by Jurisdiction

JURISDICTION	TOTAL 2010 POPULATION	PERCENTAGE (based on 2010 Population)	2019 POPULATION ESTIMATE	ESTIMATED VULNERABLE OR SENSITIVE POPULATIONS ²		
				Youth (Under 5)	Elderly (Over 65)	Below Poverty Level
City of Alamo	18,353	2.36%	19,613	1,780	3,299	5,256
City of Alton	12,341	1.59%	16,976	1,417	1,619	5,432
City of Donna	15,798	2.03%	16,409	1,458	2,515	5,989
City of Edcouch	3,161	0.41%	3,327	331	667	1,028

¹ Source: <https://www.census.gov/quickfacts/fact/table/hidalgocountytexas/PST120219> and <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>

² The Estimated Vulnerable or Sensitive Populations are based off the 2019 American Community Survey.

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JURISDICTION	TOTAL 2010 POPULATION	PERCENTAGE (based on 2010 Population)	2019 POPULATION ESTIMATE	ESTIMATED VULNERABLE OR SENSITIVE POPULATIONS ²		
				Youth (Under 5)	Elderly (Over 65)	Below Poverty Level
City of Edinburg	77,100	9.95%	95,847	8,521	7,778	22,907
City of Elsa	5,660	0.73%	7,225	370	953	2,211
City of Granjeno	293	0.04%	418	14	26	13
City of Hidalgo	11,198	1.45%	13,884	840	1,322	4,623
City of La Joya	3,985	0.51%	4,253	421	466	1,718
City of La Villa	1,957	0.25%	2,720	306	286	889
City of McAllen	129,877	17.44%	141,968	11,365	18,743	32,653
City of Mercedes	15,570	2.01%	16,564	1,565	2,513	5,566
City of Mission	77,058	9.95%	83,567	7,508	9,801	18,803
City of Palmhurst	2,607	0.34%	2,713	182	399	450
City of Palmview	5,460	0.70%	5,733	355	666	1,697
City of Peñitas	4,403	0.57%	4,769	363	318	1,154
City of Pharr	70,400	9.09%	78,073	8,452	9,508	22,719
City of Progreso	5,507	0.71%	5,905	731	724	1,199
City of San Juan	33,856	4.37%	36,744	3,317	3,640	10,435
City of Sullivan City	4,002	0.52%	4,176	476	590	1,324
Unincorporated Hidalgo County ³	276,183	35.65%	294,292	28,831	26,895	107,921
Hidalgo County	774,769	100%	855,176	78,603	92,728	253,987

SPECIAL DISTRICT POPULATION

The Santa Cruz irrigation District #15 manages and supplies irrigation water to growers in northern Hidalgo County and Edinburg, TX. The Santa Cruz Irrigation District #15 was originally created, established, and incorporated as the Hidalgo County Water Control and Improvement District #15 in late October of 1941. In September 1980, the District name was changed to Santa Cruz Irrigation District #15 when it was successfully petitioned to covert the District to an Irrigation District to provide area farmers with irrigation water; north of Monte Cristo Road in North Edinburg within the District land situated east and west of Highway 281. The District does not pump water directed from the Rio Grande River, but instead relies on water deliveries from Hidalgo County

³ For the purposes of this Plan Update and for the risk assessment, 'Unincorporated Hidalgo County' includes all jurisdictions within the County lines except for the participating jurisdictions.

SECTION 3: COUNTY PROFILE

Irrigation District One (HCID#1) at a diversion point by Ware Road and Monte Cristo. HCID#1 pumps water from the Rio Grande River at their Penitas, TX pump station.

The District encompasses 31,000 acres of which approximately 21,000 are actively irrigated. District landowners utilize drip, center pivot and flood irrigation. The District farmers grow various crops to include citrus, watermelons, onions, pastures and potatoes, as well as some specialty greens and vegetables. Though grown in several nearby districts, sugar cane is not a typical crop in our District.

Table 3-3 provides the number of people employed by the special district.

Table 3-3. Special District Population

SPECIAL DISTRICT	STAFF / EMPLOYEES	POPULATION THE DISTRICT SERVES	ESTIMATED VULNERABLE OR SENSITIVE POPULATIONS
			Staff Works Outdoors
Santa Cruz Irrigation District #15	26	>150,000 ⁴	23

POPULATION GROWTH

The official 2010 Hidalgo County population is 774,769. Overall, Hidalgo County experienced an increase in population between 1980 and 2010 by 173%, or an increase by 491,446. All of the participating jurisdictions that were established by 1980 experienced an increase in population between 1980 and 2010. Between 2000 and 2010, Hidalgo County experienced a population growth. The Cities of Edcouch, Granjeno, and Palmhurst experienced a population decline between 2000 and 2010. Table 3-4 provides historic growth rates in Hidalgo County.

Table 3-4. Population for Hidalgo County, 1980-2010

JURISDICTIONS	1980	1990	2000	2010	POP CHANGE 1980-2010	PERCENT OF CHANGE	POP CHANGE 2000-2010	PERCENT OF CHANGE
City of Alamo	5,831	8,210	14,760	18,353	12,522	214.75%	3,593	24.34%
City of Alton	2,732	3,069	4,384	12,341	9,609	351.72%	7,957	181.50%
City of Donna	9,952	12,652	14,768	15,798	5,846	58.74%	1,030	6.97%
City of Edcouch	3,092	2,878	3,342	3,161	64	2.23%	-181	-5.42%
City of Edinburg	24,075	29,885	48,465	77,100	53,025	220.25%	28,635	59.08%
City of Elsa	5,061	5,242	5,549	5,660	599	11.84%	111	2.00%

⁴ Santa Cruz Irrigation District #15 serves an area of approximately 21,000 acres of farm land. The District delivers about 3,000 acre feet of water per year to North Alamo Water Supply Corporation (NAWSC) for further treatment and delivery to its customers. NAWSC receives water for treatment from other Districts and also treats groundwater through the reverse osmosis process. The "2016 Rio Grande Regional Water Plan" indicated the population served by NAWSC would be in excess of 150,000 in the year 2020.

SECTION 3: COUNTY PROFILE

City of Granjeno	-	-	313	293	-	-	-20	-6.39%
City of Hidalgo	2,288	3,292	7,322	11,198	8,910	389.42%	3,876	52.94%
City of La Joya	2,018	2,604	3,303	3,985	1,967	97.47%	682	20.65%
City of La Villa	1,442	1,388	1,305	1,957	515	35.71%	652	49.96%
City of McAllen	66,281	84,021	106,414	129,877	63,596	95.95%	23,463	22.05%
City of Mercedes	11,851	12,694	13,649	15,570	3,719	31.38%	1,921	14.07%
City of Mission	22,653	28,653	45,408	77,058	54,405	240.17%	31,650	69.70%
City of Palmhurst	364	326	4,872	2,607	2,243	616.21%	-2,265	-46.49%
City of Palmview	683	1,818	4,107	5,460	4,777	699.41%	1,353	32.94%
City of Peñitas	-	-	1,167	4,403	-	-	3,236	277.29%
City of Pharr	21,381	32,921	46,660	70,400	49,019	229.26%	23,740	50.88%
City of Progreso	-	-	4,851	5,507	-	-	656	13.52%
City of San Juan	7,608	10,815	26,229	33,856	26,248	345.01%	7,627	29.08%
City of Sullivan City	-	-	3,998	4,002	-	-	4	0.10%
Unincorporated Hidalgo County ⁵	96,011	143,077	208,597	276,183	180,172	187.66%	67,586	32.40%
Hidalgo County	283,323	383,545	569,463	774,769	491,446	173.46%	205,306	36.05%

FUTURE DEVELOPMENT

To better understand how future growth and development in the County might affect hazard vulnerability, it is useful to consider population growth, occupied and vacant land, the potential for future development in hazard areas, and current planning and growth management efforts. This section includes an analysis of the projected population change and economic impacts.

Population projections from 2010 to 2040 are listed in Table 3-5, as provided by the Office of the State Demographer, Texas State Data Center, and the Institute for Demographic and Socioeconomic Research. Population projections are based on a 0.5 scenario growth rate, which is 50 percent of the population growth rate that occurred during 2000-2010. This information is only available at the County level; however, the population projection shows an increase in population density for the County, which would mean overall growth for the County.

⁵ For the purposes of this Plan Update and for the risk assessment, 'Unincorporated Hidalgo County' includes all jurisdictions within the County lines except for the participating jurisdictions.

SECTION 3: COUNTY PROFILE

Table 3-5. Hidalgo County Population Projections

COUNTY	LAND AREA (SQ MI)	2010		2020		2030		2040	
		Population							
		Total Number	Density (Land Area, SQ MI)	Total Number	Density (Land Area, SQ MI)	Total Number	Density (Land Area, SQ MI)	Total Number	Density (Land Area, SQ MI)
Hidalgo	1,571	774,769	493.2	948,305	603.6	1,145,413	729.1	1,345,740	856.6

ECONOMIC IMPACT

Building and maintaining infrastructure depends on the economy, and therefore, protecting infrastructure from risk due to natural hazards in the planning area is important to the participating jurisdictions within Hidalgo County. Whether it is expanding culverts under a road that washes out during flash flooding, shuttering a fire station, or flood-proofing a wastewater facility, infrastructure must be mitigated from natural hazards in order to continue providing essential utility and emergency response services in a fast-growing planning area. Major employers in the area are critical to the health of the economy, as well as effective transportation connectivity.

The Alamo Economic Development Corporation (EDC) is dedicated to promoting and providing new business opportunities that will foster the growth of the community. Their programs are created and managed with the sole purpose of fostering economic development through new jobs and drawing both private and public investments to the community.

The City of Alton Development Corporation (CADC) was created to promote, encourage, and enhance the creation of jobs and expansion of the local tax base through projects which assist in the retention and expansion of existing primary employers and which attract new primary employers and aid their development and growth.

The purposes of the Donna Economic Development Corporation and the Development Corporation of Donna are to pursue all avenues of growth for new and existing businesses and to maximize employment opportunities, tax base, and quality of life in the City.

The Edinburg Economic Development Corporation (EDC) is dedicated to making Edinburg an innovative and competitive city, attractive for business investment that generates wealth and employment. The Edinburg EDC provides assistance in site selection, relocation, and other services related to a new, expanding, or relocating business.

The Hidalgo Economic Development Corporation is established to market Hidalgo as a premier location for business property. The HEDC has a core cultural focus while supporting local initiatives through History, Cultural Arts, Entertainment, Redevelopment (Historical Old Hidalgo), Entrepreneurs and small and big business development.

The McAllen Economic Development Corporation (MEDC) generates job growth by attracting new industry and helping existing companies to expand. The MEDC is committed to being a single point of contact to industrial businesses, providing services at no cost to the companies seeking cost effective manufacturing strategies to maintain a competitive edge in today's global economy.

SECTION 3: COUNTY PROFILE

The Economic Development Department for the City of Peñitas is responsible for providing services for business placement, retention, expansion, and recruitment; providing programs dedicated to making the community and workforce better; creating a marketing strategy for the city; and, hosting and sponsoring a variety of workshops and seminars to help businesses grow.

The Development Services for the City of Pharr is responsible to provide assistance and coordination to homeowners, business owners, developers and members of the public for all aspects relating to land use, building development, plan reviews, and field services.

The mission statement of the San Juan Economic Development Corporation is to promote, encourage and enhance the creation of jobs and the expansion of the local tax-base through projects which assist in the retention and expansion of existing primary employers and which attract new primary employers and aid in their development and growth.

Sullivan Economic Development Corporation aims to bring more businesses to the City of Sullivan City. The newly developed Economic Development Board will focus on developing incentives for new businesses. Their first priority will be the development of a community profile which contains traffic counts, census data, and information on commercial land available for new businesses.

EXISTING AND FUTURE LAND USE AND DEVELOPMENT TRENDS

The following jurisdictions have a Master or Comprehensive Plan in place: City of Alamo, City of Donna, City of Edinburg, City of Elsa, City of La Joya, City of La Villa, City of McAllen, City of Mission, City of Palmhurst, City of Peñitas, City of Pharr, City of Progreso, City of San Juan, and City of Sullivan City. These plans are part of a continuous process to provide an environment for the citizens and to consider the general desire of the community to conserve, preserve, and protect the natural environment of their jurisdiction. These plans are used to guide individuals in making decisions which affect the community with the understanding of the long-term effects.

The Edinburg Gateway Plan – An Agenda for 2025 is the City of Edinburg’s Comprehensive Plan that is intended to serve as a framework for community decision-making, ultimately providing a blueprint or “gateway” to the future. It provides integrated policy direction in the areas of land use and community character, growth and development, transportation, economic development, and utilities. This policy direction is coupled with short- and long-term implementation strategies to help translate the policies into actionable programs, development activities, and other strategic efforts by the City, its residents, and other jurisdictional partners.

Envisioning Our Future, the City of San Juan, Texas Comprehensive Plan was completed in 2019. The purposes of a comprehensive plan are to promote sound development and ensure public health, safety and welfare. A comprehensive plan may include, but is not limited to, land use, transportation, and public facilities. A comprehensive plan should provide education and guidance. It educates the leadership and the citizens on existing conditions, explains the need for looking ahead, and identifies problems, and solutions. It then serves as a handbook for the basis of decision making. It provides the ability to say yes or no to proposed zoning changes and development and encourages a thoughtfully conceived budget for facilities and infrastructure needs.

SECTION 4: RISK OVERVIEW

Hazard Description	1
Natural Hazards and Climate Change	4
Overview of Hazard Analysis	4

HAZARD DESCRIPTION

Section 4 is the first phase of the Risk Assessment, providing background information for the hazard identification process and descriptions for the hazards identified. The Risk Assessment continues with Sections 5 through 18, which include hazard descriptions and vulnerability assessments.

Upon a review of the full range of natural hazards suggested under FEMA planning guidance, participating jurisdictions within Hidalgo County identified twelve natural hazards and two man-made hazards that are addressed in the Hazard Mitigation Plan Update. Of the natural hazards identified, eleven hazards and one quasi-technological¹ hazard (dam and levee failure) were identified as significant, as shown in Table 4-1. The hazards were identified through input from Planning Team members and a review of the current 2018 State of Texas Hazard Mitigation Plan (State Plan). Readily available online information from reputable sources such as federal and state agencies were also evaluated and utilized to supplement information as needed.

In general, there are three main categories of hazards: atmospheric, hydrologic, and technological. Atmospheric hazards are events or incidents associated with weather generated phenomenon. Atmospheric hazards that have been identified as significant for the Planning Area include extreme heat, hail, hurricane wind, lightning, thunderstorm wind, tornado, and winter storm (Table 4-1).

Hydrologic hazards are events or incidents associated with water related damage and account for over 75 percent of Federal disaster declarations in the United States. Hydrologic hazards identified as significant for the planning area include flood, drought, and expansive soils.

Technological hazards refer to the origins of incidents that can arise from human activities, such as the construction and maintenance of dams. They are distinct from natural hazards primarily because they originate from human activity. The risks presented by natural hazards may be increased or decreased as a result of human activity, however they are not inherently human-induced. Therefore, dam and levee failure is classified as a quasi-technological hazard and referred to as “technological,” in Table 4-1 for purposes of description.

For the Risk Assessment, the wildfire hazard is considered “other,” since this hazard is not considered atmospheric, hydrologic, nor technological.

The man-made hazards are hazardous materials and mass migration.

¹ While dam failure is generally considered a quasi-technological hazard, it is profiled in the Plan Update as a natural hazard, i.e. a breach caused by extensive rainfall or flooding.

SECTION 4: RISK OVERVIEW

Table 4-1. Hazard Descriptions

HAZARD	DESCRIPTION
ATMOSPHERIC	
Extreme Heat	Extreme heat is the condition whereby temperatures hover ten degrees or more above the average high temperature in a region for an extended period of time.
Hail	Hailstorms are a potentially damaging outgrowth of severe thunderstorms. Early in the developmental stages of a hailstorm, ice crystals form within a low-pressure front due to the rapid rising of warm air into the upper atmosphere and subsequent cooling of the air mass.
Hurricane Wind	A hurricane is an intense tropical weather system of strong thunderstorms with a well-defined surface circulation and maximum sustained winds of 74 mph or higher.
Lightning	Lightning is a sudden electrostatic discharge that occurs during an electrical storm. This discharge occurs between electrically charged regions of a cloud, between two clouds, or between a cloud and the ground.
Thunderstorm Wind	A thunderstorm occurs when an observer hears thunder. Radar observers use the intensity of the radar echo to distinguish between rain showers and thunderstorms. Lightning detection networks routinely track cloud-to-ground flashes, and therefore thunderstorms.
Tornado	A tornado is a violently rotating column of air that has contact with the ground and is often visible as a funnel cloud. Its vortex rotates cyclonically with wind speeds ranging from as low as 40 mph to as high as 300 mph. The destruction caused by tornadoes ranges from light to catastrophic, depending on the location, intensity, size, and duration of the storm.
Winter Storm	Severe winter storms may include snow, sleet, freezing rain, or a mix of these wintry forms of precipitation. Blizzards, the most dangerous of all winter storms, combine low temperatures, heavy snowfall, and winds of at least 35 miles per hour, reducing visibility to only a few yards. Ice storms occur when moisture falls and freezes immediately upon impact on trees, power lines, communication towers, structures, roads, and other hard surfaces. Winter storms and ice storms can down trees, cause widespread power outages, damage property, and cause fatalities and injuries to human life.
HYDROLOGIC	
Drought	A prolonged period of less than normal precipitation such that the lack of water causes a serious hydrologic imbalance. Common effects of drought include crop failure, water supply shortages, and fish and wildlife mortality.

SECTION 4: RISK OVERVIEW

HAZARD	DESCRIPTION
Expansive Soils	Expansive soils are soils and soft rock that tend to swell or shrink due to changes in moisture content. Changes in soil volume present a hazard primarily to structures built on top of expansive soils.
Flood	The accumulation of water within a body of water, which results in the overflow of excess water onto adjacent lands, usually floodplains. The floodplain is the land adjoining the channel of a river, stream, ocean, lake, or other watercourse or water body that is susceptible to flooding. Most floods fall into the following three categories: riverine flooding, coastal flooding, and shallow flooding.
OTHER	
Wildfire	A wildfire is an uncontrolled fire burning in an area of vegetative fuels such as grasslands, brush, or woodlands. Heavier fuels with high continuity, steep slopes, high temperatures, low humidity, low rainfall, and high winds all work to increase the risk for people and property located within wildfire hazard areas or along the urban/wildland interface. Wildfires are part of the natural management of forest ecosystems, but most are caused by human factors.
TECHNOLOGICAL	
Dam Failure	Dam failure is the collapse, breach, or other failure of a dam structure resulting in downstream flooding. In the event of a dam failure, the energy of the water stored behind even a small dam is capable of causing loss of life and severe property damage if development exists downstream of the dam.
MAN-MADE	
Hazardous Materials	A hazardous material (as solid, liquid, and / or gaseous contaminants) of flammable or poisonous material that would be a danger to life or to the environment if released without precaution.
Mass Migration	A migration of undocumented aliens that is of such magnitude and duration that it poses a threat to the national security of the United States.

Hazards that weren't considered significant and were not included in the Plan Update are located in Table 4-2, along with the evaluation process used for determining the significance of each of these hazards. Hazards not identified for inclusion at this time may be addressed during future evaluations and updates.

SECTION 4: RISK OVERVIEW

Table 4-2. Other Hazards Deferred

HAZARD CONSIDERED	REASON FOR DETERMINATION
Coastal Erosion	The planning area is not located on the coast, therefore coastal erosion does not pose a risk.
Earthquake	According to the State Plan, an earthquake occurrence for the planning area is considered exceedingly rare. Earthquake events are not considered to pose a risk to the planning area. There is no history of impact to critical structures, systems, populations or other community assets or vital services as a result of earthquakes and impact is not expected in the future.
Land Subsidence	There are no historical occurrences of land subsidence for the planning area and it is located in an area where occurrences are considered rare. There is no history of impact to critical structures, systems, populations or other community assets or vital services as a result of land subsidence and none is expected in the future.

NATURAL HAZARDS AND CLIMATE CHANGE

Climate change is defined as a long-term hazard which can increase or decrease the risk of other weather hazards. It directly endangers property due to sea level rise and biological organisms due to habitat destruction.

Global climate change is expected to exacerbate the risks of certain types of natural hazards impacted through rising sea levels, warmer ocean temperatures, higher humidity, the possibility of stronger storms, and an increase in wind and flood damages due to storm surges. While sea level rise is a natural phenomenon and has been occurring for several thousand years, the general scientific consensus is that the rate has increased in the past 200 years, from 0.5 millimeters per year to 2 millimeters per year.

Texas is considered one of the more vulnerable states in the U.S. to both abrupt climate changes and to the impact of gradual climate changes to the natural and built environments. Mega-droughts can trigger abrupt changes to regional ecosystems and the water cycle, drastically increase extreme summer temperature and fire risk, and reduce availability of water resources, as Texas experienced during 2011-2012.

Paleoclimate records also show that the climate over Texas had large changes between periods of frequent mega-droughts and the periods of mild droughts that Texas is currently experiencing. While the cause of these fluctuations is unclear, it would be wise to anticipate that such changes could occur again and may even be occurring now.

OVERVIEW OF HAZARD ANALYSIS

The methodologies utilized to develop the Risk Assessment are a historical analysis and a statistical approach. Both methodologies provide an estimate of potential impact by using a common, systematic framework for evaluation.

SECTION 4: RISK OVERVIEW

Records retrieved from National Centers for Environmental Information (NCEI) and National Oceanic and Atmospheric Administration (NOAA) were reported for participating jurisdictions within Hidalgo County. Remaining records identifying the occurrence of hazard events in the planning area and the maximum recorded magnitude of each event were also evaluated.

The use of geographic information system (GIS) technology to identify and assess risks for Hidalgo County, and evaluate community assets and their vulnerability to the hazards.

The four general parameters that are described for each hazard in the Risk Assessment include frequency of return, approximate annualized losses, a description of general vulnerability, and a statement of the hazard's impact.

Frequency of return was calculated by dividing the number of events in the recorded time period for each hazard by the overall time period that the resource database was recording events. Frequency of return statements are defined in Table 4-3, and impact statements are defined in Table 4-4 below.

Table 4-3. Frequency of Return Statements

PROBABILITY	DESCRIPTION
Highly Likely	Event is probable in the next year.
Likely	Event is probable in the next three years.
Occasional	Event is probable in the next five years.
Unlikely	Event is probable in the next ten years.

Table 4-4. Impact Statements

POTENTIAL SEVERITY	DESCRIPTION
Substantial	Multiple deaths. Complete shutdown of facilities for 30 days or more. More than 50 percent of property destroyed or with major damage.
Major	Injuries and illnesses resulting in permanent disability. Complete shutdown of critical facilities for at least two weeks. More than 25 percent of property destroyed or with major damage.
Minor	Injuries and illnesses do not result in permanent disability. Complete shutdown of critical facilities for more than one week. More than 10 percent of property destroyed or with major damage.
Limited	Injuries and illnesses are treatable with first aid. Shutdown of critical facilities and services for 24 hours or less. Less than 10 percent of property destroyed or with major damage.

Each of the hazard profiles includes a description of a general Vulnerability Assessment. Vulnerability is the total of assets that are subject to damages from a hazard, based on historic recorded damages. Assets in the region were inventoried and defined in hazard zones where

SECTION 4: RISK OVERVIEW

appropriate. The total amount of damages, including property and crop damages, for each hazard is divided by the total number of assets (building value totals) in that community to determine the percentage of damage that each hazard can cause to the community.

To better understand how future growth and development in the Hidalgo County region might affect hazard vulnerability, it is useful to consider population growth, occupied and vacant land, the potential for future development in hazard areas, and current planning and growth management efforts. Hazard vulnerability for all participating jurisdictions within Hidalgo County was reviewed based on recent development changes that occurred throughout the planning area. Hidalgo County has increased slightly between 2010 and 2019 according to the U.S. Census Bureau, therefore there has been no significant factors or development trends with a consequential effect or increase in vulnerability to the population, infrastructure and buildings for hazards.

Once loss estimates and vulnerability were known, an impact statement was applied to relate the potential impact of the hazard on the assets within the area of impact.

SECTION 5: FLOOD

Hazard Description	1
Location	1
Extent	3
Historical Occurrences	27
Significant Events	29
Probability of Future Events	30
Vulnerability and Impact	32
Assessment of Impacts	37
National Flood Insurance Program (NFIP) Participation	39
NFIP Compliance and Maintenance	40
Repetitive Loss	41

HAZARD DESCRIPTION

Floods generally result from excessive precipitation. The severity of a flood event is determined by a combination of several major factors, including: stream and river basin topography and physiography; precipitation and weather patterns; recent soil moisture conditions; and the degree of vegetative clearing and impervious surface. Typically, floods are long-term events that may last for several days.

The primary types of general flooding are inland and coastal flooding. Inland or riverine flooding is a result of excessive precipitation levels and water runoff volumes within the watershed of a stream or river. Inland or riverine flooding is overbank flooding of rivers and streams, typically resulting from large-scale weather systems that generate prolonged rainfall over a wide geographic area, thus it is a naturally occurring and inevitable event. Some river floods occur seasonally when winter or spring rainfalls fill river basins with too much water, too quickly. Torrential rains from decaying hurricanes or tropical systems can also produce river flooding.

LOCATION

The Flood Insurance Rate Map (FIRM) data provided by FEMA for Hidalgo County shows the following flood hazard areas:

- Zone A: Areas subject to inundation by the 1-percent-annual-chance flood event generally determined using approximate methodologies. Because detailed hydraulic analyses have not been performed, no Base Flood Elevations (BFEs) or flood depths are shown. Mandatory flood insurance requirements and floodplain management standards apply.
- Zone AE: Areas subject to inundation by 1-percent-annual-chance shallow flooding. It is the base floodplain where BFEs are provided. AE zones are now used on new format FIRMs instead of A1-30 zones.

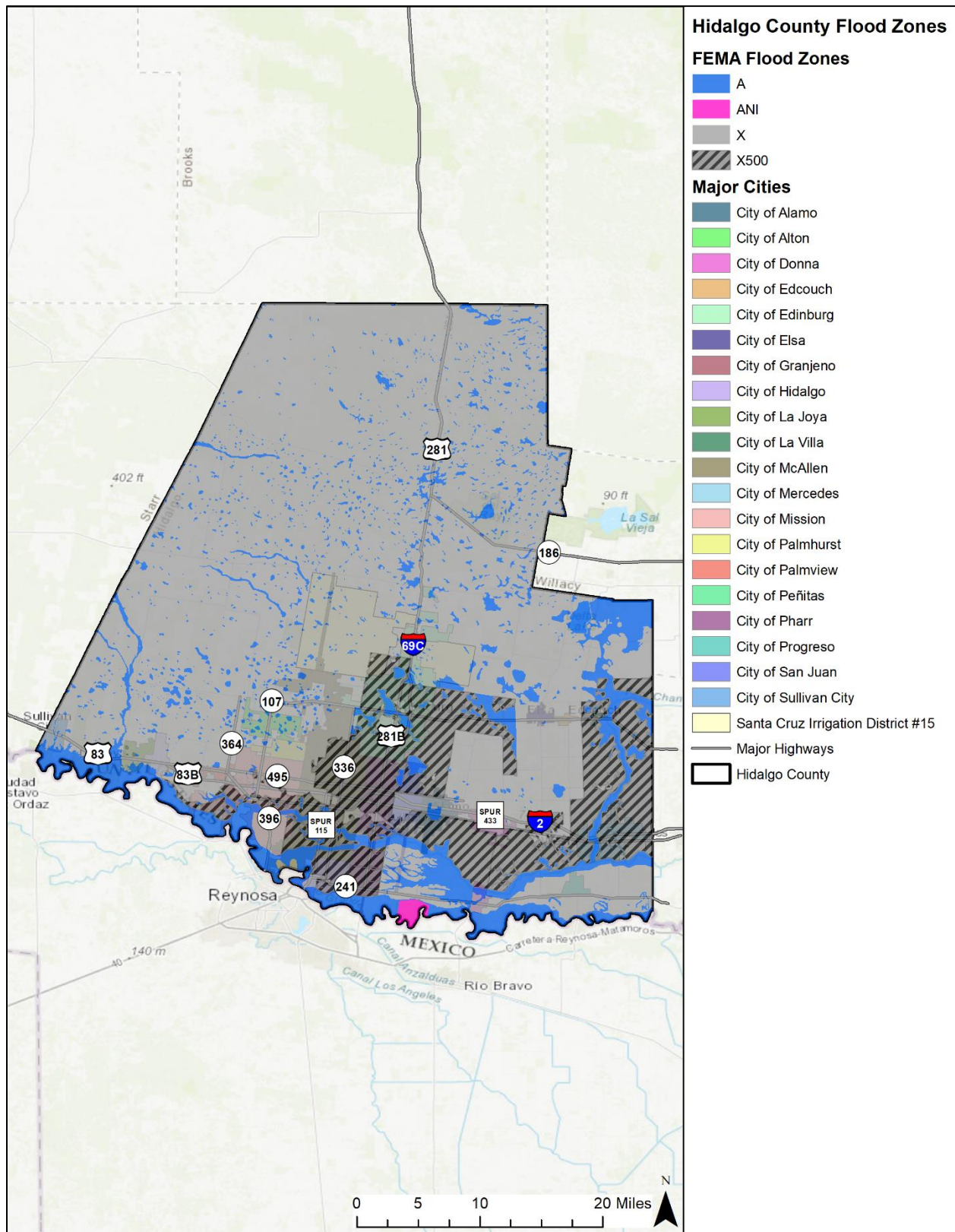
SECTION 5: FLOOD

- Zone VE: Coastal areas with a 1-percent-annual-chance of flooding and an additional hazard associated with storm waves. These areas have a 26 percent chance of flooding over the life of a 30-year mortgage. BFEs are provided.
- Zone X: Moderate risk areas within the 0.2-percent-annual-chance floodplain, areas of 1-percent-annual-chance flooding where average depths are less than 1 foot, areas of 1-percent-annual-chance flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 1-percent-annual-chance flood by a levee. No BFEs or base flood depths are shown within these zones.

It is noted that the City of Edcouch does not have flood map data at this time. Locations of flood zones in Hidalgo County and all participating jurisdictions are based on the Digital Flood Insurance Rate Map (DFIRM) from FEMA are detailed below (Figure 5-1 through 5-22).

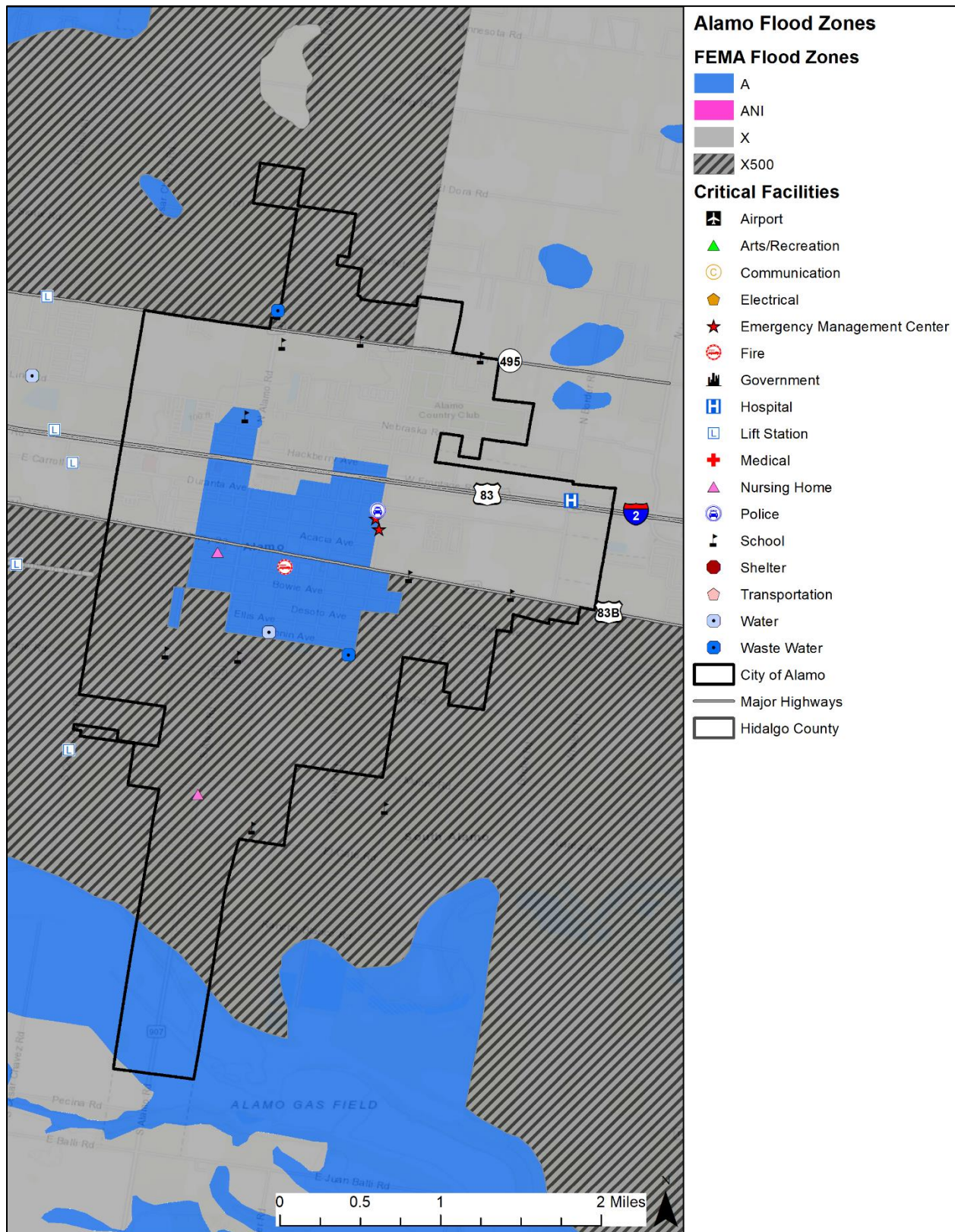
SECTION 5: FLOOD

Figure 5-1. Estimated Flood Zones in the Hidalgo County



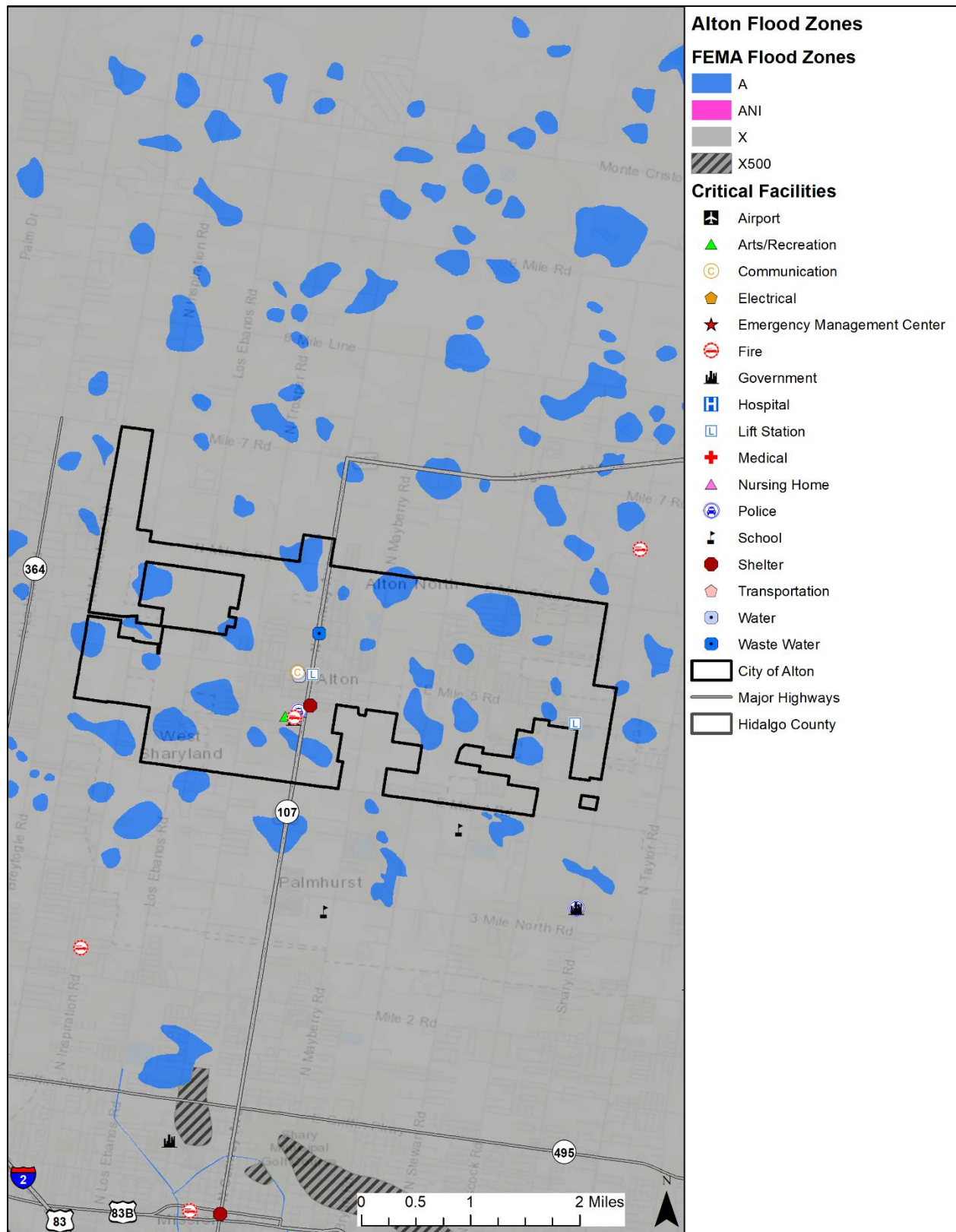
SECTION 5: FLOOD

Figure 5-2. Estimated Flood Zones in the City of Alamo



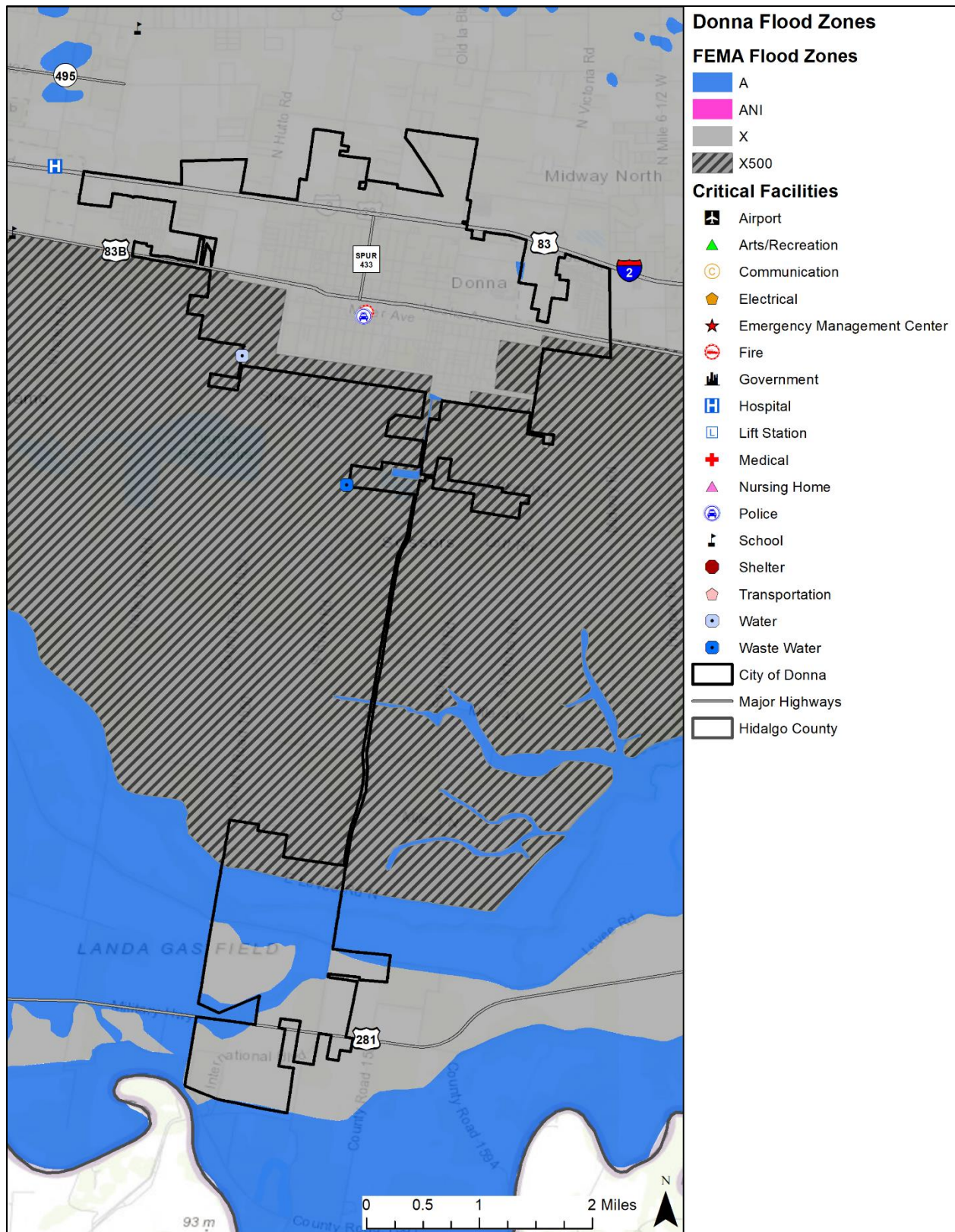
SECTION 5: FLOOD

Figure 5-3. Estimated Flood Zones in the City of Alton



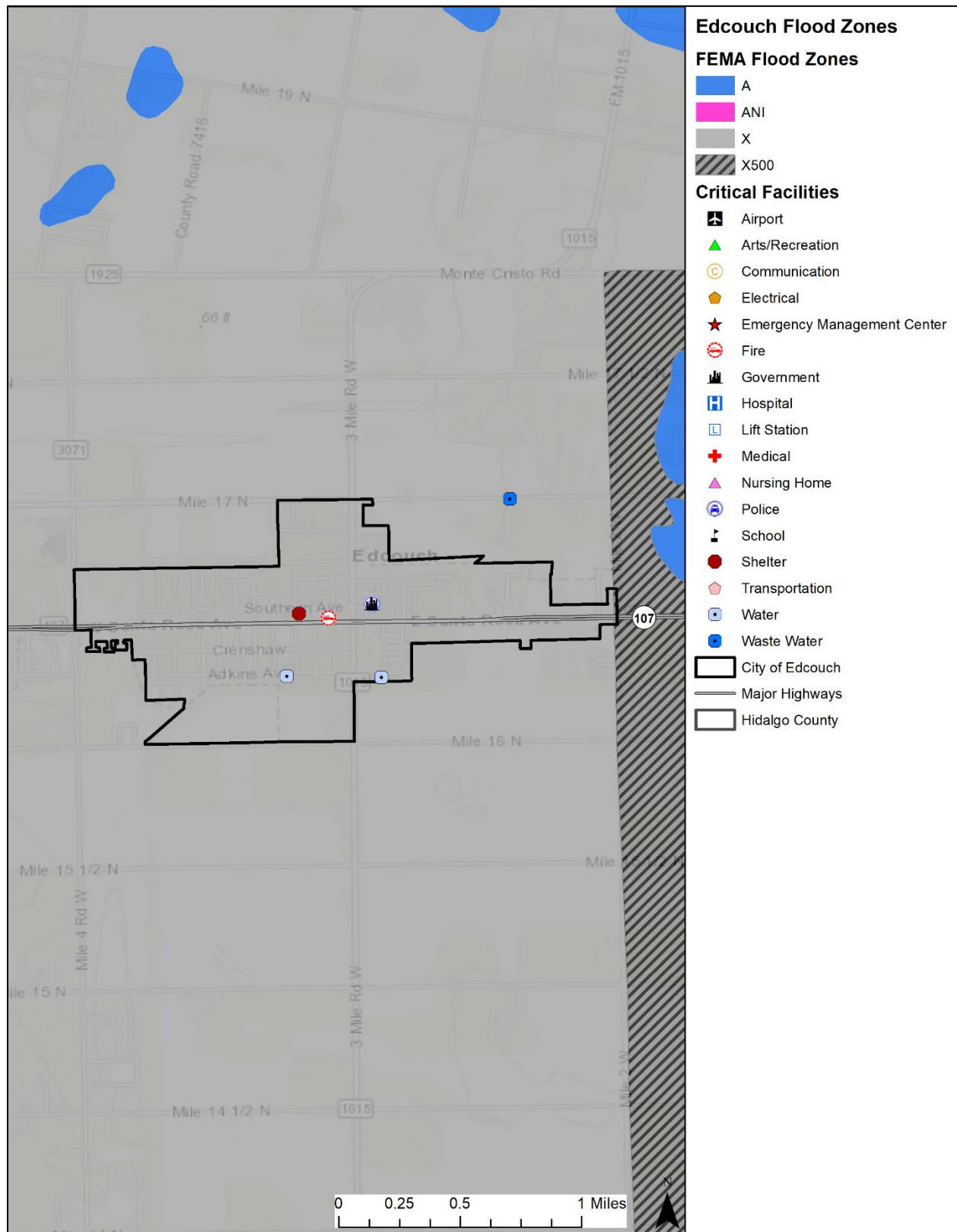
SECTION 5: FLOOD

Figure 5-4. Estimated Flood Zones in the City of Donna



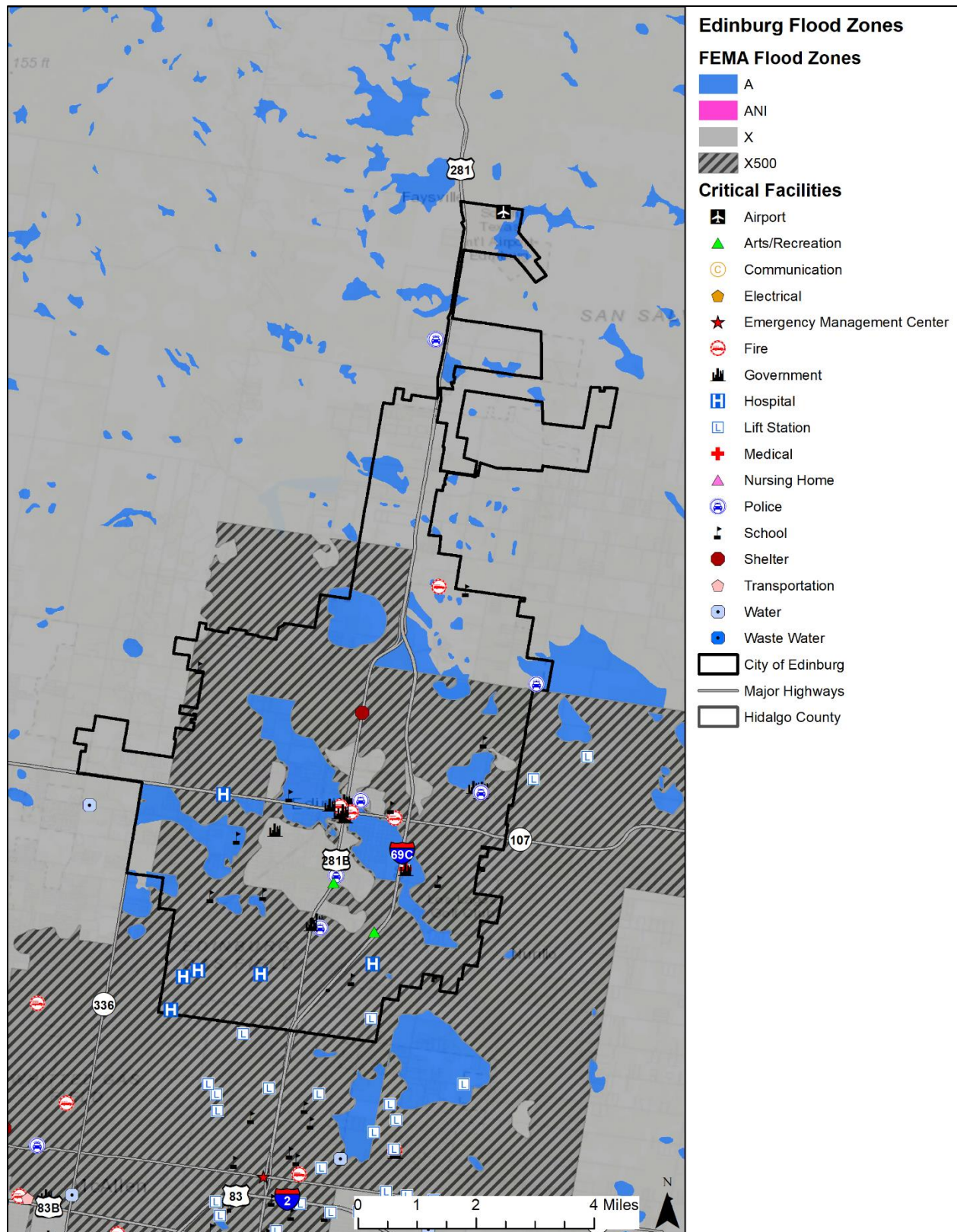
SECTION 5: FLOOD

Figure 5-5. Estimated Flood Zones in the City of Edcouch



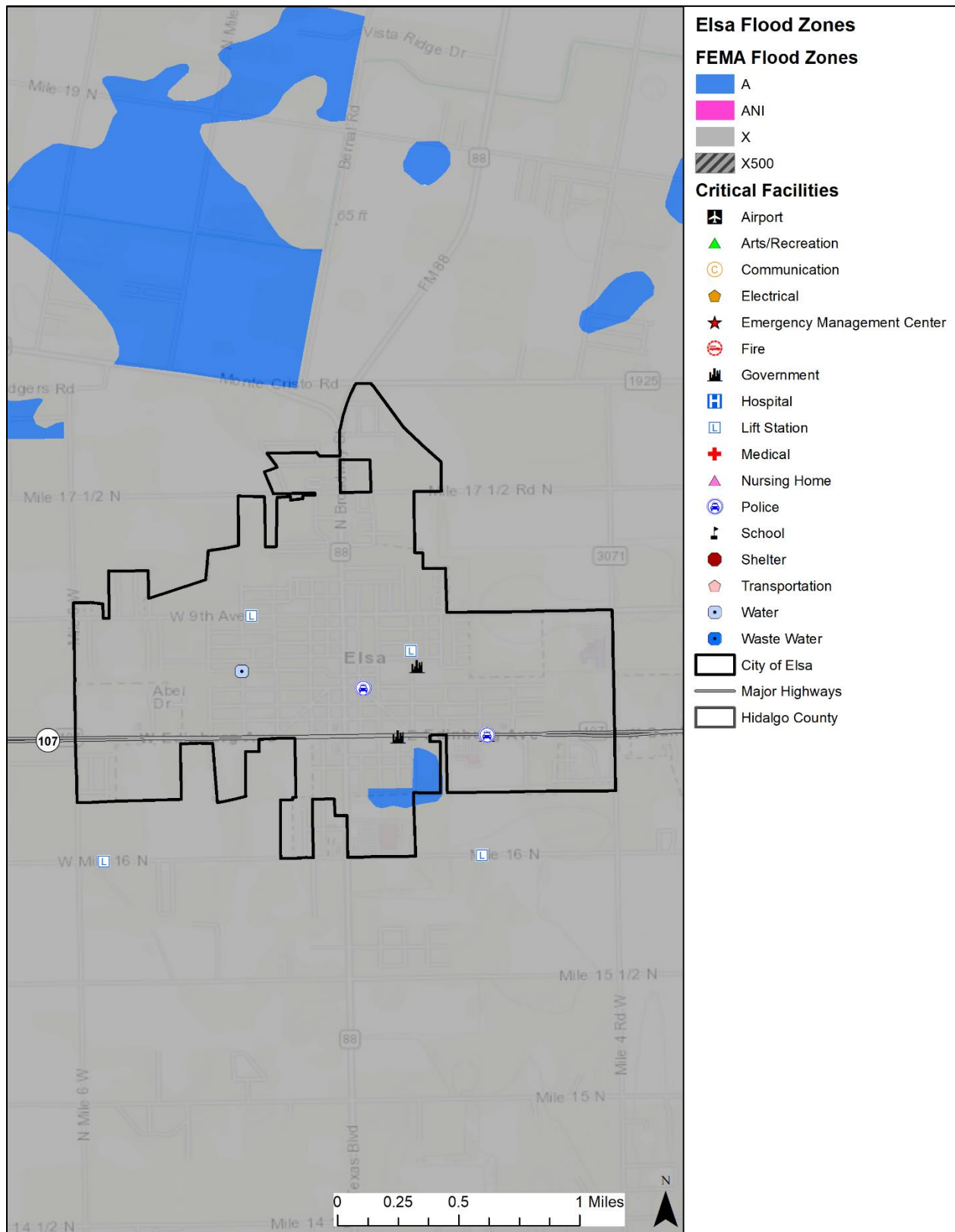
SECTION 5: FLOOD

Figure 5-6. Estimated Flood Zones in the City of Edinburg



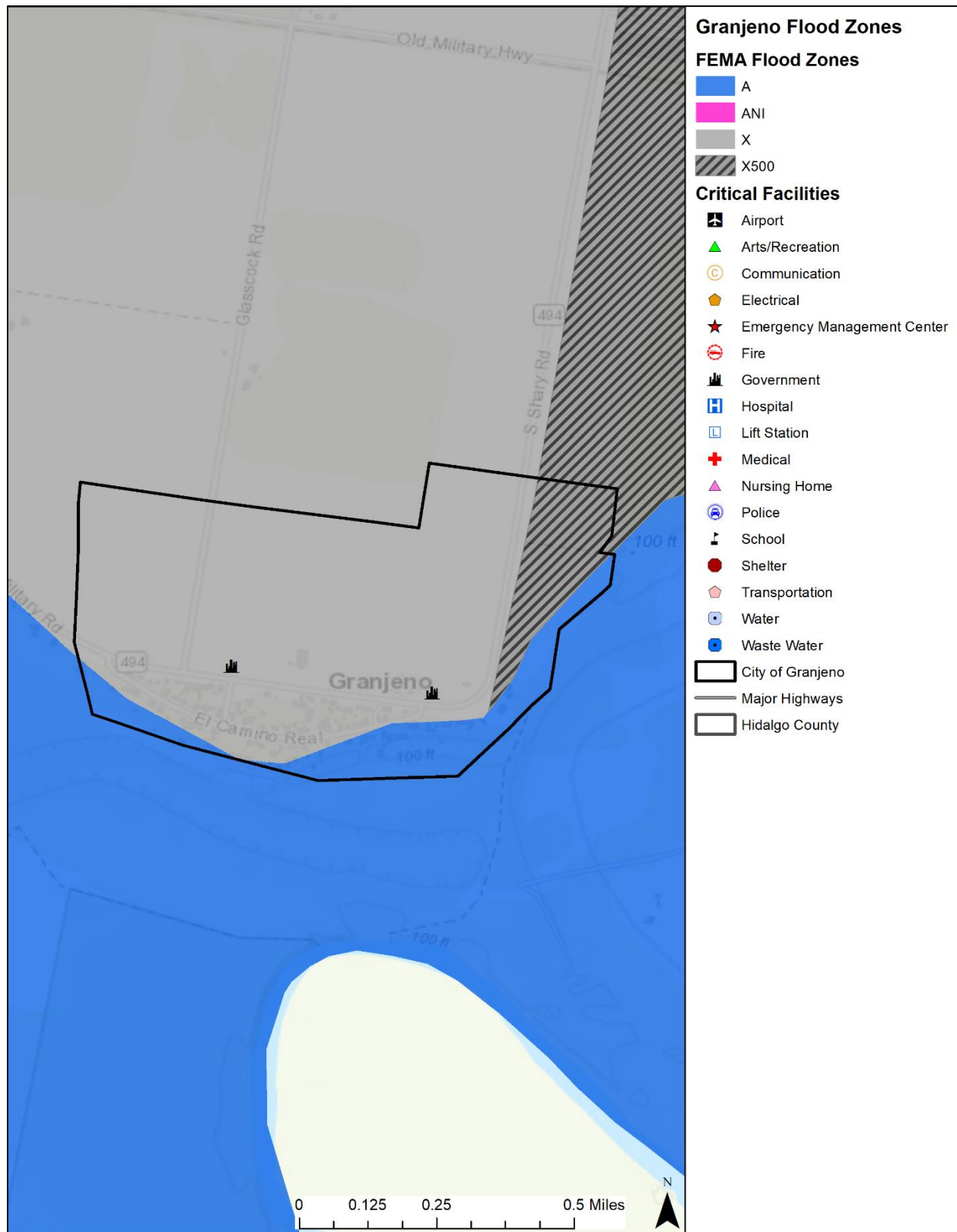
SECTION 5: FLOOD

Figure 5-7. Estimated Flood Zones in the City of Elsa



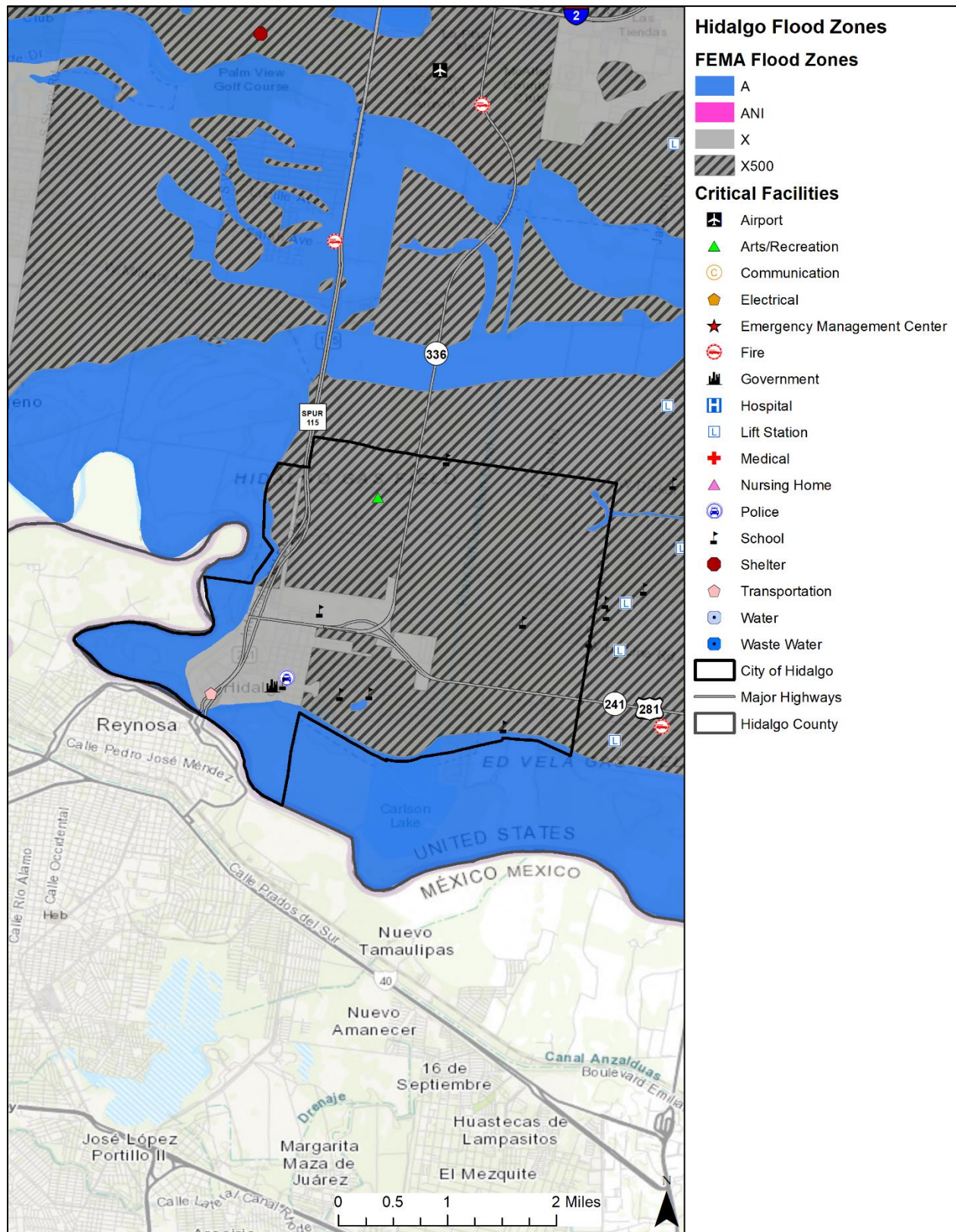
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Figure 5-8. Estimated Flood Zones in the City of Granjeno



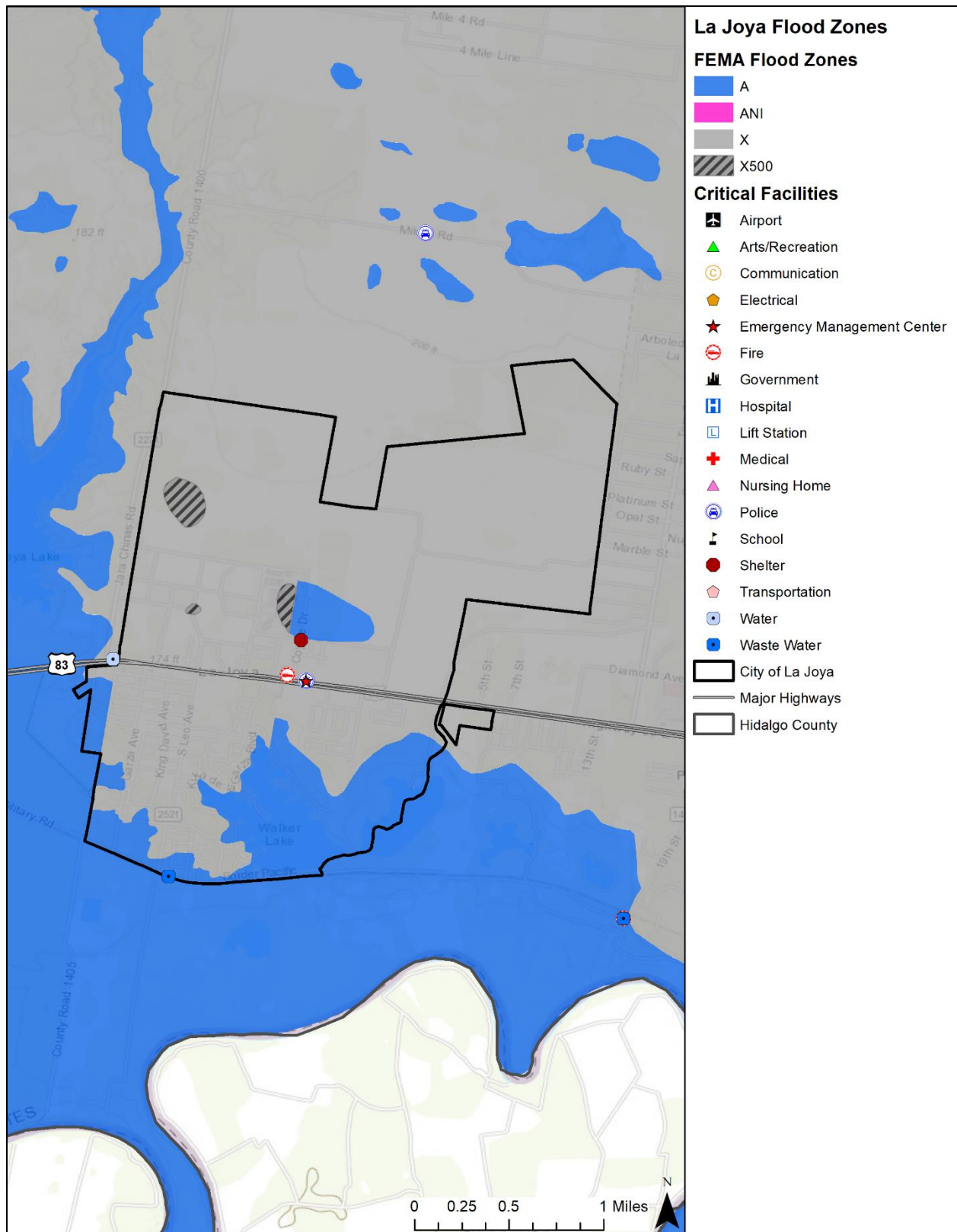
SECTION 5: FLOOD

Figure 5-9. Estimated Flood Zones in the City of Hidalgo



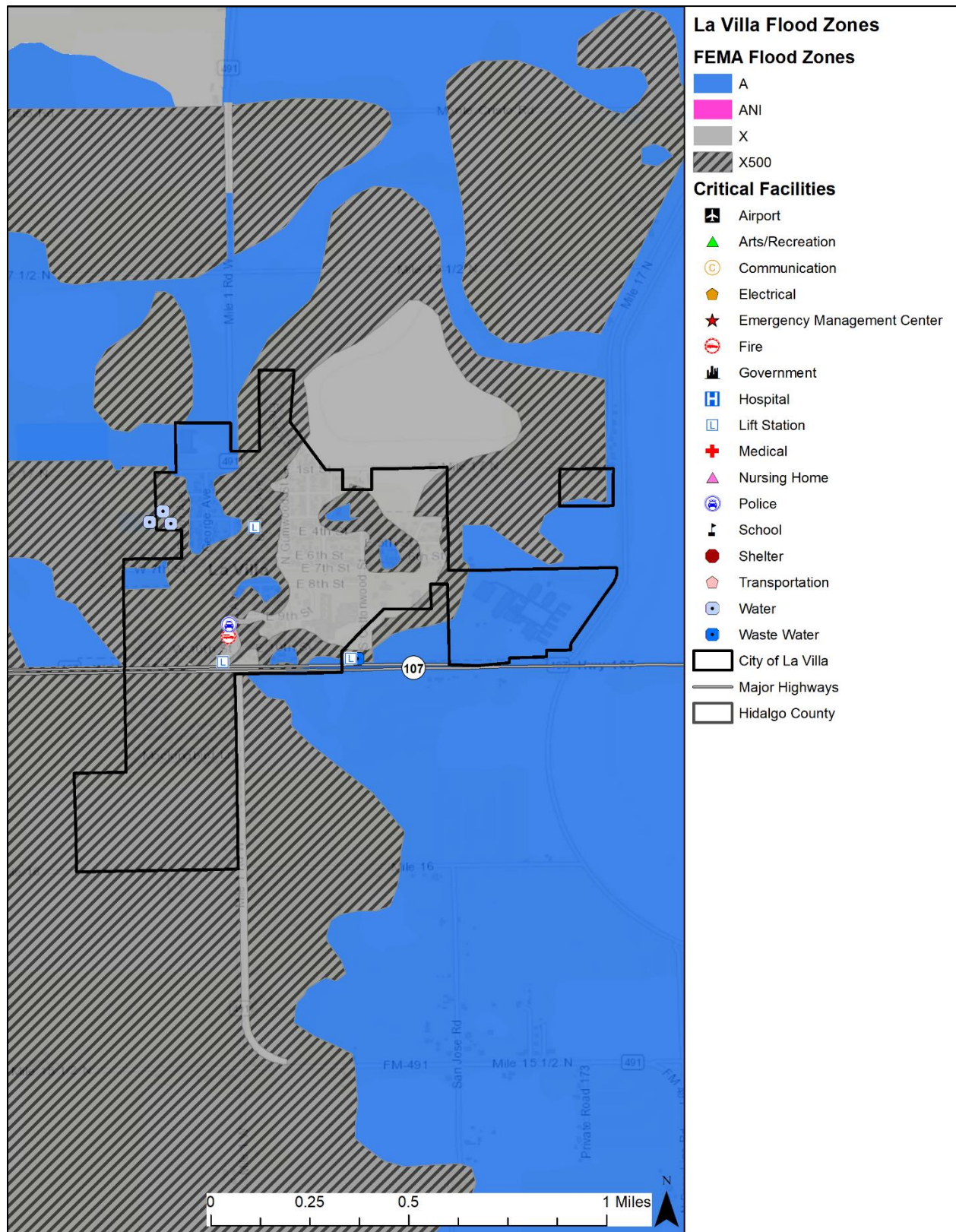
SECTION 5: FLOOD

Figure 5-10. Estimated Flood Zones in the City of La Joya



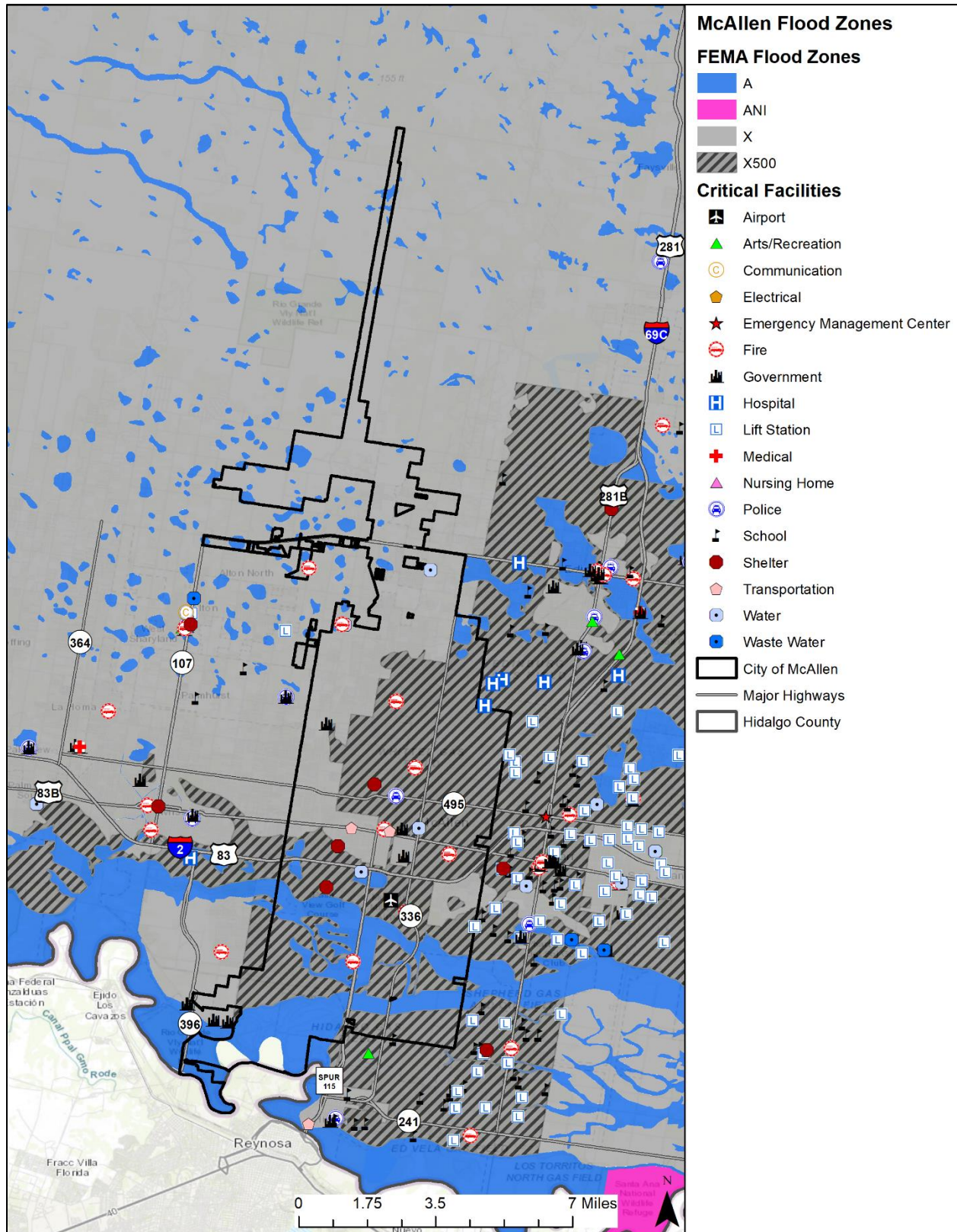
SECTION 5: FLOOD

Figure 5-11. Estimated Flood Zones in the City of La Villa



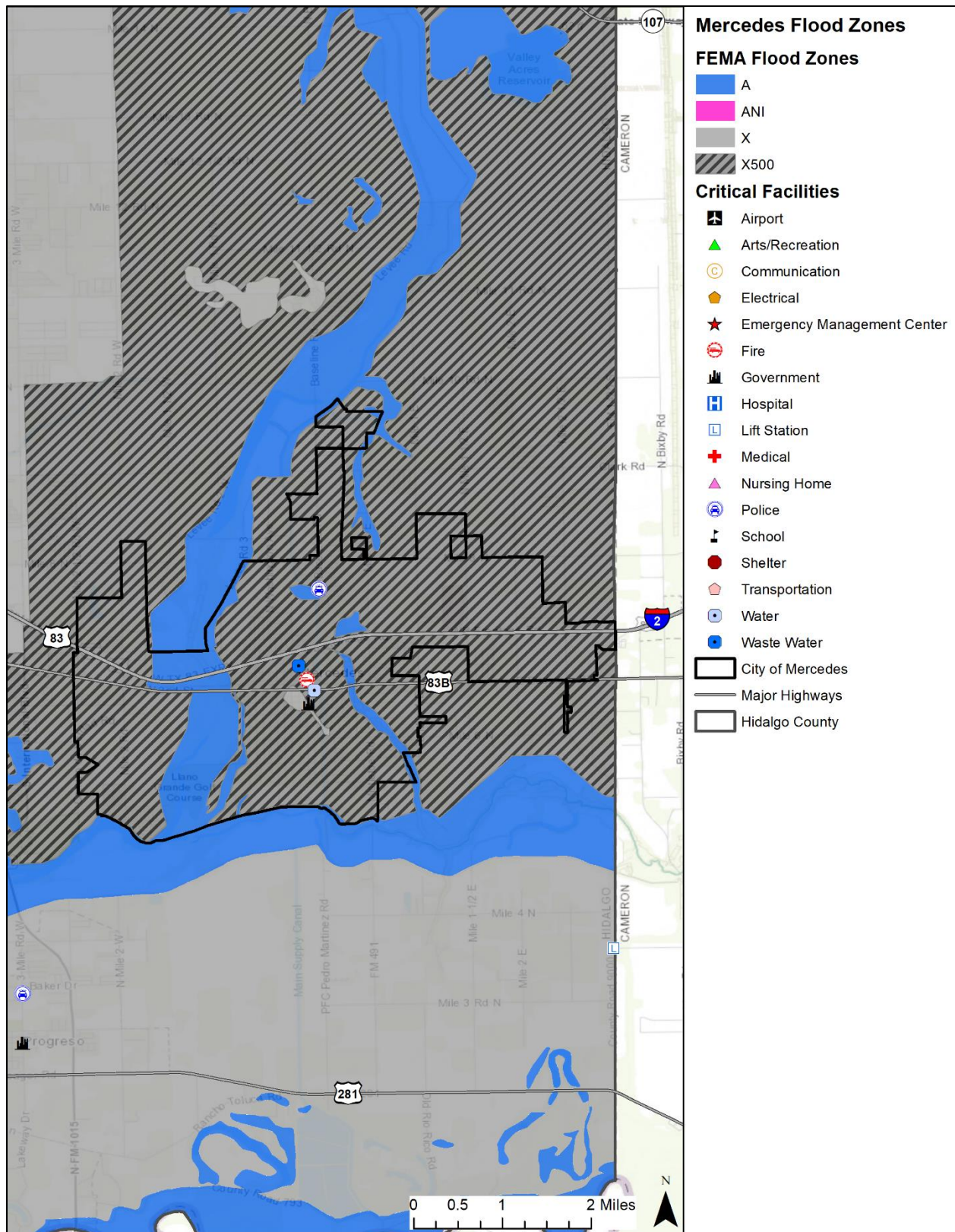
SECTION 5: FLOOD

Figure 5-12. Estimated Flood Zones in the City of McAllen



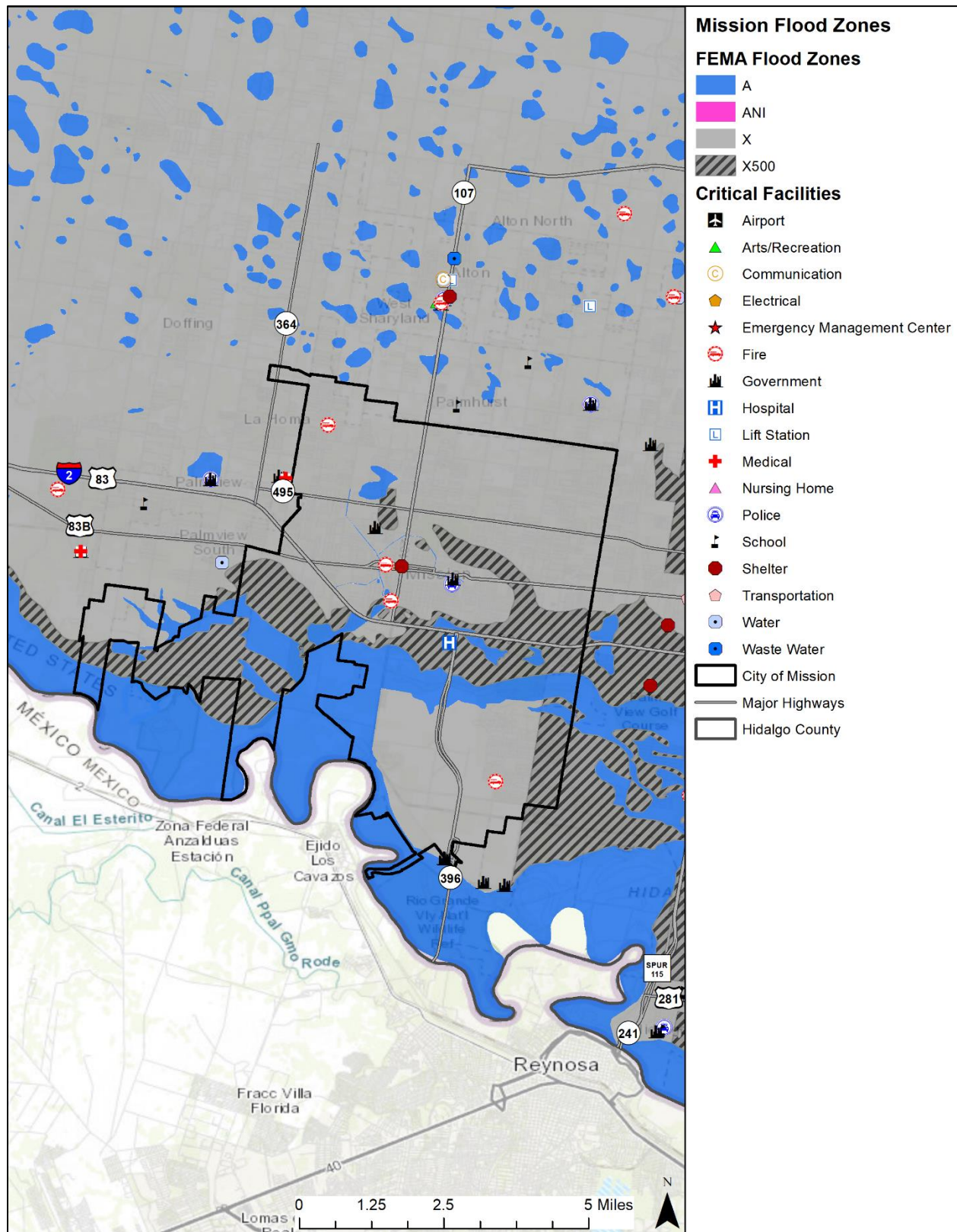
SECTION 5: FLOOD

Figure 5-13. Estimated Flood Zones in the City of Mercedes



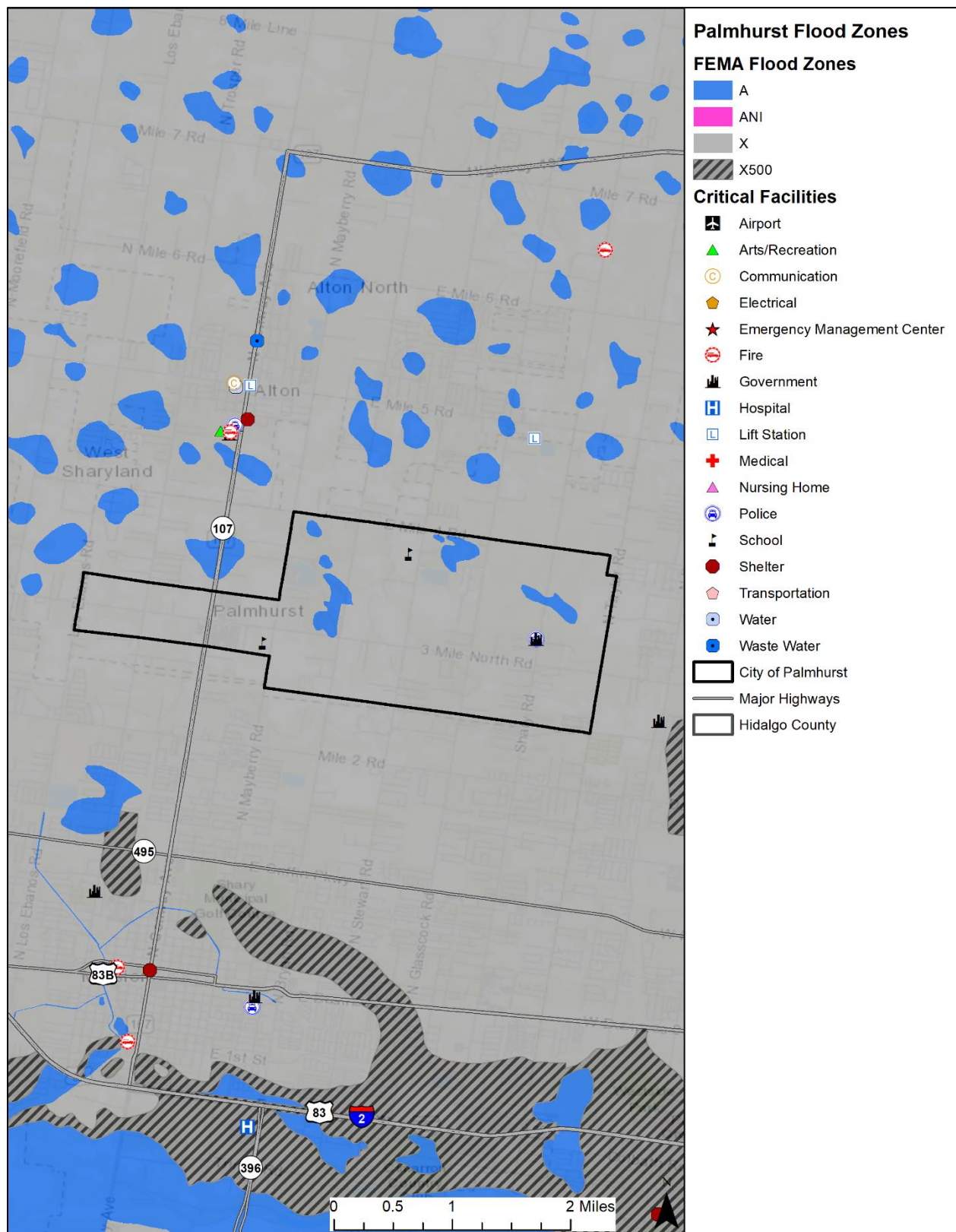
SECTION 5: FLOOD

Figure 5-14. Estimated Flood Zones in the City of Mission



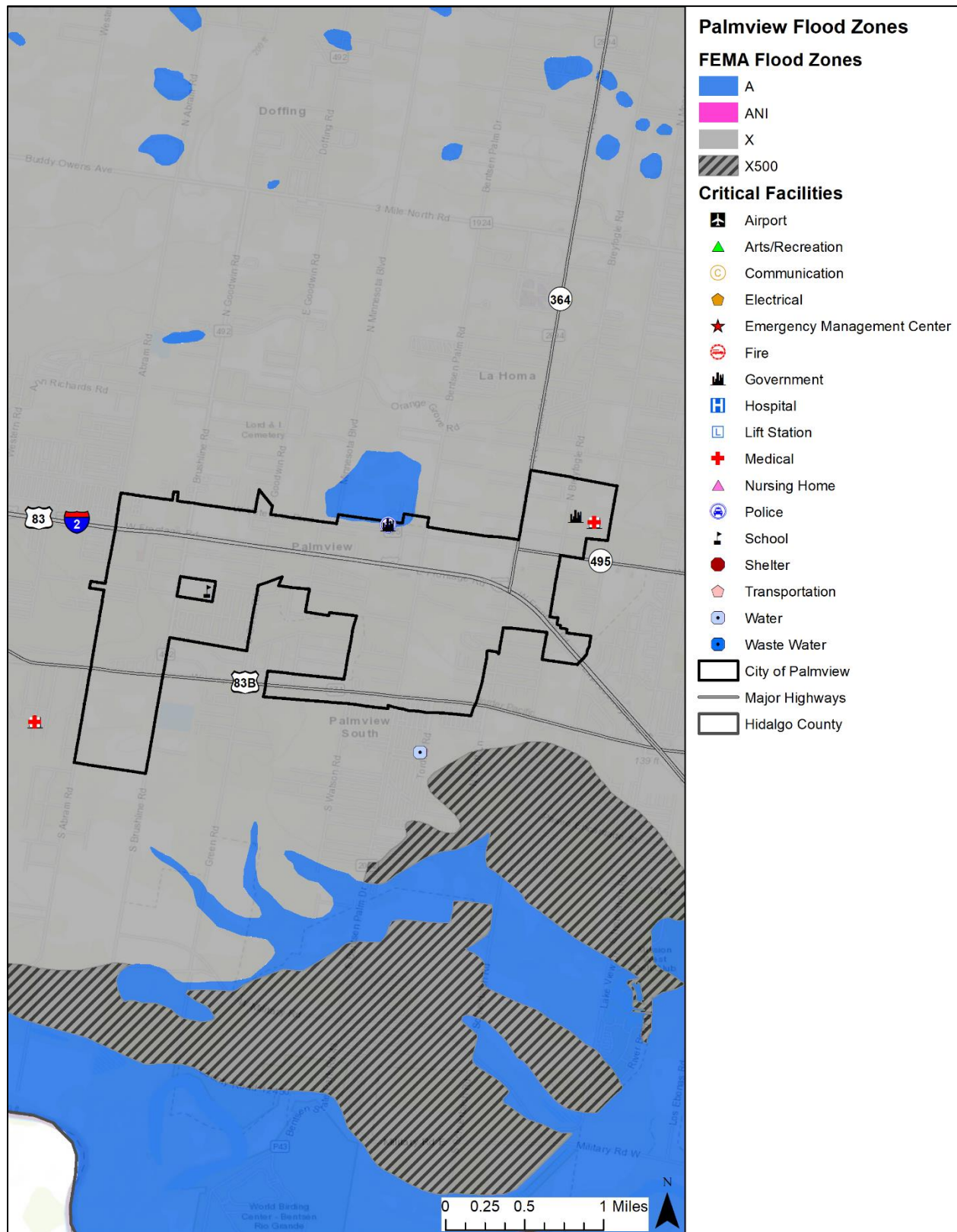
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Figure 5-15. Estimated Flood Zones in the City of Palmhurst



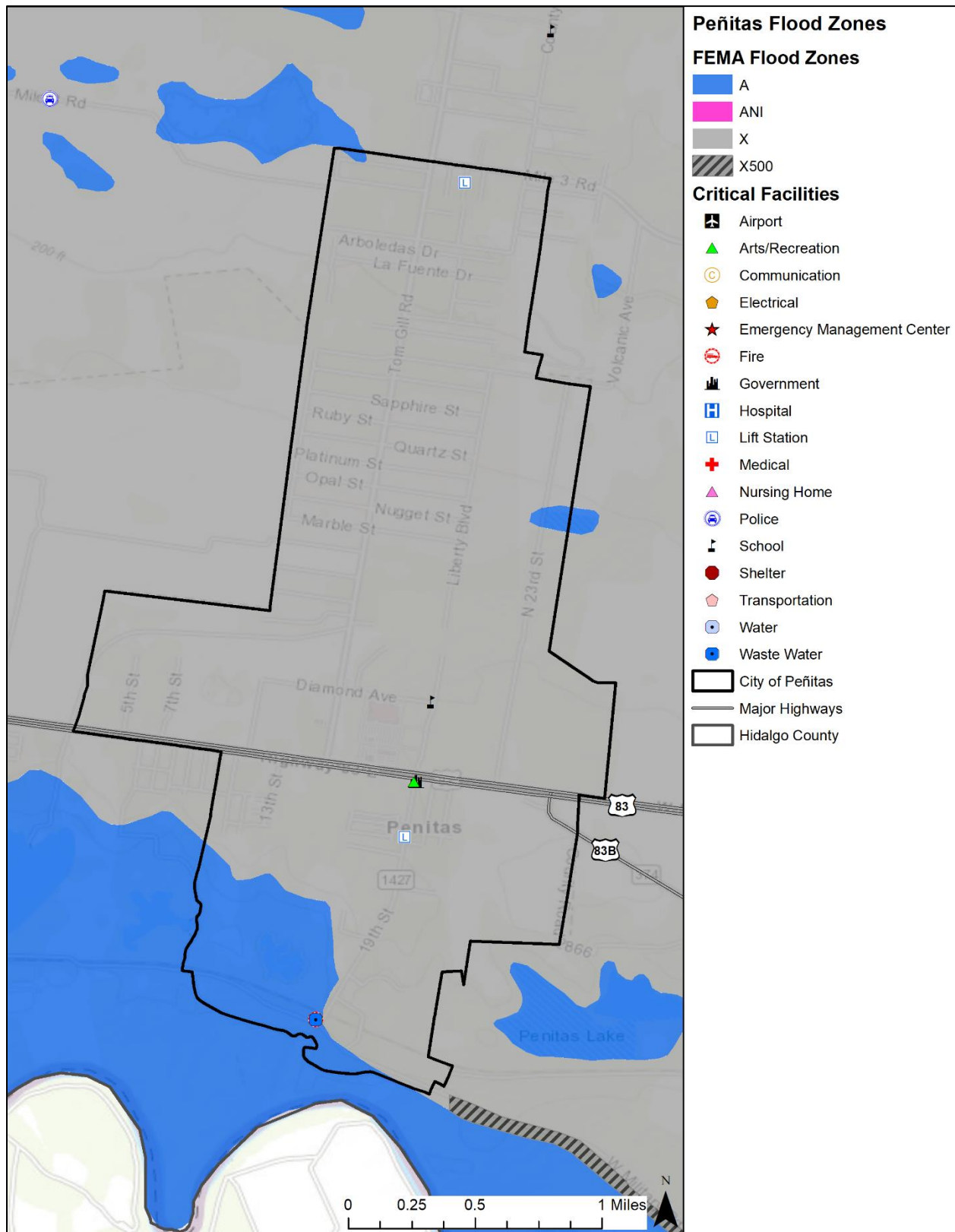
SECTION 5: FLOOD

Figure 5-16. Estimated Flood Zones in the City of Palmview



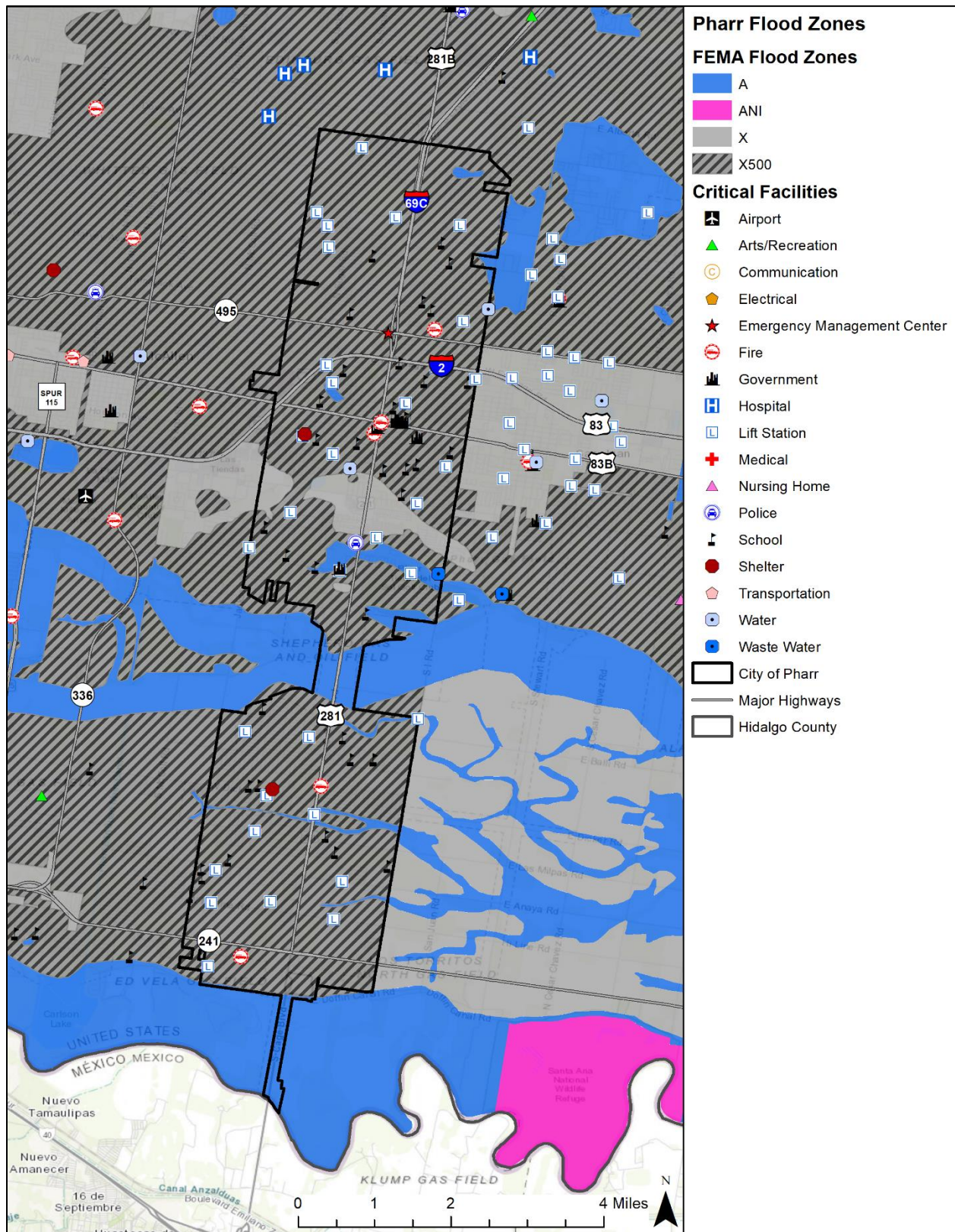
SECTION 5: FLOOD

Figure 5-17. Estimated Flood Zones in the City of Peñitas



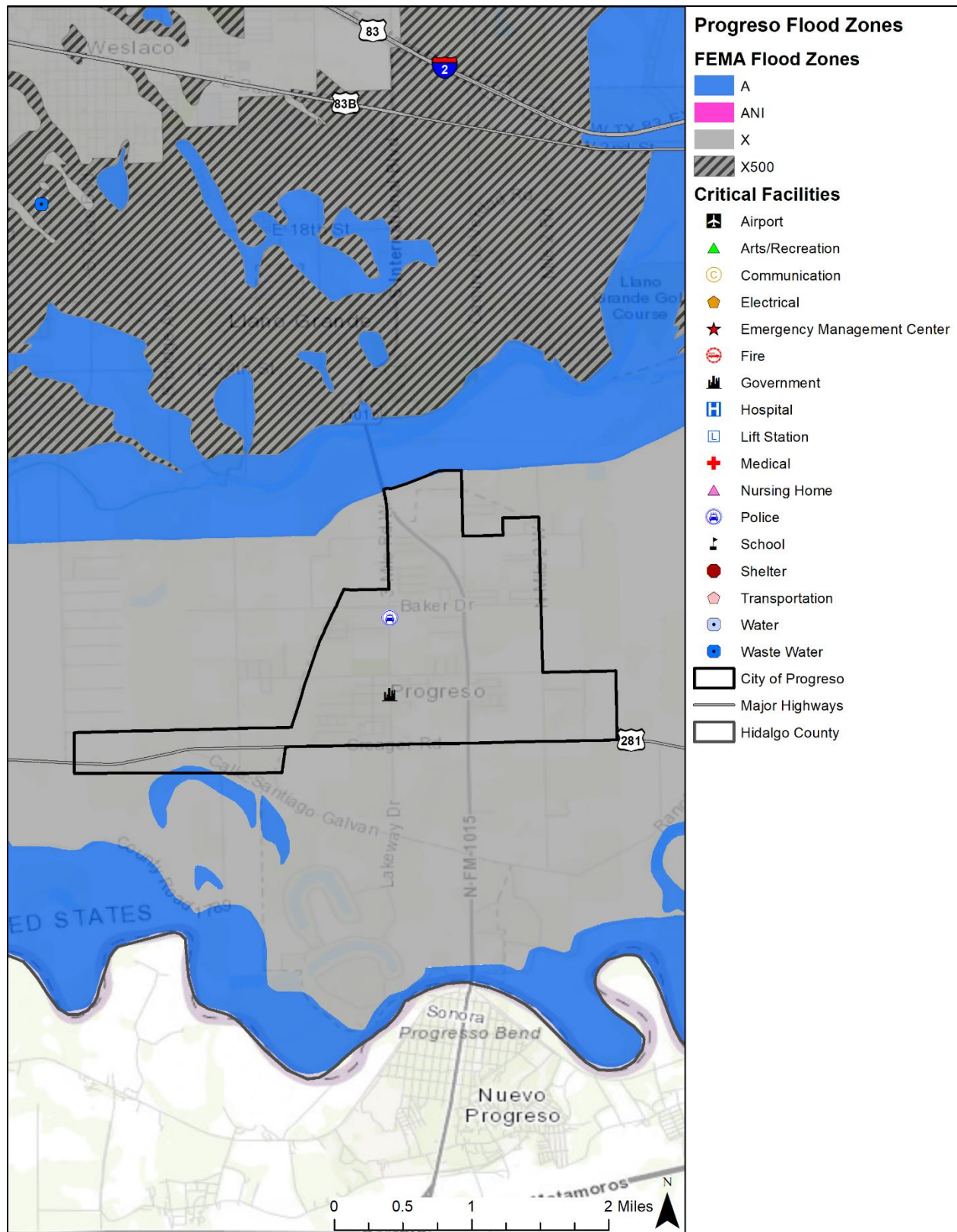
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Figure 5-18. Estimated Flood Zones in the City of Pharr



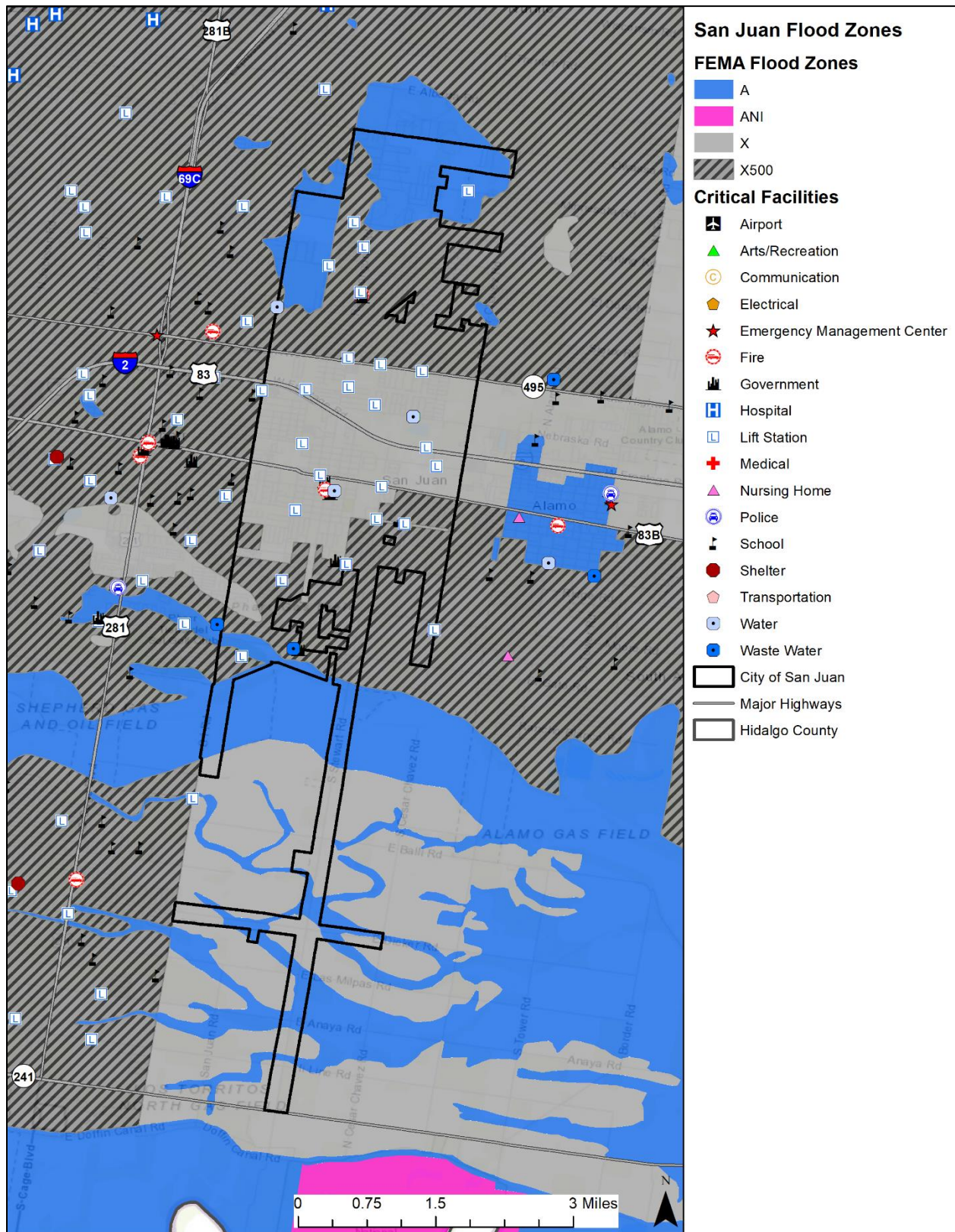
SECTION 5: FLOOD

Figure 5-19. Estimated Flood Zones in the City of Progreso



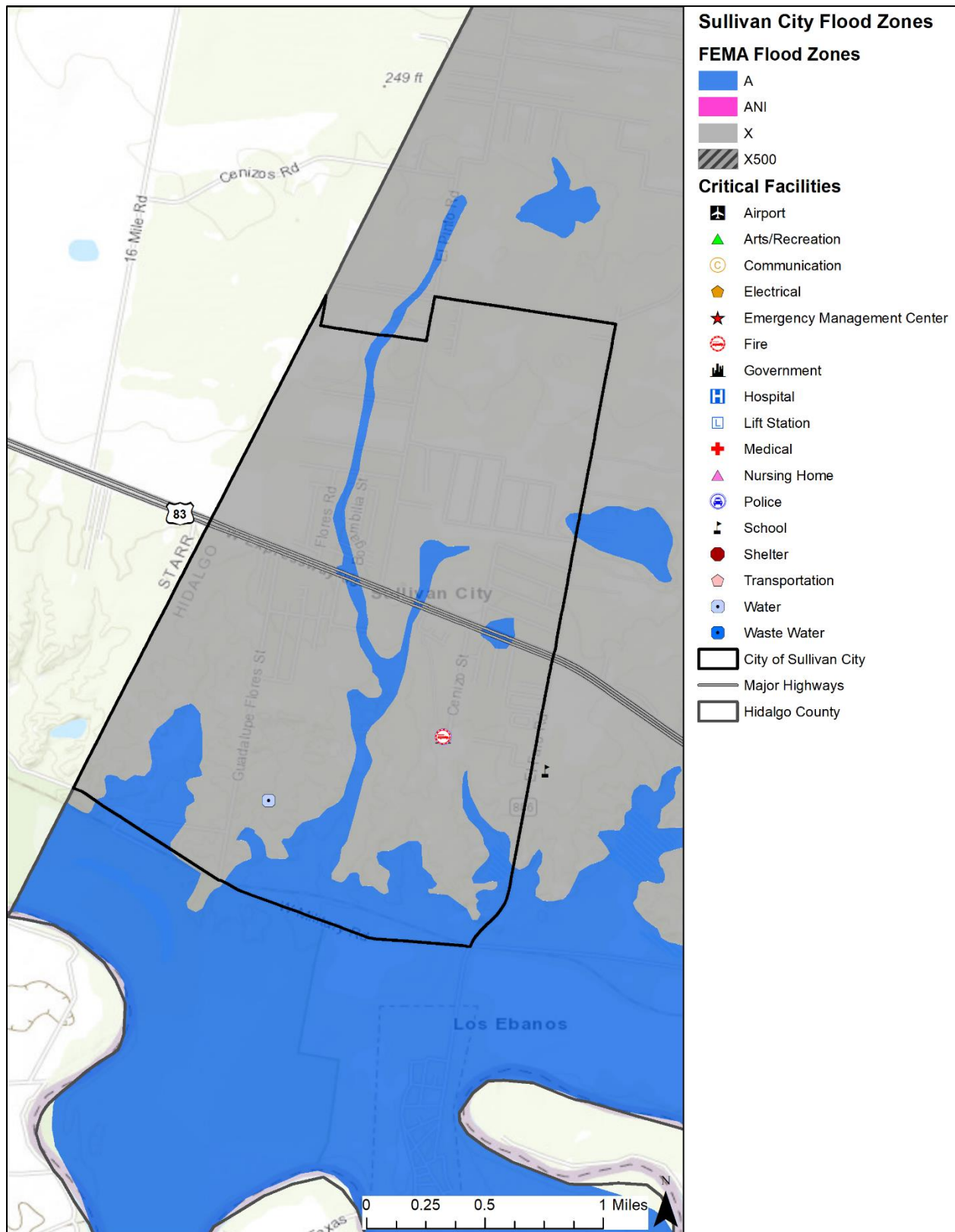
SECTION 5: FLOOD

Figure 5-20. Estimated Flood Zones in the City of San Juan



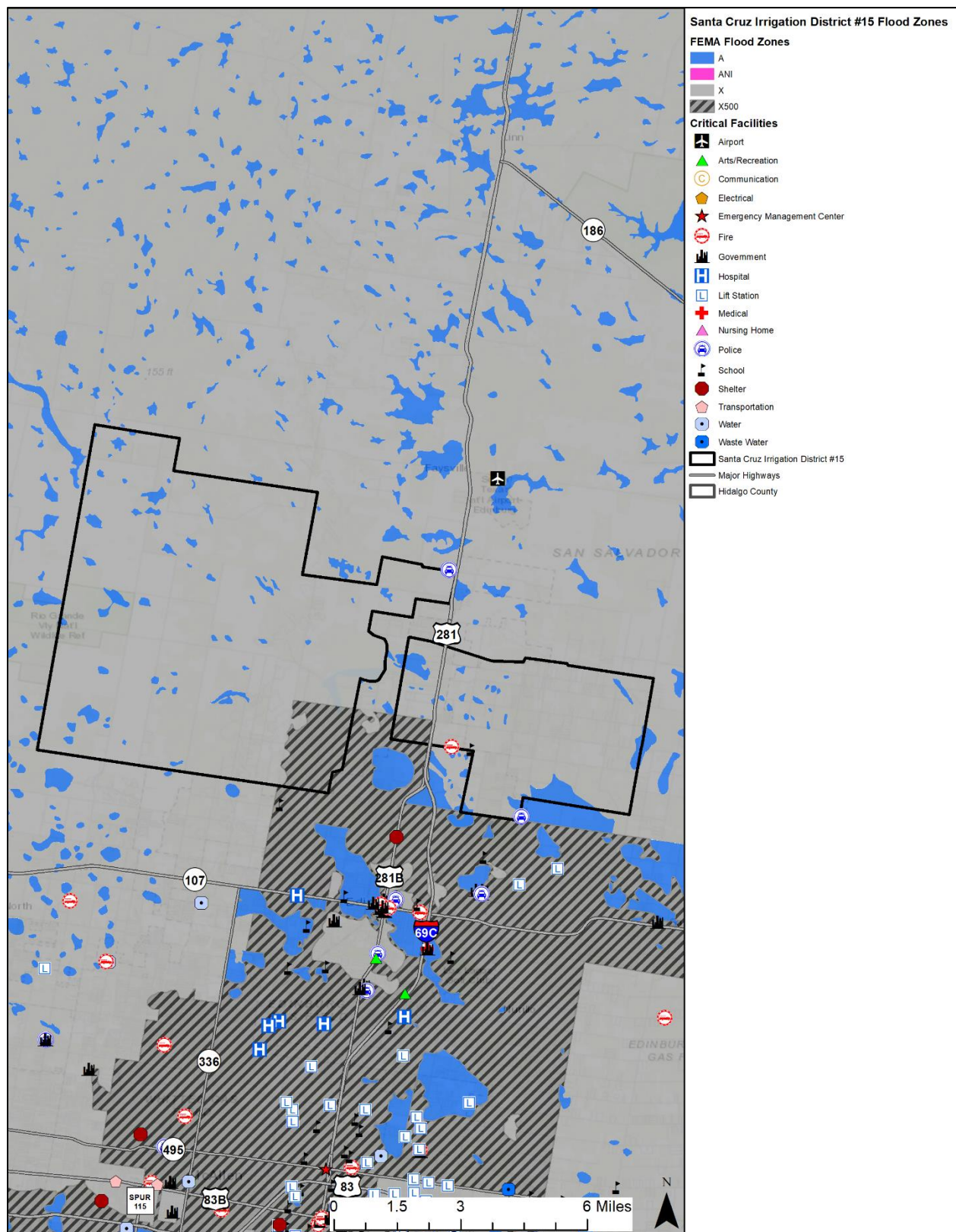
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Figure 5-21. Estimated Flood Zones in the City of Sullivan City



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Figure 5-22. Estimated Flood Zones in the Santa Cruz Irrigation District #15



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EXTENT

The severity of a flood event is determined by a combination of several factors including: stream and river basin topography and physiography; precipitation and weather patterns; recent soil moisture conditions; and degree of vegetative clearing and impervious surface. Typically, floods are long-term events that may last for several days.

Determining the intensity and magnitude of a flood event is dependent upon the flood zone and location of the flood hazard area in addition to depths of flood waters. Extent of flood damages can be expected to be more damaging in the areas that will convey a base flood. FEMA categorizes areas on the terrain according to how the area will convey flood water. Flood zones are the categories that are mapped on Flood Insurance Rate Maps. Table 5-1 provides a description of FEMA flood zones and the flood impact in terms of severity or potential harm. Flood Zones A, AE, VE and X are the only hazard areas mapped in the region. Figures 5-1 through 5-22 should be read in conjunction with the extent for flooding in Tables 5-1 and 5-2 to determine the intensity of a potential flood event.

Table 5-1. Flood Zones

INTENSITY	ZONE	DESCRIPTION
HIGH	ZONE A	Areas with a one percent annual chance of flooding and a 26 percent chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas, no depths or base flood elevations are shown within these zones.
	ZONE A1-30	These are known as numbered A Zones (e.g., A7 or A14). This is the base floodplain where the FIRM shows a Base Flood Elevation (BFE) (old format).
	ZONE AE	The base floodplain where base flood elevations are provided. AE Zones are now used on the new format FIRMs instead of A1-A30 Zones.
	ZONE AO	River or stream flood hazard areas and areas with a one percent or greater chance of shallow flooding each year, usually in the form of sheet flow, with an average depth ranging from one to three feet. These areas have a 26 percent chance of flooding over the life of a 30-year mortgage. Average flood depths derived from detailed analyses are shown within these zones.
	ZONE AH	Areas with a one percent annual chance of shallow flooding, usually in the form of a pond, with an average depth ranging from one to three feet. These areas have a 26 percent chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.
	ZONE A99	Areas with a one percent annual chance of flooding that will be protected by a federal flood control system where construction has reached specified legal requirements. No depths or base flood elevations are shown within these zones.

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INTENSITY	ZONE	DESCRIPTION
	ZONE AR	Areas with a temporarily increased flood risk due to the building or restoration of a flood control system (such as a levee or a dam). Mandatory flood insurance purchase requirements will apply, but rates will not exceed the rates for unnumbered A zones if the structure is built or restored in compliance with Zone AR floodplain management regulations.
HIGH COASTAL	ZONE VE, V1-30	Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26 percent chance of flooding over the life of a 30-year mortgage. No base flood elevations are shown within these zones.
MODERATE to LOW	ZONE X 500	An area inundated by 500-year flooding; an area inundated by 100-year flooding with average depths of less than one foot or with drainage areas less than one square mile; or an area protected by levees from 100-year flooding.

Zone A is interchangeably referred to as the 100-year flood, the one-percent-annual chance flood, the Special Flood Hazard Area (SFHA), or more commonly, the base flood. This is the area that will convey the base flood and constitutes a threat to the planning area. The impact from a flood event can be more damaging in areas that will convey a base flood.

Structures built in the SFHA are subject to damage by rising waters and floating debris. Moving flood water exerts pressure on everything in its path and causes erosion of soil and solid objects. Utility systems, such as heating, ventilation, air conditioning, fuel, electrical systems, sewage maintenance systems and water systems, if not elevated above base flood elevation, may also be damaged.

The intensity and magnitude of a flood event is also determined by the depth of flood waters. Table 5-2 describes the stream gauge data provided by the United States Geological Survey (USGS).

Table 5-2. Extent for Hidalgo County¹

JURISDICTION ²	PEAK FLOOD EVENT
Hidalgo County/Hidalgo	The Rio Grande River at Hidalgo, Texas reached an overflow elevation of 99.8 feet in October 1945. The average peak flow for the Rio Grande is 96.98 feet at this site.
Hidalgo County/Progreso	The Rio Grande River near Progreso, Texas reached an overflow elevation of 76.35 feet in October 1971. The average peak flow for the Rio Grande is 33.43 feet at this site.

¹ Severity estimated by averaging floods at certain stage level over the history of flood events. Severity and peak events are based on U.S. Geological Survey data.

² Severity is provided for jurisdictions where peak data was provided.

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The range of flood intensity that the planning area can experience is high, or Zone A. Based on historical occurrences, the planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15, could expect to experience up to 18 inches within a 3-to-5-hour period, resulting in flash flooding.

The data described in Tables 5-1 and 5-2, together with Figures 5-1 through 5-22, and historical occurrences for the area, provides an estimated potential magnitude and severity for the planning area. For example, the City of Donna, as shown in Figure 5-4, has areas designated as Zone A. Reading this figure in conjunction with Table 5-1 means the area is an area of high risk for flood.

HISTORICAL OCCURRENCES

Historical evidence indicates that areas within the planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15, are susceptible to flooding, especially in the form of flash flooding. It is important to note that only flood events that have been reported have been factored into this risk assessment, therefore it is likely that additional flood occurrences have gone unreported before and during the recording period. Table 5-3 identifies historical flood events within the Hidalgo County planning area, including all participating jurisdictions. Table 5-4 provides the historical flood event summary by jurisdiction. Historical data is provided by team members and the Storm Prediction Center (NOAA), NCEI database for Hidalgo County.

Historical flood data for the Santa Cruz Irrigation District #15 are provided within the City of Edinburg events per the NCEI database as they do not have events reported separate and apart from the reported Edinburg city-wide events. There have been no reported losses as a result of flood for the Santa Cruz Irrigation District #15.

Table 5-3. Historical Flood Events, 1996-2020³

JURISDICTION	DATE	TIME	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
City of Donna	8/23/1999	11:00 AM	0	0	\$3,148	\$0
Hidalgo County	9/17/2003	3:15 PM	0	0	\$106,512	\$0
Hidalgo County	9/19/2003	6:00 PM	0	0	\$568,065	\$0
Hidalgo County	10/13/2003	9:00 AM	0	0	\$12,795,276	\$0
Hidalgo County	9/19/2003	6:00 PM	0	0	\$568,065	\$0
Hidalgo County	10/13/2003	9:00 AM	0	0	\$12,795,276	\$0
City of Edinburg	5/25/2007	3:19 PM	0	0	\$63,240	\$0
City of McAllen	7/16/2007	8:05 AM	0	0	\$1,039,182	\$0
City of Edcouch	7/23/2008	4:00 PM	0	0	\$34,078	\$11,957,138

³ Only recorded events with fatalities, injuries, and/or damages are listed, values are in 2021 dollars. Historical events are listed from January 1996 through November 2020.

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JURISDICTION	DATE	TIME	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
City of Edcouch	7/24/2008	6:01 AM	0	0	\$34,078	\$119,571,384
City of Mission	8/23/2008	5:15 PM	0	0	\$1,201	\$0
City of Palmhurst	4/17/2010	6:30 PM	0	0	\$120,644	\$0
City of Mission	5/18/2010	7:45 AM	0	0	\$18,083	\$0
City of Donna	6/7/2010	4:15 PM	0	0	\$18,100	\$0
City of Mercedes	6/30/2010	6:00 PM	0	0	\$120,668	\$11,946,132
City of Mercedes	7/1/2010	12:00 AM	0	0	\$603	\$0
Hidalgo County	7/9/2010	6:30 AM	0	0	\$7,781,444	\$1,809,638
City of Peñitas	7/10/2010	6:30 AM	0	0	\$7,721,122	\$603,213
City of Progreso	7/12/2010	6:30 AM	0	0	\$7,781,444	\$15,683,530
City of Progreso	8/1/2010	12:00 AM	1	0	\$0	\$0
Hidalgo County	6/23/2011	1:45 PM	0	0	\$29,130	\$0
Hidalgo County	3/29/2012	8:55 PM	0	0	\$5,732,850	\$0
City of Peñitas	4/10/2015	6:00 PM	0	0	\$11,116	\$0
Hidalgo County	5/11/2015	9:00 PM	0	0	\$2,212,014	\$0
Hidalgo County	5/15/2015	2:00 PM	0	0	\$22,120	\$0
Hidalgo County	6/17/2015	11:30 PM	0	0	\$2,204,293	\$0
City of Pharr	6/19/2015	4:30 PM	0	0	\$25,349,366	\$0
City of Progreso	10/24/2015	1:00 PM	0	0	\$55,292,678	\$0
City of La Villa	11/1/2015	12:00 AM	0	0	\$27,705	\$0
Hidalgo County	10/10/2017	2:00 PM	0	0	\$21,326	\$0
Hidalgo County	6/20/2018	3:30 AM	0	0	\$4,175,008	\$0
City of Donna	6/20/2018	3:15 AM	0	0	\$26,093,798	\$0
Hidalgo County	6/21/2018	6:00 AM	0	0	\$21,918,790	\$0
Hidalgo County	6/22/2018	3:00 AM	0	0	\$1,043,752	\$0
City of Pharr	5/14/2019	12:00 PM	0	0	\$5,135	\$0

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JURISDICTION	DATE	TIME	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Hidalgo County	6/24/2019	8:00 PM	0	0	\$30,804,746	\$1,026,825
City of Granjeno	5/16/2020	7:14 AM	0	0	\$1,026	\$0
Hidalgo County	7/26/2020	12:00 AM	0	0	\$8,110,667	\$27,509,270
Hidalgo County	8/1/2020	7:00 PM	0	0	\$20,238	\$0
TOTALS			1	0	\$221,298,638	\$190,107,130

Table 5-4. Summary of Historical Flood Events, January 1996-2020

JURISDICTION	NUMBER OF EVENTS	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Hidalgo County	30	0	0	\$97,562,224	\$30,345,733
City of Alamo	1	0	0	\$0	\$0
City of Donna	4	0	0	\$26,115,046	\$0
City of Edcouch	3	0	0	\$68,156	\$131,528,523
City of Edinburg	9	0	0	\$63,240	\$0
City of Elsa	1	0	0	\$0	\$0
City of Granjeno	1	0	0	\$1,026	\$0
City of La Villa	2	0	0	\$27,705	\$0
City of McAllen	12	0	0	\$1,039,182	\$0
City of Mercedes	6	0	0	\$121,271	\$11,946,132
City of Mission	4	0	0	\$19,283	\$0
City of Palmhurst	1	0	0	\$120,644	\$0
City of Peñitas	3	0	0	\$7,732,239	\$603,213
City of Pharr	2	0	0	\$25,354,501	\$0
City of Progreso	5	1	0	\$63,074,122	\$15,683,530
City of San Juan	1	0	0	\$0	\$0
TOTAL LOSSES	85	1	0	\$411,405,768	

Based on the list of historical flood events for the Hidalgo County planning area (listed above), including all participating jurisdictions, 29 of the events have occurred since the 2016 Plan.

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SIGNIFICANT EVENTS

Flash Flood in Edcouch on June 24, 2008 (Hurricane Dolly)

The combination of 10 to 16 inches of rain, poor drainage issues, and the overarching fact that the flat, saturated landscape of the Lower Rio Grande River Delta drains very slowly, maintained widespread flood conditions well after the rains ended during the early morning of the 24th. Numerous roads and neighborhoods, particularly across eastern and central Hidalgo County, remained flooded right through the weekend which followed Dolly's passage. In some areas, where ground drainage mechanisms were exceptionally poor, the flooding persisted into August. Some of these areas included neighborhoods in and near Elsa, Edcouch, and Mercedes, and likely in others farther west from Edinburg to Alton, as well as parts of McAllen as well. Near Mercedes, an employee of the International Boundary and Water Commission (IBWC) reported that a structure which allows the canal to drain into the Arroyo Colorado Floodway collapsed. This created an obstruction so the canal filled up and started flowing back into the adjacent community, exacerbating the ongoing flood. Pumping efforts began over the weekend of the 26th and 27th. Other notorious neighborhoods with poor drainage, particularly in and near Elsa, had continued high water for several weeks after Dolly's passage.

Property damage values are those received on insured properties by the National Flood Insurance Program, and are likely well below the actual damages caused by the flooding, particularly in eastern Hidalgo County. Crop and agricultural damage is based, thus far, on data as of October 3rd from the Texas Agrilife Extension Service, who reported Dolly's flood losses to cotton and sorghum as the worst agricultural disaster in decades. Updated values will be provided as data are received. Please note that damages have been split between the general flood listed here, and the flash flood period which preceded it.

Flash Flood on July 12, 2010

Incredible rainfall estimated to be more than 50 inches in around 10 days' time between June 30th and July 9th across the front range and peaks of the Sierra Madre Oriental in Coahuila Province, Mexico, ultimately flowed through the entire Lower Rio Grande basin for much of the summer of 2010. Nearly a month of dam releases from Falcon International Reservoir at 60,000 cfs ultimately required water to be diverted at Anzalduas Dam (southwest of Granjeno) into Mexico and the U.S. Floodway system, which includes the Banker Floodway (from near Granjeno to just south of Pharr), the Main Floodway (from just south of Pharr to the split at the Arroyo Colorado just southwest of Mercedes, the Arroyo Colorado itself, and the North Floodway, which extends from near Mercedes to near La Villa before curving east to northwest Hidalgo County. These floodways, protected by a robust system of levees and gates, protected communities outside of the levees by containing up to 50%, or 4 to 8 to feet of fast flowing water, within them. Unfortunately, a number of residences, dozens of paved and unpaved roads with low water bridges, and some agriculture are located within the floodways; significant damage was noted in several locations. Pumping and plugging operations near Weslaco and La Villa successfully kept high water out of poor drainage locations where the potential for freshwater flooding due to heavy rains would have been exacerbated with periodic thunderstorms, which only came once (July 26th). Closed roads included FM 493 and FM 1015, each moderately traveled; at least five homes were flooded along the Main Floodway south of Pharr along I Road; 15 to 20 homes were asked to voluntarily evacuate, and at least two other residences were flooded south of Weslaco near FM 88. Floodwaters also submerged portions of the Llano Grande golf course in Mercedes. High flowing water along the river covered a large portion of the Lower Rio Grande Valley National

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Wildlife Refuge (Santa Ana) south and southeast of Pharr, including a number of unpaved roads. Damage to the roads was unknown at this time; the flooding occurred downstream of the Anzalduas Diversion Dam; river gages downstream at San Benito and Brownsville remained in action stage. Floodwaters did not reach public or private structures, nor roadways, between the Refuge and the Main Floodway. Nearly \$5.2 million in lost dryland/irrigated crop yield was lost in and near the Floodway system in Hidalgo County. One of the grain losses was \$50 thousand, including 170 acres of unharvested land in the Main Floodway south of Donna. Several other crops such as cotton, corn, and citrus were destroyed by the flood along the Main and North Floodways. For cotton, a little over \$1 million was destroyed; for corn, a little over \$500 thousand was destroyed, and for sorghum, more than \$3.5 million was lost. The cost for re-leveling damaged cropland in and near the Hidalgo County portion of the floodway was \$7.5 million. Other property and infrastructure damage likely exceeded \$5 million in and near the Floodway.

Flash Flood on June 20, 2018 – City of Donna

Heavy rainfall measured between 7 and 18 inches in a 3-to-5-hour period produced locally devastating flooding in Weslaco and Mercedes, just north of the expressway. The rain flooded (at least 18 inches) 2,500 homes in Weslaco, with an unknown number (but likely in the 1,000 range) in next-door Mercedes. Video, photographs, and first response/law enforcement evidence showed widespread 2 to 4 feet of water depth, within a few poorly draining areas in east Weslaco and Mercedes of at least 5 feet of water depth. An unknown number of vehicles were flooded throughout the area, and the Interstate 2 frontage road was closed through most of the morning. Publicly reported damage was estimated to be at least \$12.5 million; standard doubling estimated the damage at \$25 million though in reality, values could be much higher due to poor measurement due to the volume of uninsured properties that were impacted.

Flash Flood on June 24, 2019 – Hidalgo County

Measured rainfall between 6 and 15 inches that fell predominantly from early evening June 24th through a bit after midnight on June 25th produced widespread flash flooding across southeastern Hidalgo County. Hardest hit locations were near the Cameron and Willacy County line, including locations just west of Santa Rosa through Monte Alto, and between Sebastian and Elsa. In the tri-county area (western Willacy, northwestern Cameron, and southeastern Hidalgo), 1,188 homes were considered destroyed or had major damage, with an additional 182 homes with minor damage. Hundreds of streets flooded, including 30 Texas-managed highways. This included the frontage roads of Interstate 2 and Interstate 69E. More than 100 persons were evacuated to higher ground when dozens of homes were threatened by 2 to 4 feet of water in each county; Monte Alto was hardest hit in Hidalgo County. Individual Assistance costs were estimated at \$27.6 million as of early August 2019; Public Assistance values were estimated at \$75 million in all three counties. Despite the flooding and damage there were no known deaths or injuries directly attributed to the flood.

PROBABILITY OF FUTURE EVENTS

Based on 85 recorded historical occurrences within a 24-year reporting period within the Hidalgo County planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15, flooding is highly likely with 3 to 4 events per year anticipated. Santa Cruz Irrigation District #15 have no history of flood events and an event directly impacting this district is unlikely.

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VULNERABILITY AND IMPACT

A property's vulnerability to a flood depends on its location and proximity to the floodplain. Structures that lie along banks of a waterway are the most vulnerable and are often repetitive loss structures. The County and all participating jurisdictions encourage development outside of the floodplain, and the impact for flood for the entire planning area is "Minor" as facilities and services would be shut down for one week or more, more than 10 percent of property destroyed or with major damage, and injuries or illness that does not result in permanent disability depending on the scale of the storm.

Table 5-5 includes the critical facilities identified in Appendix C that were determined to be located within the SFHA by FIRM mapping and further by each participating jurisdiction.

Table 5-5. Critical Facilities in the Floodplain by Jurisdiction

JURISDICTION	CRITICAL FACILITIES
Hidalgo County	3 Courts/Annex, 1 Election Administration, 2 Justice of the Peace, 5 Administration Buildings, 1 University
City of Alamo	1 Elderly Housing Facility, 2 Fire Departments, 1 Police Department, 1 School, 1 Water Plant
City of Alton	None
City of Donna	None
City of Edcouch	None
City of Edinburg	2 Fire Departments, 1 Juvenile Detention, 1 City Hall, 1 School
City of Elsa	None
City of Granjeno	None
City of Hidalgo	None
City of La Joya	1 Wastewater Plant
City of La Villa	2 Water/Wastewater Plants
City of McAllen	1 Fire Department
City of Mercedes	1 Police Department
City of Mission	None
City of Palmhurst	None
City of Palmview	None
City of Peñitas	1 Fire Department, 1 Waste/Water Plant
City of Pharr	1 Lift Station, 1 School
City of Progreso	None

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JURISDICTION	CRITICAL FACILITIES
City of San Juan	2 Lift Stations
City of Sullivan City	None
Santa Cruz Irrigation District #15	None

Historic loss estimates due to flood are presented in Table 5-6 below. Considering 85 flood events over a 24-year period, frequency is approximately three to four events every year.

Annualized losses are not provided for Santa Cruz Irrigation District #15 as there have not been events or losses to affect the district separately and apart from a historical occurrence for the City of Edinburg.

Table 5-6. Potential Annualized Losses by Jurisdiction

JURISDICTION	PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATES
Hidalgo County	\$127,907,957	\$5,329,498
City of Alamo	\$0	\$0
City of Alton	\$0	\$0
City of Donna	\$26,115,046	\$1,088,127
City of Edcouch	\$131,596,679	\$5,483,195
City of Edinburg	\$63,240	\$2,635
City of Elsa	\$0	\$0
City of Granjeno	\$1,026	\$43
City of Hidalgo	\$0	\$0
City of La Joya	\$0	\$0
City of La Villa	\$27,705	\$1,154
City of McAllen	\$1,039,182	\$43,299
City of Mercedes	\$12,067,403	\$502,808
City of Mission	\$19,283	\$803
City of Palmhurst	\$120,644	\$5,027
City of Palmview	\$0	\$0
City of Peñitas	\$8,335,451	\$347,310

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JURISDICTION	PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATES
City of Pharr	\$25,354,501	\$1,056,438
City of Progreso	\$78,757,652	\$3,281,569
City of San Juan	\$0	\$0
City of Sullivan City	\$0	\$0
Planning Area	\$411,405,769	\$17,141,907

While all citizens are at risk to the impacts of a flood, forced relocation and disaster recovery drastically impacts low-income residents who lack the financial means to travel, afford a long-term stay away from home, and to rebuild or repair their homes. An estimated 29.7% of the planning area population live below the poverty level (Table 5-7).

Table 5-7. Populations at Greatest Risk by Jurisdiction⁴

JURISDICTION	POPULATION BELOW POVERTY LEVEL
City of Alamo	5,256
City of Alton	5,432
City of Donna	5,989
City of Edcouch	1,028
City of Edinburg	22,907
City of Elsa	2,211
City of Granjeno	13
City of Hidalgo	4,623
City of La Joya	1,718
City of La Villa	889
City of McAllen	32,653
City of Mercedes	5,566
City of Mission	18,803
City of Palmhurst	450
City of Palmview	1,697

⁴ US Census Bureau 2019 data for Hidalgo County

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JURISDICTION	POPULATION BELOW POVERTY LEVEL
City of Peñitas	1,154
City of Pharr	22,719
City of Progreso	1,199
City of San Juan	10,435
City of Sullivan City	1,324
Unincorporated County	107,921

The severity of a flooding event varies depending on the relative risk to citizens and structures located within each city. Table 5-8 depicts the level of impact for Hidalgo County and each participating jurisdiction and Santa Cruz Irrigation District #15.

Table 5-8. Impact by Jurisdiction

JURISDICTION	IMPACT	DESCRIPTION
Hidalgo County	Minor	It is anticipated that the Hidalgo County could anticipate an impact of “minor” with critical facilities would be shut down for one week or more and more than 10 percent of property would be destroyed or damaged.
City of Alamo	Limited	It is anticipated that the City of Alamo could anticipate an impact of “limited” with critical facilities would be shut down for 24 hours or less and less than 10 percent of property would be destroyed or damaged.
City of Alton	Limited	It is anticipated that the City of Alton could anticipate an impact of “limited” with critical facilities would be shut down for 24 hours or less and less than 10 percent of property would be destroyed or damaged.
City of Donna	Limited	It is anticipated that the City of Donna could anticipate an impact of “limited” with critical facilities would be shut down for 24 hours or less and less than 10 percent of property would be destroyed or damaged.
City of Edcouch	Minor	It is anticipated that the City of Edcouch could anticipate an impact of “minor” with critical facilities would be shut down for one week or more and more than 10 percent of property would be destroyed or damaged.
City of Edinburg	Limited	It is anticipated that the City of Edinburg could anticipate an impact of “limited” with critical facilities would be shut down for 24 hours or less and less than 10 percent of property would be destroyed or damaged.

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JURISDICTION	IMPACT	DESCRIPTION
City of Elsa	Limited	It is anticipated that the City of Elsa could anticipate an impact of “limited” with critical facilities would be shut down for 24 hours or less and less than 10 percent of property would be destroyed or damaged.
City of Granjeno	Limited	It is anticipated that the City of Granjeno could anticipate an impact of “limited” with critical facilities would be shut down for 24 hours or less and less than 10 percent of property would be destroyed or damaged.
City of Hidalgo	Limited	It is anticipated that the City of Hidalgo could anticipate an impact of “limited” with critical facilities would be shut down for 24 hours or less and less than 10 percent of property would be destroyed or damaged.
City of La Joya	Limited	It is anticipated that the City of La Joya could anticipate an impact of “limited” with critical facilities would be shut down for 24 hours or less and less than 10 percent of property would be destroyed or damaged.
City of La Villa	Limited	It is anticipated that the City of La Villa could anticipate an impact of “limited” with critical facilities would be shut down for 24 hours or less and less than 10 percent of property would be destroyed or damaged.
City of McAllen	Limited	It is anticipated that the City of McAllen could anticipate an impact of “limited” with critical facilities would be shut down for 24 hours or less and less than 10 percent of property would be destroyed or damaged.
City of Mercedes	Limited	It is anticipated that the City of Mercedes could anticipate an impact of “limited” with critical facilities would be shut down for 24 hours or less and less than 10 percent of property would be destroyed or damaged.
City of Mission	Limited	It is anticipated that the City of Mission could anticipate an impact of “limited” with critical facilities would be shut down for 24 hours or less and less than 10 percent of property would be destroyed or damaged.
City of Palmhurst	Limited	It is anticipated that the City of Palmhurst could anticipate an impact of “limited” with critical facilities would be shut down for 24 hours or less and less than 10 percent of property would be destroyed or damaged.

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JURISDICTION	IMPACT	DESCRIPTION
City of Palmview	Limited	It is anticipated that the City of Palmview could anticipate an impact of “limited” with critical facilities would be shut down for 24 hours or less and less than 10 percent of property would be destroyed or damaged.
City of Peñitas	Limited	It is anticipated that the City of Peñitas could anticipate an impact of “limited” with critical facilities would be shut down for 24 hours or less and less than 10 percent of property would be destroyed or damaged.
City of Pharr	Limited	It is anticipated that the City of Pharr could anticipate an impact of “limited” with critical facilities would be shut down for 24 hours or less and less than 10 percent of property would be destroyed or damaged.
City of Progreso	Minor	It is anticipated that the City of Progreso could anticipate an impact of “minor” with critical facilities would be shut down for one week or more and more than 10 percent of property would be destroyed or damaged.
City of San Juan	Limited	It is anticipated that the City of San Juan could anticipate an impact of “limited” with critical facilities would be shut down for 24 hours or less and less than 10 percent of property would be destroyed or damaged.
City of Sullivan City	Limited	It is anticipated that the City of Sullivan City could anticipate an impact of “limited” with critical facilities would be shut down for 24 hours or less and less than 10 percent of property would be destroyed or damaged.
Santa Cruz Irrigation District #15	Limited	It is anticipated that the Santa Cruz Irrigation District #15 could anticipate an impact of “limited” with critical facilities would be shut down for 24 hours or less and less than 10 percent of property would be destroyed or damaged.

ASSESSMENT OF IMPACTS

Flooding is the deadliest natural disaster that occurs in the U.S. each year, and it poses a constant and significant threat to the health and safety of the people in the Hidalgo County planning area. The impact of climate change could produce larger, more severe flood events, exacerbating the current flood impacts. Worsening flood conditions can be frequently associated with a variety of impacts, including:

- Flood-related rescues may be necessary at swift and low water crossings or in flooded neighborhoods where roads have become impassable, placing first responders in harm’s way.

SECTION 5: FLOOD

- Evacuations may be required for entire neighborhoods because of rising floodwaters, further taxing limited response capabilities and increasing sheltering needs for displaced residents.
- Health risks and threats to residents are elevated after the flood waters have receded due to contaminated flood waters (untreated sewage and hazardous chemicals) and mold growth typical in flooded buildings and homes.
- Significant flood events often result in widespread power outages increasing the risk to more vulnerable portions of the population who rely on power for health and/or life safety.
- Extended power outage can result in an increase in structure fires and/or carbon monoxide poisoning as individuals attempt to cook or heat their home with alternate, unsafe cooking or heating devices, such as grills.
- Floods can destroy or make residential structures uninhabitable, requiring shelter or relocation of residents in the aftermath of the event.
- First responders are exposed to downed power lines, contaminated and potentially unstable debris, hazardous materials, and generally unsafe conditions, elevating the risk of injury to first responders and potentially diminishing emergency response capabilities.
- Emergency operations and services may be significantly impacted due to damaged facilities.
- Significant flooding can result in the inability of emergency response vehicles to access areas of the community.
- Critical staff may suffer personal losses or otherwise impacted by a flood event and unable to report for duty, limiting response capabilities.
- City or county departments may be flooded, delaying response and recovery efforts for the entire community.
- Private sector entities that the jurisdiction and its residents rely on, such as utility providers, financial institutions, and medical care providers may not be fully operational and may require assistance from neighboring communities until full services can be restored.
- Damage to infrastructure may slow economic recovery since repairs may be extensive and lengthy.
- Some businesses not directly damaged by the flood may be negatively impacted while utilities are being restored or water recedes, further slowing economic recovery.
- When the community is affected by significant property damage it is anticipated that funding would be required for infrastructure repair and restoration, temporary services and facilities, overtime pay for responders, and normal day-to-day operating expenses.
- Displaced residents may not be able to immediately return to work, further slowing economic recovery.
- Residential structures substantially damaged by a flood may not be rebuilt for years and uninsured or underinsured residential structures may never be rebuilt, reducing the tax base for the community.
- Large floods may result in a dramatic population fluctuation, as people are unable to return to their homes or jobs and must seek shelter and/or work outside of the affected area.

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- Businesses that are uninsured or underinsured may have difficulty reopening, which results in a net loss of jobs for the community and a potential increase in the unemployment rate.
- Recreation activities such as fishing, boating, and camping activities in Delta Lake Park and Rio Grande River, may be unavailable and tourism can be unappealing for years following a large flood event, devastating directly related local businesses and negatively impacting economic recovery.
- Flooding may cause significant disruptions of clean water and sewer services, elevating health risks and delaying recovery efforts.
- The psycho-social effects on flood victims and their families can traumatize them for long periods of time, creating long term increases in medical treatment and services.
- Extensive or repetitive flooding can lead to decreases in property value for the affected community.
- Flood poses a potential catastrophic risk to annual and perennial crop production and overall crop quality leading to higher food costs.
- Flood related declines in production may lead to an increase in unemployment.
- Large floods may result in loss of livestock, potential increased livestock mortality due to stress and water borne disease, and increased cost for feed.

The overall extent of damages caused by floods is dependent on the extent, depth and duration of flooding, and the velocities of flows in the flooded areas. The level of preparedness and pre-event planning done by government, businesses, and citizens will contribute to the overall economic and financial conditions in the aftermath of a flood event.

NATIONAL FLOOD INSURANCE PROGRAM (NFIP) PARTICIPATION

Flood insurance offered through the National Flood Insurance Program (NFIP) is the best way for home and business owners to protect themselves financially against the flood hazard. Hidalgo County and all participating jurisdictions are currently participating in the NFIP and are in good standing. Santa Cruz Irrigation District #15 is not an eligible entity for the participation in the NFIP.

Hidalgo County and all participating jurisdictions currently have in place minimum NFIP standards for new construction and substantial improvements of structures. All jurisdictions are considering adopting additional higher regulatory NFIP standards to limit floodplain development. The flood hazard areas throughout the planning area are subject to periodic inundation, which may result in loss of life and property, health and safety hazards, disruption of commerce and governmental services, and extraordinary public expenditures for flood protection and relief, of which adversely affect public safety.

These flood losses are created by the cumulative effect of obstructions in floodplains which cause an increase in flood heights and velocities, and by the occupancy of flood hazard areas by uses vulnerable to floods and hazardous to other lands because they are inadequately elevated, flood-proofed or otherwise protected from flood damage. Mitigation actions are included to address flood maintenance issues as well, including routinely clearing debris from drainage systems and bridges and expanding drainage culverts and storm water structures to more adequately convey flood waters.

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It is the purpose of Hidalgo County and all participating jurisdictions to continue to promote the public health, safety and general welfare by minimizing public and private losses due to flood conditions in specific areas. The NFIP participating jurisdiction in the Plan is guided by their local Flood Damage Prevention Ordinance. Each community will continue to comply with NFIP requirements through their local permitting, inspection, and record-keeping requirements for new and substantially developed construction. Further, the NFIP program promotes sound development in floodplain areas and includes provisions designed to:

- Protect human life and health;
- Minimize expenditure of public money for costly flood control projects;
- Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- Minimize prolonged business interruptions;
- Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, and bridges located in floodplains;
- Help maintain a stable tax base by providing for the sound use and development of flood-prone areas in such a manner as to minimize future flood blight areas; and
- Ensure that potential buyers are notified that property is in a flood area.

In order to accomplish these tasks, Hidalgo County and all participating jurisdictions seek to follow these guidelines to achieve flood mitigation by:

- Restrict or prohibit uses that are dangerous to health, safety, or property in times of flood, such as filling or dumping, that may cause excessive increases in flood heights and/or velocities;
- Require that uses vulnerable to floods, including facilities, which serve such uses, be protected against flood damage at the time of initial construction as a method of reducing flood losses;
- Control the alteration of natural floodplains, stream channels, and natural protective barriers, which are involved in the accommodation of floodwaters;
- Control filling, grading, dredging, and other development, which may increase flood damage; and
- Prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands.

NFIP COMPLIANCE AND MAINTENANCE

As mentioned, Hidalgo County and all participating jurisdictions has developed mitigation actions that relate to either NFIP maintenance or compliance. Compliance and maintenance actions can be found in Section 21.

Flooding was identified by all participating communities as a high-risk hazard during hazard ranking activities at the Risk Assessment Workshop. As such, many of the mitigation actions were developed with flood mitigation in mind. A majority of these flood actions address compliance with the NFIP and implementing flood awareness programs. All participating jurisdictions recognize the need and are working towards adopting higher NFIP regulatory standards to further minimize flood risk in their community. In addition, each jurisdiction is focusing on public flood awareness activities. This includes promoting the availability of flood insurance by placing NFIP brochures and flyers in public libraries or public meeting places in participating jurisdictions.

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Each NFIP participating jurisdiction has a designated floodplain administrator. The floodplain administrators in the planning area will continue to maintain compliance with the NFIP including continued floodplain administration, zoning ordinances, and development regulation. The floodplain ordinance adopted by jurisdictions outline the minimum requirements for development in special flood hazard areas.

REPETITIVE LOSS

The Severe Repetitive Loss (SRL) Grant Program under FEMA provides federal funding to assist states and communities in implementing mitigation measures to reduce or eliminate the long-term risk of flood damage to severe repetitive loss residential structures insured under the NFIP. The Texas Water Development Board (TWDB) administers the SRL grant program for the State of Texas. One of the goals of the FMA program is to reduce the burden of repetitive loss and severe repetitive loss properties on the NFIP through mitigation activities that significantly reduce or eliminate the threat of future flood damages.

Repetitive Loss properties are defined as structures that are:

- Any insurable building for which 2 or more claims of more than \$1,000 each, paid by the National Flood Insurance Program (NFIP) within any 10-year period, since 1978;
- May or may not be currently insured under the NFIP.

Severe Repetitive Loss properties are defined as residential properties that are:

- Covered under the NFIP and have at least four flood related damage claim payments (building and contents) over \$5,000.00 each, and the cumulative amount of such claims payments exceed \$20,000; or
- At least two separate claim payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building.

In either scenario, at least two of the referenced claims must have occurred within any ten-year period and must be greater than 10 days apart.⁵ It is noted that the Cities of Alton, Granjeno, Hidalgo, La Joya, La Villa, Palmhurst, Palmview, Peñitas, Progreso, San Juan, and Sullivan City do not currently have any repetitive loss properties. Table 5-9 shows repetitive loss and severe repetitive loss properties for the Hidalgo County planning area.

Table 5-9. Repetitive Loss and Severe Repetitive Loss Properties

JURISDICTION	BUILDING TYPE	NUMBER OF STRUCTURES	NUMBER OF LOSSES
Hidalgo County	Single Family	27	55
	Non-Residential	3	6
	Other Residential	1	2
City of Alamo	Single Family	1	2

⁵ Source: Texas Water Development Board

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JURISDICTION	BUILDING TYPE	NUMBER OF STRUCTURES	NUMBER OF LOSSES
City of Donna	Single Family	1	3
City of Edcouch	Single Family	1	2
City of Edinburg	Single Family	18	45
	Non-Residential	6	14
City of Elsa	Single Family	1	3
City of McAllen	Single Family	12	39
	2-4 Family	1	4
	Non-Residential	4	12
City of Mercedes	Single Family	4	13
City of Mission	Single Family	19	42
	Non-Residential	1	10
City of Pharr	Single Family	3	6
	Non-Residential	1	3

SECTION 6: HURRICANE WIND

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HAZARD DESCRIPTION

Hurricanes often begin as tropical depressions that intensify into tropical storms when maximum sustained winds increase to between 35-64 knots (39 – 73 mph). At these wind speeds the storm becomes more organized and circular in shape and begins to resemble a hurricane. Tropical storms can be equally problematic without ever becoming a hurricane, resulting in heavy rainfall, high winds and tidal surge in coastal communities. When maximum sustained winds reach or exceed 39 mph, the system becomes a tropical storm. Once sustained winds reach or exceed 74 mph, the storm becomes a hurricane.

The intensity of a land falling hurricane is expressed in categories relating wind speeds and potential damage. Tropical storm-force winds are strong enough to be dangerous to those caught in them. For this reason, emergency managers plan to have evacuations completed and personnel sheltered before winds of tropical storm-force arrive, which precedes the arrival of hurricane-force winds.

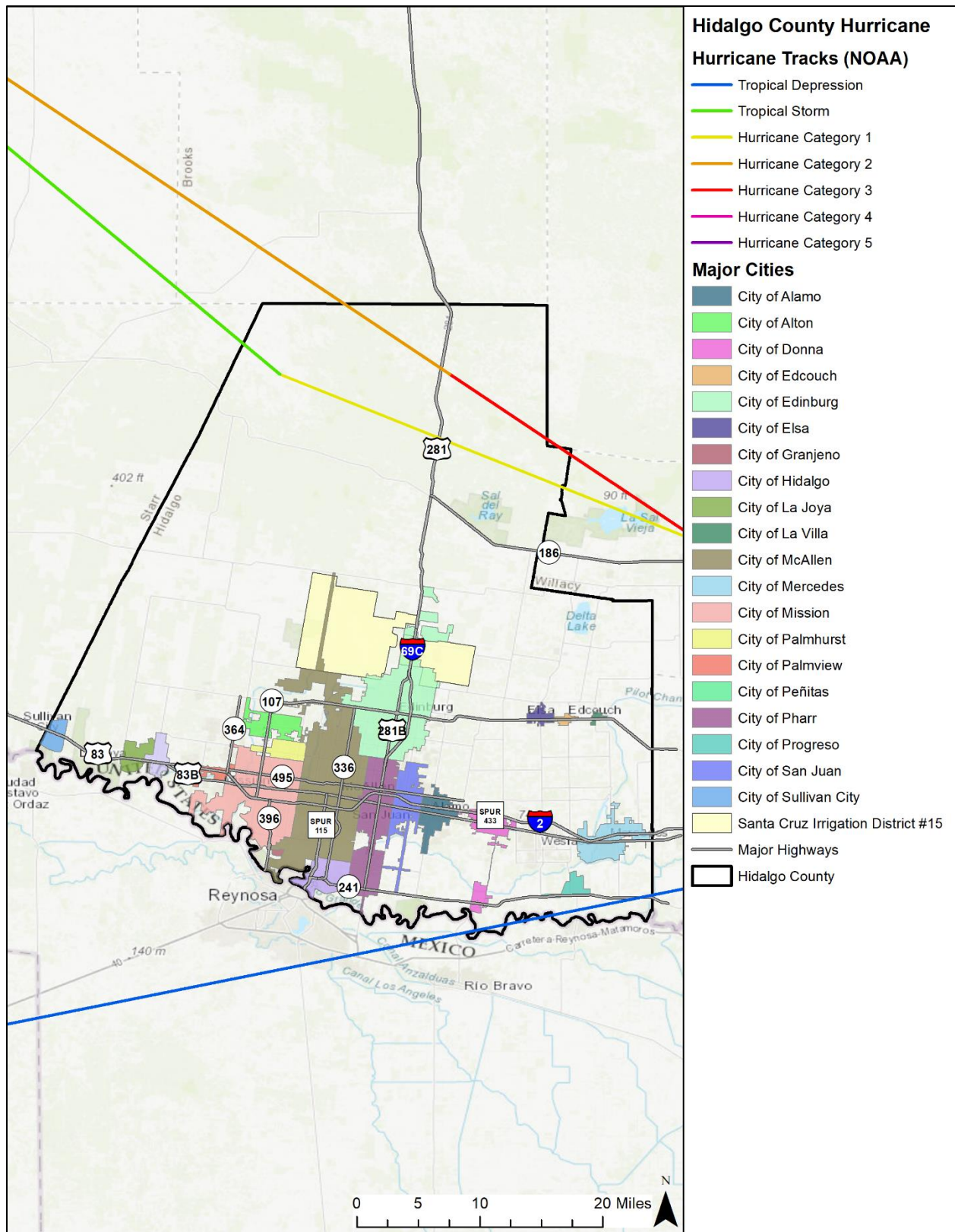
According to the National Hurricane Center, the greatest potential for loss of life related to a hurricane is from storm surge. This happens when low pressure and high circular winds “pile” the water into a dome shape that can be 50-100 miles wide. The surge travels with the storm and is most severe on the right side of the storm, relative to the direction the storm travels. The surge can be 15 feet deep, topped by waves, and make landfall ahead of the center, or “eye”, of the hurricane. Wind-driven waves are superimposed on the storm tide. This rise in water level can cause severe flooding in coastal areas, particularly when the storm tide coincides with normal high tides.

LOCATION

As a coastal community, Hidalgo County, including all participating jurisdictions and Santa Cruz Irrigation District #15, is vulnerable to threats directly and indirectly related to a hurricane event, such as high-force winds and flooding. Hurricanes and/or tropical storms can impact Hidalgo County from June to November, the official Atlantic U.S. hurricane season. Hidalgo County is in a moderate to high risk area for hurricane wind speeds of 110 to more than 155 miles per hour (mph). In Figure 6-1 below, hurricane tracks are reflective of their strength in the Hidalgo County planning area.

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Figure 6-1. Location of Historic Storm Tracks



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EXTENT

Hurricanes are categorized according to the strength and intensity of their winds using the Saffir-Simpson Hurricane Scale (See Table 6-1). A Category 1 storm has the lowest wind speeds, while a Category 5 hurricane has the highest. This scale only ranks wind speed, but lower category storms can inflict greater damage than higher category storms depending on where they strike, other weather they interact with and how slow they move.

Table 6-1. Extent Scale for Hurricanes

CATEGORY	MAXIMUM SUSTAINED WIND SPEED (Mph)	MINIMUM SURFACE PRESSURE (Millibars)	STORM SURGE (Feet)
1	74 – 95	Greater than 980	3 – 5
2	96 – 110	979 – 965	6 – 8
3	111 – 130	964 – 945	9 – 12
4	131 – 155	944 – 920	13 – 18
5	155 +	Less than 920	19 +

Based on the historical storm tracks for hurricanes and tropical storms, as well as the coastal location of Hidalgo County, the average extent to be mitigated for is a category 3 storm. The Hidalgo County planning area is located in the 74-130 wind zone in terms of average wind speeds that should be mitigated in the event of a hurricane. This data is based on the design wind speeds for a 100-year event. The strongest hurricane to have impacted¹ the Hidalgo County planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15, is a Category 3 in 1980.

HISTORICAL OCCURRENCES

Previous occurrences include storms that had a direct path through the Hidalgo County planning area, including the participating jurisdictions and Santa Cruz Irrigation District #15. Table 6-2 below lists the storms that have impacted the Hidalgo County planning area during the years of 1960-2020.

¹ Impacted area may not include a direct hit of the eyewall of a hurricane or tropical storm.

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Table 6-2. Historical Hurricane Events for the Hidalgo County Planning Area, 1960-2020²

JURISDICTION	DATE	NAME	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Countywide	9/12/1961	Hurricane Carla	0	0	\$4,302,906	\$4,302,906
Countywide	9/20/1967	Hurricane Beulah	0	0	\$5,447,831	\$544,783
Countywide	7/22/1968	Hurricane Candy	0	0	\$0	\$0
Countywide	8/3/1970	Hurricane Celia	0	0	\$4,319,395	\$443,614
Countywide	9/5/1971	Hurricane Edith	0	0	\$5,518	\$5,518
Countywide	9/1/1973	Hurricane Delia	0	0	\$0	\$0
Countywide	7/31/1980	Hurricane Allen	0	0	\$16,444,219	\$1,644,422
Countywide	9/6/1998	Tropical Storm	0	0	\$0	\$0
Countywide	7/23/2008	Hurricane Dolly	0	0	\$226,468,202	\$0
Countywide	7/8/2010	Tropical Depression	Unknown	Unknown	Unknown	Unknown
Countywide	7/25/2020	Hurricane Hanna	0	0	\$5,775,932	\$29,640,985
TOTALS			0	0	\$299,346,231	

SIGNIFICANT EVENTS

Hurricane Dolly on July 23, 2008

Hurricane Dolly left a trail of widespread minor to moderate structural and natural damage across much of the Lower Rio Grande Valley and Deep South Texas on July 23rd, 2008, and dumped copious rainfall across the area, causing numerous instances of flooding primarily of low lying and poor drainage locations, as well as filling local resacas and arroyos and causing notable rises on larger area creeks and rivers. The strong winds and heavy rains contributed to widespread power outages in the Lower Rio Grande Valley, where tens of thousands of residents lost power across the more populated regions of Cameron, Hidalgo, and Willacy County. Initial estimates of more than 250 thousand customers in the Lower Rio Grande Valley alone, including most of Cameron County at one point. Agricultural experts deemed a substantial loss of cotton and sorghum due to the strong winds and torrential rain.

Tropical Storm/Hurricane Hanna July 25-26, 2020

The slowly weakening inner eyewall of Hurricane Hanna eased into Hidalgo County along the Willacy County line during the evening of July 25th and would exit the southwest corner of the county just before daybreak on the 26th. Widespread wind damage was noted in more than a

² Values are reported in 2021 dollars.

SECTION 6: HURRICANE WIND

dozen cities from near Elsa/Edcouch to north of Edinburg. This included severe damage to roofs, walls, shingles, and windows to dozens of poorly constructed/anchored homes and at least a dozen were demolished. Hundreds of trees and dozens of power poles were damaged (leaning or snapped), and power outages across this area were likely to be around 150 thousand in total. Public assistance dollars due to wind were estimated at \$5.7 million. An automated sensor several miles northeast of Elsa (Texas AgriScience Center platform) reported a peak gust to 80 mph as the southern inner eyewall crossed at 1005 PM CST. Peak winds at McAllen/Miller Airport were 39 mph (at 245 CST on the 26th), but a peak gust of 60 mph was recorded at 928 PM CST on the 25th. Additional gusts between 40 and 50 mph occurred through the night as the eastern eyewall of the weakened system (a tropical storm) oozed through southwest Hidalgo County. In general, peak winds were measured/estimated at 65 to 80 mph in the area near the Willacy County line, and 60 to 65 mph in the McAllen/Mission/Sullivan City area. Wind damaged crops was also common in the Rio Grande Valley's breadbasket with an estimated \$29.2 million in citrus and snapped sugar cane alone, based on an initial report from Texas Agrilife. While there were no direct fatalities with Hanna in southern Hidalgo County, there were five indirect deaths in the recovery days following Hanna. Four in one family from carbon monoxide poisoning on July 27th, and one elderly man who fell from a ladder while attempting roof repairs on July 28th.

PROBABILITY OF FUTURE EVENTS

Due to the location near the Gulf Coast, and the previous history of 11 events over a 60-year reporting period for the area, the likelihood or future probability of a tropical storm or hurricane in the Hidalgo County planning area is occasional, meaning an event is probable in the next five years.

VULNERABILITY AND IMPACT

Hurricane-force winds can cause major damage to large areas; hence all existing buildings, facilities and populations are equally exposed and vulnerable to this hazard and could potentially be impacted. Warning time for hurricanes has lengthened due to modern and early warning technology. Hurricane-force winds can easily destroy poorly constructed buildings and mobile homes, as well as debris such as signs, roofing materials, and small items left outside become extremely hazardous in hurricanes and tropical storms. Extensive damage to trees, towers, and underground utility lines (from uprooted trees) and fallen poles cause considerable civic disruption. Older structures may suffer greater damages from storm surge along the coast due to lower elevation of foundations.

The Hidalgo County planning area features multiple mobile or manufactured home parks throughout the planning area, including the listed participating jurisdictions. These parks are typically more vulnerable to tornado events than typical site-built structures. In addition, manufactured homes are located sporadically throughout the planning area and unincorporated areas of the county which would also be more vulnerable. The US Census data indicates a total of 42,278 manufactured homes located in the Hidalgo County planning area (16%), including participating jurisdictions (Table 6-3). In addition, 22% (approximately 59,641 structures) of the single family residential (SFR) structures in the entire planning area were built before 1980. These structures would typically be built to lower or less stringent construction standards than newer construction and may be more susceptible to damages during significant tornado events.

SECTION 6: HURRICANE WIND

Table 6-3. Structures at Greater Risk by Jurisdiction

JURISDICTION	MANUFACTURED HOMES	SFR STRUCTURES BUILT BEFORE 1980
Hidalgo County ³	42,278	59,641
City of Alamo	2,985	1,369
City of Alton	391	706
City of Donna	1,104	2,199
City of Edcouch	62	535
City of Edinburg	2,111	6,199
City of Elsa	154	598
City of Granjeno	16	29
City of Hidalgo	125	335
City of La Joya	66	344
City of La Villa	5	303
City of McAllen	2,253	15,179
City of Mercedes	946	2,427
City of Mission	3,585	5,502
City of Palmhurst	99	128
City of Palmview	232	95
City of Peñitas	78	165
City of Pharr	4,304	4,733
City of Progreso	148	404
City of San Juan	1,181	1,879
City of Sullivan City	181	287

The following critical facilities would be vulnerable to hurricane wind events in each participating jurisdiction and Santa Cruz Irrigation District #15, respectively.

³ County totals includes all incorporated jurisdictions and unincorporated areas.

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Table 6-4. Critical Facilities by Jurisdiction

JURISDICTION	CRITICAL FACILITIES
Hidalgo County	5 Administrative Offices, 1 Adult Probation, 2 Building & Grounds, 1 Community Center, 2 Constable, 2 County Clerk, 2 County Buildings, 3 Courts/Annex, 1 Election Administration, 1 Fire/Marshal Department, 2 Health Offices, 3 Justice of the Peace, 2 Planning Departments, 1 Resource Center, 7 Sheriff's Departments, 3 Shops, 1 Storage Facility, 1 WIC
City of Alamo	1 Apartment Complex, 1 City Hall, 2 Fire Departments, 1 Health System/24 hour ER, 1 Police Department, 1 Nursing Home, 11 Schools, 1 Waste/Water Plant, 1 Water Plant
City of Alton	1 City Hall, 1 Development Center, 1 Fire Department, 1 Lift Station, 1 Park, 2 Police Department/Public Safety, 1 Recreation Center, 1 Water Tower, 1 Internet (WiFi) Tower
City of Donna	1 Fire Department, 1 Police Department, 1 Sewer Treatment, 1 Water Treatment
City of Edcouch	1 City Hall, 1 Community Center, 1 Fire Department (Volunteer), 1 Police Department, 1 Sewer Plant, 1 Water Plant, 1 Water Tower
City of Edinburg	1 Airport, 1 AEP, 1 City Hall, 1 Courthouse, 1 County Jail, 5 Fire Departments, 1 Housing Authority, 2 Juvenile Detentions, 1 Landfill, 1 Library, 26 Lift Stations, 6 Hospitals, 1 Police Department, 2 Power Plant, 32 Schools, 1 Theater, 3 Water Plant/Supply, 1 WWTP
City of Elsa	1 City Hall, 2 Chlorine Buildings, 2 Groundwater Tanks, 14 Lift Stations, 1 Public Safety, 1 Public Works, 2 Water Plant/Pumping, 1 Water Tower
City of Granjeno	1 City Hall, 1 Public Facility
City of Hidalgo	1 Arena, 1 Bridge, 1 City Hall, 1 Court House, 1 Police/Fire Department, 1 Health Clinic, 1 Library, 8 Schools, 1 Waste/Sewer Plant
City of La Joya	1 City Hall, 1 Fire Department, 1 Police Department, 1 Shelter, 1 Water Plant, 1 Wastewater Plant
City of La Villa	1 City Hall, 1 Fire Department, 1 Police Department, 4 Lift Stations, 4 Water/Wastewater Plants, 2 Water Towers
City of McAllen	3 Community Center/Shelters, 1 Development Center, 1 Emergency Operation Center, 6 Fire Departments, 1 Public Safety, 1 Public Works/Maintenance Facility, 2 Reservoir, 1 Traffic Operation, 1 Waste Plant, 2 Water Plants
City of Mercedes	1 Arena/Dome, 1 City Hall, 1 Fire Department, 1 Police Department, 1 Waste Plant, 1 Water Plant
City of Mission	1 City Hall, 1 City Gym, 5 Fire Departments, 1 Hospital, 1 Police Department, 1 Public Works Facility, 1 School, 1 Shelter, 1 Waste/Water Plant
City of Palmhurst	1 Administrative Building, 1 City Hall, 1 Police Department, 1 Public Works, 2 Power Stations, 2 Schools

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JURISDICTION	CRITICAL FACILITIES
City of Palmview	1 City Hall, 1 Fire Department, 1 Police Department, 1 School
City of Peñitas	1 City Hall, 1 Fire Department, 1 Gas Station, 1 Library, 3 Lift Station, 1 Police Department, 2 Schools, 2 Waste/Water Plants, 1 Wal-Mart
City of Pharr	1 City Hall, 1 Emergency Management Center, 2 Evacuation Centers, 4 Fire Departments, 34 Lift Stations, 1 Police Department, 41 Schools, 1 Waste Plant, 1 Water Plant
City of Progreso	1 City Hall, 1 Fire Department, 1 Police Department
City of San Juan	2 City Halls, 2 Fire Departments, 23 Lift Stations, 2 Public Safety, 1 Public Works, 2 Reservoirs, 1 Waste/Water Plant, 1 Water Plants/Station
City of Sullivan City	1 City Hall, 1 Fire Department, 1 Police Department, 1 School, 1 Water Plant
Santa Cruz Irrigation District #15	1 Dam, 1 Administration, 1 Tool Shed

Storm track data was available for the past 150 years; however, property and crop loss data is only available from 1960 through December 2020. Table 6-5 shows impact or loss estimation for storms impacting the county. Damages are reported on a countywide basis and are not available for each participating jurisdiction and the Santa Cruz Irrigation District #15. Annual loss estimates were based on the 60 year reporting period for such damages (Table 6-5). The average annual loss estimate for the Hidalgo County planning area is estimated to be approximately \$4,989,104.

Table 6-5. Potential Annualized Losses Hidalgo County, 1996-2020

JURISDICTION	PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATES
Hidalgo County	\$299,346,231	\$4,989,104

While all citizens are at risk to the impacts of a hurricane, forced relocation and disaster recovery drastically impacts low-income residents who lack the financial means to travel, afford a long-term stay away from home, and to rebuild or repair their homes. An estimated 29.7% of the planning area population live below the poverty level (Table 6-6).

Table 6-6. Populations at Greatest Risk by Jurisdiction⁴

JURISDICTION	POPULATION BELOW POVERTY LEVEL
Hidalgo County	253,987
City of Alamo	5,256
City of Alton	5,432

⁴ US Census Bureau 2019 data for Hidalgo County

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JURISDICTION	POPULATION BELOW POVERTY LEVEL
City of Donna	5,989
City of Edcouch	1,028
City of Edinburg	22,907
City of Elsa	2,211
City of Granjeno	13
City of Hidalgo	4,623
City of La Joya	1,718
City of La Villa	889
City of McAllen	32,653
City of Mercedes	5,566
City of Mission	18,803
City of Palmhurst	450
City of Palmview	1,697
City of Peñitas	1,154
City of Pharr	22,719
City of Progreso	1,199
City of San Juan	10,435
City of Sullivan City	1,324

The potential severity of impact from a hurricane for the Hidalgo County planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15, is classified as “minor”; injuries or illness do not result in permanent disability, complete shutdown of critical facilities and services for one week or more, and more than 10 percent of property would be destroyed or have major damage.

ASSESSMENT OF IMPACTS

Hurricane events have the potential to pose a significant risk to people and can create dangerous and difficult situations for public health and safety officials. The impact of climate change could produce larger, more severe hurricane events, exacerbating the current hurricane impacts. Worsening hurricane conditions can be frequently associated with a variety of impacts, including:

- Individuals exposed to the storm can be struck by flying debris, falling limbs, or downed trees causing serious injury or death.

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- Structures can be damaged or crushed by falling trees, which can result in physical harm to the occupants.
- Coastal communities may suffer substantial damage, requiring immediate shelter and long term displacement assistance.
- Driving conditions in all jurisdictions may be dangerous during a hurricane event, especially over the Causeway or other elevated bridges, elevating the risk of injury and accidents during evacuations if not timed properly.
- Emergency evacuations may be necessary prior to a hurricane landfall, requiring emergency responders, evacuation routing and temporary shelters.
- Significant debris and downed trees can result in emergency response vehicles being unable to access areas of the community.
- Downed power lines may result in roadways being unsafe for use, which may prevent first responders from answering calls for assistance or rescue.
- During hurricane landfall, first responders may be prevented from responding to calls, as the winds may reach a speed in which their vehicles and equipment are unsafe to operate.
- Hurricane events often result in widespread power outages increasing the risk to more vulnerable portions of the population who rely on power for health and/or life safety.
- Extended power outage often results in an increase in structure fires and carbon monoxide poisoning, as individuals attempt to cook or heat their homes with alternate, unsafe cooking or heating devices, such as grills.
- Extreme hurricane events may rupture gas lines and down trees and power lines, increasing the risk of structure fires during and after a storm event.
- Extreme hurricane events may lead to prolonged evacuations during search and rescue, and immediate recovery efforts requiring additional emergency personnel and resources to prevent entry, and protect citizens and property.
- First responders are exposed to downed power lines, unstable and unusual debris, hazardous materials, and generally unsafe conditions.
- Emergency operations and services may be significantly impacted due to damaged facilities and/or loss of communications.
- Critical staff may be unable to report for duty, limiting response capabilities.
- City or county departments may be damaged, delaying response and recovery efforts for the entire community.
- Private sector entities that the city and its residents rely on, such as utility providers, financial institutions, and medical care providers may not be fully operational and may require assistance from neighboring communities until full services can be restored.
- Economic disruption negatively impacts the programs and services provided by the community due to short and long term loss in revenue.
- Some businesses not directly damaged by the hurricane may be negatively impacted while roads are cleared and utilities are being restored, further slowing economic recovery.
- Older structures built to less stringent building codes may suffer greater damage as they are typically more vulnerable to hurricane damage.
- Large scale hurricanes can have significant economic impact on the affected area, as it must now fund expenses such as infrastructure repair and restoration, temporary services

SECTION 6: HURRICANE WIND

and facilities, overtime pay for responders, as well as normal day-to-day operating expenses.

- Businesses that are more reliant on utility infrastructure than others may suffer greater damages without a backup power source.

The economic and financial impacts of a hurricane on the area will depend entirely on the scale of the event, what is damaged, and how quickly repairs to critical components of the economy can be implemented. The level of preparedness and pre-event planning done by the community, local businesses and citizens will also contribute to the overall economic and financial conditions in the aftermath of any hurricane event.

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HAZARD DESCRIPTION

Extreme heat is a prolonged period of excessively high temperatures and exceptionally humid conditions. Extreme heat during the summer months is a common occurrence throughout the State of Texas, and Hidalgo County is no exception. The entire planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15, typically experience extended heat waves. A heat wave is an extended period of extreme heat and is often accompanied by high humidity.



Although heat can damage buildings and facilities, it presents a more significant threat to the safety and welfare of citizens. The major human risks associated with severe summer heat include: heat cramps; sunburn; dehydration; fatigue; heat exhaustion; and even heat stroke. The most vulnerable population to heat casualties are children and the elderly or infirmed who frequently live on low fixed incomes and cannot afford to run air-conditioning on a regular basis. This population is sometimes isolated, with no immediate family or friends to look out for their well-being.

LOCATION

Though a death from extreme heat has not been recorded at a specific location in the County, there is no specific geographic scope to the extreme heat hazard. Extreme heat could occur anywhere within the Hidalgo County planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15.

EXTENT

The magnitude or intensity of an extreme heat event is measured according to temperature in relation to the percentage of humidity. According to the National Oceanic Atmospheric Administration (NOAA), this relationship is referred to as the “Heat Index” and is depicted in Figure 7-1. This index measures how hot it feels outside when humidity is combined with high temperatures.

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Figure 7-1. Extent Scale for Extreme Summer Heat¹

Temperatures (°F)		Temperatures (°F)		Temperatures (°F)		Temperatures (°F)	
40	80 - 88: CAUTION	40	90 - 96: EXTREME CAUTION	40	98 - 106: DANGER	40	108 - 110: EXTREME DANGER
45	80 - 88: CAUTION	45	90 - 94: EXTREME CAUTION	45	96 - 104: DANGER	45	106 - 110: EXTREME DANGER
50	80 - 86: CAUTION	50	88 - 94: EXTREME CAUTION	50	96 - 102: DANGER	50	104 - 110: EXTREME DANGER
55	80 - 86: CAUTION	55	88 - 92: EXTREME CAUTION	55	94 - 100: DANGER	55	102 - 110: EXTREME DANGER
60	80 - 84: CAUTION	60	86 - 90: EXTREME CAUTION	60	92 - 98: DANGER	60	100 - 110: EXTREME DANGER
65	80 - 84: CAUTION	65	86 - 90: EXTREME CAUTION	65	92 - 96: DANGER	65	98 - 110: EXTREME DANGER
70	80 - 84: CAUTION	70	86 - 88: EXTREME CAUTION	70	90 - 94: DANGER	70	96 - 110: EXTREME DANGER
75	80 - 82: CAUTION	75	84 - 88: EXTREME CAUTION	75	90 - 94: DANGER	75	96 - 110: EXTREME DANGER
80	80 - 82: CAUTION	80	84 - 86: EXTREME CAUTION	80	88 - 92: DANGER	80	94 - 110: EXTREME DANGER
85	80 - 82: CAUTION	85	84 - 86: EXTREME CAUTION	85	88 - 90: DANGER	85	92 - 110: EXTREME DANGER
90	80: CAUTION	90	82 - 84: EXTREME CAUTION	90	86 - 90: DANGER	90	92 - 110: EXTREME DANGER
95	80: CAUTION	95	82 - 84: EXTREME CAUTION	95	86 - 88: DANGER	95	90 - 110: EXTREME DANGER
100	80: CAUTION	100	82 - 84: EXTREME CAUTION	100	86 - 88: DANGER	100	90 - 110: EXTREME DANGER

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

The Extent Scale in Figure 7-1 displays varying categories of caution depending on the relative humidity combined with the temperature. For example, when the temperature is at 90 degrees Fahrenheit (°F) or lower, caution should be exercised if the humidity level is at or above 40 percent.

The shaded zones on the chart indicate varying symptoms or disorders that could occur depending on the magnitude or intensity of the event. “Caution” is the first category of intensity, and it indicates when fatigue due to heat exposure is possible. “Extreme Caution” indicates that sunstroke, muscle cramps, or heat exhaustion are possible, and a “Danger” level means that these symptoms are likely. “Extreme Danger” indicates that heat stroke is likely. The National Weather Service (NWS) initiates alerts based on the Heat Index as shown in Table 7-1.

Table 7-1. Heat Index and Warnings

CATEGORY	HEAT INDEX	POSSIBLE HEAT DISORDERS	WARNING TYPE
Extreme Danger	125°F and higher	Heat stroke or sun stroke likely.	A heat advisory will be issued to warn that the Heat Index may exceed 105°F. An Excessive Heat Warning is issued if the Heat Index
Danger	103 – 124°F	Sunstroke, muscle cramps, and/or heat exhaustion are likely. Heatstroke possible with prolonged exposure and/or physical activity.	
Extreme Caution	90 – 103°F	Sunstroke, muscle cramps, and/or heat exhaustion possible	

¹ Source: NOAA

SECTION 7: EXTREME HEAT

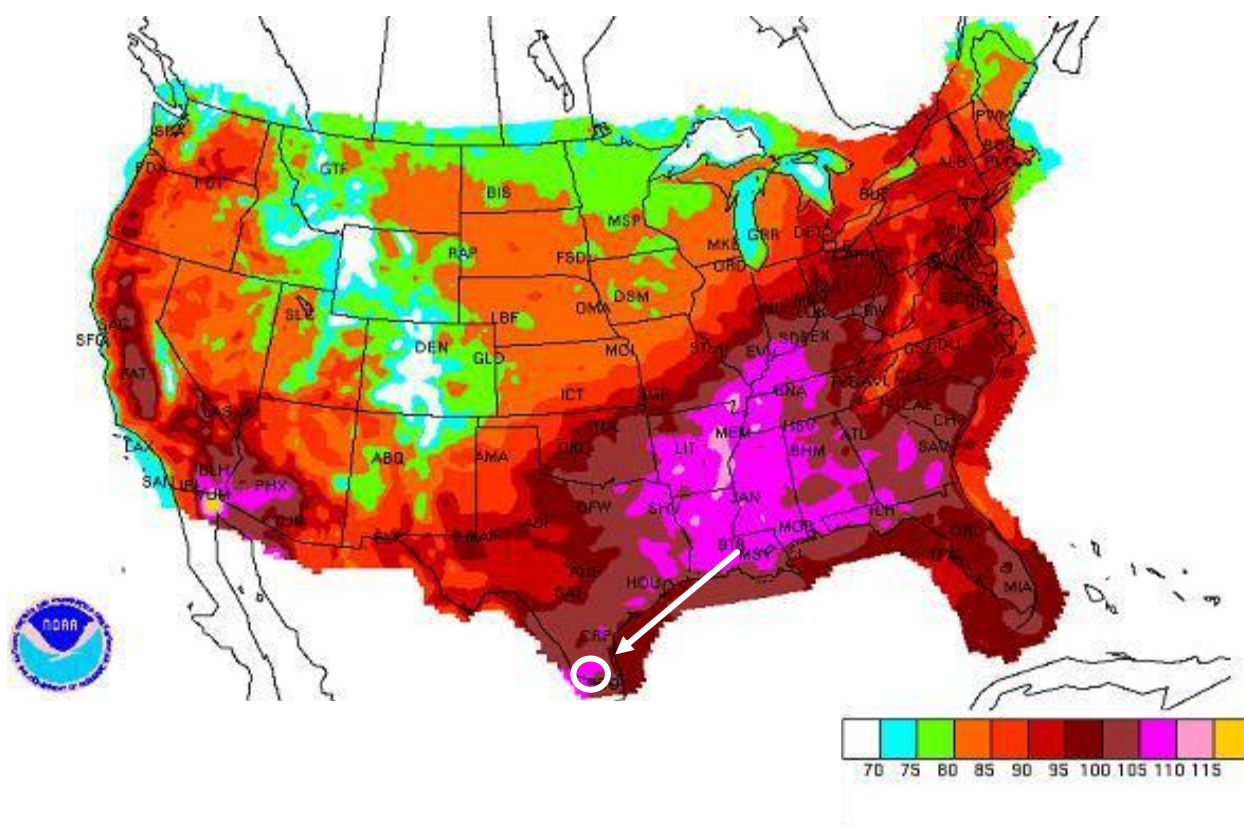
CATEGORY	HEAT INDEX	POSSIBLE HEAT DISORDERS	WARNING TYPE
		with prolonged exposure and/or physical activity.	risers above 105°F at least 3 hours during the day or above 80°F at night.
Caution	80 – 90°F	Fatigue is possible with prolonged exposure and/or physical activity.	

Hidalgo County covers 1,583 square miles, with an elevation of 376 feet. Vegetation along the eastern edge of the county is typical of the Gulf Prairie and Marsh vegetation areas, with marsh grasses, bluestems, and grama grasses predominating. The vegetation of the rest of the county is like that of the South Texas Plains area, with small trees, brush, weeds, and grasses found in abundance. Mesquite, live oak, post oak, and shrubs also grow densely in some areas. Between 41 and 50 percent of the county is considered prime farmland. Hidalgo County's climate is subtropical and sub-humid, with hot summers and mild winters. Temperatures range from an average low of 50° F to 69° in January and from an average high of 75° F to 94° in July. Rainfall averages twenty-six inches per year. Snowfall is exceedingly rare. The growing season lasts 320 days, with the first freeze in mid-December and the last in late January.

Figure 7-2 displays the daily maximum heat index as derived from NOAA based on data compiled from 1838 to 2015. The white circle shows the Hidalgo County planning area. The pink and brown colors indicate a daily maximum heat index of 100° to 110°F. Hidalgo County, including all participating jurisdictions could experience extreme heat from 90° to 110°F in the future. The record high temperature for the Hidalgo County planning area was 117°F in 2018. This is the highest temperature (danger category) the planning area can expect.

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Figure 7-2. Average Daily Maximum Heat Index Days²



HISTORICAL OCCURRENCES

Every summer, the hazard of heat-related illness becomes a significant public health issue throughout much of the US. Mortality from all causes increases during heat waves, and excessive heat is an important contributing factor to deaths from other causes, particularly among the elderly. Table 7-2 depicts historical occurrences of mortality from heat from 1994 to 2004 from the Texas Department of State Health Services and 2005 through December 2020 from the NCEI database.

Table 7-2. Extreme Heat Related Deaths in Texas

YEAR	DEATHS
1994	1
1995	12
1996	10
1997	2

² Source: NRDC and the white circle indicates the Hidalgo County planning area.

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YEAR	DEATHS
1998	66
1999	22
2000	71
2001	20
2002	1
2003	0
2004	3
2005	49
2006	2
2007	2
2008	7
2009	120
2010	4
2011	46
2012	3
2013	2
2014	0
2015	5
2016	6
2017	3
2018	7
2019	7
2020	1

Because the Texas Department of State Health Services reports on total events statewide, previous occurrences for extreme heat are derived from the NCEI database. According to heat related incidents located solely within Hidalgo County, there is only eight heat waves³ on record for the Hidalgo County planning area (Table 7-3). Historical extreme heat information, as provided

³ Even though the County experiences heat waves each summer, NCEI data only records events reported. Based on reports, only five events are on record.

SECTION 7: EXTREME HEAT

by the NCEI, shows extreme heat activity across a multi-county forecast area for each event, the appropriate percentage of the total property and crop damage reported for the entire forecast area has been allocated to each county impacted by the event. Historical extreme heat data for all participating jurisdictions and Santa Cruz Irrigation District #15 are provided on a County-wide basis per the NCEI database. Only extreme heat events that have been reported have been factored into this Risk Assessment. It is highly likely additional extreme heat occurrences have gone unreported before and during the recording period. Due to the limited number of reported events, average high temperatures have been analyzed in order to determine the probability of future events.

Table 7-3. Historical Extreme Heat Events, 1996-2020⁴

JURISDICTION	DATE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Hidalgo County	6/23/2019	4	0	\$0	\$0
TOTALS		4	0	\$0	\$0

SIGNIFICANT EVENTS

June 23, 2019 – Hidalgo County

A potential case of heat-related deaths, as provided by United States Border Patrol (USBP) was discovered in the brush inside the levee along the Rio Grande south of McAllen. One woman (age unknown but assumed to be in her 20s) and three children (two infants and a toddler) were pronounced dead when found that evening. Between 3 and 4 PM CDT, the heat index at McAllen/Miller Airport, less than 10 miles north of the location of the bodies and the most relevant proxy location, reported more than an hour of heat index of 118 degrees. Excessive heat is defined as values 116 degrees or higher in the region.

PROBABILITY OF FUTURE EVENTS

Average high temperatures for the planning area through the summer months indicate a probability of one event or more every year. This frequency supports a highly likely probability of future events.

VULNERABILITY AND IMPACT

There is no defined geographic boundary for extreme heat events. While the entire Hidalgo County planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15, is exposed to extreme temperatures, existing buildings, infrastructure, and critical facilities are not likely to sustain significant damage from extreme heat events. Therefore, any estimated property losses associated with the extreme heat hazard are anticipated to be minimal across the area.

Extreme temperatures do however present a significant threat to life and safety for the population of the County as a whole. Heat casualties for example are typically caused by a lack of adequate air-conditioning or heat exhaustion. The most vulnerable population to heat casualties are the

⁴ Only recorded events with fatalities, injuries or damages are listed. Damage values are in 2021 dollars.

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elderly or infirmed who frequently live on low fixed incomes and cannot afford to run air-conditioning on a regular basis. This population is sometimes isolated, with no immediate family or friends to look out for their well-being. Children may also be more vulnerable if left unattended in vehicles. In addition, populations living below the poverty level are unable to run air-conditioning on a regular basis and are limited in their ability to seek medical treatment. Another segment of the population at risk are those whose jobs consist of strenuous labor outdoors. Additionally, livestock and crops can become stressed, decreasing in quality or in production, during times of extreme heat.

The Santa Cruz Irrigation District #15 has approximately 23 staff members that work a portion of their work day outdoors and could be more susceptible to extreme heat that would need to be closely monitored.

The population over 65 in the Hidalgo County planning area is estimated at 10.8% of the total population and children under the age of 5 are estimated at 9.2%, or an estimated total of 171,331 potentially vulnerable residents in the planning area based on age. In addition, an estimated 29.7% of the planning area population live below the poverty level (Table 7-4).

Table 7-4. Populations at Greater Risk by Jurisdiction

JURISDICTION	POPULATION 65 AND OLDER	POPULATION UNDER 5	POPULATION BELOW POVERTY LEVEL
Hidalgo County	92,728	78,603	253,987
City of Alamo	3,299	1,780	5,256
City of Alton	1,619	1,417	5,432
City of Donna	2,515	1,458	5,989
City of Edcouch	667	331	1,028
City of Edinburg	7,778	8,521	22,907
City of Elsa	953	370	2,211
City of Granjeno	26	14	13
City of Hidalgo	1,322	840	4,623
City of La Joya	466	421	1,718
City of La Villa	286	306	889
City of McAllen	18,743	11,365	32,653
City of Mercedes	2,513	1,565	5,566
City of Mission	9,801	7,508	18,803
City of Palmhurst	399	182	450
City of Palmview	666	355	1,697

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JURISDICTION	POPULATION 65 AND OLDER	POPULATION UNDER 5	POPULATION BELOW POVERTY LEVEL
City of Peñitas	318	363	1,154
City of Pharr	9,508	8,452	22,719
City of Progreso	724	731	1,199
City of San Juan	3,640	3,317	10,435
City of Sullivan City	590	476	1,324

Extreme high temperatures can have significant secondary impacts, leading to droughts, water shortages, increased fire danger, and prompt excessive demands for energy. The possibility of rolling blackouts increases with unseasonably high temperatures in what is a normally mild month with low power demands.

Typically, more than 12 hours of warning time would be given before the onset of an extreme heat event. In terms of vulnerability to structures, the impact from extreme heat would be negligible. It is possible that critical facilities and infrastructure could be shut down for 24 hours if cooling units are running constantly, leading to a temporary power outage. Less than ten percent of residential and commercial property could be damaged if extreme heat events lead to structure fires. However, based on the historical fatality in the planning area, the potential impact of extreme heat for the entire Hidalgo County planning area can be considered “Substantial,” with multiple deaths possible depending on the length and degree of the heat wave. Based on historical records over a 24-year period, annualized property and crop losses for the Hidalgo County planning area are negligible.

ASSESSMENT OF IMPACTS

The greatest risk from extreme heat is to public health and safety. The impact of climate change could produce longer, more severe heat waves, exacerbating the current impacts. Worsening extreme heat conditions can be frequently associated with a variety of impacts, including:

- Vulnerable populations, particularly the elderly and children under 5, can face serious or life-threatening health problems from exposure to extreme heat including hyperthermia, heat cramps, heat exhaustion, and heat stroke (or sunstroke).
- Response personnel, including utility workers, public works personnel, and any other professions where individuals are required to work outside, are more subject to extreme heat related illnesses since their exposure would typically be greater.
- High energy demand periods can outpace the supply of energy, potentially creating the need for rolling brownouts which would elevate the risk of illness to vulnerable residents.
- Highways and roads may be damaged by excessive heat causing asphalt roads to soften and concrete roads to shift or buckle.
- Vehicles engines and cooling systems typically run harder during extreme heat events resulting in increases in mechanical failures.
- Extreme heat events during times of drought can exacerbate the environmental impacts associated with drought, decreasing water and air quality and further degrading wildlife habitat.

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- Extreme heat increases ground-level ozone (smog), increasing the risk of respiratory illnesses.
- Food suppliers can anticipate an increase in food costs due to increases in production costs and crop and livestock losses.
- Fisheries may be negatively impacted by extreme heat, suffering damage to fish habitats (either natural or man-made) and a loss of fish and/or other aquatic organisms due to decreased water flows or availability.
- Negatively impacted water suppliers may face increased costs resulting from the transport of water resources or development of supplemental water resources.
- Outdoor activities such as fishing, boating, and camping activities at Rio Grande River and Delta Lake Park may see an increase in injury or illness during extreme heat events.

The economic and financial impacts of extreme heat on the community will depend on the duration of the event, demand for energy, drought associated with extreme heat, and many other factors. The level of preparedness and the amount of planning done by the jurisdiction, local businesses, and citizens will impact the overall economic and financial conditions before, during, and after an extreme heat event.

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HAZARD DESCRIPTION

Drought is a period of time without substantial rainfall that persists from one year to the next. Drought is a normal part of virtually all climatic regions, including areas with high and low average rainfall. Drought is the consequence of anticipated natural precipitation reduction over an extended period of time, usually a season or more in length. Droughts can be classified as meteorological, hydrologic, agricultural, and socioeconomic. Table 8-1 presents definitions for these different types of droughts.



Droughts are one of the most complex of all natural hazards as it is difficult to determine their precise beginning or end. In addition, droughts can lead to other hazards such as extreme heat and wildfires. Their impact on wildlife and area farming is enormous, often killing crops, grazing land, edible plants, and even in severe cases, trees. A secondary hazard to drought is wildfire because dying vegetation serves as a prime ignition source. Therefore, a heat wave combined with a drought is a very dangerous situation.

Table 8-1. Drought Classification Definitions¹

METEOROLOGICAL DROUGHT	The degree of dryness or departure of actual precipitation from an expected average or normal amount based on monthly, seasonal, or annual time scales.
HYDROLOGIC DROUGHT	The effects of precipitation shortfalls on stream flows and reservoir, lake, and groundwater levels.
AGRICULTURAL DROUGHT	Soil moisture deficiencies relative to water demands of plant life, usually crops.
SOCIOECONOMIC DROUGHT	The effect of demands for water exceeding the supply as a result of a weather-related supply shortfall.

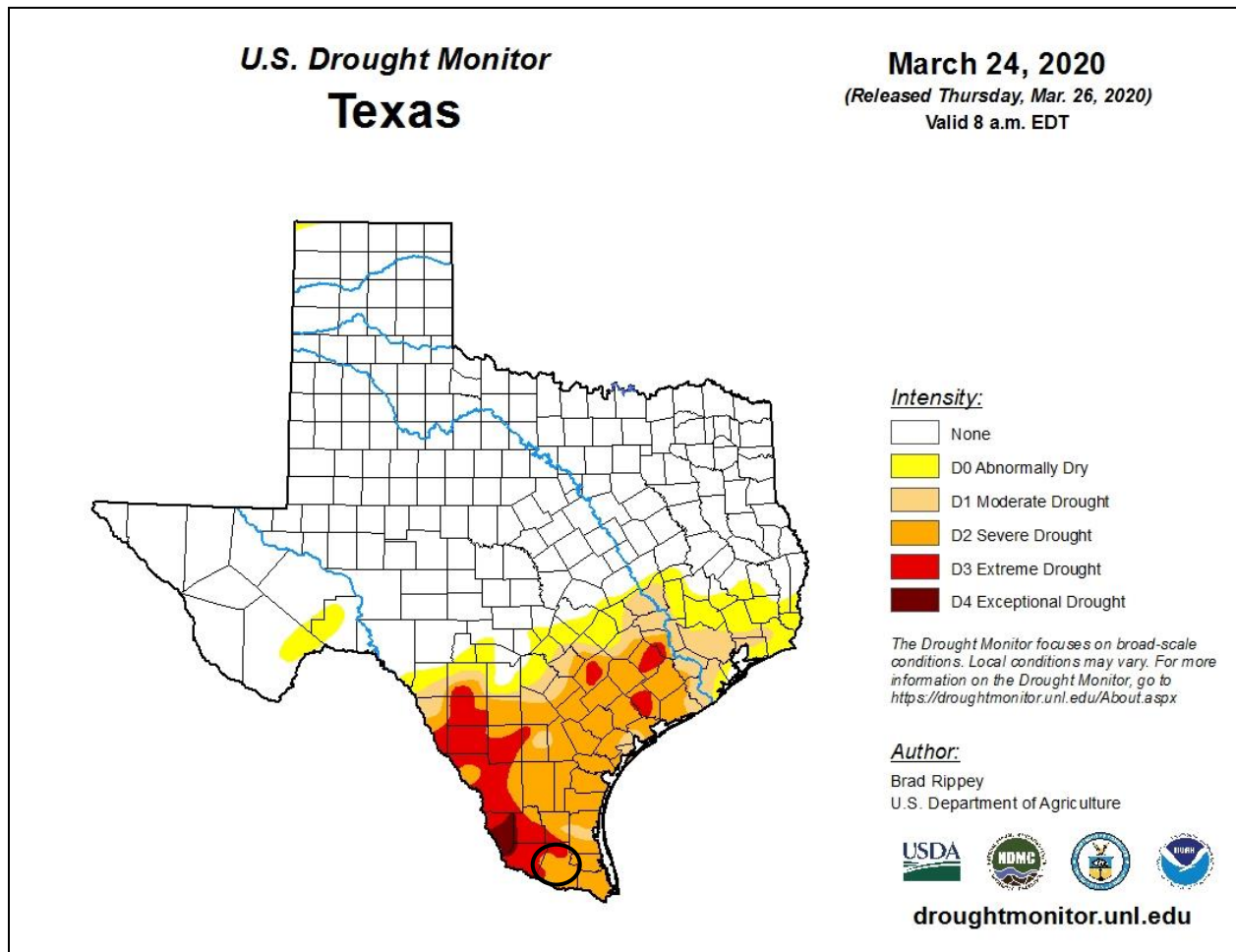
¹ Source: Multi-Hazard Identification and Risk Assessment: A Cornerstone of the National Mitigation Strategy, FEMA

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LOCATION

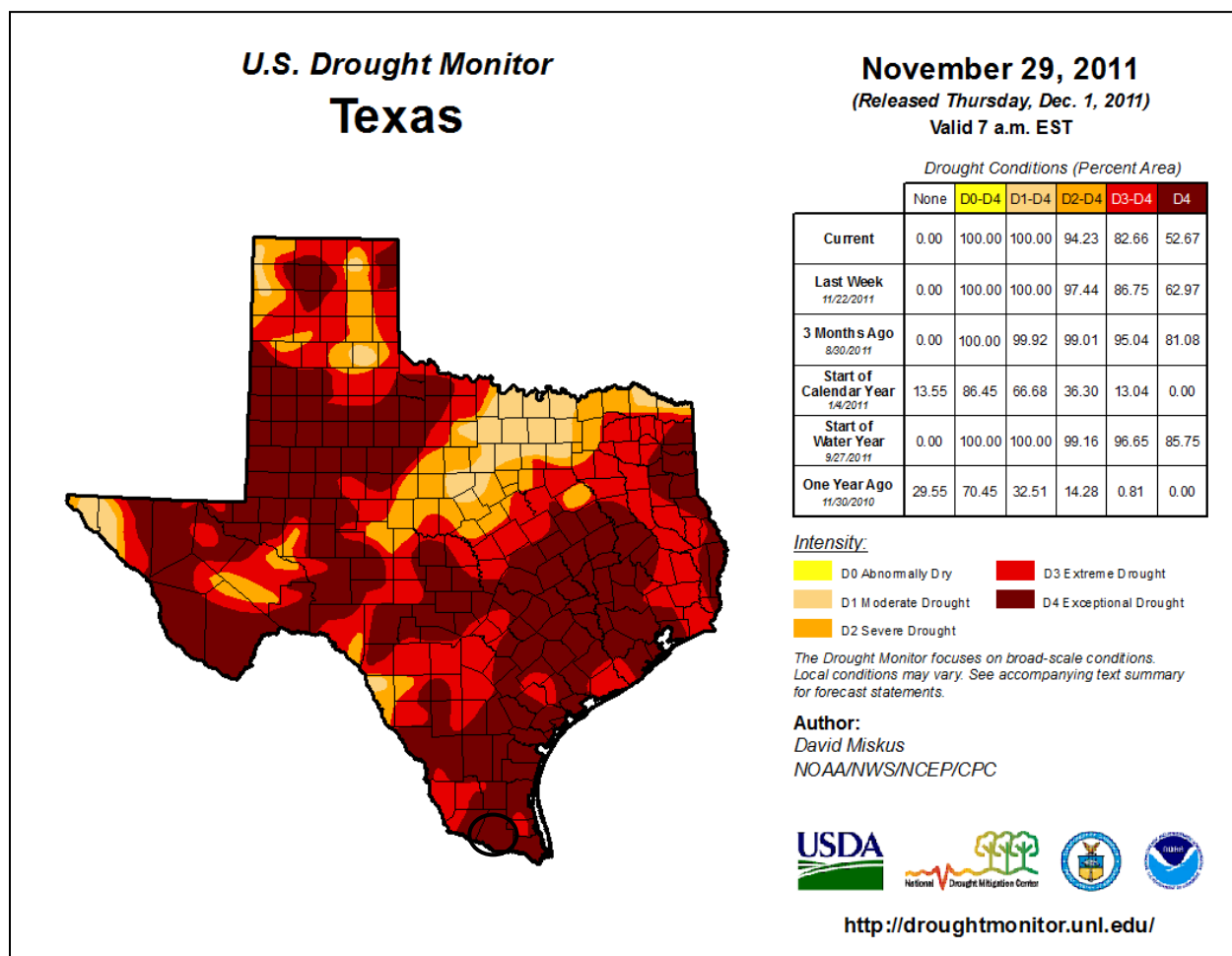
Droughts occur regularly throughout Texas and the Hidalgo County planning area and are a normal condition. However, they can vary greatly in their intensity and duration. The Drought Monitor shows the planning area is currently experiencing severe drought conditions throughout the county (Figure 8-1). However, the planning area has experienced a range of conditions from normal to exceptional drought conditions over the last ten years (Figure 8-2). There is no distinct geographic boundary to drought; therefore, it can occur throughout the Hidalgo County planning area equally, including all participating jurisdictions and Santa Cruz Irrigation District #15.

Figure 8-1. U.S. Drought Monitor, March 2020



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Figure 8-2. U.S. Drought Monitor, November 2011



EXTENT

The Palmer Drought Index is used to measure the extent of drought by measuring the duration and intensity of long-term drought-inducing circulation patterns. Long-term drought is cumulative, with the intensity of drought during the current month dependent upon the current weather patterns plus the cumulative patterns of previous months. The hydrological impacts of drought (e.g., reservoir levels, groundwater levels, etc.) take longer to develop. Table 8-2 depicts magnitude of drought, while Table 8-3 describes the classification descriptions.

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Table 8-2. Palmer Drought Index

DROUGHT INDEX	DROUGHT CONDITION CLASSIFICATIONS						
	Extreme	Severe	Moderate	Normal	Moderately Moist	Very Moist	Extremely Moist
Z Index	-2.75 and below	-2.00 to -2.74	-1.25 to -1.99	-1.24 to +.99	+1.00 to +2.49	+2.50 to +3.49	n/a
Meteorological	-4.00 and below	-3.00 to -3.99	-2.00 to -2.99	-1.99 to +1.99	+2.00 to +2.99	+3.00 to +3.99	+4.00 and above
Hydrological	-4.00 and below	-3.00 to -3.99	-2.00 to -2.99	-1.99 to +1.99	+2.00 to +2.99	+3.00 to +3.99	+4.00 and above

Table 8-3. Palmer Drought Category Descriptions²

CATEGORY	DESCRIPTION	POSSIBLE IMPACTS	PALMER DROUGHT INDEX
D0	Abnormally Dry	Going into drought: short-term dryness slowing planting, growth of crops or pastures; fire risk above average. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered.	-1.0 to -1.9
D1	Moderate Drought	Some damage to crops, pastures; fire risk high; streams, reservoirs, or wells low, some water shortages developing or imminent, voluntary water use restrictions requested.	-2.0 to -2.9
D2	Severe Drought	Crop or pasture losses likely; fire risk very high; water shortages common; water restrictions imposed.	-3.0 to -3.9
D3	Extreme Drought	Major crop/pasture losses; extreme fire danger; widespread water shortages or restrictions.	-4.0 to -4.9
D4	Exceptional Drought	Exceptional and widespread crop/pasture losses; exceptional fire risk; shortages of water in reservoirs, streams, and wells, creating water emergencies.	-5.0 or less

Drought is monitored nationwide by the National Drought Mitigation Center (NDMC). Indicators are used to describe broad scale drought conditions across the U.S. and correspond to the intensity of drought.

² Source: National Drought Mitigation Center

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Based on the historical occurrences for drought and the location of the Hidalgo County planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15, the area can anticipate a range of drought from abnormally dry to exceptional, or D0 to D4, based on the Palmer Drought Category. The entire planning area has experienced exceptional drought conditions. This is the most extreme drought conditions the planning area can anticipate in the future.

HISTORICAL OCCURRENCES

The Hidalgo County planning area may typically experience a severe drought. Table 8-4 lists historical events that have occurred in the Hidalgo County planning area as reported in the National Centers for Environmental Information (NCEI). Historical events with reported damages, injuries, or fatalities are shown in Table 8-5. A total of 155 reported historical drought events, with 16 unique events that have impacted the Hidalgo County planning area between 1996 through December 2020 (Summary Table 8-6).

Historical drought information shows drought activity across a multi-county forecast area for each event, the appropriate percentage of the total property and crop damage reported for the entire forecast area has been allocated to each county impacted by the event. Historical drought data for all participating jurisdictions and Santa Cruz Irrigation District #15 in the Hidalgo County planning area are provided on a county-wide basis per the NCEI database.

Table 8-4. Historical Drought Years, 1996-2020³

DROUGHT YEAR
1996
2000-2001
2001-2002
2002
2003
2008
2009
2010-2011
2011-2012
2012-2013
2014
2014
2017

³ Historical data is reported from January 1996 through December 2020.

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DROUGHT YEAR
2018
2020
16 unique events

Table 8-5. Historical Drought Events, 1996-2020⁴

JURISDICTION	DATE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Hidalgo County	1/1/2001	0	0	\$0	14,780,456
Hidalgo County	6/1/2011	0	0	\$0	5,126,933
Hidalgo County	8/16/2011	0	0	\$0	5,444,992
TOTALS		0	0	\$0	\$25,352,381

Table 8-6. Historical Drought Events Summary, 1996-2019

JURISDICTION	NUMBER of EVENTS	INJURIES	DEATHS	PROPERTY DAMAGE	CROP DAMAGE
Hidalgo County	16	0	0	\$0	\$25,352,381

Based on the historical drought events for the Hidalgo County planning area, including all participating jurisdictions, 4 of the unique events have occurred since the 2016 Plan.

SIGNIFICANT EVENTS

Drought - June 2011

Hidalgo County maintained a combination of Extreme (D3) to Exceptional (D4) drought conditions through June. The withering heat, wind, and low to moderate humidity finished off a number of dryland crops, and began impacting livestock/cattle herds on ranches across the north and west portions of the county as the month wore on. Exceptional drought dominated the south and west portions of the county through June 28th, with Extreme conditions elsewhere.

Torrential rains of 4 to 6 inches across the eastern half of the county on June 22 and 23 dropped conditions from Exceptional to Extreme including Weslaco, Donna, and Mercedes. The drought would be truly dented - finally - with the passage of outer bands of Tropical Storm Arlene (June 30th), seen by early July. Monthly rain totals ranged from more than 8 inches in the southeast corner of the county, to less than three inches across the far west and north. While departure from water year (beginning October 1, 2010) averages recovered to a few inches shy in Weslaco, values remained more than 10 inches below the water year average in McCook and La Joya/Mission.

Dryland crops and un-irrigated fields suffered total losses, shown best by many fields of burned/stunted corn. Irrigable crops largely grew normally, though frequent winds may have

⁴ Only historical events with reported injuries, fatalities or damages are listed. Values are reported in 2021 dollars.

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increased evaporation rates through the 21st. Hundreds of head of cattle were sold early due to dwindling/low quality feed supply. As of the end of June, total insured crop damage/loss was just under \$4.4 million (cotton, corn, sorghum), roughly half of the total for the Rio Grande Valley (reported by the Texas AgriLife Extension Service in Weslaco).

Drought – August 2011

Lack of rainfall across the north and west portions of Hidalgo County would deteriorate drought conditions by mid-month, with these areas reaching Extreme (D3) by the 16th. Severe (D2) Drought expanded east across Highway 281, but Abnormally Dry (D0) to Moderate (D1) conditions would prevail across the Lower Valley portion (Pharr to the Cameron County line, generally south of Highway 83) through the remainder of the month, aided by additional pockets of rain, particularly on the 26th and the 31st. A bit to the north, Extreme (D3) conditions would expand to all areas west of Highway 281 from Edinburg South, and to all of northern Hidalgo County, by the 23rd; Severe Conditions would cover all but the southeast corner from the 23rd through the 31st. This increase occurred despite some of the aforementioned rain, which was not enough to counter the climatological rise in rain frequency that occurs from late August into September. By month's end, preliminary crop damage and production loss to corn, cotton, and sorghum totaled \$4,690,154.80.

Drought – February- May 2020

Severe (D2) drought was experienced in the beginning parts of February with only coastal counties experiencing reprieve around February 10th. The combination of above normal temperatures during the first week of the March, followed by a cooler but very dry period during the second week, with a return to much above normal temperatures for the start of the third week – all with little to no rainfall - worsened drought across all of Deep South Texas and the Rio Grande Valley through mid-March. By mid-March, impacts to cattle were being noted with additional water hauling necessary to help hydration, and a number of crops were not yet planted with the lack of needed rainfall combined with exceptionally high evaporation rates for early March. The week of May 13-17 was a wet one with a series of upper-level disturbances that brought a combination of showers and thunderstorms across Deep South Texas and the Rio Grande Valley. The rainfall from these events was sufficient to improve the drought conditions by one category across all of the region from the previous Drought Monitor, leaving the southeastern portion of Hidalgo County in Severe (D2) Drought going into the latter half of May.

PROBABILITY OF FUTURE EVENTS

Based on available records of historic events, there have been 16 extended time periods of drought (ranging in length from approximately 30 days to over 540 days) within a 24-year reporting period, which provides a probability of one event every one to two years. This frequency supports a highly likely probability of future events. All participating jurisdiction and Santa Cruz Irrigation District #15 events are included under the County.

VULNERABILITY AND IMPACT

Loss estimates were based on 24 years of statistical data from the NCEI. A drought event frequency-impact was then developed to determine an impact profile on agriculture products and estimate potential losses due to drought in the area. Table 8-7 shows annualized exposure.

SECTION 8: DROUGHT

Table 8-7. Potential Annualized Losses for Hidalgo County

JURISDICTION	PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATES
Hidalgo County	\$25,352,381	\$1,056,349

Drought impacts large areas and crosses jurisdictional boundaries. All existing and future buildings, facilities, and populations are exposed to this hazard and could potentially be impacted. However, drought impacts are mostly experienced in water shortages and crop/livestock losses on agricultural lands and typically have no impact on buildings.

In terms of vulnerability, population, agriculture, property, socioeconomics, and environment are all vulnerable to drought in the Hidalgo County planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15. Typical demand can deplete water resources during extreme drought conditions. As resources are depleted, potable water is in short supply and overall water quality can suffer, elevating health concerns for all residents but especially vulnerable populations – typically children, the elderly, the ill, and those living below the poverty level. In addition, potable water is used for drinking, sanitation, patient care, sterilization, equipment, heating and cooling systems, and many other essential functions in medical facilities.

The average person will survive only a few days without potable water, and this timeframe can be drastically shortened for those people with more fragile health – typically children, the elderly, and the ill. Population over 65 in the Hidalgo County planning area is estimated at 10.8% of the total population, and children under the age of 5 are estimated at 9.2% or an estimated total of 171,331 potentially vulnerable residents in the planning area based on age. In addition, an estimated 29.7% of the planning area population live below the poverty level (Table 8-8) which may contribute to overall health impacts of a drought.

Table 8-8. Populations at Greater Risk by Jurisdiction

JURISDICTION	POPULATION 65 AND OLDER	POPULATION UNDER 5	POPULATION BELOW POVERTY LEVEL
Hidalgo county	92,728	78,603	253,987
City of Alamo	3,299	1,780	5,256
City of Alton	1,619	1,417	5,432
City of Donna	2,515	1,458	5,989
City of Edcouch	667	331	1,028
City of Edinburg	7,778	8,521	22,907
City of Elsa	953	370	2,211
City of Granjeno	26	14	13
City of Hidalgo	1,322	840	4,623
City of La Joya	466	421	1,718

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JURISDICTION	POPULATION 65 AND OLDER	POPULATION UNDER 5	POPULATION BELOW POVERTY LEVEL
City of La Villa	286	306	889
City of McAllen	18,743	11,365	32,653
City of Mercedes	2,513	1,565	5,566
City of Mission	9,801	7,508	18,803
City of Palmhurst	399	182	450
City of Palmview	666	355	1,697
City of Peñitas	318	363	1,154
City of Pharr	9,508	8,452	22,719
City of Progreso	724	731	1,199
City of San Juan	3,640	3,317	10,435
City of Sullivan City	590	476	1,324

The population is also vulnerable to food shortages when drought conditions exist, and potable water is in short supply. Potable water is used for drinking, sanitation, patient care, sterilization, equipment, heating and cooling systems, and many other essential functions in medical facilities. All residents in the Hidalgo County planning area could be adversely affected by drought conditions, which could limit water supplies and present health threats. During summer drought, or hot and dry conditions, elderly persons, small children, infants and the chronically ill who do not have adequate cooling units in their homes may become more vulnerable to injury and/or death.

Santa Cruz Irrigation District #15 does not have specific populations vulnerable to drought.

The economic impact of droughts can be significant as they produce a complex web of impacts that spans many sectors of the economy and reach well beyond the area experiencing physical drought. This complexity exists because water is integral to our ability to produce goods and provide services. If droughts extend over a number of years, the direct and indirect economic impact can be significant.

Habitat damage is a vulnerability of the environment during periods of drought for both aquatic and terrestrial species. The environment also becomes vulnerable during periods of extreme or prolonged drought due to severe erosion and land degradation.

Impact of droughts experienced in the Hidalgo County planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15, has resulted in no injuries or fatalities supporting a “Limited” severity of impact meaning injuries and/or illnesses are treatable with first aid, shutdown of facilities and services for 24 hours or less, and less than 10% of property is destroyed or with major damage. Annualized loss over the 24-year reporting period in Hidalgo County is estimated to be \$1,056,349.

SECTION 8: DROUGHT

ASSESSMENT OF IMPACTS

The Drought Impact Reporter was developed in 2005 by the University of Nebraska-Lincoln to provide a national database of drought impacts. Droughts can have an impact on: the agriculture; business and industry; energy; fire; plants and wildlife; relief, response, and restrictions; society and public health; tourism and recreation; and water supply and quality. The reports are submitted from individuals from Federal, State, and local agencies, as well as the general public. Table 8-9 lists the drought impacts to Hidalgo County from 2005 to 2020 based on reports received by the Drought Impact Reporter.

Table 8-9. Drought Impacts, 2005-2020

DROUGHT IMPACTS 2005-2019	
Agriculture	113
Business & Industry	1
Energy	1
Fire	18
Plants & Wildlife	66
Relief, Response & Restrictions	26
Society & Public Health	6
Tourism & Recreation	0
Water Supply & Quality	59

Drought has the potential to impact people in the Hidalgo County planning area. While it is rare that drought, in and of itself, leads to a direct risk to the health and safety of people in the U.S., severe water shortages could result in inadequate supply for human needs. The impact of climate change could produce longer, more severe droughts, exacerbating the current drought impacts. Worsening drought conditions can be frequently associated with a variety of impacts, including:

- The number of health-related low-flow issues (e.g., diminished sewage flows, increased pollution concentrations, reduced firefighting capacity, and cross-connection contamination) will increase as the drought intensifies.
- Public safety from forest/range/wildfires will increase as water availability and/or pressure decreases.
- Respiratory ailments may increase as the air quality decreases.
- There may be an increase in disease due to wildlife concentrations (e.g., rabies, Rocky Mountain spotted fever, Lyme disease).
- Jurisdictions and residents may disagree over water use/water rights, creating conflict.
- Political conflicts may increase between municipalities, counties, states, and regions.
- Water management conflicts may arise between competing interests.
- Increased law enforcement activities may be required to enforce water restrictions.

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- Severe water shortages could result in inadequate supply for human needs as well as lower quality of water for consumption.
- Firefighters may have limited water resources to aid in firefighting and suppression activities, increasing risk to lives and property.
- During drought there is an increased risk for wildfires and dust storms.
- The community may need increased operational costs to enforce water restriction or rationing.
- Prolonged drought can lead to increases in illness and disease related to drought.
- Utility providers can see decreases in revenue as water supplies diminish.
- Utilities providers may cut back energy generation and service to their customers to prioritize critical service needs.
- Hydroelectric power generation facilities and infrastructure would have significantly diminished generation capability. Dams simply cannot produce as much electricity from low water levels as they can from high water levels.
- Fish and wildlife food and habitat will be reduced or degraded over time during a drought and disease will increase, especially for aquatic life.
- Wildlife will move to more sustainable locations creating higher concentrations of wildlife in smaller areas, increasing vulnerability, and further depleting limited natural resources.
- Severe and prolonged drought can result in the reduction of a species or cause the extinction of a species altogether.
- Plant life will suffer from long-term drought. Wind and erosion will also pose a threat to plant life as soil quality will decline.
- Dry and dead vegetation will increase the risk of wildfire.
- Drought poses a significant risk to annual and perennial crop production and overall crop quality leading to higher food costs.
- Drought related declines in production may lead to an increase in unemployment.
- Drought may limit livestock grazing resulting in decreased livestock weight, potential increased livestock mortality, and increased cost for feed.
- Negatively impacted water suppliers may face increased costs resulting from the transport water or develop supplemental water resources.
- Long term drought may negatively impact future economic development.

The overall extent of damages caused by periods of drought is dependent on its extent and duration. The level of preparedness and pre-event planning done by government, businesses, and citizens will contribute to the overall economic and financial conditions in the aftermath of a drought event.

SECTION 9: THUNDERSTORM WIND

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HAZARD DESCRIPTION

Thunderstorms create extreme wind events which includes straight line winds. Wind is the horizontal motion of the air past a given point, beginning with differences in air pressures. Pressure that is higher at one place than another sets up a force pushing from the high toward the low pressure; the greater the difference in pressures, the stronger the force. The distance between the area of high pressure and the area of low pressure also determines how fast the moving air is accelerated.

Thunderstorms are created when heat and moisture near the Earth's surface are transported to the upper levels of the atmosphere. By-products of this process are the clouds, precipitation, and wind that become the thunderstorm.

According to the National Weather Service (NWS), a thunderstorm occurs when thunder accompanies rainfall. Radar observers use the intensity of radar echoes to distinguish between rain showers and thunderstorms.



Straight line winds are responsible for most thunderstorm wind damages. One type of straight-line wind, the downburst, is a small area of rapidly descending air beneath a thunderstorm. A downburst can cause damage equivalent to a strong tornado and make air travel extremely hazardous.

LOCATION

Thunderstorms wind events can develop in any geographic location and are considered a common occurrence in Texas. Therefore, a thunderstorm wind event could occur at any location within Hidalgo County's planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15, as these storms develop randomly and are not confined to any geographic area within the County. It is assumed that the Hidalgo County planning area is uniformly exposed to the threat of thunderstorms winds.

SECTION 9: THUNDERSTORM WIND

EXTENT

The extent or magnitude of a thunderstorm wind event is measured by the Beaufort Wind Scale. Table 9-1 describes the different intensities of wind in terms of speed and effects, from calm to violent and destructive.

Table 9-1. Beaufort Wind Scale¹

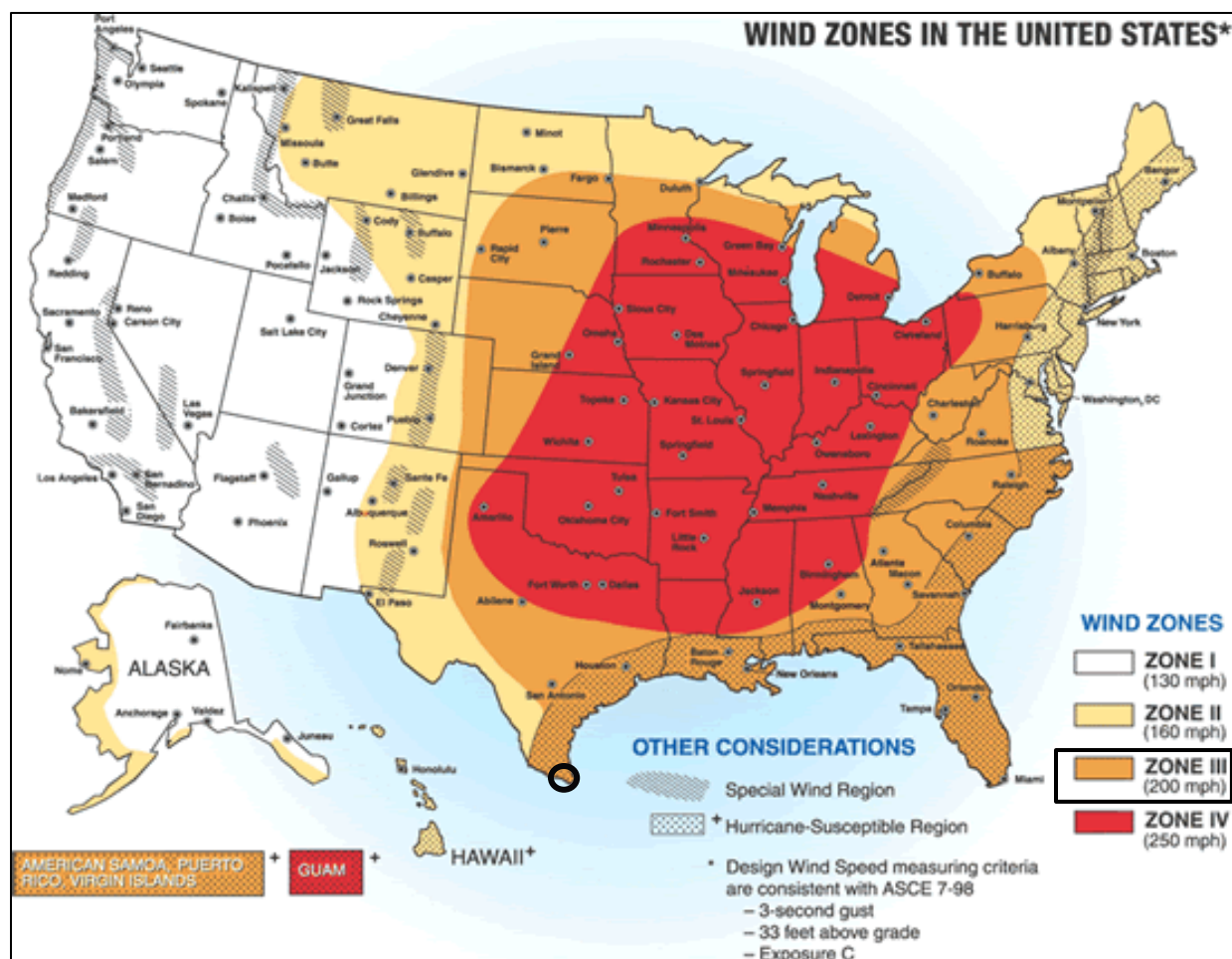
FORCE	WIND (MHP)	WMO CLASSIFICATION	APPEARANCE OF WIND EFFECTS
0	Less than 1	Calm	Calm, smoke rises vertically
1	1-3	Light Air	Smoke drift indicates wind direction, still wind vanes
2	4-8	Light Breeze	Wind felt on face, leaves rustle, vanes begin to move
3	9-14	Gentle Breeze	Leaves and small twigs constantly moving, light flags extended
4	15-21	Moderate Breeze	Dust, leaves and loose paper lifted, small tree branches move
5	22-28	Fresh Breeze	Small trees in leaf begin to sway
6	29-36	Strong Breeze	Larger tree branches moving, whistling in wires
7	37-44	Near Gale	Whole trees moving, resistance felt walking against wind
8	45-53	Gale	Whole trees in motion, resistance felt walking against wind
9	54-62	Strong Gale	Slight structural damage occurs, slate blows off roofs
10	63-72	Storm	Seldom experienced on land, trees broken or uprooted, "considerable structural damage"
11	73-83	Violent Storm	If experienced on land, widespread damage
12	84+	Hurricane	Violence and destruction

Figure 9-1 displays the wind zones as derived from NOAA.

¹ Source: World Meteorological Organization

SECTION 9: THUNDERSTORM WIND

Figure 9-1. Wind Zones in the United States²



On average, the planning area experiences two to three thunderstorm wind events every year. The County is located in Zone III, meaning they can experience winds up to 200 mph. Hidalgo County has experienced a significant wind event or an event with winds in the range of “Force 12” on the Beaufort Wind Scale with winds at or above 83 mph. This is the most significant event that can be expected in the future for all participating jurisdictions.

HISTORICAL OCCURRENCES

Tables 8-2, 8-3, and 8-4 depict historical occurrences of thunderstorm wind events for the Hidalgo County planning area according to the National Centers for Environmental Information (NCEI) data. Since January 1960, 154 thunderstorm wind events are known to have impacted the Hidalgo County planning area, including all participating jurisdictions, based upon NCEI records. Table 9-3 presents information on known historical events impacting the Hidalgo County planning area with resulting damages, injuries or fatalities. It is important to note that high wind events associated with other hazards, such as tornadoes, are not accounted for in this section.

² Hidalgo County is indicated by the circle.

SECTION 9: THUNDERSTORM WIND

The NCEI is a national data source organized under the National Oceanic and Atmospheric Administration. The NCEI is the largest archive available for climate data; however, it is important to note that the only incidents recorded are those that are reported to the NCEI from 1960 through December 2020 have been factored into this risk assessment. In the tables that follow throughout this section, some occurrences seem to appear multiple times in one table. This is due to reports from various locations throughout the County. In addition, property damage estimates are not always available. Where an estimate has been provided in a table for losses, the dollar amounts have been altered to indicate the damage in 2021 dollars. Historical thunderstorm wind data for all of the participating jurisdictions are provided on a County-wide basis per the NCEI database.

Historical thunderstorm wind data for the Santa Cruz Irrigation District #15 is provided within the City of Edinburg events per the NCEI database as they do not have events reported separate and apart from the reported Edinburg city-wide events. There have been no reported losses as a result of thunderstorm wind for the Santa Cruz Irrigation District #15.

Table 9-2. Historical Thunderstorm Wind Events with Reported Damages, 1961-2020

MAXIMUM WIND SPEED RECORDED (MPH)	NUMBER OF REPORTED EVENTS
0-30	29
31-40	16
41-50	29
51-60	52
61-70	20
71-80	1
81-90	2
91-100	0
Unknown	5

Table 9-3. Historical Thunderstorm Wind Events, 1960-2020³

JURISDICTION	DATE	TIME	MAGNITUDE (MPH)	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
City of Edinburg	4/8/1993	2:25 AM	0	0	0	\$9,132	\$0
Hidalgo County	3/9/1994	7:00 AM	0	0	0	\$89,339	\$8,934
Hidalgo County	8/17/1994	10:40 PM	0	0	0	\$8,826	\$0
Hidalgo County	10/8/1994	4:00 PM	0	0	0	\$12,315	\$7,037

³ Only recorded events with fatalities, injuries or damages are listed. Magnitude is listed when available. Damage values are in 2021 dollars.

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JURISDICTION	DATE	TIME	MAGNITUDE (MPH)	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Hidalgo County	2/28/1995	3:00 PM	0	0	0	\$5,229	\$0
City of Sullivan City	5/28/1997	12:00 AM	0	0	0	\$1,643	\$0
City of McAllen	9/23/1997	7:05 PM	60	0	0	\$2,447	\$0
City of Mission	2/21/1998	6:15 PM	0	0	0	\$4,874	\$0
City of Sullivan City	3/27/1999	7:15 PM	0	0	0	\$7,970	\$0
City of Alamo	5/18/1999	5:00 AM	0	0	0	\$7,913	\$0
City of McAllen	5/18/1999	4:30 AM	0	0	0	\$12,660	\$0
City of Mission	5/21/2001	8:30 PM	60	0	0	\$14,801	\$0
City of La Joya	8/31/2001	8:25 PM	74	0	0	\$74,088	\$0
Hidalgo County	7/20/2005	6:00 AM	55	0	0	\$40,381	\$0
Hidalgo County	8/31/2005	3:45 PM	50	0	0	\$13,392	\$0
City of Edinburg	8/31/2005	5:13 PM	65	0	0	\$13,392	\$0
Hidalgo County	2/16/2008	12:00 PM	35	0	0	\$2,485	\$0
Hidalgo County	3/2/2008	12:00 PM	40	0	0	\$1,232	\$0
Hidalgo County	3/17/2008	9:00 AM	42	0	0	\$2,464	\$0
Hidalgo County	3/18/2008	2:53 PM	35	0	2	\$12,318	\$0
Hidalgo County	5/16/2008	2:02 AM	61	0	0	\$151,763	\$0
Hidalgo County	6/3/2009	7:20 PM	53	0	0	\$12,194	\$0
Hidalgo County	6/3/2009	7:27 PM	54	0	0	\$2,439	\$0
Hidalgo County	12/24/2009	3:00 PM	33	0	0	\$2,436	\$0
Hidalgo County	12/24/2009	3:30 AM	41	0	0	\$609	\$0
Hidalgo County	5/18/2010	8:06 AM	39	0	0	\$2,411	\$0
City of Edcouch	5/18/2010	7:55 AM	52	0	0	\$6,028	\$0
City of Donna	6/7/2010	2:45 PM	61	0	0	\$90,501	\$0
Hidalgo County	11/25/2010	11:00 AM	39	0	0	\$1,803	\$0
Hidalgo County	5/8/2012	4:06 PM	89	0	1	\$57,223	\$0
Hidalgo County	5/9/2012	8:25 PM	56	0	0	\$28,611	\$0

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JURISDICTION	DATE	TIME	MAGNITUDE (MPH)	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
City of Donna	10/18/2012	5:55 PM	48	0	0	\$1,137	\$0
City of Elsa	10/18/2012	5:17 PM	61	0	0	\$8,528	\$0
City of McAllen	10/18/2012	6:15 PM	50	0	0	\$5,685	\$0
Hidalgo County	2/25/2013	12:07 PM	31	0	0	\$5,664	\$0
City of McAllen	4/28/2013	11:20 AM	42	0	0	\$5,655	\$0
Hidalgo County	6/2/2013	1:35 PM	56	0	0	\$112,638	\$0
City of Mission	6/7/2013	5:19 PM	45	0	0	\$11,264	\$0
Hidalgo County	11/1/2013	7:18 PM	52	0	0	\$16,927	\$0
Hidalgo County	1/23/2014	6:54 PM	43	0	0	\$5,622	\$0
Hidalgo County	3/16/2014	3:15 PM	35	0	0	\$1,113	\$0
Hidalgo County	4/14/2014	1:45 PM	35	0	0	\$5,547	\$0
Hidalgo County	5/9/2014	7:23 PM	43	0	0	\$1,106	\$0
City of Edinburg	5/9/2014	7:23 PM	50	0	0	\$5,528	\$0
City of Mission	5/9/2014	7:23 PM	50	0	0	\$5,528	\$0
City of Mission	5/9/2014	7:00 PM	50	0	0	\$7,739	\$0
Hidalgo County	8/13/2014	3:02 PM	52	0	0	\$1,106	\$0
Hidalgo County	8/13/2014	3:18 PM	52	0	0	\$3,317	\$0
Hidalgo County	8/13/2014	3:00 PM	56	0	0	\$44,232	\$0
City of Alamo	8/13/2014	3:15 PM	52	0	0	\$5,529	\$0
City of Mercedes	8/13/2014	2:54 PM	56	0	0	\$44,232	\$0
City of Pharr	8/13/2014	3:20 PM	52	0	0	\$1,106	\$0
Hidalgo County	3/26/2015	11:51 AM	56	0	0	\$6,683	\$0
City of McAllen	4/12/2015	10:00 PM	39	0	0	\$1,112	\$0
Hidalgo County	4/24/2015	10:11 PM	61	0	0	\$11,116	\$0
Hidalgo County	4/24/2015	10:13 PM	65	0	0	\$138,956	\$0
City of Donna	4/24/2015	10:09 PM	70	0	0	\$111,164	\$0
Hidalgo County	5/11/2015	11:00 PM	61	0	0	\$0	\$55,300
City of Elsa	5/12/2015	12:20 AM	61	0	0	\$110,601	\$0

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JURISDICTION	DATE	TIME	MAGNITUDE (MPH)	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
City of Mercedes	5/12/2015	12:20 AM	52	0	0	\$2,212	\$0
City of Progreso	5/12/2015	12:00 AM	39	0	0	\$2,212	\$0
City of Mission	5/29/2015	6:40 AM	39	0	0	\$1,106	\$0
Hidalgo County	8/19/2015	11:40 PM	52	0	0	\$2,207	\$0
City of Palmhurst	8/19/2015	11:33 PM	43	0	0	\$2,207	\$0
Hidalgo County	8/20/2015	12:45 AM	52	0	0	\$5,518	\$0
Hidalgo County	10/13/2015	2:15 PM	52	0	0	\$33,176	\$0
Hidalgo County	1/16/2016	12:40 PM	42	0	0	\$1,665	\$0
Hidalgo County	3/9/2016	6:25 AM	52	0	0	\$13,254	\$0
Hidalgo County	5/14/2016	4:35 PM	56	0	0	\$547,424	\$54,742
Hidalgo County	5/31/2016	9:11 PM	83	0	0	\$10,948,470	\$547,424
Hidalgo County	10/20/2016	4:17 PM	48	0	0	\$10,881	\$0
City of McAllen	5/29/2017	1:14 AM	35	0	0	\$537	\$0
Hidalgo County	1/11/2018	7:15 PM	47	0	0	\$15,917	\$0
Hidalgo County	4/7/2019	7:30 AM	46	0	0	\$5,146	\$0
City of Alamo	5/14/2019	4:25 AM	56	0	0	\$20,541	\$0
City of Alamo	5/14/2019	4:00 AM	52	0	0	\$1,027	\$0
Hidalgo County	6/7/2019	3:08 PM	50	0	0	\$5,134	\$0
Hidalgo County	6/7/2019	3:22 PM	50	0	0	\$8,215	\$0
Hidalgo County	6/24/2019	6:13 PM	65	0	0	\$102,682	\$0
Hidalgo County	6/24/2019	5:00 PM	36	0	0	\$2,054	\$0
City of Alamo	6/24/2019	6:30 PM	36	0	0	\$1,027	\$0
City of Edinburg	6/24/2019	6:15 PM	45	0	0	\$1,027	\$0
City of Edinburg	8/25/2019	4:45 PM	52	0	0	\$5,126	\$0
Hidalgo County	11/20/2019	2:53 PM	36	0	0	\$1,023	\$0
Hidalgo County	1/10/2020	9:45 AM	41	0	0	\$1,020	\$0
City of Peñitas	5/8/2020	9:28 PM	55	0	0	\$15,387	\$0

SECTION 9: THUNDERSTORM WIND

JURISDICTION	DATE	TIME	MAGNITUDE (MPH)	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
City of Sullivan City	6/18/2020	4:37 PM	61	0	0	\$51,012	\$0
TOTALS			(Max Extent)	0	3	\$13,178,961	\$673,437

Table 9-4. Summary of Historical Thunderstorm Wind Events, 1960-2020

JURISDICTION	NUMBER OF EVENTS	MAGNITUDE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Hidalgo County	96	89	0	3	\$12,505,283	\$673,437
City of Alamo	6	56	0	0	\$36,037	\$0
City of Alton	0	N/A	0	0	\$0	\$0
City of Donna	4	70	0	0	\$202,802	\$0
City of Edcouch	3	60	0	0	\$6,028	\$0
City of Edinburg	8	65	0	0	\$34,205	\$0
City of Elsa	3	65	0	0	\$119,129	\$0
City of Granjeno	0	N/A	N/A	N/A	N/A	N/A
City of Hidalgo	0	N/A	N/A	N/A	N/A	N/A
City of La Joya	2	74	0	0	\$74,088	\$0
City of La Villa	0	N/A	N/A	N/A	\$0	\$0
City of McAllen	9	70	0	0	\$28,096	\$0
City of Mercedes	5	65	0	0	\$46,444	\$0
City of Mission	9	60	0	0	\$45,312	\$0
City of Palmhurst	1	43	0	0	\$2,207	0
City of Palmview	0	N/A	N/A	N/A	\$0	\$0
City of Peñitas	1	55	0	0	\$15,387	0
City of Pharr	1	52	0	0	\$1,106	0
City of Progreso	2	60	0	0	\$2,212	\$0
City of San Juan	1	54	0	0	\$0	\$0
City of Sullivan City	3	61	0	0	\$60,625	\$0
TOTAL LOSSES	154	(Max Extent)	0	3	\$13,852,398	

SECTION 9: THUNDERSTORM WIND

Based on the list of historical thunderstorm wind events for the Hidalgo County planning area (listed above), including all participating jurisdictions, 26 of the events have occurred since the 2016 Plan.

SIGNIFICANT EVENTS

May 31, 2016

Initial damage to tree limbs and some poorly built roofs in the Mission/Palmview area would intensify by the time the downburst reached the Madero and Granjeno communities, where more than 100 homes sustained varying levels of damage, dozens of power poles were felled, and hundreds of softwood trees were uprooted. Specific damage and associated impacts included the following: At least 150 homes and businesses sustained notable damage, and several dozen required significant repair. This included varied damage to nearly every building (RV, trailer, and fixed structure) in the Chimney Park RV and Mobile Home Park along the Rio Grande, as well as the adjacent neighborhood of Madero. The State Farm Arena lost a large part of its cladding (side wall) and up to 40% of its roof shingles and underneath decking allowing rainwater to leak into the facility. A several thousand foot community center in the City of Granejo was destroyed as free-standing reinforced cinderblock walls crumbled, and the wind destroyed ductwork/HVAC and an entire side wall on its way out of the building. A tractor trailer weighing 79,000 pounds, including freight, was moved and then tipped on its side in the community of Madero. Hundreds of softwood trees were uprooted and thousands of tree limbs were snapped, these included ash, mesquite, ebony, and palm. Dozens of wooden power poles were snapped, with more than 20,000 customers without power.

May 14, 2016

Damage began along Farm to Market Road 490 west of Hargill, where a string of three power poles were blown down, as well as several 1 to 3 inch diameter mesquite limbs. Crops in a nearby grain field were also blown at an angle from northwest to southeast. Damage was more notable in colonias in the San Carlos area east of Edinburg, where one poorly anchored roof and one carport were lifted along Farm to Market 2182, and partial roof damage was noted to a single family home and multiple mobile (trailer) homes lost parts of their tin roofs. In all, according to county officials and additional surveys, at least three dozen homes sustained structural damage in the area.

PROBABILITY OF FUTURE EVENTS

Most thunderstorm winds occur during the months of March, April, May, and September. Based on available records of historic events, there have been 154 events in a 60-year reporting period, which provides a probability of two to three events every year. Even though the intensity of thunderstorm wind events is not always damaging for the Hidalgo County planning area, the frequency of occurrence for a thunderstorm wind event is highly likely. This means that an event is probable within the next year for the Hidalgo County planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15.

VULNERABILITY AND IMPACT

Vulnerability is difficult to evaluate since thunderstorm wind events can occur at different strength levels, in random locations, and can create relatively narrow paths of destruction. Due to the randomness of these events, all existing and future structures and facilities in the Hidalgo County

SECTION 9: THUNDERSTORM WIND

planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15, could potentially be impacted and remain vulnerable to possible injury and property loss from strong winds.

Trees, power lines and poles, signage, manufactured housing, radio towers, concrete block walls, storage barns, windows, garbage receptacles, brick facades, and vehicles, unless reinforced, are vulnerable to thunderstorm wind events. More severe damage involves windborne debris; in some instances, patio furniture and other lawn items have been reported to have been blown around by wind and, very commonly, debris from damaged structures in turn have caused damage to other buildings not directly impacted by the event. In numerous instances roofs have been reported as having been torn off of buildings. The portable buildings typically used at schools and construction sites would be more vulnerable to thunderstorm wind events than typical site-built structures and could potentially pose a greater risk for wind-blown debris.

The US Census data indicates a total of 42,278 manufactured homes located in the Hidalgo County planning area (16%), including participating jurisdictions (Table 6-3). In addition, 22% (approximately 59,641 structures) of the single family residential (SFR) structures in the entire planning area were built before 1980. These structures would typically be built to lower or less stringent construction standards than newer construction and may be more susceptible to damages during significant wind events.

Table 9-5. Structures at Greater Risk by Jurisdiction

JURISDICTION	MANUFACTURED HOMES	SFR STRUCTURES BUILT BEFORE 1980
Hidalgo County ⁴	42,278	59,641
City of Alamo	2,985	1,369
City of Alton	391	706
City of Donna	1,104	2,199
City of Edcouch	62	535
City of Edinburg	2,111	6,199
City of Elsa	154	598
City of Granjeno	16	29
City of Hidalgo	125	335
City of La Joya	66	344
City of La Villa	5	303
City of McAllen	2,253	15,179
City of Mercedes	946	2,427

⁴ County totals includes all jurisdictions and unincorporated areas within the county.

SECTION 9: THUNDERSTORM WIND

JURISDICTION	MANUFACTURED HOMES	SFR STRUCTURES BUILT BEFORE 1980
City of Mission	3,585	5,502
City of Palmhurst	99	128
City of Palmview	232	95
City of Peñitas	78	165
City of Pharr	4,304	4,733
City Progreso	148	404
City of San Juan	1,181	1,879
City of Sullivan City	181	287

While all citizens are at risk to the impacts of thunderstorm wind, forced relocation and disaster recovery drastically impacts low-income residents who lack the financial means to travel, afford a long-term stay away from home, and to rebuild or repair their homes. An estimated 29.7% of the planning area population live below the poverty level (Table 9-6).

Table 9-6. Populations at Greatest Risk by Jurisdiction⁵

JURISDICTION	POPULATION BELOW POVERTY LEVEL
Hidalgo County	253,987
City of Alamo	5,256
City of Alton	5,432
City of Donna	5,989
City of Edcouch	1,028
City of Edinburg	22,907
City of Elsa	2,211
City of Granjeno	13
City of Hidalgo	4,623
City of La Joya	1,718
City of La Villa	889
City of McAllen	32,653

⁵ US Census Bureau 2019 data for Hidalgo County

SECTION 9: THUNDERSTORM WIND

JURISDICTION	POPULATION BELOW POVERTY LEVEL
City of Mercedes	5,566
City of Mission	18,803
City of Palmhurst	450
City of Palmview	1,697
City of Peñitas	1,154
City of Pharr	22,719
City Progreso	1,199
City of San Juan	10,435
City of Sullivan City	1,324

The following critical facilities would be vulnerable to thunderstorm wind events in each participating jurisdiction:

Table 9-7. Critical Facilities at Risk by Jurisdiction

JURISDICTION	CRITICAL FACILITIES
Hidalgo County	5 Administrative Offices, 1 Adult Probation, 2 Building & Grounds, 1 Community Center, 2 Constable, 2 County Clerk, 2 County Buildings, 3 Courts/Annex, 1 Election Administration, 1 Fire/Marshal Department, 2 Health Offices, 3 Justice of the Peace, 2 Planning Departments, 1 Resource Center, 7 Sheriff's Departments, 3 Shops, 1 Storage Facility, 1 WIC
City of Alamo	1 Apartment Complex, 1 City Hall, 2 Fire Departments, 1 Health System/24 hour ER, 1 Police Department, 1 Nursing Home, 11 Schools, 1 Waste/Water Plant, 1 Water Plant
City of Alton	1 City Hall, 1 Development Center, 1 Fire Department, 1 Lift Station, 1 Park, 2 Police Department/Public Safety, 1 Recreation Center, 1 Water Tower, 1 Internet (WiFi) Tower
City of Donna	1 Fire Department, 1 Police Department, 1 Sewer Treatment, 1 Water Treatment
City of Edcouch	1 City Hall, 1 Community Center, 1 Fire Department (Volunteer), 1 Police Department, 1 Sewer Plant, 1 Water Plant, 1 Water Tower
City of Edinburg	1 Airport, 1 AEP, 1 City Hall, 1 Courthouse, 1 County Jail, 5 Fire Departments, 1 Housing Authority, 2 Juvenile Detentions, 1 Landfill, 1 Library, 26 Lift Stations, 6 Hospitals, 1 Police Department, 2 Power Plant, 32 Schools, 1 Theater, 3 Water Plant/Supply, 1 WWTP
City of Elsa	1 City Hall, 2 Chlorine Buildings, 2 Groundwater Tanks, 14 Lift Stations, 1 Public Safety, 1 Public Works, 2 Water Plant/Pumping, 1 Water Tower

SECTION 9: THUNDERSTORM WIND

JURISDICTION	CRITICAL FACILITIES
City of Granjeno	1 City Hall, 1 Public Facility
City of Hidalgo	1 Arena, 1 Bridge, 1 City Hall, 1 Court House, 1 Police/Fire Department, 1 Health Clinic, 1 Library, 8 Schools, 1 Waste/Sewer Plant
City of La Joya	1 City Hall, 1 Fire Department, 1 Police Department, 1 Shelter, 1 Water Plant, 1 Wastewater Plant
City of La Villa	1 City Hall, 1 Fire Department, 1 Police Department, 4 Lift Stations, 4 Water/Wastewater Plants, 2 Water Towers
City of McAllen	3 Community Center/Shelters, 1 Development Center, 1 Emergency Operation Center, 6 Fire Departments, 1 Public Safety, 1 Public Works/Maintenance Facility, 2 Reservoir, 1 Traffic Operation, 1 Waste Plant, 2 Water Plants
City of Mercedes	1 Arena/Dome, 1 City Hall, 1 Fire Department, 1 Police Department, 1 Waste Plant, 1 Water Plant
City of Mission	1 City Hall, 1 City Gym, 5 Fire Departments, 1 Hospital, 1 Police Department, 1 Public Works Facility, 1 School, 1 Shelter, 1 Waste/Water Plant
City of Palmhurst	1 Administrative Building, 1 City Hall, 1 Police Department, 1 Public Works, 2 Power Stations, 2 Schools
City of Palmview	1 City Hall, 1 Fire Department, 1 Police Department, 1 School
City of Peñitas	1 City Hall, 1 Fire Department, 1 Gas Station, 1 Library, 3 Lift Station, 1 Police Department, 2 Schools, 2 Waste/Water Plants, 1 Wal-Mart
City of Pharr	1 City Hall, 1 Emergency Management Center, 2 Evacuation Centers, 4 Fire Departments, 34 Lift Stations, 1 Police Department, 41 Schools, 1 Waste Plant, 1 Water Plant
City of Progreso	1 City Hall, 1 Fire Department, 1 Police Department
City of San Juan	2 City Halls, 2 Fire Departments, 23 Lift Stations, 2 Public Safety, 1 Public Works, 2 Reservoirs, 1 Waste/Water Plant, 1 Water Plants/Station
City of Sullivan City	1 City Hall, 1 Fire Department, 1 Police Department, 1 School, 1 Water Plant
Santa Cruz Irrigation District #15	1 Dam, 1 Administration, 1 Tool Shed

A thunderstorm wind event can also result in traffic disruptions, injuries and in rare cases, fatalities. Impact of thunderstorms winds experienced in the Hidalgo County planning area has resulted in three injuries and no fatalities. Impact of thunderstorm wind events experienced in the Hidalgo County planning area, including all participating jurisdictions, would be “Limited,” and injuries and illnesses would be treatable with first aid, less than ten percent of property damaged or destroyed, and facilities would be shut down for 24 hours or less. Overall, the average loss estimate (in 2021 dollars) is \$13,852,398, having an approximate annual loss estimate of \$230,873 (Table 9-8).

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Table 9-8. Potential Annualized Losses by Jurisdiction

JURISDICTION	PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATES
Hidalgo County	\$13,178,720	\$219,645
City of Alamo	\$36,037	\$600
City of Alton	\$0	\$0
City of Donna	\$202,802	\$3,380
City of Edcouch	\$6,028	\$101
City of Edinburg	\$34,205	\$570
City of Elsa	\$119,129	\$1,986
City of Granjeno	\$0	\$0
City of Hidalgo	\$0	\$0
City of La Joya	\$74,088	\$1,235
City of La Villa	\$0	\$0
City of McAllen	\$28,096	\$468
City of Mercedes	\$46,444	\$774
City of Mission	\$45,312	\$755
City of Palmhurst	\$2,207	\$60
City of Palmview	\$0	\$0
City of Peñitas	\$15,387	\$257
City of Pharr	\$1,106	\$18
City of Progreso	\$2,212	\$37
City of San Juan	\$0	\$0
City of Sullivan City	\$60,625	\$1,010
Planning Area	\$13,852,398	\$230,873

ASSESSMENT OF IMPACTS

Thunderstorm wind events have the potential to pose a significant risk to people and can create dangerous and difficult situations for public health and safety officials. The impact of climate change could produce larger, more severe thunderstorm wind events, exacerbating the current thunderstorm wind impacts. Worsening thunderstorm wind conditions can be frequently associated with a variety of impacts, including:

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- Individuals exposed to the storm can be struck by flying debris, falling limbs, or downed trees causing serious injury or death.
- Structures can be damaged or crushed by falling trees, which can result in physical harm to the occupants.
- Significant debris and downed trees can result in emergency response vehicles being unable to access areas of the community.
- Downed power lines may result in roadways being unsafe for use, which may prevent first responders from answering calls for assistance or rescue.
- During exceptionally heavy wind events, first responders may be prevented from responding to calls, as the winds may reach a speed in which their vehicles and equipment are unsafe to operate.
- Thunderstorm wind events often result in widespread power outages increasing the risk to more vulnerable portions of the population who rely on power for health and/or life safety.
- Extended power outage often results in an increase in structure fires and carbon monoxide poisoning, as individuals attempt to cook or heat their homes with alternate, unsafe cooking or heating devices, such as grills.
- First responders are exposed to downed power lines, unstable and unusual debris, hazardous materials, and generally unsafe conditions.
- Emergency operations and services may be significantly impacted due to damaged facilities and/or loss of communications.
- Critical staff may be unable to report for duty, limiting response capabilities.
- City or county departments may be damaged, delaying response and recovery efforts for the entire community.
- Private sector entities that the City and its residents rely on, such as utility providers, financial institutions, and medical care providers may not be fully operational and may require assistance from neighboring communities until full services can be restored.
- Economic disruption negatively impacts the programs and services provided by the community due to short- and long-term loss in revenue.
- Some businesses not directly damaged by thunderstorm wind events may be negatively impacted while roads are cleared and utilities are being restored, further slowing economic recovery.
- Older structures built to less stringent building codes may suffer greater damage as they are typically more vulnerable to thunderstorm winds.
- Large scale wind events can have significant economic impact on the affected area, as it must now fund expenses such as infrastructure repair and restoration, temporary services and facilities, overtime pay for responders, and normal day-to-day operating expenses.
- Businesses that are more reliant on utility infrastructure than others may suffer greater damages without a backup power source.
- Recreational areas and parks may be damaged or inaccessible due to downed trees or debris, causing temporary impacts to area businesses.

The economic and financial impacts of thunderstorm winds on the area will depend entirely on the scale of the event, what is damaged, and how quickly repairs to critical components of the

SECTION 9: THUNDERSTORM WIND

economy can be implemented. The level of preparedness and pre-event planning done by the community, local businesses, and citizens will also contribute to the overall economic and financial conditions in the aftermath of any thunderstorm wind event.

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HAZARD DESCRIPTION

A wildfire event can rapidly spread out of control and occurs most often in the summer when the brush is dry and flames can move unchecked through a highly vegetative area. Wildfires can start as a slow burning fire along the forest floor, killing and damaging trees. The fires often spread more rapidly as they reach the tops of trees with wind carrying the flames from tree to tree. Usually, dense smoke is the first indication of a wildfire.

A wildfire event often begins unnoticed and spreads quickly, lighting brush, trees, and homes on fire. For example, a wildfire may be started by a campfire that was not doused properly, a tossed cigarette, burning debris, or arson.

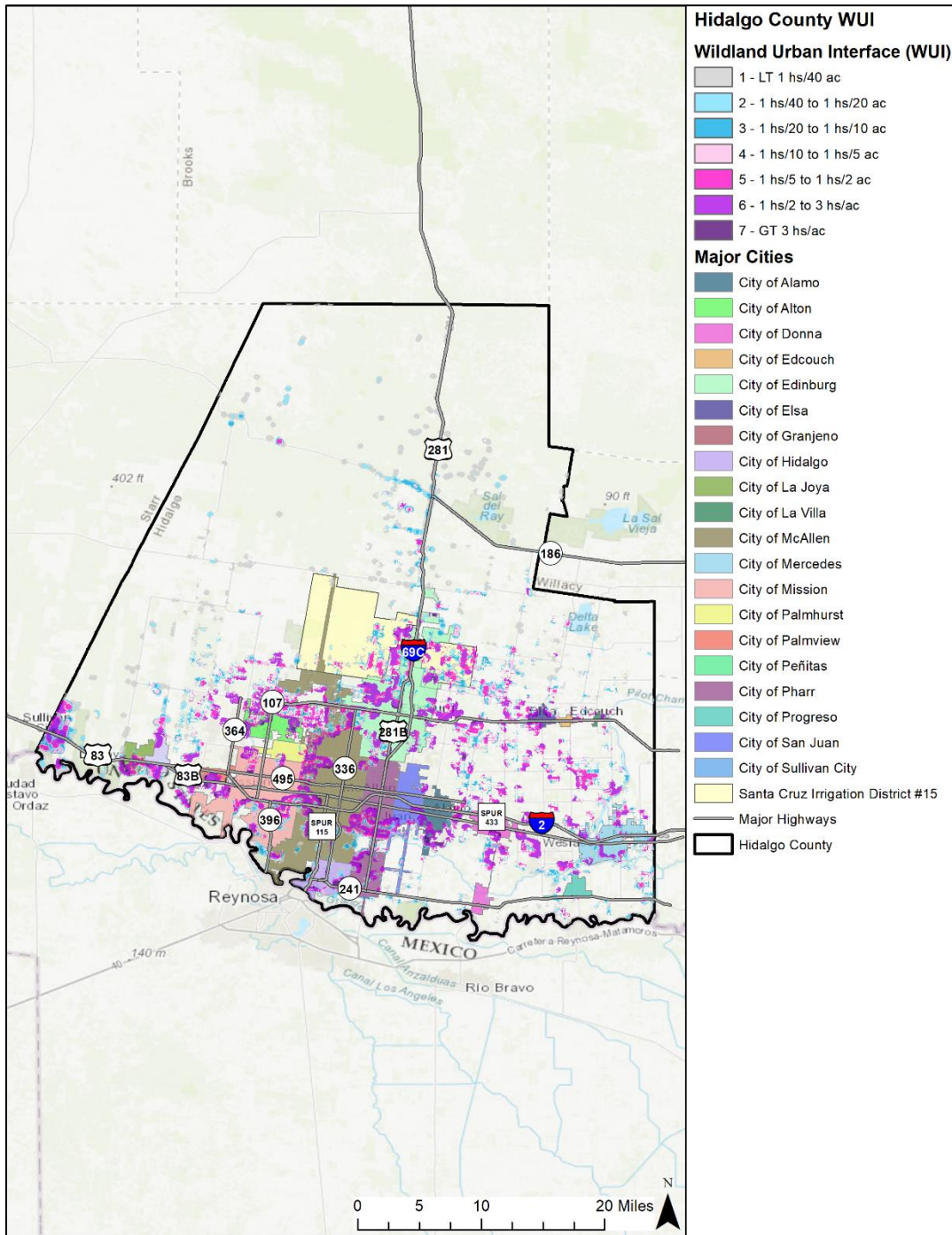
Texas has seen a significant increase in the number of wildfires in the past 30 years, which included wildland, interface, or intermix fires. Wildland fires are fueled almost exclusively by natural vegetation, while interface or intermix fires are urban/wildland fires in which vegetation and the built environment provide the fuel.

LOCATION

A wildfire event can be a potentially damaging consequence of drought. Wildfires can vary greatly in terms of size, location, intensity, and duration. While wildfires are not confined to any specific geographic location, they are most likely to occur in open grasslands. The threat to people and property from a wildfire event is greater in the fringe areas where developed areas meet open grass lands, such as the WUI. (Figures 10-1 through 10-22). It is estimated that 28.7 percent of the total population in Hidalgo County live within the WUI. However, the entire Hidalgo County planning area is at risk for wildfires.

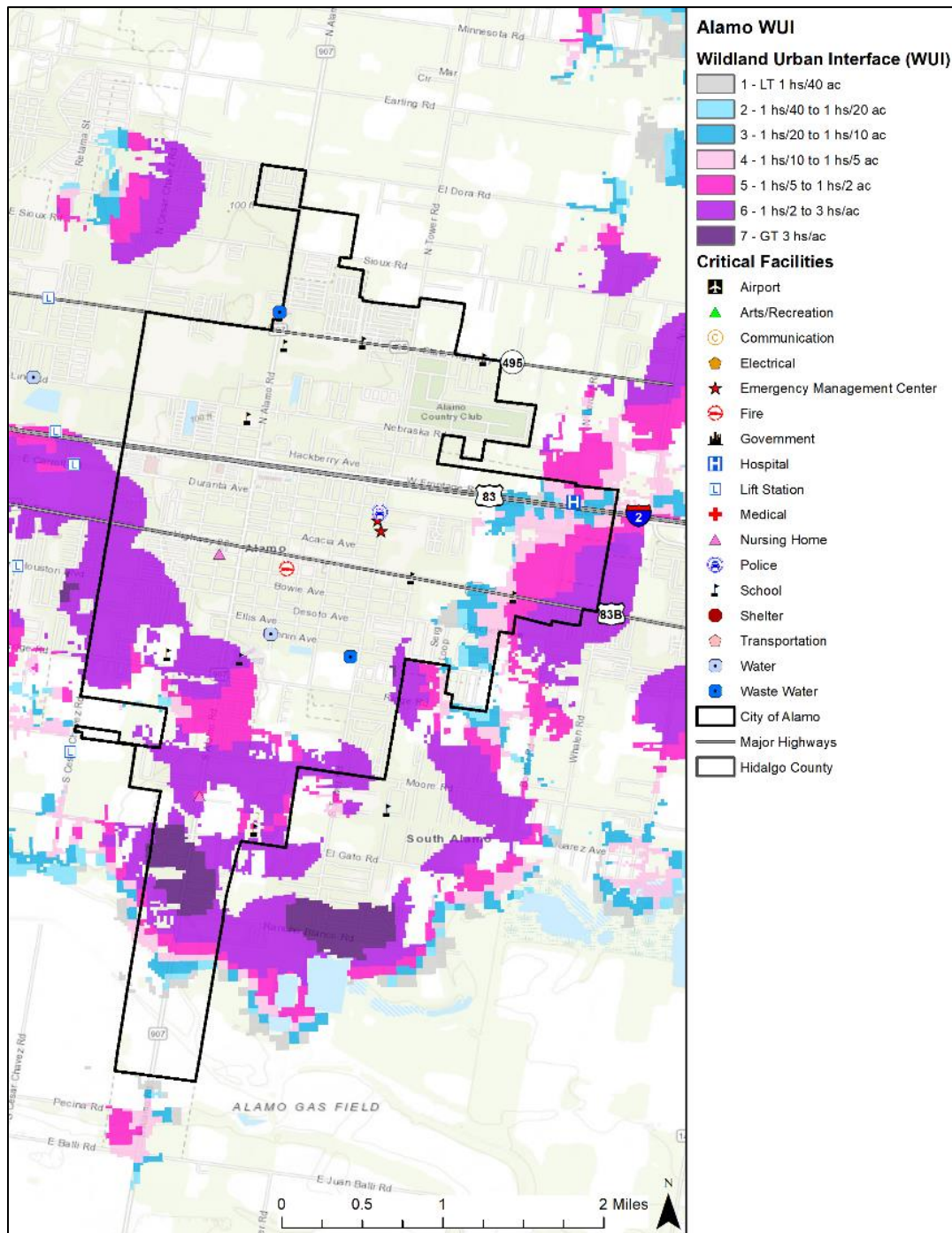
SECTION 10: WILDFIRE

Figure 10-1. Wildland Urban Interface Map – Hidalgo County



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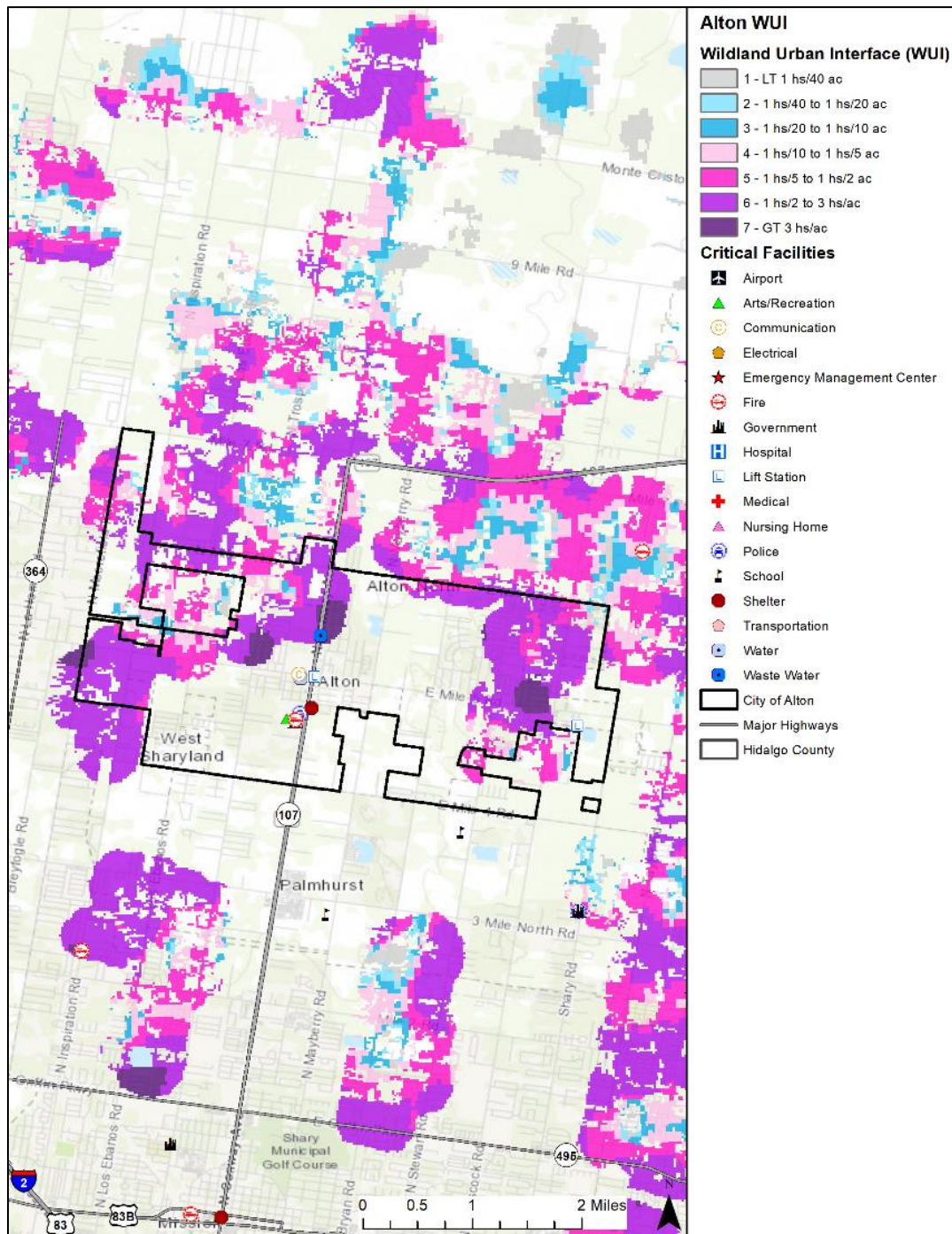
Figure 10-2. Wildland Urban Interface Map – City of Alamo



It is estimated that 20.2 percent of the total population in the City of Alamo live within the WUI. However, the entire City of Alamo is at risk for wildfires.

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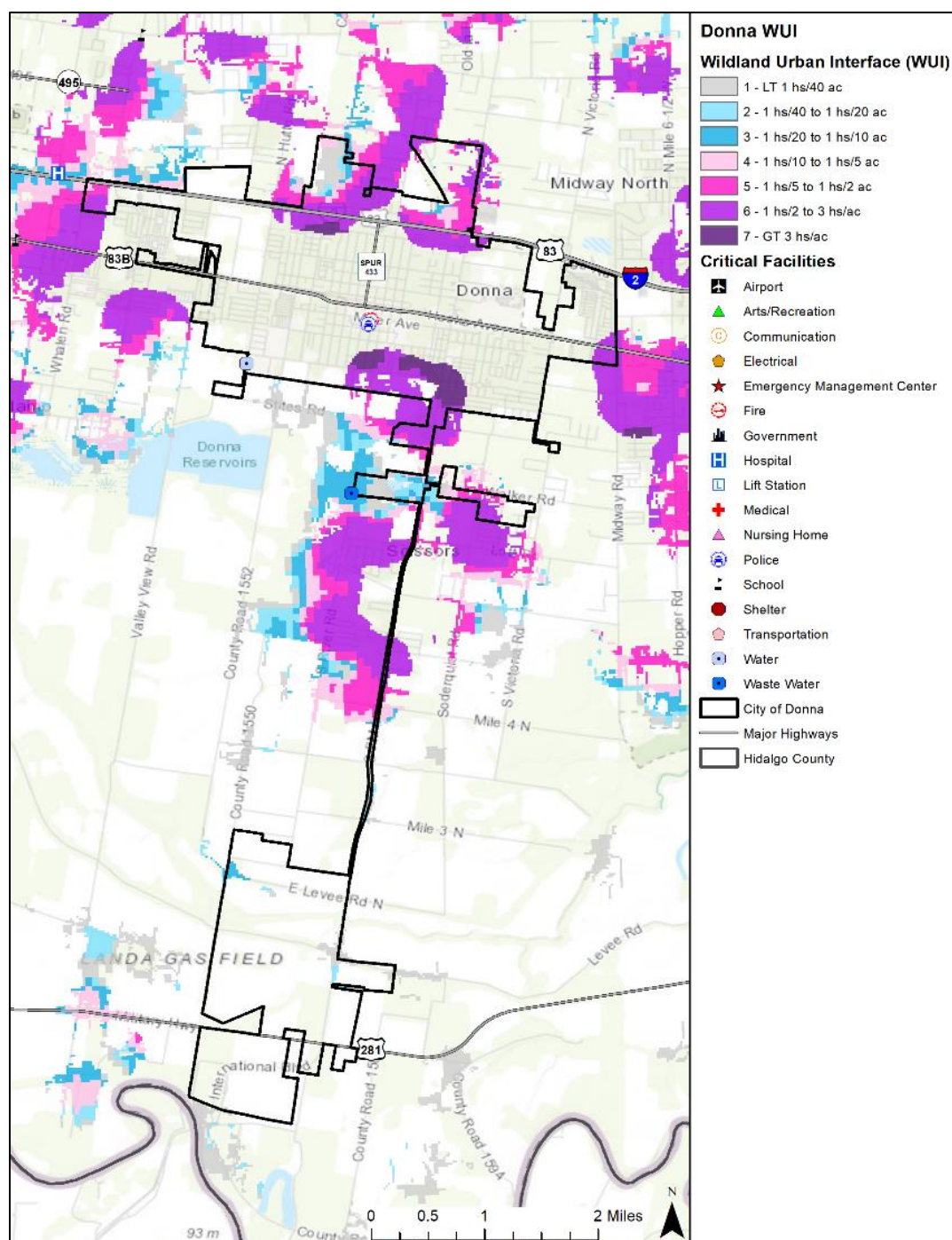
Figure 10-3. Wildland Urban Interface Map – City of Alton



It is estimated that 45.9 percent of the total population in the City of Alton live within the WUI. However, the entire City of Alton is at risk for wildfires.

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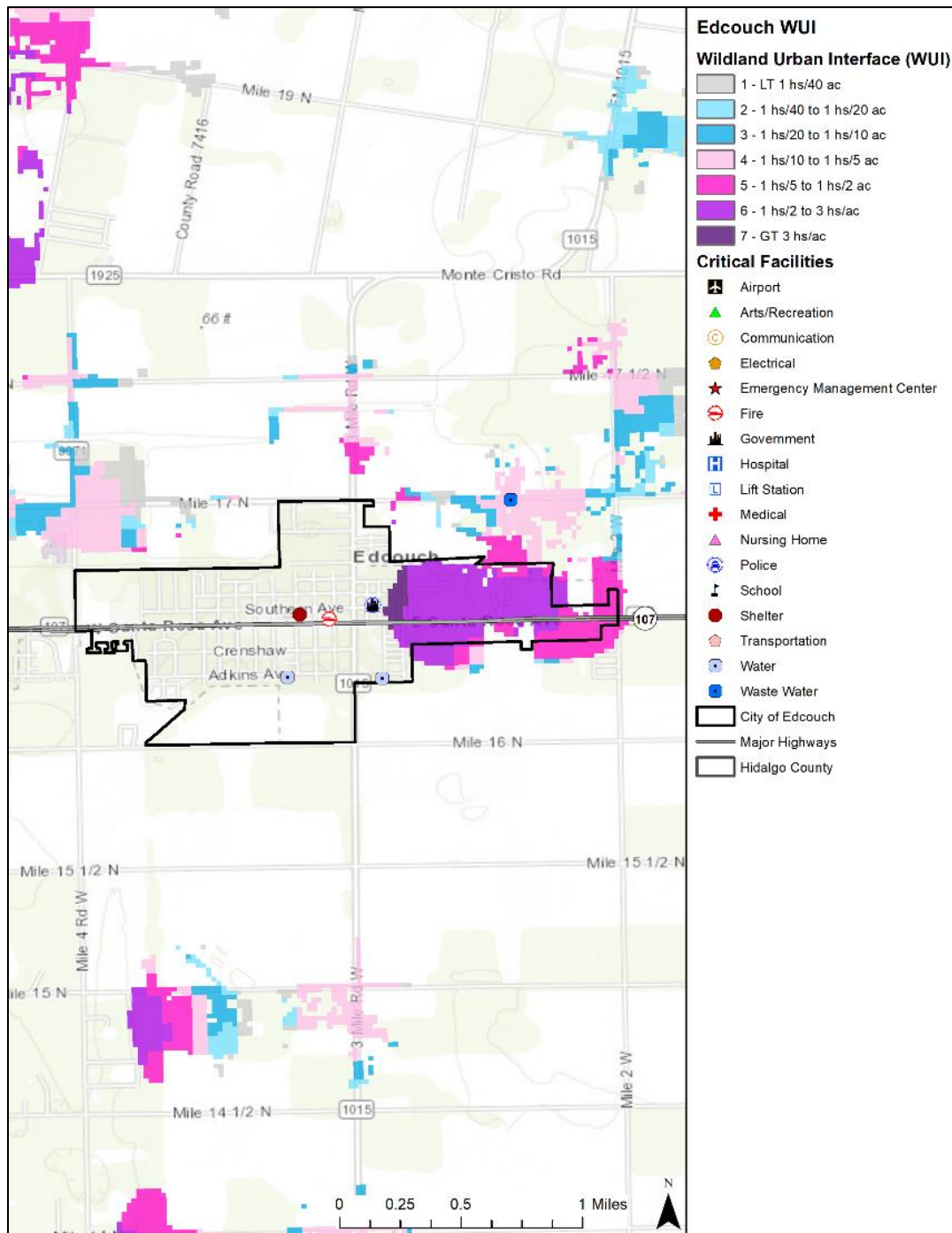
Figure 10-4. Wildland Urban Interface Map – City of Donna



It is estimated that 17.2 percent of the total population in the City of Donna live within the WUI. However, the entire City of Donna is at risk for wildfires.

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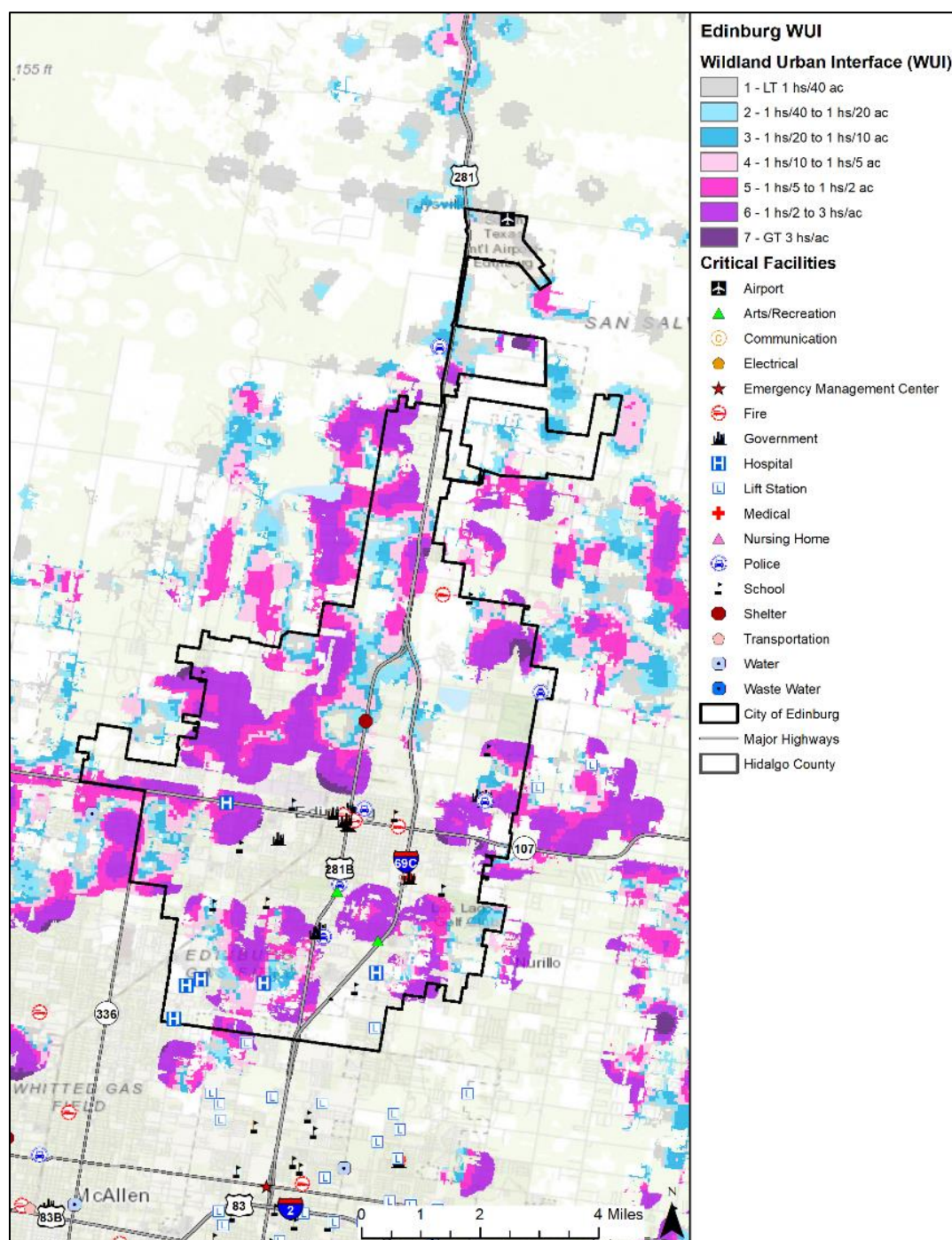
Figure 10-5. Wildland Urban Interface Map – City of Edcouch



It is estimated that 13.9 percent of the total population in the City of Edcouch live within the WUI. However, the entire City of Edcouch is at risk for wildfires.

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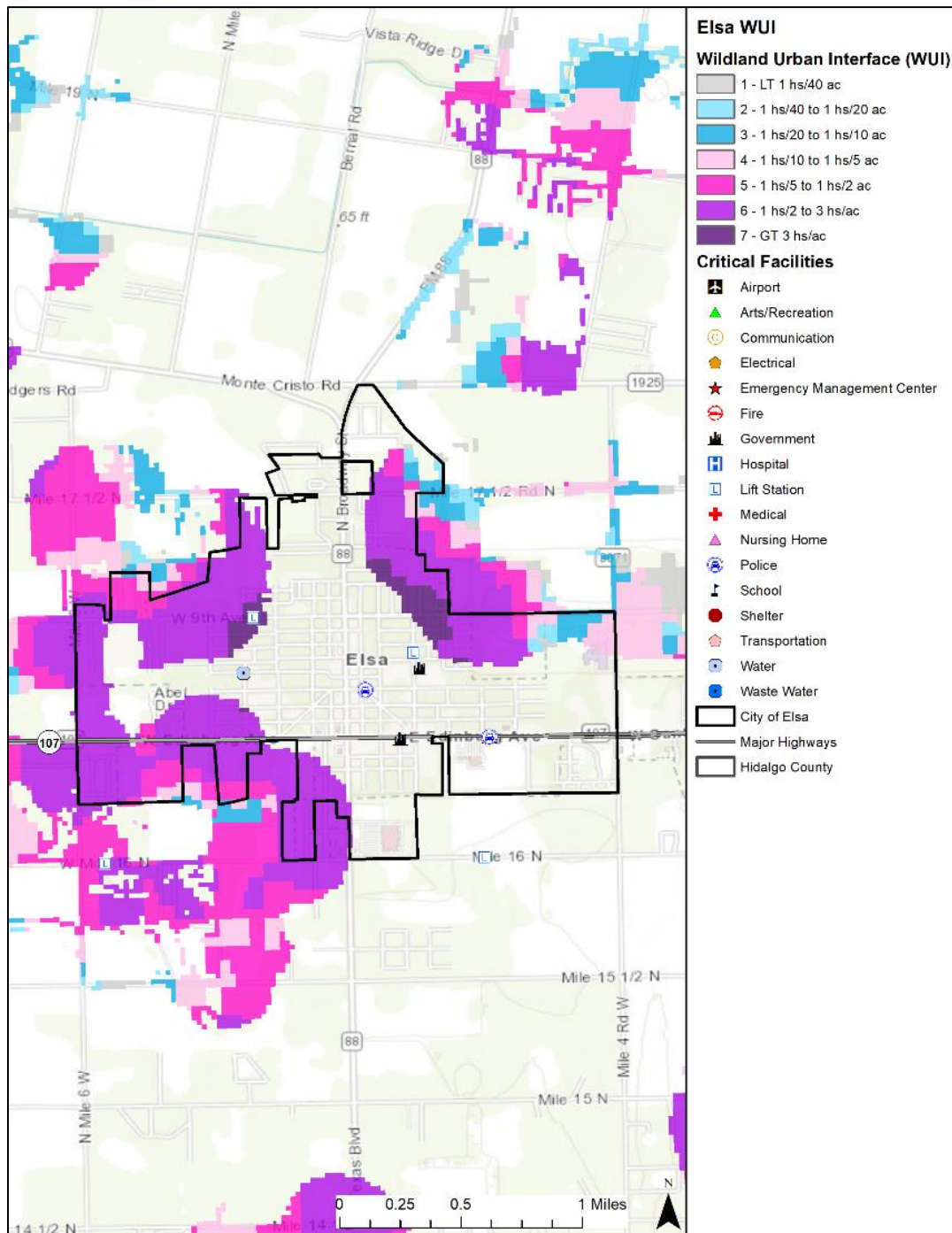
Figure 10-6. Wildland Urban Interface Map – City of Edinburg



It is estimated that 35.1 percent of the total population in the City of Edinburg could live within the WUI. However, the entire City of Edinburg is at risk for wildfires.

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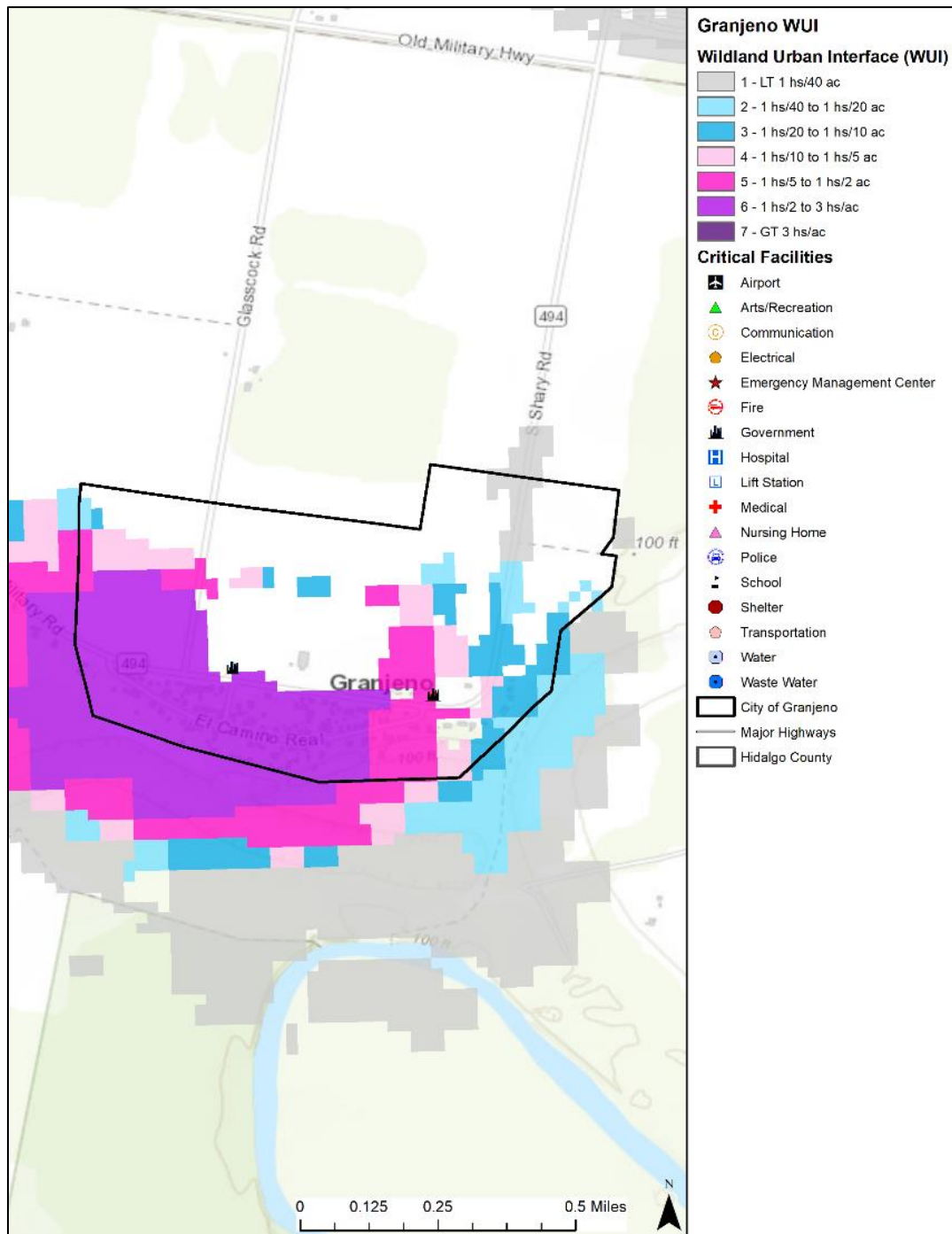
Figure 10-7. Wildland Urban Interface Map – City of Elsa



It is estimated that 28.7 percent of the total population in the City of Elsa live within the WUI. However, the entire City of Elsa is at risk for wildfires.

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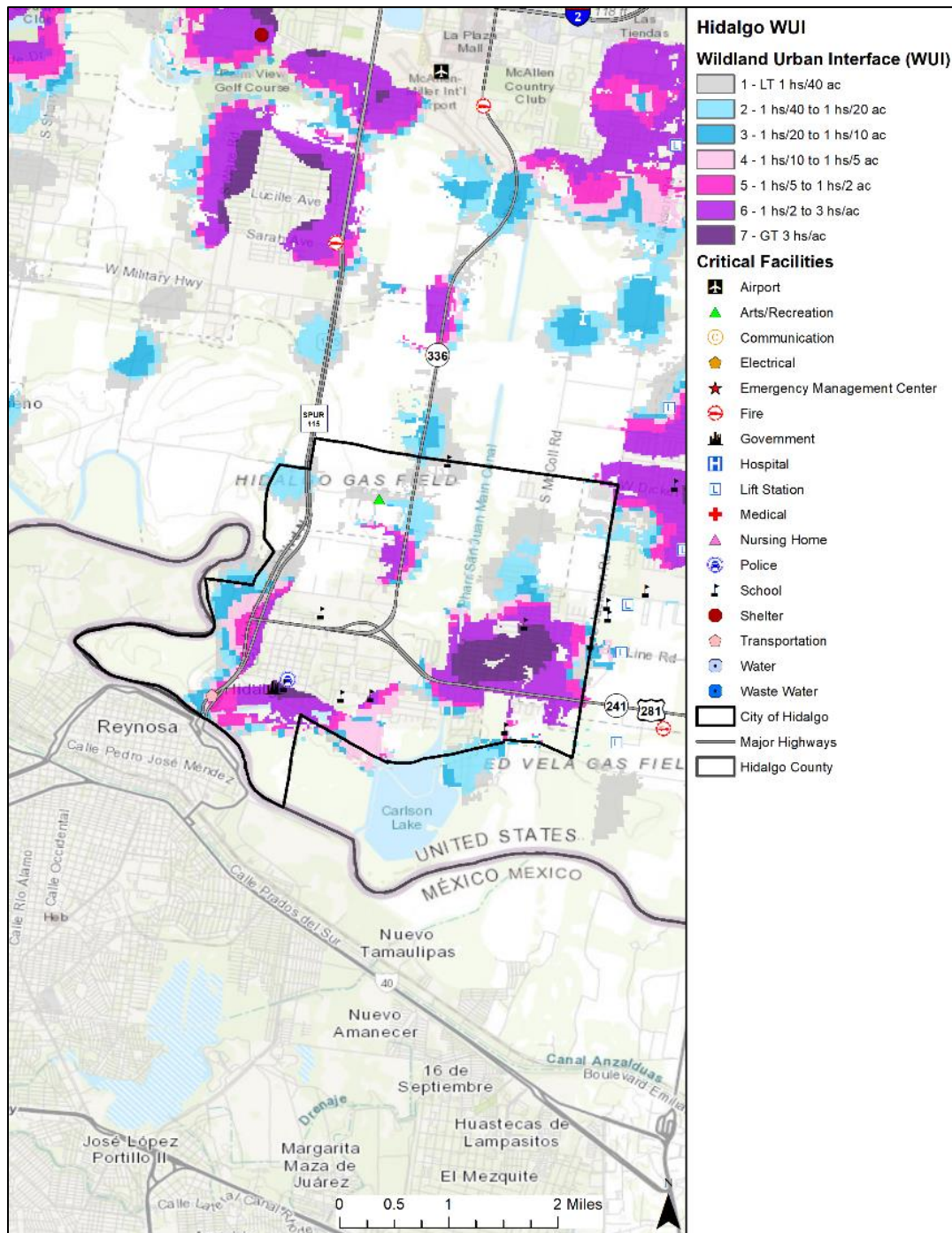
Figure 10-8. Wildland Urban Interface Map – City of Granjeno



It is estimated that 98.1 percent of the total population in the City of Granjeno live within the WUI. However, the entire City of Granjeno is at risk for wildfires.

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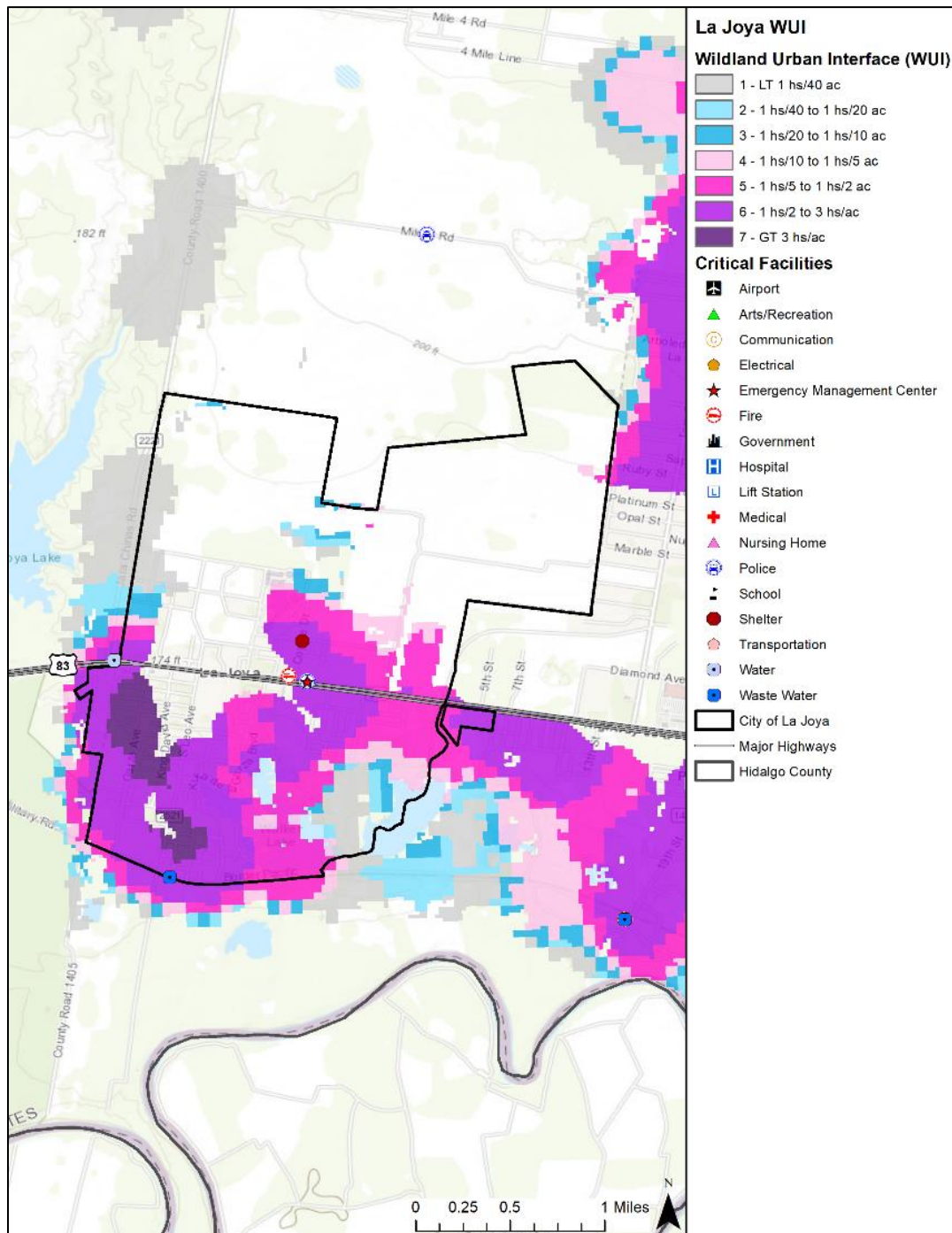
Figure 10-9. Wildland Urban Interface Map – City of Hidalgo



It is estimated that 57.6 percent of the total population in the City of Hidalgo live within the WUI. However, the entire City of Hidalgo is at risk for wildfires.

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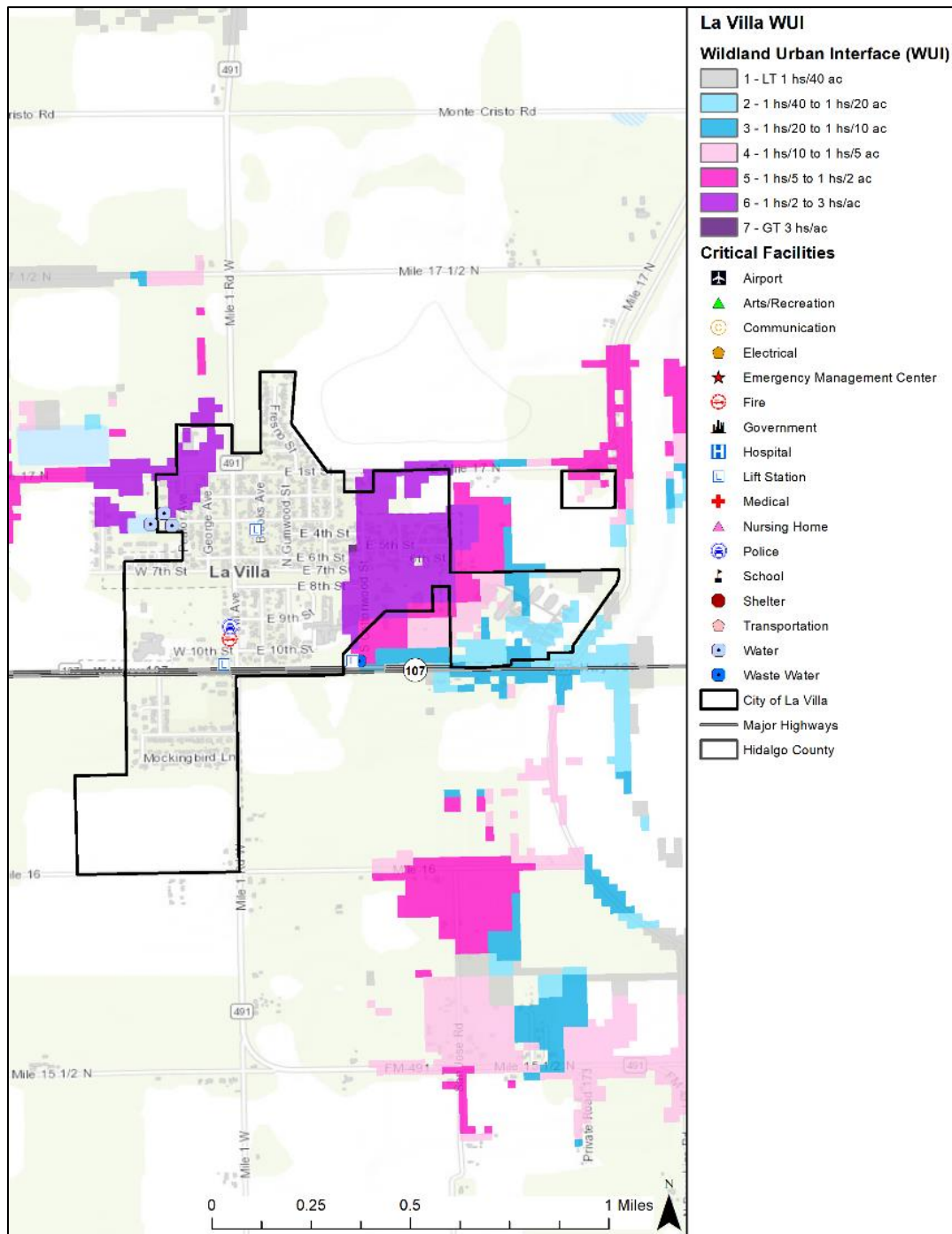
Figure 10-10. Wildland Urban Interface Map – City of La Joya



It is estimated that 80.0 percent of the total population in the City of La Joya live within the WUI. However, the entire City of La Joya is at risk for wildfires.

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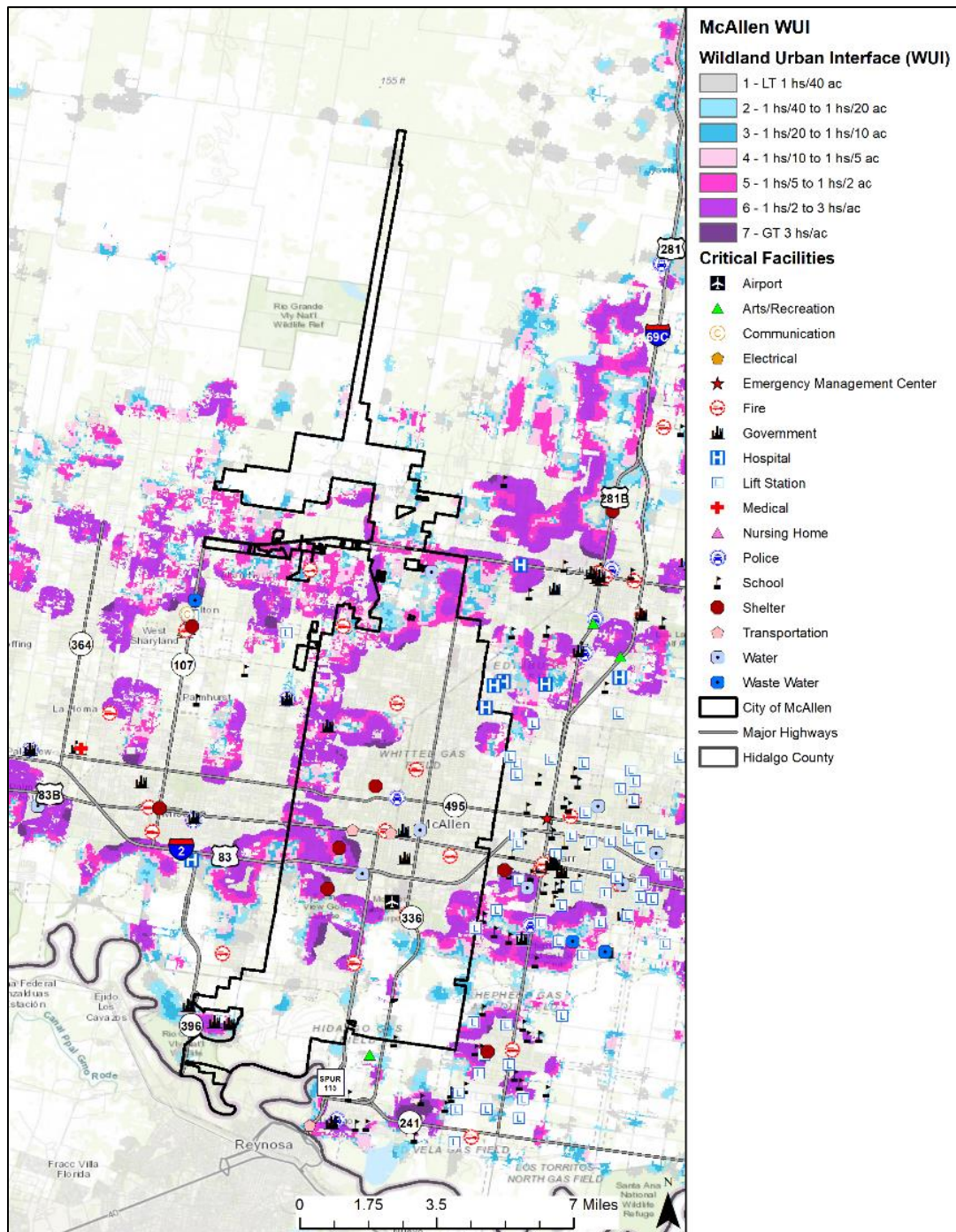
Figure 10-11. Wildland Urban Interface Map – City of La Villa



It is estimated that 16.4 percent of the total population in the City of La Villa live within the WUI. However, the entire City of La Villa is at risk for wildfires.

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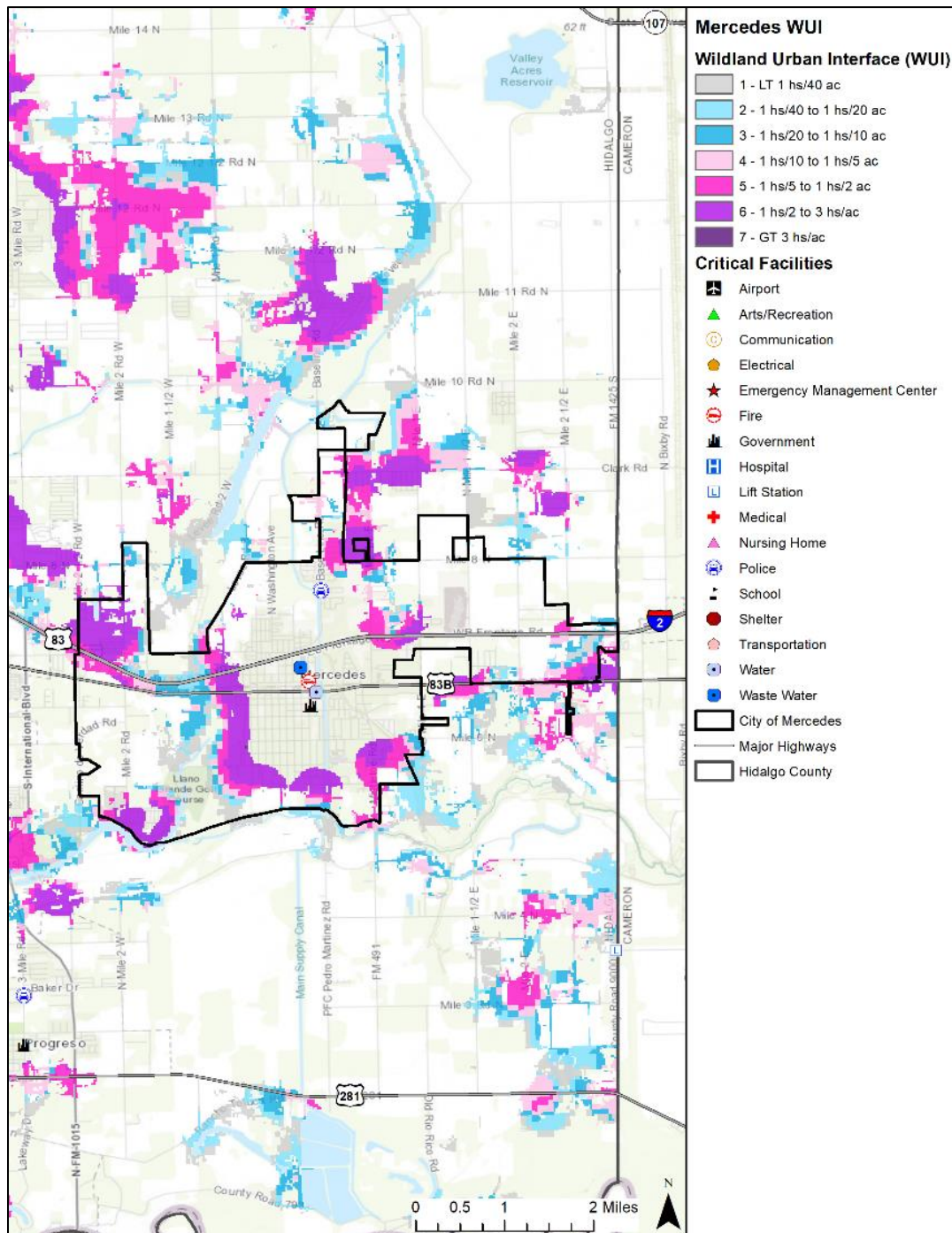
Figure 10-12. Wildland Urban Interface Map – City of McAllen



It is estimated that 17.7 percent of the total population in the City of McAllen live within the WUI. However, the entire City of McAllen is at risk for wildfires.

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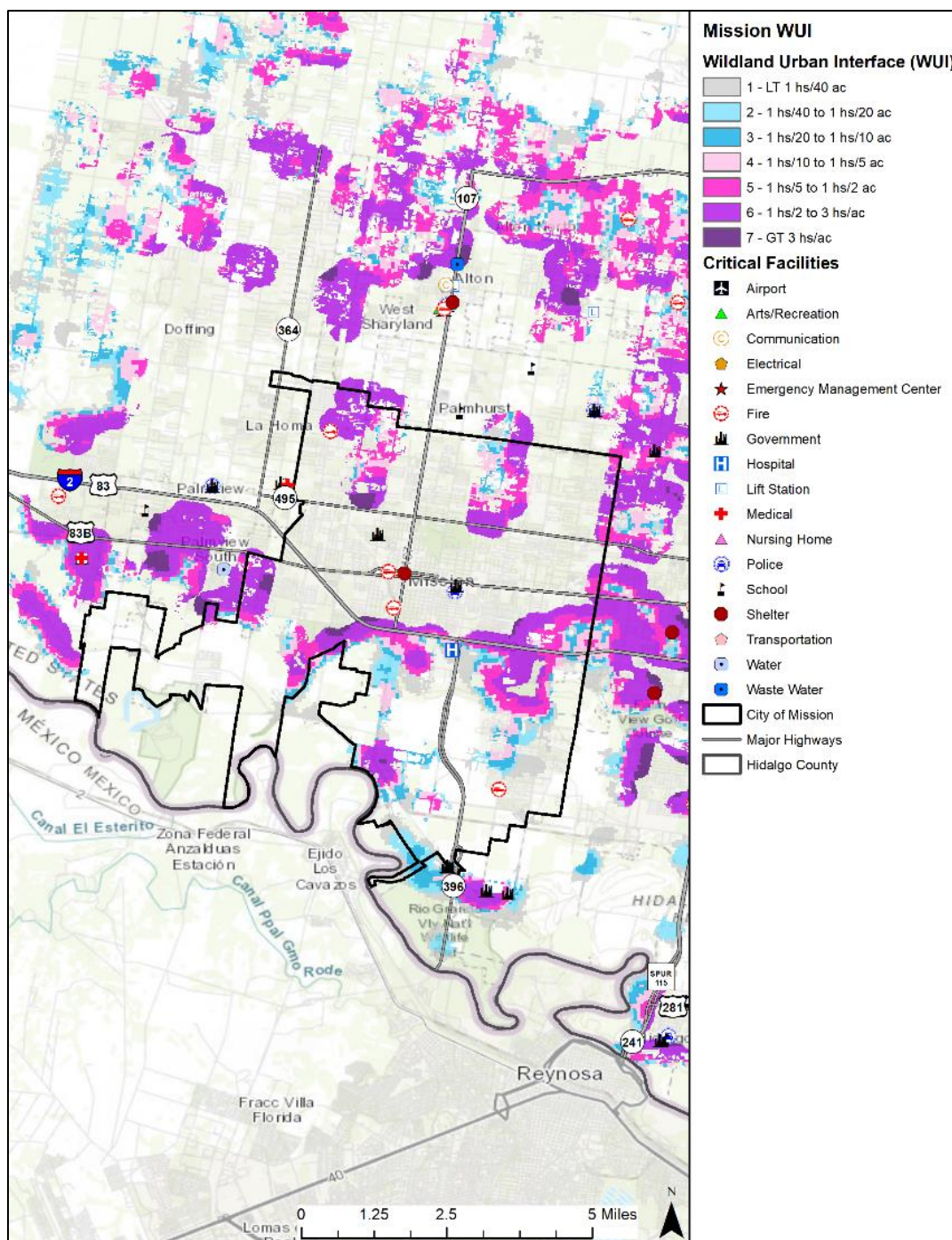
Figure 10-13. Wildland Urban Interface Map – City of Mercedes



It is estimated that 21.3 percent of the total population in the City of Mercedes live within the WUI. However, the entire City of Mercedes is at risk for wildfires.

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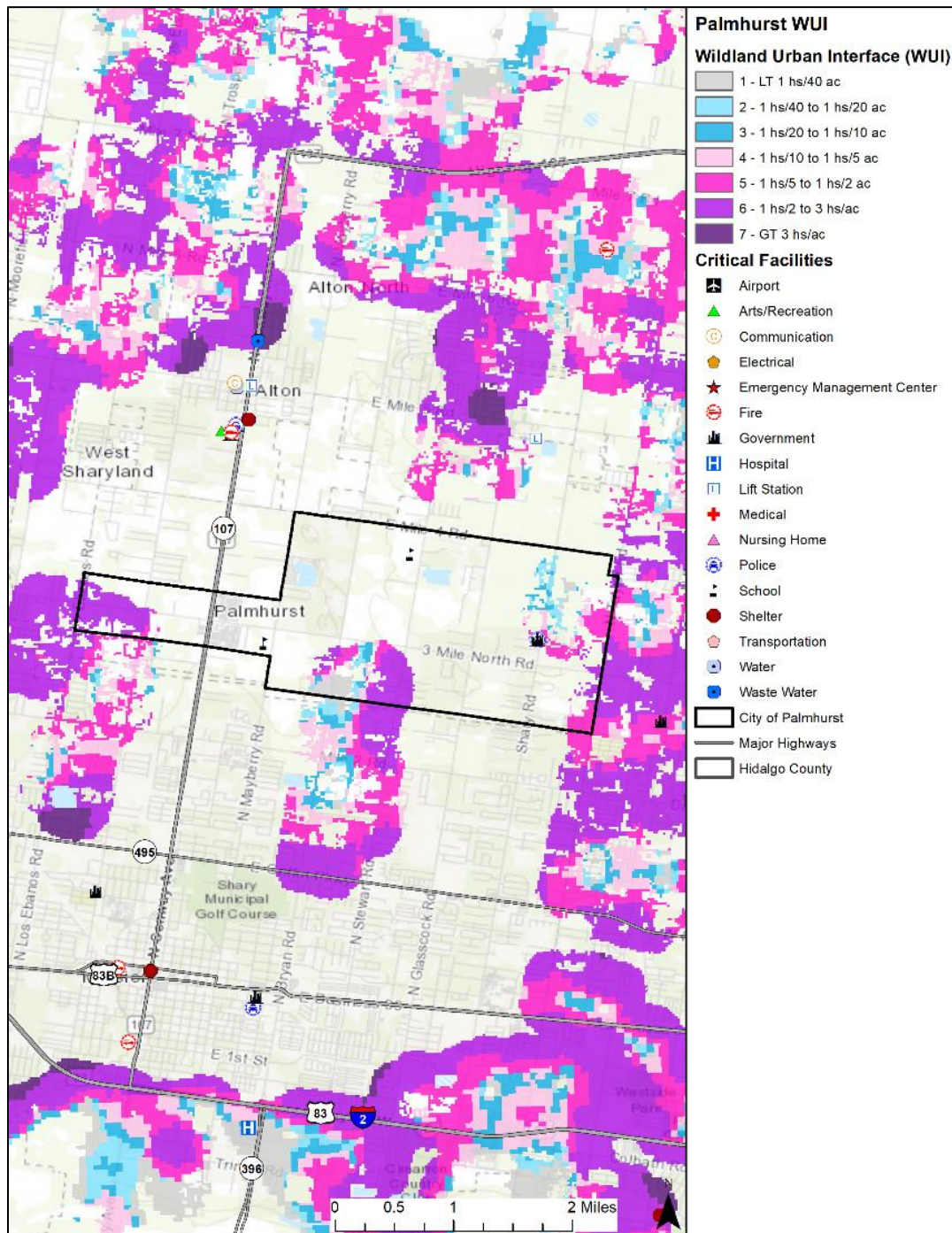
Figure 10-14. Wildland Urban Interface Map – City of Mission



It is estimated that 19.7 percent of the total population in the City of Mission live within the WUI. However, the entire City of Mission is at risk for wildfires.

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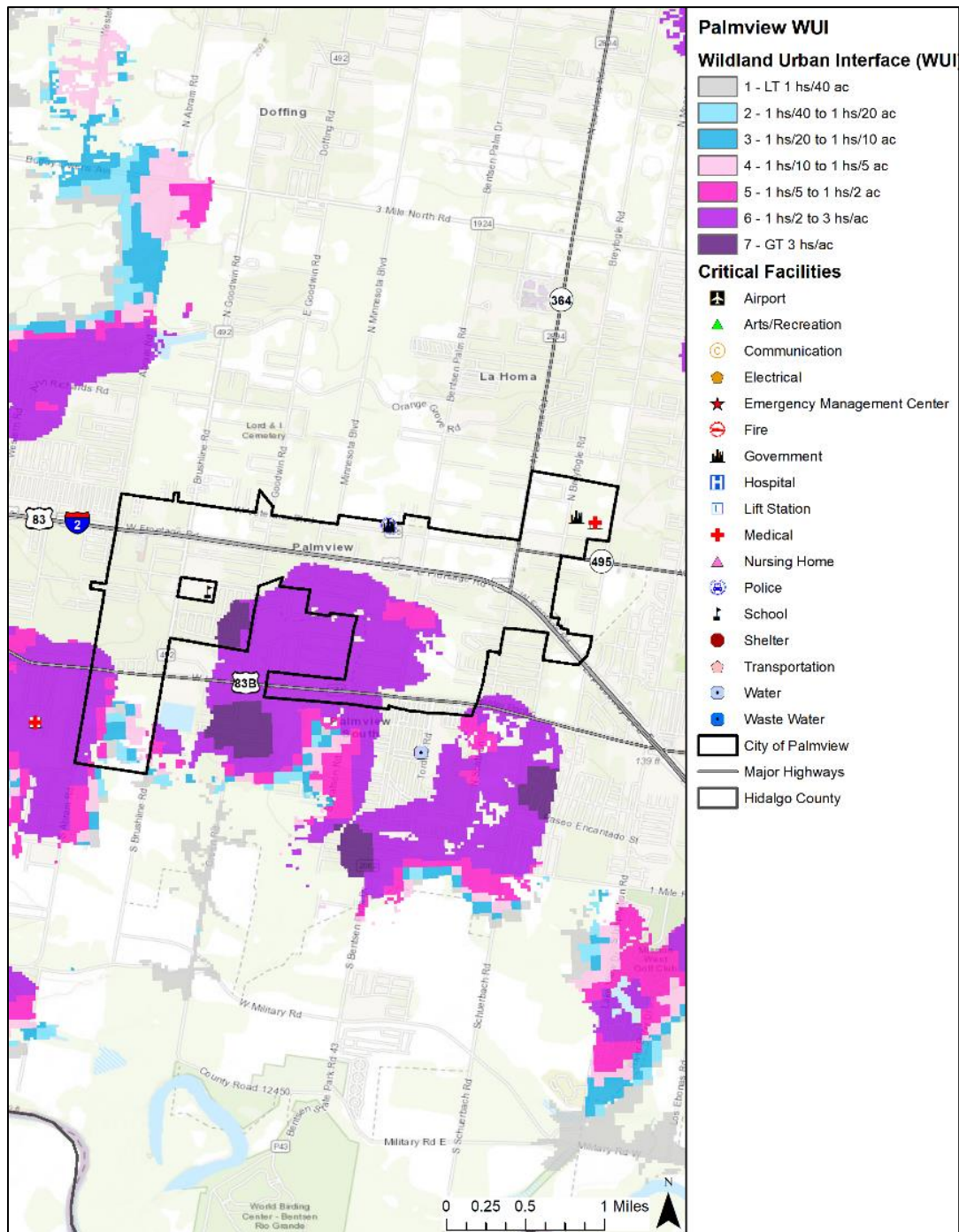
Figure 10-15. Wildland Urban Interface Map – City of Palmhurst



It is estimated that 19.7 percent of the total population in the City of Palmhurst live within the WUI. However, the entire City of Palmhurst is at risk for wildfires.

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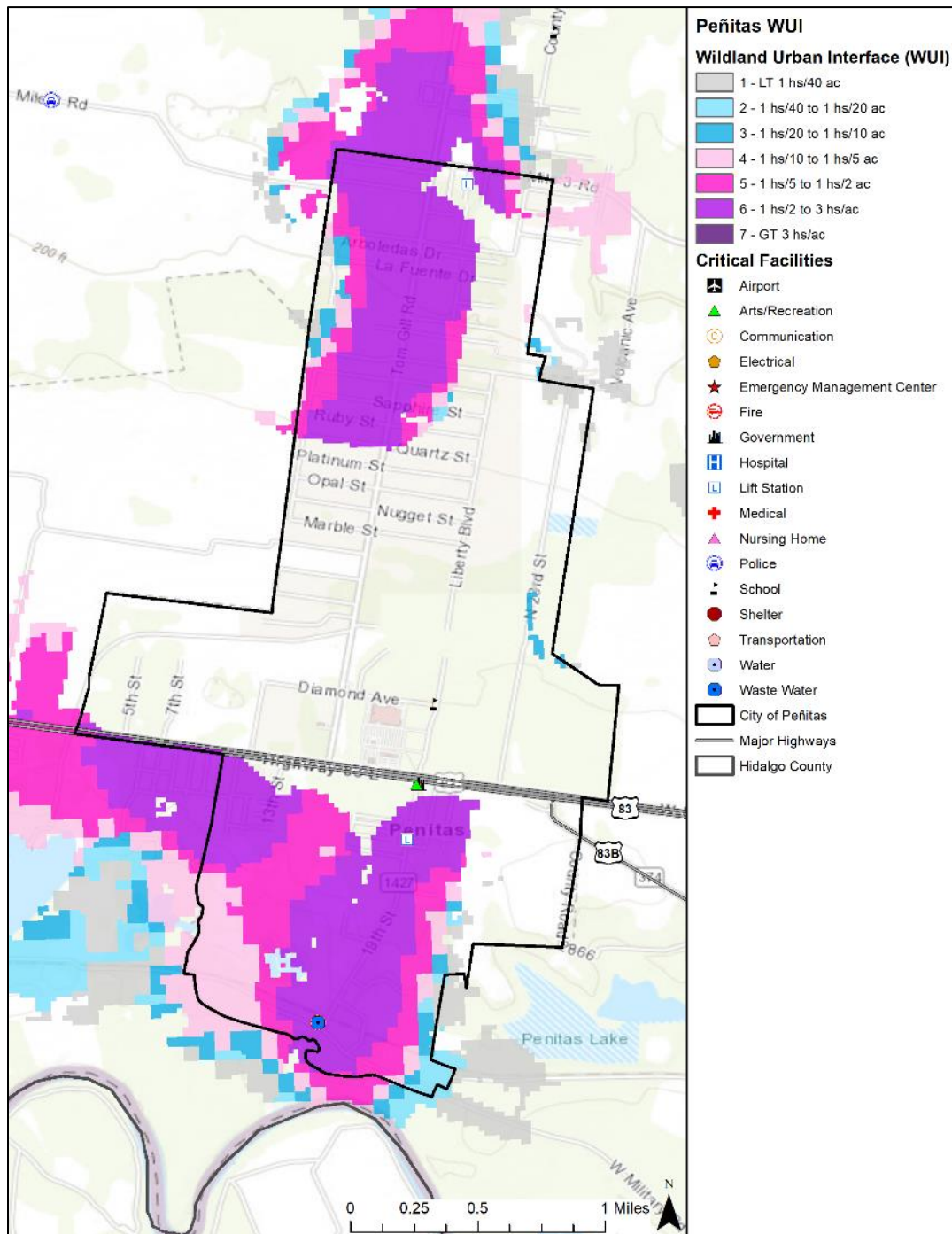
Figure 10-16. Wildland Urban Interface Map – City of Palmview



It is estimated that 29.9 percent of the total population in the City of Palmview live within the WUI. However, the entire City of Palmview is at risk for wildfires.

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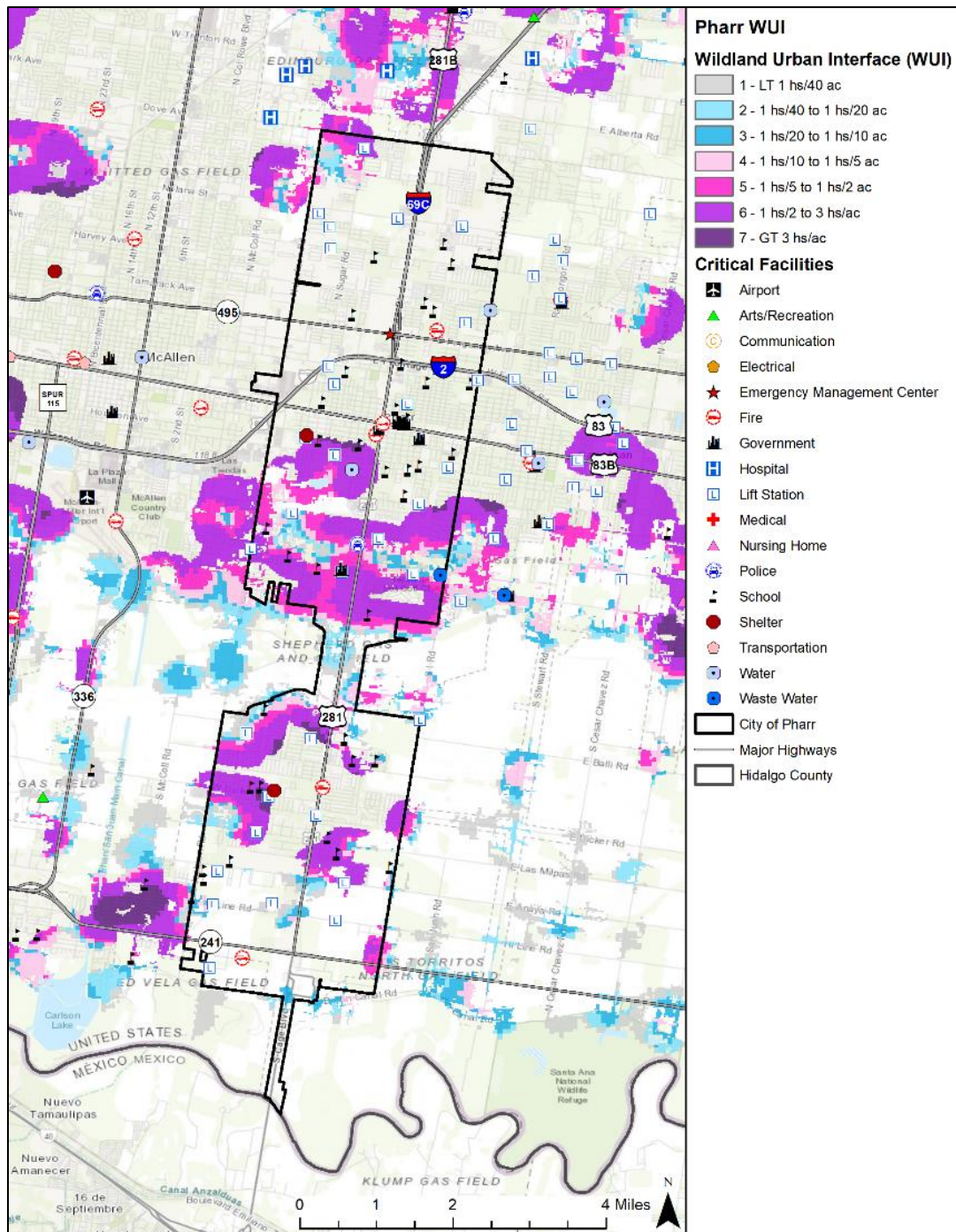
Figure 10-17. Wildland Urban Interface Map – City of Peñitas



It is estimated that 76.0 percent of the total population in the City of Peñitas live within the WUI. However, the entire City of Peñitas is at risk for wildfires.

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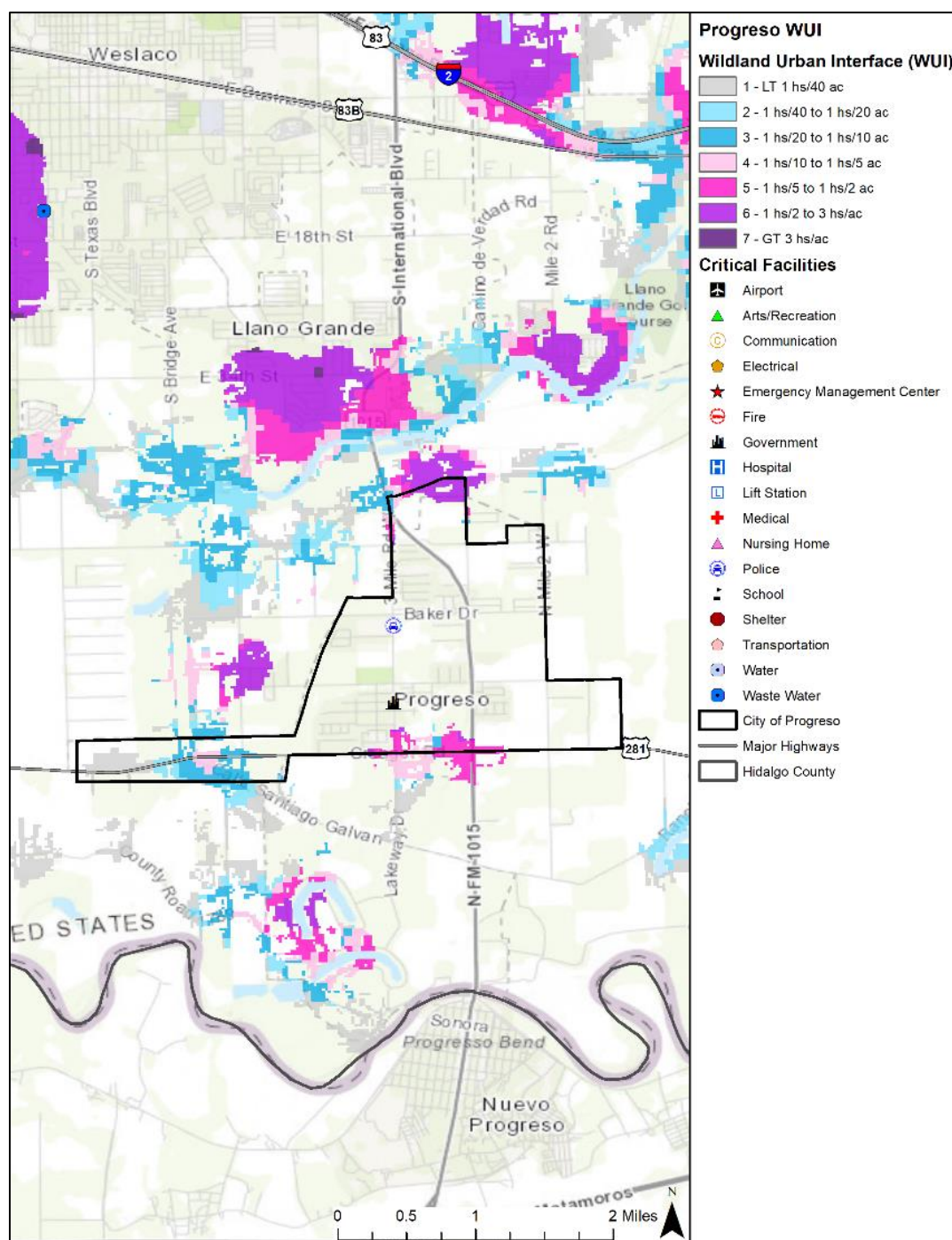
Figure 10-18. Wildland Urban Interface Map – City of Pharr



It is estimated that 19.2 percent of the total population in the City of Pharr live within the WUI. However, the entire City of Pharr is at risk for wildfires.

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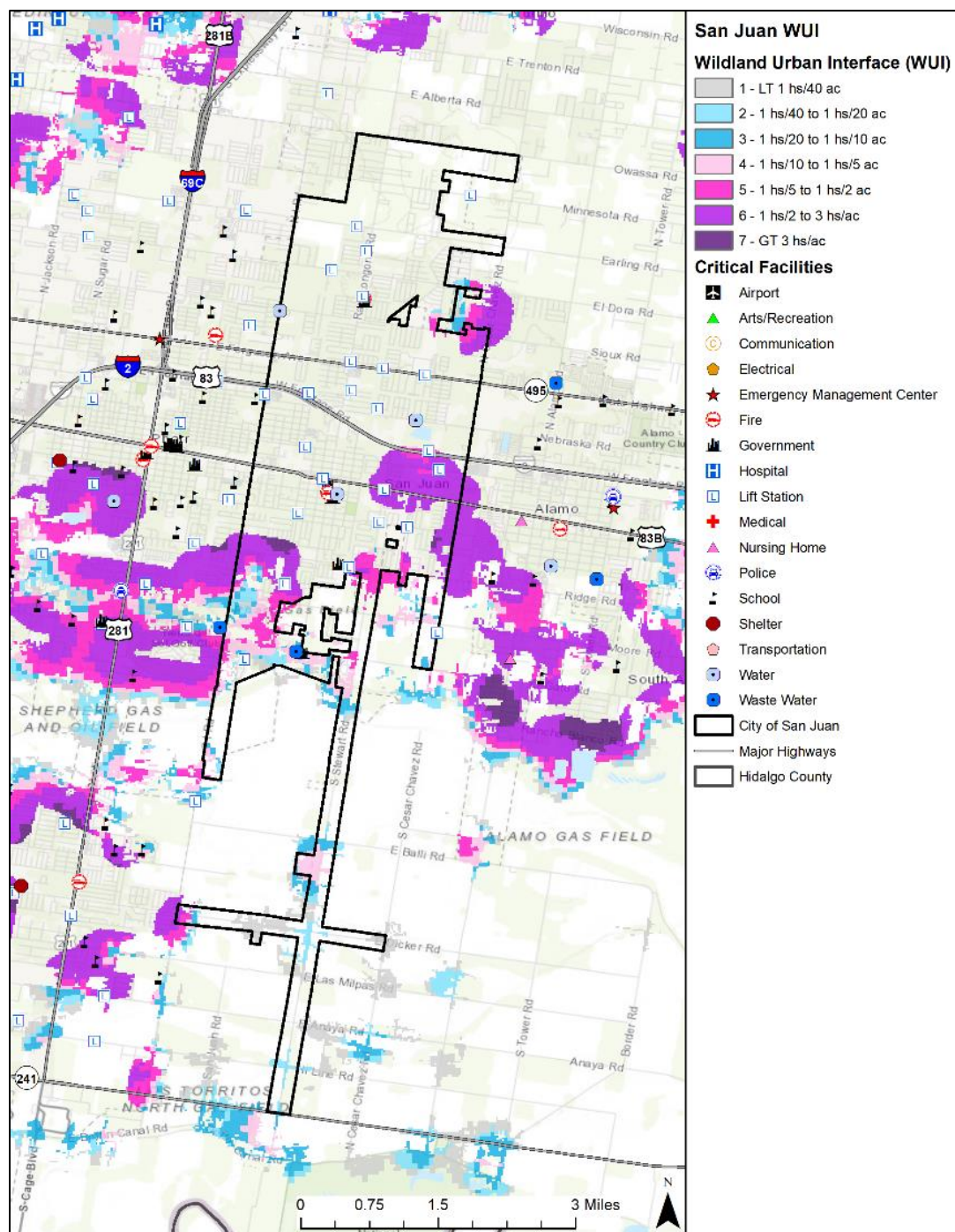
Figure 10-19. Wildland Urban Interface Map – City of Progreso



It is estimated that 16.4 percent of the total population in the City of Progreso live within the WUI. However, the entire City of Progreso is at risk for wildfires.

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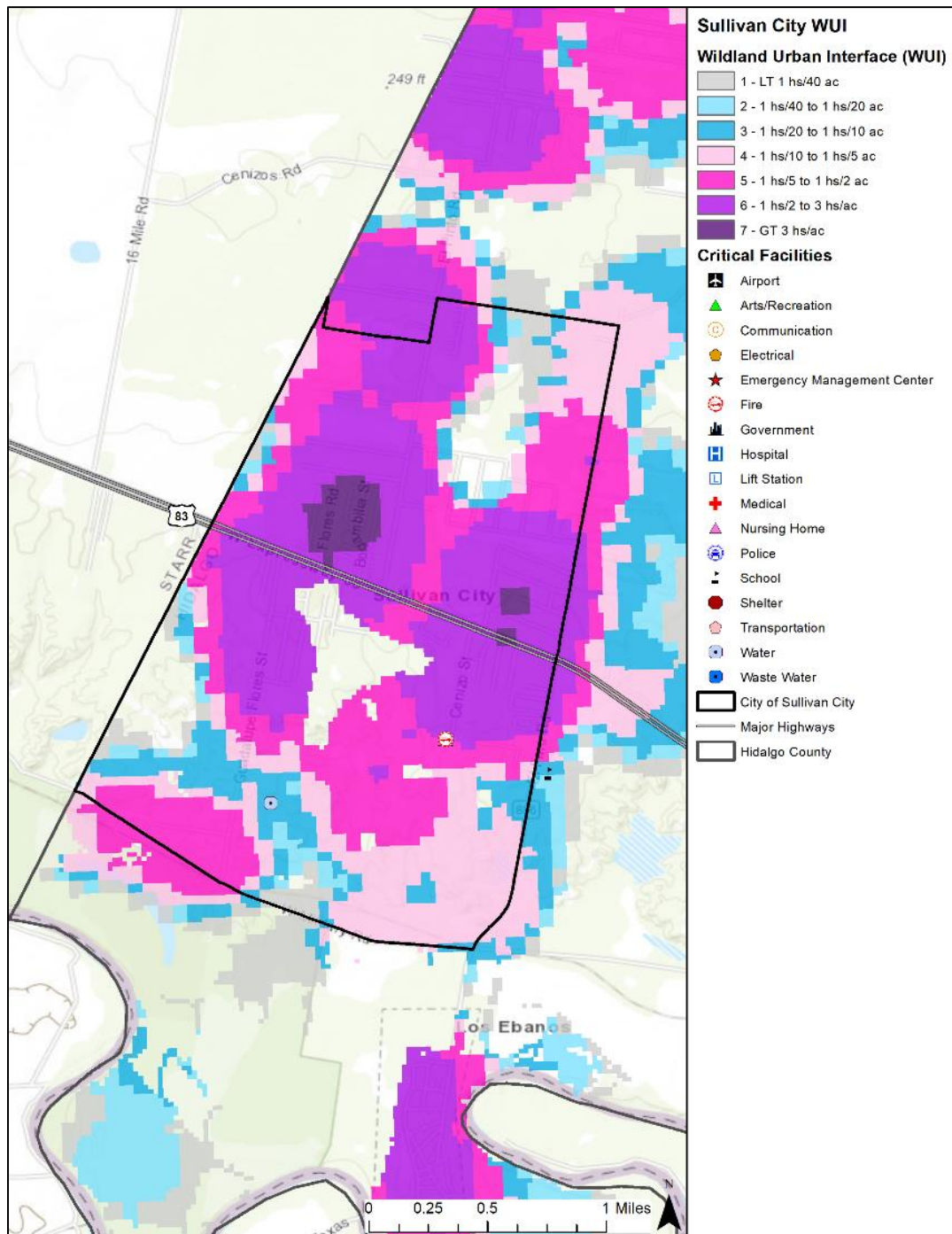
Figure 10-20. Wildland Urban Interface Map – City of San Juan



It is estimated that 9.1 percent of the total population in the City of San Juan live within the WUI. However, the entire City of San Juan is at risk for wildfires.

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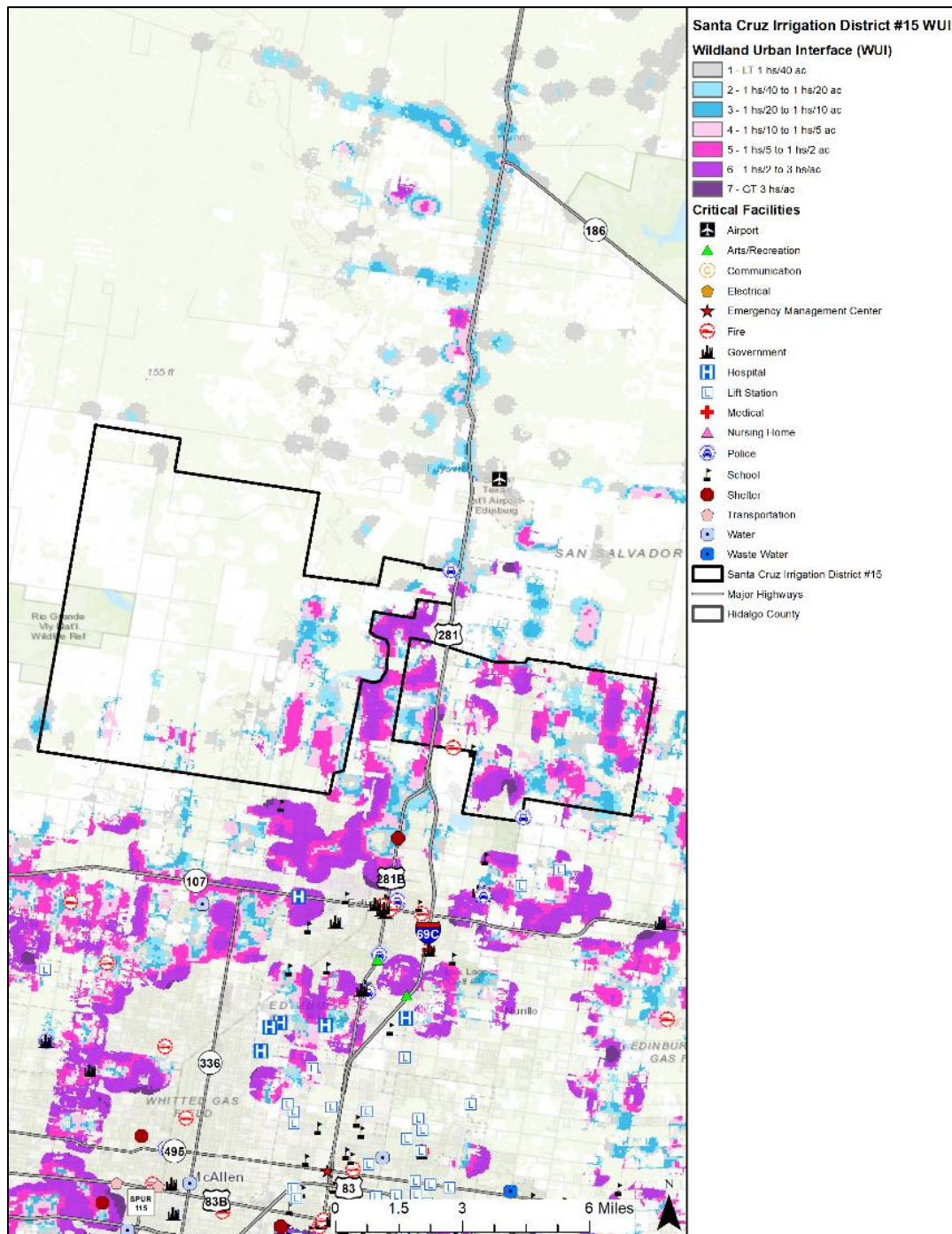
Figure 10-21. Wildland Urban Interface Map – City of Sullivan City



It is estimated that 93.9 percent of the total population in the City of Sullivan City live within the WUI. However, the entire City of Sullivan City is at risk for wildfires.

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Figure 10-22. Wildland Urban Interface Map – Santa Cruz Irrigation District #15



It is estimated that **16.4** percent of the total population in the Santa Cruz Irrigation District #15 live within the WUI. However, the entire Santa Cruz Irrigation District #15 is at risk for wildfires.

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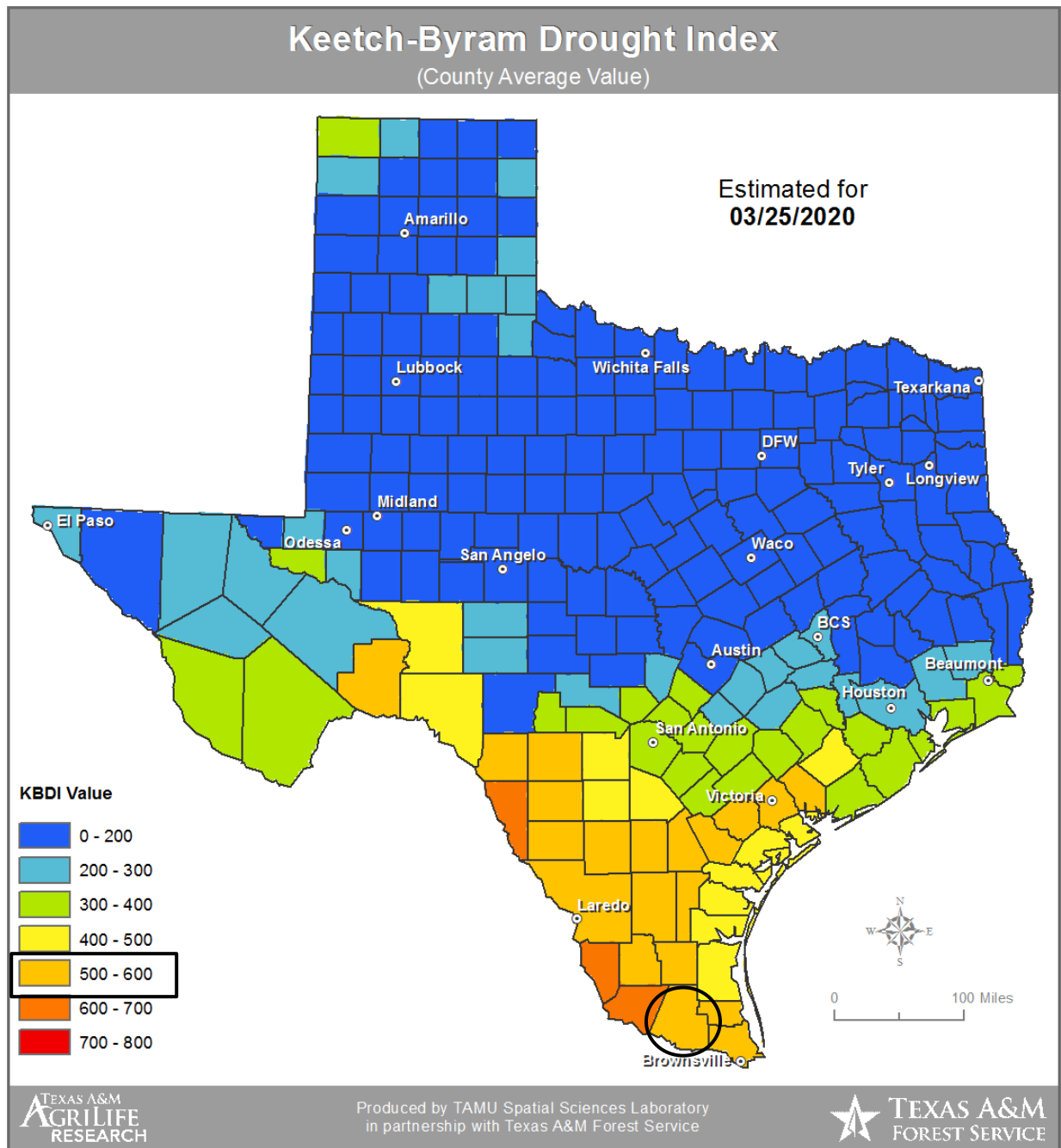
EXTENT



Risk for a wildfire event is measured in terms of magnitude and intensity using the Keetch Byram Drought Index (KBDI), a mathematical system for relating current and recent weather conditions to potential or expected fire behavior. The KBDI determines forest fire potential based on a daily water balance, derived by balancing a drought factor with precipitation and soil moisture (assumed to have a maximum storage capacity of eight inches), and is expressed in hundredths of an inch of soil moisture depletion.

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Figure 10-23. Keetch-Byram Drought Index (KBDI) for the State of Texas, 2020¹



¹ Hidalgo County is located within the black circle.

SECTION 10: WILDFIRE

Fire behavior can be categorized at four distinct levels on the KBDI:

- **0 -200:** Soil and fuel moisture are high. Most fuels will not readily ignite or burn. However, with sufficient sunlight and wind, cured grasses and some light surface fuels will burn in spots and patches.
- **200 -400:** Fires more readily burn and will carry across an area with no gaps. Heavier fuels will not readily ignite and burn. Expect smoldering and the resulting smoke to carry into and possibly through the night.
- **400 -600:** Fires intensity begins to significantly increase. Fires will readily burn in all directions exposing mineral soils in some locations. Larger fuels may burn or smolder for several days creating possible smoke and control problems.
- **600 -800:** Fires will burn to mineral soil. Stumps will burn to the end of underground roots and spotting will be a major problem. Fires will burn through the night and heavier fuels will actively burn and contribute to fire intensity.

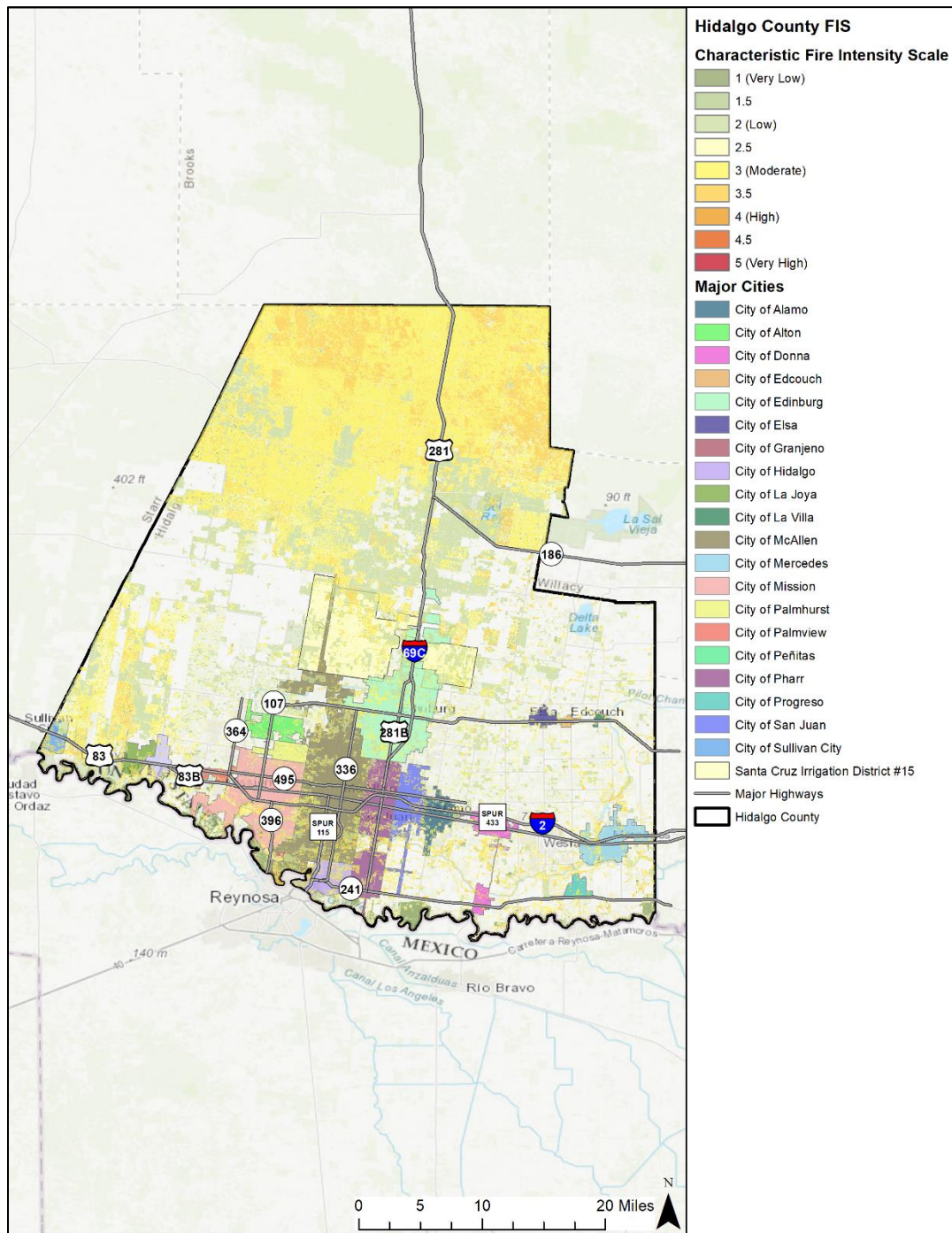
The KBDI is a good measure of the readiness of fuels for a wildfire event. It should be referenced as the area experiences changes in precipitation and soil moisture, while caution should be exercised in dryer, hotter conditions.

The range of intensity for the Hidalgo County planning area in a wildfire event is within 49 to 692. The average extent to be mitigated for the Hidalgo County planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15, is a KBDI of 622. At this level fires intensity begins to significantly increase. Fire will readily burn in all directions exposing mineral soils in some locations. The worst the planning area can anticipate based on historical occurrences and readily available fuel is 600 to 800 as 692 falls within this range. At this level fires will burn to mineral soil. Stumps will burn to the end of underground roots and spotting will be a major problem. Fires will burn through the night and heavier fuels will actively burn and contribute to fire intensity.

The Texas Forest Service's Fire Intensity Scale identifies areas where significant fuel hazards and associated dangerous fire behavior potential exist based on weighted average of four percentile weather categories. Hidalgo County is between a potential limited to moderate wildfire intensities. Figures 10-24 through 10-45 identify the wildfire intensity for the Hidalgo County planning area.

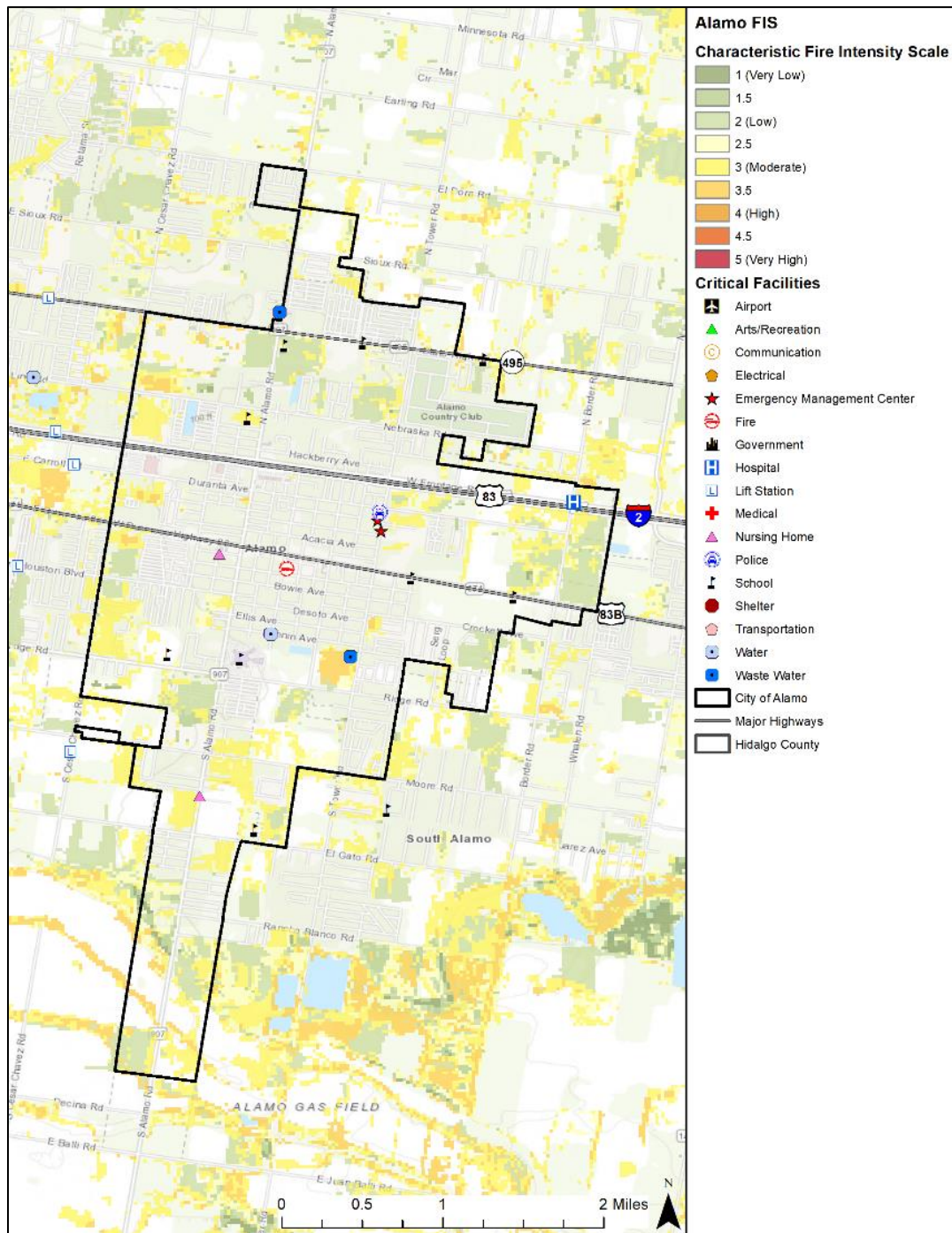
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Figure 10-24. Fire Intensity Scale Map – Hidalgo County



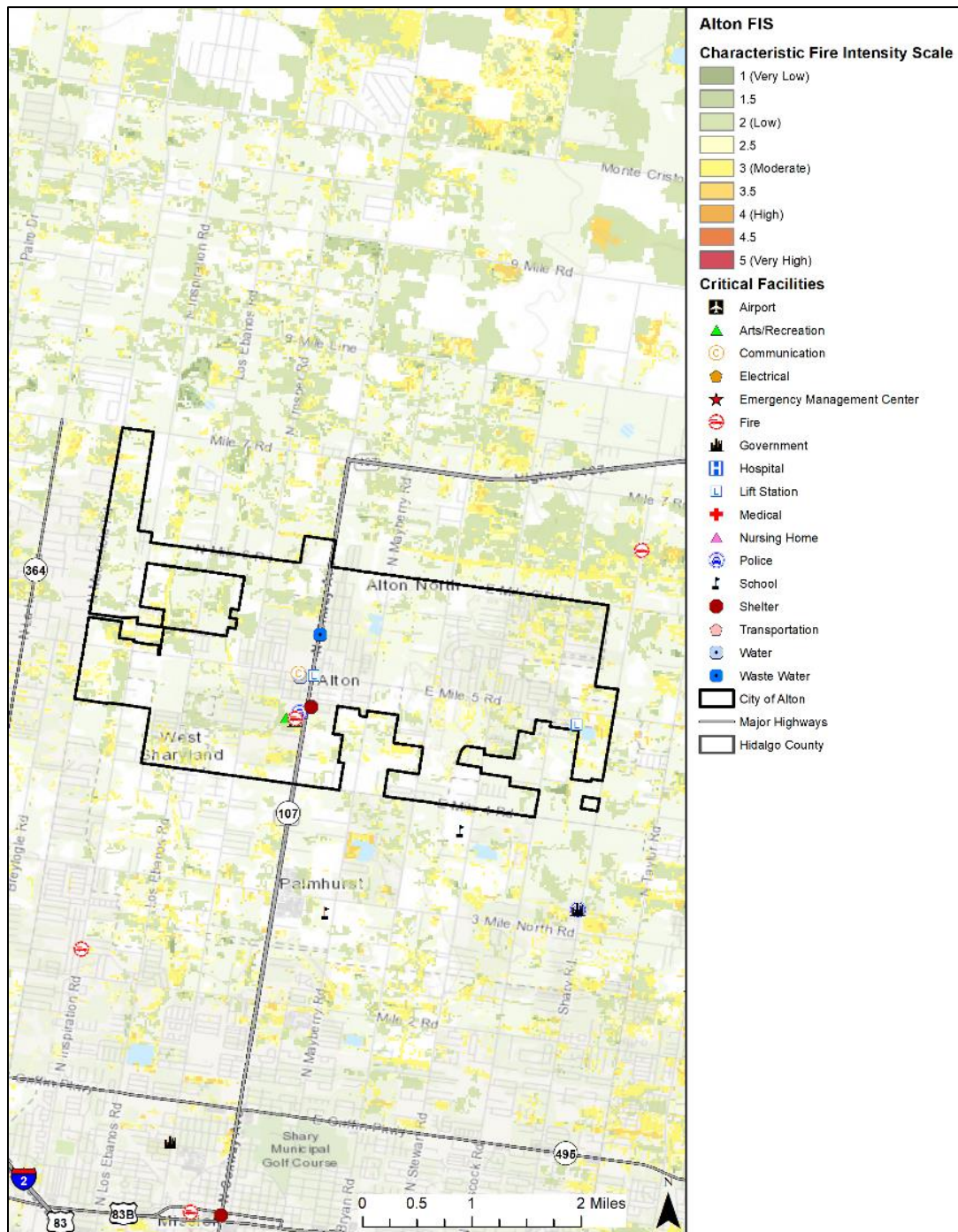
SECTION 10: WILDFIRE

Figure 10-25. Fire Intensity Scale Map – City of Alamo



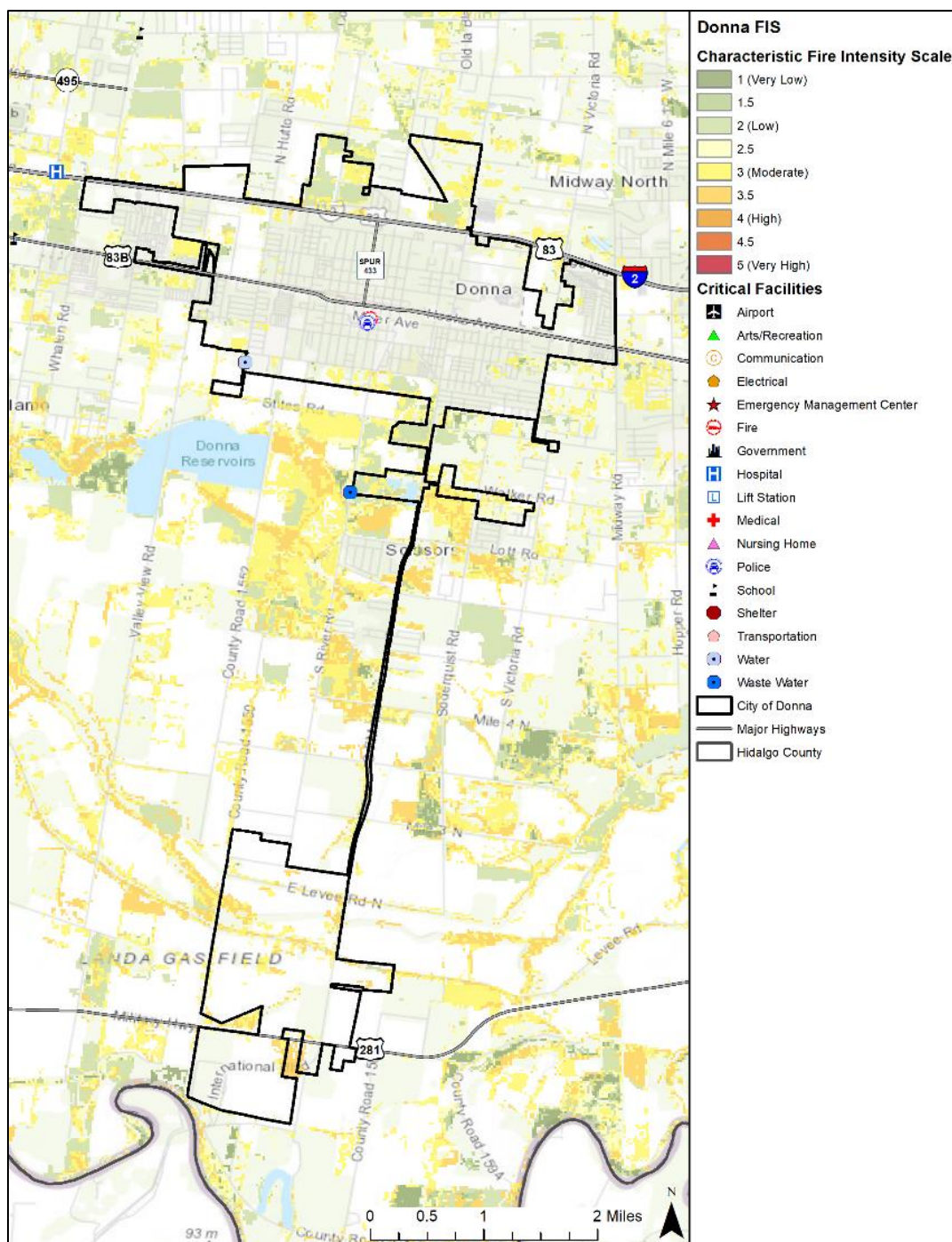
SECTION 10: WILDFIRE

Figure 10-26. Fire Intensity Scale Map – City of Alton



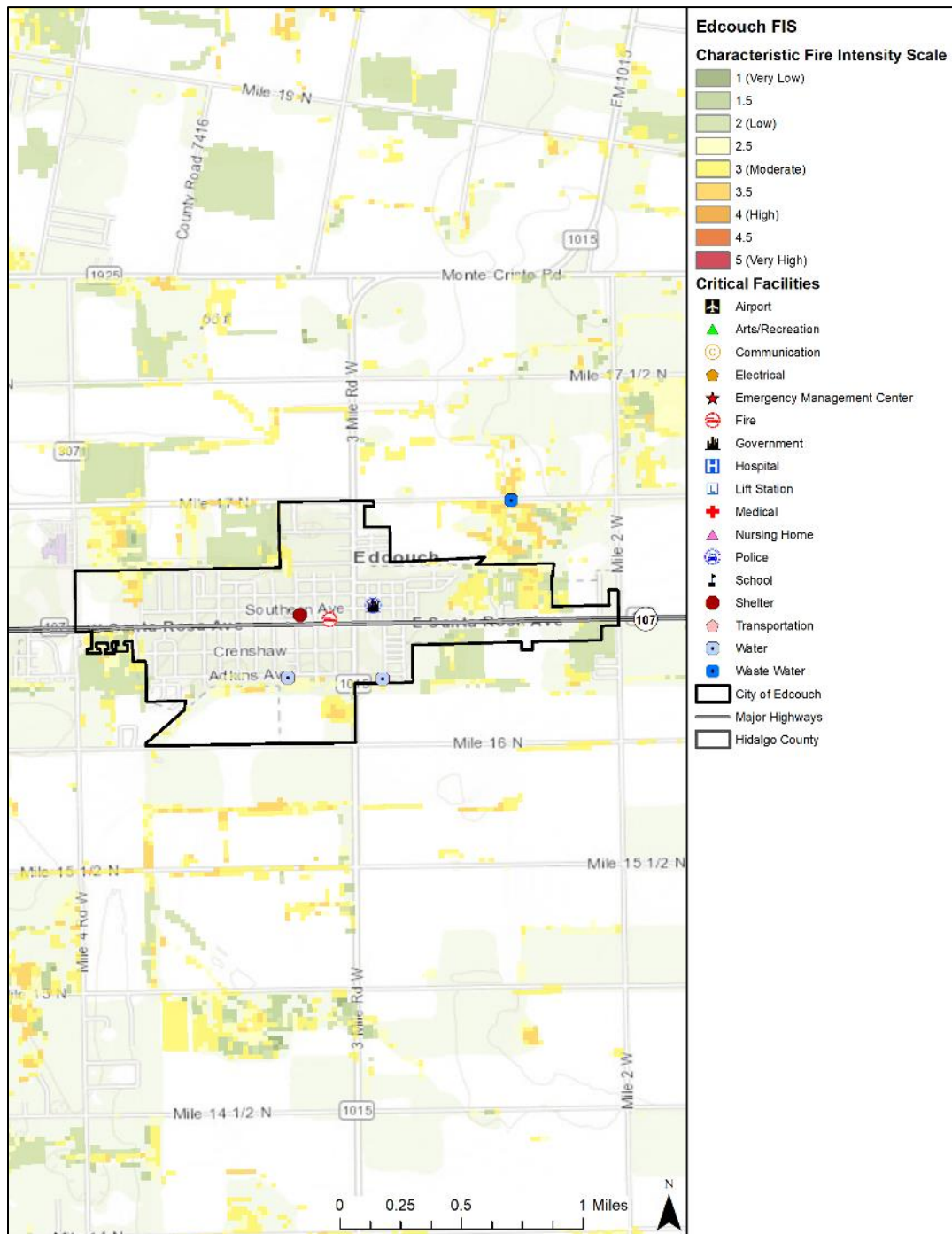
SECTION 10: WILDFIRE

Figure 10-27. Fire Intensity Scale Map – City of Donna



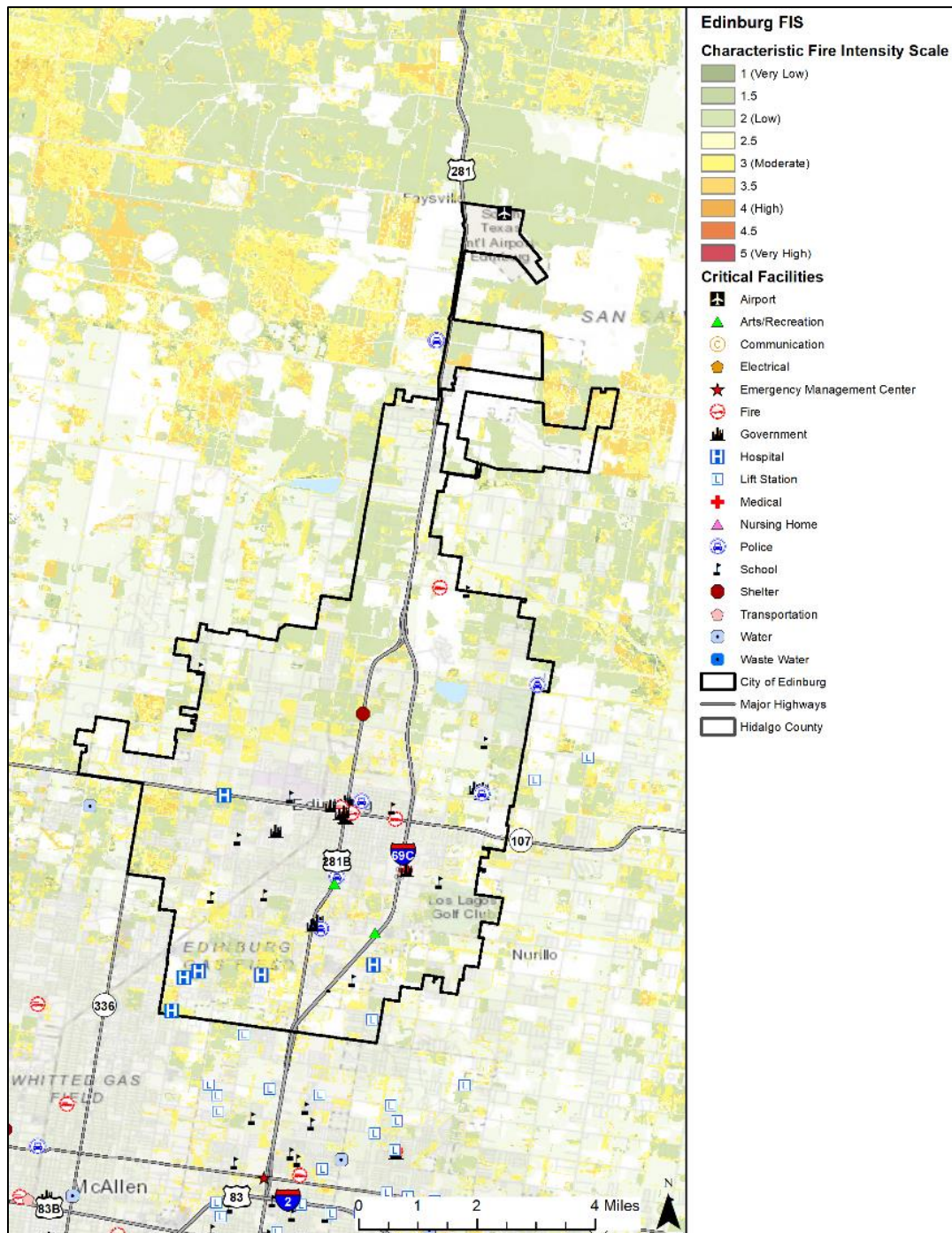
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Figure 10-28. Fire Intensity Scale Map – City of Edcouch



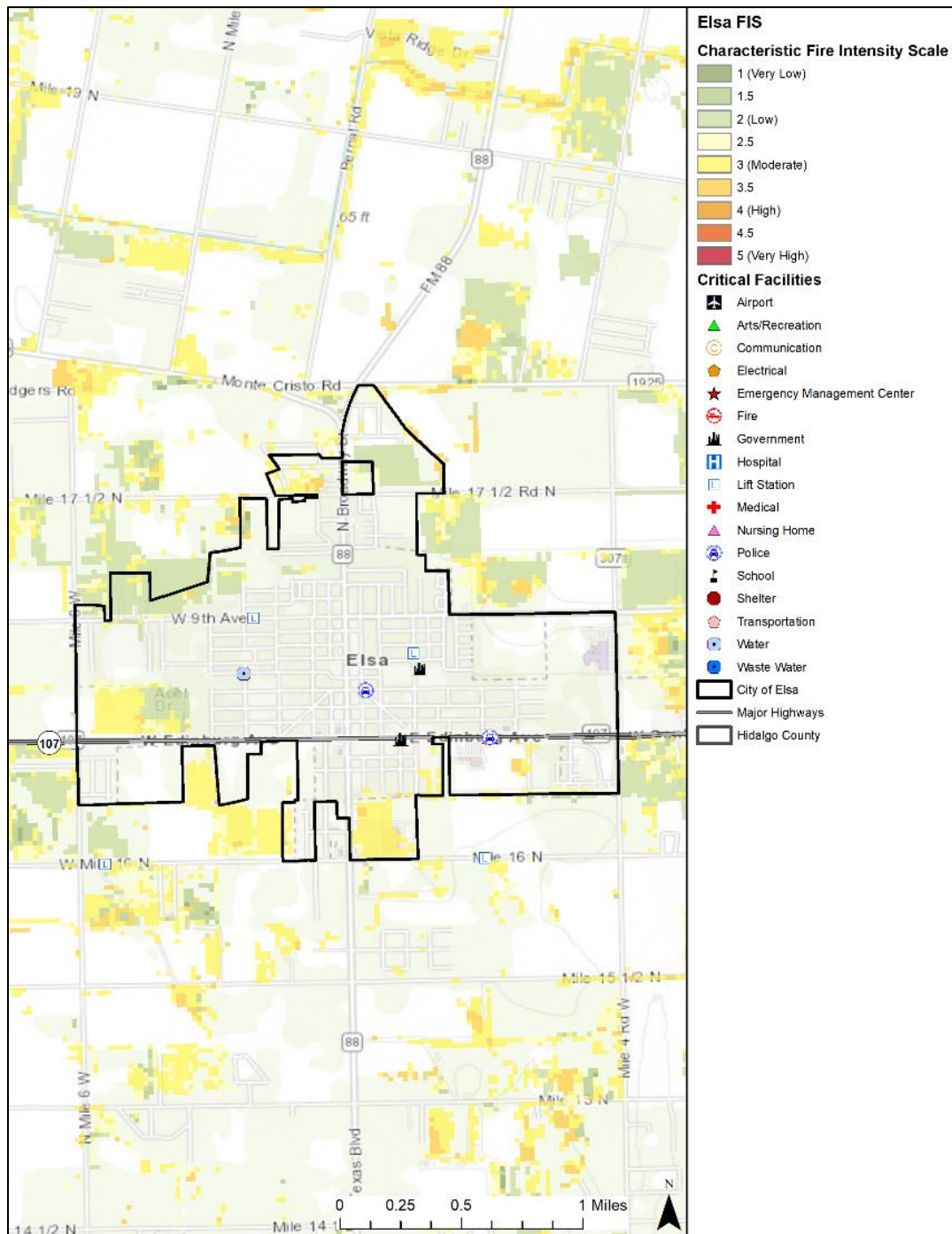
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Figure 10-29. Fire Intensity Scale Map – City of Edinburg



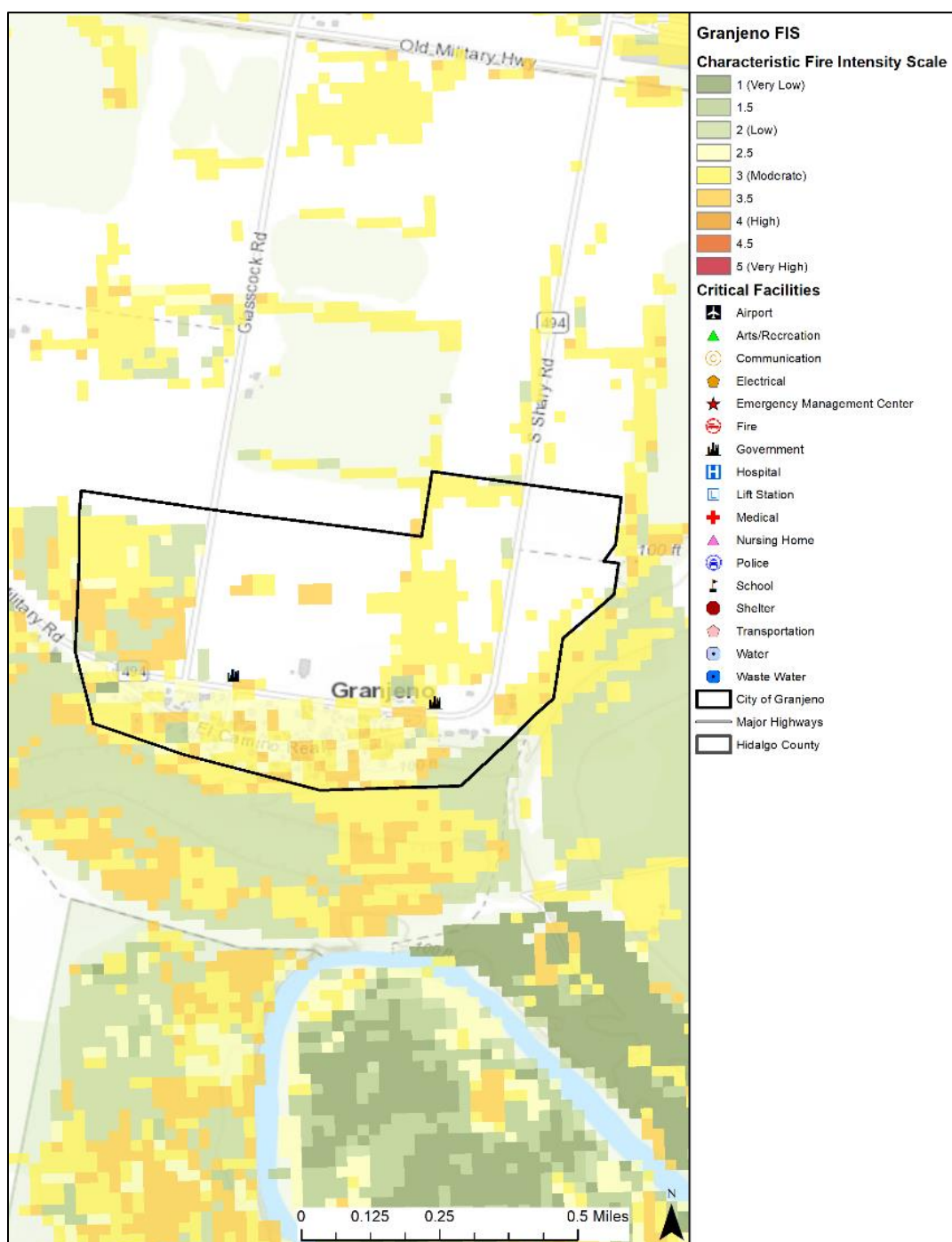
SECTION 10: WILDFIRE

Figure 10-30. Fire Intensity Scale Map – City of Elsa



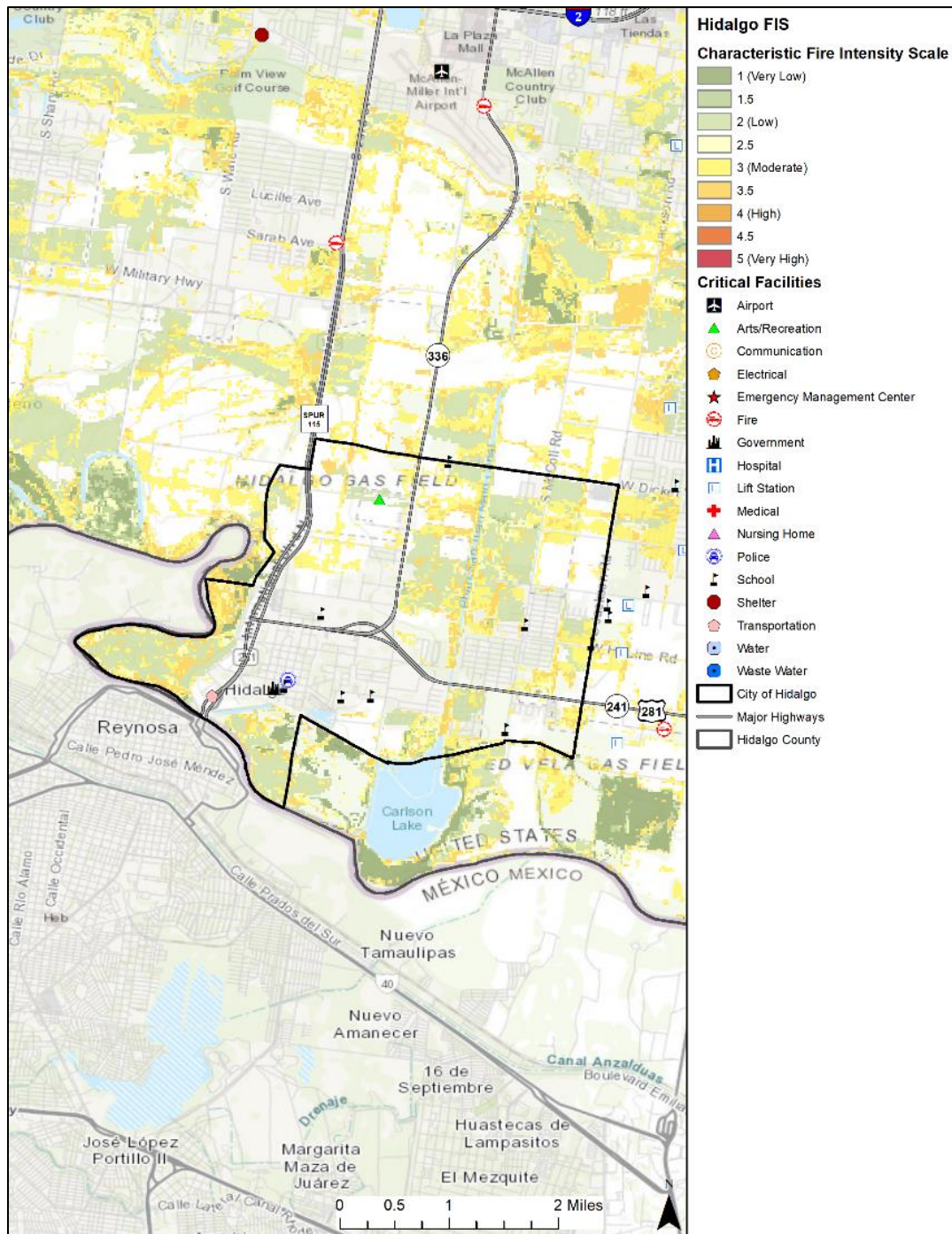
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Figure 10-31. Fire Intensity Scale Map – City of Granjeno



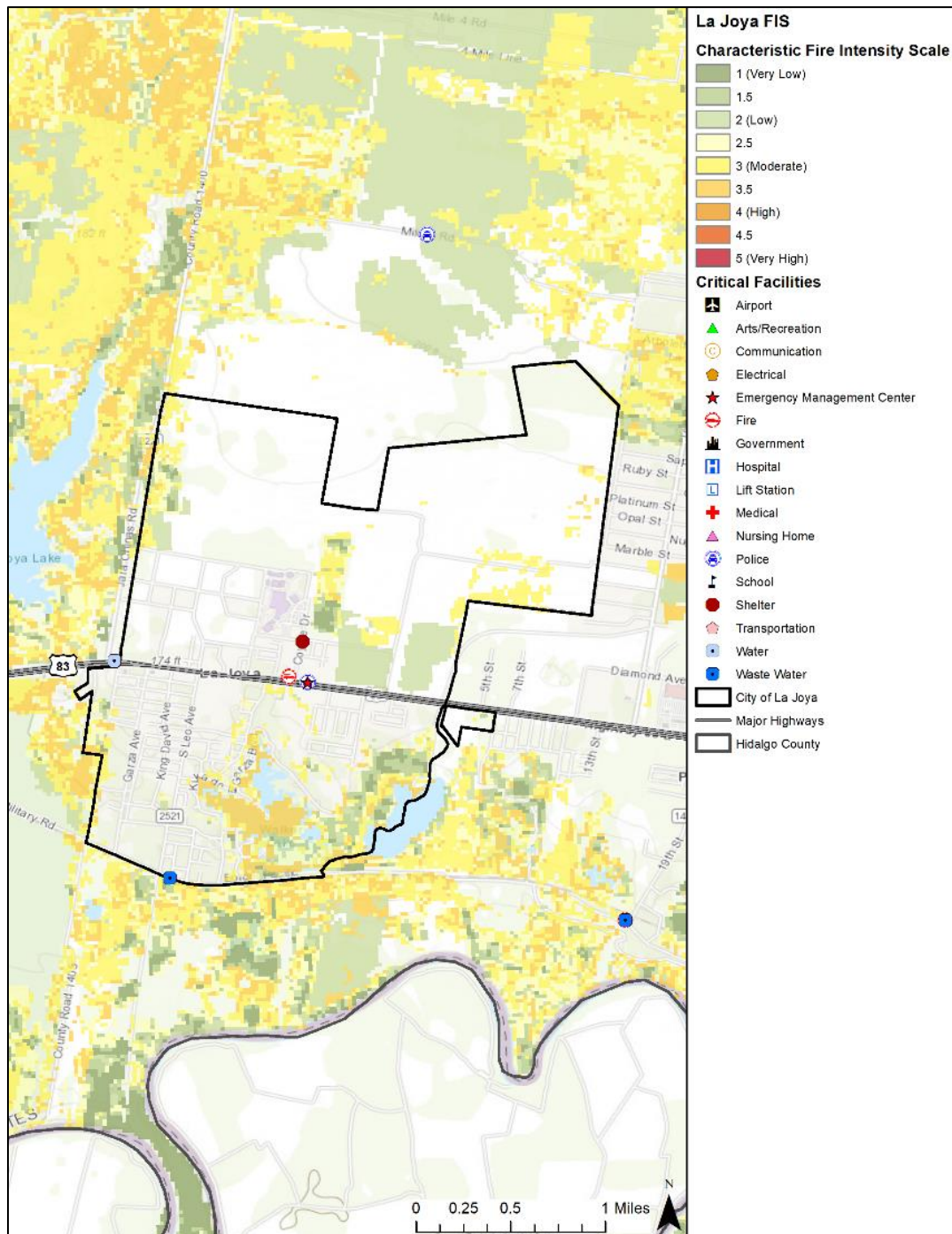
SECTION 10: WILDFIRE

Figure 10-32. Fire Intensity Scale Map – City of Hidalgo



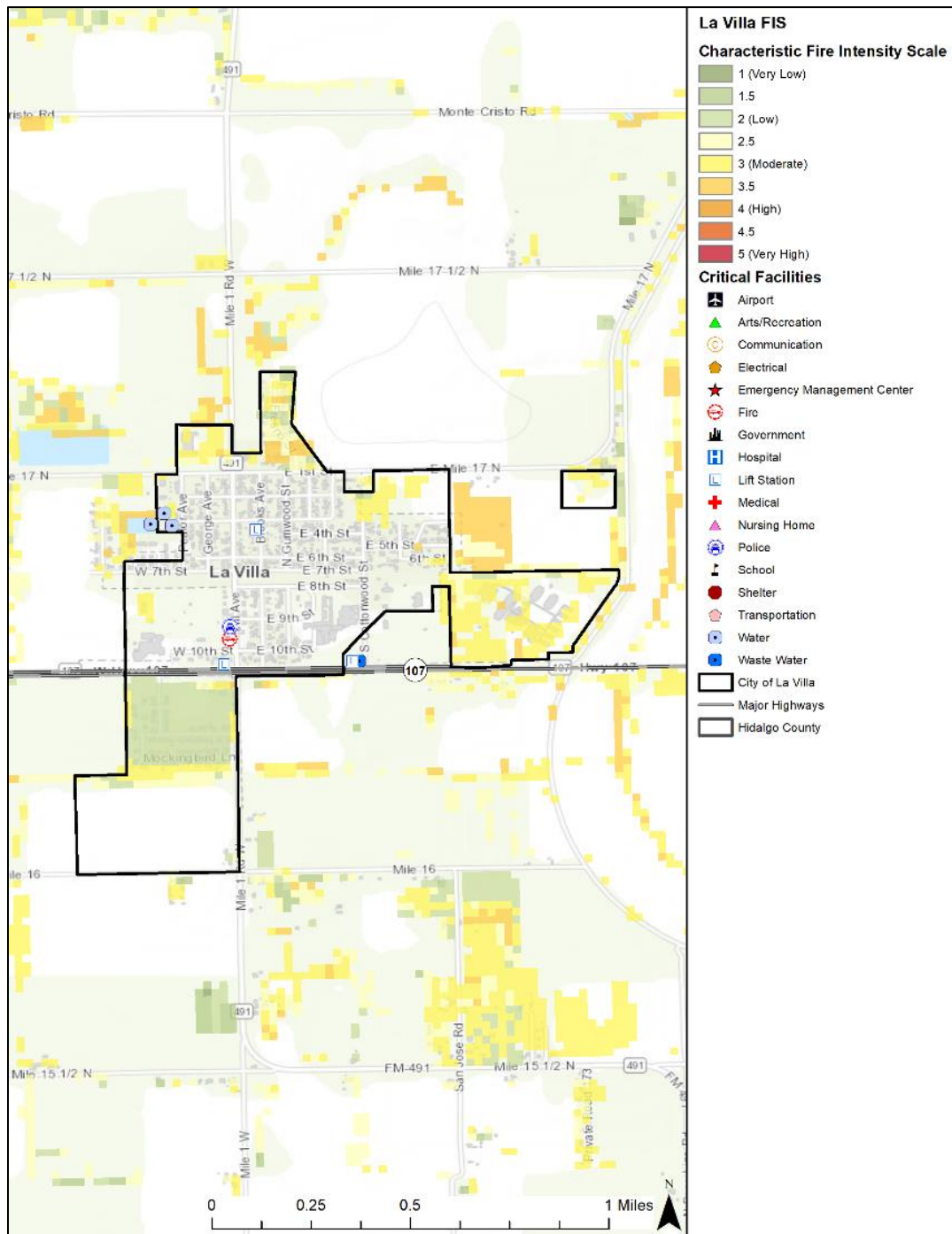
SECTION 10: WILDFIRE

Figure 10-33. Fire Intensity Scale Map – City of La Joya



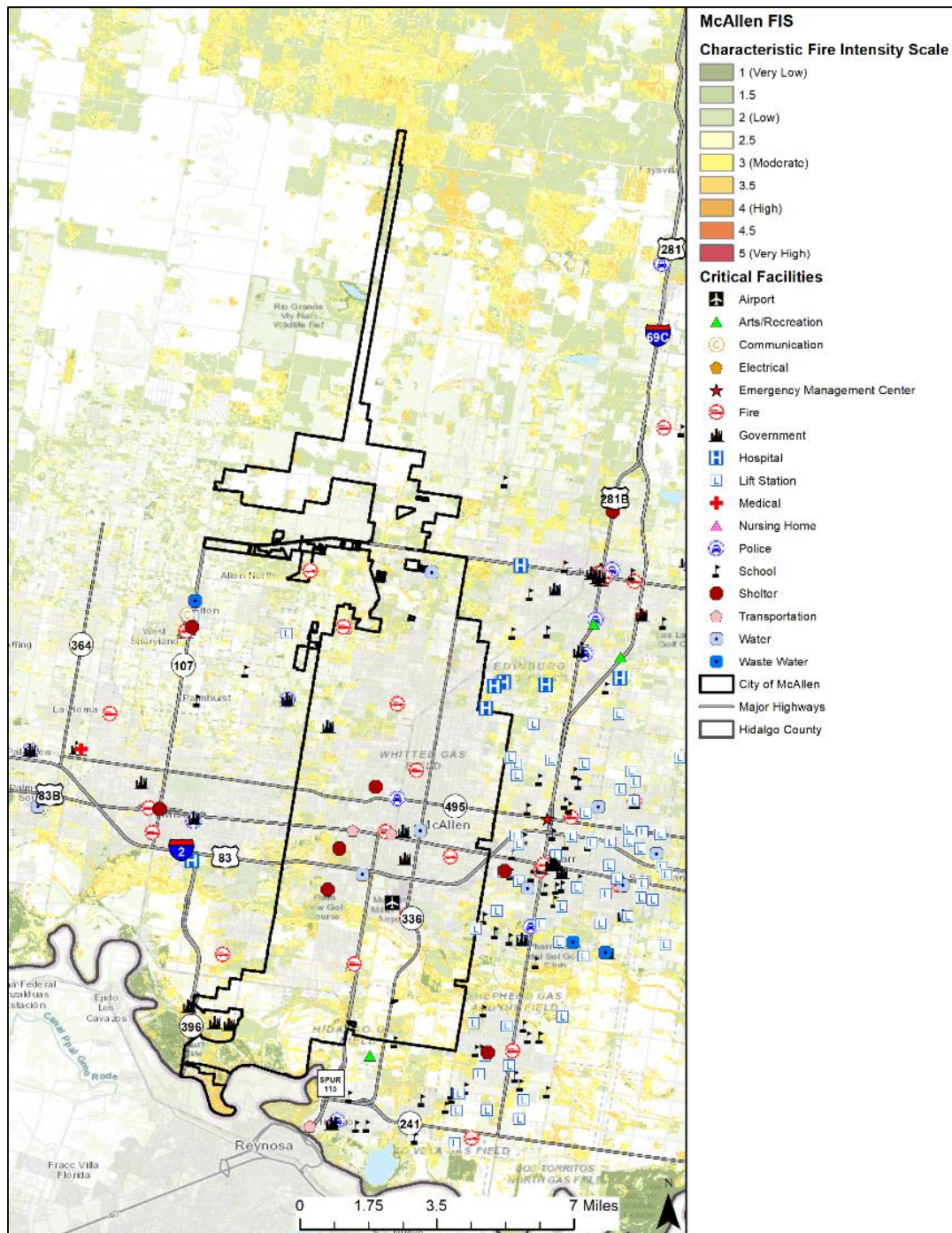
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Figure 10-34. Fire Intensity Scale Map – City of La Villa



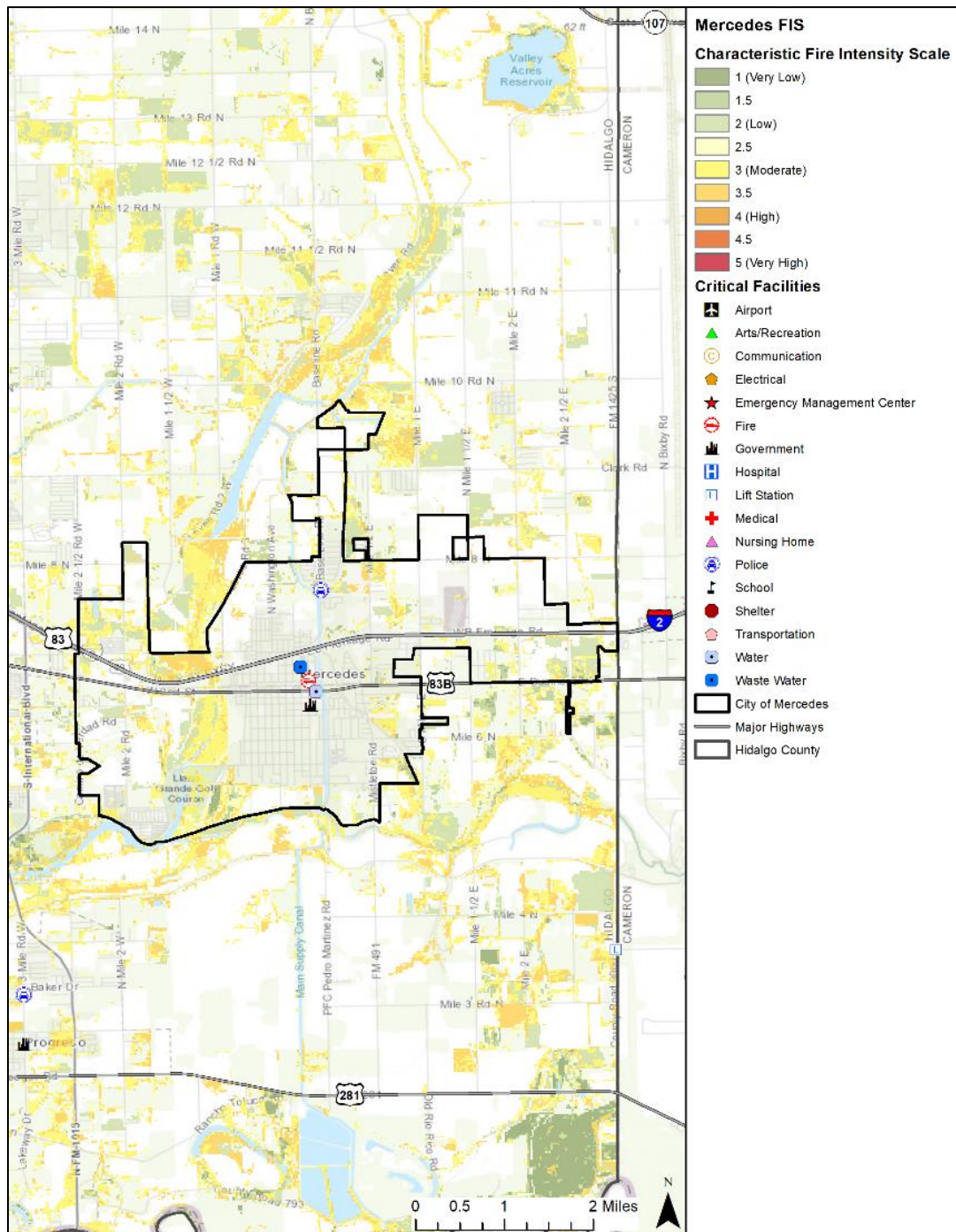
SECTION 10: WILDFIRE

Figure 10-35. Fire Intensity Scale Map – City of McAllen



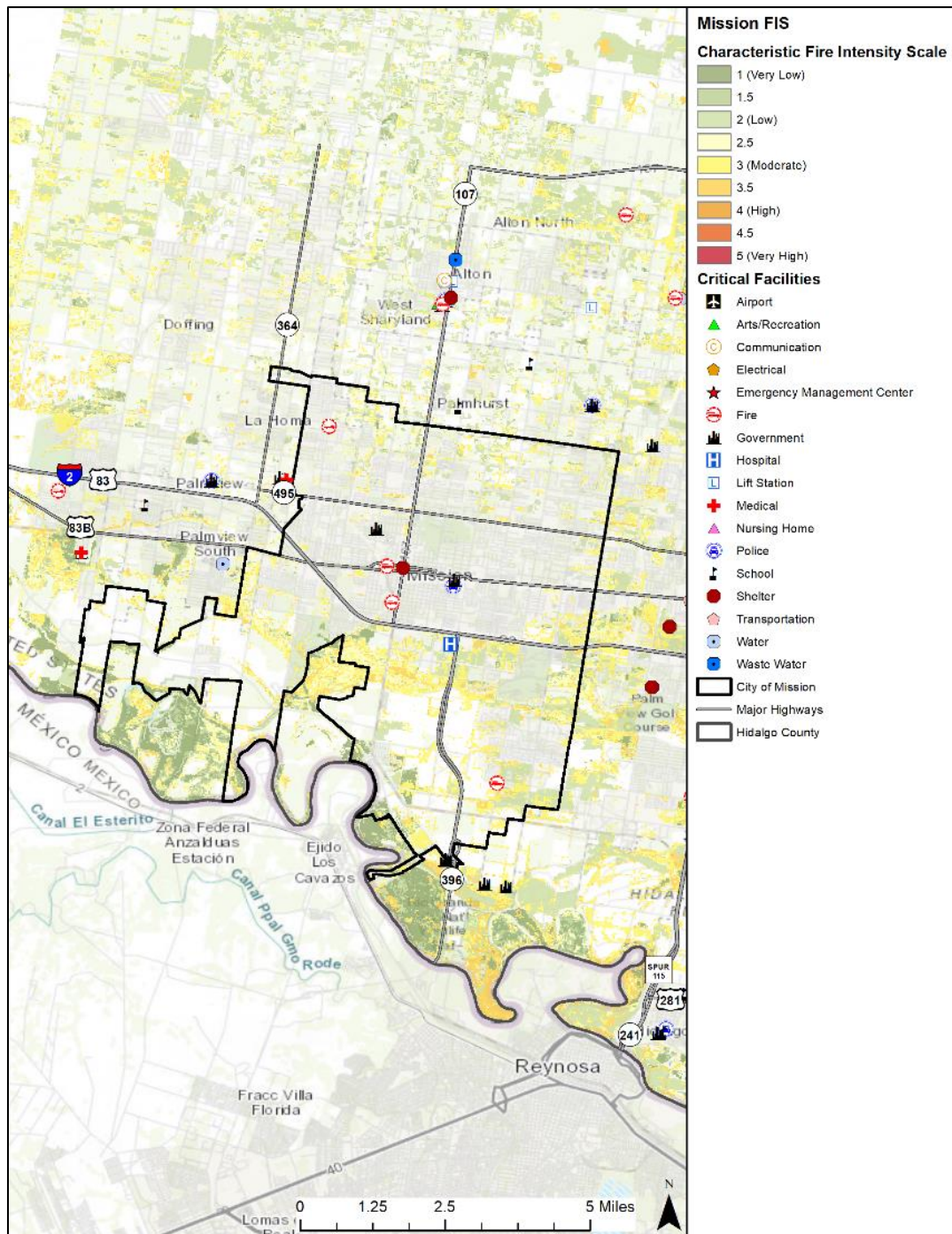
SECTION 10: WILDFIRE

Figure 10-36. Fire Intensity Scale Map – City of Merced



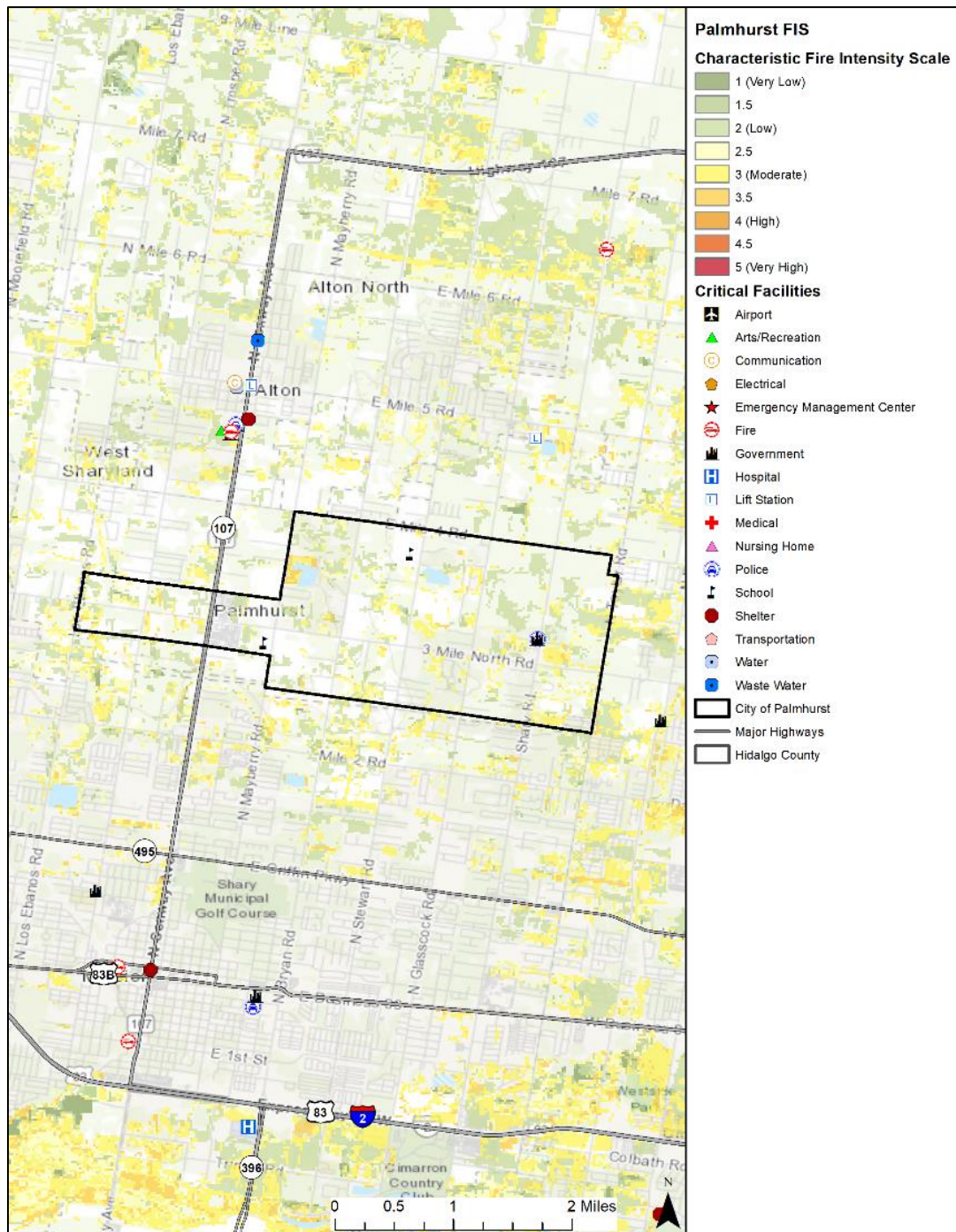
SECTION 10: WILDFIRE

Figure 10-37. Fire Intensity Scale Map – City of Mission



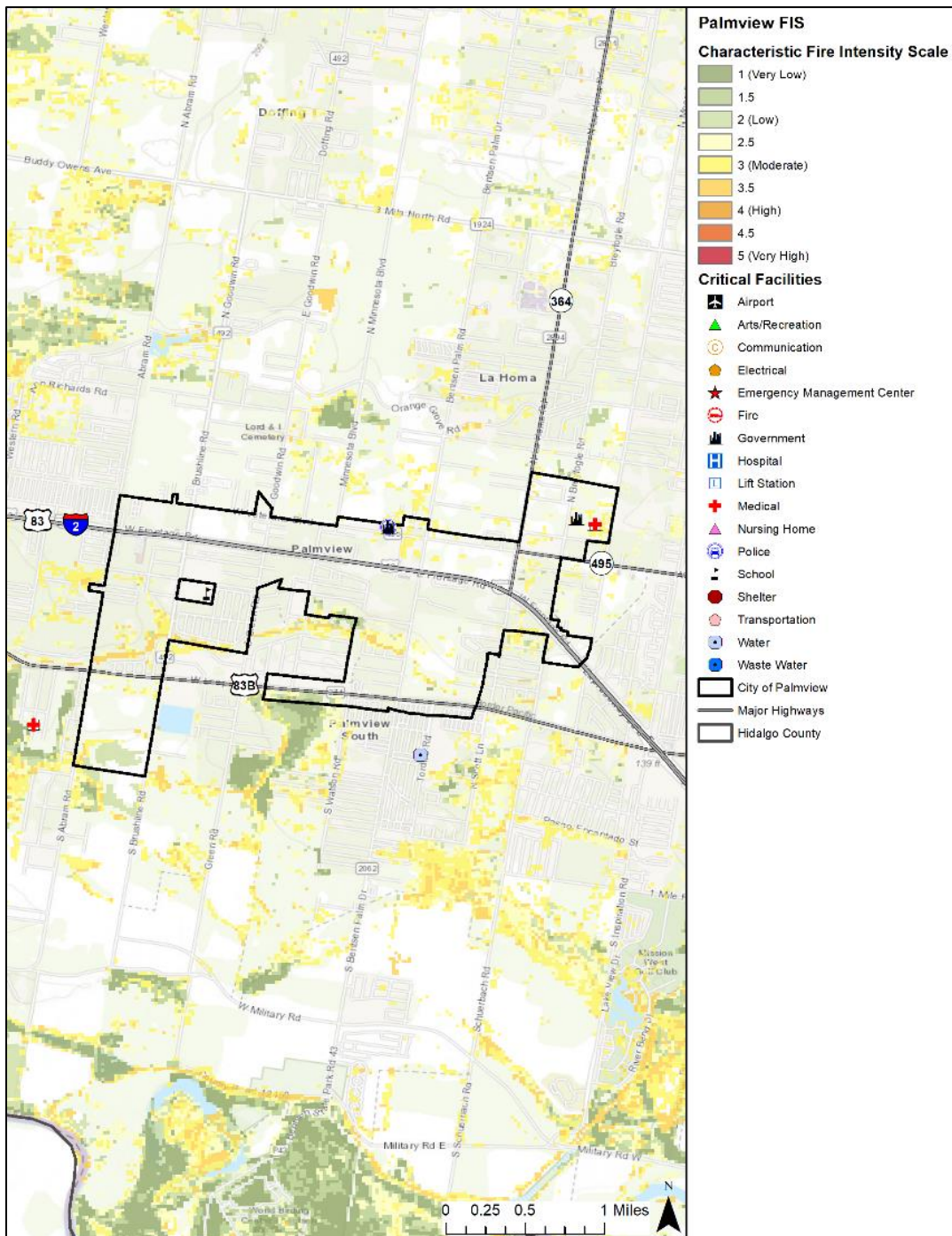
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Figure 10-38. Fire Intensity Scale Map – City of Palmhurst



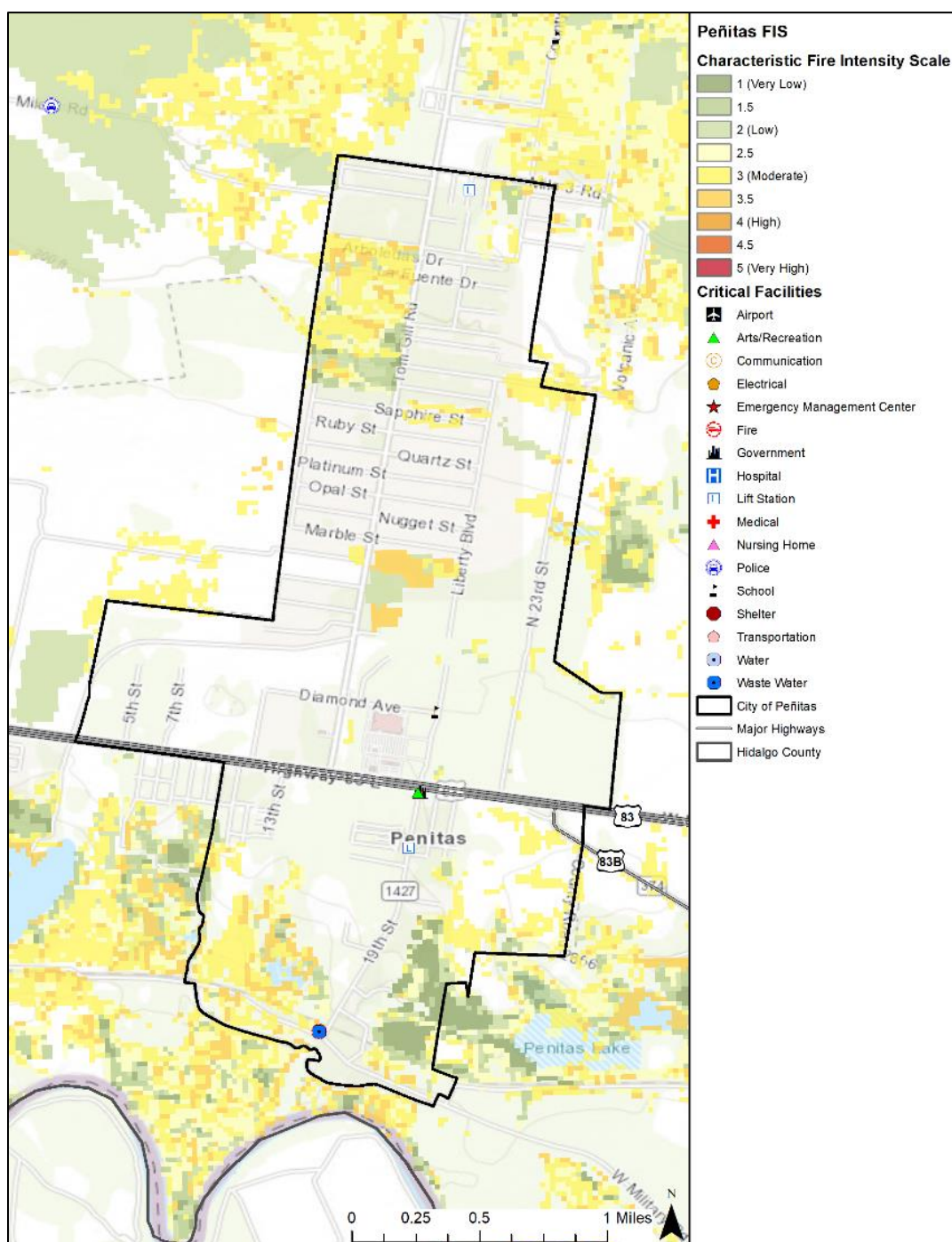
SECTION 10: WILDFIRE

Figure 10-39. Fire Intensity Scale Map – City of Palmview



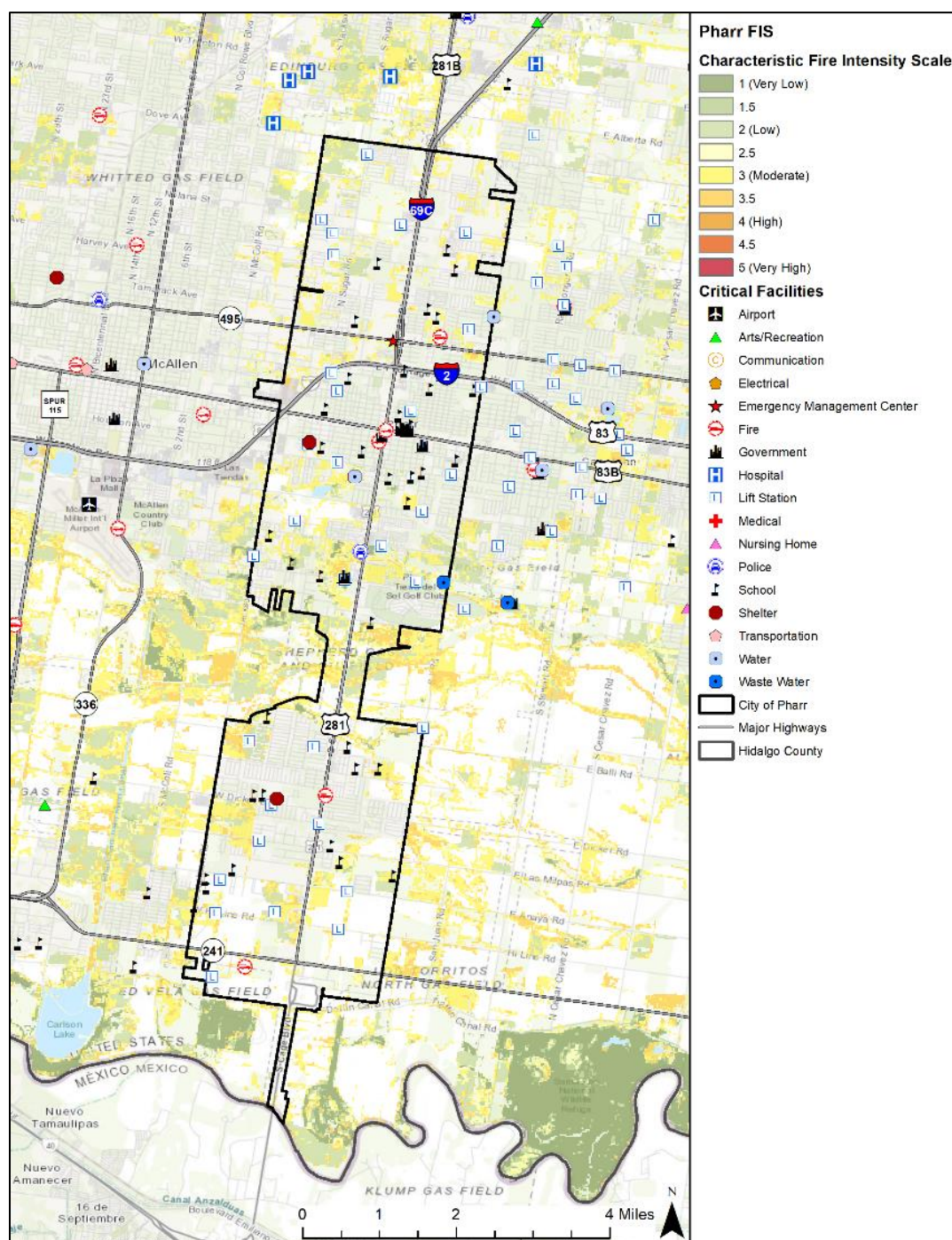
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Figure 10-40. Fire Intensity Scale Map – City of Peñitas



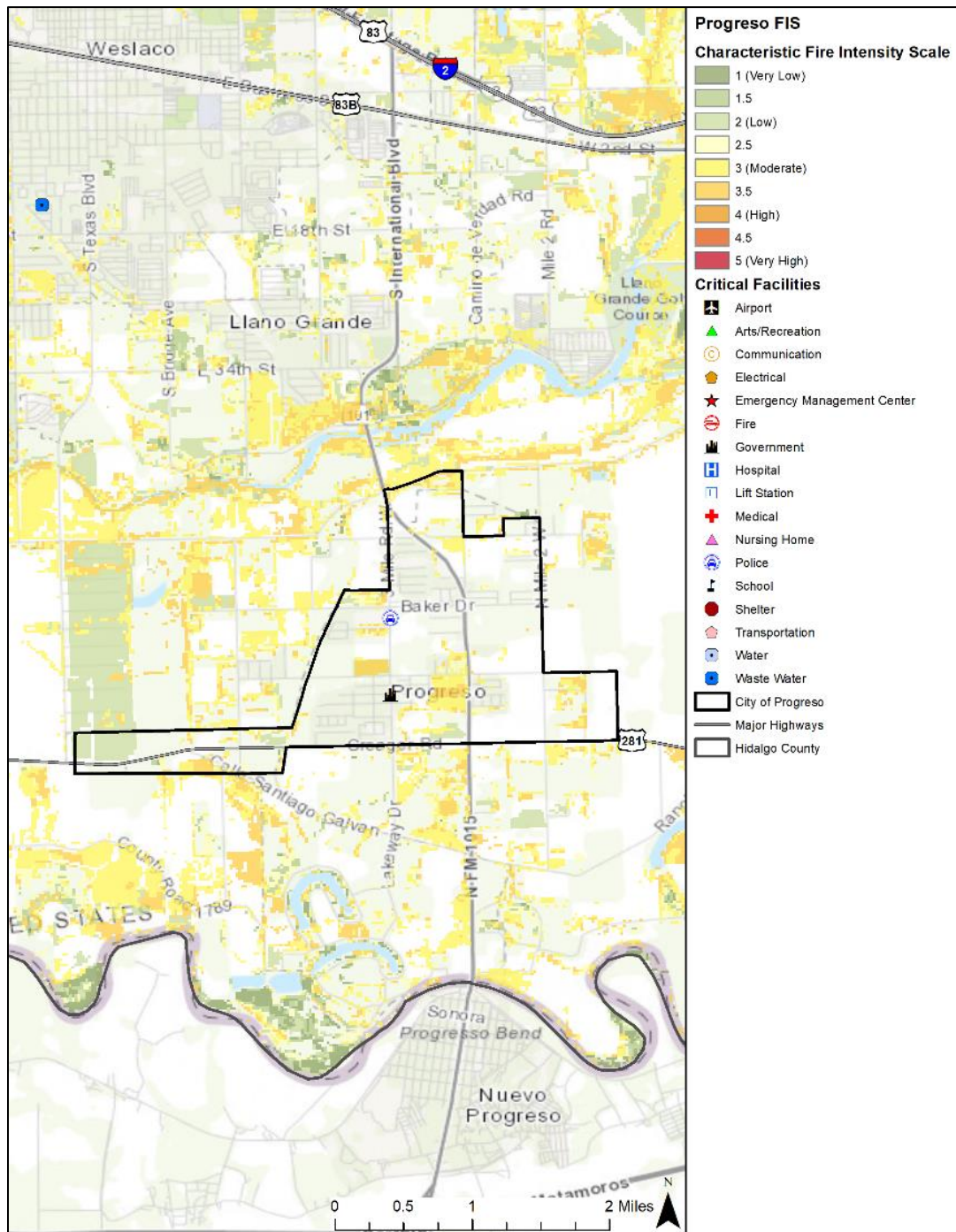
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Figure 10-41. Fire Intensity Scale Map – City of Pharr



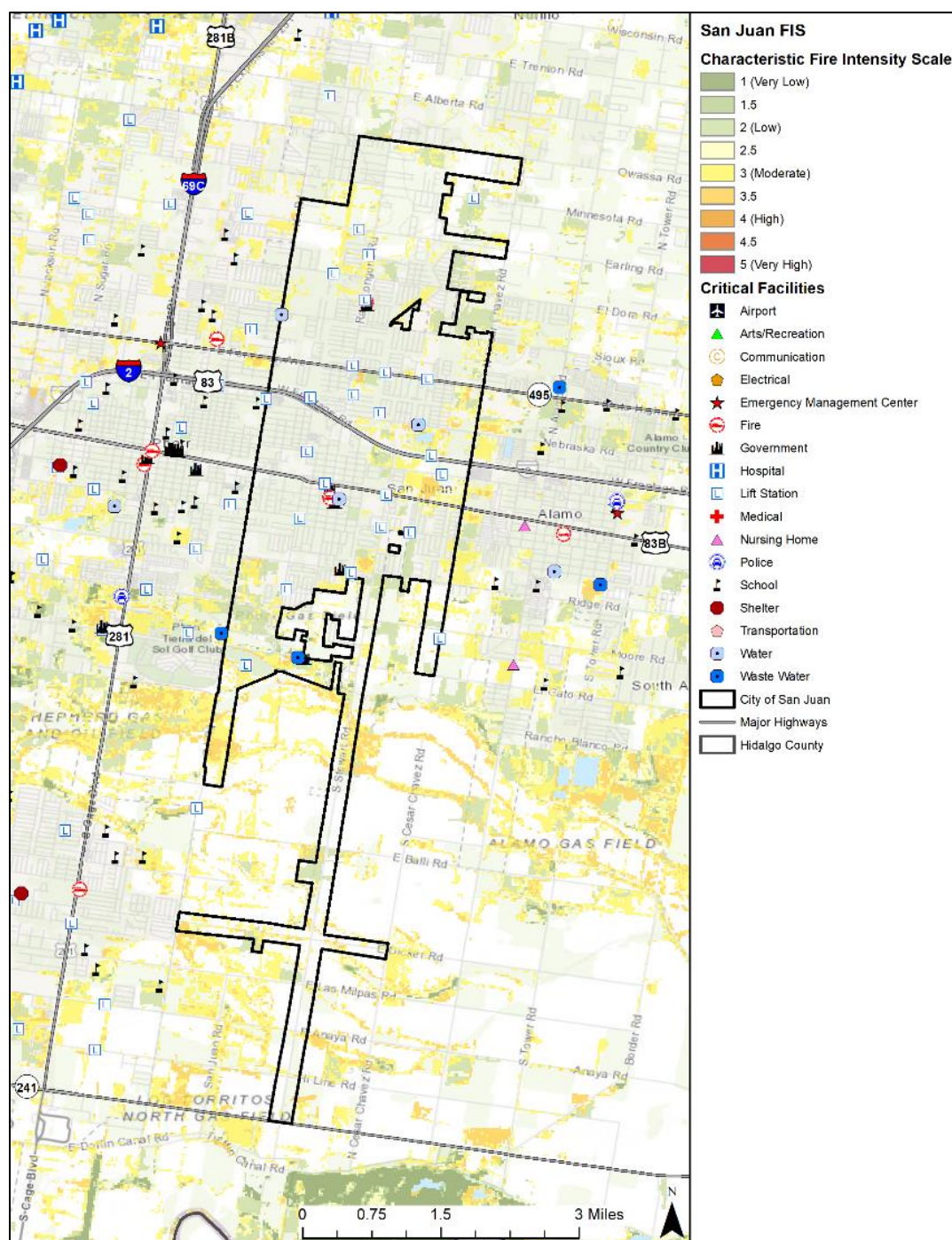
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Figure 10-42. Fire Intensity Scale Map – City of Progreso



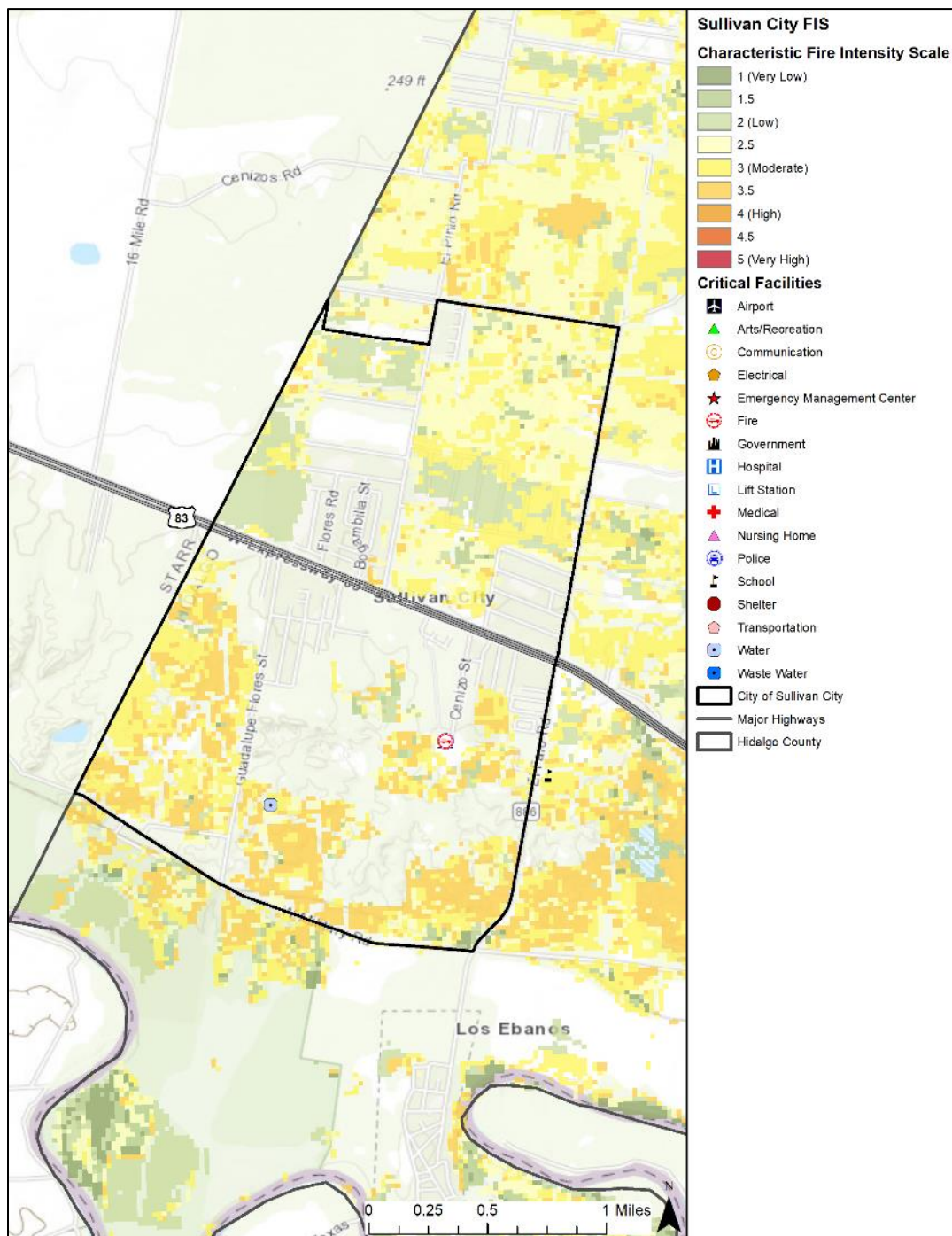
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Figure 10-43. Fire Intensity Scale Map – City of San Juan



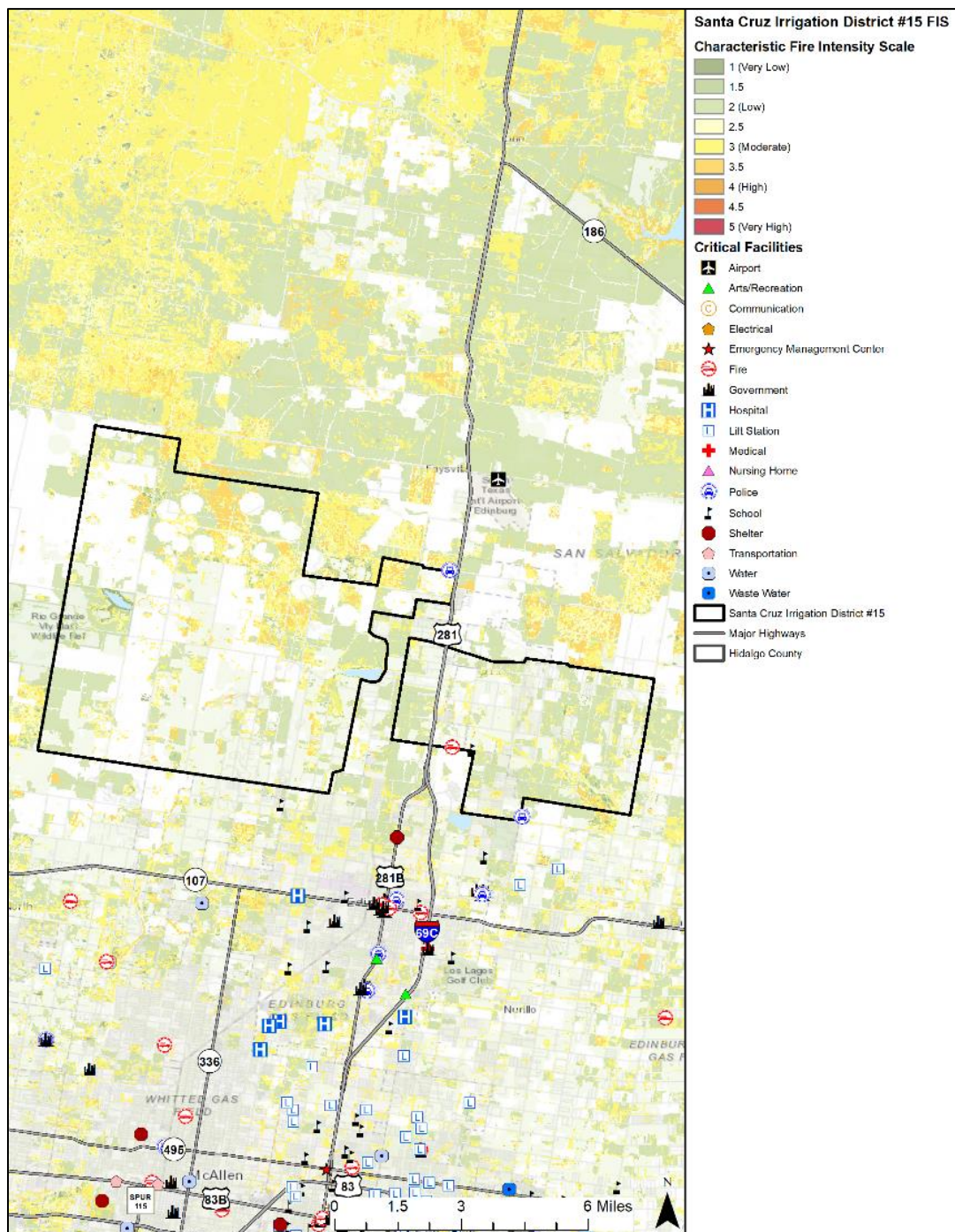
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Figure 10-44. Fire Intensity Scale Map – City of Sullivan City



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Figure 10-45. Fire Intensity Scale Map – Santa Cruz Irrigation District #15



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HISTORICAL OCCURRENCES

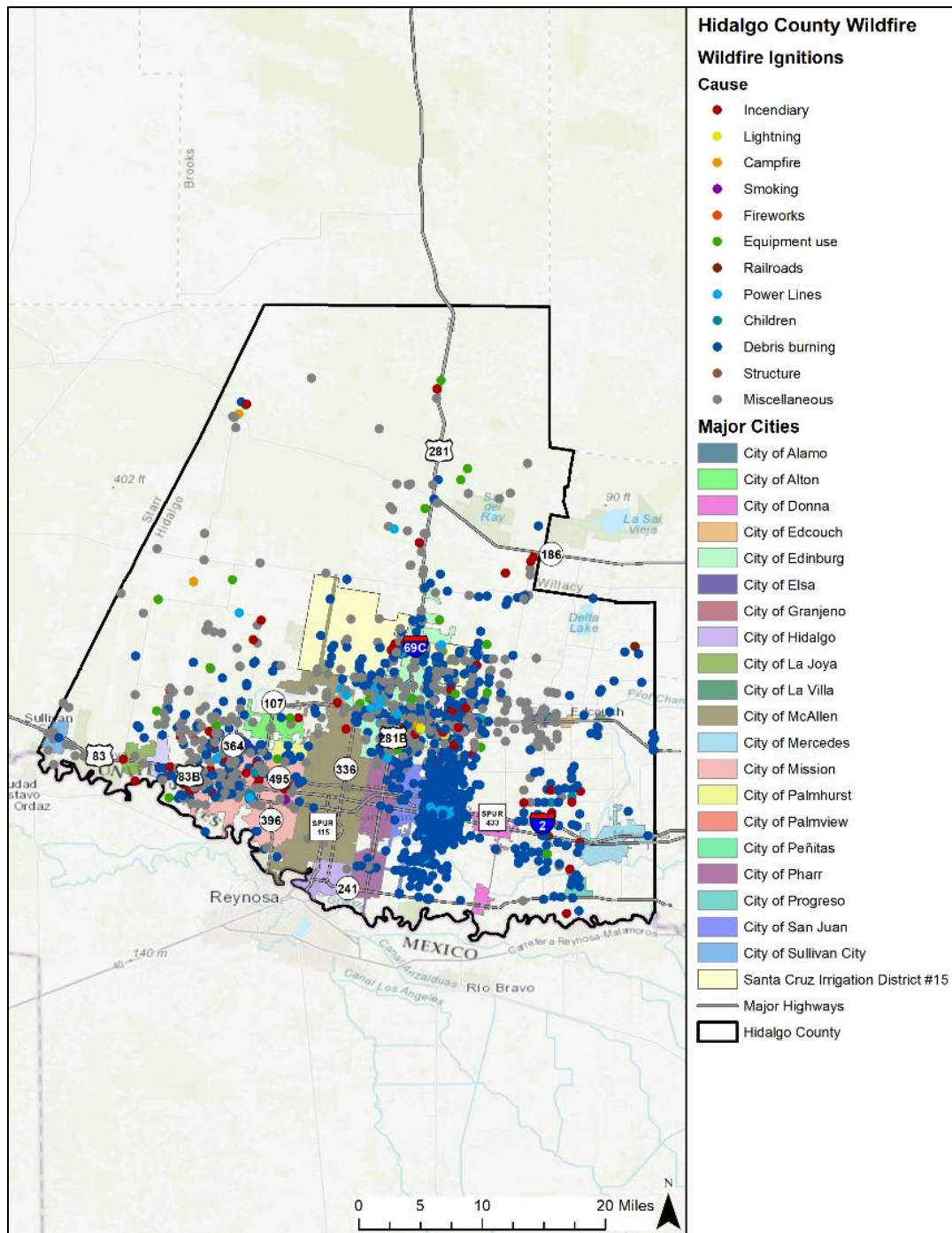
The Texas Forest Service reported 2,184 wildfire events between 2005 and 2015. The National Center for Environmental Information (NCEI) did not have any reported events from 1996 through December 2020. Due to a lack of recorded data for wildfire events prior to 2005 and after 2015², frequency calculations are based on an eleven-year period using only data from recorded years. The map below shows approximate locations of wildfires, which can be grass or brushfires of any size (Figure 10-46). Table 10-1 identifies the number of wildfires by jurisdiction and total acreage burned.

Historical wildfire data for the Santa Cruz Irrigation District #15 is provided within the City of Edinburg events per the NCEI database as they do not have events reported separate and apart from the reported Edinburg city-wide events. There have been no reported losses as a result of wildfire for the Santa Cruz Irrigation District #15.

² The Texas Forest Service data is currently only available through 2015.

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Figure 10-46. Location and Historic Wildfire Events for Hidalgo County Planning Area



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Table 10-1. Historical Wildfire Events Summary

JURISDICTION	NUMBER OF EVENTS	ACRES BURNED
Hidalgo County	650	20,303
City of Alamo	265	285
City of Alton	3	7
City of Donna	6	6
City of Edcouch	0	0
City of Edinburg	179	219
City of Elsa	6	3
City of Granjeno	1	0
City of Hidalgo	0	0
City of La Joya	2	21
City of La Villa	0	0
City of McAllen	10	104
City of Mercedes	3	59
City of Mission	81	749
City of Palmhurst	9	5
City of Palmview	30	2557
City of Peñitas	3	7
City of Pharr	15	30
City of Progreso	7	21
City of San Juan	28	77
City of Sullivan City	0	0

Table 10-2. Acreage of Suppressed Wildfire by Year

JURISDICTION	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Hidalgo County	160	901	340	1,213	4,061	3,656	9,616	128	87	68	73
City of Alamo	27	29	19	21	23	25	34	32	37	17	21
City of Alton	0	7	-	-	-	-	-	-	-	-	0

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JURISDICTION	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
City of Donna	1	-	-	-	-	-	1	1	-	2	1
City of Edcouch	0	-	-	-	-	-	-	-	-	-	0
City of Edinburg	1	23	47	78	45	-	24	1	0	-	0
City of Elsa	2	1	-	-	0	-	-	-	-	-	0
City of Granjeno	0	0	-	-	-	-	-	-	-	-	0
City of Hidalgo	0	-	-	-	-	-	-	-	-	-	0
City of La Joya	0	-	-	-	6	-	15	-	-	-	0
City of La Villa	0	-	-	-	-	-	-	-	-	-	0
City of McAllen	0	3	-	37	35	1	28	-	-	-	0
City of Mercedes	0	1	-	-	-	-	58	-	-	-	0
City of Mission	1	18	0	10	8	455	254	1	2	-	0
City of Palmhurst	0	4	-	1	-	-	-	-	-	-	0
City of Palmview	0	10	-	3	15	2510	18	-	-	-	1
City of Peñitas	0	7	-	-	-	-	-	-	-	-	0
City of Pharr	0	0	-	1	13	1	9	1	1	1	3
City of Progreso	0	0	-	-	-	-	18	-	-	-	0
City of San Juan	6	16	1	21	14	4	13	-	-	1	1
City of Sullivan City	0	-	-	-	-	-	-	-	-	-	0

Based on the list of historical wildfire events for the Hidalgo County planning area (listed above), including all participating jurisdictions, no events have occurred since the 2016 Plan.

PROBABILITY OF FUTURE EVENTS

Wildfires can occur at any time of the year. As the jurisdictions within the county move into wildland, the potential area of occurrence of wildfire increases. With 650 events in an 11-year period, an event within Hidalgo County, including all participating jurisdictions and Santa Cruz Irrigation District #15, is highly likely, meaning an event is probable within the next year.

VULNERABILITY AND IMPACT

Periods of drought, dry conditions, high temperatures, and low humidity are factors that contribute to the occurrence of a wildfire event. Areas along railroads and people whose homes are in woodland settings have an increased risk of being affected by wildfire.

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The heavily populated, urban areas of Hidalgo County are not likely to experience large, sweeping fires. Areas in the unincorporated areas of Hidalgo County are vulnerable, including rural areas. Unoccupied buildings and open spaces that have not been maintained have the greatest vulnerability to wildfire. The overall level of concern for wildfires is located mostly along the perimeter of the study area where wildland and urban areas interface. Figures 10-1 through 10-22 illustrate the areas that are the most vulnerable to wildfire throughout the planning area.

The following critical facilities are located in the WUI and are more susceptible to wildfire in each participating jurisdiction:

Table 10-3. Critical Facilities Located in WUI by Jurisdiction

JURISDICTION	CRITICAL FACILITIES
Hidalgo County	1 Administrative Office, 2 Police Departments
City of Alamo	1 Health System/24-hour ER, 1 Nursing Home, 2 Schools
City of Alton	None
City of Donna	1 Sewer Treatment
City of Edcouch	1 Sewer Treatment
City of Edinburg	1 Airport, 1 AEP, 1 City Hall, 1 Courthouse, 1 County Jail, Juvenile Detentions, 2 Hospitals, 1 Police Department, 3 Schools
City of Elsa	1 Water Plant/Pumping
City of Granjeno	1 City Hall, 1 Public Facility
City of Hidalgo	1 Arena, 1 Bridge, 1 Court House, 1 Health Clinic, 5 Schools
City of La Joya	1 City Hall, 1 Police Department, 1 Shelter, 1 Water Plant, 1 Wastewater Plant
City of La Villa	1 Water/Wastewater Plants, 1 Water Towers
City of McAllen	2 Community Center/Shelters, 1 Fire Department, 1 Public Works/Maintenance Facility, 2 Water Plants
City of Mercedes	None
City of Mission	2 Fire Departments, 1 Hospital, 1 Waste/Water Plant
City of Palmhurst	1 Administrative Building, 1 City Hall, 1 Police Department, 1 Public Works, 1 Power Stations
City of Palmview	1 City Hall, 1 Fire Department, 1 Police Department, 1 School
City of Peñitas	1 Fire Department, 3 Lift Station, 2 Waste/Water Plants
City of Pharr	1 City Hall, 1 Emergency Management Center, 11 Lift Stations, 1 Police Department, 14 Schools, 1 Waste Plant, 1 Water Plant
City of Progreso	None

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JURISDICTION	CRITICAL FACILITIES
City of San Juan	5 Lift Stations, 1 Waste/Water Plant
City of Sullivan City	1 City Hall, 1 Police Department, 1 School, 1 Water Plant
Santa Cruz Irrigation District #15	None

Within Hidalgo County, a total of 650 fire events were reported from 2005 to 2015. All of these events were suspected wildfires. Historic loss and annualized estimates due to wildfires are presented in Table 10-4 below. The frequency is approximately 59 events every year.

Annualized losses are not included for the Santa Cruz Irrigation District #15 as there have not been any events or losses to affect the district separate and apart from historical occurrences for the City of Edinburg.

Table 10-4. Potential Annualized Losses by Jurisdiction³

JURISDICTION	ACRES BURNED	ANNUAL ACRE LOSSES
Hidalgo County	20,303	1,845.7
City of Alamo	285	25.9
City of Alton	7	0.6
City of Donna	6	0.5
City of Edcouch	0	0
City of Edinburg	219	19.9
City of Elsa	3	0.3
City of Granjeno	0	0
City of Hidalgo	0	0
City of La Joya	21	1.9
City of La Villa	0	0
City of McAllen	104	9.5
City of Mercedes	59	5.4
City of Mission	749	68.1
City of Palmhurst	5	0.5
City of Palmview	2,557	232.5

³ Events divided by 11 years of data.

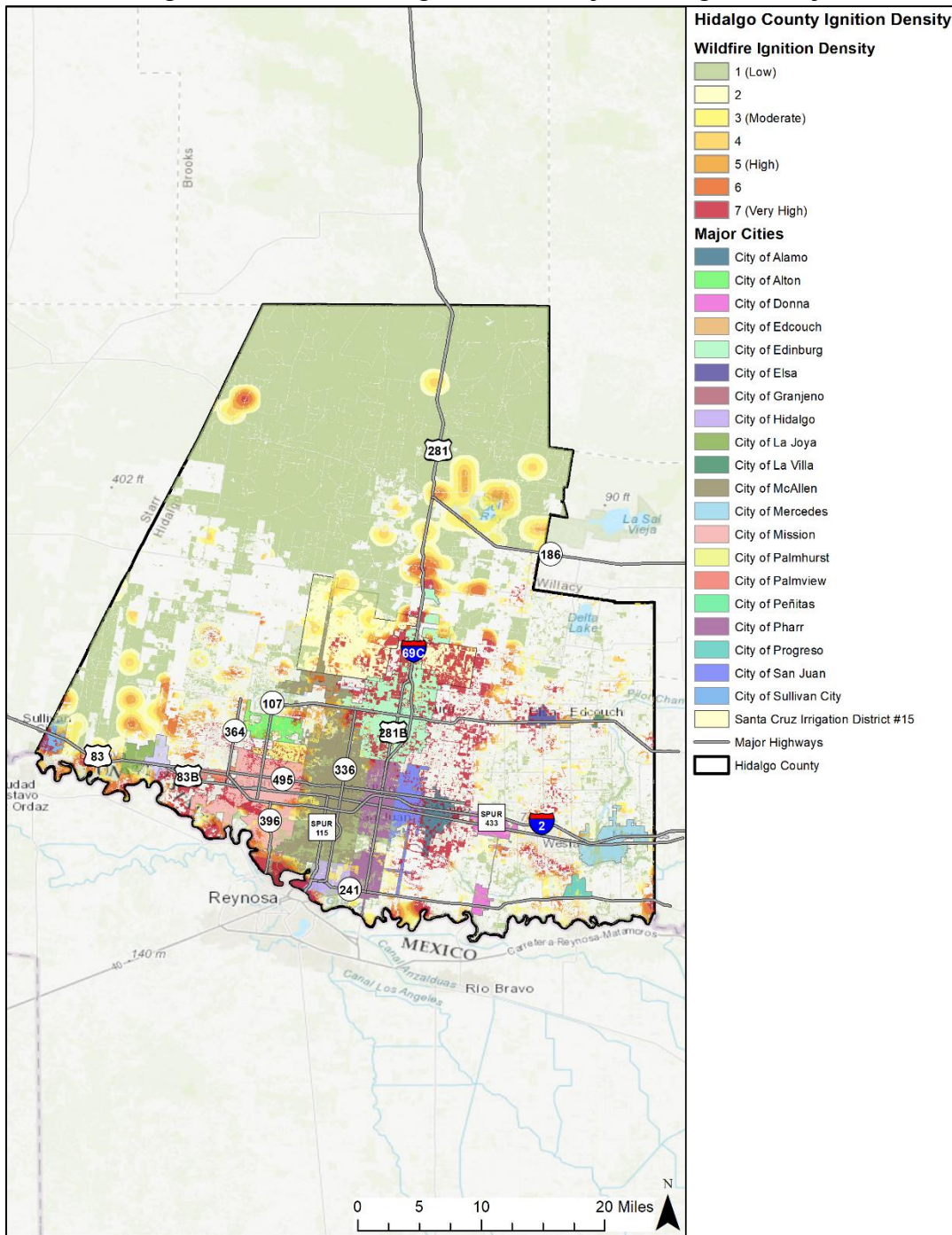
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JURISDICTION	ACRES BURNED	ANNUAL ACRE LOSSES
City of Peñitas	7	0.7
City of Pharr	30	2.7
City of Progreso	21	1.9
City of San Juan	77	7
City of Sullivan City	0	0
Planning Area	24,506	2,227.8

Figures 10-47 through 10-68 show Hidalgo County and the threat of wildfire to the County and all participating jurisdictions and Santa Cruz Irrigation District #15.

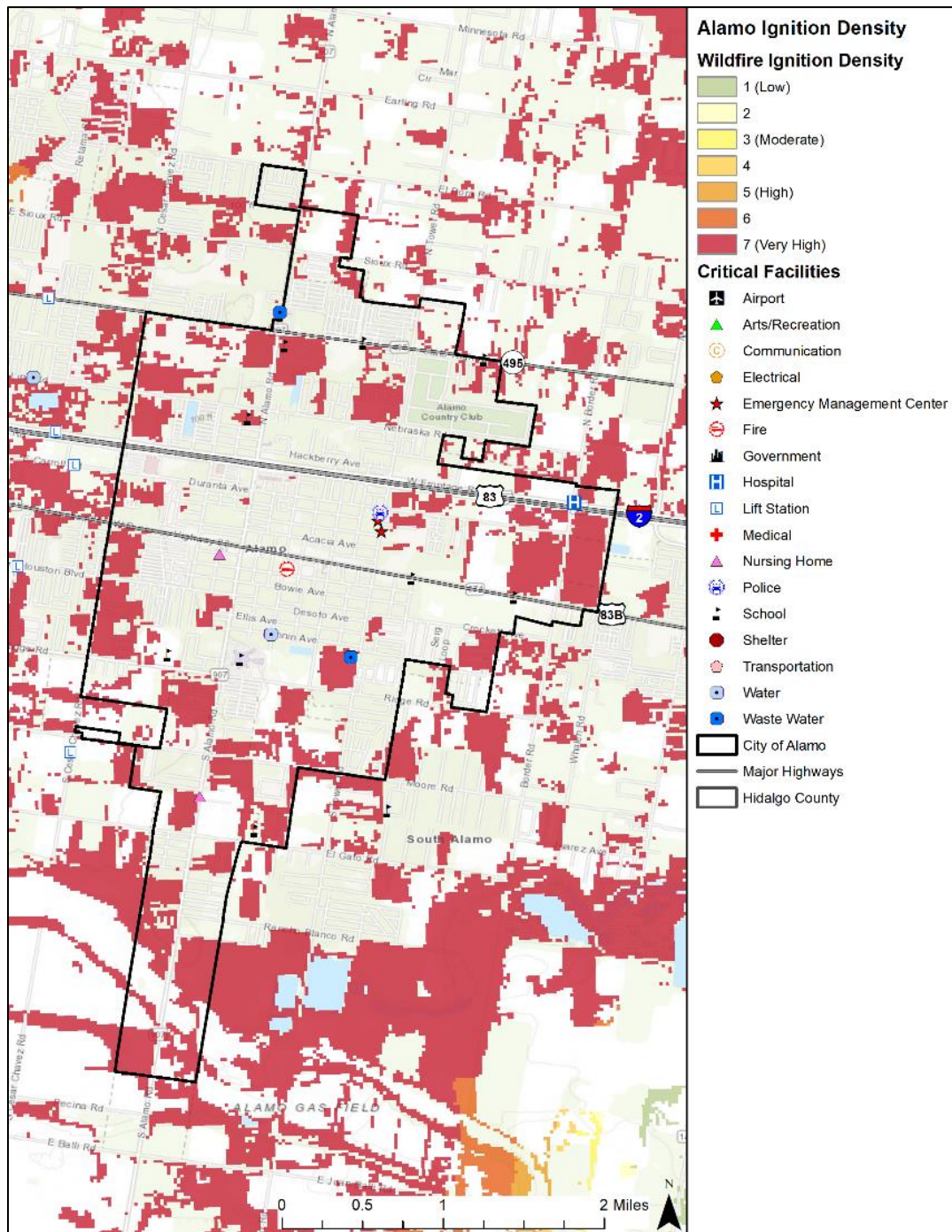
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Figure 10-47. Wildfire Ignition Density – Hidalgo County



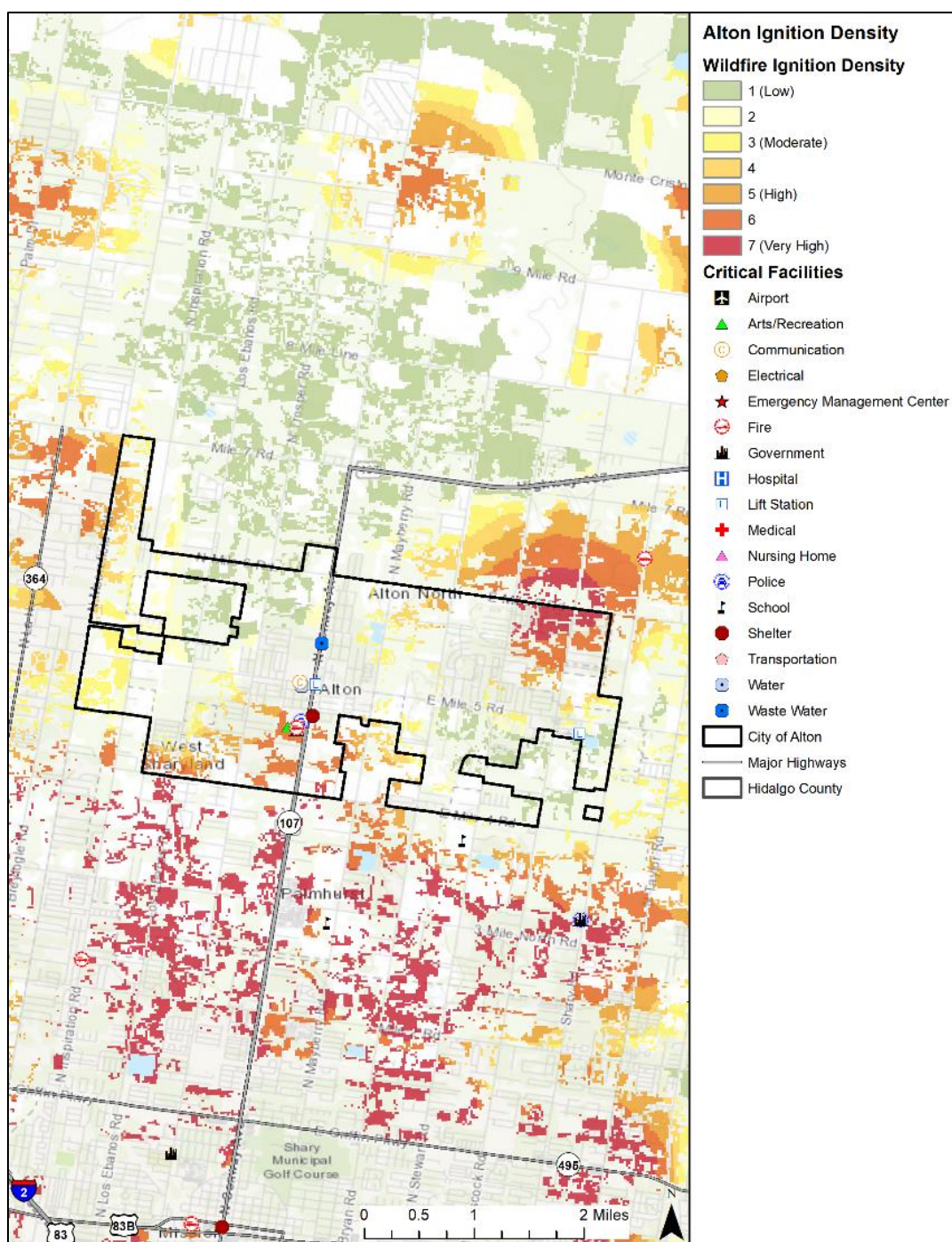
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Figure 10-48. Wildfire Ignition Density – City of Alamo



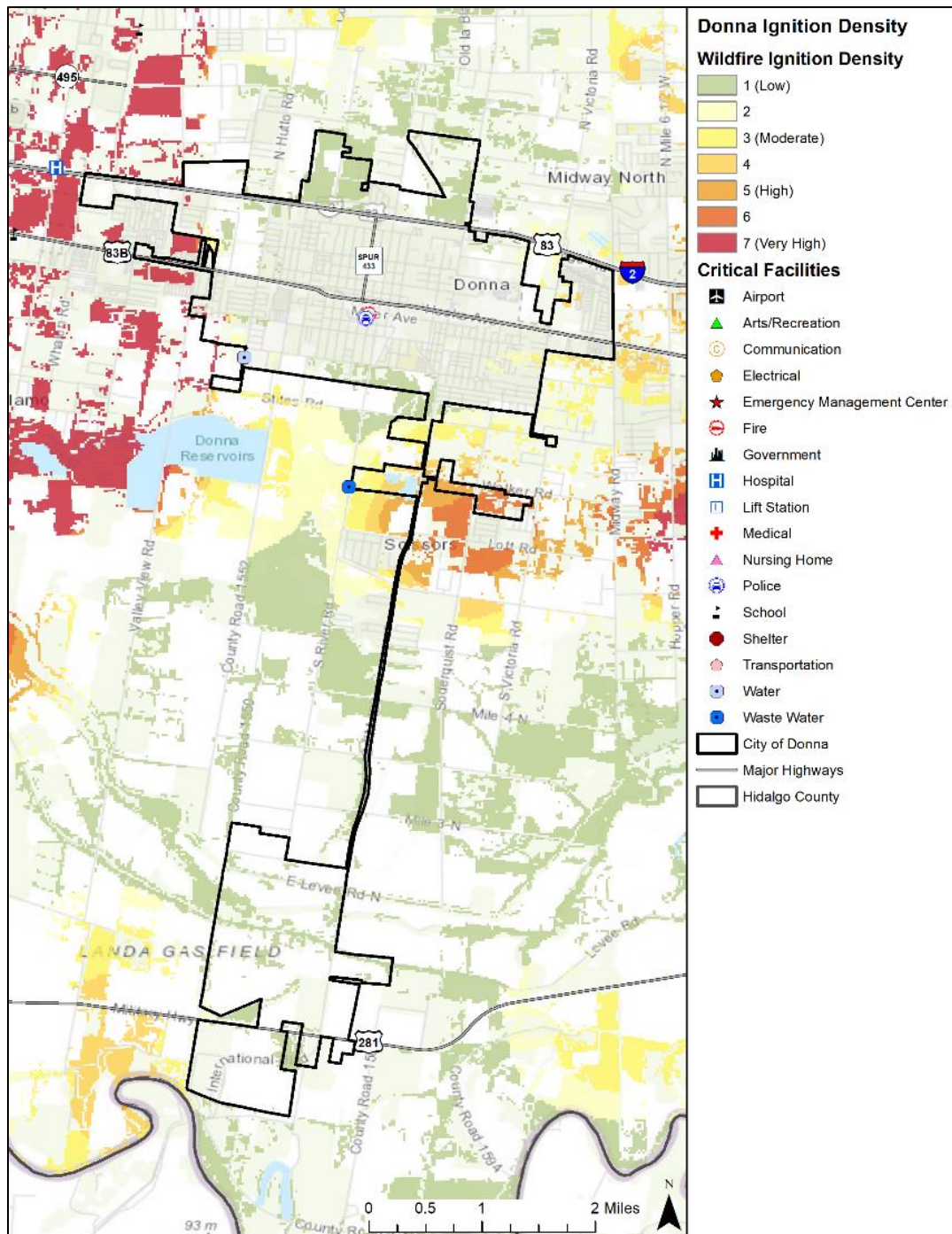
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Figure 10-49. Wildfire Ignition Density – City of Alton



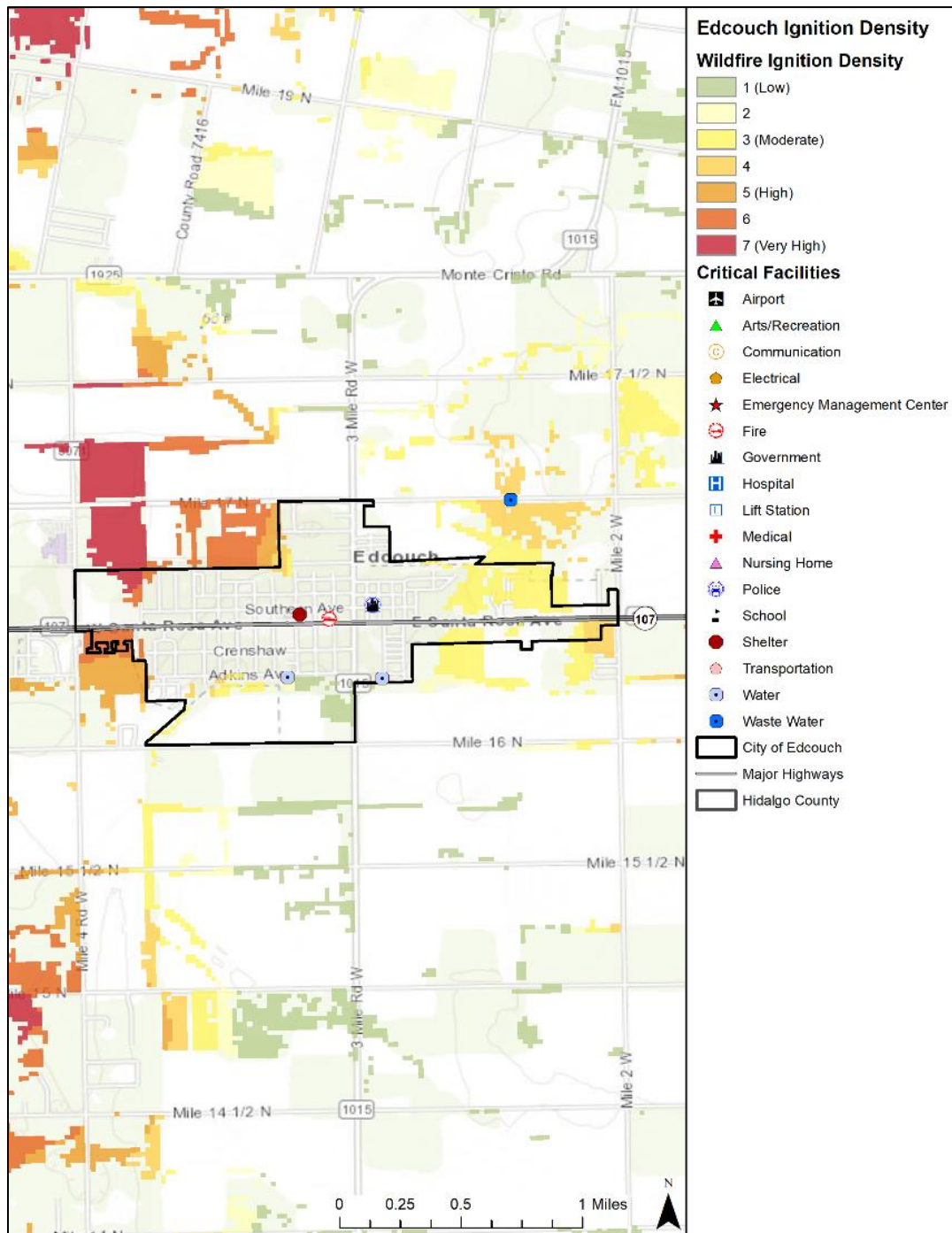
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Figure 10-50. Wildfire Ignition Density – City of Donna



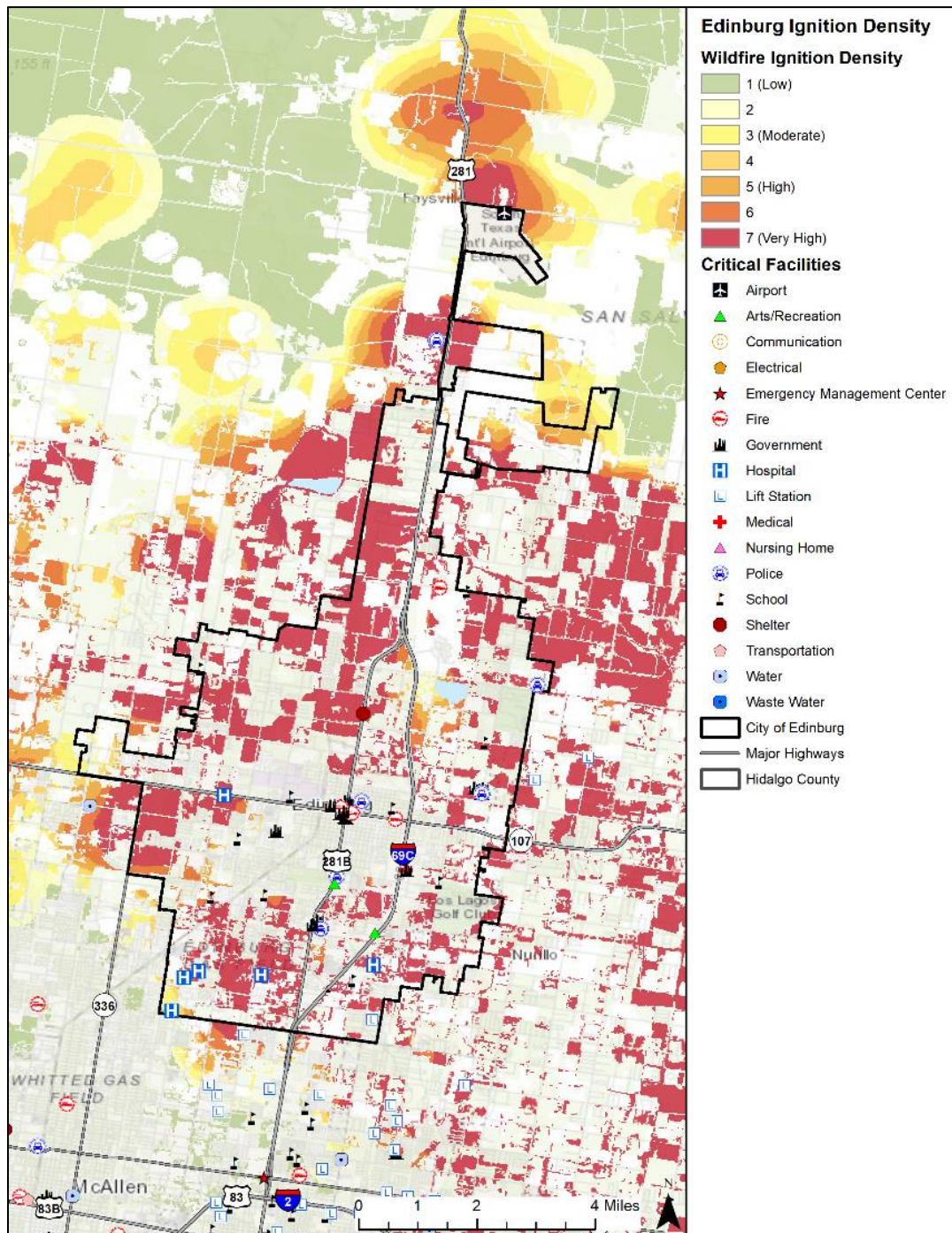
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Figure 10-51. Wildfire Ignition Density – City of Edcouch



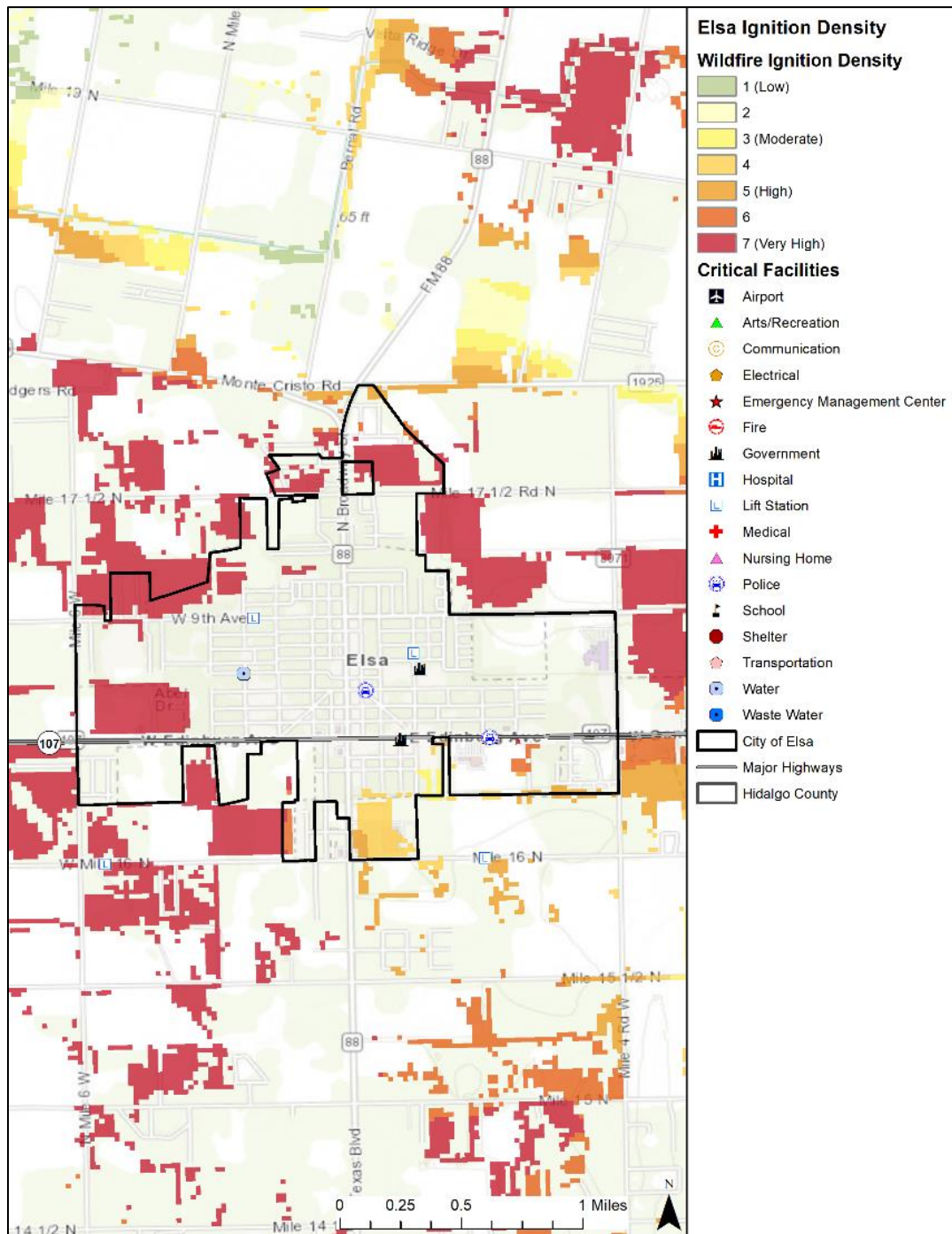
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Figure 10-52. Wildfire Ignition Density – City of Edinburg



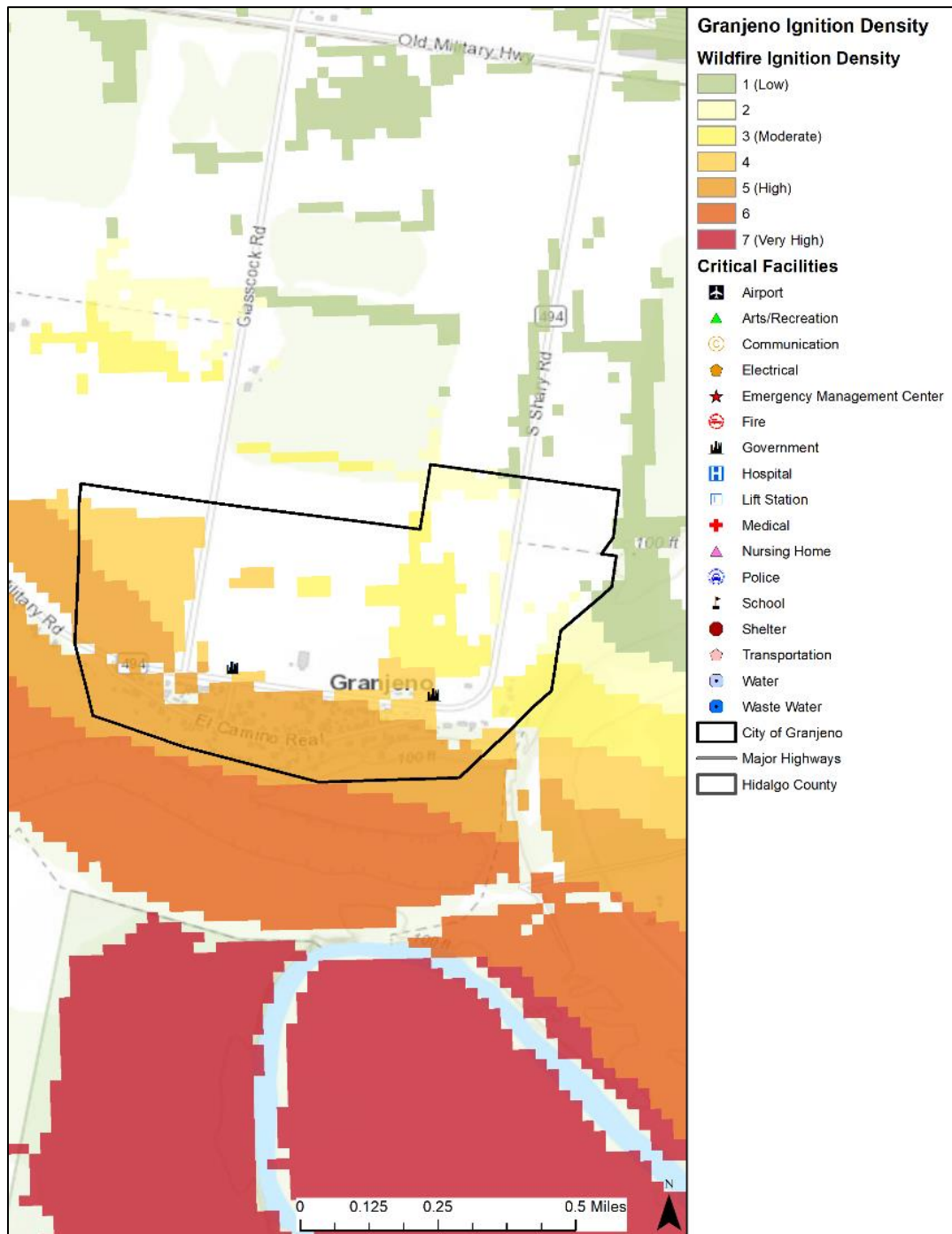
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Figure 10-53. Wildfire Ignition Density – City of Elsa



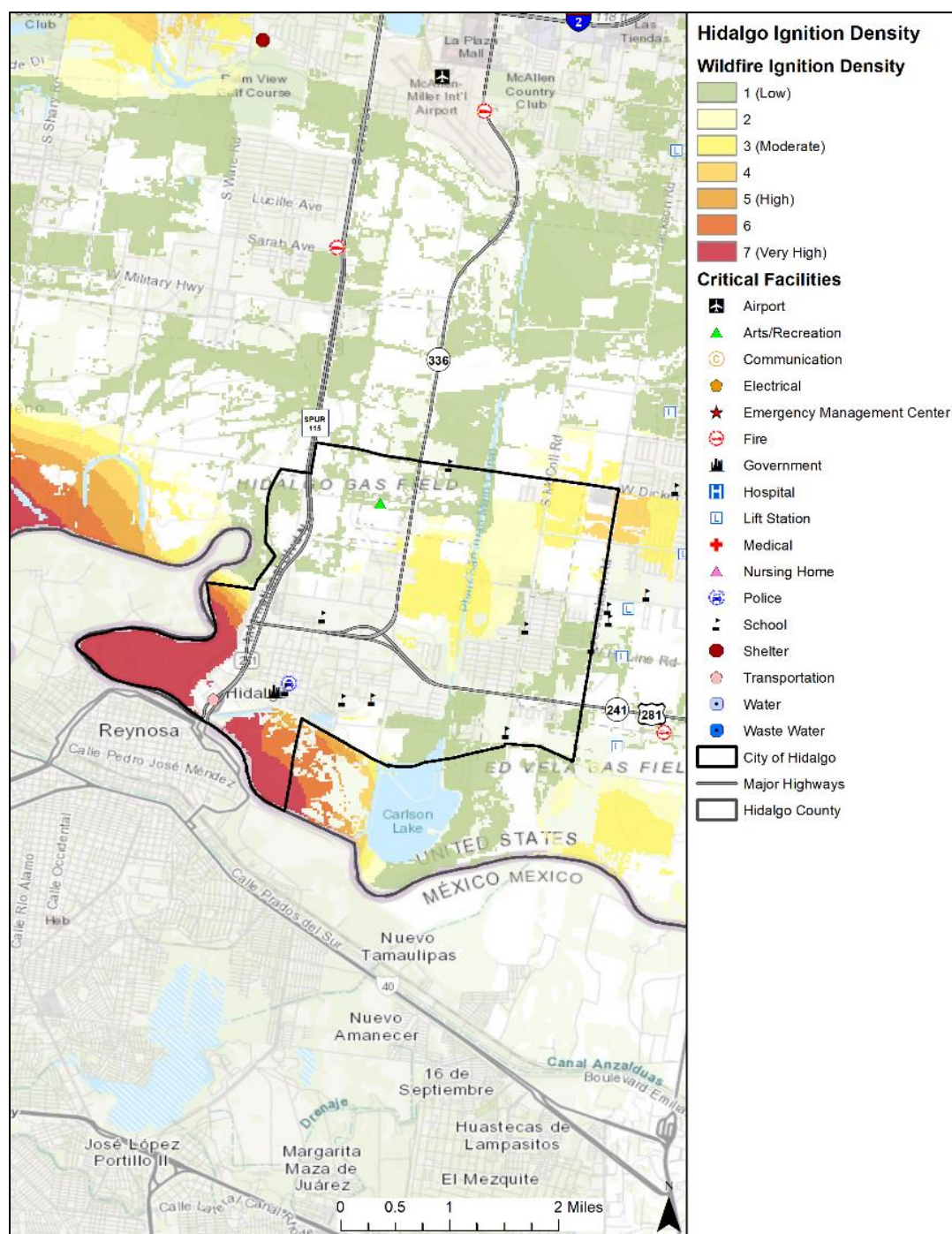
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Figure 10-54. Wildfire Ignition Density – City of Granjeno



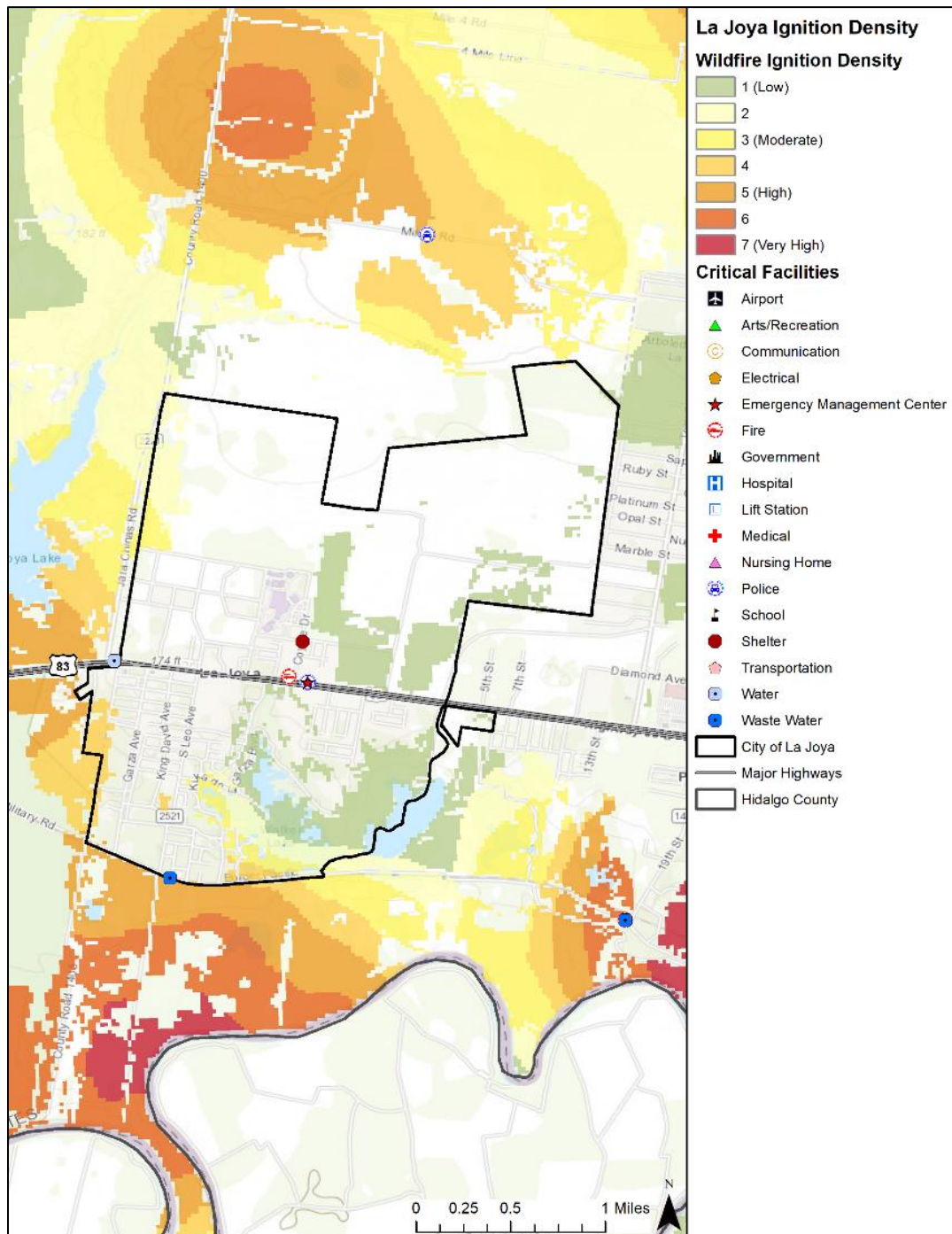
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Figure 10-55. Wildfire Ignition Density – City of Hidalgo



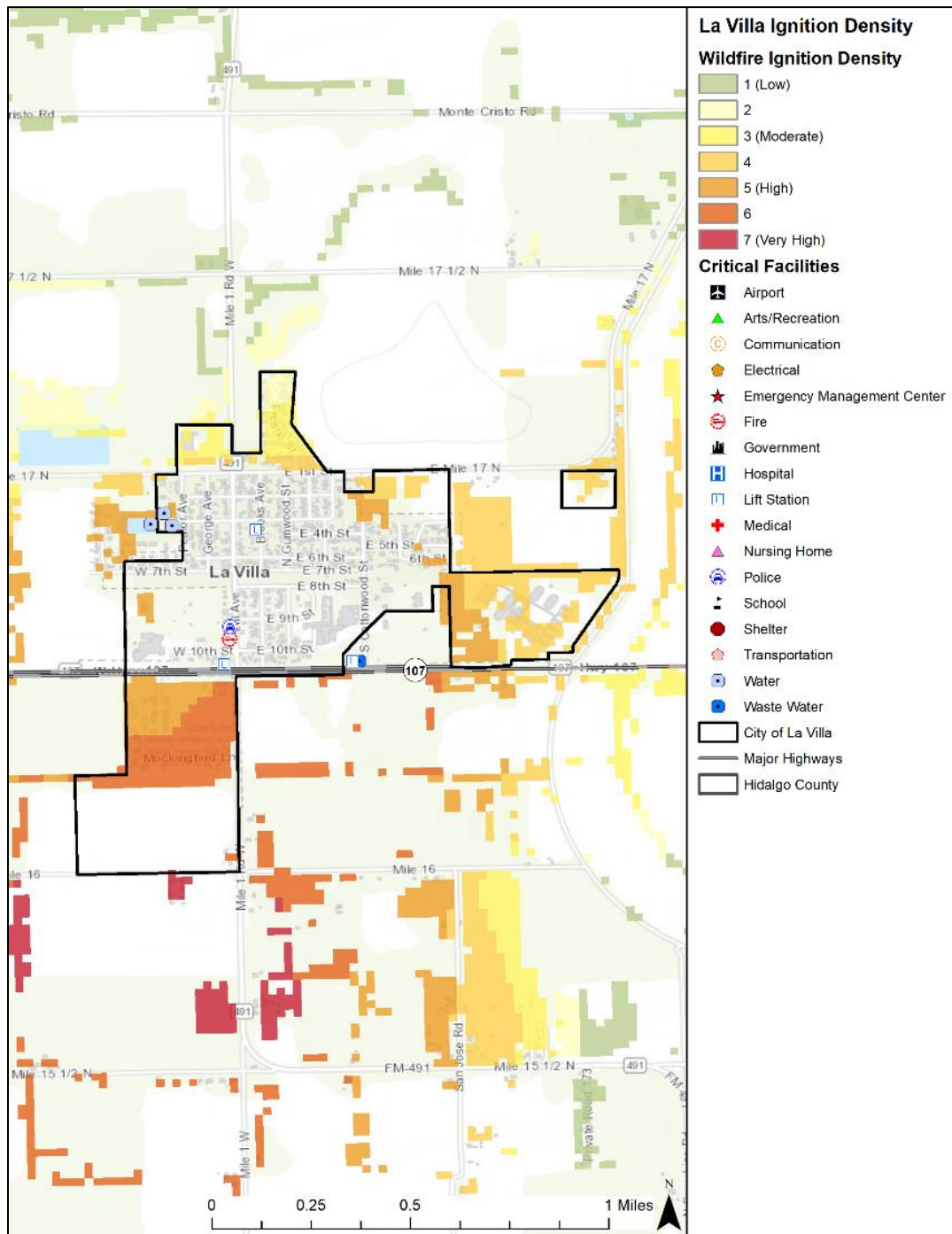
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Figure 10-56. Wildfire Ignition Density – City of La Joya



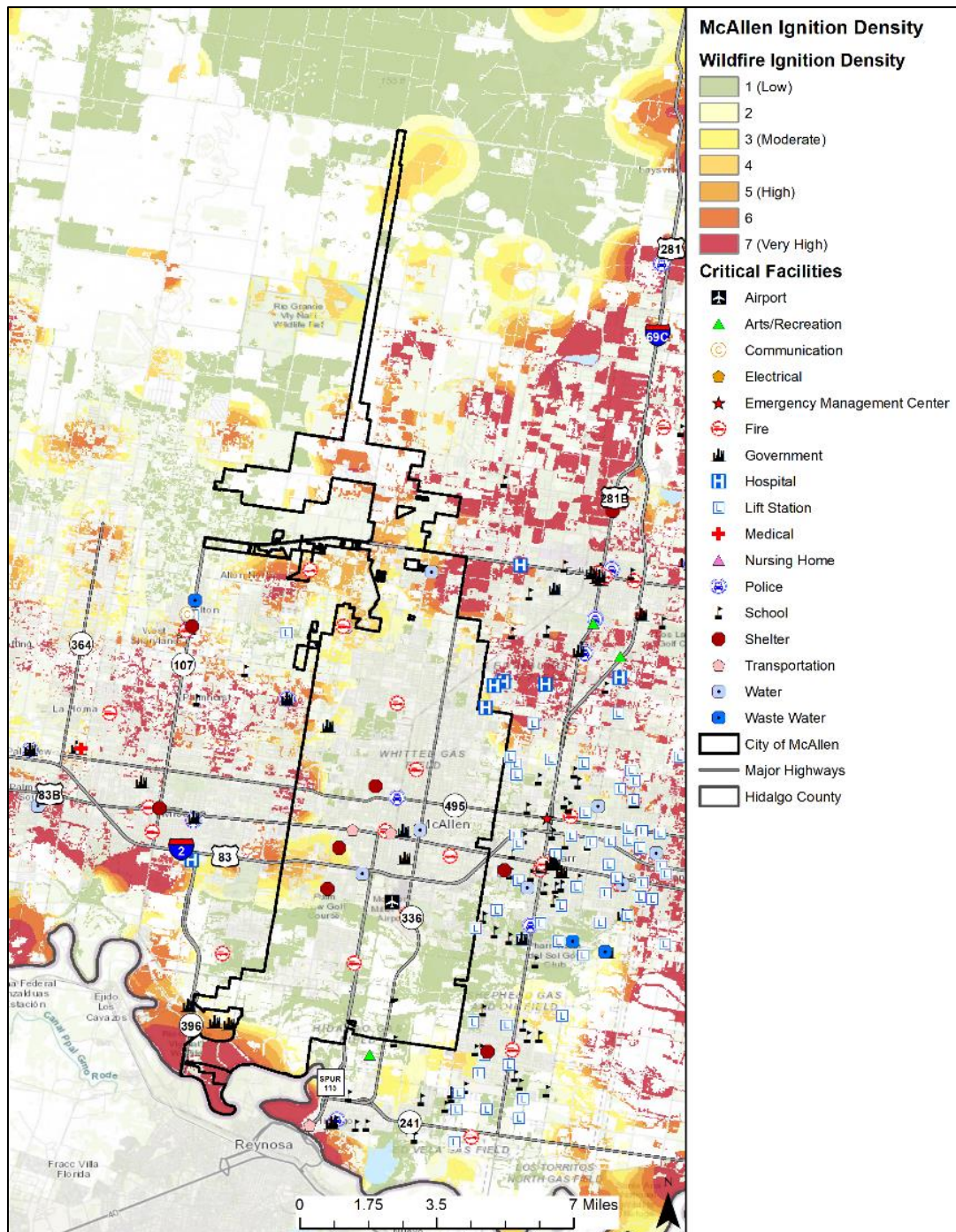
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Figure 10-57. Wildfire Ignition Density – City of La Villa



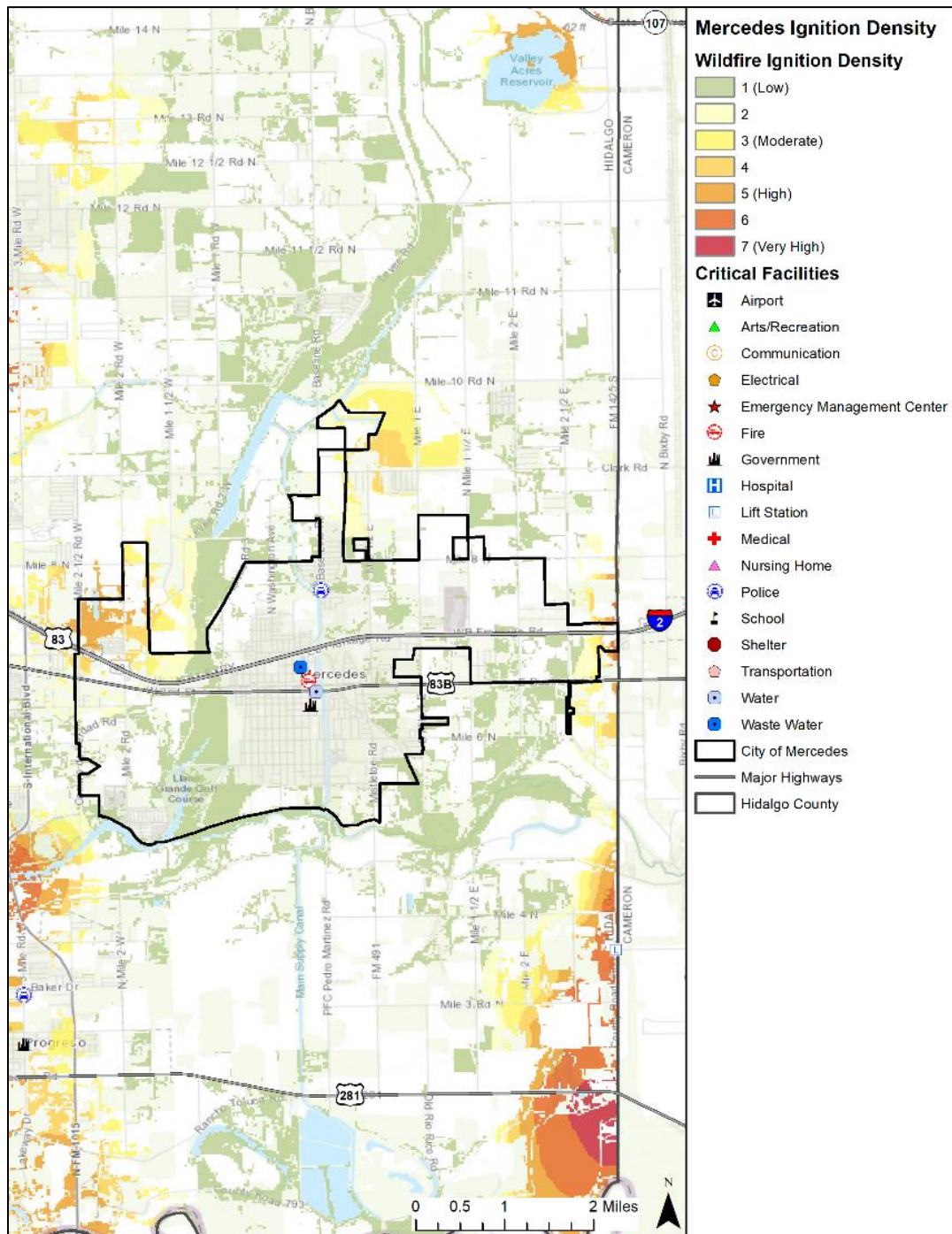
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Figure 10-58. Wildfire Ignition Density – City of McAllen



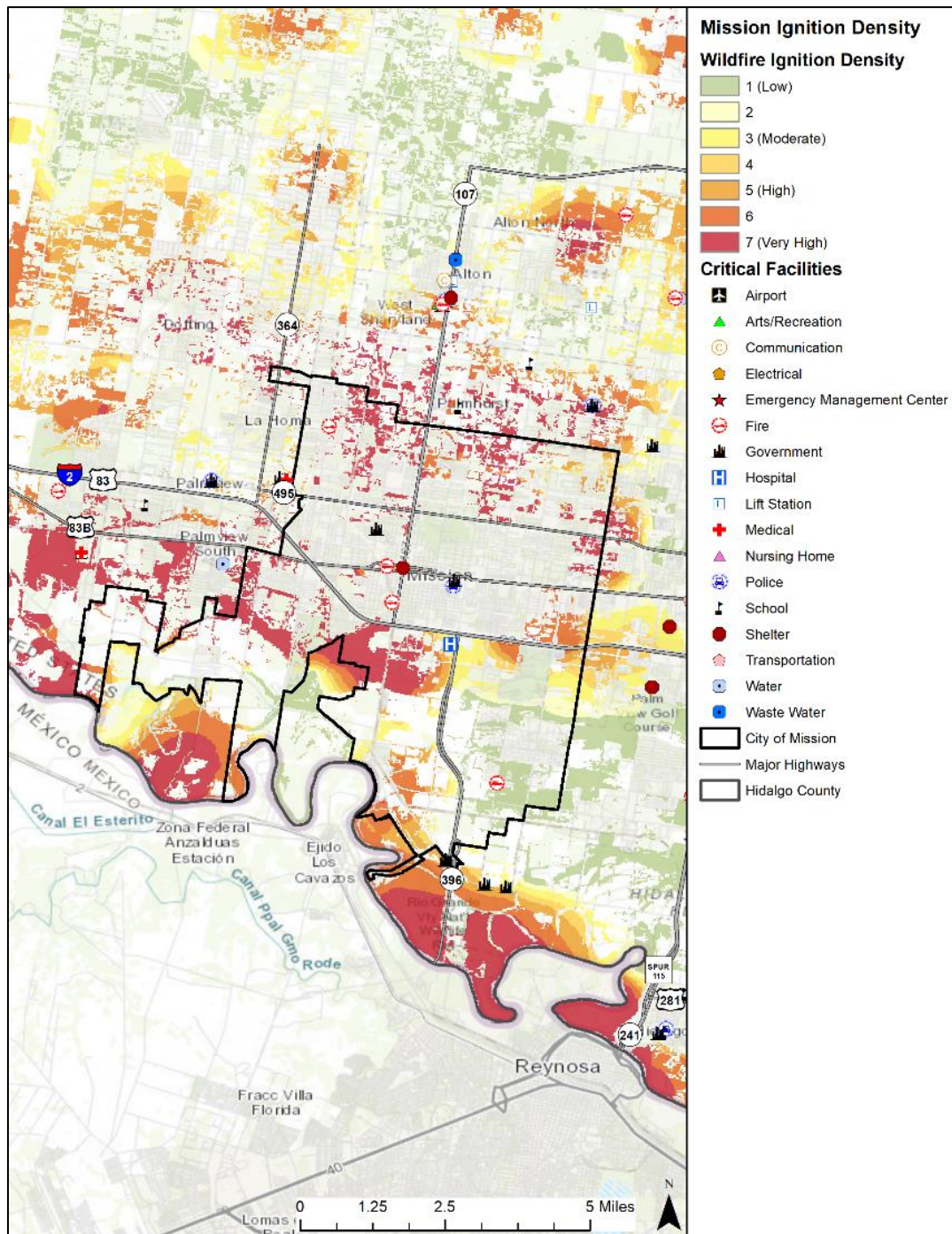
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Figure 10-59. Wildfire Ignition Density – City of Merced



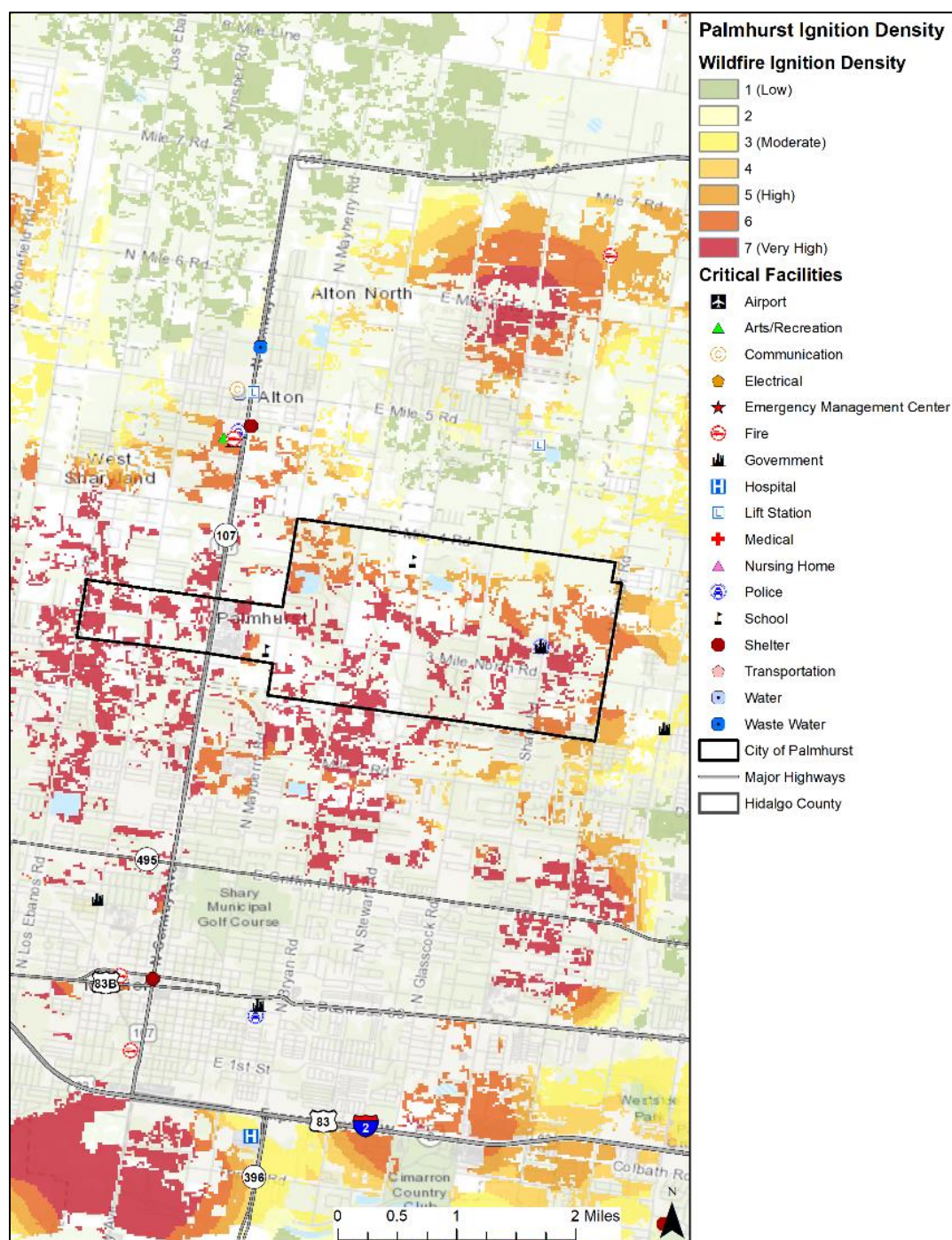
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Figure 10-60. Wildfire Ignition Density – City of Mission



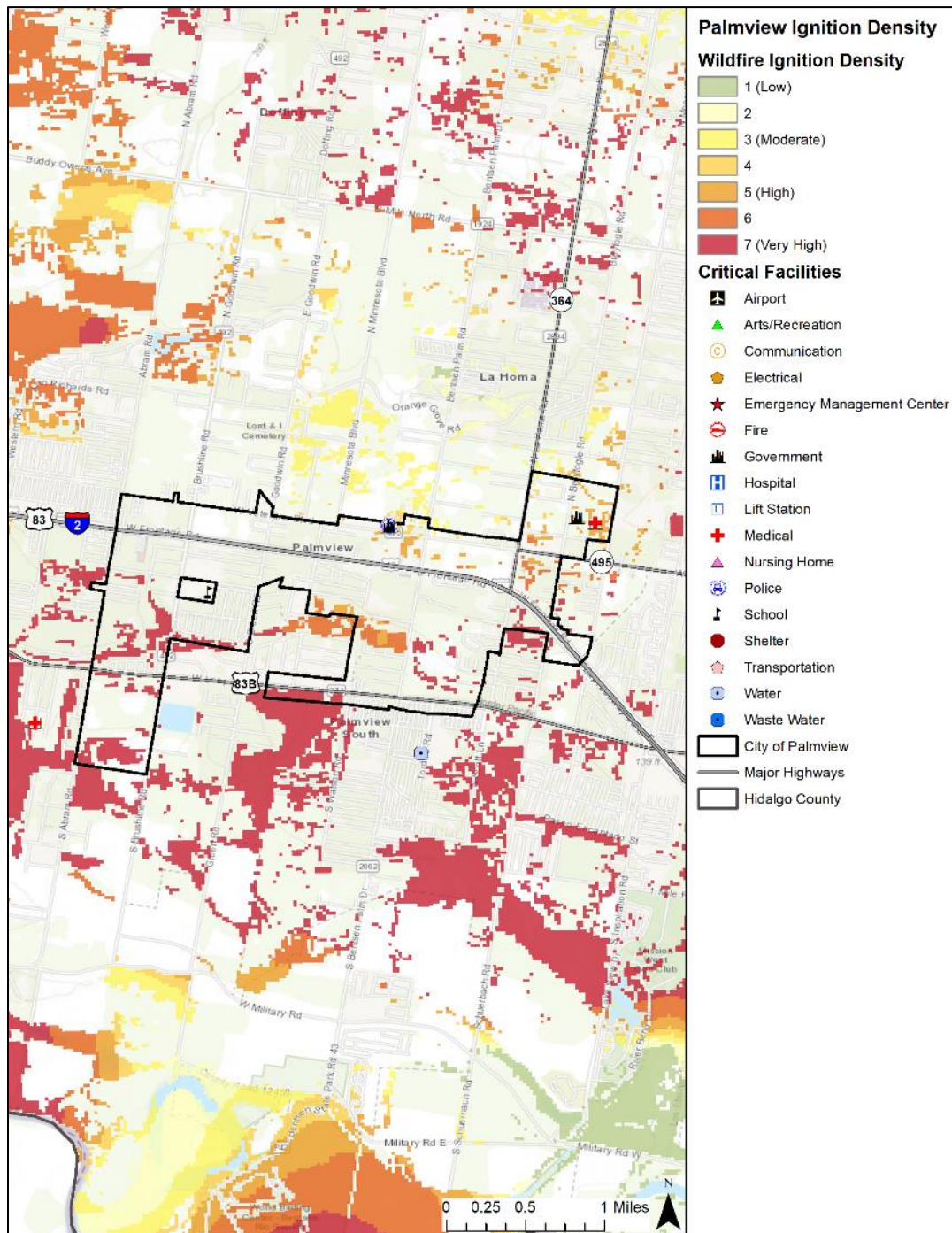
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Figure 10-61. Wildfire Ignition Density – City of Palmhurst



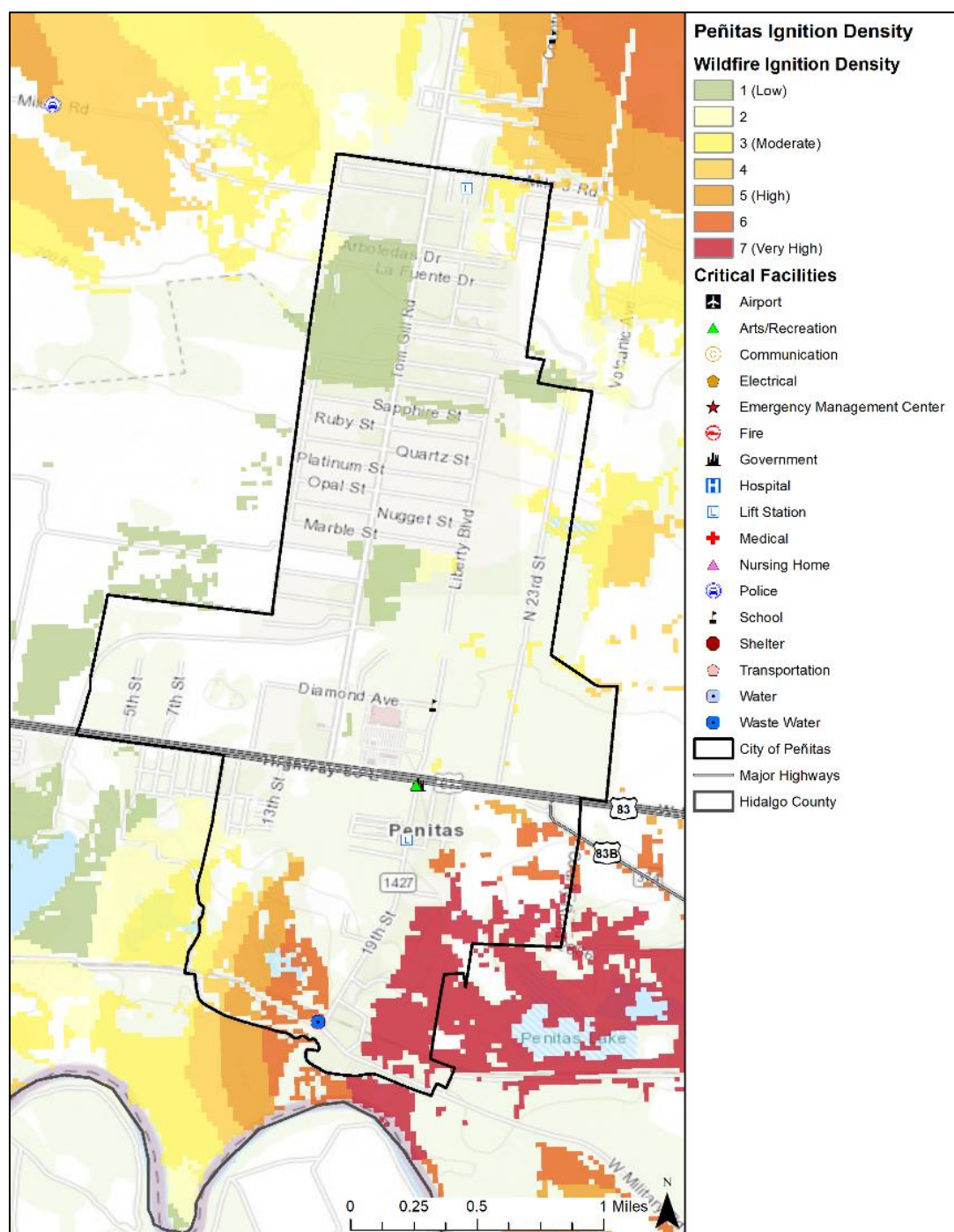
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Figure 10-62. Wildfire Ignition Density – City of Palmview



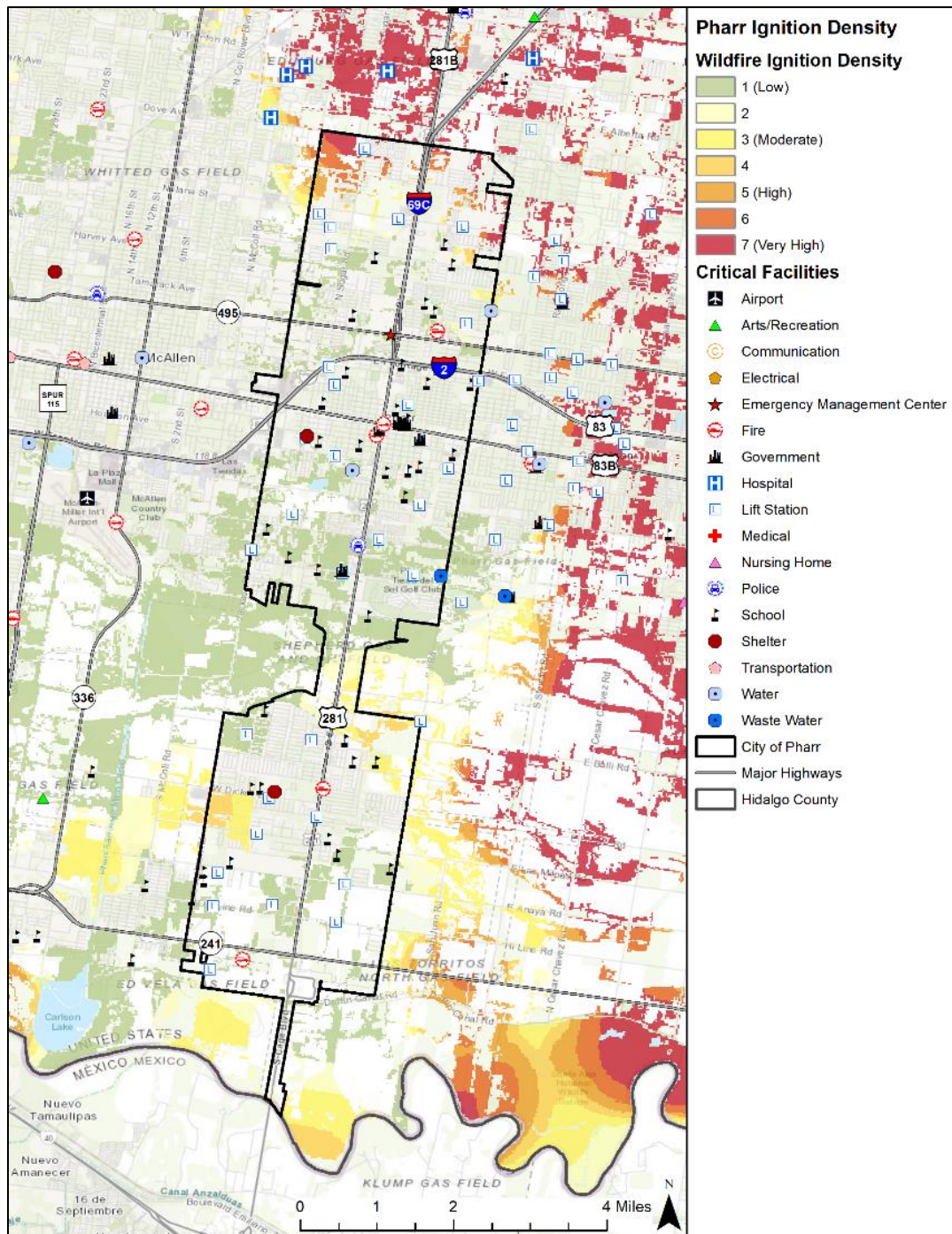
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Figure 10-63. Wildfire Ignition Density – City of Peñitas



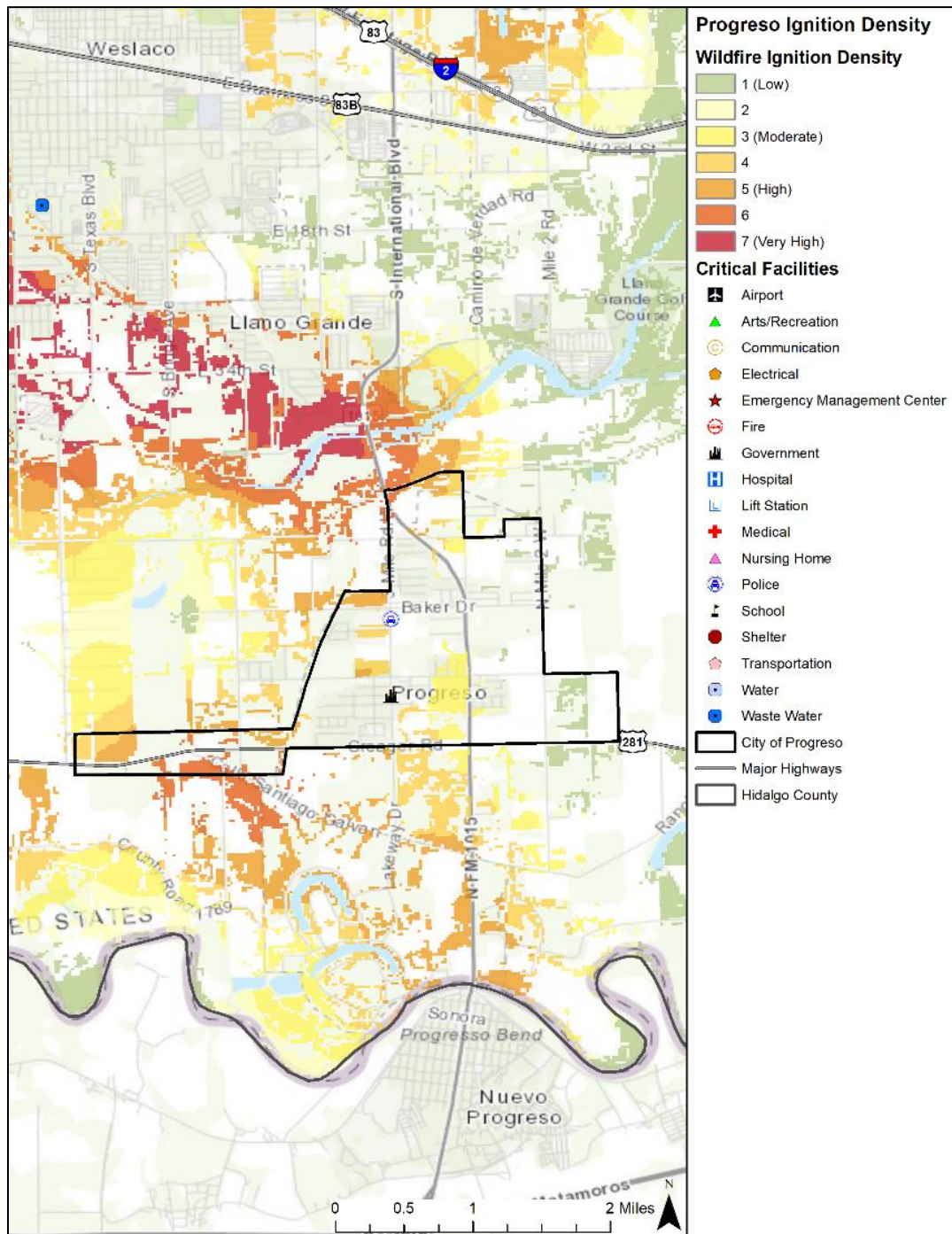
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Figure 10-64. Wildfire Ignition Density – City of Pharr



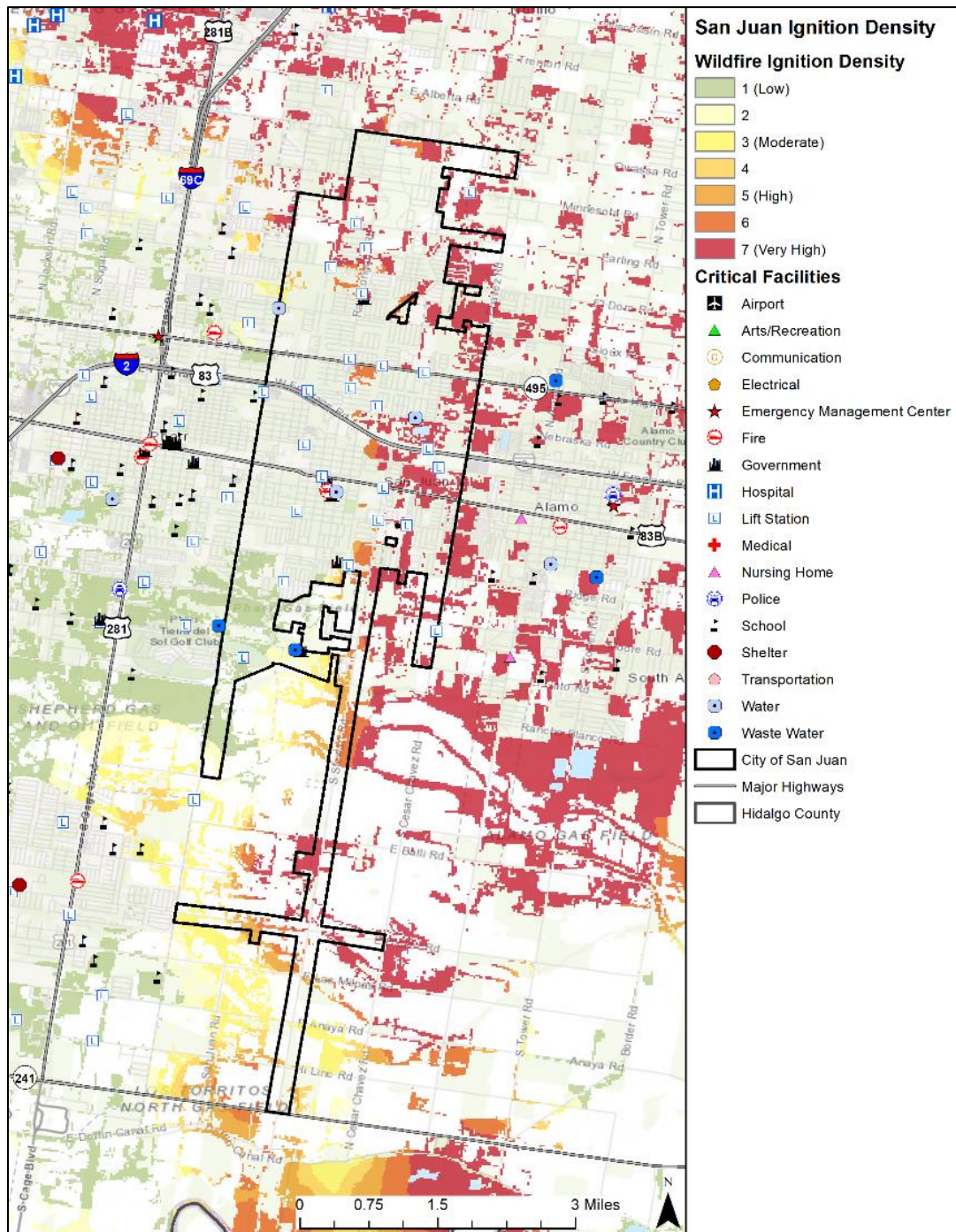
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Figure 10-65. Wildfire Ignition Density – City of Progreso



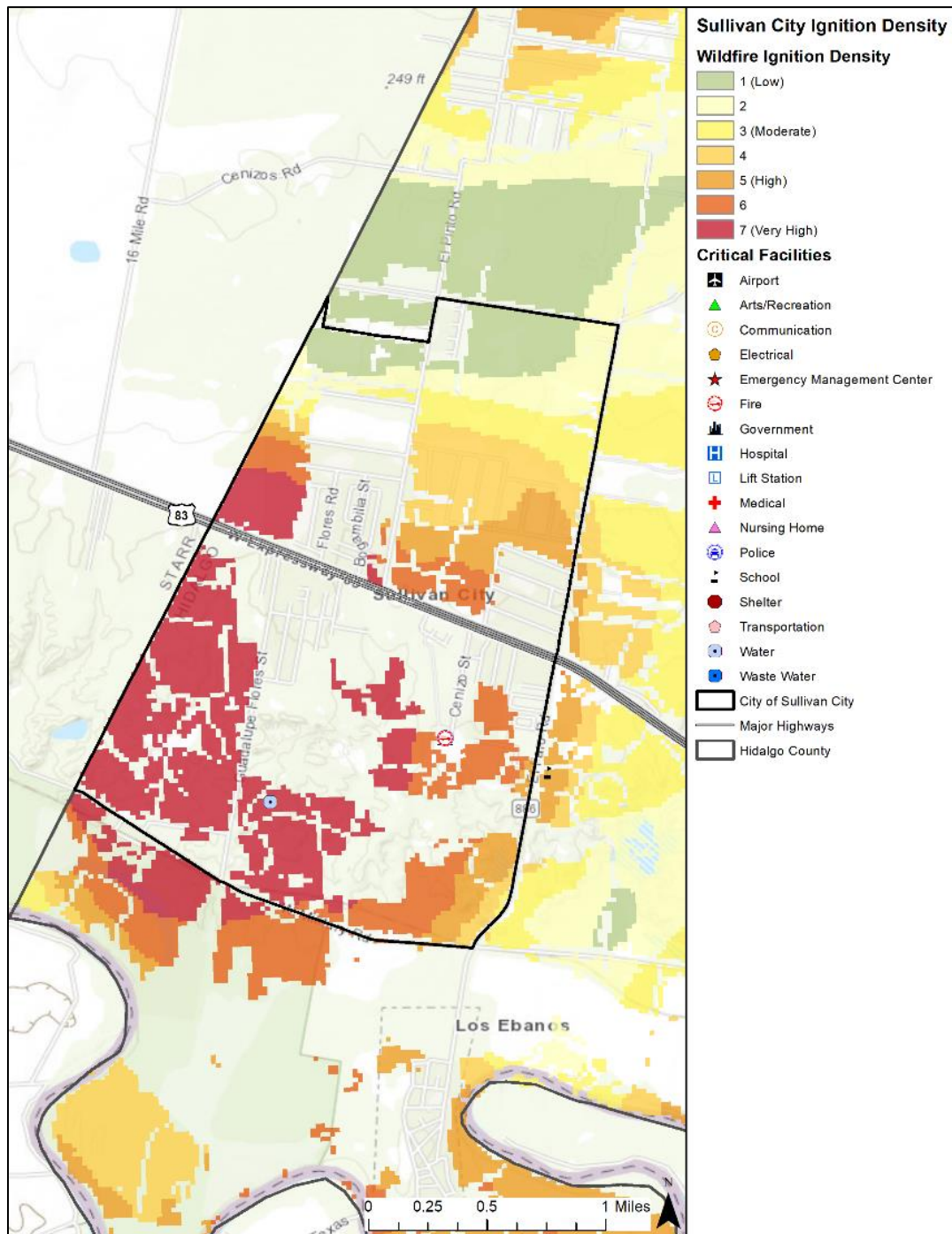
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Figure 10-66. Wildfire Ignition Density – City of San Juan



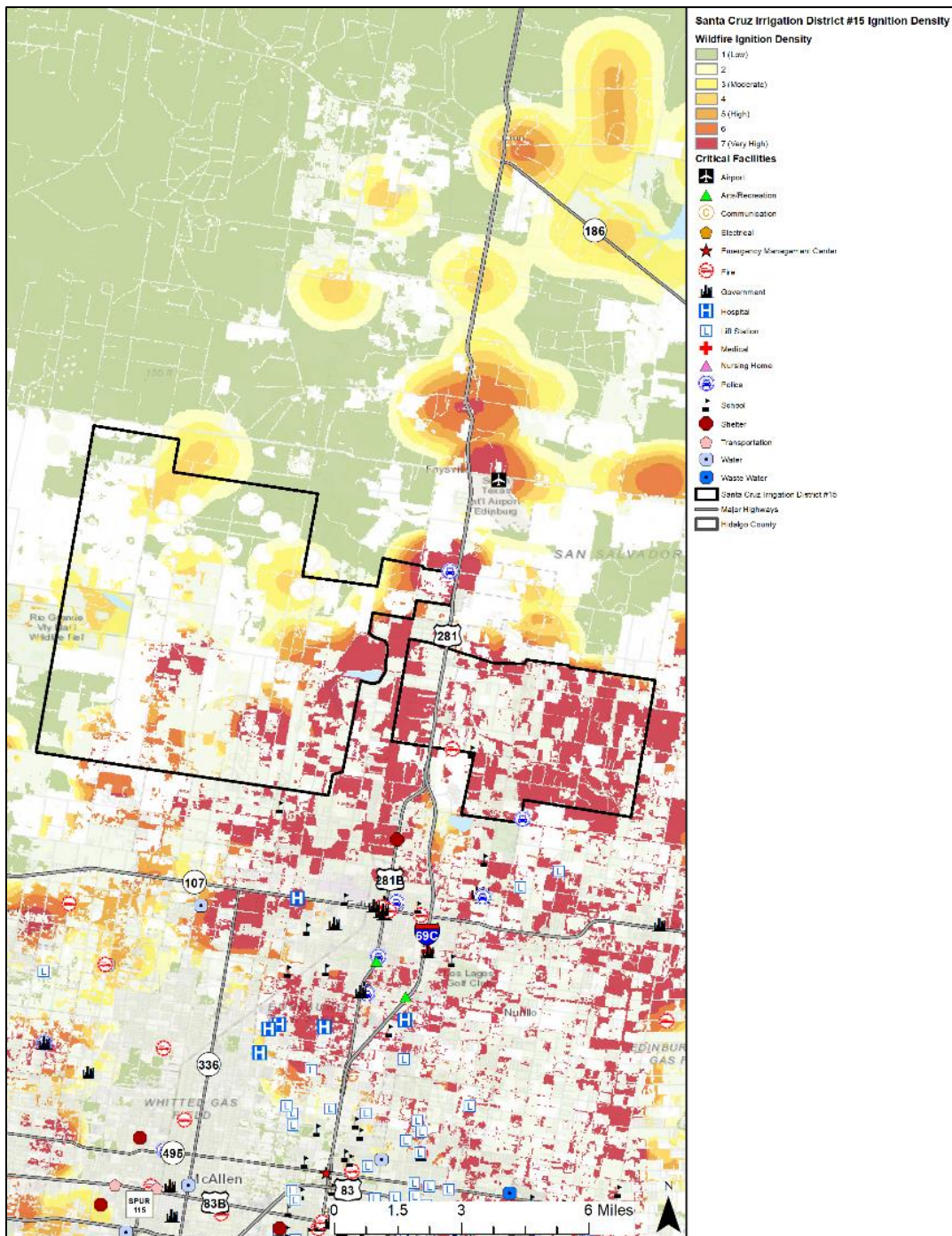
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Figure 10-67. Wildfire Ignition Density – City of Sullivan City



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Figure 10-68. Wildfire Ignition Density – Santa Cruz Irrigation District #15



Diminished air quality is an environmental impact that can result from a wildfire event and pose a potential health risk. The smoke plumes from wildfires can contain potentially inhalable carcinogenic matter. Fine particles of invisible soot and ash that are too small for the respiratory system to filter can cause immediate and possibly long-term health effects. The elderly or those individuals with compromised respiratory systems may be more vulnerable to the effects of diminished air quality after a wildfire event.

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Climatic conditions such as severe freezes and drought can significantly increase the intensity of wildfires since these conditions kill vegetation, creating a prime fuel source for wildfires. The intensity and rate at which wildfires spread are directly related to wind speed, temperature, and relative humidity.

The severity of impact from major wildfire events can be substantial. Such events can cause multiple deaths, shut down facilities for 30 days or more, and cause more than 50 percent of affected properties to be destroyed or suffer major damage. Severity of impact is gauged by acreage burned, homes and structures lost, and the number of resulting injuries and fatalities.

For the Hidalgo County planning area, the impact from a wildfire event can be considered "Limited," meaning injuries and/or illnesses are treatable with first aid, shutdown of facilities and services for 24 hours or less, and less than 10 percent of property is destroyed or with major damage. Severity of impact is gauged by acreage burned, homes and structures lost, injuries and fatalities. Based on this, impact for each participating jurisdiction is listed below in Table 10-5.

Table 10-5. Impact by Jurisdiction

JURISDICTION	IMPACT	DESCRIPTION
Hidalgo County	Limited	Hidalgo County has an estimated 212,748 people or 24.9 percent of the total population that live within the Wildland Urban Interface (WUI). Hidalgo County, including citizens in unincorporated areas, may suffer minor injuries that can be treated with first aid. Critical facilities could be shut down for 24 hours or less, and less than 10 percent of total property could be damaged.
City of Alamo	Limited	The largest population in the City of Alamo live in an area that is semi-dense (1-3 houses per 1 acre) in the WUI, and the city has a low wildfire threat. Citizens may suffer minor injuries treatable with first aid. Critical facilities could be shut down for 24 hours or less, and less than 10 percent of total property could be damaged.
City of Alton	Limited	The largest population in the City of Alton live in an area that is semi-dense (1-3 houses per 1 acre) in the WUI, and the city has a low wildfire threat. Citizens may suffer minor injuries treatable with first aid. Critical facilities could be shut down for 24 hours or less, and less than 10 percent of total property could be damaged.

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JURISDICTION	IMPACT	DESCRIPTION
City of Donna	Limited	The largest population in the City of Donna live in an area that is semi-dense (1-3 houses per 1 acre) in the WUI, and the city has a low wildfire threat. Citizens may suffer minor injuries treatable with first aid. Critical facilities could be shut down for 24 hours of less, and less than 10 percent of total property could be damaged
City of Edcouch	Limited	The largest population in the City of Edcouch live in an area that is semi-dense (1-3 houses per 1 acre) in the WUI, and the city has a low wildfire threat. Citizens may suffer minor injuries treatable with first aid. Critical facilities could be shut down for 24 hours of less, and less than 10 percent of total property could be damaged
City of Edinburg	Limited	The largest population in the City of Edinburg live in an area that is semi-dense (1-3 houses per 1 acre) in the WUI, and the city has a low wildfire threat. Citizens may suffer minor injuries treatable with first aid. Critical facilities could be shut down for 24 hours of less, and less than 10 percent of total property could be damaged
City of Elsa	Limited	The largest population in the City of Elsa live in an area that is semi-dense (1-3 houses per 1 acre) in the WUI, and the city has a low wildfire threat. Citizens may suffer minor injuries treatable with first aid. Critical facilities could be shut down for 24 hours of less, and less than 10 percent of total property could be damaged
City of Granjeno	Limited	The largest population in the City of Granjeno live in an area that is semi-dense (1-3 houses per 1 acre) in the WUI, and the city has a low wildfire threat. Citizens may suffer minor injuries treatable with first aid. Critical facilities could be shut down for 24 hours of less, and less than 10 percent of total property could be damaged

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JURISDICTION	IMPACT	DESCRIPTION
City of Hidalgo	Limited	The largest population in the City of Hidalgo live in an area that is semi-dense (1-3 houses per 1 acre) in the WUI, and the city has a low wildfire threat. Citizens may suffer minor injuries treatable with first aid. Critical facilities could be shut down for 24 hours of less, and less than 10 percent of total property could be damaged
City of La Joya	Limited	The largest population in the City of La Joya live in an area that is semi-dense (1-3 houses per 1 acre) in the WUI, and the city has a low wildfire threat. Citizens may suffer minor injuries treatable with first aid. Critical facilities could be shut down for 24 hours of less, and less than 10 percent of total property could be damaged
City of La Villa	Limited	The largest population in the City of La Villa live in an area that is semi-dense (1-3 houses per 1 acre) in the WUI, and the city has a low wildfire threat. Citizens may suffer minor injuries treatable with first aid. Critical facilities could be shut down for 24 hours of less, and less than 10 percent of total property could be damaged
City of McAllen	Limited	The largest population in the City of McAllen live in an area that is semi-dense (1-3 houses per 1 acre) in the WUI, and the city has a low wildfire threat. Citizens may suffer minor injuries treatable with first aid. Critical facilities could be shut down for 24 hours of less, and less than 10 percent of total property could be damaged
City of Mercedes	Limited	The largest population in the City of Mercedes live in an area that is semi-dense (1-3 houses per 1 acre) in the WUI, and the city has a low wildfire threat. Citizens may suffer minor injuries treatable with first aid. Critical facilities could be shut down for 24 hours of less, and less than 10 percent of total property could be damaged

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JURISDICTION	IMPACT	DESCRIPTION
City of Mission	Limited	The largest population in the City of Mission live in an area that is semi-dense (1-3 houses per 1 acre) in the WUI, and the city has a low wildfire threat. Citizens may suffer minor injuries treatable with first aid. Critical facilities could be shut down for 24 hours of less, and less than 10 percent of total property could be damaged
City of Palmhurst	Limited	The largest population in the City of Palmhurst live in an area that is semi-dense (1-3 houses per 1 acre) in the WUI, and the city has a low wildfire threat. Citizens may suffer minor injuries treatable with first aid. Critical facilities could be shut down for 24 hours of less, and less than 10 percent of total property could be damaged
City of Palmview	Limited	The largest population in the City of Palmview live in an area that is semi-dense (1-3 houses per 1 acre) in the WUI, and the city has a low wildfire threat. Citizens may suffer minor injuries treatable with first aid. Critical facilities could be shut down for 24 hours of less, and less than 10 percent of total property could be damaged
City of Peñitas	Limited	The largest population in the City of Peñitas live in an area that is semi-dense (1-3 houses per 1 acre) in the WUI, and the city has a low wildfire threat. Citizens may suffer minor injuries treatable with first aid. Critical facilities could be shut down for 24 hours of less, and less than 10 percent of total property could be damaged
City of Pharr	Limited	The largest population in the City of Pharr live in an area that is semi-dense (1-3 houses per 1 acre) in the WUI, and the city has a low wildfire threat. Citizens may suffer minor injuries treatable with first aid. Critical facilities could be shut down for 24 hours of less, and less than 10 percent of total property could be damaged

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JURISDICTION	IMPACT	DESCRIPTION
City of Progreso	Limited	The largest population in the City of Progreso live in an area that is semi-dense (1-3 houses per 1 acre) in the WUI, and the city has a low wildfire threat. Citizens may suffer minor injuries treatable with first aid. Critical facilities could be shut down for 24 hours of less, and less than 10 percent of total property could be damaged
City of San Juan	Limited	The largest population in the City of San Juan live in an area that is semi-dense (1-3 houses per 1 acre) in the WUI, and the city has a low wildfire threat. Citizens may suffer minor injuries treatable with first aid. Critical facilities could be shut down for 24 hours of less, and less than 10 percent of total property could be damaged
City of Sullivan City	Limited	The largest population in the City of Sullivan live in an area that is semi-dense (1-3 houses per 1 acre) in the WUI, and the city has a low wildfire threat. Citizens may suffer minor injuries treatable with first aid. Critical facilities could be shut down for 24 hours of less, and less than 10 percent of total property could be damaged
Santa Cruz Irrigation District #15	Limited	The largest population in the Irrigation District lives in an area that is semi-dense (1-3 houses per 1 acre) in the WUI, and the district has a low wildfire threat. Citizens may suffer minor injuries treatable with first aid. Critical facilities could be shut down for 24 hours of less, and less than 10 percent of total property could be damaged

ASSESSMENT OF IMPACTS

A Wildfire event poses a potentially significant risk to public health and safety, particularly if the wildfire is initially unnoticed and spreads quickly. The impacts associated with a wildfire are not limited to the direct damages. The impact of climate change could produce larger, more widespread wildfire events, exacerbating the current wildfire impacts. More extreme wildfire conditions can be frequently associated with a variety of impacts, including:

- Persons in the area at the time of the fire are at risk for injury or death from burns and/or smoke inhalation.
- First responders are at greater risk of physical injury since they are in close proximity to the hazard while extinguishing flames, protecting property, or evacuating residents in the area.

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- First responders can experience heart disease, respiratory problems, and other long-term related illnesses from prolonged exposure to smoke, chemicals, and heat.
- Emergency services may be disrupted during a wildfire if facilities are impacted, roadways are inaccessible, or personnel are unable to report for duty.
- Critical city and/or county departments may not be able to function and provide necessary services depending on the location of the fire and the structures or personnel impacted.
- Non-critical businesses may be directly damaged, suffer loss of utility services, or be otherwise inaccessible, delaying normal operations and slowing the recovery process.
- Displaced residents may not be able to immediately return to work, further slowing economic recovery.
- Roadways in or near the WUI could be damaged or closed due to smoke and limited visibility.
- Older homes are generally exempt from modern building code requirements, which may require fire suppression equipment in the structure.
- Some high-density neighborhoods feature small lots with structures close together, increasing the potential for fire to spread rapidly.
- Air pollution from smoke may exacerbate respiratory problems of vulnerable residents.
- Charred ground after a wildfire cannot easily absorb rainwater, increasing the risk of flooding and potential mudflows.
- Wildlife may be displaced or destroyed.
- Historical or cultural resources may be damaged or destroyed.
- Tourism can be significantly disrupted, further delaying economic recovery for the area.
- Vegetated dunes can be stripped, significantly damaging the function of the dunes to protect inland areas from the destructive forces of wind and waves.
- Economic disruption negatively impacts the programs and services provided by the community due to short- and long-term loss in revenue.
- Fire suppression costs can be substantial, exhausting the financial resources of the community.
- Residential structures lost in a wildfire may not be rebuilt for years, reducing the tax base for the community.
- Area lakes such as Rio Grande River and Delta Lake Park, recreation and tourism can be unappealing for years following a large wildfire, devastating directly related businesses.
- Direct impacts to municipal water supply may occur through contamination of ash and debris during the fire, destruction of aboveground delivery lines, and soil erosion or debris deposits into waterways after the fire.

The economic and financial impacts of a wildfire event on local government will depend on the scale of the event, what is damaged, costs of repair or replacement, lost business days in impacted areas, and how quickly repairs to critical components of the economy can be implemented. The level of preparedness and pre-event planning done by government, businesses, and citizens will contribute to the overall economic and financial conditions in the aftermath of a wildfire event.

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HAZARD DESCRIPTION

Lightning is a discharge of electrical energy resulting from the buildup of positive and negative charges within a thunderstorm, creating a “bolt” when the buildup of charges becomes strong enough. This flash of light usually occurs within the clouds or between the clouds and the ground. A bolt of lightning can reach temperatures approaching 50,000 degrees Fahrenheit. Lightning rapidly heats the sky as it flashes but the surrounding air cools following the bolt. This rapid heating and cooling of the surrounding air causes the thunder which often accompanies lightning strikes. While most often affiliated with severe thunderstorms, lightning often strikes outside of heavy rain and might occur as far as 10 miles away from any rainfall.

According to FEMA, an average of 300 people are injured and 80 people are killed in the United States each year by lightning. Direct lightning strikes also have the ability to cause significant damage to buildings, critical facilities, and infrastructure. Lightning is also responsible for igniting wildfires that can result in widespread damages to property before firefighters have the ability to contain and suppress the resultant fire.

LOCATION

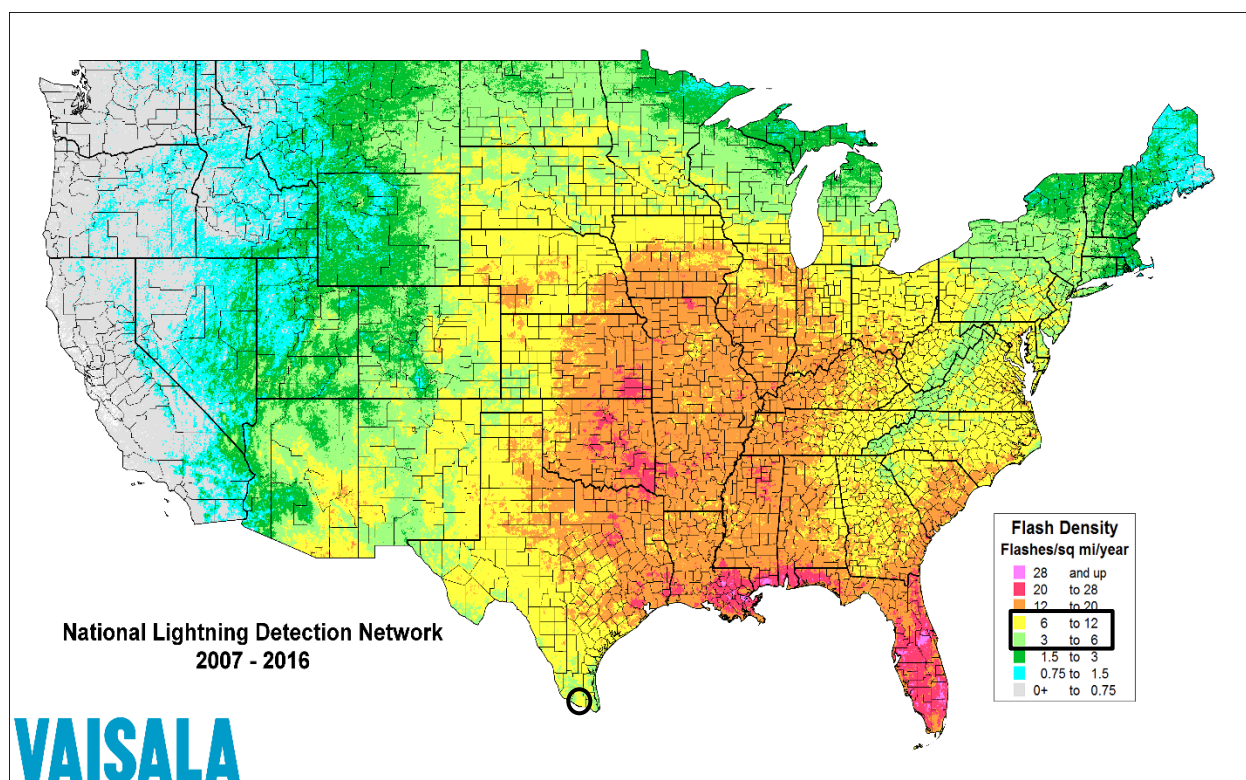
Lightning can strike in any geographic location and is considered a common occurrence in Texas. The Hidalgo County planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15, is in a region of the country that is moderately susceptible to a lightning strike. Therefore, lightning could occur at any location within the entire planning area. It is assumed that the entire Hidalgo County planning area is uniformly exposed to the threat of lightning.

EXTENT

According to the NOAA, the average number of cloud-to-ground flashes for the State of Texas between 2007 and 2016 was 11.3 flashes per square mile. Vaisala’s U.S. National Lightning Detection Network lightning flash density map (Figure 11-1) shows a range of three to twelve cloud-to-ground lightning flashes per square mile per year for the entire Hidalgo County planning area. This rate equates to approximately 3,828 to 15,312 flashes per year for the entire planning area.

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Figure 11-1. Lightning Flash Density, 2007-2016



The extent for lightning can be expressed in terms of the number of strikes in an interval. NOAA utilizes lightning activity levels (LALs) on a scale from 1-6. LAL rankings reflect the frequency of cloud-to-ground lightning either forecast or observed (Table 11-1).

Table 11-1. NOAA Lightning Activity Levels (LAL)

LAL	CLOUD & STORM DEVELOPMENT	LIGHTNING STRIKES/ 15 MIN
1	No thunderstorms.	-
2	Cumulus clouds are common but only a few reach the towering cumulus stage. A single thunderstorm must be confirmed in the observation area. The clouds produce mainly virga, but light rain will occasionally reach the ground. Lightning is very infrequent.	1-8
3	Towering cumulus covers less than two-tenths of the sky. Thunderstorms are few, but two to three must occur within the observation area. Light to moderate rain will reach the ground, and lightning is infrequent.	9-15
4	Towering cumulus covers two to three-tenths of the sky. Thunderstorms are scattered and more than three must occur within the observation area. Moderate rain is common and lightning is frequent.	16-25

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LAL	CLOUD & STORM DEVELOPMENT	LIGHTNING STRIKES/ 15 MIN
5	Towering cumulus and thunderstorms are numerous. They cover more than three-tenths and occasionally obscure the sky. Rain is moderate to heavy and lightning is frequent and intense.	>25
6	Similar to LAL 3 except thunderstorms are dry.	

The NCEI does not include the LAL for historical lightning events, therefore in order to determine the extent of lightning strikes, the yearly average range of estimated number of lightning strikes within the planning area (3,828 to 15,312 flashes) and a cloud-to-ground flash density of three to twelve per square mile were divided by the number¹ of thunderstorm events that occur annually in the planning area. Hidalgo County, including all participating jurisdictions and Santa Cruz Irrigation District #15, should expect an average range of three to thirteen lightning strikes within 15 minutes at any given time during a lightning or combined lightning and thunderstorm event, indicating lightning strikes have an average LAL range of 2 to 3. The highest being a 3 on the LAL for all participating jurisdictions in the future.

HISTORICAL OCCURRENCES

Since January 1996, there has only been eleven recorded events for the Hidalgo County planning area. It is highly likely multiple lightning occurrences have gone unreported before and during the recording period. The NCEI is a national data source organized under the National Oceanic and Atmospheric Administration, and considered a reliable resource for hazards. However, the flash density for the planning area along with input from local team members indicates regular lightning occurrences that simply have not been reported.

Historical lightning data for the Santa Cruz Irrigation District #15 is included in the NCEI historical events (Table 11-2) for Hidalgo County and the City of Edinburg.

Table 11-2 Historical Lightning Events, 1996- 2020²

JURISDICTION	DATE	INJURIES	DEATHS	PROPERTY DAMAGE	CROP DAMAGE
City of Mission	6/25/1996	1	2	\$0	\$0
City of Pharr	10/2/1996	0	1	\$0	\$0
City of Mission	8/14/1998	0	0	\$16,096	\$0
Hidalgo County	5/24/2009	0	0	\$122,986	\$0
City of Edinburg	5/28/2009	0	0	\$1,229,865	\$0
Hidalgo County	6/3/2010	0	0	\$24,134	\$0

¹ Analysis includes the highest number of events recorded in a given year during the reporting period in order to account for typical under reporting of thunderstorm and lightning events.

² Damages are reported in 2021 dollars.

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JURISDICTION	DATE	INJURIES	DEATHS	PROPERTY DAMAGE	CROP DAMAGE
Hidalgo County	6/7/2010	0	0	\$36,200	\$0
City of McAllen	5/11/2012	0	0	\$17,167	\$0
City of McAllen	8/20/2015	0	0	\$82,773	\$0
City of Mercedes	10/30/2015	0	0	\$11,059	\$0
City of Edinburg	6/10/2020	0	0	\$1,020	\$0
TOTALS		1	3	\$1,514,300	\$0

Based on the list of historical lightning events for the Hidalgo County planning area (listed above), including all participating jurisdictions and Santa Cruz Irrigation District #15, one event has occurred since the 2016 Plan.

SIGNIFICANT EVENTS

June 10, 2020 – City of Edinburg

Social media reported lightning damage to a house and adjacent cinder block pole on the property near US 281 in the City of Edinburg with no injuries.

PROBABILITY OF FUTURE EVENTS

Based on historical records and input from the planning team the probability of occurrence for future lightning events in the Hidalgo County planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15, is considered highly likely, or an event probable in the next year. The planning team stated that lightning occurs regularly in the area. According to NOAA, the Hidalgo County planning area is located in an area of the country that experiences three to twelve lightning flashes per square mile per year (approximately 3,828 to 15,312 flashes per year). Given this estimated probability of events, it can be expected that future lightning events will continue to threaten life and cause minor property damages throughout the planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15.

VULNERABILITY AND IMPACT

Vulnerability is difficult to evaluate since lightning events can occur at different strength levels, in random locations, and can create a broad range of damages depending on the strike location. Due to the randomness of these events, all existing and future structures and facilities in the Hidalgo County planning area could potentially be impacted and remain vulnerable to possible injury and property loss from lightning strikes. The Hidalgo County planning area has one reported lightning event per the NCEI, however the county, including all participating jurisdictions and Santa Cruz Irrigation District #15, are vulnerable and could be impacted by lightning.

The direct and indirect losses associated with these events include injury and loss of life, damage to structures and infrastructure, agricultural losses, utility failure (power outages), and stress on community resources. The entire population of Hidalgo County, including all participating jurisdictions, is considered exposed to the lightning hazard. The peak lightning season in the State of Texas is from June to August; however, the most fatalities occur in July. Fatalities occur

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most often when people are outdoors and/or participating in some form of recreation. Population located outdoors is considered at risk and more vulnerable to a lightning strike compared to being inside a structure. Moving to a lower risk location will decrease a person's vulnerability.

The entire general building stock and all infrastructure of the Hidalgo County planning area, are considered exposed to the lightning hazard. Lightning can be responsible for damages to buildings, cause electrical, forest and/or wildfires, and damage infrastructure such as power transmission lines and communication towers. Agricultural losses can be extensive due to lightning and resulting fires.

While all citizens are at risk to the impacts of lightning, forced relocation and disaster recovery drastically impacts low-income residents who lack the financial means to travel, afford a long-term stay away from home, and to rebuild or repair their homes. An estimated 29.7% of the planning area population live below the poverty level (Table 11-3).

Table 11-3. Populations at Greatest Risk by Jurisdiction³

JURISDICTION	POPULATION BELOW POVERTY LEVEL
Hidalgo County	253,987
City of Alamo	5,256
City of Alton	5,432
City of Donna	5,989
City of Edcouch	1,028
City of Edinburg	22,907
City of Elsa	2,211
City of Granjeno	13
City of Hidalgo	4,623
City of La Joya	1,718
City of La Villa	889
City of McAllen	32,653
City of Mercedes	5,566
City of Mission	18,803
City of Palmhurst	450
City of Palmview	1,697

³ US Census Bureau 2019 data for Hidalgo County

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JURISDICTION	POPULATION BELOW POVERTY LEVEL
City of Peñitas	1,154
City of Pharr	22,719
City of Progreso	1,199
City of San Juan	10,435
City of Sullivan City	1,324

The following critical facilities would be vulnerable to lightning events in each participating jurisdiction:

Table 11-4. Critical Facilities at Risk by Jurisdiction

JURISDICTION	CRITICAL FACILITIES
Hidalgo County	5 Administrative Offices, 1 Adult Probation, 2 Building & Grounds, 1 Community Center, 2 Constable, 2 County Clerk, 2 County Buildings, 3 Courts/Annex, 1 Election Administration, 1 Fire/Marshal Department, 2 Health Offices, 3 Justice of the Peace, 2 Planning Departments, 1 Resource Center, 7 Sheriff's Departments, 3 Shops, 1 Storage Facility, 1 WIC
City of Alamo	1 Apartment Complex, 1 City Hall, 2 Fire Departments, 1 Health System/24 hour ER, 1 Police Department, 1 Nursing Home, 11 Schools, 1 Waste/Water Plant, 1 Water Plant
City of Alton	1 City Hall, 1 Development Center, 1 Fire Department, 1 Lift Station, 1 Park, 2 Police Department/Public Safety, 1 Recreation Center, 1 Water Tower, 1 Internet (WiFi) Tower
City of Donna	1 Fire Department, 1 Police Department, 1 Sewer Treatment, 1 Water Treatment
City of Edcouch	1 City Hall, 1 Community Center, 1 Fire Department (Volunteer), 1 Police Department, 1 Sewer Plant, 1 Water Plant, 1 Water Tower
City of Edinburg	1 Airport, 1 AEP, 1 City Hall, 1 Courthouse, 1 County Jail, 5 Fire Departments, 1 Housing Authority, 2 Juvenile Detentions, 1 Landfill, 1 Library, 26 Lift Stations, 6 Hospitals, 1 Police Department, 2 Power Plant, 32 Schools, 1 Theater, 3 Water Plant/Supply, 1 WWTP
City of Elsa	1 City Hall, 2 Chlorine Buildings, 2 Groundwater Tanks, 14 Lift Stations, 1 Public Safety, 1 Public Works, 2 Water Plant/Pumping, 1 Water Tower
City of Granjeno	1 City Hall, 1 Public Facility
City of Hidalgo	1 Arena, 1 Bridge, 1 City Hall, 1 Court House, 1 Police/Fire Department, 1 Health Clinic, 1 Library, 8 Schools, 1 Waste/Sewer Plant

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JURISDICTION	CRITICAL FACILITIES
City of La Joya	1 City Hall, 1 Fire Department, 1 Police Department, 1 Shelter, 1 Water Plant, 1 Wastewater Plant
City of La Villa	1 City Hall, 1 Fire Department, 1 Police Department, 4 Lift Stations, 4 Water/Wastewater Plants, 2 Water Towers
City of McAllen	3 Community Center/Shelters, 1 Development Center, 1 Emergency Operation Center, 6 Fire Departments, 1 Public Safety, 1 Public Works/Maintenance Facility, 2 Reservoir, 1 Traffic Operation, 1 Waste Plant, 2 Water Plants
City of Mercedes	1 Arena/Dome, 1 City Hall, 1 Fire Department, 1 Police Department, 1 Waste Plant, 1 Water Plant
City of Mission	1 City Hall, 1 City Gym, 5 Fire Departments, 1 Hospital, 1 Police Department, 1 Public Works Facility, 1 School, 1 Shelter, 1 Waste/Water Plant
City of Palmhurst	1 Administrative Building, 1 City Hall, 1 Police Department, 1 Public Works, 2 Power Stations, 2 Schools
City of Palmview	1 City Hall, 1 Fire Department, 1 Police Department, 1 School
City of Peñitas	1 City Hall, 1 Fire Department, 1 Gas Station, 1 Library, 3 Lift Station, 1 Police Department, 2 Schools, 2 Waste/Water Plants, 1 Wal-Mart
City of Pharr	1 City Hall, 1 Emergency Management Center, 2 Evacuation Centers, 4 Fire Departments, 34 Lift Stations, 1 Police Department, 41 Schools, 1 Waste Plant, 1 Water Plant
City of Progreso	1 City Hall, 1 Fire Department, 1 Police Department
City of San Juan	2 City Halls, 2 Fire Departments, 23 Lift Stations, 2 Public Safety, 1 Public Works, 2 Reservoirs, 1 Waste/Water Plant, 1 Water Plants/Station
City of Sullivan City	1 City Hall, 1 Fire Department, 1 Police Department, 1 School, 1 Water Plant
Santa Cruz Irrigation District #15	1 Dam, 1 Administration Office, 1 Tool Shed

Impact of lightning experienced in the Hidalgo County planning area has resulted in no injuries or fatalities. Impact of lightning events experienced in the Hidalgo County planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15, would be “Limited,” and injuries and illnesses would be treatable with first aid. The quality of life lost would be minor, and facilities would be shut down for 24 hours or less. Overall, the average loss estimate for Hidalgo County, including all participating jurisdictions, is negligible.

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Table 11-5. Potential Annualized Losses by Jurisdiction⁴

JURISDICTION	PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATE
Hidalgo County	\$183,320	\$7,638
City of Alamo	\$0	\$0
City of Alton	\$0	\$0
City of Donna	\$0	\$0
City of Edcouch	\$0	\$0
City of Edinburg	\$1,230,885	\$51,287
City of Elsa	\$0	\$0
City of Granjeno	\$0	\$0
City of Hidalgo	\$0	\$0
City of La Joya	\$0	\$0
City of La Villa	\$0	\$0
City of McAllen	\$99,940	\$4,164
City of Mercedes	\$11,059	\$461
City of Mission	\$16,096	\$671
City of Palmhurst	\$0	\$0
City of Palmview	\$0	\$0
City of Peñitas	\$0	\$0
City of Pharr	\$0	\$0
City of Progreso	\$0	\$0
City of San Juan	\$0	\$0
City of Sullivan City	\$0	\$0
PLANNING AREA	\$1,541,300	\$64,221

⁴ Damage values are in 2021 dollars.

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ASSESSMENT OF IMPACTS

Lightning events have the potential to pose a significant risk to people and can create dangerous and difficult situations for public health and safety officials. The impact of climate change could produce more frequent and severe lightning events, exacerbating the current lightning impacts. Additional impacts to the planning area can include:

- Individuals exposed to the storm can be directly struck, posing significant health risks and potential death.
- Structures can be damaged or crushed by falling trees damaged by lightning, which can result in physical harm to the occupants.
- Lightning strikes can result in widespread power outages increasing the risk to more vulnerable portions of the population who rely on power for health and/or life safety.
- Extended power outage often results in an increase in structure fires and carbon monoxide poisoning as individuals attempt to cook or heat their homes with alternate, unsafe cooking or heating devices, such as grills.
- Lightning strikes can be associated with structure fires and wildfires, creating additional risk to residents and first responders.
- Emergency operations and services may be significantly impacted due to power outages and/or loss of communications.
- City or county departments may be damaged, delaying response and recovery efforts for the entire community.
- Economic disruption due to power outages and fires negatively impacts the programs and services provided by the community due to short and long term loss in revenue.
- Some businesses not directly damaged by lightning events may be negatively impacted while utilities are being restored, further slowing economic recovery.
- Businesses that are more reliant on utility infrastructure than others may suffer greater damages without a backup power source.

The economic and financial impacts of lightning on the area will depend entirely on the scale of the event, what is damaged, and how quickly repairs to critical components of the economy can be implemented. The level of preparedness and pre-event planning done by the county, communities, local businesses, and citizens will also contribute to the overall economic and financial conditions in the aftermath of any lightning event.

SECTION 12: WINTER STORM

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HAZARD DESCRIPTION



A severe winter storm event is identified as a storm with snow, ice, or freezing rain. This type of storm can cause significant problems for area residents. Winter storms are associated with freezing or frozen precipitation such as freezing rain, sleet, snow, and the combined effects of winter precipitation and strong winds. Wind chill is a function of temperature and wind. Low wind chill is a product of high winds and freezing temperatures.

Winter storms that threaten Hidalgo County planning area usually begin as powerful cold fronts that push south from central Canada. Although the county is at risk to ice hazards, extremely cold temperatures, and snow, the effects and frequencies of winter storm events are generally mild and short-lived. As indicated in Figure 12-1, on average, the Hidalgo County planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15, typically experience approximately 1-10 extreme cold days a year, meaning up to 10 days are at or around freezing temperatures. During times of ice and snow accumulation, response times will increase until public works road crews are able to make major roads passable. Table 12-1 describes the types of winter storms possible to occur in the Hidalgo County planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15.

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Figure 12-1. Extreme Cold Days, 1960-2003¹

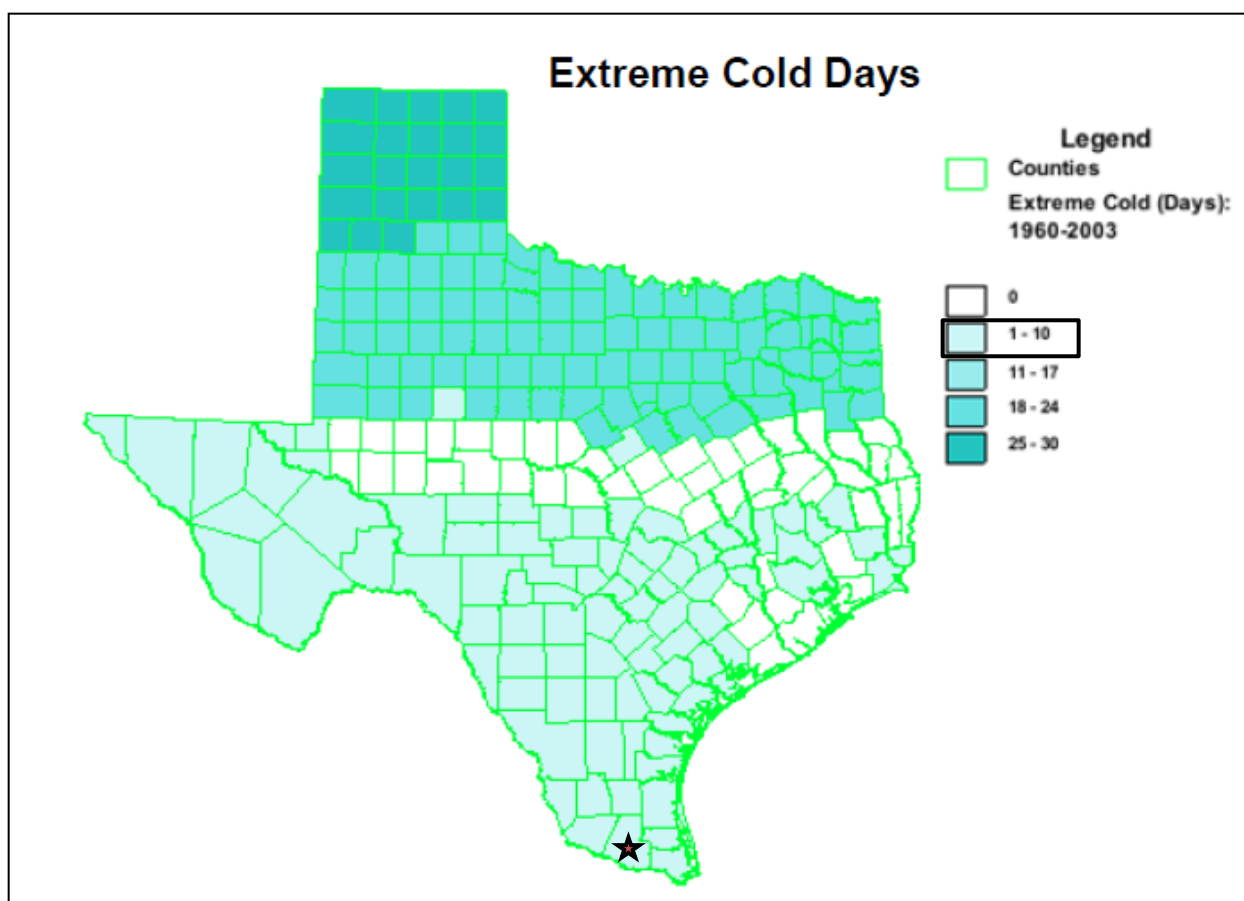


Table 12-1. Types of Winter Storms

TYPE OF WINTER STORM	DESCRIPTION
Winter Weather Advisory	This alert may be issued for a variety of severe conditions. Weather advisories may be announced for snow, blowing or drifting snow, freezing drizzle, freezing rain, or a combination of weather events.
Winter Storm Watch	Severe winter weather conditions may affect your area (freezing rain, sleet, or heavy snow may occur separately or in combination).
Winter Storm Warning	Severe winter weather conditions are imminent.
Freezing Rain or Freezing Drizzle	Rain or drizzle is likely to freeze upon impact, resulting in a coating of ice glaze on roads and all other exposed objects.
Sleet	Small particles of ice usually mixed with rain. If enough sleet accumulates on the ground, it makes travel hazardous.

¹ Source: National Weather Service. Hidalgo County indicated by star.

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TYPE OF WINTER STORM	DESCRIPTION
Blizzard Warning	Sustained wind speeds of at least 35 mph are accompanied by considerable falling or blowing snow. This alert is the most perilous winter storm with visibility dangerously restricted.
Frost/Freeze Warning	Below freezing temperatures are expected and may cause significant damage to plants, crops, and fruit trees.
Wind Chill	A strong wind combined with a temperature slightly below freezing can have the same chilling effect as a temperature nearly 50 degrees lower in a calm atmosphere. The combined cooling power of the wind and temperature on exposed flesh is called the wind-chill factor.

LOCATION

Winter storm events are not confined to specific geographic boundaries. Therefore, all existing and future buildings, facilities, and populations in the Hidalgo County planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15, are considered to be exposed to a winter storm hazard and could potentially be impacted.

EXTENT

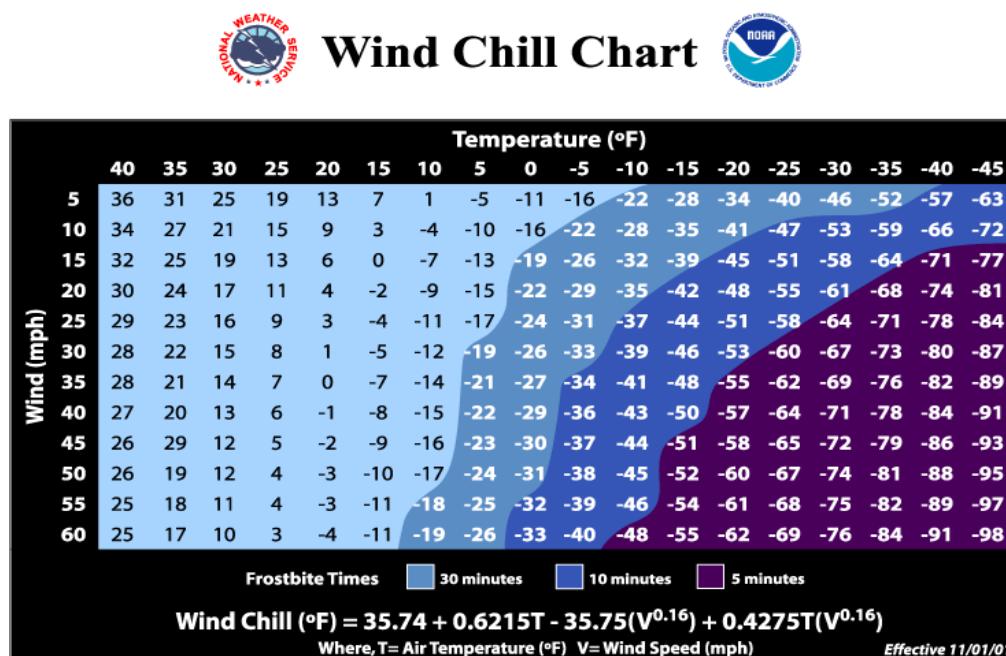
The extent or magnitude of a severe winter storm is measured in intensity based on the temperature and level of accumulations as shown in Table 12-2. Table 12-2 should be read in conjunction with the wind-chill factor described in Figure 12-2 to determine the intensity of a winter storm. The chart is not applicable when temperatures are over 50°F or winds are calm. This is an index developed by the National Weather Service.

Table 12-2. Magnitude of Severe Winter Storms

INTENSITY	TEMPERATURE RANGE (Fahrenheit)	EXTENT DESCRIPTION
Mild	40° – 50°	Winds less than 10 mph and freezing rain or light snow falling for short durations with little or no accumulations
Moderate	30° – 40°	Winds 10 – 15 mph and sleet and/or snow up to 4 inches
Significant	25° – 30°	Intense snow showers accompanied with strong gusty winds between 15 and 20 mph with significant accumulation
Extreme	20° – 25°	Wind driven snow that reduces visibility, heavy winds (between 20 to 30 mph), and sleet or ice up to 5 millimeters in diameter
Severe	Below 20°	Winds of 35 mph or more and snow and sleet greater than 4 inches

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Figure 12-2. Wind Chill Chart



Wind chill temperature is a measure of how cold the wind makes real air temperature feel to the human body. Since wind can dramatically accelerate heat loss from the body, a blustery 30°F day would feel just as cold as a calm day with 0°F temperatures. The Hidalgo County planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15, has never experienced a blizzard, but based on 34 previous occurrences recorded from 1996 through December 2020, it has been subject to winter storm watches, warnings, freezing rain, sleet, and snow.

The average number of cold days is similar for the entire planning area, including all participating jurisdictions. Therefore, the intensity or extent of a winter storm event to be mitigated for the area ranges from mild to significant according to the definitions at Table 12-2. Hidalgo County planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15, can expect anywhere between 0.1 to 4.0 inches of ice and snow during a winter storm event and temperatures between 25 and 50 degrees with winds ranging from 0 to 20 mph. This is the worst that can be anticipated to mitigate against in the future for all participating jurisdictions.

HISTORICAL OCCURRENCES

Table 12-3 shows historical occurrences for Hidalgo County from 1996 through December 2020 provided by the NCEI database. There have been 34 recorded winter storm events in Hidalgo County, including all participating jurisdictions and Santa Cruz Irrigation District #15. Historical winter storm information, as provided by the NCEI, identifies winter storm activity across a multi-county forecast area for each event. The appropriate percentage of the total property and crop damage reported for the entire forecast area has been allocated to each county impacted by the event. Historical winter storm data for the county and all participating jurisdictions and Santa Cruz Irrigation District #15 are provided on a County-wide basis per the NCEI database. Table 12-3 shows historical incident information for the planning area.

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Table 12-3. Historical Winter Storm Events, 1996-2020²

JURISDICTION	DATE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Hidalgo County	2/3/2011	0	0	\$0	\$5,942,235
Hidalgo County	1/16/2018	0	0	\$53,055	\$0
TOTALS		0	0	\$5,995,290	

Based on the list of historical winter storm events for the Hidalgo County planning area (listed above), including all participating jurisdictions, 12 of the events have occurred since the 2016 Plan.

SIGNIFICANT EVENTS

February 3, 2011 – Hidalgo County

Light freezing drizzle, mixed with a little snow, began shortly after noon on the 3rd. The precipitation became steadier and heavier through the afternoon, and began accreting to one eighth an inch in some spots before sunset. Overnight, the glaze accreted further, with one quarter to one half inch of ice in many areas by mid morning, except up to an inch from Weslaco to Mercedes where precipitation was a bit heavier. A large number of vehicle accidents were reported in the county due to the large number of bridge crossings and elevated expressways. News reports noted at least 58 crashes in the county on elevated expressways such as U.S. 281 and U.S. 83. One was a ten car pileup on U.S. 83. The number of accidents was reduced by early road closures; at one point, all overpasses were closed to traffic due to the icing. While there were no fatalities in the county, there were dozens of minor injuries reported from people falling on the ice, and 20 persons admitted to the McAllen Medical Center from injuries suffered in vehicle accidents. Power outages due to the combination of cold temperatures and rolling statewide blackouts, as well as the icing, peaked at more than 32,000 customers (American Electric Power) during the morning of the 4th.

January 29, 2014 – Hidalgo County

An ice storm hit Hidalgo County where 1/8 to 1/2 inch of glaze accreted on trees, power lines, cars, and other exposed surfaces. Texas Department of Transportation noted ice accumulations on several roadways and overpasses. News reports indicated over 3,000 customers were without electricity during the peak of the storm early on the 29th, across Hidalgo County. There was likely some damage to tender tropical vegetation (such as banana plants, bougainvillea, etc.) but many of these plants should recover.

January 16, 2018 – Hidalgo County

Ice covered 1/8 to 1/16 inch on trees and grasses beginning during the late afternoon of January 16th and continuing through just prior to midnight. Light snow during the mid to late afternoon near McAllen ended, with freezing drizzle/light freezing rain developing soon after. Temperatures, which fell to the upper 20s allowed untreated elevated road surfaces particularly on IH-2 to quickly glaze over. This resulted in dozens of accidents along elevated portions of IH-2 and IH-69C at the end and for a few hours after the evening commute, including a 15-vehicle pile-up on

² Values are in 2021 dollars. Only historical events with injuries, fatalities, or damages have been listed.

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westbound IH-2 in McAllen. Several elevated roads were closed through the morning commute, including the heavily traveled IH-2 and IH-69C junction in Pharr. There were unknown amount of injuries from the pile-up, as well as other accidents along IH-69C. Power outages in Cameron and Hidalgo County combined exceeded 22 thousand though the outage source may have been related more to intense usage on an early weeknight during the peak of the winter school and work season than to glaze icing alone, since accretion was light.

PROBABILITY OF FUTURE EVENTS

According to historical records, the planning area experiences approximately one winter storm event each year. Hence, the probability of a future winter storm event affecting the Hidalgo County planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15, is highly likely, with a winter storm likely to occur within the next year.

VULNERABILITY AND IMPACT

During periods of extreme cold and freezing temperatures, water pipes can freeze and crack, and ice can build up on power lines, causing them to break under the weight or causing tree limbs to fall on the lines. These events can disrupt electric service for long periods.

An economic impact may occur due to increased consumption of heating fuel, which can lead to energy shortages and higher prices. House fires and resulting deaths tend to occur more frequently from increased and improper use of alternate heating sources. Fires during winter storms also present a greater danger because water supplies may freeze and impede firefighting efforts.

All populations, buildings, critical facilities, and infrastructure in the entire Hidalgo County planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15, are vulnerable to severe winter events.

The following critical facilities would be vulnerable to Winter Storm events in each participating jurisdiction:

Table 12-4. Critical Facilities by Jurisdiction

JURISDICTION	CRITICAL FACILITIES
Hidalgo County	5 Administrative Offices, 1 Adult Probation, 2 Building & Grounds, 1 Community Center, 2 Constable, 2 County Clerk, 2 County Buildings, 3 Courts/Annex, 1 Election Administration, 1 Fire/Marshal Department, 2 Health Offices, 3 Justice of the Peace, 2 Planning Departments, 1 Resource Center, 7 Sheriff's Departments, 3 Shops, 1 Storage Facility, 1 WIC
City of Alamo	1 Apartment Complex, 1 City Hall, 2 Fire Departments, 1 Health System/24 hour ER, 1 Police Department, 1 Nursing Home, 11 Schools, 1 Waste/Water Plant, 1 Water Plant
City of Alton	1 City Hall, 1 Development Center, 1 Fire Department, 1 Lift Station, 1 Park, 2 Police Department/Public Safety, 1 Recreation Center, 1 Water Tower, 1 Internet (WiFi) Tower

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JURISDICTION	CRITICAL FACILITIES
City of Donna	1 Fire Department, 1 Police Department, 1 Sewer Treatment, 1 Water Treatment
City of Edcouch	1 City Hall, 1 Community Center, 1 Fire Department (Volunteer), 1 Police Department, 1 Sewer Plant, 1 Water Plant, 1 Water Tower
City of Edinburg	1 Airport, 1 AEP, 1 City Hall, 1 Courthouse, 1 County Jail, 5 Fire Departments, 1 Housing Authority, 2 Juvenile Detentions, 1 Landfill, 1 Library, 26 Lift Stations, 6 Hospitals, 1 Police Department, 2 Power Plant, 32 Schools, 1 Theater, 3 Water Plant/Supply, 1 WWTP
City of Elsa	1 City Hall, 2 Chlorine Buildings, 2 Groundwater Tanks, 14 Lift Stations, 1 Public Safety, 1 Public Works, 2 Water Plant/Pumping, 1 Water Tower
City of Granjeno	1 City Hall, 1 Public Facility
City of Hidalgo	1 Arena, 1 Bridge, 1 City Hall, 1 Court House, 1 Police/Fire Department, 1 Health Clinic, 1 Library, 8 Schools, 1 Waste/Sewer Plant
City of La Joya	1 City Hall, 1 Fire Department, 1 Police Department, 1 Shelter, 1 Water Plant, 1 Wastewater Plant
City of La Villa	1 City Hall, 1 Fire Department, 1 Police Department, 4 Lift Stations, 4 Water/Wastewater Plants, 2 Water Towers
City of McAllen	3 Community Center/Shelters, 1 Development Center, 1 Emergency Operation Center, 6 Fire Departments, 1 Public Safety, 1 Public Works/Maintenance Facility, 2 Reservoir, 1 Traffic Operation, 1 Waste Plant, 2 Water Plants
City of Mercedes	1 Arena/Dome, 1 City Hall, 1 Fire Department, 1 Police Department, 1 Waste Plant, 1 Water Plant
City of Mission	1 City Hall, 1 City Gym, 5 Fire Departments, 1 Hospital, 1 Police Department, 1 Public Works Facility, 1 School, 1 Shelter, 1 Waste/Water Plant
City of Palmhurst	1 Administrative Building, 1 City Hall, 1 Police Department, 1 Public Works, 2 Power Stations, 2 Schools
City of Palmview	1 City Hall, 1 Fire Department, 1 Police Department, 1 School
City of Peñitas	1 City Hall, 1 Fire Department, 1 Gas Station, 1 Library, 3 Lift Station, 1 Police Department, 2 Schools, 2 Waste/Water Plants, 1 Wal-Mart
City of Pharr	1 City Hall, 1 Emergency Management Center, 2 Evacuation Centers, 4 Fire Departments, 34 Lift Stations, 1 Police Department, 41 Schools, 1 Waste Plant, 1 Water Plant
City of Progreso	1 City Hall, 1 Fire Department, 1 Police Department

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JURISDICTION	CRITICAL FACILITIES
City of San Juan	2 City Halls, 2 Fire Departments, 23 Lift Stations, 2 Public Safety, 1 Public Works, 2 Reservoirs, 1 Waste/Water Plant, 1 Water Plants/Station
City of Sullivan City	1 City Hall, 1 Fire Department, 1 Police Department, 1 School, 1 Water Plant
Santa Cruz Irrigation District #15	1 Dam, 1 Administration Office, 1 Tool Shed

People and animals are subject to health risks from extended exposure to cold air. Elderly people are at greater risk of death from hypothermia during these events, especially in the rural areas of the county where populations are sparse, icy roads may impede travel, and there are fewer neighbors to check in on the elderly. According to the U.S. Center for Disease Control, every year hypothermia kills about 600 Americans, half of whom are 65 years of age or older. In addition, populations living below the poverty level may not be able to afford to run heat on a regular basis

Population over 65 in the entire Hidalgo County planning area is estimated at 10.8% of the total population or an estimated total of 92,728³ potentially vulnerable residents in the planning area based on age. An estimated 29.7% of the planning area population live below the poverty level (Table 12-5).

Table 12-5. Population at Greater Risk by Jurisdiction

JURISDICTION	POPULATION 65 AND OLDER	POPULATION BELOW POVERTY LEVEL
Hidalgo County	92,728	253,987
City of Alamo	3,299	5,256
City of Alton	1,619	5,432
City of Donna	2,515	5,989
City of Edcouch	667	1,028
City of Edinburg	7,778	22,907
City of Elsa	953	2,211
City of Granjeno	26	13
City of Hidalgo	1,322	4,623
City of La Joya	466	1,718
City of La Villa	286	889
City of McAllen	18,743	32,653

³ US Census Bureau 2019 data for Hidalgo County

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JURISDICTION	POPULATION 65 AND OLDER	POPULATION BELOW POVERTY LEVEL
City of Mercedes	2,513	5,566
City of Mission	9,801	18,803
City of Palmhurst	399	450
City of Palmview	666	1,697
City of Peñitas	318	1,154
City of Pharr	9,508	22,719
City of Progreso	724	1,199
City of San Juan	3,640	10,435
City of Sullivan City	590	1,324

Historic loss, in 2021 dollars, is estimated at \$5,995,290 in damages over the 24-year recording period giving an approximate loss of \$249,804 in damages annually (Table 12-6). The potential severity of impact for the Hidalgo County planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15, are “Limited” meaning injuries are treatable with first aid, shutdown of facilities and services for 24 hours or less, and less than 10% of property destroyed or with major damage.

Annualized losses are not included for Santa Cruz Irrigation District #15 as there has not been events or losses to affect the district separate and apart from historical occurrence for the City of Edinburg.

Table 12-6. Potential Annualized Losses for Hidalgo County

JURISDICTION	PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATES
Hidalgo County	\$5,995,290	\$249,804

ASSESSMENT OF IMPACTS

The greatest risk from a winter storm hazard is to public health and safety. The impact of climate change could produce longer, more intense winter storm events, exacerbating the current winter storm impacts. Worsening winter storm conditions can be frequently associated with a variety of impacts, including:

- Vulnerable populations, particularly the elderly and children under 5, can face serious or life-threatening health problems from exposure to extreme cold including hypothermia and frostbite.
- Loss of electric power or other heat source can result in increased potential for fire injuries or hazardous gas inhalation because residents burn candles for light or use fires or generators to stay warm.

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- Response personnel, including utility workers, public works personnel, debris removal staff, tow truck operators, and other first responders, are subject to injury or illness resulting from exposure to extreme cold temperatures.
- Response personnel would be required to travel in potentially hazardous conditions, elevating the life safety risk due to accidents and potential contact with downed power lines.
- Operations or service delivery may experience impacts from electricity blackouts due to winter storms.
- Power outages are possible throughout the planning area due to downed trees and power lines and/or rolling blackouts.
- Critical facilities without emergency backup power may not be operational during power outages.
- Emergency response and service operations may be impacted by limitations on access and mobility if roadways are closed, unsafe, or obstructed.
- Hazardous road conditions will likely lead to increases in automobile accidents, further straining emergency response capabilities.
- Depending on the severity and scale of damage caused by ice and snow events, damage to power transmission and distribution infrastructure can require days or weeks to repair.
- A winter storm event could lead to tree, shrub, and plant damage or death.
- Severe cold and ice could significantly damage agricultural crops.
- Schools may be forced to shut early due to treacherous driving conditions.
- Exposed water pipes may be damaged by severe or late season winter storms at both residential and commercial structures, causing significant damages.

The economic and financial impacts of winter weather on the community will depend on the scale of the event, what is damaged, and how quickly repairs to critical components of the economy can be implemented. The level of preparedness and pre-event planning done by businesses and citizens will also contribute to the overall economic and financial conditions in the aftermath of a winter storm event.

SECTION 13: DAM AND LEVEE FAILURE

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HAZARD DESCRIPTION

DAMS

Dams are water storage, control, or diversion structures that impound water upstream in reservoirs. Dam failure can take several forms, including a collapse of or breach in the structure. While most dams have storage volumes small enough that failures have few or no repercussions, dams storing large amounts can cause significant flooding downstream. Dam failures can result from any one or a combination of the following causes:

- Prolonged periods of rainfall and flooding, which cause most failures;
- Inadequate spillway capacity, resulting in excess overtopping of the embankment;
- Internal erosion caused by embankment or foundation leakage or piping;
- Improper maintenance, including failure to remove trees, repair internal seepage problems, or maintain gates, valves, and other operational components;
- Improper design or use of improper construction materials;
- Failure of upstream dams in the same drainage basin;
- High winds, which can cause significant wave action and result in substantial erosion;
- Destructive acts of terrorism; and,
- Earthquakes, which typically cause longitudinal cracks at the tops of the embankments, leading to structural failure.

Benefits provided by dams include water supplies for drinking; irrigation and industrial uses; flood control; hydroelectric power; recreation; and navigation. At the same time, dams also represent a risk to public safety. Dams require ongoing maintenance, monitoring, safety inspections, and sometimes even rehabilitation to continue safe service.

In the event of a dam failure, the energy of the water stored behind the dam is capable of causing rapid and unexpected flooding downstream, resulting in loss of life and substantial property damage. A devastating effect on water supply and power generation could be expected as well. The terrorist attacks of September 11, 2001 generated increased focus on protecting the country's infrastructure, including ensuring the safety of dams.

SECTION 13: DAM AND LEVEE FAILURE

One major issue with the safety of dams is their age. The average age of America's 84,000 dams is 52 years. According to statistics released in 2009 by the Association of State Dam Safety Officials¹, more than 2,000 dams near population centers are in need of repair. In addition to the continual aging of dams, there have not been significant increases in the number of safety inspectors resulting in haphazard maintenance and inspection.

The Association of State Dam Safety Officials estimate that \$16 billion will be needed to repair all high-hazard dams, but the total for all state dam-safety budgets is less than \$60 million². The current maintenance budget does not match the scale of America's long-term modifications of its watersheds. Worse still, more people are moving into risky areas. As the American population grows, dams that once could have failed without major repercussions are now upstream of cities and development.



LEVEE

A levee is simply a man-made embankment built to keep a river from overflowing its banks or to prevent ocean waves from washing into undesired areas. A levee is typically little more than a mound of less permeable soil, like clay, wider at the base and narrower at the top. These mounds run in a long strip in varying height, sometimes for many miles, along a river, lake or ocean. But there's no set height for levees. Their measurements vary according to the storms the area receives, even if those storms occur only once every hundred or thousand years.

Living by the water provides humans with a number of advantages: fertile farmland, transportation, trade and hydroelectric power. Levees allow humans to enjoy these assets without fear of flooding. But humans often forget how powerful waters behind a levee can be. In 1927, the Mississippi River swelled under heavy rains, charging through a line of levees and flooding

¹ Association of State Dam Safety Officials, Journal of Dam Safety

² Source: www.damsafety.org

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an area the size of Ireland. In 1953, the North Sea broke through the Netherlands' ancient system of dikes and killed thousands.

In 2005, New Orleans made international news when Hurricane Katrina breached its levees. Much of the city lies 10 feet (3 meters) below sea level. Over the course of the city's history, low-lying, boggy areas have been pumped dry to create new land. Much of this reclaimed land has sunk as it dried out. The entire city now depends on the levees, along with massive pumping stations, to keep the water out.

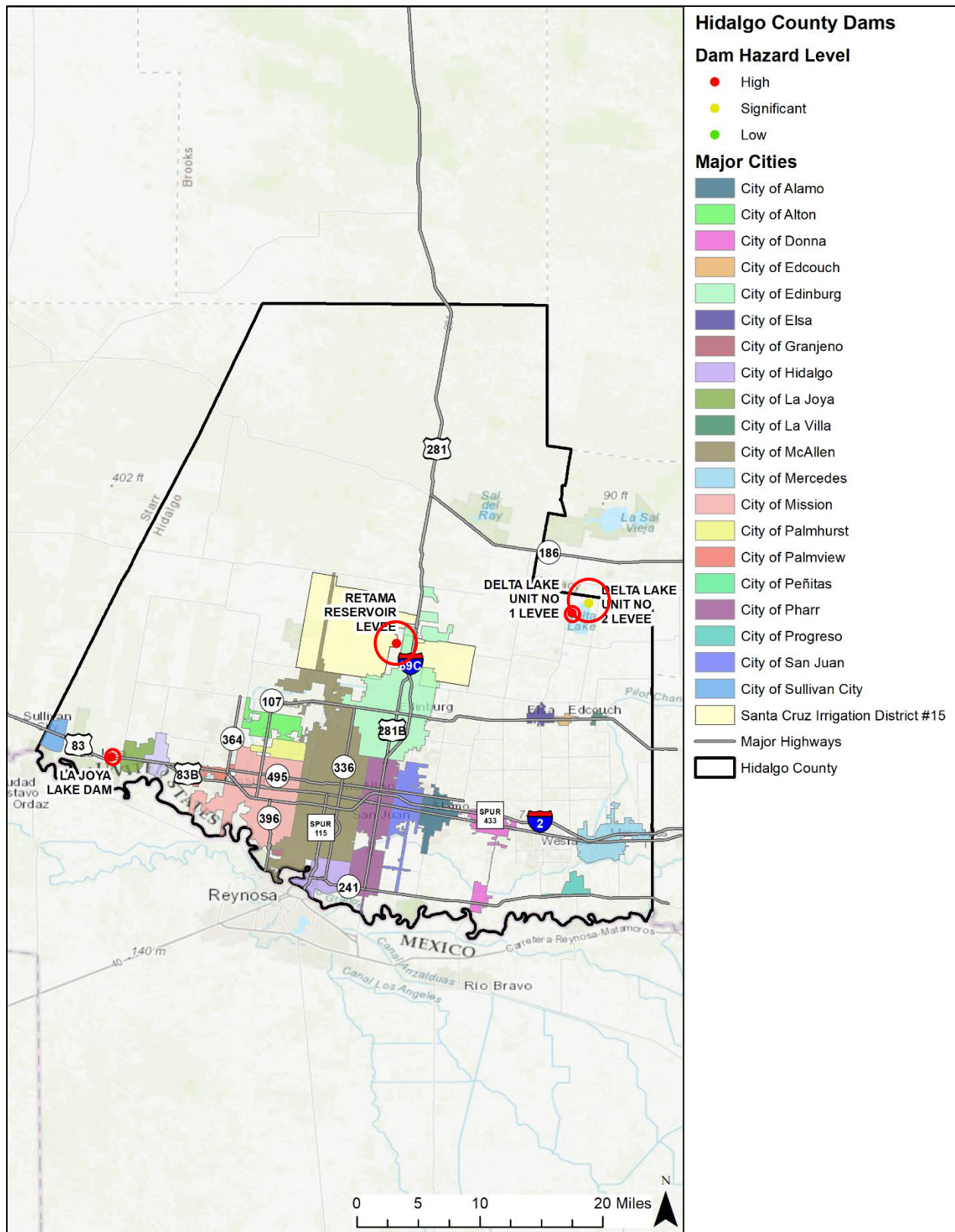
LOCATION

The State of Texas has 7,413 dams, all regulated by the Texas Commission on Environmental Quality (TCEQ). The National Dam Safety Review Board (in coordination with FEMA) and the National Inventory of Dams (NID) lists a total of twenty-two dams or levees in or near the Hidalgo County planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15 (complete list located in Appendix D). Each of these dams were analyzed individually by location, volume, elevation, and condition (where available) when determining the risk, if any, for each dam. Each dam or levee site was further analyzed for potential risks utilizing FEMA's National Flood Hazard Layer (where available) to map locations and fully understand development near the dam or levee and topographical variations that may increase risk. Most of the dams listed were embankments for typically dry detention drainage areas, irrigation reservoirs, or shored up stream embankments. These types of structures are utilized for flood control and irrigation and do not pose a dam or levee failure risk. Other dams in the planning area feature such limited storage capacity that they pose no risk to structures, infrastructure, or citizens. Dams that were deemed to pose no past, current, or future risk to the planning area are not profiled in the plan as no loss of life or impact to critical facilities or infrastructure is expected in the event of a breach. Based on this detailed analysis, the planning team was able to determine that only four of the twenty-two dams pose a risk to the planning area. The jurisdictions profiling dam or levee failure is Hidalgo County, Edinburg, and Santa Cruz Irrigation District #15. These dams, listed in Table 13-1, are profiled in detail in the Extent section of this hazard profile. Figure 13-1 illustrates the general location for the critical dams in the planning area.

While inundation maps are not available for the profiled dams, an estimated inundation radius has been included on the location map for each profiled dam or levee (indicated by the red circle). In addition, the dam failure risk area is described for each profiled dam under extent. Figure 13-1 illustrates the general location for the critical dams in the planning area. While inundation maps are not available for the profiled dams, an estimated inundation radius has been included on the location map for each profiled dam (indicated by the red circle). For dams with a maximum storage capacity between 10,000 and 100,000 acre-feet, all structures within three miles are considered to be at risk to potential dam failure hazards. For dams with a maximum storage capacity of less than 10,000 acre-feet, all structures within one mile are considered to be at risk to potential dam or levee failure hazards.

SECTION 13: DAM AND LEVEE FAILURE

Figure 13-1. Hidalgo County Critical Dam and Levee Locations



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Table 13-1. Hidalgo County Dam and Levee Survey

JURISDICTION	DAM OR LEVEE NAME	HEIGHT (Ft.)	STORAGE (Acre Ft.)	CONDITION	PROFILED
Hidalgo County	La Joya Lake Dam	19	3,500	Not Rated	Yes
Hidalgo County	Delta Lake Unit No 1 Levee	12	7,350	Not Rated	Yes
Hidalgo County	Delta Lake Unit No 2 Levee	16	22,545	Not Rated	Yes
Hidalgo County/Santa Cruz Irrigation District #15/Edinburg	Retama Reservoir Levee	9	13,500	Not Rated	Yes

EXTENT

The extent or magnitude of a dam or levee failure event is described in terms of the classification of damages that could result from a dam's failure, not the probability of failure. For dams with a maximum storage capacity of 100,000 acre-feet or more, all census blocks within five miles are considered to be at risk to potential dam or levee failure hazards. For dams with a maximum storage capacity between 10,000 and 100,000 acre-feet, all census blocks within three miles are considered to be at risk to potential dam or levee failure hazards. For dams with a maximum storage capacity of less than 10,000 acre-feet, all census blocks within one mile are considered to be at risk to potential dam or levee failure hazards.

La Joya Lake Dam:

La Joya Dam is located in the City of Havana on the La Joya Creek. The dam was constructed in 1955 and is used primarily for irrigation. It is owned by the Hidalgo County Irrigation District 16. The area located near the dam is semi-rural with limited development within a one-mile radius. A breach should follow the path of the river, but it is anticipated that the water released by the breach could temporarily exceed the capacity and overflow the banks of the river for approximately one mile. Approximately 30 residential structures, a few commercial businesses, W Expy 83, and agricultural land could be impacted by a breach. No critical facilities would be impacted. A dam failure could cause limited infrastructure damages, power outages, and utility systems disruptions. In the event of a breach, it is estimated the average breach width would be 152.6 feet with a maximum breach flow of 22,592 cubic feet per second according to the National Weather Service (NWS) Dam Break Equation. A dam breach could result in an estimated depth up to 10 feet with the highest depth in the immediate area of the dam breach.

Delta Lake Unit No 1 Levee:

Delta Lake Unit No 1 Levee is located in the City of Raymond. It uses off-channel water from the Arroyo Colorado River and is used for irrigation purposes. A breach should follow the path of the river, but it is anticipated that the water released by the breach could temporarily exceed the capacity and overflow the banks of the channel for approximately one mile. It is owned by Delta Lake Irrigation District and was constructed in 1936 by earthen construction with a core of homogeneous, earth. The area located near the dam is semi-rural with limited development within

SECTION 13: DAM AND LEVEE FAILURE

a one-mile radius. Minimal populations in the plan area including agricultural land and several access roads may be impacted. No critical facilities would be impacted. If there was a breach, it is estimated the average breach width would be 163.7 ft. with a maximum breach flow of 22,035 cubic feet per second according to the National Weather Service (NWS) Dam Break Equation. A dam breach could result in an estimated depth up to 10 feet with the highest depth in the immediate area of the dam breach.

Delta Lake Unit No 2 Levee

Delta Lake Unite No 2 Levee is located in the City of Raymond. The levee was constructed in 1939 and is used primarily for irrigation. It is owned by the Delta Lake Irrigation District. It uses off-channel water from the Resaca De Los Fresnos and is used for irrigation purposes. A breach should follow the path of the river, but it is anticipated that the water released by the breach could temporarily exceed the capacity and overflow the banks of the channel for approximately three miles. The area located near the levee is rural with limited development. Agricultural land, three farm houses and several access roads could be impacted by a breach. No critical facilities would be impacted. A levee failure could cause very limited infrastructure damages, power outages, and utility systems disruptions. In the event of a breach, it is estimated the average breach width would be 232.8 feet with a maximum breach flow of 51,856 cubic feet per second according to the National Weather Service (NWS) Dam Break Equation. A dam or levee breach could result in an estimated depth up to 15 feet with the highest depth in the immediate area of the levee breach.

Retama Reservoir Levee

Retama Reservoir Levee is located near the City of Edinburg. The levee was constructed in 1941 and is used primarily for irrigation. It is owned by the Santa Cruz Irrigation District #15. It uses off-channel water and is used for irrigation purposes. A breach should follow the path of the river, but it is anticipated that the water released by the breach could temporarily exceed the capacity and overflow the banks of the channel for approximately three miles. The area located near the levee is rural with limited development. Lakeside Drive with 20 houses, Seminary Road with 5 houses, Lakeshore Drive with 20 houses, agricultural land and pastures could be impacted by a breach. No critical facilities would be impacted. A levee failure could cause very limited infrastructure damages, power outages, and utility systems disruptions. In the event of a breach, it is estimated the average breach width would be 177.4 feet with a maximum breach flow of 23,408 cubic feet per second according to the National Weather Service (NWS) Dam Break Equation. A dam or levee breach could result in an estimated depth up to 15 feet with the highest depth in the immediate area of the levee breach.

Table 13-2 represents the extent or magnitude of a dam or levee failure event that could be expected for the Hidalgo County planning area for each profiled dam.

Table 13-2. Extent by Jurisdiction

JURISDICTION	PROFILED DAM	EXTENT (FLOW DEPTH)	LEVEL OF INTENSITY TO MITIGATE
Hidalgo County	La Joya Lake Dam	0-10 Feet	Dam failure presents a low threat for the county. Loss of life is not expected. While some residential structures could be impacted, the greatest threat in the event of a breach would be localized flooding.

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JURISDICTION	PROFILED DAM	EXTENT (FLOW DEPTH)	LEVEL OF INTENSITY TO MITIGATE
			Critical facilities would not be impacted. Some infrastructure and utilities could be minimally impacted. Economic loss would be minimal.
Hidalgo County	Delta Lake Unit No 1 Levee	0-10 Feet	Dam failure presents a low threat for the county. Loss of life is not expected. While some residential structures could be impacted, the greatest threat in the event of a breach would be localized flooding. Critical facilities would not be impacted. Some infrastructure and utilities could be minimally impacted. Economic loss would be minimal.
Hidalgo County	Delta Lake Unit No 2 Levee	0-15 Feet	Levee failure presents a low threat for the county. Loss of life is not expected. While agricultural land and several access roads could be impacted, the greatest threat in the event of a breach would be localized flooding. Critical facilities would not be impacted. Some infrastructure and utilities could be minimally impacted. Economic loss would be minimal.
Hidalgo County, Santa Cruz Irrigation District #15, City of Edinburg	Retama Reservoir Levee	0-15 Feet	Levee failure presents a low threat for the county. Loss of life is not expected. While agricultural land and several access roads could be impacted, the greatest threat in the event of a breach would be localized flooding. Critical facilities would not be impacted. Some infrastructure and utilities could be minimally impacted. Economic loss would be minimal.

HISTORICAL OCCURRENCES

The State of Texas has not experienced loss of life or extensive economic damage due to a dam or levee failure since the first half of the twentieth century. However, there may be many incidents that are not reported and, therefore, the actual number of incidents is likely to be greater.

There has not been a recorded dam or levee failure event for any of the participating jurisdictions in the Hidalgo County planning area.

PROBABILITY OF FUTURE EVENTS

No historical events of dam or levee failure have been recorded in the Hidalgo County planning area, though the risk of dam or levee failure is monitored closely. Due to the lack of historical

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occurrences, the probability of a future event is unlikely for those jurisdictions profiling dam or levee failure as a hazard, meaning an event is possible in the next ten years.

VULNERABILITY AND IMPACT

There are twenty-two dams and/or levees in or near the Hidalgo County planning area. All dams or levees were evaluated in-depth to determine the risk, if any, associated with each dam. This analysis indicated three dams or levees in the planning area that presents a risk to structures or infrastructure in the planning area.

Flooding is the most prominent effect of dam or levee failure. If the dam or levee failure is extensive, a large amount of water would enter the downstream waterways forcing them out of their banks. There may be significant environmental effects, resulting in flooding that could disperse debris and hazardous materials downstream that can damage local ecosystems. If the event is severe, debris carried downstream can block traffic flow, cause power outages, and disrupt local utilities, such as water and wastewater, which could result in school closures. For specific vulnerability, please refer to the narrative for each dam or levee under the Extent section of this profile.

Annualized loss-estimates for dam or levee failure are not available; neither is there a breakdown of potential dollar losses for critical facilities, infrastructure and lifelines, or hazardous-materials facilities. If a significant dam or levee should fail, however, the severity of impact for the planning area would likely be minimal.

The severity of impact from a dam or levee breach would be “Limited,” meaning it could result in injuries that can be treated with first-aid, critical facilities being shut down for 24-hours or less and less than 10% of the property in the estimated breach inundation area destroyed or with major damage. For these reasons, creating mitigation actions to remove or protect people and structures from the path of destruction is necessary in order to minimize impact from dam or levee failure.

ASSESSMENT OF IMPACTS

Any individual dam or levee has a very specific area that will be impacted by a catastrophic failure. Dams identified as high or significant hazard can directly threaten the lives of individuals living or working in the inundation zone below the dam. The impact from any catastrophic failure would be similar to that of a flash flood. The impact of climate change could produce greater risk of dam or levee failures due to larger more frequent floods, exacerbating the current dam or levee failure impacts. Increased dam or levee failure threats can be associated with a variety of impacts, including:

- Lives could be lost.
- There could be injuries from impacts with debris carried by the flood.
- Swift-water rescue of individuals trapped by the water puts the immediate responders at risk for their own lives.
- Individuals involved in the cleanup may be at risk from the debris left behind.
- Continuity of operations for any jurisdiction outside the direct impact area could be very limited.
- Roads and bridges could be destroyed.
- Homes and businesses could be damaged or destroyed.

SECTION 13: DAM AND LEVEE FAILURE

- Emergency services may be temporarily unavailable.
- Disruption of operations and the delivery of services in the impacted area.
- A large dam or levee with a high head of water could effectively scour the terrain below it for miles, taking out all buildings and other infrastructure.
- Scouring force could erode soil and any buried pipelines.
- Scouring action of a large dam or levee will destroy all vegetation in its path.
- Wildlife and wildlife habitat caught in the flow will likely be destroyed.
- Fish habitat will likely be destroyed.
- Topsoil will erode, slowing the return of natural vegetation.
- The destructive high velocity water flow may include substantial debris and hazardous materials, significantly increasing the risks to life and property in its path.
- Debris and hazardous material deposited downstream may cause further pollution of areas far greater than the inundation zone.
- Destroyed businesses and homes may not be rebuilt, reducing the tax base and impacting long term economic recovery.
- Historical or cultural resources may be damaged or destroyed.
- Recreational activities and tourism may be temporarily unavailable or unappealing, slowing economic recovery.

The economic and financial impacts of dam or levee failure on the area will depend entirely on the location of the dam, scale of the event, what is damaged, and how quickly repairs to critical components of the economy can be implemented. The level of preparedness and pre-event planning done by the community, local businesses, and citizens will also contribute to the overall economic and financial conditions in the aftermath of any dam or levee failure event.

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HAZARD DESCRIPTION



Hailstorm events are a potentially damaging outgrowth of severe thunderstorms. During the developmental stages of a hailstorm, ice crystals form within a low-pressure front due to the rapid rising of warm air into the upper atmosphere, and the subsequent cooling of the air mass. Frozen droplets gradually accumulate into ice crystals until they fall as precipitation that is round or irregularly shaped masses of ice typically greater than 0.75 inches in diameter. The size of hailstones is a direct result of the size and severity of the storm. High velocity updraft winds are required to keep hail in suspension in thunderclouds. The strength of the updraft is a by-product of heating on the Earth's surface. Higher temperature gradients above Earth's surface result in increased suspension time and hailstone size.

LOCATION

Hailstorms are an extension of severe thunderstorms that could potentially cause severe damage. As a result, they are not confined to any specific geographic location and can vary greatly in size, location, intensity, and duration. Therefore, the Hidalgo County planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15, are equally at risk to the hazard of hail.

EXTENT

The National Weather Service (NWS) classifies a storm as "severe" if there is hail three-quarters of an inch in diameter (approximately the size of a penny) or greater, based on radar intensity or as seen by observers. The intensity category of a hailstorm depends on hail size and the potential damage it could cause, as depicted in the National Centers for Environmental Information (NCEI) Intensity Scale in Table 14-1.

SECTION 14: HAIL

Table 14-1. Hail Intensity and Magnitude¹

SIZE CODE	INTENSITY CATEGORY	SIZE (Diameter Inches)	DESCRIPTIVE TERM	TYPICAL DAMAGE
H0	Hard Hail	Up to 0.33	Pea	No damage
H1	Potentially Damaging	0.33 – 0.60	Marble	Slight damage to plants and crops
H2	Potentially Damaging	0.60 – 0.80	Dime	Significant damage to plants and crops
H3	Severe	0.80 – 1.20	Nickel	Severe damage to plants and crops
H4	Severe	1.2 – 1.6	Quarter	Widespread glass and auto damage
H5	Destructive	1.6 – 2.0	Half Dollar	Widespread destruction of glass, roofs, and risk of injuries
H6	Destructive	2.0 – 2.4	Ping Pong Ball	Aircraft bodywork dented and brick walls pitted
H7	Very Destructive	2.4 – 3.0	Golf Ball	Severe roof damage and risk of serious injuries
H8	Very Destructive	3.0 – 3.5	Hen Egg	Severe damage to all structures
H9	Super Hailstorms	3.5 – 4.0	Tennis Ball	Extensive structural damage, could cause fatal injuries
H10	Super Hailstorms	4.0 +	Baseball	Extensive structural damage, could cause fatal injuries

The intensity scale in Table 12-1 ranges from H0 to H10, with increments of intensity or damage potential in relation to hail size (distribution and maximum), texture, fall speed, speed of storm translation, and strength of the accompanying wind. Based on available data regarding the previous occurrences for the area, the Hidalgo County planning area, including all participating jurisdictions, may experience hailstorms ranging from an H0 to an H10. The County can mitigate a storm from low risk or hard hail to a super hailstorm with baseball size hail that leads to extensive structural damage and could cause fatal injuries. The largest hail event in the Hidalgo County planning area resulted in hail measuring 4.5 inches in diameter, or a H10, Super Hailstorm. This is the worst extent the planning area can anticipate in the future.

¹ NCEI Intensity Scale, based on the TORRO Hailstorm Intensity Scale.

SECTION 14: HAIL

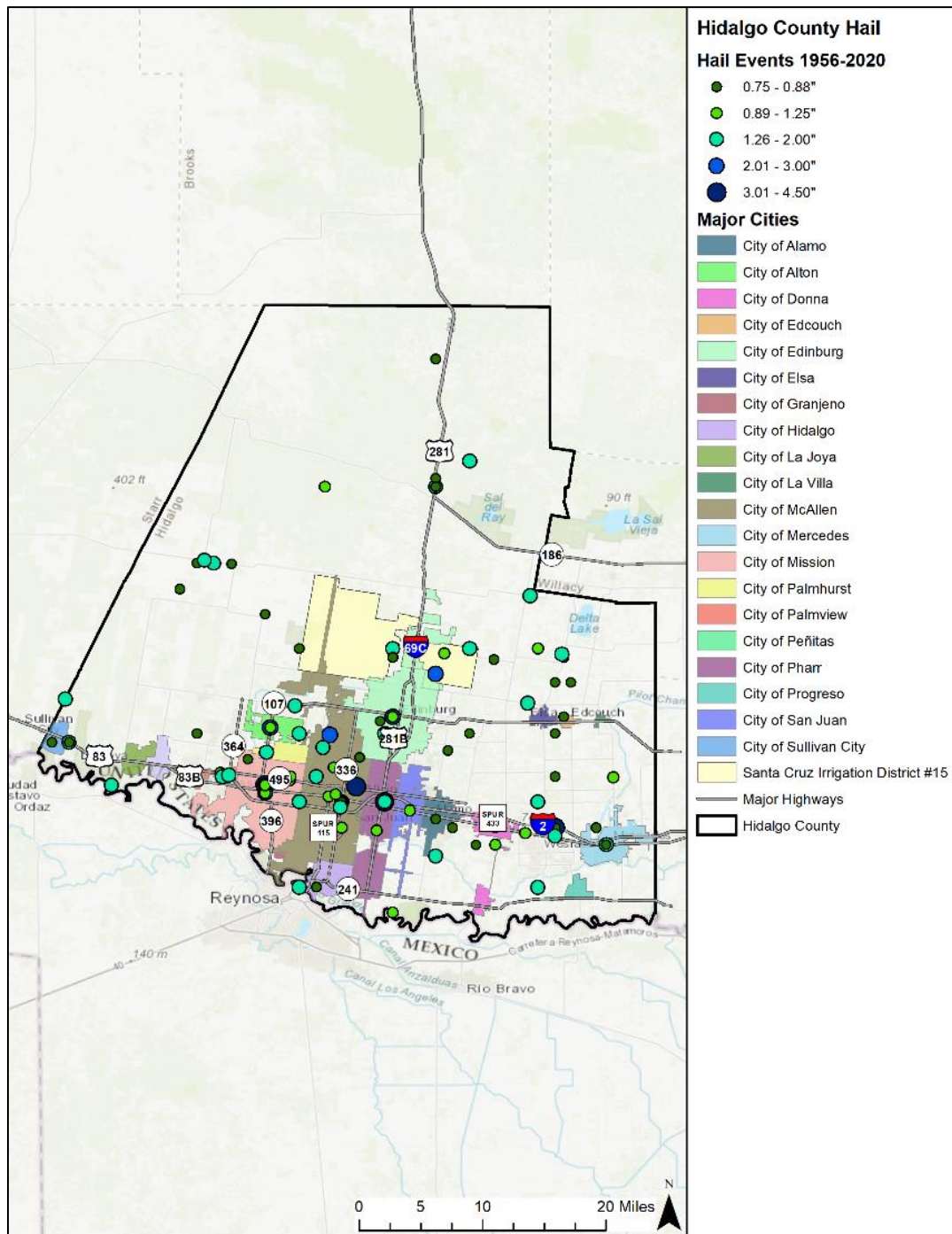
HISTORICAL OCCURRENCES

Historical evidence shown in Figure 14-1 demonstrates that the planning area is vulnerable to hail events overall, which typically result from severe thunderstorm activity. Historical events with reported damages, injuries, or fatalities are shown in Table 14-2. A total of 114 reported historical hail events impacted the Hidalgo County planning area between 1956 through December 2020 (Summary Table 14-3). These events were reported to NCEI and NOAA databases and may not represent all hail events to have occurred during the past 64 years. Only those events for the Hidalgo County planning area with latitude and longitude available were plotted (Figure 14-1).

Historical hail data for the Santa Cruz Irrigation District #15 is provided within the City of Edinburg event per the NCEI database as they do not have events reported separately or apart from the reported Edinburg city-wide events. There have been no reported losses as a result of hail for the Santa Cruz Irrigation District #15.

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Figure 14-1. Spatial Historical Hail Events, 1956-2020



SECTION 14: HAIL

Table 14-2. Historical Hail Events, 1956-2020²

JURISDICTION	DATE	MAGNITUDE	INJURIES	DEATHS	PROPERTY DAMAGE	CROP DAMAGE
Hidalgo County	4/29/1991	4.5	1	0	\$0	\$0
Hidalgo County	3/9/1994	1	0	0	\$8,934	\$8,943
City of Donna	11/13/2008	0.88	0	0	\$1,238	\$0
City of Edinburg	3/29/2012	2.75	0	0	\$229,314,013	\$1,146,570
Hidalgo County	4/20/2012	2.75	0	0	\$11,431,167	\$0
Hidalgo County	3/26/2015	1.75	0	0	\$1,114	\$0
City of Palmhurst	3/26/2015	1.5	0	0	\$1,671	\$0
TOTALS		(Max Extent)	1	0	\$241,913,650	

Table 14-3. Historical Hail Events Summary, 1956-2020

JURISDICTION	NUMBER of EVENTS	MAGNITUDE	INJURIES	DEATHS	PROPERTY DAMAGE	CROP DAMAGE
Hidalgo County	71	4.5 inches	1	0	\$11,441,215	\$8,943
City of Alamo	3	1.75 inches	0	0	\$0	\$0
City of Donna	4	1 inch	0	0	\$1,238	\$0
City of Edcouch	1	0.75 inches	0	0	\$0	\$0
City of Edinburg	6	2.75 inches	0	0	\$229,314,013	\$1,146,570
City of Elsa	3	1.75 inches	0	0	\$0	\$0
City of Granjeno	0	N/A	N/A	N/A	\$0	\$0
City of Hidalgo	2	1 inch	0	0	\$0	\$0
City of La Joya	1	0.75 inches	0	0	\$0	\$0
City of La Villa	0	N/A	N/A	N/A	\$0	\$0
City of McAllen	6	4.5 inches	0	0	\$0	\$0
City of Mercedes	2	1 inch	0	0	\$0	\$0
City of Mission	7	4.5 inches	0	0	\$0	\$0

² Only recorded events with fatalities, injuries, and/or damages are listed.

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JURISDICTION	NUMBER of EVENTS	MAGNITUDE	INJURIES	DEATHS	PROPERTY DAMAGE	CROP DAMAGE
City of Palmhurst	2	1.5 inches	0	0	\$1,671	\$0
City of Peñitas	0	N/A	N/A	N/A	\$0	\$0
City of Pharr	1	1.75 inches	0	0	\$0	\$0
City of Progreso	0	N/A	N/A	N/A	\$0	\$0
City of San Juan	2	1 inch	0	0	\$0	\$0
City of Sullivan City	3	1.75 inches	0	0	\$0	\$0
TOTAL LOSSES	114	(Max Extent)	1	0	\$241,913,650	

Based on the list of historical hail events for the Hidalgo County planning area (listed above), including all participating jurisdictions, 12 of the events have occurred since the 2016 Plan.

SIGNIFICANT EVENTS

March 29, 2012 – City of Edinburg

Up to an hour of continuous hail, driven by frequent winds estimated at 70 to 75 mph, knocked at least one window out of every north facing home, defoliated nearly every tree, left up to a half foot of accumulated hail on the ground, and produced hail drifts up to 4 feet high. Numerous tree limbs were blown down, many homes had roof damage, and broken glass and water littered the north facing rooms and apartments. Hundreds of vehicles left outdoors were severely damaged by golf ball to baseball size hail dents, including many shattered windows.

Preliminary data estimate that 1,100 homes and more than 60s businesses were affected by the wind and hail in McAllen, according to preliminary numbers released by the city commission. Included in these damage estimates are 26 city facilities, including McAllen's new public library and civic center. The City of McAllen's early estimates of cost to the city include: \$187,000 to remove debris from neighborhood streets; \$90,000 on repairing dozens of traffic signals; \$13,000 on McAllen police overtime; \$24,000 on McAllen Civic Center Auditorium's roof due to roof damage that allowed water to pour into the theater. During the first week after the storm, more than 40,000 cubic yards of debris was removed. That is 4 times the normal monthly amount for the city. The Urban Forestry Department of McAllen was forced to saw through more than 130 trees that line the city streets. McAllen Fire Department had two fire engines, two ladder trucks and one command vehicle damaged by hail. Strong winds peeled the roof off of part of a Hidalgo Police Department building, leading to minor flooding inside. Many school districts in the area were forced to close the following day/s due to flooding, these included: McAllen ISD, Sharyland ISD, and Mission ISD. Insured and uninsured damages may tally \$200 million or more; thousands of auto and home insurance claims had been made by the 1st of April. At Bert Ogden BMW dealership in McAllen, nearly 100 percent of the dealership's inventory was destroyed (77 cars), with the average vehicle cost of \$50,000. The dealership building also suffered nearly \$200,000 in damage. An estimated 2,000 to 3,000 acres of watermelons were wiped out.

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April 20, 2012 – City of Mission and City of McAllen

Golf ball to baseball size hail was reported over a swath of the heavily populated urban center of Mission and McAllen.

June 18, 2020 – City of Sullivan City

Residents were impacted by the severe storm that damaged nine homes along the Hidalgo/Starr County line just northwest of Sullivan City reported a brief period of hail. Hail ranged from 1 inch to 1.75 inch (golf ball size) in diameter.

PROBABILITY OF FUTURE EVENTS

Based on available records of historic events, 114 events in a 64-year reporting period for Hidalgo County provides a probability of one event per year. This frequency supports a highly likely probability of future events for the Hidalgo County planning area including all participating jurisdictions and Santa Cruz Irrigation District #15.

VULNERABILITY AND IMPACT

Damage from hail approaches 1 billion dollars in the U.S. each year. Much of the damage inflicted by hail is to crops. Even relatively small hail can shred plants to ribbons in a matter of minutes. Vehicles, roofs of buildings and homes, and landscaping are most commonly damaged by hail.

Utility systems on roofs at school districts and critical facilities would be vulnerable and could be damaged. Hail could cause a significant threat to people as they could be struck by hail and falling trees and branches. Outdoor activities and events may elevate the risk to residents and visitors when a hailstorm strikes with little warning. Portable buildings typically utilized by schools and commercial sites such as construction areas would be more vulnerable to hail events than the typical site-built structures.

The Hidalgo County planning area features mobile or manufactured home parks throughout the planning area. These parks are typically more vulnerable to hail events than typical site-built structures. In addition, manufactured homes are located sporadically throughout the planning area including all participating jurisdictions which would also be more vulnerable. The US Census data indicates a total of 42,278 manufactured homes located in the Hidalgo County planning area (16%), including participating jurisdictions (Table 14-4). In addition, 22% (approximately 59,641 structures) of the single family residential (SFR) structures in the entire planning area were built before 1980. These structures would typically be built to lower or less stringent construction standards than newer construction and may be more susceptible to damages during significant wind events.

Table 14-4. Structures at Greater Risk by Jurisdiction

JURISDICTION	MANUFACTURED HOMES	SFR STRUCTURES BUILT BEFORE 1980
Hidalgo County	42,278	59,641
City of Alamo	2,985	1,369
City of Alton	391	706

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JURISDICTION	MANUFACTURED HOMES	SFR STRUCTURES BUILT BEFORE 1980
City of Donna	1,104	2,199
City of Edcouch	62	535
City of Edinburg	2,111	6,199
City of Elsa	154	598
City of Granjeno	16	29
City of Hidalgo	125	335
City of La Joya	66	344
City of La Villa	5	303
City of McAllen	2,253	15,179
City of Mercedes	946	2,427
City of Mission	3,585	5,502
City of Palmhurst	99	128
City of Palmview	232	95
City of Peñitas	78	165
City of Pharr	4,304	4,733
City of Progreso	148	404
City of San Juan	1,181	1,879
City of Sullivan City	181	287

While all citizens are at risk to the impacts of hail, forced relocation and disaster recovery drastically impacts low-income residents who lack the financial means to travel, afford a long-term stay away from home, and to rebuild or repair their homes. An estimated 29.7% of the planning area population live below the poverty level (Table 14-5).

Table 14-5. Populations at Greatest Risk by Jurisdiction³

JURISDICTION	POPULATION BELOW POVERTY LEVEL
Hidalgo County	253,987
City of Alamo	5,256

³ US Census Bureau 2019 data for Hidalgo County

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JURISDICTION	POPULATION BELOW POVERTY LEVEL
City of Alton	5,432
City of Donna	5,989
City of Edcouch	1,028
City of Edinburg	22,907
City of Elsa	2,211
City of Granjeno	13
City of Hidalgo	4,623
City of La Joya	1,718
City of La Villa	889
City of McAllen	32,653
City of Mercedes	5,566
City of Mission	18,803
City of Palmhurst	450
City of Palmview	1,697
City of Peñitas	1,154
City of Pharr	22,719
City of Progreso	1,199
City of San Juan	10,435
City of Sullivan City	1,324

The following critical facilities would be vulnerable to hail events in each participating jurisdiction:

Table 14-6. Critical Facilities at Risk by Jurisdiction

JURISDICTION	CRITICAL FACILITIES
Hidalgo County	5 Administrative Offices, 1 Adult Probation, 2 Building & Grounds, 1 Community Center, 2 Constable, 2 County Clerk, 2 County Buildings, 3 Courts/Annex, 1 Election Administration, 1 Fire/Marshal Department, 2 Health Offices, 3 Justice of the Peace, 2 Planning Departments, 1 Resource Center, 7 Sheriff's Departments, 3 Shops, 1 Storage Facility, 1 WIC

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JURISDICTION	CRITICAL FACILITIES
City of Alamo	1 Apartment Complex, 1 City Hall, 2 Fire Departments, 1 Health System/24-hour ER, 1 Police Department, 1 Nursing Home, 11 Schools, 1 Waste/Water Plant, 1 Water Plant
City of Alton	1 City Hall, 1 Development Center, 1 Fire Department, 1 Lift Station, 1 Park, 2 Police Department/Public Safety, 1 Recreation Center, 1 Water Tower, 1 Internet (WiFi) Tower
City of Donna	1 Fire Department, 1 Police Department, 1 Sewer Treatment, 1 Water Treatment
City of Edcouch	1 City Hall, 1 Community Center, 1 Fire Department (Volunteer), 1 Police Department, 1 Sewer Plant, 1 Water Plant, 1 Water Tower
City of Edinburg	1 Airport, 1 AEP, 1 City Hall, 1 Courthouse, 1 County Jail, 5 Fire Departments, 1 Housing Authority, 2 Juvenile Detentions, 1 Landfill, 1 Library, 26 Lift Stations, 6 Hospitals, 1 Police Department, 2 Power Plant, 32 Schools, 1 Theater, 3 Water Plant/Supply, 1 WWTP
City of Elsa	1 City Hall, 2 Chlorine Buildings, 2 Groundwater Tanks, 14 Lift Stations, 1 Public Safety, 1 Public Works, 2 Water Plant/Pumping, 1 Water Tower
City of Granjeno	1 City Hall, 1 Public Facility
City of Hidalgo	1 Arena, 1 Bridge, 1 City Hall, 1 Court House, 1 Police/Fire Department, 1 Health Clinic, 1 Library, 8 Schools, 1 Waste/Sewer Plant
City of La Joya	1 City Hall, 1 Fire Department, 1 Police Department, 1 Shelter, 1 Water Plant, 1 Wastewater Plant
City of La Villa	1 City Hall, 1 Fire Department, 1 Police Department, 4 Lift Stations, 4 Water/Wastewater Plants, 2 Water Towers
City of McAllen	3 Community Center/Shelters, 1 Development Center, 1 Emergency Operation Center, 6 Fire Departments, 1 Public Safety, 1 Public Works/Maintenance Facility, 2 Reservoir, 1 Traffic Operation, 1 Waste Plant, 2 Water Plants
City of Mercedes	1 Arena/Dome, 1 City Hall, 1 Fire Department, 1 Police Department, 1 Waste Plant, 1 Water Plant
City of Mission	1 City Hall, 1 City Gym, 5 Fire Departments, 1 Hospital, 1 Police Department, 1 Public Works Facility, 1 School, 1 Shelter, 1 Waste/Water Plant
City of Palmhurst	1 Administrative Building, 1 City Hall, 1 Police Department, 1 Public Works, 2 Power Stations, 2 Schools
City of Palmview	1 City Hall, 1 Fire Department, 1 Police Department, 1 School
City of Peñitas	1 City Hall, 1 Fire Department, 1 Gas Station, 1 Library, 3 Lift Station, 1 Police Department, 2 Schools, 2 Waste/Water Plants, 1 Wal-Mart
City of Pharr	1 City Hall, 1 Emergency Management Center, 2 Evacuation Centers, 4 Fire Departments, 34 Lift Stations, 1 Police Department, 41 Schools, 1 Waste Plant, 1 Water Plant
City of Progreso	1 City Hall, 1 Fire Department, 1 Police Department

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JURISDICTION	CRITICAL FACILITIES
City of San Juan	2 City Halls, 2 Fire Departments, 23 Lift Stations, 2 Public Safety, 1 Public Works, 2 Reservoirs, 1 Waste/Water Plant, 1 Water Plants/Station
City of Sullivan City	1 City Hall, 1 Fire Department, 1 Police Department, 1 School, 1 Water Plant
Santa Cruz Irrigation District #15	1 Dam, 1 Administration Office, 1 Tool Shed

Hail has been known to cause injury to humans and occasionally has been fatal. Overall, the average loss estimate of property and crops (in 2021 dollars) is \$241,913,650, having an approximate annual loss estimate of \$3,779,901. Based on historic loss and damages, the impact of hail damages on the Hidalgo County planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15, can be considered “Minor” severity of impact meaning injuries and illness do not result in permanent disability, county area facilities are shut down for one week or more, and more than ten percent of property destroyed or with major damage.

Table 14-7. Potential Annualized Losses by Jurisdiction

JURISDICTION	PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATE
Hidalgo County	\$11,450,158	\$178,909
City of Alamo	\$0	\$0
City of Alton	\$0	\$0
City of Donna	\$1,238	\$19
City of Edcouch	\$0	\$0
City of Edinburg	\$230,460,583	\$3,600,947
City of Elsa	\$0	\$0
City of Granjeno	\$0	\$0
City of Hidalgo	\$0	\$0
City of La Joya	\$0	\$0
City of La Villa	\$0	\$0
City of McAllen	\$0	\$0
City of Mercedes	\$0	\$0
City of Mission	\$0	\$0
City of Palmhurst	\$1,671	\$26
City of Palmview	\$0	\$0
City of Peñitas	\$0	\$0

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JURISDICTION	PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATE
City of Pharr	\$0	\$0
City of Progreso	\$0	\$0
City of San Juan	\$0	\$0
City of Sullivan City	\$0	\$0
Planning Area	\$241,913,650	\$3,779,901

ASSESSMENT OF IMPACTS

Hail events have the potential to pose a significant risk to people and can create dangerous situations. The impact of climate change could produce larger, more severe hail events, exacerbating the current hail impacts. Worsening hail conditions can be frequently associated with a variety of impacts, including:

- Hail may create hazardous road conditions during and immediately following an event, delaying first responders from providing for or preserving public health and safety.
- Individuals and first responders who are exposed to the storm may be struck by hail, falling branches, or downed trees resulting in injuries or possible fatalities.
- Residential structures can be damaged by falling trees, which can result in physical harm to occupants.
- Large hail events will likely cause extensive roof damage to residential structures along with siding damage and broken windows, creating a spike in insurance claims and a rise in premiums.
- Automobile damage may be extensive depending on the size of the hail and length of the storm.
- Hail events can result in power outages over widespread areas increasing the risk to more vulnerable portions of the population who rely on power for health and/or life safety.
- Extended power outage can result in an increase in structure fires and/or carbon monoxide poisoning, as individuals attempt to cook or heat their home with alternate, unsafe cooking or heating devices, such as grills.
- First responders are exposed to downed power lines, damaged structures, hazardous spills, and debris that often accompany hail events, elevating the risk of injury to first responders and potentially diminishing emergency response capabilities.
- Downed power lines and large debris, such as downed trees, can result in the inability of emergency response vehicles to access areas of the community.
- Hazardous road conditions may prevent critical staff from reporting for duty, limiting response capabilities.
- Economic disruption negatively impacts the programs and services provided by the community due to short- and long-term loss in revenue.
- Some businesses not directly damaged by the hail event may be negatively impacted while roads are cleared and utilities are being restored, further slowing economic recovery.
- Businesses that are more reliant on utility infrastructure than others may suffer greater damages without a backup power source.

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- Hazardous road conditions will likely lead to increases in automobile accidents, further straining emergency response capabilities.
- Depending on the severity and scale of damage caused by large hail events, damage to power transmission and distribution infrastructure can require days or weeks to repair.
- A significant hail event could significantly damage agricultural crops, resulting in extensive economic losses for the community and surrounding area.
- Hail events may injure or kill livestock and wildlife.
- A large hail event could impact the accessibility of recreational areas and parks due to extended power outages or debris clogged access roads.

The economic and financial impacts of hail will depend entirely on the scale of the event, what is damaged, and how quickly repairs to critical components of the economy can be implemented. The level of preparedness and pre-event planning conducted by the community, local businesses, and citizens will contribute to the overall economic and financial conditions in the aftermath of any hail event.

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HAZARD DESCRIPTION



Tornadoes are among the most violent storms on the planet. A tornado is a rapidly rotating column of air extending between, and in contact with, a cloud and the surface of the earth. The most violent tornadoes are capable of tremendous destruction and have wind speeds of 250 miles per hour or more. In extreme cases, winds may approach 300 miles per hour. Damage paths can be in excess of one mile wide and 50 miles long.

The most powerful tornadoes are produced by “Supercell Thunderstorms.” These thunderstorms are created when horizontal wind shears (winds moving in different directions at different altitudes) begin to rotate the storm. This horizontal rotation can be tilted vertically by violent updrafts, and the rotation radius can shrink, forming a vertical column of very quickly swirling air. This rotating air can eventually reach the ground, forming a tornado.

Table 15-1. Variations among Tornadoes

WEAK TORNADOES	STRONG TORNADOES	VIOLENT TORNADOES
• 69% of all tornadoes • Less than 5% of tornado deaths • Lifetime 1-10+ minutes • Winds less than 110 mph	• 29% of all tornadoes • Nearly 30% of all tornado deaths • May last 20 minutes or longer • Winds 110 – 205 mph	• 2% of all tornadoes • 70% of all tornado deaths • Lifetime can exceed one hour • Winds greater than 205 mph

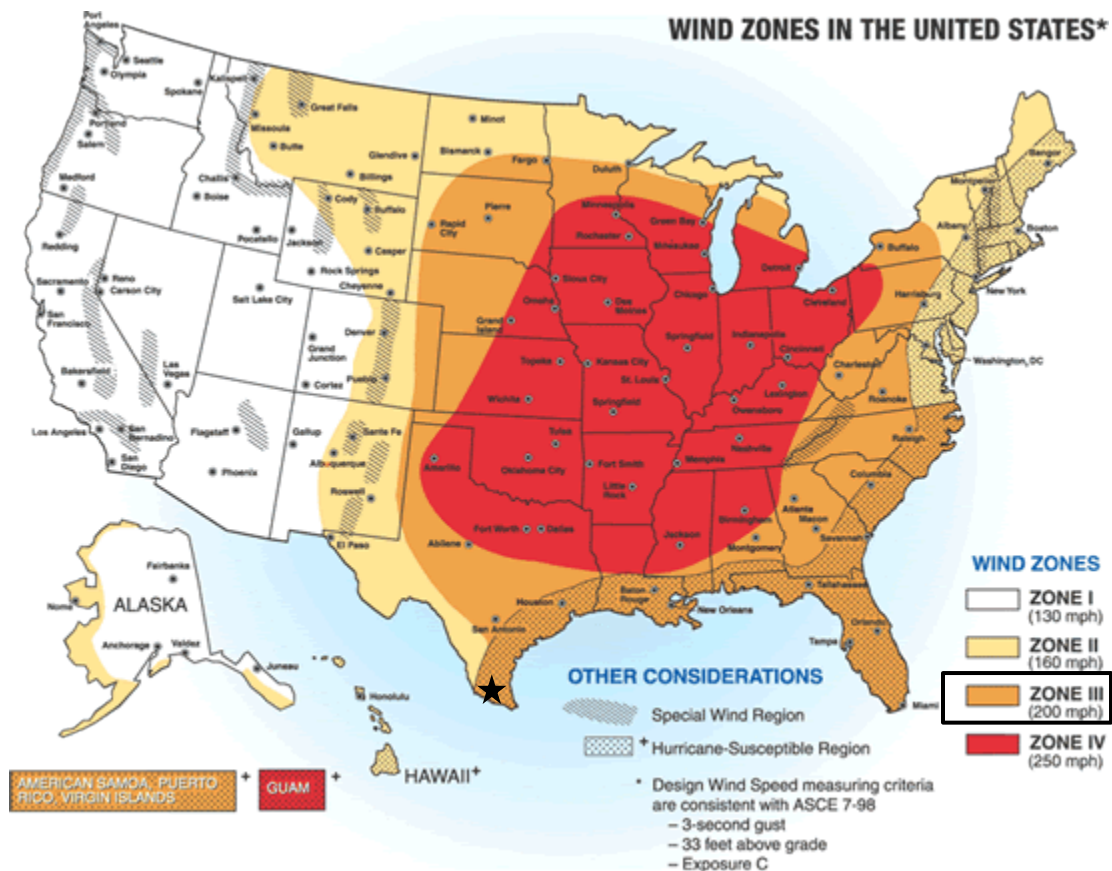
LOCATION

Tornadoes do not have any specific geographic boundary and can occur throughout the County uniformly. It is assumed that the entire Hidalgo County planning area including all participating

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jurisdictions and Santa Cruz Irrigation District #15, are uniformly exposed to tornado activity. The entire Hidalgo County planning area is located in Wind Zone III (Figure 15-1), where tornado winds can be as high as 200 mph.

Figure 15-1. FEMA Wind Zones in the United States¹



EXTENT

The destruction caused by tornadoes ranges from light to inconceivable, depending on the intensity, size, and duration of the storm. Typically, tornadoes cause the greatest damage to structures of light construction, such as residential homes (particularly mobile homes).

¹ Hidalgo County is indicated by the star.

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Table 15-2. The Fujita Tornado Scale²

F-SCALE NUMBER	INTENSITY	WIND SPEED (MPH)	TYPE OF DAMAGE DONE	PERCENT OF APPRAISED STRUCTURE VALUE LOST DUE TO DAMAGE
F0	Gale Tornado	40 – 72	Some damage to chimneys; breaks branches off trees; pushes over shallow-rooted trees; damages sign boards.	None Estimated
F1	Moderate Tornado	73 – 112	The lower limit is the beginning of hurricane wind speed; peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off roads; attached garages may be destroyed.	0% – 20%
F2	Significant Tornado	113 – 157	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light object missiles generated.	50% – 100%
F3	Severe Tornado	158 – 206	Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted.	100%
F4	Devastating Tornado	207 – 260	Well-constructed homes leveled; structures with weak foundations blown off some distance; cars thrown and large missiles generated.	100%
F5	Incredible Tornado	261 – 318	Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile sized missiles flying through the air in excess of 330 yards; trees debarked; steel reinforced concrete badly damaged.	100%

² Source: <http://www.tornadoproject.com/fscale/fscale.htm>

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Tornado magnitudes prior to 2005 were determined using the traditional version of the Fujita Scale (Table 15-2). Since February 2007, the Fujita Scale has been replaced by the Enhanced Fujita Scale (Table 15-3), which retains the same basic design and six strength categories as the previous scale. The newer scale reflects more refined assessments of tornado damage surveys, standardization, and damage consideration to a wider range of structures.

Table 15-3. Enhanced Fujita Scale for Tornadoes

STORM CATEGORY	DAMAGE LEVEL	3 SECOND GUST (MPH)	DESCRIPTION OF DAMAGES	PHOTO EXAMPLE
EF0	Gale	65 – 85	Some damage to chimneys; breaks branches off trees; pushes over shallow-rooted trees; damages sign boards.	
EF1	Weak	86 – 110	The lower limit is the beginning of hurricane wind speed; peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off roads; attached garages may be destroyed.	
EF2	Strong	111 – 135	Considerable damage; roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light object missiles generated.	
EF3	Severe	136 – 165	Roof and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted.	
EF4	Devastating	166 – 200	Well-constructed homes leveled; structures with weak foundations blown off some distance; cars thrown and large missiles generated.	
EF5	Incredible	200+	Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile sized missiles flying through the air in excess of 330 yards; trees debarked; steel reinforced concrete badly damaged.	

Both the Fujita Scale and Enhanced Fujita Scale should be referenced in reviewing previous occurrences since tornado events prior to 2007 will follow the original Fujita Scale. The largest

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magnitude reported within the planning area is an F3 on the Fujita Scale, a “Severe Tornado.” Based on the planning areas location in Wind Zone III, the planning area could experience anywhere from an EF0 to EF5 depending on the wind speed.

The events in Hidalgo County (converted from the Fujita Scale) have been between EF0 and EF5 (Table 15-4). Therefore, the range of intensity that the Hidalgo County planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15, would be expected to mitigate is a tornado event that would be a low to incredible risk, an EF0 to EF5. Historically, the strongest tornado to strike the planning area was a F3, which would be an EF5 on the Enhanced Fujita Scale with the highest wind speed. This is the strongest event the planning area can anticipate in the future.

HISTORICAL OCCURRENCES

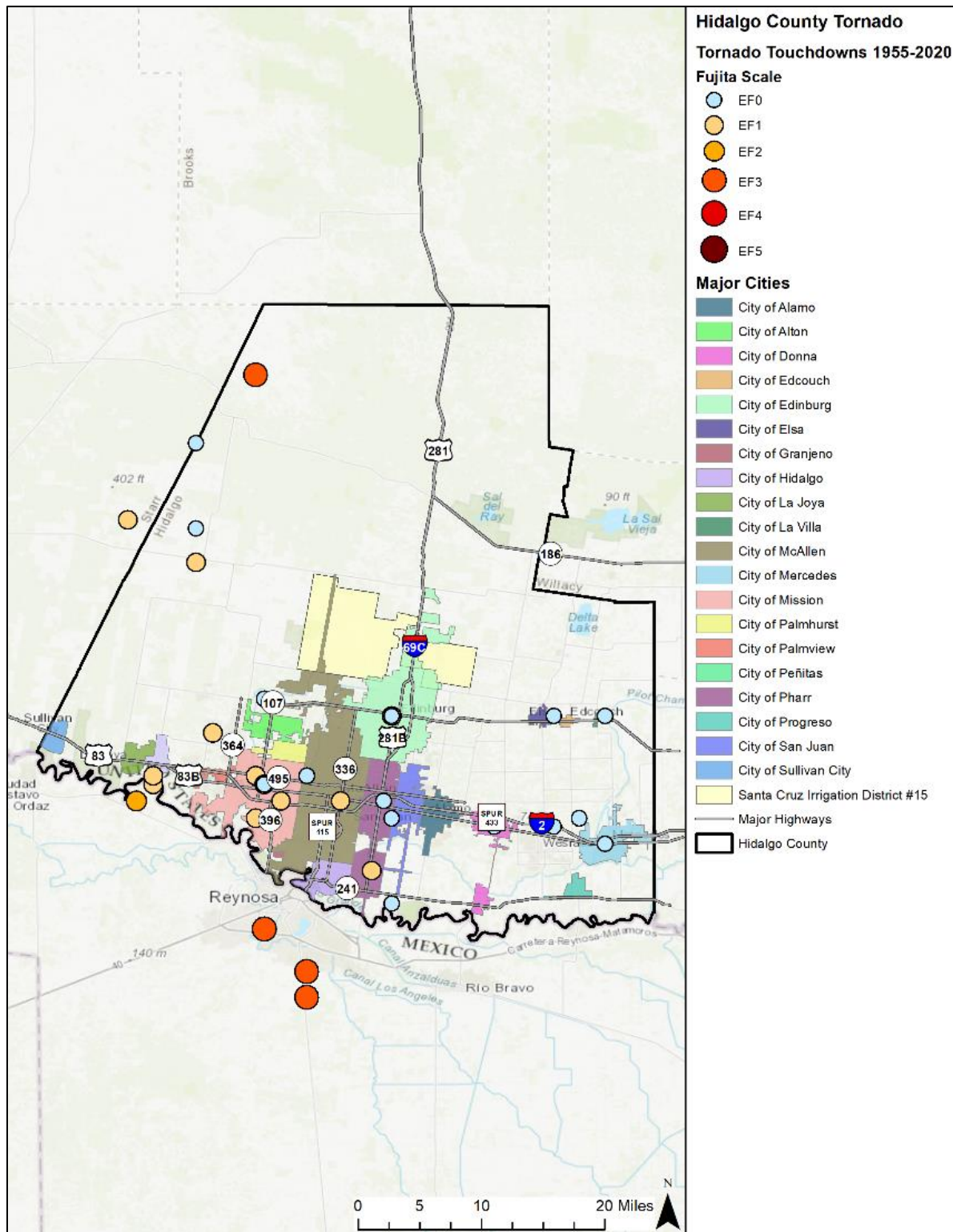
Only reported tornadoes were factored into the Risk Assessment. It is likely that a high number of occurrences have gone unreported over the past 67 years. Historical tornado data for the county, participating jurisdictions and Santa Cruz Irrigation District #15 is provided within a jurisdiction-wide basis per the NCEI database.

Historical tornado data for the Santa Cruz Irrigation District #15 is provided within the City of Edinburg events per the NCEI database as they do not have events reported separately and apart from the reported Edinburg city-wide events. There have been no reported losses as a result of tornados for the Santa Cruz Irrigation District #15.

Figure 15-2 identifies the locations of previous occurrences in the Hidalgo County planning area from 1953 through December 2020. A total of 44 events have been recorded by the Storm Prediction Center (NOAA) and NCEI databases for the Hidalgo County planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15.

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Figure 15-2. Spatial Historical Tornado Events, 1955-2020³



³ Source: NOAA Records

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Table 15-4. Historical Tornado Events, 1955-2020⁴

JURISDICTION	DATE	TIME	MAGNITUDE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Hidalgo County	10/18/1965	5:30 PM	F1	0	0	\$2,074	\$0
Hidalgo County	4/26/1967	8:00 PM	F2	0	0	\$198,561	\$0
Hidalgo County	8/10/1980	6:50 PM	F1	0	0	\$789,358	\$0
Hidalgo County	8/29/1981	1:47 PM	F1	0	0	\$71,239	\$0
Hidalgo County	3/15/1983	5:00 PM	F3	0	1	\$6,716,394	\$0
Hidalgo County	3/15/1983	5:15 PM	F3	0	9	\$6,716,394	\$0
Hidalgo County	3/15/1983	5:20 PM	F3	0	0	\$6,716,394	\$0
Hidalgo County	9/7/1983	1:40 PM	F1	0	0	\$78	\$0
Hidalgo County	6/14/1987	4:45 PM	F0	0	0	\$57,933	\$0
Hidalgo County	9/16/1988	8:45 AM	F0	0	0	\$548,861	\$0
Hidalgo County	9/16/1988	9:00 AM	F0	0	0	\$54,886	\$0
Hidalgo County	9/16/1988	9:45 AM	F0	0	1	\$548,861	\$0
Hidalgo County	9/16/1988	10:15 AM	F0	0	0	\$548,861	\$0
Hidalgo County	9/16/1988	11:01 AM	F0	0	0	\$548,861	\$0
Hidalgo County	9/16/1988	11:30 AM	F0	0	0	\$548,861	\$0
Hidalgo County	5/5/1991	8:52 AM	F0	0	0	\$484,908	\$0
Hidalgo County	6/14/1994	11:30 AM	F1	0	0	\$88,856	\$889
Hidalgo County	8/23/1999	2:30 PM	F0	0	0	\$9,444	\$0
Hidalgo County	8/23/1999	3:15 PM	F0	0	0	\$0	\$6,296
City of Mission	5/21/2001	8:15 PM	F1	0	0	\$44,403	\$0
City of Mission	5/21/2001	8:25 PM	F1	0	0	\$103,607	\$0
City of Peñitas	4/30/2003	12:09 AM	F1	0	11	\$2,146,469	\$0
Hidalgo County	6/1/2005	10:15 AM	F0	0	0	\$33,806	\$0
City of Mercedes	6/1/2005	10:03 AM	F0	0	0	\$13,523	\$0
Hidalgo County	6/30/2011	4:57 PM	EF1	0	1	\$582,606	\$0

⁴ Only recorded events with fatalities, injuries or damages are listed. Magnitude is listed when available. Damage values are in 2021 dollars.

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JURISDICTION	DATE	TIME	MAGNITUDE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
TOTALS			(Max Extent)	0	23	\$27,575,238	\$7,185

Table 15-5. Summary of Historical Events, 1955-2020⁵

JURISDICTION	Number of Events	MAGNITUDE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Hidalgo County	32	EF3	0	12	\$25,267,236	\$7,185
City of Alamo	0	N/A	N/A	N/A	\$0	\$0
City of Alton	0	N/A	N/A	N/A	\$0	\$0
City of Donna	1	EF0	0	0	\$0	\$0
City of Edcouch	0	N/A	N/A	N/A	\$0	\$0
City of Edinburg	0	N/A	N/A	N/A	\$0	\$0
City of Elsa	0	N/A	N/A	N/A	\$0	\$0
City of Granjeno	0	N/A	N/A	N/A	\$0	\$0
City of Hidalgo	0	N/A	N/A	N/A	\$0	\$0
City of La Joya	0	N/A	N/A	N/A	\$0	\$0
City of La Villa	1	EF0	0	0	\$0	\$0
City of McAllen	3	EF1	0	0	\$0	\$0
City of Mercedes	2	EF0	0	0	\$13,523	\$0
City of Mission	4	EF1	0	0	\$148,010	\$0
City of Palmhurst	0	N/A	N/A	N/A	\$0	\$0
City of Palmview	0	N/A	N/A	N/A	\$0	\$0
City of Peñitas	1	F1	0	11	\$2,146,469	\$0
City of Pharr	0	N/A	N/A	N/A	\$0	\$0
City of Progreso	0	N/A	N/A	N/A	\$0	\$0
City of San Juan	0	N/A	N/A	N/A	\$0	\$0
City of Sullivan City	0	N/A	N/A	N/A	\$0	\$0

⁵ Damages reported in 2021 dollars.

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JURISDICTION	Number of Events	MAGNITUDE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
TOTAL LOSSES	44	(Max Extent)	0	23	\$27,582,423	

Based on the list of historical tornado events for the Hidalgo County planning area (listed above), including all participating jurisdictions, there have been no recorded events since the 2016 Plan.

SIGNIFICANT EVENTS

June, 30 2011 – Hidalgo County

This short-lived tornado touched down in a subdivision approximately 4 miles east-northeast of the City of Hidalgo in southern Hidalgo County. Most of the damage in this area was limited to the overturning of trampolines, the knocking down of wooden privacy fences, an outdoor storage building, and minor shingle damage to the roof of two homes. A (relatively empty) moving truck was also blown on its side in the subdivision. The tornado strengthened as it approached an import/export business on the west side of US-281. Here, an office building lost between 25 percent and 33 percent of the roof as the tornado continued moving westward. Much of the roofing material landed on a car parked behind the office building, resulting in the injury of the driver. In this area, a single-wide mobile home was heavily damaged, as well as a couple of semi trucks. Before lifting, tornadic winds knocked down several hundred feet of concrete block fencing. No damage was seen beyond this point by the National Weather Service survey crew or officials from the city of Pharr.

September 2, 2007 – City of Mercedes

Mercedes police reported a weak tornado touched down briefly toppling two or three trees near Texas and Tenth Streets in the city. Numerous callers reported seeing a funnel cloud in the Mercedes area.

July 16, 2007 – City of McAllen

Intense thunderstorms in McAllen produced a tornado between 7 and 7:30 AM along with torrential rainfall and widespread street flooding. Storm damage was observed from the vicinity of 23rd street and Expressway 83 in McAllen, oriented northeastward toward the intersection of 16th and Business 83 in McAllen. Two uprooted hardwood trees were observed. Substantial structural damage was observed to an automobile shop near 23rd and Expressway 83 and to a lumber retailer on Bicentennial Road between Expressway 83 and Business 83. At least one power pole was toppled. A large three-sided canopy type roof and gabled roofing material at the lumber yard was either knocked over or ripped off with the concrete anchors ripped from the asphalt. This material was scattered in many directions into adjoining lots or across Bicentennial Avenue. It is estimated that one of the concrete anchors was tossed a distance of 50 feet. A decorative light pole and street sign was also observed to be completely bent in the general vicinity in a manner consistent with tornado type winds. Roofing materials were twisted around adjacent palm trees. Materials underneath the roofing and canopy, lumber and plywood, were displaced.

PROBABILITY OF FUTURE EVENTS

Tornadic storms can occur at any time of year and at any time of day, but they are typically more common in the spring months during the late afternoon and evening hours. A smaller, high frequency period can emerge in the fall during the brief transition between the warm and cold

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seasons. According to historical records, Hidalgo County, including all participating jurisdictions and Santa Cruz Irrigation District #15, can experience a tornado touchdown approximately once every year. This frequency supports a highly likely probability of future events for Hidalgo County, including all participating jurisdictions and Santa Cruz Irrigation District #15.

VULNERABILITY AND IMPACT

Because tornadoes often cross jurisdictional boundaries, all existing and future buildings, facilities, and populations in the entire Hidalgo County planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15, are considered to be exposed to this hazard and could potentially be impacted. The damage caused by a tornado is typically a result of high wind velocity, wind-blown debris, lightning, and large hail.

The average tornado moves from southwest to northeast, but tornadoes have been known to move in any direction. Consequently, vulnerability of humans and property is difficult to evaluate since tornadoes form at different strengths, in random locations, and create relatively narrow paths of destruction. Although tornadoes strike at random, making all buildings vulnerable, three types of structures are more likely to suffer damage:

- Manufactured Homes;
- Homes on crawlspaces (more susceptible to lift); and
- Buildings with large spans, such as shopping malls, gymnasiums, and factories.

Tornadoes can cause a significant threat to people as they could be struck by flying debris, falling trees/branches, utility lines, and poles. Blocked roads could prevent first responders to respond to calls. Tornadoes commonly cause power outages which could cause health and safety risks to residents and visitors, as well as to patients in hospitals.

The mobile office used by the Santa Cruz Irrigation District #15 would be more vulnerable to tornado events than typical site-built structures and could potentially pose a greater risk for wind-blown debris.

The Hidalgo County planning area features multiple mobile or manufactured home parks throughout the planning area, including all participating jurisdictions. These parks are typically more vulnerable to tornado events than typical site-built structures. In addition, manufactured homes are located sporadically throughout the planning area including all participating jurisdictions and unincorporated areas of the county which would also be more vulnerable. The US Census data indicates a total of 42,278 manufactured homes located in the Hidalgo County planning area (16%), including participating jurisdictions (Table 15-6). In addition, 22% (approximately 59,641 structures) of the single family residential (SFR) structures in the entire planning area were built before 1980. These structures would typically be built to lower or less stringent construction standards than newer construction and may be more susceptible to damages during significant wind events.

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Table 15-6. Structures at Greater Risk by Jurisdiction

JURISDICTION	MANUFACTURED HOMES	SFR STRUCTURES BUILT BEFORE 1980
Hidalgo County	42,278	59,641
City of Alamo	2,985	1,369
City of Alton	391	706
City of Donna	1,104	2,199
City of Edcouch	62	535
City of Edinburg	2,111	6,199
City of Elsa	154	598
City of Granjeno	16	29
City of Hidalgo	125	335
City of La Joya	66	344
City of La Villa	5	303
City of McAllen	2,253	15,179
City of Mercedes	946	2,427
City of Mission	3,585	5,502
City of Palmhurst	99	128
City of Palmview	232	95
City of Peñitas	78	165
City of Pharr	4,304	4,733
City of Progreso	148	404
City of San Juan	1,181	1,879
City of Sullivan City	181	287

While all citizens are at risk to the impacts of a tornado, forced relocation and disaster recovery drastically impacts low-income residents who lack the financial means to travel, afford a long-term stay away from home, and to rebuild or repair their homes. An estimated 29.7% of the planning area population live below the poverty level (Table 15-7).

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Table 15-7. Populations at Greatest Risk by Jurisdiction⁶

JURISDICTION	POPULATION BELOW POVERTY LEVEL
Hidalgo County	253,987
City of Alamo	5,256
City of Alton	5,432
City of Donna	5,989
City of Edcouch	1,028
City of Edinburg	22,907
City of Elsa	2,211
City of Granjeno	13
City of Hidalgo	4,623
City of La Joya	1,718
City of La Villa	889
City of McAllen	32,653
City of Mercedes	5,566
City of Mission	18,803
City of Palmhurst	450
City of Palmview	1,697
City of Peñitas	1,154
City of Pharr	22,719
City of Progreso	1,199
City of San Juan	10,435
City of Sullivan City	1,324

The following critical facilities would be vulnerable to tornado events in each participating jurisdiction:

⁶ US Census Bureau 2019 data for Hidalgo County

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Table 15-8. Critical Facilities at Risk by Jurisdiction

JURISDICTION	CRITICAL FACILITIES
Hidalgo County	5 Administrative Offices, 1 Adult Probation, 2 Building & Grounds, 1 Community Center, 2 Constable, 2 County Clerk, 2 County Buildings, 3 Courts/Annex, 1 Election Administration, 1 Fire/Marshal Department, 2 Health Offices, 3 Justice of the Peace, 2 Planning Departments, 1 Resource Center, 7 Sheriff's Departments, 3 Shops, 1 Storage Facility, 1 WIC
City of Alamo	1 Apartment Complex, 1 City Hall, 2 Fire Departments, 1 Health System/24-hour ER, 1 Police Department, 1 Nursing Home, 11 Schools, 1 Waste/Water Plant, 1 Water Plant
City of Alton	1 City Hall, 1 Development Center, 1 Fire Department, 1 Lift Station, 1 Park, 2 Police Department/Public Safety, 1 Recreation Center, 1 Water Tower, 1 Internet (WiFi) Tower
City of Donna	1 Fire Department, 1 Police Department, 1 Sewer Treatment, 1 Water Treatment
City of Edcouch	1 City Hall, 1 Community Center, 1 Fire Department (Volunteer), 1 Police Department, 1 Sewer Plant, 1 Water Plant, 1 Water Tower
City of Edinburg	1 Airport, 1 AEP, 1 City Hall, 1 Courthouse, 1 County Jail, 5 Fire Departments, 1 Housing Authority, 2 Juvenile Detentions, 1 Landfill, 1 Library, 26 Lift Stations, 6 Hospitals, 1 Police Department, 2 Power Plant, 32 Schools, 1 Theater, 3 Water Plant/Supply, 1 WWTP
City of Elsa	1 City Hall, 2 Chlorine Buildings, 2 Groundwater Tanks, 14 Lift Stations, 1 Public Safety, 1 Public Works, 2 Water Plant/Pumping, 1 Water Tower
City of Granjeno	1 City Hall, 1 Public Facility
City of Hidalgo	1 Arena, 1 Bridge, 1 City Hall, 1 Court House, 1 Police/Fire Department, 1 Health Clinic, 1 Library, 8 Schools, 1 Waste/Sewer Plant
City of La Joya	1 City Hall, 1 Fire Department, 1 Police Department, 1 Shelter, 1 Water Plant, 1 Wastewater Plant
City of La Villa	1 City Hall, 1 Fire Department, 1 Police Department, 4 Lift Stations, 4 Water/Wastewater Plants, 2 Water Towers
City of McAllen	3 Community Center/Shelters, 1 Development Center, 1 Emergency Operation Center, 6 Fire Departments, 1 Public Safety, 1 Public Works/Maintenance Facility, 2 Reservoir, 1 Traffic Operation, 1 Waste Plant, 2 Water Plants
City of Mercedes	1 Arena/Dome, 1 City Hall, 1 Fire Department, 1 Police Department, 1 Waste Plant, 1 Water Plant
City of Mission	1 City Hall, 1 City Gym, 5 Fire Departments, 1 Hospital, 1 Police Department, 1 Public Works Facility, 1 School, 1 Shelter, 1 Waste/Water Plant

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JURISDICTION	CRITICAL FACILITIES
City of Palmhurst	1 Administrative Building, 1 City Hall, 1 Police Department, 1 Public Works, 2 Power Stations, 2 Schools
City of Palmview	1 City Hall, 1 Fire Department, 1 Police Department, 1 School
City of Peñitas	1 City Hall, 1 Fire Department, 1 Gas Station, 1 Library, 3 Lift Station, 1 Police Department, 2 Schools, 2 Waste/Water Plants, 1 Wal-Mart
City of Pharr	1 City Hall, 1 Emergency Management Center, 2 Evacuation Centers, 4 Fire Departments, 34 Lift Stations, 1 Police Department, 41 Schools, 1 Waste Plant, 1 Water Plant
City of Progreso	1 City Hall, 1 Fire Department, 1 Police Department
City of San Juan	2 City Halls, 2 Fire Departments, 23 Lift Stations, 2 Public Safety, 1 Public Works, 2 Reservoirs, 1 Waste/Water Plant, 1 Water Plants/Station
City of Sullivan City	1 City Hall, 1 Fire Department, 1 Police Department, 1 School, 1 Water Plant
Santa Cruz Irrigation District #15	1 Dam, 1 Administration Building, 1 Tool Shed

In addition, the Santa Cruz Irrigation District #15 could face loss of critical facilities due to a tornado event as well as placing employees in harm's way following event to restore services.

The average loss estimate of property and crop is \$27,582,423 (in 2021 dollars), having an approximate annual loss estimate of \$424,345 (Table 15-9). Based on historic loss and damages, the impact of tornado on the Hidalgo County planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15, can be considered "Limited," with less than 10 percent of property expected to be destroyed, injuries that can be treated with first aid, and critical facilities shut down for 24-hours or less.

Table 15-9. Potential Annualized Losses by Jurisdiction

JURISDICTION	PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATES
Hidalgo County	\$25,274,421	\$361,063
City of Alamo	\$0	\$0
City of Alton	\$0	\$0
City of Donna	\$0	\$0
City of Edcouch	\$0	\$0
City of Edinburg	\$0	\$0
City of Elsa	\$0	\$0
City of Granjeno	\$0	\$0

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City of Hidalgo	\$0	\$0
City of La Joya	\$0	\$0
City of La Villa	\$0	\$0
City of McAllen	\$0	\$0
City of Mercedes	\$13,523	\$193
City of Mission	\$148,010	\$2,114
City of Palmhurst	\$0	\$0
City of Palmview	\$0	\$0
City of Peñitas	\$2,146,469	\$30,664
City of Pharr	\$0	\$0
City of Progreso	\$0	\$0
City of San Juan	\$0	\$0
City of Sullivan City	\$0	\$0
Planning Area	\$27,582,423	\$424,345

ASSESSMENT OF IMPACTS

Tornadoes have the potential to pose a significant risk to the population and can create dangerous situations. Often times, providing and preserving public health and safety is difficult. The impact of climate change could produce larger, more severe tornado events, exacerbating the current tornado impacts. More destructive tornado conditions can be frequently associated with a variety of impacts, including:

- Individuals exposed to the storm can be struck by flying debris, falling limbs, or downed trees causing serious injury or death.
- Structures can be damaged or crushed by falling trees, which can result in physical harm to the occupants.
- Manufactured homes may suffer substantial damage as they would be more vulnerable than typical site-built structures.
- Significant debris and downed trees can result in emergency response vehicles being unable to access areas of the community.
- Downed power lines may result in roadways being unsafe for use, which may prevent first responders from answering calls for assistance or rescue.
- Tornadoes often result in widespread power outages increasing the risk to more vulnerable portions of the population who rely on power for health and/or life safety.
- Extended power outages can result in an increase in structure fires and/or carbon monoxide poisoning as individuals attempt to cook or heat their home with alternate, unsafe cooking or heating devices, such as grills.

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- Tornadoes can destroy or make residential structures uninhabitable, requiring shelter or relocation of residents in the aftermath of the event.
- First responders must enter the damage area shortly after the tornado passes to begin rescue operations and to organize cleanup and assessments efforts, therefore they are exposed to downed power lines, unstable and unusual debris, hazardous materials, and generally unsafe conditions, elevating the risk of injury to first responders and potentially diminishing emergency response capabilities.
- Emergency operations and services may be significantly impacted due to damaged facilities, loss of communications, and damaged emergency vehicles and equipment.
- City or county departments may be damaged or destroyed, delaying response and recovery efforts for the entire community.
- Private sector entities that the City and its residents rely on, such as utility providers, financial institutions, and medical care providers may not be fully operational and may require assistance from neighboring communities until full services can be restored.
- Economic disruption negatively impacts the programs and services provided by the community due to short- and long-term loss in revenue.
- Damage to infrastructure may slow economic recovery since repairs may be extensive and lengthy.
- Some businesses not directly damaged by the tornado may be negatively impacted while roads and utilities are being restored, further slowing economic recovery.
- When the community is affected by significant property damage it is anticipated that funding would be required for infrastructure repair and restoration, temporary services and facilities, overtime pay for responders, and normal day-to-day operating expenses.
- Displaced residents may not be able to immediately return to work, further slowing economic recovery.
- Residential structures destroyed by a tornado may not be rebuilt for years, reducing the tax base for the community.
- Large or intense tornadoes may result in a dramatic population fluctuation, as people are unable to return to their homes or jobs and must seek shelter and/or work outside of the affected area.
- Businesses that are uninsured or underinsured may have difficulty reopening, which results in a net loss of jobs for the community and a potential increase in the unemployment rate.
- Recreation activities may be unavailable and tourism can be unappealing for years following a large tornado, devastating directly related local businesses.

The economic and financial impacts of a tornado event on the community will depend on the scale of the event, what is damaged, costs of repair or replacement, lost business days in impacted areas, and how quickly repairs to critical components of the economy can be implemented. The level of preparedness and pre-event planning done by government, businesses, and citizens will contribute to the overall economic and financial conditions in the aftermath of a tornado event.

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SECTION 16: EXPANSIVE SOILS

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HAZARD DESCRIPTION

Expansive soils are soils and soft rocks with a relatively high percentage of clay minerals that are subject to changes in volume as they swell and shrink with changing moisture conditions. Drought conditions can cause soils to contract in response to a loss of soil moisture.

Expansive soils contain minerals such as smectite clays that are capable of absorbing water. When these clays absorb water they increase in volume and expand. Expansions in soil of ten percent or more are not uncommon in the Hidalgo County planning area. The change in soil volume and resulting expansion can exert enough force on a building or other structure to cause damage.

Expansive soils will also lose volume and shrink when they dry. A reduction in soil volume can affect the support to buildings or other structures and result in damaging soil subsidence. Fissures in the soil can also develop and facilitate the deep penetration of water when moist conditions or runoff occurs. This produces a cycle of shrinkage and swelling that places repetitive stress on structures.

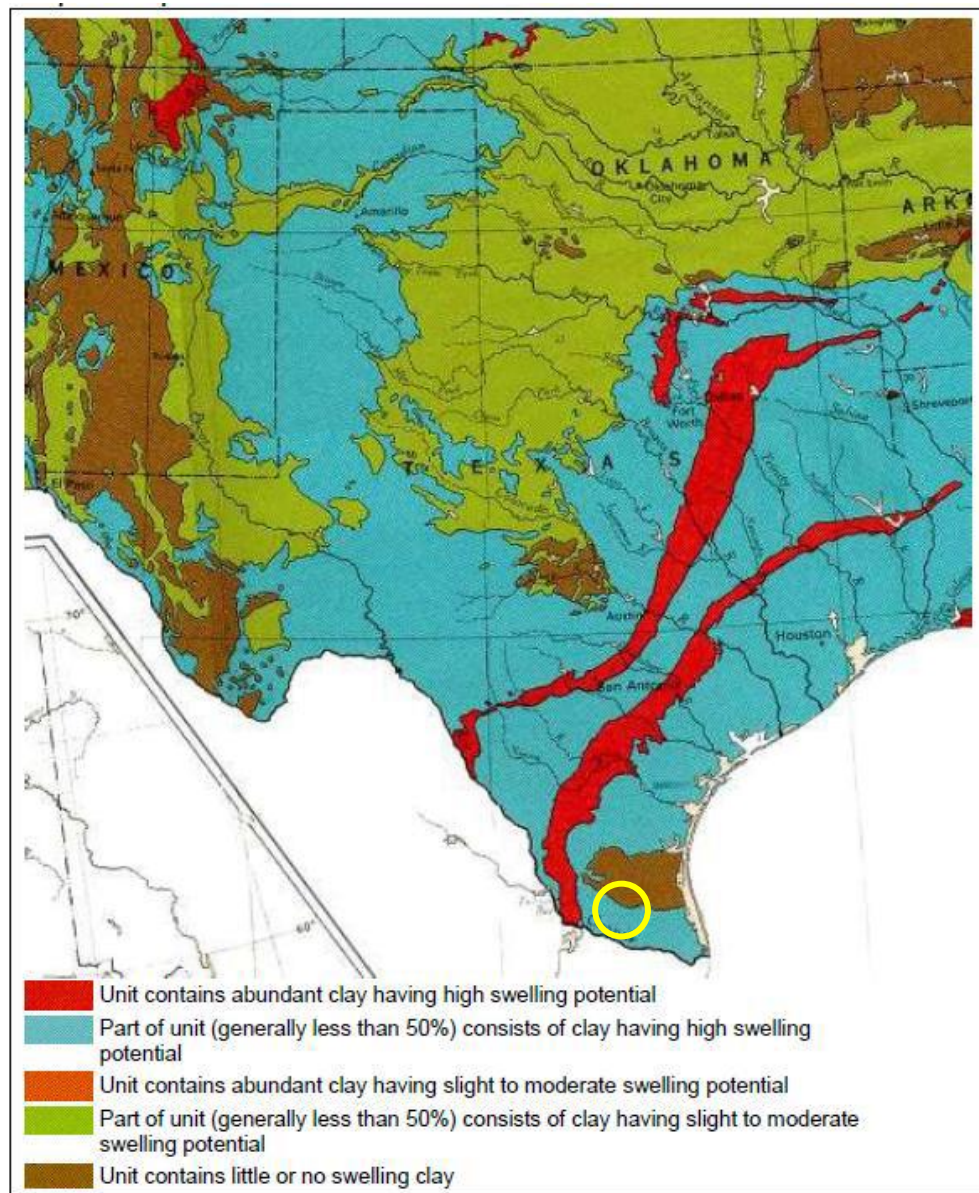


LOCATION

The Hidalgo County planning area may be affected by the band of expansive soils stretching from northeast Dallas, southwest through the city towards Laredo, and along an area also known as the I-35 corridor, Figure 16-1 depicts expansive soils across the State of Texas and the Hidalgo County planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15 is identified within the yellow circle. These areas receive the most moisture and are also vulnerable to droughts, which can cause the soils to expand and contract. Figure 16-2 depicts the types of land resources in the State of Texas due to their soil types.

SECTION 16: EXPANSIVE SOILS

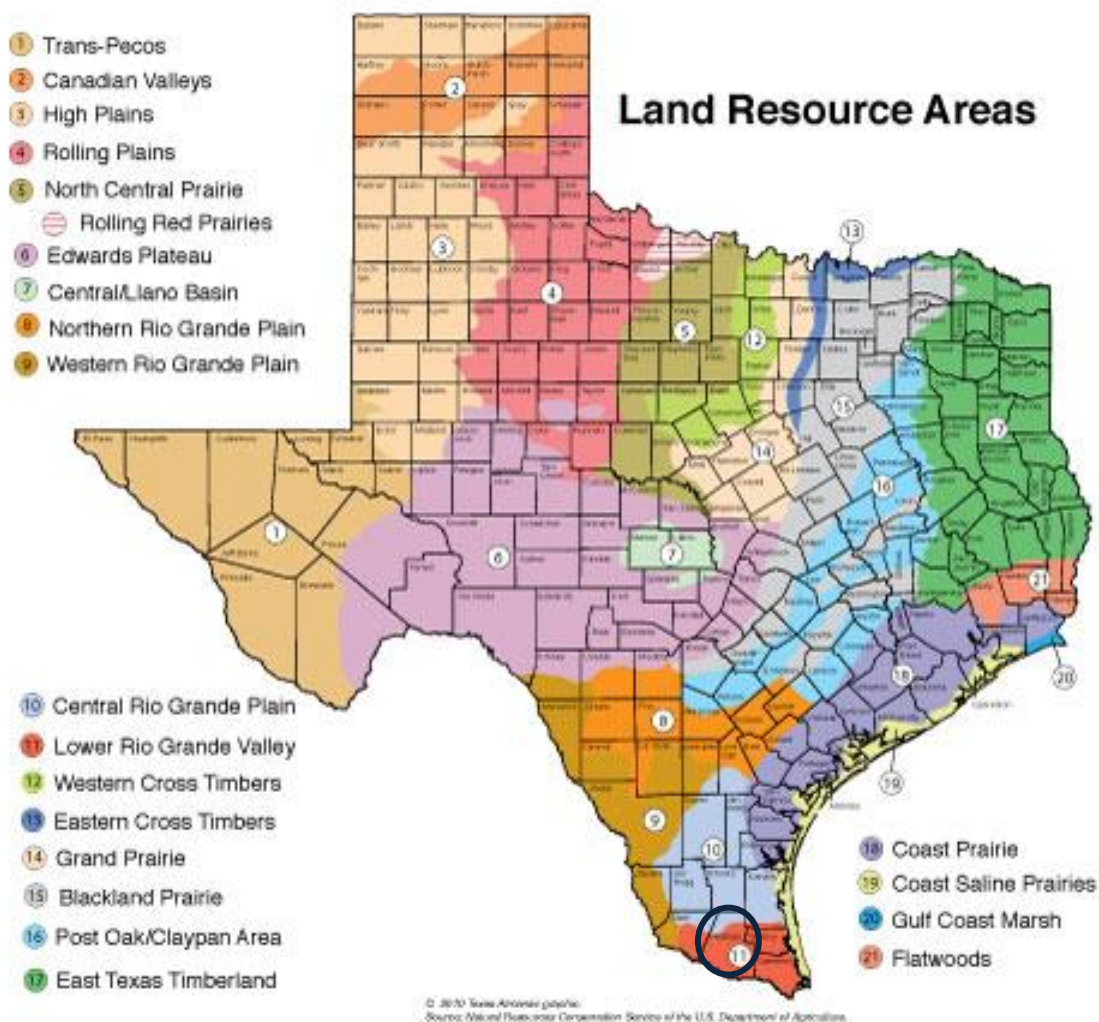
Figure 16-1. Texas Geological Survey¹



¹ Source: United States Geological Survey, <http://www.usgs.gov>

SECTION 16: EXPANSIVE SOILS

Figure 16-2. Texas Geological Survey



The Hidalgo County planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15 is located within the Central Rio Grande Plain, and the Lower Rio Grande Valley as identified within the black circle in Figure 15-2. The entire planning area is located in an area affected by expansive soils.

Central Rio Grande Plain: The Central Rio Grande Plain comprises about 5.9 million acres in an area of South Texas from Live Oak County to Hidalgo County. It includes the South Texas Sand Sheet, an area of deep, sandy soils and active sand dunes. The landscape is nearly level to gently undulating. Surface drainage is slow to rapid. Upland soils are mostly deep, light-colored, neutral to alkaline sands and loams. Many are saline or sodic. Bottomland soils are of minor extent.

Most of the area is used for raising beef cattle. A few areas, mostly in the northeast part, are used for growing grain sorghums, cotton, and small grains. Hunting leases are a major source of income. Brush control is the major soil-management problem on rangeland; wind erosion and limited soil moisture are major concerns on cropland.

SECTION 16: EXPANSIVE SOILS

Lower Rio Grande Valley: The Lower Rio Grande Valley comprises about 2.1 million acres in extreme southern Texas. The landscape is level to gently sloping with slow surface drainage.

Upland soils are mostly deep, grayish-brown, neutral to alkaline loams; coastal areas are mostly gray, silty clay loam and silty clay; some are saline. Bottomland soils are minor in extent.

Most of the soils are used for growing irrigated vegetables and citrus, along with cotton, grain sorghums, and sugar cane. Some areas are used for growing beef cattle. Irrigation water management and wind erosion are the major soil-management problems on cropland; brush control is the major problem on rangeland.

EXTENT

The extent to which soil expansion is present in an area can be determined using the predominant soil composition and associated permeability. The soil survey was developed by the USDA Soils Conservation Service and contains information that can be applied in determining the suitability of soils in the planning area when selecting sites for roads, structures, and infrastructure. Figure 16-3 shows the predominant soil types throughout the state of Texas and the planning area.

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Figure 16-3. USDA General Soil Map of Texas

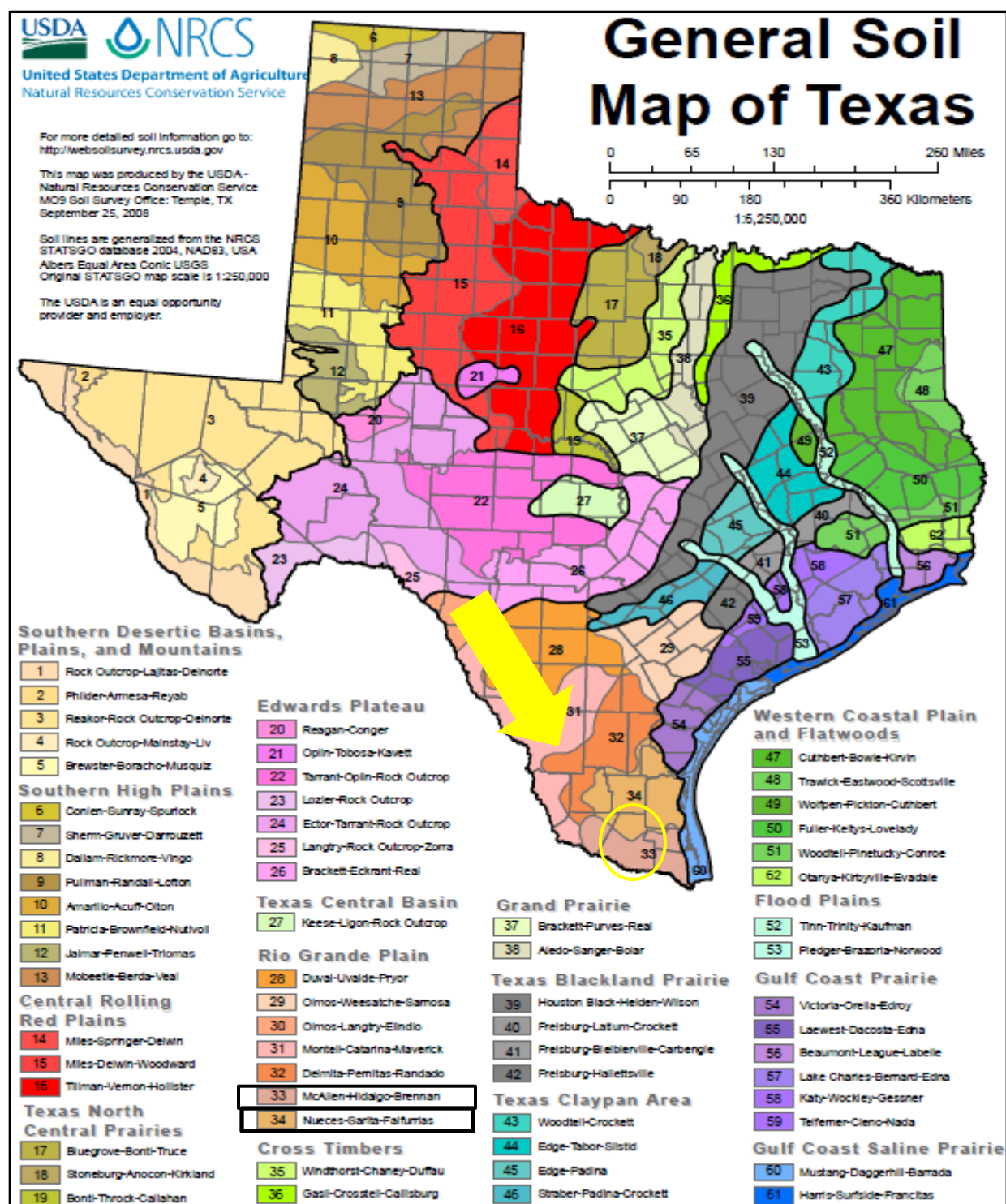


Table 16-1 includes the plasticity index value ranges and soil properties while Table 16-2 includes additional descriptions of the soil types predominant throughout the planning area with the

SECTION 16: EXPANSIVE SOILS

assigned plasticity index per soil type by area as identified in Figure 16-3. The predominant soil types for each area can vary greatly from one plat to the next.

The Plasticity Index is provided for each type of soil within the planning area. The plasticity index ranges are provided on a county-wide basis for each predominant soil type. The plasticity index for each soil type as well as the descriptions provided in the tables below represent a summary of the data provided in the USDA Soil Survey of Hidalgo County.

Table 16-1. Swelling Potential of Soils and Plasticity Index

Potential Expansion	Expansion Index
Low	0 – 15
Medium	10 – 35
High	20 – 55
Very High	35 and above

Table 16-2. Hidalgo County Soil Description by Area and Plasticity Index of Soils

AREA	SOILS	DESCRIPTION	PLASTICITY INDEX	POTENTIAL EXPANSION/EXTENT LEVEL
33	McAllen-Hidalgo-Brennan	McAllen soils are well drained and moderately permeable. Typically, these soils have a light brownish gray fine sandy loam surface layer about 14 inches thick. The subsoil, to a depth of 37 inches, is pale brown sandy clay loam. The underlying material to 72 inches is very pale brown sandy clay loam. These soils are calcareous throughout. Hidalgo soils are well drained and moderately permeable. Typically, these soils have a dark grayish brown, sandy clay loam surface layer about 17 inches thick. The underlying material to 80 inches is very pale brown clay loam. These soils are calcareous throughout. Brennan soils are well drained and moderately permeable. Typically, these soils have a dark brown fine sandy loam surface layer about 13 inches thick. The subsoil, to a depth of 47 inches, is sandy clay loam. It is brown in the upper part and pale brown in the lower part. The underlying material to 65 inches is	11-20; 11-20; 8-22	Low, Medium, High

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AREA	SOILS	DESCRIPTION	PLASTICITY INDEX	POTENTIAL EXPANSION/EXTENT LEVEL
		very pale brown sandy clay loam. These soils are noncalcareous to a depth of 29 inches.		
34	Nueces, Sarita-Falfurrias	The Nueces series consists of very deep, moderately well drained, moderately slow permeable soils that formed in sandy eolian deposits over loamy Quaternary age alluvium. These nearly level to gently sloping soils are on the Sandsheet Prairie of the South Texas Coastal Plain. The Sarita series consists of very deep well drained, moderately permeable soils formed in eolian sands over loamy alluvium of Quaternary age. These soils occur on gently undulating, vegetated low dunes on the Sandsheet Prairie of the South Texas Coastal Plain. The Falfurrias series consists of very deep, somewhat excessively drained, rapidly permeable soils that formed in deep eolian sand deposits of Holocene age. These soils are on nearly level to steep vegetated dunes on the Sandsheet Prairie of the South Texas Coastal Plain.	11-20; 11-22; 0-3	Low, Medium, High

High plasticity soils are prone to shrink and swell as soil moisture changes, which can degrade pavement, causing longitudinal cracking and edge drop-off. This effect can damage foundations of buildings and homes. The Hidalgo County planning area is subject to a range of plasticity Index levels including low, medium, and high, as indicated by the soils in Figure 16-3, and Tables 16-1 and 16-2 above. Plasticity of soils are highly subject to location and soil moisture content in any given time frame and location. Due to the broad plasticity index range throughout the Hidalgo County planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15, the worst the entire planning area may anticipate is very high swelling potential.

HISTORICAL OCCURRENCES

Expansive soils are a condition that is native to Texas soil characteristics, and cannot be documented as a time-specific event, except when it leads to structural and infrastructure damage. Extreme conditions can damage roads, structures, and infrastructure, including projects still under construction. Damages from expansive soils are typically associated with droughts. There is currently no historical data available for historic expansive soil damages in the Hidalgo County. The limited data for historical expansive soil incidents is noted as a data deficiency for

SECTION 16: EXPANSIVE SOILS

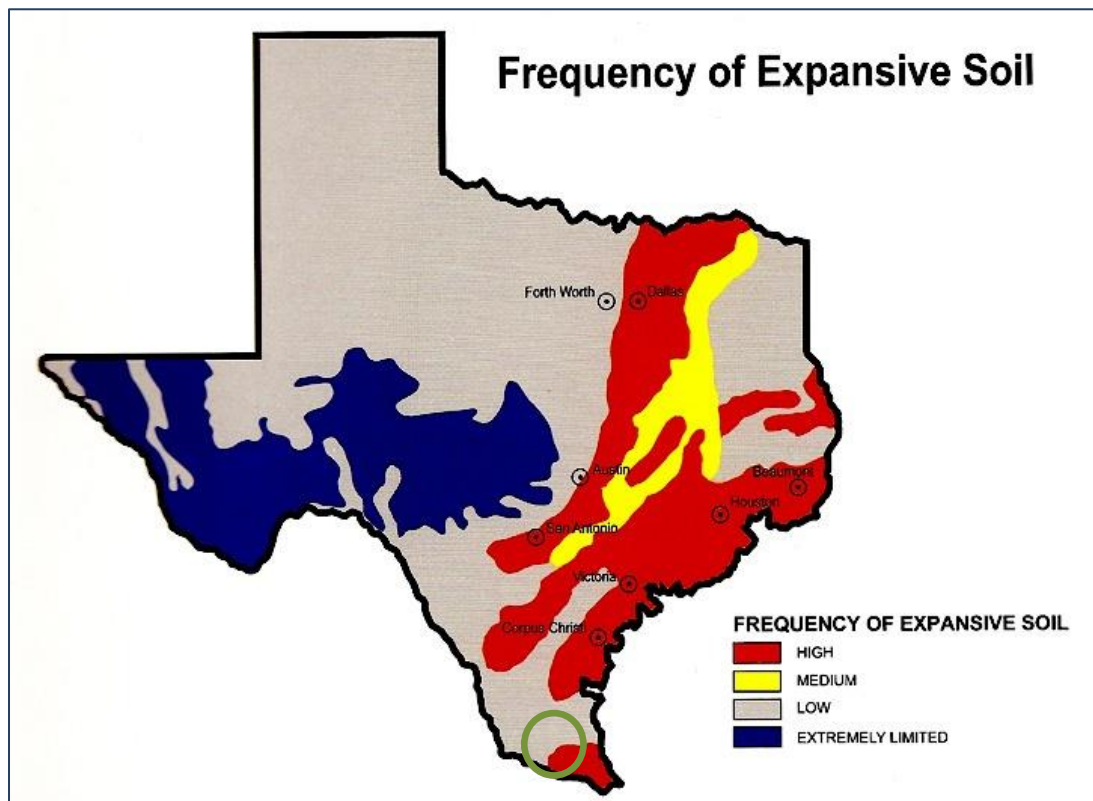
this planning cycle. An action has been created to enhance data collection for expansive soil incidents in future plan updates.

PROBABILITY OF FUTURE EVENTS

Since no other records of specific incidences of loss associated with expansive soils were found, and no specific occurrences of expansive soils were identified within the planning area, the probability of future events cannot be determined at this time. However, according to public opinion, the probability of future events of loss due to expansive soils within the planning area, is highly likely, especially when periods of drought increase throughout the planning area.

Figure 16-4 displays the frequency of expansive soil occurrences for the entire state. The Hidalgo County planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15, is shown in the green circle and is subject to a “High” and “Low” frequency of expansive soils. Section 8 of the plan provides in-depth analysis of drought in the planning area. Damages from expansive soils are typically associated with droughts. Historical drought records support a highly likely probability of future events. Assuming a correlation between drought and expansive soils, the planning area can anticipate a similar frequency for expansive soil events.

Figure 16-4. Frequency of Expansive Soil



SECTION 16: EXPANSIVE SOILS

VULNERABILITY AND IMPACT

The effects of expansive soils are most prevalent when periods of moderate to high precipitation are followed by drought and then again by periods of rainfall. Other cases of damage result from increases in moisture volume from such sources as broken or leaking water and sewer lines. Dry clays are capable of absorbing water and will increase in volume in an amount proportional to the amount of water absorbed. Soils capable of changes in volume present a hazard to structures built over them and to the pipelines buried in them. Houses and one-story commercial buildings are more apt to be damaged by the expansion of swelling clays than are multi-story buildings, which are usually heavy enough to counter swelling pressures. However, if constructed on wet clay, multi-story buildings may also be damaged by clay shrinkage when moisture levels are substantially reduced.



Cracked foundations and floors, jammed windows and doors, and ruptured pipelines are typical types of damage resulting from swelling soils. Damage to the upper floors of larger buildings can occur when motion in the structure is significant. While all infrastructure within the Hidalgo County planning area, including all participating jurisdictions and Santa Cruz Irrigation District #15, is vulnerable, slab on grade structures are more likely to suffer damages from expansive soils. In addition, older structures built to less stringent building codes may also be more susceptible to damages than new construction.

While the number of slab on grade structures is not available, the U.S. Census data indicates approximately 59,641 of the residential structures in the planning area were built before 1980 (Table 16-3) and may be more susceptible to damages.

Table 16-3. Structures at Greater Risk by Jurisdiction

JURISDICTION	SFR STRUCTURES BUILT BEFORE 1980
Hidalgo County ²	59,641
City of Alamo	1,369
City of Alton	706
City of Donna	2,199
City of Edcouch	535
City of Edinburg	6,199
City of Elsa	598
City of Granjeno	29

² County totals includes all jurisdictions and unincorporated areas within the county.

SECTION 16: EXPANSIVE SOILS

JURISDICTION	SFR STRUCTURES BUILT BEFORE 1980
City of Hidalgo	335
City of La Joya	344
City of La Villa	303
City of McAllen	15,179
City of Mercedes	2,427
City of Mission	5,502
City of Palmhurst	128
City of Palmview	95
City of Peñitas	165
City of Pharr	4,733
City Progreso	404
City of San Juan	1,879
City of Sullivan City	287

The following critical facilities would be vulnerable to expansive soil events in the planning area:

Table 16-4. Critical Facilities by Jurisdiction

JURISDICTION	CRITICAL FACILITIES
Hidalgo County	5 Administrative Offices, 1 Adult Probation, 2 Building & Grounds, 1 Community Center, 2 Constable, 2 County Clerk, 2 County Buildings, 3 Courts/Annex, 1 Election Administration, 1 Fire/Marshal Department, 2 Health Offices, 3 Justice of the Peace, 2 Planning Departments, 1 Resource Center, 7 Sheriff's Departments, 3 Shops, 1 Storage Facility, 1 WIC
City of Alamo	1 Apartment Complex, 1 City Hall, 2 Fire Departments, 1 Health System/24-hour ER, 1 Police Department, 1 Nursing Home, 11 Schools, 1 Waste/Water Plant, 1 Water Plant
City of Alton	1 City Hall, 1 Development Center, 1 Fire Department, 1 Lift Station, 1 Park, 2 Police Department/Public Safety, 1 Recreation Center, 1 Water Tower, 1 Internet (WiFi) Tower
City of Donna	1 Fire Department, 1 Police Department, 1 Sewer Treatment, 1 Water Treatment
City of Edcouch	1 City Hall, 1 Community Center, 1 Fire Department (Volunteer), 1 Police Department, 1 Sewer Plant, 1 Water Plant, 1 Water Tower

SECTION 16: EXPANSIVE SOILS

JURISDICTION	CRITICAL FACILITIES
City of Edinburg	1 Airport, 1 AEP, 1 City Hall, 1 Courthouse, 1 County Jail, 5 Fire Departments, 1 Housing Authority, 2 Juvenile Detentions, 1 Landfill, 1 Library, 26 Lift Stations, 6 Hospitals, 1 Police Department, 2 Power Plant, 32 Schools, 1 Theater, 3 Water Plant/Supply, 1 WWTP
City of Elsa	1 City Hall, 2 Chlorine Buildings, 2 Groundwater Tanks, 14 Lift Stations, 1 Public Safety, 1 Public Works, 2 Water Plant/Pumping, 1 Water Tower
City of Granjeno	1 City Hall, 1 Public Facility
City of Hidalgo	1 Arena, 1 Bridge, 1 City Hall, 1 Court House, 1 Police/Fire Department, 1 Health Clinic, 1 Library, 8 Schools, 1 Waste/Sewer Plant
City of La Joya	1 City Hall, 1 Fire Department, 1 Police Department, 1 Shelter, 1 Water Plant, 1 Wastewater Plant
City of La Villa	1 City Hall, 1 Fire Department, 1 Police Department, 4 Lift Stations, 4 Water/Wastewater Plants, 2 Water Towers
City of McAllen	3 Community Center/Shelters, 1 Development Center, 1 Emergency Operation Center, 6 Fire Departments, 1 Public Safety, 1 Public Works/Maintenance Facility, 2 Reservoir, 1 Traffic Operation, 1 Waste Plant, 2 Water Plants
City of Mercedes	1 Arena/Dome, 1 City Hall, 1 Fire Department, 1 Police Department, 1 Waste Plant, 1 Water Plant
City of Mission	1 City Hall, 1 City Gym, 5 Fire Departments, 1 Hospital, 1 Police Department, 1 Public Works Facility, 1 School, 1 Shelter, 1 Waste/Water Plant
City of Palmhurst	1 Administrative Building, 1 City Hall, 1 Police Department, 1 Public Works, 2 Power Stations, 2 Schools
City of Palmview	1 City Hall, 1 Fire Department, 1 Police Department, 1 School
City of Peñitas	1 City Hall, 1 Fire Department, 1 Gas Station, 1 Library, 3 Lift Station, 1 Police Department, 2 Schools, 2 Waste/Water Plants, 1 Wal-Mart
City of Pharr	1 City Hall, 1 Emergency Management Center, 2 Evacuation Centers, 4 Fire Departments, 34 Lift Stations, 1 Police Department, 41 Schools, 1 Waste Plant, 1 Water Plant
City of Progreso	1 City Hall, 1 Fire Department, 1 Police Department
City of San Juan	2 City Halls, 2 Fire Departments, 23 Lift Stations, 2 Public Safety, 1 Public Works, 2 Reservoirs, 1 Waste/Water Plant, 1 Water Plants/Station
City of Sullivan City	1 City Hall, 1 Fire Department, 1 Police Department, 1 School, 1 Water Plant
Santa Cruz Irrigation District #15	1 Dam, 1 Administration Office, 1 Tool Shed

SECTION 16: EXPANSIVE SOILS

The impact of expansive soils ranges from cosmetic cracks in walls to substantial foundation and structural damage that can result in a need for building demolition. Infrastructure such as pipelines can be damaged, causing increased maintenance and repairs, replacement, or damage to the point of failure. Sewer and water lines are also affected by shrink and swell soils. The movement of the soils can snap water and sewer lines, producing a minimum of temporary discomfort, and a maximum of a serious health and welfare risk.

Homeowners and public agencies that assume they cannot afford preventative measures such as more costly foundations and floor systems, often incur the largest percentage of damage and costly repairs from expanding soil. No figures are available for the total damage to homes in the planning area from expansive clays. However, several examples are known where the cost of repairs has exceeded the value of homes. Additionally, streets and highways have required expensive reconstruction or maintenance due to damage from expansive clay.

For the Hidalgo County, the most extensive damage from expansive soils can occur to bridges, highways, streets, and parking lots. The greatest damage occurs when structures are constructed when clays are dry (such as during a drought) and then subsequent soaking rains swell the clay.

SECTION 17: MASS MIGRATION

Hazard Description	1
Location	1
Extent	2
Historical Occurrences	2
Probability of Future Events	2
Vulnerability and Impact.....	3

HAZARD DESCRIPTION

Every year, millions of people leave their homelands to start their lives somewhere else. Some seek to find a promising new job, strengthen family ties, or engage in new cultural opportunities. Some are seeking relief from crushing poverty or a lack of economic prospects. Others are fleeing war or persecution. Still others are escaping the effects of a long-term drought, a devastating hurricane, or some other kind of climate change–related disaster. Although individuals’ reasons for wanting to resettle vary, steadily rising numbers of migrants over the past two decades suggest that migration management is becoming one of the most pressing issues of this century.



According to United States Code Title 8, Chapter 12, the definition of mass migration is a migration of undocumented aliens that is of such magnitude and duration that it poses a risk to the national security of the United States, as determined by the President. This usually refers to an event, or series of events, that may take place over the course of several years or even decades. The event could be economic, social, or political in nature but it is something that causes a mass exodus from the country of origin.

Hidalgo County’s location along the Mexico border makes it a vulnerable point of entry for a massive influx of immigrants and refugees entering the United States. The consequences of a mass arrival of undocumented entrants include the threat of health, safety, and welfare of citizens and that of entrants that may be detained for an extended length of time.

LOCATION

Hidalgo County’s location along the Mexico border makes it susceptible to mass migration. All of Hidalgo County is uniformly exposed to mass migration. There are three border crossings in the

SECTION 17: MASS MIGRATION

Hidalgo region that allow the cross-border movement of privately operated vehicles, pedestrians, buses, commercial trucks, or rail cars. These three bridges would be the predominant location of potential mass migration points of entry in the planning area.

EXTENT

The number of migrants seeking entry into the U.S. including the Hidalgo County planning area has varied greatly year to year. The number of asylum seekers is significantly influenced by the political protections and protocols in place in any given year. The risk of mass migration in the planning area has been dramatically reduced in the last year due to the impacts of COVID-19 in the United States and Mexico.

With the recent improvements in COVID-19 treatment and the easing of migrant restrictions, the Hidalgo County planning area is anticipating an increase in the number of asylum seekers, and an increase in the potential for mass migration.

Mass migration events can have widespread and lasting social and economic impacts, including:

- Adverse impacts on the capacity of public schools, public hospitals, and other public facilities to serve the resident population.
- Negative impacts on the wages and working conditions for the resident population.
- Medical costs for illegal immigrants unduly burden hospitals by having to deal with the costs of unpaid medical bills.
- Increased numbers of children without health insurance.
- Contagious diseases that are generally considered to have been controlled in the United States are readily evident along the border and entry points for migration.

There is no true way to measure the amount or impact of this migration. With an increase in potential migration, the extent of a mass migration to be mitigated for the area ranges from mild to significant.

HISTORICAL OCCURRENCES

Hidalgo County does have some history with mass migrations from Mexico, Central America, Haiti, Cuba, and other parts of the world. Surges of unaccompanied children have occurred several times, including in 2014 and recently in 2021. Additionally, increases in family units have occurred. From October 2018 to July 2019, the Hidalgo County experienced the largest influx and subsequent release of family units into its community than any other border city along the U.S. / Mexican border.

Due to the Migrant Protection Protocol program (MPP) drawdown and flights received from the Lower Rio Grande Valley, Hidalgo County has seen yet another influx of migrants in 2021. This migrant surge has posed a different set of challenges as the COVID-19 pandemic has compounded the hazards experienced by the community.

PROBABILITY OF FUTURE EVENTS

As political unrest in Central and South America continues, there will always be people wanting to immigrate to Texas where there is an existing extensive network of people from these countries in place. Although the Department of Homeland Security (DHS) continues to maintain border

SECTION 17: MASS MIGRATION

patrols and the security requirements for immigrants, changes in federal immigration policy have increased the likelihood of mass migration through legal processes for asylum seekers. The probability of future mass migration events in Hidalgo County is considered “Highly Likely”.

VULNERABILITY AND IMPACT

A large uncontrolled influx of immigrants has the potential of significantly disrupting the social and economic stability of local communities by overwhelming the delivery of essential services such as medical response and public safety. While the federal government has the primary responsibility for assuming control of mass migration emergencies, Hidalgo County may have to provide basic care including shelter, food, water, medical, and other social services.

The Hidalgo County planning area is susceptible to mass migration events due to natural catastrophes and political unrest in foreign countries. Mass migration events involving tens of thousands of immigrants have occurred several times in the United States within the last several decades. Although federal border patrol security is significant, the vulnerability of Hidalgo County to such events is considered Major as it serves as a major pipeline for human smuggling, trafficking and asylum seekers.

SECTION 18: HAZARDOUS MATERIALS

Hazard Description	1
Location	2
Extent	7
Historical Occurrences	7
Probability of Future Events	10
Vulnerability and Impact	10
Assessment of Impacts	10

HAZARD DESCRIPTION

Hazardous materials come in the form of explosives, flammable and combustible substances, poisons, and radioactive materials. A hazardous material (HAZMAT) incident involves a substance outside normal safe containment in sufficient concentration to pose a threat to life, property, or the environment.

Chemicals are found everywhere. They purify drinking water, increase crop production, and simplify household chores. But chemicals also can be hazardous to humans or the environment if used or released improperly. Hazards can occur during production, storage, transportation, use, or disposal. You and your community are at risk if a chemical is used unsafely or released in harmful amounts into the environment where you live, work, or play.

In a hazardous materials incident, solid, liquid, and/or gaseous contaminants may be released from fixed or mobile containers. This profile focuses on fixed sites. Weather conditions will directly affect how the hazard develops.

The Toxics Release Inventory (TRI) is a publicly available database from the federal Environmental Protection Agency (EPA) which contains information on toxic chemical releases and other waste management activities that are reported annually by certain covered industry groups federal facilities. This inventory was established under the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) and expanded by the Pollution Prevention Act of 1990. Each year, facilities that meet certain activity thresholds must report their releases and other waste management activities for listed toxic chemicals to the EPA and their state or tribal entity. A facility must report if it meets the following three criteria:

- The facility falls within one of the following industrial categories: manufacturing; metal mining; coal mining; electric generating facilities that combust coal and/or oil; chemical wholesale distributors; petroleum terminals and bulk storage facilities; Resource Conservation and Recovery Act (RCRA) Subtitle C Treatment, Storage and Disposal (TSD) facilities; and solvent recovery services.
- Have ten or more full-time employee equivalents.
- Manufactures or processes more than 25,000 pounds or otherwise uses more than 10,000 pounds of any listed chemical during the calendar year. Persistent, Bio-accumulative and Toxic (PBT) chemicals are subject to different thresholds of ten pounds, 100 pounds or 0.1 grams depending on the chemical.

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Tier II data is a publicly available database from the Texas Department of State Health Services Tier II Chemical Reporting Program. Under EPCRA, all facilities which store significant quantities of hazardous chemicals must share this information with state and local emergency responders and planners. Facilities in Texas share this information by filing annual hazardous chemical inventories with the Texas Department of State Health Services (DSHS), Local Emergency Planning Committees (LEPCs), and local fire departments. The Texas Tier II Report contains facility identification information and detailed chemical data about hazardous chemicals stored at the facility.

A facility must report if it meets the following criteria:

- Any company using chemicals that could present a physical or health hazard must report them, according to Tier II requirements.
- If an industry has an Occupational Safety and Health Administration (OSHA) deemed hazardous chemical that exceeds the appropriate threshold at a certain point in time, then the chemical must be reported. These chemicals may be on the list of 356 Extremely Hazardous Substances (EHS) or could be one of the 650,000 reportable hazardous substances (not on the EHS list). This reporting format is for a "snapshot in time." EHS chemicals have to be reported if the quantity is either greater than 500 pounds, or if the Threshold Planning Quantity (TPQ) amount is less than 500 pounds.

LOCATION

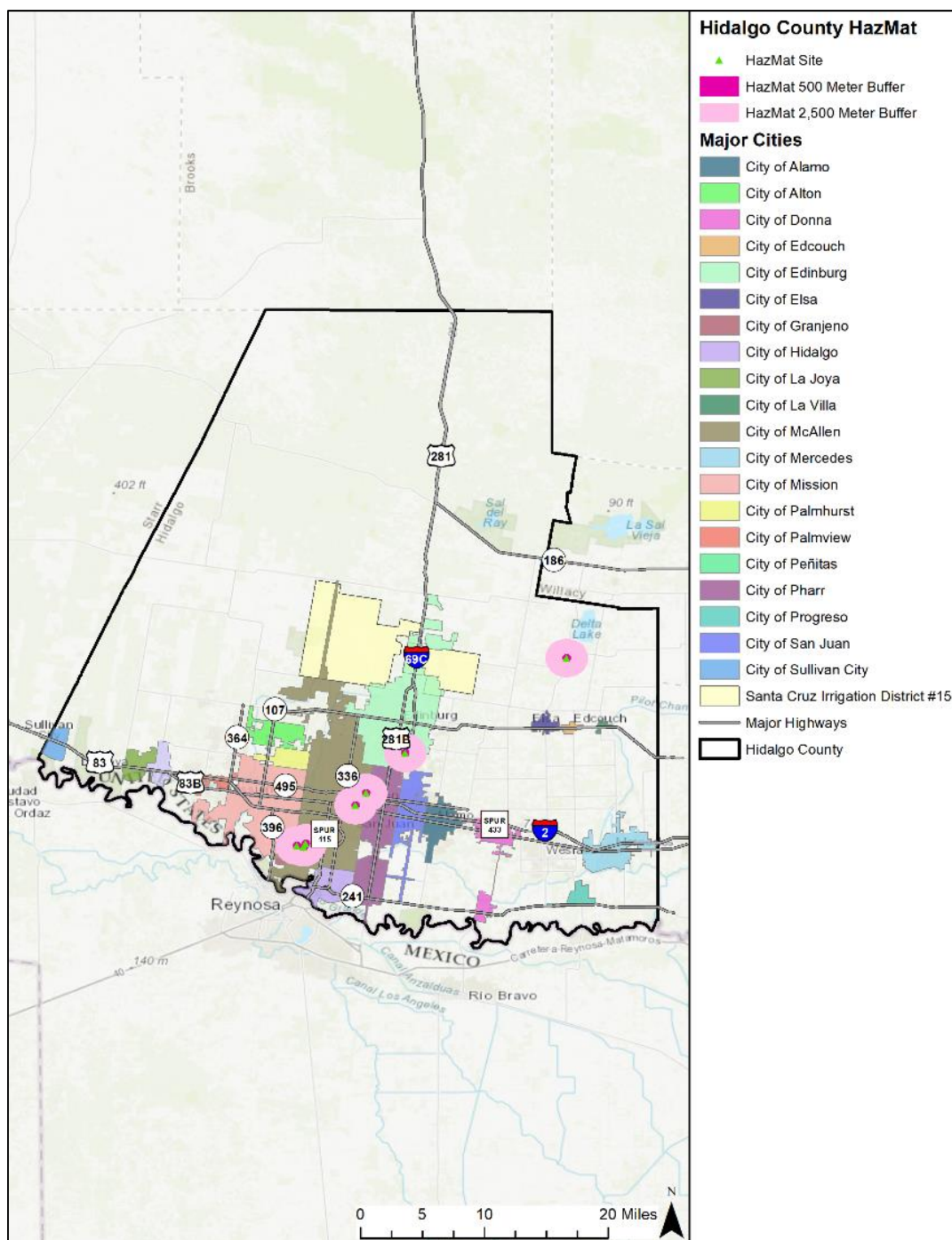
A hazardous material spill occurring along railroad tracks and major highways near population centers in the Hidalgo County planning area is of concern to local emergency managers. Trains and trucks can carry a variety of materials that would, in large quantity, threaten the health and safety of people and the natural environment in the vicinity of a spill. In particular, the Interstate 69C corridor and Interstate 2 corridor, which is generally paralleled by train tracks, is of concern, as is State Highway 336.

Under the Community Right-to-Know program laws upheld at the state and federal level, all facilities which store significant quantities of hazardous chemicals must share this information with state and local emergency responders and planners. Facilities in Texas share this information by filing annual hazardous chemical inventories with the state, with Local Emergency Planning Committees (LEPCs), and with local fire departments.

Figure 18-1 shows the locations of available georeferenced TRI and Tier 2 toxic sites in and around the Hidalgo County planning area. Only toxic sites that have georeferenced data available were analyzed and the circle buffers are drawn around each hazardous material site.

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Figure 18-1. Fixed HAZMAT Analysis Locations



SECTION 18: HAZARDOUS MATERIALS

Table 18-1. TRI HAZMAT Facilities in or near the Hidalgo County Planning Area

JURISDICTION	FACILITY NAME	ADDRESS
Hidalgo County	Henry Co	4700 Rosa St.
Hidalgo County	Laun Dry Supply Co Inc.	3800 Duranzo Avenue
Hidalgo County	Kessler Industries, Inc.	8600 Gateway E.
Hidalgo County	Copperfield LLC	1388 Zaragosa R.
Hidalgo County	Flowers Baking Co of Hidalgo	2400 E. Yandell Dr.
Hidalgo County	Rockwell Intl Corp	4 Butterfield Trail
Hidalgo County	Manufacturers Folding Carton	1100 Kessler Dr.
Hidalgo County	Hoover Co Hidalgo Plant	7850 Hoover Dr.
Hidalgo County	Bruce Foods Corp	8000 Ashley Rd.
Hidalgo County	Creamland Dairie Inc DBA Prices Dairies	600 N Piedras St.
Hidalgo County	Professional Medical Prods Seamless DIV	9660-C Plaza Circ
Hidalgo County	Coca Cola Bottling Co Magnolia Facility	11001 Gateway W.
Hidalgo County	Kwal Hanley Paint	6050 Luckett Ct.
Hidalgo County	Leviton Manufacturing	7800 Trade Center Ave.
Hidalgo County	Univar USA Hidalgo	6980 Market Ave.
Hidalgo County	American Minerals Inc	3666 Doniphan Dr.
Hidalgo County	International Wire Group	10535 Railroad Dr.
Hidalgo County	Power Lighting Prods, Formerly Valmont	1770 Commerce Park Dr.
Hidalgo County	Allen Bradley Co	1414 Allen-Bradley
Hidalgo County	Levi Strauss & Co Pellicano Laundry 680F	11460 Pellicano Dr.
Hidalgo County	Hidalgo PVC	201 Inglewood Rd.
Hidalgo County	US Army 1 st Armored DIV & Fort Bliss Ranges	Chaffee and Doniphan
Hidalgo County	Chevron Corp Hidalgo Asphalt Refy	6550 Gateway E.
Hidalgo County	Espon Hidalgo Incorporated	12120 Esther Lama, Suite 120

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JURISDICTION	FACILITY NAME	ADDRESS
Hidalgo County	Dale Electronics Inc	1462 Lionel Dr.
Hidalgo County	Robert Shaw Controls Co Grayson Controls Div	320 N. Clark Dr.
Hidalgo County	Diesel Recon Co	20 Zane Grey
Hidalgo County	Taylor Simpkins Incorporated	1235 Tower Trail Ln.
Hidalgo County	Siemens Industry Inc.	1400 Henry Brennan Dr.
Hidalgo County	Plainfield Stamping Texas Inc.	6839 Commerce
Hidalgo County	Smurfit Stone Container Corp. Hidalgo East	7350 Stiles Dr.
Hidalgo County	Clarostat Manufacturing Co. Inc.	12055 Rojas Dr. Suite K
Hidalgo County-Weslaco	Hollon Oil	1300 Davenport St.
Hidalgo County-Weslaco	Caldwell VSR Weslaco	2300 Sugar Sweet
City of Edinburg	Hidalgo County Drainage District 1	902 N Doolittle Rd.
City of Edinburg	AOCS 3	825 FM 1925
City of Edinburg	Baker Hughes Drilling Fluids Edinburg	723 E. Schunior Ste.
City of Edinburg	Wood Group Logging	6501 N HWY 281 Unit G
City of Edinburg	Oil States Energy Services	6501B N Expressway 281 Bldg.
City of Edinburg	Agrilance Edinburg Facility	501 E Monte Cristo Rd.
City of Edinburg	Weatherford US	6001 N HWY 281
City of Edinburg	Halliburton Energy Services Baroid	6010 N 6th Ave.
City of Edinburg	McCook Grain Exchange	36868 FM 490 # A
City of Edinburg	M-I Swaco Facility	12303 Vicksburg Dr.
City of Edinburg	Schlumberger Well Services	2410 S 25th Ave.
City of Edinburg	Holt of Texas Edinburg	1320 S 25th Ave.
City of La Joya	La Joya Levee Pump Station	1800 E HWY 83 S 1st St.
City of McAllen	Safety-Kleen Systems	1311 E Tamarack Ave
City of McAllen	Levi Strauss McAllen 544M	2200 Industrial Dr.

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JURISDICTION	FACILITY NAME	ADDRESS
City of McAllen	Phillips Properties McAllen	2215 W US Highway 83
City of McAllen	Brownies Oil McAllen	2301 W US Highway 83
City of McAllen	Gilmore Gross Oil McAllen	2401 W US Highway 83
City of McAllen	Fortune Plastic Metal	3000 W US Highway 83
City of McAllen	Parker Seal Brownsville Rubber	3700 W Military Hwy
City of McAllen	Menardi Criswell McAllen	6110 S 42nd St.
City of McAllen	Multi-Chem Group McAllen	400 E Cedar Ave
City of McAllen	Coastal Mart McAllen	421 S 23rd St
City of McAllen	Essex Brownell	7001 S 33rd St Bldg.
City of McAllen	Gleco Plating	7021 S Bensten Rd
City of Mission	Moore Airfield	304 S Abram Rd
City of Mission	Frontera Generation Facility	320 S Goodwin Rd
City of Mission	AEP Texas Central Sharyland Switching Station	3801 Mayberry Rd
City of Mission	Hayes-Sammons Warehouse	Miller Ave & 8 th St
City of Mission	Mission Pellet Center Expansion	116 Trinity St
City of Mission	Schlumberger Technology Mission Well Services	1005 N Glasscock Rd
City of Palmview	J L Bates Power Station	1708 S Goodwin Rd
City of Pharr	Universal Metal Products Facility	101 W Eldora Rd
City of Pharr	Jeferrson Electric	10501 S Jackson Rd
City of Pharr	Discount Oils Lubricants Fuel	12 N Brich St
City of Pharr	Guaranty Federal Bank Property Dallas	1802 S Jackson Rd
City of Pharr	Fortune Plastic and Metal-Pharr	3329 S Jackson Rd
City of Pharr	Pharr Plantation	431 Plantation Dr

SECTION 18: HAZARDOUS MATERIALS

EXTENT

The extent of a hazardous material release will depend on whether it is from a mobile or fixed site and the size of impact. The range of intensity will vary greatly depending on the circumstances. These factors and conditions include the material, toxicity, duration of the release, and environmental conditions such as the wind and precipitation.

Hazardous materials or toxic releases can have substantial impact on communities. Such events can cause multiple deaths, completely shut down facilities for 30 days or more, and cause more than 50 percent of affected properties to be destroyed or suffer major damage. In a hazardous materials incident, solid, liquid and/or gaseous contaminants may be released from fixed or mobile containers. Weather conditions would directly affect how the hazard develops. The micro-meteorological effects on buildings and terrain can alter travel patterns and duration of agents. Shielding in the form of permanent shelter can protect people from harmful effects. Non-compliance with fire and building codes, as well as failure to maintain existing fire and containment features can substantially increase damage from a hazardous materials release. The duration of a hazardous materials incident can range from hours to days. Warning time is minimal to none.

The spatial extent of a hazardous material release is minimal or expected to affect less than 10% of people or property.

HISTORICAL OCCURRENCES

Hazardous materials are substances which if released or misused can cause death, serious injury, long-lasting health effects, and damage to structure and other properties as well as to the environment. Many products containing hazardous chemicals are used and stored in homes routinely. These products are also shipped daily on the nation's highways, railroads, waterways, and pipelines.

A total of 75 transportation incidents have been reported in the Hidalgo County planning area over the last 30 years. The data collected is from 1990 to 2020 and identifies the hazardous materials transportation incidents as in-transit, loading, and unloading of transport vehicles. The reported events with damages or fatalities are listed in Table 18-2 below.

Table 18-2. Hazardous Material Incident Events, Hidalgo County

JURISDICTION	DATE	FATALITIES	PROPERTY DAMAGE (2021 DOLLARS)
Hidalgo County- Weslaco	9/20/1990	0	\$476
Hidalgo County-Weslaco	6/3/1991	0	\$6,884
City of Edinburg	1/29/1992	0	\$142
City of McAllen	6/11/1992	0	\$566
City of Alamo	11/29/1993	0	\$796
City of McAllen	7/5/1994	0	\$670
City of McAllen	12/20/1994	0	\$1,519
City of McAllen	6/16/1995	0	\$973

SECTION 18: HAZARDOUS MATERIALS

JURISDICTION	DATE	FATALITIES	PROPERTY DAMAGE (2021 DOLLARS)
City of McAllen	12/19/1996	0	\$973
City of Mission	1/25/1998	0	\$179
City of Edinburg	3/18/1998	0	\$406
City of McAllen	3/30/1998	0	\$1,056
City of McAllen	5/19/1998	0	\$211
City of McAllen	5/20/1998	0	\$228
City of Palmview	3/16/1999	0	\$141,501
City of McAllen	5/28/1999	0	\$111,293
City of McAllen	6/28/1999	0	\$588
City of Pharr	6/28/1999	0	\$141,223
Hidalgo County-McCook	2/14/2000	0	\$231
City of Donna	2/25/2000	0	\$538
City of McAllen	4/10/2000	0	\$554
City of McAllen	5/3/2000	0	\$231
City of McAllen	6/21/2000	0	\$1,077
City of McAllen	9/19/2000	0	\$577
Hidalgo County-Weslaco	9/20/1990	0	\$476
Hidalgo County-Weslaco	6/3/1991	0	\$6,884
City of Edinburg	1/29/1992	0	\$142
City of McAllen	6/11/1992	0	\$566
City of Alamo	11/29/1993	0	\$796
City of McAllen	7/5/1994	0	\$670
City of McAllen	12/20/1994	0	\$1,519
City of McAllen	6/16/1995	0	\$973
City of McAllen	12/19/1996	0	\$973
City of Mission	1/25/1998	0	\$179
City of Edinburg	3/18/1998	0	\$406
City of McAllen	3/30/1998	0	\$1,056

SECTION 18: HAZARDOUS MATERIALS

JURISDICTION	DATE	FATALITIES	PROPERTY DAMAGE (2021 DOLLARS)
City of McAllen	5/19/1998	0	\$211
City of McAllen	5/20/1998	0	\$228
City of McAllen	5/28/1999	0	\$111,293
City of McAllen	6/28/1999	0	\$588
City of Pharr	6/28/1999	0	\$141,223
City of Donna	2/25/2000	0	\$538
City of McAllen	4/10/2000	0	\$554
City of McAllen	5/3/2000	0	\$231
City of McAllen	6/21/2000	0	\$1,077
City of McAllen	9/19/2000	0	\$577
City of McAllen	1/4/2001	0	\$30
City of Edinburg	1/12/2001	0	\$10,947
City of McAllen	4/6/2001	0	\$748
Hidalgo County	5/23/2001	0	\$8,081
City of McAllen	6/22/2001	0	\$3
City of McAllen	7/11/2001	0	\$614
City of McAllen	8/25/2002	0	\$699
Hidalgo County-Weslaco	5/17/2003	0	\$756
Hidalgo County-Weslaco	6/12/2003	0	\$756
City of Edinburg	8/29/2003	0	\$3,095
City of Mission	4/19/2004	0	\$49
Hidalgo County-Weslaco	6/14/2004	0	\$736
City of Edinburg	9/10/2004	0	\$638
City of McAllen	9/22/2004	0	\$614
City of McAllen	5/31/2005	0	\$1,492
City of Alton	10/25/2005	0	\$43,400
City of La Joya	1/6/2006	0	\$2,161
City of McAllen	11/15/2006	0	\$1,051

SECTION 18: HAZARDOUS MATERIALS

JURISDICTION	DATE	FATALITIES	PROPERTY DAMAGE (2021 DOLLARS)
City of Edinburg	12/20/2006	0	\$68,321
City of Pharr	7/26/2007	0	\$3,832
City of Donna	8/24/2007	0	\$652
Hidalgo County-Weslaco	9/26/2007	0	\$2,767
City of Pharr	11/5/2007	0	\$45,095
City of McAllen	7/31/2012	0	\$10,498
City of Pharr	4/14/2014	0	\$5,594
City of Edcouch	2/3/2015	0	\$6,336
City of McAllen	7/17/2015	0	\$3,693
City of McAllen	6/13/2018	0	\$6,118
City of Edinburg	12/10/2018	0	\$3,375
TOTAL LOSSES		0	\$916,203

PROBABILITY OF FUTURE EVENTS

Hazardous material spills are the result of human error and/or accidents, which cannot be predicted. However, given the amount of traffic through the planning area and the large population, the probability of a hazardous material spill is estimated by local officials to be probable in any given year. Nevertheless, most spills will not lead to negative health and safety impacts and will not cause substantial negative impacts on the air, soil, or groundwater. The probability of a spill threatening the health of thousands and of having long-term negative environmental consequences is, based on previous experience, estimated to be less than 1 percent in any given year.

Based on the historic incident records, the frequency of occurrence for significant hazard material incidents is considered “Occasional” and an event can be expected in the next five years for the Hidalgo County planning area.

VULNERABILITY AND IMPACT

Based on the prevalence and geographic proximity of hazardous materials transportation routes and fixed locations, less than half of the Hidalgo County planning area is vulnerable. The risk to the population depends on a variety of factors, including type and amount of chemical released, weather conditions, prevailing winds, time of day, and season. The environment is often vulnerable in a hazardous materials incident and can be heavily damaged by a hazardous materials incident.

Impact of hazardous materials incidents experienced in the Hidalgo County planning area has resulted in no injuries or fatalities supporting a possible limited severity of impact meaning injuries

SECTION 18: HAZARDOUS MATERIALS

and/or illnesses are treatable with first aid, shutdown of facilities and services for 24 hours or less, and less than 10% of property is destroyed or with major damage.

ASSESSMENT OF IMPACTS

It is possible that a hazardous materials incident could involve a number of fatalities. It is likely that inhaled hazardous gasses may result in respiratory problems, including burning sensations in the lungs, nose, and throat. Releases that involve solids or liquids can be absorbed through the skin and may cause burns on contact. In some instances, the threat to health and safety may not be evident for an extended period of time.

The particular transportation route and fixed site involved are significant factors in determining the risk to public health and safety and will determine the number of people in proximity to the hazard. Depending on the nature of the hazardous materials incident, the public could be required to either evacuate the area or shelter in place, which will interrupt normal routines.

SECTION 19: MITIGATION STRATEGY

Mitigation Goals	1
Goal 1.....	1
Goal 2.....	1
Goal 3.....	2
Goal 4.....	2
Goal 5.....	2

MITIGATION GOALS

Based on the results of the risk and capability assessments, the Planning Team developed and prioritized the mitigation strategy. This involved utilizing the results of both assessments and reviewing the goals and objectives that were included in the previous 2016 Plan. At the Mitigation Workshop in June 2021, Planning Team members reviewed the mitigation strategy from the previous 2016 Plan. The consensus among all members present was that the strategy developed for the 2016 did not require changes, as it identified overall improvements to be sought in the Plan Update, but the order of the goals has been altered.

GOAL 1

Protect public health and safety.

OBJECTIVE 1.1

Advise the public about health and safety precautions to guard against injury and loss of life from hazards.

OBJECTIVE 1.2

Maximize utilization of the latest technology to provide adequate warning, communication, and mitigation of hazard events.

OBJECTIVE 1.3

Reduce the danger to, and enhance protection of, high risk areas during hazard events.

OBJECTIVE 1.4

Protect critical facilities and services.

GOAL 2

Build and support local capacity and commitment to continuously become less vulnerable to hazards.

OBJECTIVE 2.1

Build and support local partnerships to continuously become less vulnerable to hazards.

OBJECTIVE 2.2

Build a cadre of committed volunteers to safeguard the community before, during, and after a disaster.

OBJECTIVE 2.3

Build hazard mitigation concerns into county and city planning and budgeting processes.

SECTION 19: MITIGATION STRATEGY

GOAL 3

Increase public understanding, support, and demand for hazard mitigation.

OBJECTIVE 3.1

Heighten public awareness regarding the full range of natural and man-made hazards the public may face.

OBJECTIVE 3.2

Educate the public on actions they can take to prevent or reduce the loss of life or property from all hazards and increase individual efforts to respond to potential hazards.

OBJECTIVE 3.3

Publicize and encourage the adoption of appropriate hazard mitigation measures.

GOAL 4

Protect new and existing properties.

OBJECTIVE 4.1

Reduce repetitive losses to the National Flood Insurance Program (NFIP).

OBJECTIVE 4.2

Use the most cost-effective approach to protect existing buildings and public infrastructure from hazards.

OBJECTIVE 4.3

Enact and enforce regulatory measures to ensure that future development will not put people in harm's way or increase threats to existing properties.

GOAL 5

Maximize the resources for investment in hazard mitigation.

OBJECTIVE 5.1

Maximize the use of outside sources of funding.

OBJECTIVE 5.2

Maximize participation of property owners in protecting their properties.

OBJECTIVE 5.3

Maximize insurance coverage to provide financial protection against hazard events.

OBJECTIVE 5.4

Prioritize mitigation projects, based on cost-effectiveness and sites facing the greatest threat to life, health, and property.



SECTION 20: PREVIOUS ACTIONS

Summary	1
Hidalgo County	2
City of Alamo	44
City of Edcouch.....	59
City of Edinburg	70
City of Hidalgo.....	94
City of La Villa	112
City of McAllen	130
City of Mercedes	168
City of Mission.....	190
City of Palmview	211
City of Pharr	231
City of San Juan.....	241
City of Sullivan City	250

SUMMARY

Planning Team members were given copies of the previous mitigation actions submitted in the 2016 Plan at the mitigation workshop. Participating jurisdictions within Hidalgo County reviewed the previous actions and provided an analysis as to whether the action had been completed, should be deferred as an ongoing activity, or be deleted from the Plan Update. The actions from the 2016 Plan are included in this section as they were written in 2016, with the exception of the “2021 Analysis” section. The following jurisdictions were not participants within the last plan, therefore there are no past actions for their review: City of Alton, City of Donna, City of Elsa, City of Granjeno, City of La Joya, City of Palmhurst, City of Peñitas, City of Progreso, and the Santa Cruz Irrigation District #15.

SECTION 20: PREVIOUS ACTIONS

HIDALGO COUNTY

Hidalgo County - Previous Action #1	
Proposed Action:	Identify and apply for state and federal grants to enhance regional radio systems to support Public Safety LTE.
BACKGROUND INFORMATION	
Goal:	Goal 1: Enhance emergency communications and notification systems in Hidalgo County.
Objective:	Identify projects to enhance Hidalgo County's Interoperability infrastructure for response during emergencies and natural disasters.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding and Hurricane/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Hazardous Material Spills, Drought, Dam and Levee Failure, Extreme Heat, Hailstorms, Wildfires, Expansive Soils
Department or Agency Responsible:	Hidalgo County Sheriff's Office, Various Jurisdictions
Timeline:	2 years
Estimated Cost:	\$1,000,000.00
Estimated Benefit:	\$4,000,000.00
Funding Sources:	Home Land Security Funding, State Funding

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #2	
Proposed Action:	Purchase a mobile communications unit.
BACKGROUND INFORMATION	
Goal:	Provide the necessary equipment and information needed to carryout mitigation and preparedness measures.
Objective:	Purchase a communication equipment.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding and Hurricane/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Hazardous Material Spills, Drought, Dam and Levee Failure, Extreme Heat, Hailstorms, Wildfires, Expansive Soils
Department or Agency Responsible:	Hidalgo County Fire Marshal's Office (HCFMC)
Timeline:	1 year
Estimated Cost:	\$50,000.00
Estimated Benefit:	\$200,000.00
Funding Sources:	FEMA

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #3	
Proposed Action:	Purchase communications equipment needed for mobile field command.
BACKGROUND INFORMATION	
Goal:	Provide the necessary equipment and information needed to carryout mitigation and preparedness measures.
Objective:	Purchase a communication equipment.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding and Hurricane/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Hazardous Material Spills, Drought, Dam and Levee Failure, Extreme Heat, Hailstorms, Wildfires, Expansive Soils
Department or Agency Responsible:	Hidalgo County Fire Marshal's Office (HCFMC)
Timeline:	1 year
Estimated Cost:	\$200,000.00
Estimated Benefit:	\$800,000.00
Funding Sources:	FEMA

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #4	
Proposed Action:	Incorporate assessments of hazards, including hurricane, flood, wild land fires, and severe storms, into site selection and design for new buildings and when siting or leasing county facilities.
BACKGROUND INFORMATION	
Goal:	Provide the necessary equipment and information needed to carryout mitigation and preparedness measures.
Objective:	Utilize hazard assessments when evaluating current facilities or developing new facilities to ensure adequacy.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding and Hurricane/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Hazardous Material Spills, Drought, Dam and Levee Failure, Extreme Heat, Hailstorms, Wildfires, Expansive Soils
Department or Agency Responsible:	Hidalgo County Purchasing Dept., Planning Dept. Fire Marshal Office, Office of Emergency Management
Timeline:	3 years
Estimated Cost:	\$25,000.00
Estimated Benefit:	\$100,000.00
Funding Sources:	Annual Department Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #5	
Proposed Action:	Assess the vulnerability of critical county infrastructure, including roads, bridges, pipelines, water treatment plants, and other important facilities.
BACKGROUND INFORMATION	
Goal:	Provide the necessary equipment and information needed to carryout mitigation and preparedness measures.
Objective:	Utilize hazard assessments when evaluating current facilities or developing new facilities to ensure adequacy.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding and Hurricane/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Hazardous Material Spills, Drought, Dam and Levee Failure, Extreme Heat, Hailstorms, Wildfires, Expansive Soils
Department or Agency Responsible:	Hidalgo County Commissioner
Timeline:	3 years
Estimated Cost:	\$100,000.00
Estimated Benefit:	\$400,000.00
Funding Sources:	Annual Department Budget and External Funding

2021 ANALYSIS
Defer to 2021 Plan- reassess to make action a more specific project.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #6	
Proposed Action:	Heavy duty Truck & Low Boy Trailer, 2 Vacuum Pumper Truck. 1-Grapppler brush truck. 2, Engine Powered Light Tower & 100 KW generator, 2-12 in pumps with hoses 50ft for suction & 100 ft. to discharge, also 2 wood chippers.
BACKGROUND INFORMATION	
Goal:	Provide the necessary equipment and information needed to carryout mitigation and preparedness measures.
Objective:	Provide emergency transportation for heavy equipment during emergency events.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding and Hurricane/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Hazardous Material Spills, Drought, Dam and Levee Failure, Extreme Heat, Hailstorms, Wildfires, Expansive Soils
Department or Agency Responsible:	Hidalgo County Precinct #4
Timeline:	5 years
Estimated Cost:	\$1,200,000.000
Estimated Benefit:	\$3,600,000.00
Funding Sources:	HMGP, PDM, or FEMA

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #7	
Proposed Action:	Develop and expand in-house County expertise to conduct loss analysis and risk assessment using HAZUS Software program and GIS analysis.
BACKGROUND INFORMATION	
Goal:	Utilize computer and video technology to reduce vulnerability to all hazards in Hidalgo County.
Objective:	Ensure that up-to-date hazard information and maps are available and utilized to guide decisions that impact risk.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding and Hurricane/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Hazardous Material Spills, Drought, Dam and Levee Failure, Extreme Heat, Hailstorms, Wildfires, Expansive Soils
Department or Agency Responsible:	Hidalgo County Emergency Management
Timeline:	2 years
Estimated Cost:	\$10,000.000
Estimated Benefit:	\$100,000.00
Funding Sources:	Annual Department Budget and External Funding

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #8	
Proposed Action:	Enhance the appropriate websites to provide convenient access to most current hazard maps.
BACKGROUND INFORMATION	
Goal:	Utilize computer and video technology to reduce vulnerability to all hazards in Hidalgo County.
Objective:	Ensure that up-to-date hazard information and maps are available and utilized to guide decisions that impact risk.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding and Hurricane/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Hazardous Material Spills, Drought, Dam and Levee Failure, Extreme Heat, Hailstorms, Wildfires, Expansive Soils
Department or Agency Responsible:	Hidalgo County Emergency Management
Timeline:	2 years
Estimated Cost:	\$50,000.000
Estimated Benefit:	\$250,000.00
Funding Sources:	Annual Department Budget and External Funding

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #9	
Proposed Action:	Acquisition of GIS Based Permitting Software.
BACKGROUND INFORMATION	
Goal:	Utilize computer and video technology to reduce vulnerability to all hazards in Hidalgo County.
Objective:	Analyze current infrastructure and identify project and/or improvements to recover from natural disasters.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding and Hurricane/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Hazardous Material Spills, Drought, Dam and Levee Failure, Extreme Heat, Hailstorms, Wildfires, Expansive Soils
Department or Agency Responsible:	Planning Department
Timeline:	6-8 weeks
Estimated Cost:	\$125,000.000
Estimated Benefit:	Establishing an inventory of the types of housing and developments in Hidalgo County jurisdiction that are at risk for damage during natural events.
Funding Sources:	General Funds

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #10	
Proposed Action:	Acquisition of Computer Hardware for Permitting Software.
BACKGROUND INFORMATION	
Goal:	Utilize computer and video technology to reduce vulnerability to all hazards in Hidalgo County.
Objective:	Analyze current infrastructure and identify project and/or improvements to recover from natural disasters.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding and Hurricane/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Hazardous Material Spills, Drought, Dam and Levee Failure, Extreme Heat, Hailstorms, Wildfires, Expansive Soils
Department or Agency Responsible:	Planning Department
Timeline:	6-8 weeks
Estimated Cost:	\$36,000.000
Estimated Benefit:	Track growth county wide and assist in providing population and construction data for assessment after a natural event.
Funding Sources:	General Funds

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #11	
Proposed Action:	Acquisition of Computer Hardware for Permitting Software.
BACKGROUND INFORMATION	
Goal:	Increase border security in Hidalgo County.
Objective:	Have live streaming video monitored by law enforcement personnel in areas affected by mass destruction and/or catastrophic events.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Border Security and Terrorism
Department or Agency Responsible:	Hidalgo County Sheriff's Office
Timeline:	3 years
Estimated Cost:	\$280,000.000
Estimated Benefit:	\$1,120,000.00
Funding Sources:	FEMA

2021 ANALYSIS
Delete Action- Per Hidalgo County, duplicate of Action #12, however, proposed action description varies.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #12	
Proposed Action:	Placed sky towers equipped with hi-definition cameras streaming video wirelessly from key areas (business, schools, government buildings, Mexico/United States Border) when a mass destruction and/or a catastrophic event has occurred, will assist to prevent violent crimes, property looting and help restore peace in the affected areas, by using technology as a force multiplier, allowing the re-directing of emergency personnel to the immediate needed areas for life threatening issues. Sky towers will be monitored 24 hours by law enforcement personnel, in the event a situation arises, the appropriate emergency personnel will be dispatched to location without delay.
BACKGROUND INFORMATION	
Goal:	Increase border security in Hidalgo County.
Objective:	Have live streaming video monitored by law enforcement personnel in areas affected by mass destruction and/or catastrophic events.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Border Security and Terrorism
Department or Agency Responsible:	Hidalgo County Sheriff's Office
Timeline:	3 years
Estimated Cost:	\$280,000.000
Estimated Benefit:	\$1,120,000.00
Funding Sources:	FEMA

2021 ANALYSIS
Completed. Project was funded by department budget.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #13	
Proposed Action:	Install security cameras and surveillance equipment along main arterials.
BACKGROUND INFORMATION	
Goal:	Increase border security in Hidalgo County.
Objective:	Increase surveillance capabilities.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Border Security and Terrorism
Department or Agency Responsible:	FEMA, DHS
Timeline:	6 months
Estimated Cost:	\$500,000.000
Estimated Benefit:	\$2,000,000.00
Funding Sources:	FEMA, DHS

2021 ANALYSIS
Delete Action- Per Hidalgo County, responsible agency is incorrect.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #14	
Proposed Action:	Prioritize and seek funding to strengthen, expand, and /or retrofit critical Hidalgo County Infrastructure as necessary to increase ability to convey or store flood waters, remain operable during floods, and/or reduce the potential for flood damage.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Improve the ability of Hidalgo County Infrastructure to withstand and remain functional after natural hazard events.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms
Department or Agency Responsible:	Hidalgo County Drainage District
Timeline:	3 years
Estimated Cost:	\$10,000,000.000
Estimated Benefit:	\$40,000,000.00
Funding Sources:	External Funding

2021 ANALYSIS
Delete Action- Hidalgo County Drainage District has their own Mitigation Plan. Please see Appendix G.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #15	
Proposed Action:	Enlarge undersized drainage channels, culverts, ditches, storm sewers and other conduits, which cause localized flood hazards and damage. Additional storm sewer line from 5 th Street to Flora. Widening drainage ditch from Military to Floodway. Raise floodway levels along Rio Grande.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Improve the ability of Hidalgo County Infrastructure to withstand and remain functional after natural hazard events.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms
Department or Agency Responsible:	Hidalgo County Drainage District
Timeline:	3 years
Estimated Cost:	\$10,000,000.000
Estimated Benefit:	\$40,000,000.00
Funding Sources:	External Funding

2021 ANALYSIS
Defer to 2021 Plan- Site location is not identified with the Drainage District Mitigation Plan as proposed project. Hidalgo County would like to pursue proposed action to improve drainage system in this area.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #16	
Proposed Action:	Elevate critical sections of Hidalgo County roads subject to flooding to allow additional time for access and egress during periods of flooding.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Improve the ability of Hidalgo County Infrastructure to withstand and remain functional after natural hazard events.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms
Department or Agency Responsible:	Hidalgo County Commissioners
Timeline:	3 years
Estimated Cost:	\$10,000,000.000
Estimated Benefit:	\$40,000,000.00
Funding Sources:	External Funding

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #17	
Proposed Action:	Construct storm water detention basins.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Improve the ability of Hidalgo County Infrastructure to withstand and remain functional after natural hazard events.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms
Department or Agency Responsible:	Hidalgo County Drainage District
Timeline:	3 years
Estimated Cost:	\$10,000,000.000
Estimated Benefit:	\$40,000,000.00
Funding Sources:	External Funding

2021 ANALYSIS
Delete Action- Hidalgo County Drainage District has their own Mitigation Plan. Please see Appendix G.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #18	
Proposed Action:	Improve Drainage System Capacity.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Improve drainage from residential areas in cities and colonias in Precinct #1.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms
Department or Agency Responsible:	Hidalgo County Precinct #1 and Hidalgo County Drainage District
Timeline:	5 years
Estimated Cost:	\$15,000,000.000
Estimated Benefit:	\$300,000.00
Funding Sources:	FEMA Disaster Funds

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #19	
Proposed Action:	By building the east lateral drain to augment the capacity to remove excess rain water away from cities and colonias.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Improve drainage from residential areas in cities and colonias in Precinct #1.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms
Department or Agency Responsible:	Hidalgo County Precinct #1 and Hidalgo County Drainage District
Timeline:	5 years
Estimated Cost:	\$TBD
Estimated Benefit:	\$300,000.00
Funding Sources:	FEMA Disaster Funds

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #20	
Proposed Action:	Access colonias to drain down falls through construction of additional drainage and/ or cleaning of existing drains.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Improve drainage from residential areas in cities and colonias in Precinct #1.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms
Department or Agency Responsible:	Hidalgo County Precinct #1
Timeline:	5 years
Estimated Cost:	\$1,467,112.00
Estimated Benefit:	\$4,000,000.00
Funding Sources:	Precinct #1, GLO, CDBG Funds

2021 ANALYSIS
Completed and Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #21	
Proposed Action:	Alberts Subdivision, Alberta Place, San Marcos #3, San Marcos #3, San Jose Estates, San Marcos Acres, Owassa Estates Phase 2, La Blanca Village, Tamarron Estates, Seminary Heights, Charro #2, Tejano, Alberta Subdivision, Hope Well Gardens, Murrilo #2, Bandera Estates, Kaylen Heights, Alamo Estates, Delta Orchards Company Unit #7, Community of San Carlos South Side of 107, Cardinal Bay Subdivision, Cardinal Bay Subdivision.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Improve drainage from residential areas in cities and colonias in Precinct #4.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms
Department or Agency Responsible:	Hidalgo County Precinct #4
Timeline:	5 years
Estimated Cost:	\$1,200,000.00
Estimated Benefit:	\$3,600,000.00
Funding Sources:	HMGP, PDM, or FEMA

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #22	
Proposed Action:	Identify proper equipment and vehicles and purchase – 4, 4x4 vehicles.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Extract flooded citizens in rural areas of Hidalgo County.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms
Department or Agency Responsible:	Hidalgo County Constable Precinct #2
Timeline:	2 years
Estimated Cost:	\$112,000.00
Estimated Benefit:	\$500,000.00
Funding Sources:	FEMA

2021 ANALYSIS
Delete Action-Per Hidalgo County, action was not fundable by HMA grant.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #23	
Proposed Action:	Develop drought plans and conservation programs.
BACKGROUND INFORMATION	
Goal:	Develop a comprehensive planning approach to drought mitigation.
Objective:	Ensure plans and procedures addressing local drought response, drought mitigation, and long-term water planning are developed.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought
Department or Agency Responsible:	Hidalgo County Emergency Management
Timeline:	2 years
Estimated Cost:	\$20,000.00
Estimated Benefit:	\$100,000.00
Funding Sources:	External Funding

2021 ANALYSIS
Defer to 2021 Plan- Per Hidalgo County, reassess action and responsible department.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #24	
Proposed Action:	Develop and conduct public education and awareness programs on drought mitigation, drought response and water conservation.
BACKGROUND INFORMATION	
Goal:	Develop a comprehensive planning approach to drought mitigation.
Objective:	Ensure plans and procedures addressing local drought response, drought mitigation, and long-term water planning are developed.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought
Department or Agency Responsible:	Hidalgo County Emergency Management
Timeline:	2 years
Estimated Cost:	\$15,000.00
Estimated Benefit:	\$60,000.00
Funding Sources:	Annual Department Budget

2021 ANALYSIS
Delete Action- Per Hidalgo County, action will not be pursued as it is more suitable at city levels.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #25	
Proposed Action:	Identify funding sources for improvements to municipal and/or water district water treatment plants, transmission systems, water mains, and related infrastructure.
BACKGROUND INFORMATION	
Goal:	Increase water supplies in Hidalgo County communities to mitigate against drought as populations and water intake increases.
Objective:	Encourage improvements to water system infrastructures to reduce vulnerability to drought and meet water use demands.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought
Department or Agency Responsible:	Hidalgo County Drainage District
Timeline:	3 years
Estimated Cost:	\$100,000.00
Estimated Benefit:	\$400,000.00
Funding Sources:	Annual Department Budget

2021 ANALYSIS
Delete Action- Hidalgo County Drainage District has their own Mitigation Plan. Please see Appendix G.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #26	
Proposed Action:	Work with local fire departments, state and federal agencies to identify areas in each community subject to wild fires and depict them on maps or include them on GIS layers.
BACKGROUND INFORMATION	
Goal:	Evaluate the risks posed by wildfires in Hidalgo County.
Objective:	Improve wild fires hazard assessment information for rural areas in Hidalgo County.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfires
Department or Agency Responsible:	Hidalgo County Fire Marshal's Office, Office of Emergency Management
Timeline:	2 years
Estimated Cost:	\$50,000.00
Estimated Benefit:	\$200,000.00
Funding Sources:	Annual Department Budget and External Funding

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #27	
Proposed Action:	Enhance public awareness of wild fire mitigation and preparedness activities through internet campaign. Awareness classes and community outreach.
BACKGROUND INFORMATION	
Goal:	Evaluate the risks posed by wildfires in Hidalgo County.
Objective:	Improve wild fires hazard assessment information for rural areas in Hidalgo County.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfires
Department or Agency Responsible:	Hidalgo County Fire Marshal's Office, Office of Emergency Management
Timeline:	3 years
Estimated Cost:	\$15,000.00
Estimated Benefit:	\$60,000.00
Funding Sources:	Annual Department Budget and External Funding

2021 ANALYSIS
Defer to 2021 Plan- Per Hidalgo County, action is partially complete and therefore still in progress.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #28	
Proposed Action:	Identify funding sources to enhance the operational capabilities and fire prevention programs of fire departments and fire districts.
BACKGROUND INFORMATION	
Goal:	Evaluate the risks posed by wildfires in Hidalgo County.
Objective:	Improve wild fires hazard assessment information for rural areas in Hidalgo County.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfires
Department or Agency Responsible:	Hidalgo County Fire Marshal's Office, Office of Emergency Management, City Fire Depts.
Timeline:	3 years
Estimated Cost:	\$50,000.00
Estimated Benefit:	\$200,000.00
Funding Sources:	Annual Department Budget and External Funding

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #29	
Proposed Action:	Evaluate the wild land fire risks to radio communication towers and supporting infrastructure located in areas at risk of wild land fire and implement mitigation measures as appropriate to maintain operability.
BACKGROUND INFORMATION	
Goal:	Evaluate the risks posed by wildfires in Hidalgo County.
Objective:	Improve wild fires hazard assessment information for rural areas in Hidalgo County.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfires
Department or Agency Responsible:	Hidalgo County Fire Marshal's Office, Office of Emergency Management, City Fire Depts.
Timeline:	3 years
Estimated Cost:	\$25,000.00
Estimated Benefit:	\$100,000.00
Funding Sources:	Annual Department Budget and External Funding

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #30	
Proposed Action:	Review repetitive loss properties and work with homeowners to remove them using FEMA funding.
BACKGROUND INFORMATION	
Goal:	Utilize Federal flood prevention programs to ensure reduced vulnerability to flooding.
Objective:	Review and remove repetitive loss properties.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms
Department or Agency Responsible:	Hidalgo County Emergency Management
Timeline:	5 years
Estimated Cost:	\$1,000,000.00
Estimated Benefit:	\$3,000,000.00
Funding Sources:	FEMA

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #31	
Proposed Action:	Improve construction techniques through building code enhancements and educate construction contractors, homeowners, and business owners about mitigation techniques.
BACKGROUND INFORMATION	
Goal:	Mitigate expansive soils by educating the public about and enforcing building codes that aim to reduce their effects.
Objective:	Mitigate against expansive soils.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils
Department or Agency Responsible:	Hidalgo County
Timeline:	5 years
Estimated Cost:	\$500,000.00
Estimated Benefit:	\$2,000,000.00
Funding Sources:	FEMA

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #32	
Proposed Action:	Research and incorporate subgrade stabilization methods on street projects such as street reclamation and repairs.
BACKGROUND INFORMATION	
Goal:	Mitigate expansive soils by educating the public about and enforcing building codes that aim to reduce their effects.
Objective:	Mitigate against expansive soils.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils, Drought
Department or Agency Responsible:	Hidalgo County
Timeline:	5 years
Estimated Cost:	Cost will vary widely based on the scope of the projects.
Estimated Benefit:	Roads resistant to damage from expansive soils
Funding Sources:	Jurisdiction Budget, Grants

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #33	
Proposed Action:	Implement drainage projects that support low maintenance and cleaning of drainage ditches.
BACKGROUND INFORMATION	
Goal:	Reduce vulnerability to flooding by evaluating jurisdiction dam and levee maintenance procedures and protocols.
Objective:	Reevaluate the county's dam and levee maintenance program.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure
Department or Agency Responsible:	Hidalgo County Drainage District
Timeline:	5 years
Estimated Cost:	\$2,000,000.00
Estimated Benefit:	\$4,000,000.00
Funding Sources:	FEMA

2021 ANALYSIS
Delete Action- Hidalgo County Drainage District has their own Mitigation Plan. Please see Appendix G.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #34	
Proposed Action:	Implement an inspection, maintenance, and enforcement program to ensure continued structural integrity of dams and levees.
BACKGROUND INFORMATION	
Goal:	Reduce vulnerability to flooding by evaluating jurisdiction dam and levee maintenance procedures and protocols.
Objective:	Reevaluate the county's dam and levee maintenance program.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure
Department or Agency Responsible:	Hidalgo County Drainage District
Timeline:	5 years
Estimated Cost:	\$10,000.00
Estimated Benefit:	\$40,000.00
Funding Sources:	Jurisdiction Budget, Grants

2021 ANALYSIS
Delete Action- Hidalgo County Drainage District has their own Mitigation Plan. Please see Appendix G.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #35	
Proposed Action:	Educate the public regarding dam and levee mitigation actions being taken by the county and actions the public can take to protect their lives and property, including the purchase of flood insurance, in the event of a dam or levee breach.
BACKGROUND INFORMATION	
Goal:	Reduce vulnerability to flooding by evaluating jurisdiction dam and levee maintenance procedures and protocols.
Objective:	Reevaluate the county's dam and levee maintenance program.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure
Department or Agency Responsible:	Hidalgo County Emergency Management
Timeline:	5 years
Estimated Cost:	\$10,000.00
Estimated Benefit:	\$40,000.00
Funding Sources:	Jurisdiction Budget, Grants

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #36	
Proposed Action:	Implement program to provide links to weather alerts and departmental phone listings with contact personnel for residents.
BACKGROUND INFORMATION	
Goal:	Provide the public with emergency management contact information and implement a public awareness campaign.
Objective:	Implement public awareness programs to assist the public with mitigation strategies.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding and Hurricane/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Hazardous Material Spills, Drought, Dam and Levee Failure, Extreme Heat, Hailstorms, Wildfires, Expansive Soils
Department or Agency Responsible:	Hidalgo County Emergency Management
Timeline:	3 years
Estimated Cost:	\$100,000.00
Estimated Benefit:	\$300,000.00
Funding Sources:	FEMA, Department Budget

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #37	
Proposed Action:	Educate construction contractors, homeowners, and business owners about mitigation techniques through public awareness programs. Implement public safety awareness programs using internet campaigns, classes, and community outreach.
BACKGROUND INFORMATION	
Goal:	Provide the public with emergency management contact information and implement a public awareness campaign.
Objective:	Implement public awareness programs to assist the public with mitigation strategies.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding and Hurricane/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Hazardous Material Spills, Drought, Dam and Levee Failure, Extreme Heat, Hailstorms, Wildfires, Expansive Soils
Department or Agency Responsible:	Hidalgo County Emergency Management
Timeline:	5 years
Estimated Cost:	\$100,000.00
Estimated Benefit:	\$300,000.00
Funding Sources:	FEMA, Department Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #38	
Proposed Action:	Implement a database that captures extent and impact, related statistical information on fatalities, injuries and damages caused by each incident that occurs within the jurisdiction.
BACKGROUND INFORMATION	
Goal:	Develop a master system to maintain records for all weather incidents.
Objective:	Over the next five years, migrate all participating jurisdictions weather related incidents into one master database.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding and Hurricane/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Hazardous Material Spills, Drought, Dam and Levee Failure, Extreme Heat, Hailstorms, Wildfires, Expansive Soils
Department or Agency Responsible:	Hidalgo County Emergency Management
Timeline:	1 year
Estimated Cost:	\$10,000.00
Estimated Benefit:	\$40,000.00
Funding Sources:	County Budget

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #39	
Proposed Action:	Develop procedures for making mass notifications to citizens and mechanists during a natural hazard incident. Solicit bids for system. Purchase Emergency Notification System and install. Distribute information on new system and conduct training.
BACKGROUND INFORMATION	
Goal:	Implement procedures for emergency communications using a notification system in Hidalgo County.
Objective:	To provide a means of disseminating emergency information to the citizens of Hidalgo County.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding and Hurricane/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Hazardous Material Spills, Drought, Dam and Levee Failure, Extreme Heat, Hailstorms, Wildfires, Expansive Soils
Department or Agency Responsible:	Hidalgo County Emergency Management
Timeline:	2 years
Estimated Cost:	\$100,000.00
Estimated Benefit:	\$400,000.00
Funding Sources:	Department Budget

2021 ANALYSIS
Completed. Purchased Everbridge Notification System.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #40	
Proposed Action:	Harden critical facilities by re- enforcing windows, roof construction, and enforcing covered parking areas for critical vehicles.
BACKGROUND INFORMATION	
Goal:	Harden critical facilities against tornados, severe thunderstorms/high winds, hurricanes/tropical storms, sever winter storms, and hailstorms.
Objective:	Evaluate the jurisdictions critical facilities and implement a hardening program.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Hurricanes/Tropical Storms, Hailstorms
Department or Agency Responsible:	Hidalgo County Facilities Management
Timeline:	5 years
Estimated Cost:	\$2,000,000.00
Estimated Benefit:	\$5,000,000.00
Funding Sources:	FEMA

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #41	
Proposed Action:	Perform dam inundation studies to establish consistent and justifiable risk factors. As a result, a risk screening will be conducted to support potential mitigation strategies such as structural upgrades, acquisition of easements in downstream induction areas, establishment of downstream development regulations, buy-outs of affected property owners, flood proofing / elevation / relocation of structures, enhanced flood warning/evacuation system and plans.
BACKGROUND INFORMATION	
Goal:	Conduct dam inundation studies to assist in implementing mitigation actions.
Objective:	Perform dam inundation studies to establish consistent and justifiable risk factors.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure
Department or Agency Responsible:	Hidalgo County Drainage District
Timeline:	3 years
Estimated Cost:	\$10,000.00
Estimated Benefit:	\$40,000.00
Funding Sources:	FEMA

2021 ANALYSIS
Delete Action- Hidalgo County Drainage District has their own Mitigation Plan. Please see Appendix G.

SECTION 20: PREVIOUS ACTIONS

Hidalgo County - Previous Action #42	
Proposed Action:	Ensure county facilities and equipment are adequately protected against lightning caused power surges through the purchase of surge protection devices and by ensuring facilities have adequate protection through the use of lightning rods.
BACKGROUND INFORMATION	
Goal:	Protect county equipment against power surges.
Objective:	Acquire equipment to protect county equipment from lightning.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Lightning
Department or Agency Responsible:	Hidalgo County Emergency Management
Timeline:	3 years
Estimated Cost:	\$25,000.00
Estimated Benefit:	\$100,000.00
Funding Sources:	FEMA

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

CITY OF ALAMO

City of Alamo - Previous Action #1		
	Proposed Action:	Identify appropriate size and type of generator and purchase a generator for the Alamo Police Department. APD is located just north of the Emergency Center and serves as a spill over EMC. Also, identify appropriate size and type of generator and purchase a generator for the Alamo Public Works Department. A generator would ensure the facility has electricity to assist staff provide adequate support.
	BACKGROUND INFORMATION	
	Goal:	Ensure the City of Alamo critical facilities have access to alternate power sources.
	Objective:	Ensure the entire Alamo PD and Public Works Facility is fully connected to an appropriate generator.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lightning, Extreme Heat, Hailstorms, Wildfires
Department or Agency Responsible:	Alamo Police Department and Public Works Department
Timeline:	1 year
Estimated Cost:	\$140,000.00
Estimated Benefit:	\$560,000.00
Funding Sources:	General Fund, Other identified funding sources

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Alamo - Previous Action #2	
Proposed Action:	The City of Alamo currently has 26 lift stations which are spread out throughout the city. Through a grant and infrastructure project, city was able to equip the main 11, leaving 15 to be equipped at later date.
BACKGROUND INFORMATION	
Goal:	Ensure the City of Alamo critical facilities have access to alternate power sources.
Objective:	Ensure unequipped lift stations are equipped with emergency generators to keep system functioning in the event of loss of main power.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lightning, Extreme Heat, Hailstorms, Wildfires
Department or Agency Responsible:	Alamo Public Works Department
Timeline:	3 years
Estimated Cost:	\$70,000.00
Estimated Benefit:	\$128,000.00
Funding Sources:	Identify Grants, Wastewater Budget, etc.

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Alamo - Previous Action #3	
Proposed Action:	Identify appropriate size and type of generator and purchase the generators.
BACKGROUND INFORMATION	
Goal:	Ensure the City of Alamo critical facilities have access to alternate power sources.
Objective:	Ensure unequipped lift stations are equipped with emergency generators to keep system functioning in the event of loss of main power.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lightning, Extreme Heat, Hailstorms
Department or Agency Responsible:	Alamo Public Works Department
Timeline:	3 years
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Identify Grants, Wastewater Budget, etc.

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Alamo - Previous Action #4	
Proposed Action:	Create and compile incident database.
BACKGROUND INFORMATION	
Goal:	Educate the public about the dangers of hazardous material releases and effective preparedness measures.
Objective:	Create and maintain an up-to-date list on hazardous mitigation incidents.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Hazardous Material Spills
Department or Agency Responsible:	Alamo Fire Department
Timeline:	2 years
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Identify Grants; Fire Department Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Alamo - Previous Action #5	
Proposed Action:	Maintain and update tracking system.
BACKGROUND INFORMATION	
Goal:	Educate the public about the dangers of hazardous material releases and effective preparedness measures.
Objective:	Create and maintain an up-to-date list on hazardous mitigation incidents.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Hazardous Material Spills
Department or Agency Responsible:	Alamo Fire Department
Timeline:	2 years
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Identify Grants; Fire Department Budget

2021 ANALYSIS
Completed and Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Alamo - Previous Action #6	
Proposed Action:	Identify and finalize equipment list and purchase identified equipment.
BACKGROUND INFORMATION	
Goal:	Provide the necessary equipment and information needed to carryout mitigation and preparedness measures.
Objective:	Ensure Alamo Police Department staff and vehicles are equipped with emergency response attire & appropriate weather equipment.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lightning, Extreme Heat, Hailstorms, Wildfires
Department or Agency Responsible:	Alamo Police Department
Timeline:	2 years
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Identify Grants; Police Department Budget

2021 ANALYSIS
Completed and Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Alamo - Previous Action #7	
Proposed Action:	The Alamo police department will create a working evacuation list which will be utilized for all emergency situations. Those can be flooding, hostage situations, fire or any other emergency which requires the area to be cleared. Prioritize flood-prone areas.
BACKGROUND INFORMATION	
Goal:	Ensure emergency responder access to all areas of the City of Alamo.
Objective:	Identify access alternatives for neighborhoods with single access points.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lightning, Extreme Heat, Hailstorms, Wildfires
Department or Agency Responsible:	Alamo Police Department
Timeline:	2 years
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Identify Grants; Police Department Budget

2021 ANALYSIS
Completed and Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Alamo - Previous Action #8	
Proposed Action:	Provide traffic control and evacuation assistance during any identified emergency situations.
BACKGROUND INFORMATION	
Goal:	Ensure emergency responder access to all area of the City of Alamo.
Objective:	Identify access alternatives for neighborhoods with single access points.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lightning, Extreme Heat, Hailstorms
Department or Agency Responsible:	Alamo Police Department
Timeline:	2 years
Estimated Cost:	\$10,000.00
Estimated Benefit:	\$40,000.00
Funding Sources:	Identify Grants; Police Department Budget

2021 ANALYSIS
Completed and Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Alamo - Previous Action #9	
Proposed Action:	Implement program to provide links to weather alerts and departmental phone listings with contact personnel for residents.
BACKGROUND INFORMATION	
Goal:	Provide the public with emergency management contact information and implement a public awareness campaign.
Objective:	Implement public awareness programs to assist the public with mitigation strategies.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Expansive Soils, Wildfires
Department or Agency Responsible:	City of Alamo
Timeline:	1 week
Estimated Cost:	\$2,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Completed and Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Alamo - Previous Action #10	
Proposed Action:	Educate construction contractors, homeowners, and business owners about mitigation techniques through public awareness programs. Implement public safety awareness programs using internet campaigns, classes, and community outreach.
BACKGROUND INFORMATION	
Goal:	Provide the public with emergency management contact information and implement a public awareness campaign.
Objective:	Implement public awareness programs to assist the public with mitigation strategies.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Expansive Soils, Wildfires
Department or Agency Responsible:	City of Alamo Emergency Management Department
Timeline:	12 months
Estimated Cost:	\$3,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Completed and Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Alamo - Previous Action #11	
Proposed Action:	Implement a data recording system that captures extent and impact, related statistical information on fatalities, injuries and damages caused by each incident that occurs within the jurisdiction.
BACKGROUND INFORMATION	
Goal:	Develop a system to maintain records for all weather related incidents.
Objective:	Over the next five years, record the impact and the extent of natural hazard incidents within the jurisdiction.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes. Severe Thunderstorms and High Winds. Flooding. Hurricanes/Tropical Storms. Severe Winter Storms. Lightning. Drought. Extreme Heat. Hailstorms. Expansive Soils, Wildfires
Department or Agency Responsible:	City of Alamo Emergency Management Department
Timeline:	1 week
Estimated Cost:	\$3,000.00
Estimated Benefit:	\$12,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Alamo - Previous Action #12	
Proposed Action:	Improve construction techniques through building code enhancements and educate construction contractors, homeowners, and business owners about mitigation techniques.
BACKGROUND INFORMATION	
Goal:	Mitigate expansive soils by educating the public about and enforcing building codes that aim to reduce their effects.
Objective:	Mitigate against expansive soils.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils
Department or Agency Responsible:	City of Alamo Planning and Development Department
Timeline:	12 months
Estimated Cost:	\$2,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Alamo - Previous Action #13	
Proposed Action:	Provide information to homeowners and businesses regarding the dos and don'ts of maintaining moisture around foundations to prevent cracking from expansive soils.
BACKGROUND INFORMATION	
Goal:	Mitigate expansive soils by educating the public about and enforcing building codes that aim to reduce their effects.
Objective:	Mitigate against expansive soils.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils
Department or Agency Responsible:	City of Alamo Emergency Management Department
Timeline:	2 years
Estimated Cost:	\$5,000.00
Estimated Benefit:	\$15,000.00
Funding Sources:	Jurisdiction Budget, Grant Funds

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Alamo - Previous Action #14	
Proposed Action:	Develop drought plans and conservation programs.
BACKGROUND INFORMATION	
Goal:	Develop a comprehensive planning approach to drought mitigation.
Objective:	Ensure plans and procedures addressing local drought response, drought mitigation, and long-term water planning are developed.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought
Department or Agency Responsible:	City of Alamo Emergency Management Department
Timeline:	2 years
Estimated Cost:	\$10,000.00
Estimated Benefit:	\$40,000.00
Funding Sources:	External Funding

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Alamo - Previous Action #15	
Proposed Action:	Develop and conduct public education and awareness programs on drought mitigation, drought response and water conservation.
BACKGROUND INFORMATION	
Goal:	Develop a comprehensive planning approach to drought mitigation.
Objective:	Ensure plans and procedures addressing local drought response, drought mitigation, and long-term water planning are developed.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought
Department or Agency Responsible:	City of Alamo Emergency Management Department
Timeline:	2 years
Estimated Cost:	\$5,000.00
Estimated Benefit:	\$20,000.00
Funding Sources:	Annual Department Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

CITY OF EDCOUCH

City of Edcouch - Previous Action #1		
	Proposed Action:	Purchase of 250 KW Emergency Generator including an automatic transfer switch control Panel. This generator will provide adequate power to operate our Police Department communication equipment including but limited to our EOC building, emergency lighting, communication between City County, State, Federal and Emergency Response Agencies.
	BACKGROUND INFORMATION	
	Goal:	Ensure the City of Edcouch critical facilities have access to alternate power sources.
	Objective:	Provide auxiliary power for the Police Department.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Wildfire
Department or Agency Responsible:	Edcouch Police Department
Timeline:	12 months
Estimated Cost:	\$250,000.00
Estimated Benefit:	\$600,000.00
Funding Sources:	FEMA, City Funds

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Edcouch - Previous Action #2	
Proposed Action:	Purchase 20 acres of land to create a water retention reservoirs of a capacity of 20 million gallons to provide adequate retention of flood waters during a hurricane. Thus, prevent damages due to flooding of homes, streets, business's, and school districts. Estimate cost will include equipment and construction.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Create a water reservoir for water retention purposes.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricane/Tropical Storms, Severe Winter Storms
Department or Agency Responsible:	Edcouch Utility Department
Timeline:	24 months
Estimated Cost:	\$600,000.00
Estimated Benefit:	\$1,200,000.00
Funding Sources:	FEMA, City Funds

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Edcouch - Previous Action #3	
Proposed Action:	Complete activities required to be a NFIP participating community.
BACKGROUND INFORMATION	
Goal:	Utilize Federal flood prevention programs to ensure reduced vulnerability to flooding.
Objective:	Ensure compliance in the NFIP.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricane/Tropical Storms, Severe Winter Storms
Department or Agency Responsible:	City of Edcouch Emergency Management
Timeline:	12 months
Estimated Cost:	\$5,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	FEMA

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Edcouch - Previous Action #4	
Proposed Action:	Review repetitive loss properties and work with homeowners to remove them using FEMA funding.
BACKGROUND INFORMATION	
Goal:	Utilize Federal flood prevention programs to ensure reduced vulnerability to flooding.
Objective:	Review and remove repetitive loss properties.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricane/Tropical Storms, Severe Winter Storms
Department or Agency Responsible:	City of Edcouch Emergency Management
Timeline:	1 week
Estimated Cost:	\$2,000.00
Estimated Benefit:	\$2,000.00
Funding Sources:	FEMA

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Edcouch - Previous Action #5	
Proposed Action:	Improve construction techniques through building code enhancements and educate construction contractors, homeowners, and business owners about mitigation techniques.
BACKGROUND INFORMATION	
Goal:	Mitigate expansive soils by educating the public about and enforcing building codes that aim to reduce their effects.
Objective:	Mitigate against expansive soils.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils
Department or Agency Responsible:	City of Edcouch Planning Department
Timeline:	12 months
Estimated Cost:	\$2,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Edcouch - Previous Action #6	
Proposed Action:	Provide information to homeowners and businesses regarding the do's and don'ts of maintaining moisture around foundations to prevent cracking from expansive soils.
BACKGROUND INFORMATION	
Goal:	Mitigate expansive soils by educating the public about and enforcing building codes that aim to reduce their effects.
Objective:	Mitigate against expansive soils.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils
Department or Agency Responsible:	City of Edcouch Emergency Management
Timeline:	2 years
Estimated Cost:	\$5,000.00
Estimated Benefit:	\$15,000.00
Funding Sources:	Jurisdiction Budget, Grant Funds

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Edcouch - Previous Action #7	
Proposed Action:	Implement program to provide links to weather alerts and departmental phone listings with contact personnel for residents.
BACKGROUND INFORMATION	
Goal:	Provide the public with emergency management contact information and implement a public awareness campaign.
Objective:	Implement public awareness programs to assist the public with mitigation strategies.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Expansive Soils, Wildfires
Department or Agency Responsible:	City of Edcouch Emergency Management
Timeline:	1 week
Estimated Cost:	\$2,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Edcouch - Previous Action #8	
Proposed Action:	Educate construction contractors, homeowners, and business owners about mitigation techniques through public awareness programs. Implement public safety awareness programs using internet campaigns, classes, and community outreach.
BACKGROUND INFORMATION	
Goal:	Provide the public with emergency management contact information and implement a public awareness campaign.
Objective:	Implement public awareness programs to assist the public with mitigation strategies.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Expansive Soils, Wildfires
Department or Agency Responsible:	City of Edcouch Emergency Management
Timeline:	12 months
Estimated Cost:	\$3,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Edcouch - Previous Action #9	
Proposed Action:	Implement a data recording system that captures extent and impact, related statistical information on fatalities, injuries and damages caused by each incident that occurs within the jurisdiction.
BACKGROUND INFORMATION	
Goal:	Develop a system to maintain records for all weather related incidents.
Objective:	Over the next five years, record the impact and the extent of natural hazard incidents within the jurisdiction

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Expansive Soils, Wildfires
Department or Agency Responsible:	City of Edcouch Emergency Management
Timeline:	1 week
Estimated Cost:	\$3,000.00
Estimated Benefit:	\$12,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Edcouch - Previous Action #10	
Proposed Action:	Develop procedures for making mass notifications to citizens and merchants during a natural hazard incident. Solicit bids for system. Purchase Emergency Notification System and install Distribute information on new system and conduct training.
BACKGROUND INFORMATION	
Goal:	Implement procedures for emergency communication using a notification system in City of Edcouch.
Objective:	To provide a means of disseminating emergency information to the citizens of Edcouch.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Expansive Soils, Wildfires, Hazardous Material Spills, Boarder Security and Terrorism
Department or Agency Responsible:	City of Edcouch Emergency Management
Timeline:	2 years
Estimated Cost:	\$25,000.00
Estimated Benefit:	\$100,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Edcouch - Previous Action #11	
Proposed Action:	Harden critical facilities by re-enforcing windows, roof construction, and enforcing covered parking areas for critical vehicles.
BACKGROUND INFORMATION	
Goal:	Harden critical facilities against tornadoes, severe thunderstorms/high winds, hurricanes/tropical storms, severe winter storms, and hail storms.
Objective:	Evaluate the jurisdictions critical facilities and implement a hardening program.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Hurricanes/Tropical Storms, Severe Winter Storms, Hailstorms
Department or Agency Responsible:	City of Edcouch Emergency Management
Timeline:	2 years
Estimated Cost:	\$50,000.00
Estimated Benefit:	\$200,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

CITY OF EDINBURG

City of Edinburg - Previous Action #1		
	Proposed Action:	Implement reverse 9-1-1 System.
	BACKGROUND INFORMATION	
	Goal:	Enhance emergency communications and notification systems in City of Edinburg.
	Objective:	Establish a reverse 9-1-1 citywide system in the City of Edinburg.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Wildfires, Dam and Levee Failure
Department or Agency Responsible:	Edinburg Police Department
Timeline:	1 year
Estimated Cost:	\$250,000.00
Estimated Benefit:	\$1,000,000.00
Funding Sources:	Local, State and Federal

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Edinburg - Previous Action #2	
Proposed Action:	Design and construct the extension of a runway at the airport so that larger aircraft can depart and arrive with supplies, cargo, equipment, and personnel during a disaster.
BACKGROUND INFORMATION	
Goal:	Enhance emergency responder access to all areas of City of Edinburg and participating jurisdictions.
Objective:	Extend Runway and taxiways to accommodate aircraft deploying for delivery of emergency assets at the South Texas International Airport at Edinburg.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Wildfires, Expansive Soil, Dam and Levee Failure
Department or Agency Responsible:	Edinburg Public Works Department
Timeline:	1 year
Estimated Cost:	\$13,000,000
Estimated Benefit:	\$520,000,000
Funding Sources:	Local, State and Federal

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Edinburg - Previous Action #3	
Proposed Action:	The City of Edinburg Police Department will develop throughout the city Neighborhood Evacuation Access Points in the event of a disaster utilizing City Street Network.
BACKGROUND INFORMATION	
Goal:	Enhance emergency responder access to all areas of City of Edinburg and participating jurisdictions.
Objective:	Establish alternative access routes for emergency responders to neighborhoods in Edinburg.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Boarder Security and Terrorism, Severe Winter Storms, Lightning, Hazardous Materials Spills, Drought, Dam and Levee Failure, Extreme Heat, Hailstorms, Wildfires, Expansive Soils
Department or Agency Responsible:	Edinburg Police Department
Timeline:	6 months (180 days)
Estimated Cost:	\$5,000.00
Estimated Benefit:	\$20,000.00
Funding Sources:	Local, State and Federal

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Edinburg - Previous Action #4	
Proposed Action:	Downtown drainage improvements.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Complete flood mitigation projects in the City of Edinburg.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms, Winter Storms
Department or Agency Responsible:	Edinburg Public Works Department
Timeline:	1 year
Estimated Cost:	\$1,973,635.00
Estimated Benefit:	\$8,000,000.00
Funding Sources:	Local, State and Federal

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Edinburg - Previous Action #5	
Proposed Action:	Northside Drainage Phase 1.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Complete flood mitigation projects in the City of Edinburg.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms, Winter Storms
Department or Agency Responsible:	Edinburg Building Maintenance Department
Timeline:	1 year
Estimated Cost:	\$1,765,144.00
Estimated Benefit:	\$50,000.00
Funding Sources:	FEMA, Mission Funds

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Edinburg - Previous Action #6	
Proposed Action:	Stadium and Dawson Drive Improvements.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Complete flood mitigation projects in the City of Edinburg.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms, Winter Storms
Department or Agency Responsible:	Edinburg Building Maintenance Department
Timeline:	120 days
Estimated Cost:	\$501,606.00
Estimated Benefit:	\$25,000.00
Funding Sources:	FEMA, Mission Funds

2021 ANALYSIS
Defer to 2021 Plan- Per Edinburg, project is in progress.

SECTION 20: PREVIOUS ACTIONS

City of Edinburg - Previous Action #7	
Proposed Action:	Curry Ditch Improvements.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Complete flood mitigation projects in the City of Edinburg.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms, Winter Storms
Department or Agency Responsible:	Edinburg Public Works Department
Timeline:	1 year
Estimated Cost:	\$2,635,430.00
Estimated Benefit:	\$8,000,000.00
Funding Sources:	Local, State and Federal

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Edinburg - Previous Action #8	
Proposed Action:	Northeast Holding Pond.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Complete flood mitigation projects in the City of Edinburg.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms, Winter Storms
Department or Agency Responsible:	Edinburg Public Works Department
Timeline:	1 year
Estimated Cost:	\$1,268,125.00
Estimated Benefit:	\$30,000.00
Funding Sources:	Local, State and Federal

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Edinburg - Previous Action #9	
Proposed Action:	Hobbs and 2 nd Street Flooding Improvements.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Complete flood mitigation projects in the City of Edinburg.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms, Winter Storms
Department or Agency Responsible:	Edinburg Public Works Department
Timeline:	120 days
Estimated Cost:	\$880,789.00
Estimated Benefit:	\$20,000.00
Funding Sources:	Local, State and Federal

2021 ANALYSIS
Defer to 2021 Plan- Per Edinburg, project is in progress.

SECTION 20: PREVIOUS ACTIONS

City of Edinburg - Previous Action #10	
Proposed Action:	UTPA West Drainage Improvements.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Complete flood mitigation projects in the City of Edinburg.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms, Winter Storms
Department or Agency Responsible:	Edinburg Public Works Department
Timeline:	4 months (120 days)
Estimated Cost:	\$999,406.00
Estimated Benefit:	\$30,000.00
Funding Sources:	Local, State and Federal

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Edinburg - Previous Action #11	
Proposed Action:	Freddy Gonzales and Mon Mack Road Drainage Improvements.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Complete flood mitigation projects in the City of Edinburg.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms, Winter Storms
Department or Agency Responsible:	Edinburg Public Works Department
Timeline:	4 months (120 days)
Estimated Cost:	\$4,876,536.00
Estimated Benefit:	\$16,000,000.00
Funding Sources:	Local, State and Federal

2021 ANALYSIS
Defer to 2021 Plan- Per Edinburg, project is in progress.

SECTION 20: PREVIOUS ACTIONS

City of Edinburg - Previous Action #12	
Proposed Action:	Hidalgo County Irrigation District #1 Canal replacement Project.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Complete flood mitigation projects in the City of Edinburg.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms, Winter Storms
Department or Agency Responsible:	Edinburg Public Works Department
Timeline:	1 year
Estimated Cost:	\$4,116,169.00
Estimated Benefit:	\$16,000,000.00
Funding Sources:	Local, State and Federal

2021 ANALYSIS
Defer to 2021 Plan- Per Edinburg, project is in progress.

SECTION 20: PREVIOUS ACTIONS

City of Edinburg - Previous Action #13	
Proposed Action:	Fire Department Central District Roof Project.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Complete flood mitigation projects in the City of Edinburg.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms, Winter Storms
Department or Agency Responsible:	Edinburg Fire Department
Timeline:	6 months (180 days)
Estimated Cost:	\$486,750.00
Estimated Benefit:	\$2,000,000.00
Funding Sources:	Local, State and Federal

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Edinburg - Previous Action #14	
Proposed Action:	Complete Master Drainage Plan so that we can upgrade any storm sewer system, outfall, or new systems within the limits of Edinburg. The Master drainage Plan will incorporated into our Capital Improvement Plan. As a result, the Master Drainage Plan, may be approved by the City of Edinburg leading to projects which would mitigate against flooding, hurricanes, tropical storms and winter storms.
BACKGROUND INFORMATION	
Goal:	Mitigate against flooding by developing comprehensive plans.
Objective:	Develop a drainage master plan including capital drainage improvement plan for the City of Edinburg.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms, Winter Storms
Department or Agency Responsible:	Edinburg Public Works Department
Timeline:	1 year
Estimated Cost:	\$1,000,000.00
Estimated Benefit:	\$4,000,000.00
Funding Sources:	Local, State and Federal

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Edinburg - Previous Action #15	
Proposed Action:	Review repetitive loss properties and work with homeowners to remove them using FEMA funding.
BACKGROUND INFORMATION	
Goal:	Utilize Federal flood prevention programs to ensure reduced vulnerability to flooding.
Objective:	Review and remove repetitive loss properties.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms, Winter Storms
Department or Agency Responsible:	City of Edinburg Emergency Management Department
Timeline:	1 week
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	FEMA

2021 ANALYSIS
Completed and Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Edinburg - Previous Action #16	
Proposed Action:	Improve construction techniques through building code enhancements and educate construction contractors, homeowners, and business owners about mitigation techniques.
BACKGROUND INFORMATION	
Goal:	Mitigate expansive soils by educating the public about and enforcing building codes that aim to reduce their effects.
Objective:	Mitigate against expansive soils.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils
Department or Agency Responsible:	City of Edinburg Emergency Management Department
Timeline:	1 year
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Edinburg - Previous Action #17	
Proposed Action:	Provide information to homeowners and businesses regarding the do's and don'ts of maintaining moisture around foundations to prevent cracking from expansive soils.
BACKGROUND INFORMATION	
Goal:	Mitigate expansive soils by educating the public about and enforcing building codes that aim to reduce their effects.
Objective:	Mitigate against expansive soils.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils
Department or Agency Responsible:	City of Edinburg Emergency Management Department
Timeline:	2 years
Estimated Cost:	\$5,000.00
Estimated Benefit:	\$15,000.00
Funding Sources:	Jurisdiction Budget, Grant Funds

2021 ANALYSIS
Completed and Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Edinburg - Previous Action #18	
Proposed Action:	Implement drainage projects that support low maintenance and cleaning of drainage ditches.
BACKGROUND INFORMATION	
Goal:	Reduce vulnerability to flooding by evaluating jurisdiction dam and levee maintenance procedures and protocols.
Objective:	Reevaluate the jurisdiction's dam and levee maintenance program.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure
Department or Agency Responsible:	City of Edinburg Public Works Department
Timeline:	1 week
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Edinburg - Previous Action #19	
Proposed Action:	Implement program to provide links to weather alerts and departmental phone listings with contact personnel for residents.
BACKGROUND INFORMATION	
Goal:	Provide the public with emergency management contact information and implement a public awareness campaign.
Objective:	Implement public awareness programs to assist the public with mitigation strategies.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricane/Tropical Storms, Severe Winter Storms, Lightning, Drought, Dam and Levee Failure, Extreme Heat, Wildfires, Expansive Soils
Department or Agency Responsible:	City of Edinburg Emergency Management Department
Timeline:	1 week
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Completed and Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Edinburg - Previous Action #20	
Proposed Action:	Educate construction contractors, homeowners, and business owners about mitigation techniques through public awareness programs. Implement public safety awareness programs using internet campaigns, classes, and community outreach.
BACKGROUND INFORMATION	
Goal:	Provide the public with emergency management contact information and implement a public awareness campaign.
Objective:	Implement public awareness programs to assist the public with mitigation strategies.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricane/Tropical Storms, Severe Winter Storms, Lightning, Drought, Dam and Levee Failure, Extreme Heat, Wildfires, Expansive Soils
Department or Agency Responsible:	City of Edinburg Emergency Management Department
Timeline:	1 year
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Completed and Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Edinburg - Previous Action #21	
Proposed Action:	Implement a data recording system that captures extent, impact, related statistical information on fatalities, injuries and damages caused by each incident that occurs within the jurisdiction.
BACKGROUND INFORMATION	
Goal:	Develop a system to maintain records for all weather related incidents.
Objective:	Over the next five years, record the impact and the extent of natural hazard incidents within the jurisdiction.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricane/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Wildfires, Expansive Soils
Department or Agency Responsible:	City of Edinburg Emergency Management Department
Timeline:	1 year
Estimated Cost:	\$3,000.00
Estimated Benefit:	\$12,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Completed and Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Edinburg - Previous Action #22	
Proposed Action:	Develop procedures for making mass notifications to citizens and merchants during a natural hazard incident. Solicit bids for system. Purchase Emergency Notification System and install Distribute information on new system and conduct training.
BACKGROUND INFORMATION	
Goal:	Implement procedures for emergency communication using a notification system in the City of Edinburg.
Objective:	To provide a means of disseminating emergency information to the citizens of Edinburg.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricane/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Wildfires, Expansive Soils, Boarder Security and Terrorism, Hazardous Spills
Department or Agency Responsible:	City of Edinburg Emergency Management Department
Timeline:	1 year
Estimated Cost:	\$31,000.00
Estimated Benefit:	\$124,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Edinburg - Previous Action #23	
Proposed Action:	Harden critical facilities by re- enforcing windows, roof construction, and enforcing covered parking areas for critical vehicles.
BACKGROUND INFORMATION	
Goal:	Harden critical facilities against tornadoes, severe thunderstorms/high winds, hurricanes/tropical storms, winter storms, and hailstorms.
Objective:	Evaluate the jurisdictions critical facilities and implement a hardening program.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Hurricane/Tropical Storms, Severe Winter Storms, Hailstorms
Department or Agency Responsible:	City of Edinburg Public Works Department
Timeline:	2 year
Estimated Cost:	\$80,000.00
Estimated Benefit:	\$320,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Completed and Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Edinburg - Previous Action #24	
Proposed Action:	Preform dam inundation studies to establish consistent and justifiable risk factors. As a result, a risk screening will be conducted to support potential mitigation strategies such as structural upgrades, acquisition of easements in downstream induction areas, establishment of downstream development regulations, buy-outs of affected property owners, flood proofing/elevation/relocation of structures, enhanced flood warning/evacuation system and plans.
BACKGROUND INFORMATION	
Goal:	Conduct dam inundation studies to assist in implementing mitigation actions.
Objective:	Preform dam inundation studies to establish consistent and justifiable risk factors.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure
Department or Agency Responsible:	City of Edinburg Engineering Department
Timeline:	3 years
Estimated Cost:	\$3,000.00
Estimated Benefit:	\$12,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

CITY OF HIDALGO

City of Hidalgo - Previous Action #1		
	Proposed Action:	Add additional storm sewer line from 5 th Street Azalia to Texano East to Eight Street. Install 24" cement pipe to help drainage.
	BACKGROUND INFORMATION	
	Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
	Objective:	Enhance drainage systems in City of Hidalgo.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms
Department or Agency Responsible:	City of Hidalgo Public Works
Timeline:	8 months
Estimated Cost:	\$1,300,000.00
Estimated Benefit:	\$5,200,00.00
Funding Sources:	USDA

2021 ANALYSIS
Defer to 2021 Plan- Per City of Hidalgo, update responsible department and funding to state Urban County and City Funding.

SECTION 20: PREVIOUS ACTIONS

City of Hidalgo - Previous Action #2	
Proposed Action:	Widening of drainage ditch from Military to Floodway.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Enhance drainage systems in City of Hidalgo.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms
Department or Agency Responsible:	Drainage district, City of Hidalgo Public Works Hidalgo County Precinct
Timeline:	2 years
Estimated Cost:	\$804,000.00
Estimated Benefit:	\$3,200,000.00
Funding Sources:	City, County Drainage District

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Hidalgo - Previous Action #3		
	Proposed Action:	Raising floodway levels along Rio Grande and Floodway.
	BACKGROUND INFORMATION	
	Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
	Objective:	Enhance drainage systems in City of Hidalgo.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms
Department or Agency Responsible:	IWBC and Drainage District
Timeline:	2 years
Estimated Cost:	\$40,000,000.00
Estimated Benefit:	\$160,000.00
Funding Sources:	Federal

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Hidalgo - Previous Action #4	
Proposed Action:	Clean and maintain existent ditches located along HWY 281, SH 336 and Spur 115.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Perform maintenance of existent ditches in the City of Hidalgo.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms
Department or Agency Responsible:	City of Hidalgo Public Works Department
Timeline:	12 months
Estimated Cost:	\$120,000.00
Estimated Benefit:	\$480,000.00
Funding Sources:	City Funds

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Hidalgo - Previous Action #5	
Proposed Action:	Install security cameras and surveillance equipment along main arterials.
BACKGROUND INFORMATION	
Goal:	Increase boarder security in Hidalgo County.
Objective:	Increase surveillance capabilities.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Border Security and Terrorism
Department or Agency Responsible:	FEMA, Department of Homeland Security (DHS)
Timeline:	6 months
Estimated Cost:	\$500,000.00
Estimated Benefit:	\$2,000,000.00
Funding Sources:	FEMA, DHS

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Hidalgo - Previous Action #6	
Proposed Action:	Obtain Funding through Local Border Security Program (Borderstar).
BACKGROUND INFORMATION	
Goal:	Increase boarder security in Hidalgo County.
Objective:	Minimize illegal entries through increased security.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Border Security and Terrorism
Department or Agency Responsible:	City of Hidalgo Police Department
Timeline:	12 months
Estimated Cost:	\$50,000.00
Estimated Benefit:	\$200,000.00
Funding Sources:	TXDPS, CJD

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Hidalgo - Previous Action #7	
Proposed Action:	Use Federal grants to increase security at border.
BACKGROUND INFORMATION	
Goal:	Increase boarder security in Hidalgo County.
Objective:	Minimize illegal entries through increased security.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Border Security and Terrorism
Department or Agency Responsible:	City of Hidalgo Police Department
Timeline:	12 months
Estimated Cost:	\$146,000.00
Estimated Benefit:	\$584,000.00
Funding Sources:	DHS

2021 ANALYSIS
Completed. Funding from Stone Garden Grant.

SECTION 20: PREVIOUS ACTIONS

City of Hidalgo - Previous Action #8	
Proposed Action:	Review repetitive loss properties and work with homeowners to remove them using FEMA funding.
BACKGROUND INFORMATION	
Goal:	Utilize Federal flood prevention programs to ensure reduced vulnerability to flooding.
Objective:	Review and remove repetitive loss properties.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms
Department or Agency Responsible:	City of Hidalgo Emergency Management Department
Timeline:	12 months
Estimated Cost:	\$250,000.00
Estimated Benefit:	\$500,000.00
Funding Sources:	FEMA

2021 ANALYSIS
Completed. Funding from Stone Garden Grant.

SECTION 20: PREVIOUS ACTIONS

City of Hidalgo - Previous Action #9	
Proposed Action:	Implement drainage projects that support low maintenance and cleaning of drainage ditches.
BACKGROUND INFORMATION	
Goal:	Reduce vulnerability to flooding by evaluating jurisdiction dam and levee maintenance procedures and protocols.
Objective:	Reevaluate the jurisdiction's dam and levee maintenance program.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure
Department or Agency Responsible:	City of Hidalgo Emergency Management Department
Timeline:	6 months
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Hidalgo - Previous Action #10	
Proposed Action:	Implement program to provide links to weather alerts and departmental phone listings with contact personnel for residents.
BACKGROUND INFORMATION	
Goal:	Provide the public with emergency management contact information and implement a public awareness campaign.
Objective:	Implement public awareness programs to assist the public with mitigation strategies.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricane/Tropical Storms, Severe Winter Storms, Lightning, Drought, Dam and Levee Failure, Extreme Heat, Hailstorms, Expansive Soils
Department or Agency Responsible:	City of Hidalgo Emergency Management Department
Timeline:	12 months
Estimated Cost:	\$5,000.00
Estimated Benefit:	\$15,000.00
Funding Sources:	N/A

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Hidalgo - Previous Action #11	
Proposed Action:	Educate construction contractors, homeowners, and business owners about mitigation techniques through public awareness programs. Implement public safety awareness programs using internet campaigns, classes, and community outreach.
BACKGROUND INFORMATION	
Goal:	Provide the public with emergency management contact information and implement a public awareness campaign.
Objective:	Implement public awareness programs to assist the public with mitigation strategies.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricane/Tropical Storms, Severe Winter Storms, Lightning, Drought, Dam and Levee Failure, Extreme Heat, Hailstorms, Expansive Soils, Wildfires
Department or Agency Responsible:	City of Hidalgo Emergency Management Department
Timeline:	1 year
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Hidalgo - Previous Action #12	
Proposed Action:	Harden critical facilities by re- enforcing windows, roof construction, and enforcing covered parking areas for critical vehicles.
BACKGROUND INFORMATION	
Goal:	Harden critical facilities against tornadoes, severe thunderstorms/high winds, hurricanes/tropical storms, winter storms, and hailstorms. .
Objective:	Evaluate the jurisdictions critical facilities and implement a hardening program.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Hurricane/Tropical Storms, Severe Winter Storms, Hailstorms
Department or Agency Responsible:	City of Hidalgo Emergency Management Department, City of Hidalgo Engineering Department
Timeline:	12 months
Estimated Cost:	\$75,000.00
Estimated Benefit:	\$250,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Hidalgo - Previous Action #13	
Proposed Action:	Preform dam inundation studies to establish consistent and justifiable risk factors. As a result, a risk screening will be conducted to support potential mitigation strategies such as structural upgrades, acquisition of easements in downstream induction areas, establishment of downstream development regulations, buy-outs of affected property owners, flood proofing/elevation/relocation of structures, enhanced flood warning/evacuation system and plans.
BACKGROUND INFORMATION	
Goal:	Conduct dam inundation studies to assist in implementing mitigation actions.
Objective:	Preform dam inundation studies to establish consistent and justifiable risk factors.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure
Department or Agency Responsible:	City of Hidalgo Emergency Management Department
Timeline:	3 years
Estimated Cost:	\$3,000.00
Estimated Benefit:	\$12,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Hidalgo - Previous Action #14	
Proposed Action:	Develop procedures for making mass notifications to citizens and merchants during a natural hazard incident. Solicit bids for system. Purchase Emergency Notification System and install Distribute information on new system and conduct training.
BACKGROUND INFORMATION	
Goal:	Implement procedures for emergency communication using a notification system in the City of Hidalgo.
Objective:	To provide a means of disseminating emergency information to the citizens of Edinburg.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricane/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Wildfires, Expansive Soils, Boarder Security and Terrorism, Hazardous Spills
Department or Agency Responsible:	City of Hidalgo Emergency Management Department
Timeline:	1 year
Estimated Cost:	\$31,000.00
Estimated Benefit:	\$124,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Hidalgo - Previous Action #15	
Proposed Action:	Improve construction techniques through building code enhancements and educate construction contractors, homeowners, and business owners about mitigation techniques.
BACKGROUND INFORMATION	
Goal:	Mitigate expansive soils by educating the public about and enforcing building codes that aim to reduce their effects.
Objective:	Mitigate against expansive soils.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils
Department or Agency Responsible:	City of Hidalgo Code Enforcement Department
Timeline:	1 year
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Hidalgo - Previous Action #16	
Proposed Action:	Use federal grants to increase security at the border.
BACKGROUND INFORMATION	
Goal:	Increase border security in Hidalgo County.
Objective:	Minimize illegal entries through increased security.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Border Security and Terrorism
Department or Agency Responsible:	City of Hidalgo Police Department
Timeline:	2 years
Estimated Cost:	\$146,000.000
Estimated Benefit:	\$584,000.00
Funding Sources:	DHS

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Hidalgo - Previous Action #17	
Proposed Action:	Purchase 1 – 2 police observation towers.
BACKGROUND INFORMATION	
Goal:	Increase border security in Hidalgo County.
Objective:	Acquire Police Towers for strategic locations within the community.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Border Security and Terrorism
Department or Agency Responsible:	City of Hidalgo Police Department
Timeline:	2 years
Estimated Cost:	\$500,000.000
Estimated Benefit:	\$2,000,000.00
Funding Sources:	Department Funds, DHS

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Hidalgo - Previous Action #18	
Proposed Action:	Obtain funding through Local Border Security Program (Borderstar).
BACKGROUND INFORMATION	
Goal:	Increase border security in Hidalgo County.
Objective:	Minimize illegal entries through increased security.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Border Security and Terrorism
Department or Agency Responsible:	City of Hidalgo Police Department
Timeline:	2 years
Estimated Cost:	\$50,000.000
Estimated Benefit:	\$200,000.00
Funding Sources:	TXDPS, CJD

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

CITY OF LA VILLA

City of La Villa - Previous Action #1		
	Proposed Action:	Purchase 40 KW light station generator for sewer plant and 250 KW generator for water plant.
	BACKGROUND INFORMATION	
	Goal:	Provide the necessary equipment and information needed to carryout mitigation and preparedness measures.
	Objective:	Purchase equipment to maintain public works services during disaster.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricane/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Wildfires
Department or Agency Responsible:	La Villa Public Works Department
Timeline:	2 years
Estimated Cost:	\$18,000.00
Estimated Benefit:	\$72,000.00
Funding Sources:	Urban County, City of La Villa

2021 ANALYSIS
Completed and Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of La Villa - Previous Action #2	
Proposed Action:	Purchase 8" water pumps.
BACKGROUND INFORMATION	
Goal:	Enhance flood mitigation throughout the City of La Villa.
Objective:	Purchase equipment needed to mitigate against flooding in the City of La Villa.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricane/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Wildfires
Department or Agency Responsible:	La Villa Public Works Department
Timeline:	2 years
Estimated Cost:	\$18,000.00
Estimated Benefit:	\$72,000.00
Funding Sources:	Urban County, City of La Villa

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of La Villa - Previous Action #3	
Proposed Action:	Delta Regional 500 acre Watershed Project Future project.
BACKGROUND INFORMATION	
Goal:	Create a water reservoir for water retention purposes in the City of La Villa.
Objective:	Provide water resources to mitigate against natural hazards in the City of La Villa.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Extreme Heat, Wildfires
Department or Agency Responsible:	City of La Villa, Hidalgo County, and Hidalgo County Water District
Timeline:	5 years
Estimated Cost:	\$64,000,000.00
Estimated Benefit:	\$192,000,000.00
Funding Sources:	Local, State and Federal

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of La Villa - Previous Action #4	
Proposed Action:	La Villa waste water treatment plant/currently upgrading.
BACKGROUND INFORMATION	
Goal:	Create a water reservoir for water retention purposes in the City of La Villa.
Objective:	Provide water resources to mitigate against natural hazards in the City of La Villa.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Extreme Heat, Wildfires
Department or Agency Responsible:	La Villa Public Works Department
Timeline:	2 years
Estimated Cost:	\$500,000.00
Estimated Benefit:	\$2,000,000.00
Funding Sources:	Urban County

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of La Villa - Previous Action #5	
Proposed Action:	La Villa water plant/currently upgrading.
BACKGROUND INFORMATION	
Goal:	Create a water reservoir for water retention purposes in the City of La Villa.
Objective:	Provide water resources to mitigate against natural hazards in the City of La Villa.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Extreme Heat, Wildfires
Department or Agency Responsible:	La Villa Public Works Department
Timeline:	2 years
Estimated Cost:	\$200,000.00
Estimated Benefit:	\$800,000.00
Funding Sources:	Urban County

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of La Villa - Previous Action #6	
Proposed Action:	Build 25 retention ponds. Future project.
BACKGROUND INFORMATION	
Goal:	Create a water reservoir for water retention purposes in the City of La Villa.
Objective:	Provide water resources to mitigate against natural hazards in the City of La Villa.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Extreme Heat, Wildfires
Department or Agency Responsible:	City of La Villa, La Villa Public Works Department, Private Contract Services
Timeline:	2 years
Estimated Cost:	\$400,000.00
Estimated Benefit:	\$2,000,000.00
Funding Sources:	Urban County, and any possible grants

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of La Villa - Previous Action #7	
Proposed Action:	Build underground water storage tank. Future project.
BACKGROUND INFORMATION	
Goal:	Create a water reservoir for water retention purposes in the City of La Villa.
Objective:	Provide water resources to mitigate against natural hazards in the City of La Villa.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Extreme Heat, Wildfires
Department or Agency Responsible:	City of La Villa, La Villa Public Works Department, Private Contract Services
Timeline:	2 years
Estimated Cost:	\$150,000.00
Estimated Benefit:	\$600,000.00
Funding Sources:	Urban County, and any possible grants

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of La Villa - Previous Action #8	
Proposed Action:	Rehabilitate man holes. Future project.
BACKGROUND INFORMATION	
Goal:	Create a water reservoir for water retention purposes in the City of La Villa.
Objective:	Provide water resources to mitigate against natural hazards in the City of La Villa.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Extreme Heat, Wildfires
Department or Agency Responsible:	Private Contract Services
Timeline:	2 years
Estimated Cost:	\$200,000.00
Estimated Benefit:	\$800,000.00
Funding Sources:	Urban County

2021 ANALYSIS
Completed and Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of La Villa - Previous Action #9	
Proposed Action:	Review repetitive loss properties and work with homeowners to remove them using FEMA funding.
BACKGROUND INFORMATION	
Goal:	Utilize Federal flood prevention programs to ensure reduced vulnerability to flooding.
Objective:	Review and remove repetitive loss properties.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding Hurricanes/Tropical Storms
Department or Agency Responsible:	La Villa Emergency Management Department
Timeline:	1 week
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	FEMA

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of La Villa - Previous Action #10	
Proposed Action:	Improve construction techniques through building code enhancements and educate construction contractors, homeowners, and business owners about mitigation techniques.
BACKGROUND INFORMATION	
Goal:	Mitigate expansive soils by educating the public about and enforcing building codes that aim to reduce their effects.
Objective:	Mitigate against expansive soils.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils
Department or Agency Responsible:	La Villa Emergency Management Department
Timeline:	1 year
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Completed and Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of La Villa - Previous Action #11	
Proposed Action:	Research and incorporate subgrade stabilization methods on street projects such as street reclamation and repairs
BACKGROUND INFORMATION	
Goal:	Mitigate expansive soils by educating the public about and enforcing building codes that aim to reduce their effects.
Objective:	Mitigate against expansive soils.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils, Drought
Department or Agency Responsible:	La Villa Public Works Department
Timeline:	5 years
Estimated Cost:	Cost will vary widely based on the scope of the projects
Estimated Benefit:	Roads resistant to damage from expansive soils
Funding Sources:	Jurisdiction Budget, Grants

2021 ANALYSIS
Completed and Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of La Villa - Previous Action #12	
Proposed Action:	Implement program to provide links to weather alerts and departmental phone listings with contact personnel for residents.
BACKGROUND INFORMATION	
Goal:	Provide the public with emergency management contact information and implement a public awareness campaign.
Objective:	Implement public awareness programs to assist the public with mitigation strategies.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricane/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Wildfires, Expansive Soils
Department or Agency Responsible:	La Villa Emergency Management Department
Timeline:	1 week
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	N/A

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of La Villa - Previous Action #13	
Proposed Action:	Educate construction contractors, homeowners, and business owners about mitigation techniques through public awareness programs. Implement public safety awareness programs using internet campaigns, classes, and community outreach.
BACKGROUND INFORMATION	
Goal:	Provide the public with emergency management contact information and implement a public awareness campaign.
Objective:	Implement public awareness programs to assist the public with mitigation strategies.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricane/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Wildfires, Expansive Soils
Department or Agency Responsible:	La Villa Emergency Management Department
Timeline:	1 week
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Completed and Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of La Villa - Previous Action #14	
Proposed Action:	Implement a data recording system that captures extent, impact, related statistical information on fatalities, injuries and damages caused by each incident that occurs within the jurisdiction.
BACKGROUND INFORMATION	
Goal:	Develop a system to maintain records for all weather related incidents.
Objective:	Over the next five years, record the impact and the extent of natural hazard incidents within the jurisdiction.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricane/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Wildfires, Expansive Soils
Department or Agency Responsible:	La Villa Emergency Management Department
Timeline:	1 year
Estimated Cost:	\$3,000.00
Estimated Benefit:	\$12,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of La Villa - Previous Action #15	
Proposed Action:	Develop procedures for making mass notifications to citizens and merchants during a natural hazard incident. Solicit bids for system. Purchase Emergency Notification System and install Distribute information on new system and conduct training.
BACKGROUND INFORMATION	
Goal:	Implement procedures for emergency communication using a notification system in the City of Edinburg.
Objective:	To provide a means of disseminating emergency information to the citizens of Edinburg.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricane/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Wildfires, Expansive Soils, Boarder Security and Terrorism, Hazardous Spills
Department or Agency Responsible:	La Villa Emergency Management Department
Timeline:	1 year
Estimated Cost:	\$31,000.00
Estimated Benefit:	\$124,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of La Villa - Previous Action #16	
Proposed Action:	Harden critical facilities by re- enforcing windows, roof construction, and enforcing covered parking areas for critical vehicles.
BACKGROUND INFORMATION	
Goal:	Harden critical facilities against tornadoes, severe thunderstorms/high winds, hurricanes/tropical storms, winter storms, and hailstorms.
Objective:	Evaluate the jurisdictions critical facilities and implement a hardening program.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Hurricane/Tropical Storms, Severe Winter Storms, Hailstorms
Department or Agency Responsible:	La Villa Emergency Management Department
Timeline:	2 year
Estimated Cost:	\$50,000.00
Estimated Benefit:	\$200,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of La Villa - Previous Action #17	
Proposed Action:	Develop drought plans and water conservation programs.
BACKGROUND INFORMATION	
Goal:	Develop a comprehensive planning approach to drought mitigation.
Objective:	Ensure plan and procedures addressing local drought response, drought mitigation, and long-term water planning are developed.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought
Department or Agency Responsible:	La Villa Emergency Management Department
Timeline:	2 years
Estimated Cost:	\$10,000.00
Estimated Benefit:	\$40,000.00
Funding Sources:	Jurisdiction Budget, Grant Funding

2021 ANALYSIS
Completed and Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of La Villa - Previous Action #18	
Proposed Action:	Develop and conduct public education and awareness programs on drought mitigation, drought response and water conservation.
BACKGROUND INFORMATION	
Goal:	Develop a comprehensive planning approach to drought mitigation.
Objective:	Ensure plan and procedures addressing local drought response, drought mitigation, and long-term water planning are developed.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought
Department or Agency Responsible:	La Villa Emergency Management Department
Timeline:	2 years
Estimated Cost:	\$5,000.00
Estimated Benefit:	\$20,000.00
Funding Sources:	Jurisdiction Budget, Grant Funding

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

CITY OF MCALLEN

City of McAllen - Previous Action #1		
	Proposed Action:	Identify available routes. Purchase and install equipment.
	BACKGROUND INFORMATION	
	Goal:	Enhance emergency communication and notification system in City of McAllen.
	Objective:	Expand City of McAllen fiber optic network to provide redundancy between critical City facilities.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricane/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Hazardous Material Spills, Drought, Dam and Levee Failure, Extreme Heat, Hailstorms, Wildfires
Department or Agency Responsible:	McAllen Information Technology Department
Timeline:	1 year
Estimated Cost:	\$800,000.00
Estimated Benefit:	\$3,000,000.00
Funding Sources:	Grants, Matching City Funds

2021 ANALYSIS
Completed and Defer to 2021. Funded by Capital Improvement Fund.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #2	
Proposed Action:	Solicit bids for system. Purchase Emergency Notification System and install. Distribute system information and conduct training.
BACKGROUND INFORMATION	
Goal:	Enhance emergency communication and notification system in City of McAllen.
Objective:	To provide a means of disseminating emergency information to the citizens of McAllen.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricane/Tropical Storms, Severe Winter Storms, Lightning, Drought, Dam and Levee Failure, Extreme Heat, Hailstorms, Wildfires, Expansive Soils
Department or Agency Responsible:	McAllen Emergency Management Department
Timeline:	1 year
Estimated Cost:	\$500,000.00
Estimated Benefit:	\$2,000,000.00
Funding Sources:	Grants, Matching City Funds

2021 ANALYSIS
Defer to 2021.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #3	
Proposed Action:	Notification system will include dynamic message boards deployed on major thoroughfares and linked to Traffic Operations and Emergency Operations Center. Messages to provide advance warning of severe weather as well as real-time local roadway conditions with the intent of reducing potential harm to traveling public. This action will include the purchase and implementation of both software
BACKGROUND INFORMATION	
Goal:	Enhance emergency communication and notification system in City of McAllen.
Objective:	Develop emergency notification/awareness system for traveling public via Intelligent Transportation System (ITS) in the event of severe weather in the City of McAllen.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricane/Tropical Storms, Severe Winter Storms, Lightning, Drought, Dam and Levee Failure, Extreme Heat, Hailstorms, Wildfires, Expansive Soils, Boarder Security and Terrorism, Hazardous Material Spills
Department or Agency Responsible:	McAllen Emergency Management Department and Traffic Operations
Timeline:	3 years (31 months)
Estimated Cost:	\$1,002,000.00
Estimated Benefit:	\$4,004,000.00
Funding Sources:	Grants, Matching City Funds

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #4	
Proposed Action:	Preform dam inundation studies to establish consistent and justifiable risk factors. As a result, a risk screening will be conducted to support potential mitigation strategies such as structural upgrades, acquisition of easements in downstream induction areas, establishment of downstream development regulations, buy-outs of affected property owners, flood proofing/elevation/relocation of structures, enhanced flood warning/evacuation system and plan
BACKGROUND INFORMATION	
Goal:	Reduce jurisdiction vulnerability to flooding by evaluating the structures of dams and levee.
Objective:	Preform dam inundation studies to establish consistent and justifiable risk factors.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure
Department or Agency Responsible:	McAllen Engineering Department
Timeline:	3 years
Estimated Cost:	\$3,000.00
Estimated Benefit:	\$12,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Completed. Funded by McAllen Public Utilities Capital Improvement Fund.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #5	
Proposed Action:	Analysis, design and construction. Construction would involve all necessary earthwork (i.e. compacted embankment and grading), construction of active/passive flood barriers, backflow prevention structures/devices and, installation of necessary riprap armoring and bank stabilization.
BACKGROUND INFORMATION	
Goal:	Reduce jurisdiction vulnerability to flooding by evaluating the structures of dams and levee.
Objective:	Improve existing levee system in the City of McAllen.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure
Department or Agency Responsible:	Floodplain Administrator
Timeline:	2 years
Estimated Cost:	\$1,800,000 – Analysis and design \$30,000,000 – Construction
Estimated Benefit:	\$480,000 – Analysis and design \$8,000,000 – Construction
Funding Sources:	Grants, Matching City Funds

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #6	
Proposed Action:	Analysis, design and construction. Construction would include installation of storm sewer pipe networks and related appurtenances as well as any necessary pavement and/or right-of-way restoration.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Improve stormwater collection and conveyance systems in the City of McAllen.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricane/Tropical Storms
Department or Agency Responsible:	McAllen Engineering Department
Timeline:	2 years
Estimated Cost:	\$120,000 – Analysis and design \$2,000,000 – Construction
Estimated Benefit:	\$480,000 – Analysis and design \$8,000,000 – Construction
Funding Sources:	Grants, Matching City Funds

2021 ANALYSIS
Completed and Defer to 2021- A total of 21 projects have been completed using FEMA, HMGP, CDBG, and Bond funds.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #7	
Proposed Action:	Analysis, design and construction. Construction would include excavation and grading of earthen drainage channels, removal/replacement of bridge or culvert structures, removal/replacement of affected lateral outfall structures, and bank stabilization.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Improve open channel conveyance and storage capacities in the City of McAllen.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricane/Tropical Storms
Department or Agency Responsible:	McAllen Engineering Department
Timeline:	2 years
Estimated Cost:	\$30,000 – Analysis and design \$2,000,000 – Construction
Estimated Benefit:	\$120,000 – Analysis and design \$8,000,000 – Construction
Funding Sources:	Grants, Matching City Funds

2021 ANALYSIS
Defer to 2021 Plan- Per McAllen, bridge and channel updates are in progress.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #8	
Proposed Action:	Analysis, design and construction.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Create regional storm water detention facilities to detain runoff prior to discharge into limited downstream receiving streams in the City of McAllen.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricane/Tropical Storms
Department or Agency Responsible:	McAllen Engineering Department
Timeline:	2 years
Estimated Cost:	\$210,000 – Analysis and design \$3,500,000 – Construction
Estimated Benefit:	\$1,260,000 – Analysis and design \$14,000,000 – Construction
Funding Sources:	Grants, Matching City Funds

2021 ANALYSIS
Defer to 2021 Plan- Per McAllen, project is in process.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #9	
Proposed Action:	Identify and inventory.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Stabilize and armor drainage channel banks and slopes in the City of McAllen.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricane/Tropical Storms, Severe Winter Storms
Department or Agency Responsible:	McAllen Engineering Department and Public Works Department
Timeline:	6 months
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$4,000.00
Funding Sources:	Grants, Matching City Funds

2021 ANALYSIS
Completed and Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #10	
Proposed Action:	Design mitigation measures.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Stabilize and armor drainage channel banks and slopes in the City of McAllen.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricane/Tropical Storms, Severe Winter Storms
Department or Agency Responsible:	McAllen Engineering Department and Public Works Department
Timeline:	1 year
Estimated Cost:	\$50,000.00
Estimated Benefit:	\$200,000.00
Funding Sources:	Grants, Matching City Funds

2021 ANALYSIS
Completed and Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #11	
Proposed Action:	Construction.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Stabilize and armor drainage channel banks and slopes in the City of McAllen.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricane/Tropical Storms, Severe Winter Storms
Department or Agency Responsible:	McAllen Engineering Department and Public Works Department
Timeline:	1 year
Estimated Cost:	\$500,000.00
Estimated Benefit:	\$2,000,000.00
Funding Sources:	Grants, Matching City Funds

2021 ANALYSIS
Completed and Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #12	
Proposed Action:	Design gate structure improvements and construction.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Improve existing gated storm water outfall structures in the City of McAllen.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricane/Tropical Storms, Severe Winter Storms
Department or Agency Responsible:	Engineering
Timeline:	2 years
Estimated Cost:	\$30,000 – Design \$450,000 –Construction
Estimated Benefit:	\$120,000 – Design \$1,800,000 -Construction
Funding Sources:	Grants, Matching City Funds

2021 ANALYSIS
Defer to 2021 Plan- Per McAllen, project is in progress.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #13	
Proposed Action:	Design site infrastructure, access and construction.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Provide redundancy by implementing portable pump by-pass stations.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricane/Tropical Storms, Severe Winter Storms
Department or Agency Responsible:	Engineering
Timeline:	2 years
Estimated Cost:	\$20,000 – Design \$250,000 –Construction
Estimated Benefit:	\$80,000 – Design \$1,000,000 -Construction
Funding Sources:	Grants, Matching City Funds

2021 ANALYSIS
Defer to 2021 Plan- Per McAllen, project is in progress.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #14	
Proposed Action:	Purchase and install monitoring equipment. The monitoring program would involve the implementation of a rain gauge and flood gauge network to forecast potential flood risks and assist in providing advance warnings, determining pre-deployment of resources and necessary evacuations.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Implement flood stage monitoring program in the City of McAllen.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricane/Tropical Storms, Severe Winter Storms
Department or Agency Responsible:	McAllen Engineering Department and Public Works Department
Timeline:	1 year
Estimated Cost:	\$400,000.00
Estimated Benefit:	\$1,600,000.00
Funding Sources:	Grants, Matching City Funds

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #15	
Proposed Action:	Analysis, design and construction.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Expand and improve raw and potable water transmission system in the City of McAllen.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricane/Tropical Storms, Severe Winter Storms
Department or Agency Responsible:	McAllen Public Utilities Department
Timeline:	2 years
Estimated Cost:	\$1,200,000 – Design \$20,000,000 – Construction
Estimated Benefit:	\$4,000,000 – Design \$80,000,000 - Construction
Funding Sources:	Grants, Matching City Funds

2021 ANALYSIS
Completed and Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #16	
Proposed Action:	Analysis, design and construction. Construction would involve building new reservoir and/or storage tank infrastructure as well as upgrading existing infrastructure with the intent to mitigate water loss and improve operational efficiency.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Expand existing and create additional water storage facilities in the City of McAllen.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricane/Tropical Storms, Severe Winter Storms
Department or Agency Responsible:	McAllen Public Utilities Department
Timeline:	2 years
Estimated Cost:	\$300,000 – Design \$5,000,000 – Construction
Estimated Benefit:	\$1,200,000 – Design \$20,000,000 - Construction
Funding Sources:	Grants, Matching City Funds

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #17	
Proposed Action:	Request for qualifications, award of contract and perform study.
BACKGROUND INFORMATION	
Goal:	Mitigate against flooding by developing comprehensive plans.
Objective:	Perform regional storm water master planning studies in the City of McAllen.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricane/Tropical Storms, Severe Winter Storms
Department or Agency Responsible:	McAllen Engineering Department
Timeline:	2 years
Estimated Cost:	\$150,000.00
Estimated Benefit:	\$600,000.00
Funding Sources:	Grants, Matching City Funds

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #18	
Proposed Action:	Facility design and construction.
BACKGROUND INFORMATION	
Goal:	Ensure all City of McAllen and participating jurisdictions critical facilities have access to alternate power sources.
Objective:	Provide backup power and emergency interconnect capabilities for sewer lift stations in the City of McAllen.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricane/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Wildfires
Department or Agency Responsible:	McAllen Public Utilities
Timeline:	2 years
Estimated Cost:	\$60,000 – Design \$1,000,000 –Construction
Estimated Benefit:	\$240,000 – Design \$4,000,000 –Construction
Funding Sources:	Grants, Matching City Funds

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #19	
Proposed Action:	Identify correct size and type of generator for critical facilities in McAllen.
BACKGROUND INFORMATION	
Goal:	Ensure all City of McAllen and participating jurisdictions critical facilities have access to alternate power sources.
Objective:	Provide auxiliary power to the EOC and fire stations.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricane/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Hazardous Material Spills
Department or Agency Responsible:	McAllen F.D. and City Project Managers
Timeline:	Completed
Estimated Cost:	\$50,000.00
Estimated Benefit:	\$179,000.00
Funding Sources:	FEMA, State, and City of McAllen

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #20	
Proposed Action:	PM/ Service Generators.
BACKGROUND INFORMATION	
Goal:	Ensure all City of McAllen and participating jurisdictions critical facilities have access to alternate power sources.
Objective:	Provide auxiliary power to the EOC and fire stations.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricane/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Hazardous Material Spills
Department or Agency Responsible:	McAllen F.D.
Timeline:	1 st month before Hurricane season to include weekly checks
Estimated Cost:	\$1,000.00/year
Estimated Benefit:	\$179,000.00
Funding Sources:	City Budget

2021 ANALYSIS
Completed and Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #21	
Proposed Action:	Fuel to run generators.
BACKGROUND INFORMATION	
Goal:	Ensure all City of McAllen and participating jurisdictions critical facilities have access to alternate power sources.
Objective:	Provide auxiliary power to the EOC and fire stations.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricane/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Hazardous Material Spills
Department or Agency Responsible:	McAllen F.D.
Timeline:	To be maintained response ready
Estimated Cost:	\$500.00/year
Estimated Benefit:	\$179,000.00
Funding Sources:	City Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #22	
Proposed Action:	Evaluate power requirements to keep shelters at full power.
BACKGROUND INFORMATION	
Goal:	Ensure all City of McAllen and participating jurisdictions critical facilities have access to alternate power sources.
Objective:	Provide auxiliary power to the EOC and fire stations.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricane/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Hazardous Material Spills, Wildfires
Department or Agency Responsible:	McAllen Engineering Department
Timeline:	1 week
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$179,000.00
Funding Sources:	City Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #23	
Proposed Action:	Request bids for auxiliary generators.
BACKGROUND INFORMATION	
Goal:	Ensure all City of McAllen and participating jurisdictions critical facilities have access to alternate power sources.
Objective:	Provide auxiliary power to the EOC and fire stations.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricane/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Hazardous Material Spills, Wildfires
Department or Agency Responsible:	McAllen Purchasing Department
Timeline:	2 months
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$179,000.00
Funding Sources:	City Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #24	
Proposed Action:	Review Bids.
BACKGROUND INFORMATION	
Goal:	Ensure all City of McAllen and participating jurisdictions critical facilities have access to alternate power sources.
Objective:	Provide auxiliary power to the EOC and fire stations.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricane/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Hazardous Material Spills, Wildfires
Department or Agency Responsible:	McAllen Purchasing Department
Timeline:	1 Day
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$179,000.00
Funding Sources:	City Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #25	
Proposed Action:	Evaluate power requirements to keep Schools at full power.
BACKGROUND INFORMATION	
Goal:	Ensure all City of McAllen and participating jurisdictions critical facilities have access to alternate power sources.
Objective:	Provide auxiliary power to the EOC and fire stations.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricane/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Hazardous Material Spills
Department or Agency Responsible:	McAllen Engineering Department
Timeline:	1 week
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$179,000.00
Funding Sources:	City Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #26	
Proposed Action:	Assess and inventory.
BACKGROUND INFORMATION	
Goal:	Utilize computer and video technology to reduce vulnerability to all hazards in City of McAllen.
Objective:	Implement automated monitoring and control systems (SCADA) in the City of McAllen.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricane/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Hazardous Material Spills, Wildfires, Dam and Levee Failure, Expansive Soils
Department or Agency Responsible:	McAllen Public Utilities Department
Timeline:	1 year
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$4,000.00
Funding Sources:	Grants, Matching City Funds

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #27	
Proposed Action:	Install software/hardware.
BACKGROUND INFORMATION	
Goal:	Utilize computer and video technology to reduce vulnerability to all hazards in City of McAllen.
Objective:	Implement automated monitoring and control systems (SCADA) in the City of McAllen.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricane/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Hazardous Material Spills, Wildfires, Dam and Levee Failure, Expansive Soils
Department or Agency Responsible:	McAllen Public Utilities Department
Timeline:	1 year
Estimated Cost:	\$850,000.00
Estimated Benefit:	\$3,400,000.00
Funding Sources:	Grants, Matching City Funds

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #28	
Proposed Action:	Analysis, design and construction. Construction would involve installation of pilot and production groundwater wells and necessary power, pump, monitoring, and pre-treatment systems for both potable and non-potable use.
BACKGROUND INFORMATION	
Goal:	Increase water supplies in City of McAllen communities to mitigate against drought as populations and water intake increases.
Objective:	Explore groundwater alternatives in the City of McAllen.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought
Department or Agency Responsible:	McAllen Public Utilities Department
Timeline:	1 year
Estimated Cost:	\$300,000 – Design \$5,000,000 –Construction
Estimated Benefit:	\$1,200,000 – Design \$20,000,000 –Construction
Funding Sources:	Grants, Matching City Funds

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #29	
Proposed Action:	Assessment, planning and implement recommended measures.
BACKGROUND INFORMATION	
Goal:	Increase water supplies in City of McAllen communities to mitigate against drought as populations and water intake increases.
Objective:	Protect drinking water supply and infrastructure against threats and incidents.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought
Department or Agency Responsible:	McAllen Emergency Management Department and Public Utilities Department
Timeline:	1 year
Estimated Cost:	\$120,000 – Design \$2,000,000 –Construction
Estimated Benefit:	\$480,000 – Design \$8,000,000 –Construction
Funding Sources:	Grants, Matching City Funds

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #30	
Proposed Action:	Identify eligible repetitive flood loss properties and perform Analysis.
BACKGROUND INFORMATION	
Goal:	Utilize Federal flood prevention programs to ensure reduced vulnerability to flooding.
Objective:	Acquire properties, elevate structures, and implement structural measures.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms
Department or Agency Responsible:	Floodplain Administrator
Timeline:	1 year
Estimated Cost:	\$1,000,000.00
Estimated Benefit:	\$4,000,000.00
Funding Sources:	Grants, Matching City Funds

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #31	
Proposed Action:	Acquire properties, elevate structures, and implement structural measures.
BACKGROUND INFORMATION	
Goal:	Utilize Federal flood prevention programs to ensure reduced vulnerability to flooding.
Objective:	Acquire properties, elevate structures, and implement structural measures.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms
Department or Agency Responsible:	Floodplain Administrator
Timeline:	2 years
Estimated Cost:	\$1,000,000.00
Estimated Benefit:	\$4,000,000.00
Funding Sources:	Grants, Matching City Funds

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #32	
Proposed Action:	Improve construction techniques through building code enhancements and educate construction contractors, homeowners, and business owners about mitigation techniques.
BACKGROUND INFORMATION	
Goal:	Mitigate expansive soils by educating the public about and enforcing building codes that aim to reduce their effects.
Objective:	Mitigate against expansive soils.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils
Department or Agency Responsible:	McAllen Planning Department
Timeline:	1 year
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #33	
Proposed Action:	Research and incorporate subgrade stabilization methods on street projects such as street reclamation and repairs.
BACKGROUND INFORMATION	
Goal:	Mitigate expansive soils by educating the public about and enforcing building codes that aim to reduce their effects.
Objective:	Mitigate against expansive soils.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils, Drought
Department or Agency Responsible:	McAllen Engineering Department
Timeline:	5 years
Estimated Cost:	Cost will vary widely based on the scope of the projects.
Estimated Benefit:	Roads resistant to damage from expansive soils
Funding Sources:	Jurisdiction Budget, Grants

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #34	
Proposed Action:	Implement drainage projects that support low maintenance and cleaning of drainage ditches.
BACKGROUND INFORMATION	
Goal:	Reduce vulnerability to flooding by evaluating jurisdictions dam and levee maintenance procedures and protocols.
Objective:	Reevaluate the jurisdiction's dam and levee maintenance program.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure
Department or Agency Responsible:	McAllen Public Works Department
Timeline:	1 year
Estimated Cost:	\$3,000.00
Estimated Benefit:	\$15,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Completed and Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #35	
Proposed Action:	Implement program to provide links to weather alerts and departmental phone listings with contact personnel for residents.
BACKGROUND INFORMATION	
Goal:	Provide the public with emergency management contact information and implement a public awareness campaign.
Objective:	Implement public awareness programs to assist the public with mitigation strategies.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricane/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Hazardous Material Spills, Drought, Dam and Levee Failure, Extreme Heat, Hailstorms, Wildfires, Expansive Soils
Department or Agency Responsible:	McAllen Emergency Management Department
Timeline:	1 week
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #36	
Proposed Action:	Educate construction contractors, homeowners, and business owners about mitigation techniques through public awareness programs. Implement public safety awareness programs using internet campaigns, classes, and community outreach.
BACKGROUND INFORMATION	
Goal:	Provide the public with emergency management contact information and implement a public awareness campaign.
Objective:	Implement public awareness programs to assist the public with mitigation strategies.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricane/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Wildfires, Expansive Soils
Department or Agency Responsible:	McAllen Emergency Management Department
Timeline:	1 year
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #37	
Proposed Action:	Implement a data recording system that captures extent, impact, related statistical information on fatalities, injuries and damages caused by each incident that occurs within the jurisdiction.
BACKGROUND INFORMATION	
Goal:	Develop a system to maintain records for all weather related incidents.
Objective:	Over the next five years, record the impact and the extent of natural hazard incidents within the jurisdiction

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricane/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Wildfires, Expansive Soils, Dam and Levee Failure, Hailstorms
Department or Agency Responsible:	City of McAllen
Timeline:	2 years
Estimated Cost:	\$3,000.00
Estimated Benefit:	\$12,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of McAllen - Previous Action #38	
Proposed Action:	Harden critical facilities by re- enforcing windows, roof construction, and enforcing covered parking areas for critical vehicles.
BACKGROUND INFORMATION	
Goal:	Harden critical facilities against tornadoes, severe thunderstorms/high winds, hurricanes/tropical storms, winter storms, and hailstorms.
Objective:	Evaluate the jurisdictions critical facilities and implement a hardening program.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Hurricane/Tropical Storms, Severe Winter Storms, Hailstorms
Department or Agency Responsible:	City of McAllen
Timeline:	2 years
Estimated Cost:	\$50,000.00
Estimated Benefit:	\$200,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

CITY OF MERCEDES

City of Mercedes - Previous Action #1	
Proposed Action:	The partially burned, partially collapsed facility sits at the entrance to the City and is an economic deterrent. Demolish plant.
BACKGROUND INFORMATION	
Goal:	Increase boarder security in City of Mercedes.
Objective:	Work with Federal agencies to ensure safe destruction of H&H Meat Packing Plant.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Border Security and Terrorism
Department or Agency Responsible:	City of Mercedes Code Enforcement
Timeline:	1 year
Estimated Cost:	\$250,000.00
Estimated Benefit:	\$1,000,000.00
Funding Sources:	EPA and City of Mercedes

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Mercedes - Previous Action #2	
Proposed Action:	Additional 5x8 box culverts at 2 locations and buildup of ditch banks at 3 locations plus ditch and bottom widening at 1 ditch.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Widen South Portion of West Ditch in Mercedes.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms, Severe Winter Storms
Department or Agency Responsible:	City of Mercedes and Hidalgo County
Timeline:	1 year
Estimated Cost:	\$485,000.00
Estimated Benefit:	\$1,940,000.00
Funding Sources:	Hidalgo County, City of Mercedes

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Mercedes - Previous Action #3	
Proposed Action:	Buildup of ditch banks at 8 locations plus culvert upgrades at 2 locations.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Widen South Portion of West Ditch in Mercedes.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms, Severe Winter Storms
Department or Agency Responsible:	City of Mercedes and Hidalgo County
Timeline:	1 year
Estimated Cost:	\$537,467.00
Estimated Benefit:	\$2,149,868.00
Funding Sources:	Hidalgo County, City of Mercedes

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Mercedes - Previous Action #4	
Proposed Action:	Culvert upgrading at 12 locations plus ditch cleaning.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Widen South Portion of West Ditch in Mercedes.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms, Severe Winter Storms
Department or Agency Responsible:	City of Mercedes and Hidalgo County
Timeline:	2 years
Estimated Cost:	\$254,187.00
Estimated Benefit:	\$1,016,748.00
Funding Sources:	Hidalgo County, City of Mercedes

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Mercedes - Previous Action #5	
Proposed Action:	Capisallo Terrace Subdivision.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Identify Drainage Projects that will alleviate neighborhood flooding during heavy rains in the City of Mercedes.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms
Department or Agency Responsible:	Mercedes Public Works Department and City Engineers
Timeline:	1 year
Estimated Cost:	\$1,200,000.00
Estimated Benefit:	\$4,800,000.00
Funding Sources:	City of Mercedes and FEMA

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Mercedes - Previous Action #6	
Proposed Action:	Various culvert upgrades.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Identify Drainage Projects that will alleviate neighborhood flooding during heavy rains in the City of Mercedes.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms
Department or Agency Responsible:	Mercedes Public Works Department and City Engineers
Timeline:	1 year
Estimated Cost:	\$600,000.00
Estimated Benefit:	\$2,400,000.00
Funding Sources:	City of Mercedes

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Mercedes - Previous Action #7	
Proposed Action:	Identify levee pump station and acquire 10" and 12" pumps.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Identify Drainage Projects that will alleviate neighborhood flooding during heavy rains in the City of Mercedes.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding Hurricanes/Tropical Storms
Department or Agency Responsible:	Mercedes Public Works Department and City Engineers
Timeline:	1 year
Estimated Cost:	\$220,000.00
Estimated Benefit:	\$880,000.00
Funding Sources:	City of Mercedes and FEMA

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Mercedes - Previous Action #8	
Proposed Action:	Wally Prado at 5th Street.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Identify Drainage Projects that will alleviate neighborhood flooding during heavy rains in the City of Mercedes.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding Hurricanes/Tropical Storms
Department or Agency Responsible:	Mercedes Public Works Department and City Engineers
Timeline:	1 year
Estimated Cost:	\$335,000.00
Estimated Benefit:	\$1,340,000.00
Funding Sources:	City Funding

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Mercedes - Previous Action #9	
Proposed Action:	Acquire Army 5 ton vehicle.
BACKGROUND INFORMATION	
Goal:	Ensure access to effective equipment for flood rescue.
Objective:	Acquire a high profile vehicle to rescue civilians from flooded areas in the City of Mercedes.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding Hurricanes/Tropical Storms
Department or Agency Responsible:	Mercedes Police Department
Timeline:	1 year
Estimated Cost:	\$10,000.00
Estimated Benefit:	\$20,000.00
Funding Sources:	Department Budget

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Mercedes - Previous Action #10	
Proposed Action:	Obtain cameras, badge/ID systems and bulletproof windows.
BACKGROUND INFORMATION	
Goal:	Increase school security in City of Mercedes.
Objective:	Work with our Schools to improve safety and security of campuses throughout Mercedes.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Boarder Security and Terrorism
Department or Agency Responsible:	Mercedes ISD
Timeline:	3 years
Estimated Cost:	\$2,000,000.00
Estimated Benefit:	\$8,000,000.00
Funding Sources:	Mercedes ISD, Department of Education, Homeland Security

2021 ANALYSIS
Completed and Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Mercedes - Previous Action #11	
Proposed Action:	Improve fencing of Campuses.
BACKGROUND INFORMATION	
Goal:	Increase school security in City of Mercedes.
Objective:	Work with our Schools to improve safety and security of campuses throughout Mercedes.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Boarder Security and Terrorism
Department or Agency Responsible:	Mercedes ISD
Timeline:	1 year
Estimated Cost:	\$750,000.00
Estimated Benefit:	\$3,000,000.00
Funding Sources:	Mercedes ISD, Department of Education

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Mercedes - Previous Action #12	
Proposed Action:	Drill some test wells.
BACKGROUND INFORMATION	
Goal:	Increase water supplies in the City of Mercedes communities to mitigate against drought as populations and water intake increases.
Objective:	Investigate water wells and research land for acquisition for water reservoirs.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought
Department or Agency Responsible:	TCEQ and City of Mercedes
Timeline:	1 year
Estimated Cost:	\$150,000.00
Estimated Benefit:	\$600,000.00
Funding Sources:	City of Mercedes, Utility Fund

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Mercedes - Previous Action #13	
Proposed Action:	Review repetitive loss properties and work with homeowners to remove them using FEMA funding.
BACKGROUND INFORMATION	
Goal:	Utilize Federal flood prevention programs to ensure reduced vulnerability to flooding.
Objective:	Review and remove repetitive loss properties.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricanes/Tropical Storms
Department or Agency Responsible:	City of Mercedes Emergency Management Department
Timeline:	1 week
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	FEMA

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Mercedes - Previous Action #14	
Proposed Action:	Improve construction techniques through building code enhancements and educate construction contractors, homeowners, and business owners about mitigation techniques.
BACKGROUND INFORMATION	
Goal:	Mitigate expansive soils by educating the public about and enforcing building codes that aim to reduce their effects.
Objective:	Mitigate against expansive soils.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils
Department or Agency Responsible:	City of Mercedes Building and Inspection Department
Timeline:	1 year
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Mercedes - Previous Action #15	
Proposed Action:	Research and incorporate subgrade stabilization methods on street projects such as street reclamation and repairs.
BACKGROUND INFORMATION	
Goal:	Mitigate expansive soils by educating the public about and enforcing building codes that aim to reduce their effects.
Objective:	Mitigate against expansive soils.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils, Drought
Department or Agency Responsible:	City of Mercedes Public Works Department
Timeline:	5 years
Estimated Cost:	Cost will vary widely based on the scope of the projects.
Estimated Benefit:	Roads resistant to damage from expansive soils
Funding Sources:	Jurisdiction Budget, Grants

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Mercedes - Previous Action #16	
Proposed Action:	Implement drainage projects that support low maintenance and cleaning of drainage ditches.
BACKGROUND INFORMATION	
Goal:	Reduce vulnerability to flooding by evaluating jurisdictions dam and levee maintenance procedures and protocols.
Objective:	Reevaluate the jurisdiction's dam and levee maintenance program.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure
Department or Agency Responsible:	City of Mercedes Public Works Department
Timeline:	1 year
Estimated Cost:	\$5,000.00
Estimated Benefit:	\$25,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Mercedes - Previous Action #17	
Proposed Action:	Implement program to provide links to weather alerts and departmental phone listings with contact personnel for residents.
BACKGROUND INFORMATION	
Goal:	Provide the public with emergency management contact information and implement a public awareness campaign.
Objective:	Implement public awareness programs to assist the public with mitigation strategies.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricane/Tropical Storms, Severe Winter Storms, Lightning, Drought, Dam and Levee Failure, Extreme Heat, Hailstorms, Wildfires, Expansive Soils
Department or Agency Responsible:	City of Mercedes Emergency Management Department
Timeline:	1 week
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Mercedes - Previous Action #18	
Proposed Action:	Educate construction contractors, homeowners, and business owners about mitigation techniques through public awareness programs. Implement public safety awareness programs using internet campaigns, classes, and community outreach.
BACKGROUND INFORMATION	
Goal:	Provide the public with emergency management contact information and implement a public awareness campaign.
Objective:	Implement public awareness programs to assist the public with mitigation strategies.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricane/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Wildfires, Expansive Soils, Dam and Levee Failure
Department or Agency Responsible:	City of Mercedes Building and Inspection Department
Timeline:	1 year
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Mercedes - Previous Action #19	
Proposed Action:	Implement a data recording system that captures extent, impact, related statistical information on fatalities, injuries and damages caused by each incident that occurs within the jurisdiction.
BACKGROUND INFORMATION	
Goal:	Develop a system to maintain records for all weather related incidents.
Objective:	Over the next five years, record the impact and the extent of natural hazard incidents within the jurisdiction

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricane/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Wildfires, Expansive Soils, Hailstorms
Department or Agency Responsible:	City of Mercedes Emergency Management Department
Timeline:	1 year
Estimated Cost:	\$3,000.00
Estimated Benefit:	\$12,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Mercedes - Previous Action #20	
Proposed Action:	Develop procedures for making mass notifications to citizens and merchants during a natural hazard incident. Solicit bids for system. Purchase Emergency Notification System and install Distribute information on new system and conduct training.
BACKGROUND INFORMATION	
Goal:	Implement procedures for emergency communication using a notification system in the City of Mercedes.
Objective:	To provide a means of disseminating emergency information to the citizens of Mercedes.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricane/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Wildfires, Expansive Soils, Hailstorms, Border Security and Terrorism, Hazardous Spills
Department or Agency Responsible:	City of Mercedes Emergency Management Department
Timeline:	1 year
Estimated Cost:	\$25,000.00
Estimated Benefit:	\$100,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Mercedes - Previous Action #21	
Proposed Action:	Harden critical facilities by re- enforcing windows, roof construction, and enforcing covered parking areas for critical vehicles.
BACKGROUND INFORMATION	
Goal:	Harden critical facilities against tornadoes, severe thunderstorms/high winds, hurricanes/tropical storms, winter storms, and hailstorms. .
Objective:	Evaluate the jurisdictions critical facilities and implement a hardening program.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Hurricane/Tropical Storms, Severe Winter Storms, Hailstorms
Department or Agency Responsible:	City of Mercedes Public Works Department
Timeline:	3 years
Estimated Cost:	\$50,000.00
Estimated Benefit:	\$200,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Mercedes - Previous Action #22	
Proposed Action:	Preform dam inundation studies to establish consistent and justifiable risk factors. As a result, a risk screening will be conducted to support potential mitigation strategies such as structural upgrades, acquisition of easements in downstream induction areas, establishment of downstream development regulations, buy-outs of affected property owners, flood proofing/elevation/relocation of structures, enhanced flood warning/evacuation system and plans
BACKGROUND INFORMATION	
Goal:	Conduct dam inundation studies to assist in implementing mitigation actions.
Objective:	Preform dam inundation studies to establish consistent and justifiable risk factors.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure
Department or Agency Responsible:	City of Mercedes Public Works Department
Timeline:	3 years
Estimated Cost:	\$3,000.00
Estimated Benefit:	\$12,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

CITY OF MISSION

City of Mission - Previous Action #1	
Proposed Action:	Develop procedures for making mass notifications to citizens and merchants during a natural hazard incident. Solicit bids for system. Solicit bids for system. Purchase Emergency Notification System and install Distribute information on new system and conduct training.
BACKGROUND INFORMATION	
Goal:	Implement procedures for emergency communications using a notification system in the City of Mission.
Objective:	To provide a means of disseminating emergency information to the citizens of Mission.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Hazardous Materials Spills, Drought, Extreme Heat, Hailstorms, Wildfire, Expansive Soils
Department or Agency Responsible:	Mission Police Department and Emergency Management Department
Timeline:	1 year
Estimated Cost:	\$25,000 –Purchase \$1,000 – Bid 5,000 –Distribute information
Estimated Benefit:	\$100,000 –Purchase \$1,000 – Bid 5,000 – Distribute information
Funding Sources:	City of Mission

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Mission - Previous Action #2	
Proposed Action:	Identify appropriate software and equipment for integrating dispatch centers. Solicit bids for purchase of new equipment. Select vendor and Purchase Equipment and software.
BACKGROUND INFORMATION	
Goal:	Implement procedures for emergency communications using a notification system in the City of Mission.
Objective:	Provide the means to integrate the Police and Fire dispatch centers into one.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Hazardous Materials Spills, Drought, Extreme, Heat, Hailstorms, Wildfire, Expansive Soils
Department or Agency Responsible:	Mission Fire Department
Timeline:	1 year
Estimated Cost:	\$25,000 –Purchase \$2,500 – Bid 500 –Distribute information
Estimated Benefit:	\$250,000 –Purchase \$2,500 – Bid 500 –Distribute information
Funding Sources:	City of Mission

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Mission - Previous Action #3	
Proposed Action:	Identify centralized dispatch location.
BACKGROUND INFORMATION	
Goal:	Utilize computer and video technology to reduce vulnerability to all hazards in the City of Mission.
Objective:	Provide cross training for both organizations in new software and equipment.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Hazardous Materials Spills, Drought, Extreme Heat, Hailstorms, Wildfire, Expansive Soils
Department or Agency Responsible:	Mission Fire Department
Timeline:	2 years
Estimated Cost:	\$1,500.00
Estimated Benefit:	\$15,000.00
Funding Sources:	City of Mission

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Mission - Previous Action #4	
Proposed Action:	Assemble personnel for training.
BACKGROUND INFORMATION	
Goal:	Utilize computer and video technology to reduce vulnerability to all hazards in the City of Mission.
Objective:	Provide cross training for both organizations in new software and equipment.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Hazardous Materials Spills, Drought, Extreme Heat, Hailstorms, Wildfire, Expansive Soils
Department or Agency Responsible:	Mission Fire Department
Timeline:	3 years
Estimated Cost:	\$500.00
Estimated Benefit:	\$1,500.00
Funding Sources:	City of Mission

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Mission - Previous Action #5	
Proposed Action:	Perform software and system upgrade.
BACKGROUND INFORMATION	
Goal:	Utilize computer and video technology to reduce vulnerability to all hazards in the City of Mission.
Objective:	Provide cross training for both organizations in new software and equipment.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Hazardous Materials Spills, Drought, Extreme Heat, Hailstorms, Wildfire, Expansive Soils
Department or Agency Responsible:	Mission Fire Department
Timeline:	3 years
Estimated Cost:	\$7,500.00
Estimated Benefit:	\$25,000.00
Funding Sources:	City of Mission

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Mission - Previous Action #6	
Proposed Action:	Identify vehicles with new required integration equipment
BACKGROUND INFORMATION	
Goal:	Utilize computer and video technology to reduce vulnerability to all hazards in the City of Mission.
Objective:	Integrate software and Computer Aided Dispatch for all city Emergency Vehicles.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Hazardous Materials Spills, Drought, Extreme Heat, Hailstorms, Wildfire
Department or Agency Responsible:	Mission Fire Department
Timeline:	1 year
Estimated Cost:	\$250,000.00
Estimated Benefit:	\$25,000.00
Funding Sources:	City of Mission

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Mission - Previous Action #7	
Proposed Action:	Solicit bids for purchase of equipment.
BACKGROUND INFORMATION	
Goal:	Utilize computer and video technology to reduce vulnerability to all hazards in the City of Mission.
Objective:	Integrate software and Computer Aided Dispatch for all city Emergency Vehicles.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Hazardous Materials Spills, Drought, Extreme Heat, Hailstorms, Wildfire, Expansive Soils
Department or Agency Responsible:	Mission Fire Department
Timeline:	1 year
Estimated Cost:	\$1,500.00
Estimated Benefit:	\$5,000.00
Funding Sources:	City of Mission

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Mission - Previous Action #8	
Proposed Action:	Solicit bids for purchase of equipment.
BACKGROUND INFORMATION	
Goal:	Utilize computer and video technology to reduce vulnerability to all hazards in the City of Mission.
Objective:	Integrate software and Computer Aided Dispatch for all city Emergency Vehicles.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes. Thunderstorms and High Winds. Flooding. Hurricanes/Tropical Storms. Border Security and Terrorism. Severe Winter Storms. Lightning. Hazardous Materials Spills. Drought, Extreme Heat, Hailstorms, Wildfire, Expansive Soils
Department or Agency Responsible:	Mission Fire Department
Timeline:	1 year
Estimated Cost:	\$1,500.00
Estimated Benefit:	\$5,000.00
Funding Sources:	City of Mission

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Mission - Previous Action #9		
	Proposed Action:	Receive and install equipment and train staff.
	BACKGROUND INFORMATION	
	Goal:	Utilize computer and video technology to reduce vulnerability to all hazards in the City of Mission.
	Objective:	Integrate software and Computer Aided Dispatch for all city Emergency Vehicles.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Hazardous Materials Spills, Drought, Extreme Heat, Hailstorms, Wildfire, Expansive Soils
Department or Agency Responsible:	Mission Fire Department
Timeline:	2 years
Estimated Cost:	\$10,000.00
Estimated Benefit:	\$35,000.00
Funding Sources:	City of Mission

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Mission - Previous Action #10	
Proposed Action:	Evaluate the power needs to maintain city hall. Advertise for bids for city hall auxiliary power. Purchase and install new generators.
BACKGROUND INFORMATION	
Goal:	Ensure all City of Mission critical facilities have access to alternate power sources.
Objective:	Assure that the City of Mission achieves continuity of government during and after the event.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Hazardous, Materials Spills, Drought, Extreme Heat, Hailstorms, Wildfire, Expansive Soils
Department or Agency Responsible:	Mission Building Maintenance Department
Timeline:	1 year
Estimated Cost:	\$2,000 – Evaluate \$250 – Advertise for bids \$30,000 – Purchase and install
Estimated Benefit:	\$150,000 – Evaluate \$150,000 – Advertise for bids \$150,000 – Purchase and install
Funding Sources:	FEMA and City of Mission

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Mission - Previous Action #11	
Proposed Action:	Evaluate the power needs to maintain shelters in operation. Advertise for bids for auxiliary power for shelters. Purchase and install new generators at shelters.
BACKGROUND INFORMATION	
Goal:	Ensure all City of Mission critical facilities have access to alternate power sources.
Objective:	Assure the City of Mission achieves continuity of operations during and after the event for all shelters.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Hazardous Materials Spills, Drought, Extreme Heat, Hailstorm, Wildfire, Expansive Soils
Department or Agency Responsible:	Mission Building Maintenance Department
Timeline:	1 year
Estimated Cost:	\$7,500 – Evaluate \$1500 – Advertise for bids \$300,000 – Purchase and install
Estimated Benefit:	\$250,000 – Evaluate \$250,000 – Advertise for bids \$250,000 – Purchase and install
Funding Sources:	FEMA, Grants

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Mission - Previous Action #12	
Proposed Action:	Review repetitive loss properties and work with homeowners to remove them using FEMA funding.
BACKGROUND INFORMATION	
Goal:	Utilize Federal flood prevention programs to ensure reduced vulnerability to flooding.
Objective:	Review and remove repetitive loss properties.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms
Department or Agency Responsible:	Mission Fire Department
Timeline:	6 months
Estimated Cost:	\$50,000.00
Estimated Benefit:	\$250,000
Funding Sources:	FEMA

2021 ANALYSIS
Defer to 2021 Plan

SECTION 20: PREVIOUS ACTIONS

City of Mission - Previous Action #13	
Proposed Action:	Improve construction techniques through building code enhancements and educate construction, contractors, homeowners, and business owners about mitigation techniques.
BACKGROUND INFORMATION	
Goal:	Mitigate expansive soils by educating the public about and enforcing building codes that aim to reduce their effects.
Objective:	Mitigate against expansive soils.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils
Department or Agency Responsible:	Mission Fire Department
Timeline:	1 year
Estimated Cost:	\$5,000.00
Estimated Benefit:	\$20,000.00
Funding Sources:	City of Mission

2021 ANALYSIS
Defer to 2021 Plan

SECTION 20: PREVIOUS ACTIONS

City of Mission - Previous Action #14	
Proposed Action:	Research and incorporate subgrade stabilization methods on street projects such as street reclamation and repairs.
BACKGROUND INFORMATION	
Goal:	Mitigate expansive soils by educating the public about and enforcing building codes that aim to reduce their effects.
Objective:	Mitigate against expansive soils.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils , Drought
Department or Agency Responsible:	Mission Public Works Department
Timeline:	5 years
Estimated Cost:	Cost will vary widely based on the scope of the projects.
Estimated Benefit:	Roads resistant to damage from expansive soils.
Funding Sources:	Jurisdiction Budgets, Grants

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Mission - Previous Action #15	
Proposed Action:	Implement program to provide links to weather alerts and departmental phone listings with contact personnel for residents.
BACKGROUND INFORMATION	
Goal:	Provide the public with emergency management contact information and implement a public awareness campaign.
Objective:	Implement public awareness programs to assist the public with mitigation strategies.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lightning, Dam and Levee Failure, Drought, Extreme Heat, Hailstorms, Expansive Soils, Wildfires
Department or Agency Responsible:	Mission Fire Department
Timeline:	6 months
Estimated Cost:	\$8,500.00
Estimated Benefit:	\$36,000.00
Funding Sources:	City of Mission

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Mission - Previous Action #16	
Proposed Action:	Educate construction contractors, homeowners, and business owners about mitigation techniques through public awareness programs. Implement public safety awareness programs using internet campaigns, classes, and community outreach.
BACKGROUND INFORMATION	
Goal:	Provide the public with emergency management contact information and implement a public awareness campaign.
Objective:	Implement public awareness programs to assist the public with mitigation strategies.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lightning, Dam and Levee Failure, Drought, Extreme Heat, Hailstorms, Expansive Soils, Wildfires
Department or Agency Responsible:	Mission Fire Department
Timeline:	1 year
Estimated Cost:	\$5,000.00
Estimated Benefit:	\$20,000.00
Funding Sources:	City of Mission

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Mission - Previous Action #17	
Proposed Action:	Implement a data recording system that captures extent and impact, related statistical.
BACKGROUND INFORMATION	
Goal:	Develop a system to maintain records for all weather related incidents.
Objective:	Over the next five years, record the extent and impact of all natural hazards related incidents within the jurisdiction.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lightning, Dam and Levee Failure, Drought, Extreme Heat, Hailstorms, Expansive Soils, Wildfires
Department or Agency Responsible:	Mission Fire Department
Timeline:	6 months
Estimated Cost:	\$5,000.00
Estimated Benefit:	\$25,000.00
Funding Sources:	City of Mission

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Mission - Previous Action #18	
Proposed Action:	Harden critical facilities by re- enforcing windows, roof construction, and enforcing covered parking areas for critical vehicles.
BACKGROUND INFORMATION	
Goal:	Harden critical facilities against tornadoes, severe thunderstorms /high winds, hurricanes/tropical storms, Severe Winter Storms, and hailstorms
Objective:	Evaluate the jurisdictions critical facilities and implement a hardening program.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Hurricanes/Tropical Storms, Severe Winter Storms, Hailstorms
Department or Agency Responsible:	Mission Public Works Department
Timeline:	2 years
Estimated Cost:	\$5,000,000.00
Estimated Benefit:	\$30,000,000.00
Funding Sources:	Jurisdiction Budget, Grants

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Mission - Previous Action #19	
Proposed Action:	Perform dam inundation studies to establish consistent and justifiable risk factors. As a result, a risk screening will be conducted to support potential mitigation strategies such as structural upgrades, acquisition of easements in downstream induction areas, establishment of downstream development regulations, buy-outs of affected property owners, flood proofing/elevation/relocation of structures, enhanced flood warning/evacuation system and plans.
BACKGROUND INFORMATION	
Goal:	Reduce jurisdiction vulnerability to flooding by evaluating the structure of dams and levees.
Objective:	Perform dam inundation studies to establish consistent and justifiable risk factors.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure
Department or Agency Responsible:	Mission Public Works Department
Timeline:	2 years
Estimated Cost:	\$3,000.00
Estimated Benefit:	\$12,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Mission - Previous Action #20	
Proposed Action:	Analysis, design and construction. Construction would involve all necessary earthwork (i.e. compacted embankment and grading), construction of active/passive flood barriers, backflow prevention structures/devices and, installation of necessary riprap armoring and bank stabilization.
BACKGROUND INFORMATION	
Goal:	Reduce jurisdiction vulnerability to flooding by evaluating the structure of dams and levees
Objective:	Improve existing levee system in the City of Mission.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure
Department or Agency Responsible:	Floodplain Administrator
Timeline:	2 years
Estimated Cost:	\$1,800,000 – Analysis and design \$30,000,000 – Construction
Estimated Benefit:	\$7,200,000 – Analysis and design \$120,000,000 – Construction
Funding Sources:	Grants, Matching City Funds

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Mission - Previous Action #21		
	Proposed Action:	Incorporating current inundation data and in cooperation with floodplain administration, review and revise dam/levee failure response plans for the city.
	BACKGROUND INFORMATION	
	Goal:	Reduce jurisdiction vulnerability to flooding by evaluating the structure of dams and levees
	Objective:	Review and update dam/levee failure response plans for the City of Mission

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure
Department or Agency Responsible:	Mission Emergency Management Department
Timeline:	2 years
Estimated Cost:	\$3,000.00
Estimated Benefit:	\$12,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

CITY OF PALMVIEW

City of Palmview- Previous Action #1		
	Proposed Action:	Drainage Bentsen Palm Dr. & FM 495. The drainage system needs to be upgraded as this busy intersection has outdated drainage and is always prone to flooding.
	BACKGROUND INFORMATION	
	Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
	Objective:	Assess the current drainage system in the City of Palmview and conduct projects as necessary.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms, Severe Winter Storms
Department or Agency Responsible:	Palmview Public Works Department
Timeline:	24 months
Estimated Cost:	\$40,000.00
Estimated Benefit:	\$160,000.00
Funding Sources:	CDBG

2021 ANALYSIS
Defer to 2021 Plan- Per Palmview, update estimated cost to \$121,750.00.

SECTION 20: PREVIOUS ACTIONS

City of Palmview- Previous Action #2	
Proposed Action:	Abram Rd. Bridge Replacement. The bridge is outdated and needs to be upgraded as the drainage on the bridge needs to be upgraded to allow for the proper drainage of water to prevent flooding on the bridge causing a major hazard to motorists.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Assess the current drainage system in the City of Palmview and conduct projects as necessary.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms, Severe Winter Storms
Department or Agency Responsible:	Palmview Public Works Department
Timeline:	24 months
Estimated Cost:	\$220,000.00
Estimated Benefit:	\$880,000.00
Funding Sources:	CDBG

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Palmview- Previous Action #3	
Proposed Action:	Riverside subdivision has no drainage. Our jurisdiction has recently annexed this subdivision and drainage needs to be installed to prevent flooding. There is currently not drainage in this subdivision.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Assess the current drainage system in the City of Palmview and conduct projects as necessary.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms, Severe Winter Storms
Department or Agency Responsible:	Palmview Public Works Department
Timeline:	36 months
Estimated Cost:	\$300,000.00
Estimated Benefit:	\$900,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan- Per Palmview, update estimate cost to \$593,425.00.

SECTION 20: PREVIOUS ACTIONS

City of Palmview- Previous Action #4	
Proposed Action:	Buckhorn street needs drainage to be added to prevent flooding. There is currently no drainage on this street that our jurisdiction has recently annexed.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Assess the current drainage system in the City of Palmview and conduct projects as necessary.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms, Severe Winter Storms
Department or Agency Responsible:	Palmview Public Works Department
Timeline:	36 months
Estimated Cost:	\$200,000.00
Estimated Benefit:	\$500,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan

SECTION 20: PREVIOUS ACTIONS

City of Palmview- Previous Action #5	
Proposed Action:	Mile 2 and East Goodwin road needs to have the drainage system upgraded. This area has poor drainage caused flooding waters on the roadway causing a major hazard to motorists.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Assess the current drainage system in the City of Palmview and conduct projects as necessary.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms, Severe Winter Storms
Department or Agency Responsible:	Palmview Public Works Department
Timeline:	36 months
Estimated Cost:	\$200,000.00
Estimated Benefit:	\$400,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Palmview- Previous Action #6	
Proposed Action:	FM 495 drainage ditches need to be upgraded between Bentsen Palm Drive and La Homa road. The system is outdated and cannot meet the demand to allow for flooding waters to properly flow through the system.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Assess the current drainage system in the City of Palmview and conduct projects as necessary.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms, Severe Winter Storms
Department or Agency Responsible:	Palmview Public Works Department
Timeline:	36 months
Estimated Cost:	\$20,000.00
Estimated Benefit:	\$80,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan- Per Palmview, update estimated cost to \$50,000.00.

SECTION 20: PREVIOUS ACTIONS

City of Palmview- Previous Action #7	
Proposed Action:	Drainage ditches on La Homa road south of I2 frontage need to be upgraded. The system is outdated causing flooding on the roadway and subdivisions.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Assess the current drainage system in the City of Palmview and conduct projects as necessary.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms, Severe Winter Storms
Department or Agency Responsible:	Palmview Public Works Department
Timeline:	36 months
Estimated Cost:	\$20,000.00
Estimated Benefit:	\$100,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan- Per Palmview, update estimated cost to \$50,000.00.

SECTION 20: PREVIOUS ACTIONS

City of Palmview- Previous Action #8	
Proposed Action:	Drainage ditch system on Silver Spur needs to be upgraded between I2 and business 83. Our jurisdiction recently annexed this street and subdivisions that run a long side are prone to severe flooding due to the outdated system.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Assess the current drainage system in the City of Palmview and conduct projects as necessary.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms, Severe Winter Storms
Department or Agency Responsible:	Palmview Public Works Department
Timeline:	36 months
Estimated Cost:	\$100,000.00
Estimated Benefit:	\$500,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Palmview- Previous Action #9	
Proposed Action:	The drainage ditch system on Showers road from I2 to business 83 needs to be upgraded its outdated and prone to severe flooding on the street and subdivisions.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Assess the current drainage system in the City of Palmview and conduct projects as necessary.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms, Severe Winter Storms
Department or Agency Responsible:	Palmview Public Works Department
Timeline:	36 months
Estimated Cost:	\$100,000.00
Estimated Benefit:	\$600,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Palmview- Previous Action #10	
Proposed Action:	Purchase private property where a water retention canal on showers road is located as it is not engineered properly to allow the flood waters to release to the drainage system that it is tied in to. In the event of it breaching as a result of the poorly engineered design it will flood the subdivisions causing major flooding resulting in life safety danger to the residents.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Assess the current drainage system in the City of Palmview and conduct projects as necessary.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms, Severe Winter Storms
Department or Agency Responsible:	Palmview Public Works Department
Timeline:	36 months
Estimated Cost:	\$400,000.00
Estimated Benefit:	\$3,000,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Palmview- Previous Action #11	
Proposed Action:	Re-Engineer and upgrade water retention canal on Showers road to prevent catastrophic flooding and life safety dangers. The canal would be engineered to properly tie in to the drainage system and would be reinforced properly.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Assess the current drainage system in the City of Palmview and conduct projects as necessary.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms, Severe Winter Storms
Department or Agency Responsible:	Palmview Public Works Department
Timeline:	36 months
Estimated Cost:	\$200,000.00
Estimated Benefit:	\$3,000,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Palmview- Previous Action #12	
Proposed Action:	Purchase generator for new public safety substation that serves the City of Palmviews west side for law enforcement and fire response. The substation currently does not have any alternate power sources to maintain functioning in the event of an outage. Purchase generator for new public safety central fire station that serves the City of Palmviews central and east side for fire response. The central station currently does not have any alternate power sources to maintain functioning in the event of an outage.
BACKGROUND INFORMATION	
Goal:	Ensure all City of Palmview jurisdiction critical facilities have access to alternate power sources.
Objective:	Provide power for new sub-station.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Thunderstorms and High Winds Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lighting, Drought, Extreme Heat, Hailstorms, Wildfires
Department or Agency Responsible:	Palmview Police and Fire Department
Timeline:	24 months
Estimated Cost:	\$120,000.00
Estimated Benefit:	\$480,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Palmview- Previous Action #13	
Proposed Action:	Review repetitive loss properties and work with homeowners to remove them using FEMA funding.
BACKGROUND INFORMATION	
Goal:	Utilize Federal flood prevention programs to ensure reduced vulnerability to flooding.
Objective:	Review and remove repetitive loss properties.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms, Severe Winter Storms
Department or Agency Responsible:	Palmview Public Safety Department
Timeline:	24 months
Estimated Cost:	\$80,000.00
Estimated Benefit:	\$150,000.00
Funding Sources:	FEMA

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Palmview- Previous Action #14	
Proposed Action:	Improve construction techniques through building code enhancements and educate construction contractors, homeowners, and business owners about mitigation techniques.
BACKGROUND INFORMATION	
Goal:	Mitigate expansive soils by educating the public about and enforcing building codes that aim to reduce their effects.
Objective:	Mitigate against expansive soils.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils Drought
Department or Agency Responsible:	Palmview Public Safety Department
Timeline:	12 months
Estimated Cost:	\$25,000.00
Estimated Benefit:	\$75,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Palmview- Previous Action #15	
Proposed Action:	Research and incorporate subgrade stabilization methods on street projects such as street reclamation and repairs.
BACKGROUND INFORMATION	
Goal:	Mitigate expansive soils by educating the public about and enforcing building codes that aim to reduce their effects.
Objective:	Mitigate against expansive soils.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils Drought
Department or Agency Responsible:	Palmview Public Safety Department
Timeline:	5 years
Estimated Cost:	Cost will vary widely based on the scope of the projects
Estimated Benefit:	Roads resistant to damage from expansive soils.
Funding Sources:	Jurisdiction Budget, Grants

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Palmview- Previous Action #16	
Proposed Action:	Implement program to provide links to weather alerts and departmental phone listings with contact personnel for residents.
BACKGROUND INFORMATION	
Goal:	Provide the public with emergency management contact information and implement a public awareness campaign.
Objective:	Implement public awareness programs to assist the public with mitigation strategies.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Expansive Soils, Wildfires
Department or Agency Responsible:	Palmview Public Safety Department
Timeline:	30 days
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	N/A

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Palmview- Previous Action #17	
Proposed Action:	Educate construction contractors, homeowners, and business owners about mitigation techniques through public awareness programs. Implement public safety awareness programs using internet campaigns, classes, and community outreach.
BACKGROUND INFORMATION	
Goal:	Provide the public with emergency management contact information and implement a public awareness campaign.
Objective:	Implement public awareness programs to assist the public with mitigation strategies.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds,, Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Expansive Soils, Wildfires
Department or Agency Responsible:	Palmview Public Safety Department
Timeline:	12 months
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan- Per Palmview, update estimated cost to \$5,000.00 and benefit to \$10,000.00.

SECTION 20: PREVIOUS ACTIONS

City of Palmview- Previous Action #18	
Proposed Action:	Implement a data recording Winds system that captures extent and impact, related statistical information on fatalities, injuries and damage caused by each incident that occurs within the jurisdiction.
BACKGROUND INFORMATION	
Goal:	Develop a system to maintain records for all weather related incidents
Objective:	Over the next five years, record the extent and impact of all natural hazards related incidents within the jurisdiction.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Expansive Soils, Wildfires
Department or Agency Responsible:	Palmview Public Safety Department
Timeline:	60 days
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan- Per Palmview, update estimated cost to \$5,000.00 and benefit to \$10,000.00.

SECTION 20: PREVIOUS ACTIONS

City of Palmview- Previous Action #19	
Proposed Action:	Develop procedures for making mass notifications to citizens and merchants during a natural hazard incident. Solicit bids for system. Purchase Emergency Notification System and install. Distribute information on new system and conduct training.
BACKGROUND INFORMATION	
Goal:	Implement procedures for emergency communications using a notification system in the City of Palmview.
Objective:	To provide a means of disseminating emergency information to the citizens of Palmview.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Expansive Soils, Wildfires, Border Security and Terrorism, Hazardous Material Spills
Department or Agency Responsible:	Palmview Public Safety Department
Timeline:	1 year
Estimated Cost:	\$31,000.00
Estimated Benefit:	\$124,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Palmview- Previous Action #20	
Proposed Action:	Harden critical facilities by re-enforcing windows, roof construction, and enforcing covered parking areas for critical vehicles.
BACKGROUND INFORMATION	
Goal:	Harden critical facilities against tornadoes, severe thunderstorms /high winds, hurricanes/tropical storms, Severe Winter Storms, and hailstorms.
Objective:	Evaluate the jurisdictions critical facilities and implement a hardening program.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Hurricanes/Tropical Storms, Severe Winter Storms
Department or Agency Responsible:	Palmview Public Safety Department
Timeline:	2 years
Estimated Cost:	\$20,000.00
Estimated Benefit:	\$80,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan- Per Palmview, update estimated cost to \$50,000.00.

SECTION 20: PREVIOUS ACTIONS

CITY OF PHARR

City of Pharr- Previous Action #1	
Proposed Action:	The proposed project is located in the northwest portion of the City of Pharr downtown area near the intersection of N. Sugar Rd and W. Egly Street. The said intersection currently experiences localized flooding exceeding 2.5-feet during a heavy rain event. The area in general currently slopes towards the intersection and has a Storm Drainage System that consists of inlets and underground storm pipe. Additionally, a portion of the drainage area lies within Flood Zone “AH” described as areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but not flood hazard factors are determined, according to the FEMA FIRM Map Community Panel Number 48034700005 C dated October 19, 1982. The rest of the drainage area lies within flood zone “B” which are areas between the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the based flood. The project in general consists of a new underground storm pipe routed to a detention pond with a controlled outlet structure. The proposed improvements will help reduce the localized flooding at the intersection of Egly & Sugar Road by routing the runoff from the drainage system that lies within this intersection to a detention pond facility located on the northwest corner of Flag Street & Egly Street. The detention pond is designed to hold a volume of approximately 142,334 cubic-feet. This volume was determined based on the difference of the 10 and 25 year storm frequency event As previously mentioned, the pond will have a controlled outlet structure that will release a pre-determined amount of runoff back into the Storm Drainage System located along N. Hibiscus Street approximately 1,300-ft downstream (south). This system continues south past Business 83 into a newly improved/upgraded downtown drainage system that has an ultimate outfall onto the Pharr/McAllen South Drainage Ditch. By routing the runoff from the said intersection, we will minimize the amount of water collecting in the area and alleviating the storm system during a heavy rain event.

SECTION 20: PREVIOUS ACTIONS

BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Correct flooding potential at Sugar and Egly in the City of Pharr.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms, Severe Winter Storms
Department or Agency Responsible:	Pharr Engineering Department
Timeline:	9 months
Estimated Cost:	\$20,000 –Design \$250,000 –Construction
Estimated Benefit:	\$500,000 – Design \$500,000 - Construction
Funding Sources:	FEMA, City Funds

2021 ANALYSIS
Defer to 2021 Plan- Per Pharr, scope of work and cost needs to be updated.

SECTION 20: PREVIOUS ACTIONS

City of Pharr- Previous Action #2	
Proposed Action:	Review repetitive loss properties and work with homeowners to remove them using FEMA funding.
BACKGROUND INFORMATION	
Goal:	Utilize Federal flood prevention programs to ensure reduced vulnerability to flooding.
Objective:	Review and remove repetitive loss properties.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms, Severe Winter Storms
Department or Agency Responsible:	Pharr Emergency Management Department
Timeline:	1 week
Estimated Cost:	\$200,000.00-\$500,000.00
Estimated Benefit:	\$280,000.00
Funding Sources:	FEMA

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Pharr- Previous Action #3		
	Proposed Action:	Improve construction techniques through building code enhancements and educate construction contractors, homeowners, and business owners about mitigation techniques.
	BACKGROUND INFORMATION	
	Goal:	Mitigate expansive soils by educating the public about and enforcing building codes that aim to reduce their effects.
	Objective:	Mitigate against expansive soils.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils, Drought
Department or Agency Responsible:	Pharr Development Services
Timeline:	1 year
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Pharr- Previous Action #4	
Proposed Action:	Research and incorporate subgrade stabilization methods on street projects such as street reclamation and repairs.
BACKGROUND INFORMATION	
Goal:	Mitigate expansive soils by educating the public about and enforcing building codes that aim to reduce their effects.
Objective:	Mitigate against expansive soils.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils, Drought
Department or Agency Responsible:	Pharr Public Works Department
Timeline:	5 years
Estimated Cost:	Cost will vary widely based on the scope of the projects.
Estimated Benefit:	Roads resistant to damage from expansive soils
Funding Sources:	Jurisdiction Budget, Grants

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Pharr- Previous Action #5	
Proposed Action:	Implement program to provide links to weather alerts and departmental phone listings with contact personnel for residents.
BACKGROUND INFORMATION	
Goal:	Provide the public with emergency management contact information and implement a public awareness campaign.
Objective:	Implement public awareness programs to assist the public with mitigation strategies.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Expansive Soils, Wildfires
Department or Agency Responsible:	Pharr Emergency Management Department
Timeline:	1 week
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Pharr- Previous Action #6	
Proposed Action:	Educate construction contractors, homeowners, and business owners about mitigation techniques through public awareness programs. Implement public safety awareness programs using internet campaigns, classes, and community outreach.
BACKGROUND INFORMATION	
Goal:	Provide the public with emergency management contact information and implement a public awareness campaign.
Objective:	Implement public awareness programs to assist the public with mitigation strategies.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Expansive Soils, Wildfires
Department or Agency Responsible:	Pharr Emergency Management Department
Timeline:	1 year
Estimated Cost:	\$4,000.00
Estimated Benefit:	\$12,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Pharr- Previous Action #7	
Proposed Action:	Implement a data recording system that captures extent and impact, related statistical information on fatalities, injuries and damages caused by each incident that occurs within the jurisdiction.
BACKGROUND INFORMATION	
Goal:	Develop a system to maintain records for all weather related incidents.
Objective:	Over the next five years, record the impact and the extent of natural hazard incidents within the jurisdiction.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Expansive Soils, Wildfires
Department or Agency Responsible:	Pharr Emergency Management Department
Timeline:	1 year
Estimated Cost:	\$3,000
Estimated Benefit:	\$12,000
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Pharr- Previous Action #8	
Proposed Action:	Develop procedures for making mass notifications to citizens and merchants during a natural hazard incident. Solicit bids for system. Purchase Emergency Notification System and install. Distribute information on new system and conduct training.
BACKGROUND INFORMATION	
Goal:	Implement procedures for emergency communications using a notification system in the City of Pharr.
Objective:	To provide a means of disseminating emergency information to the citizens of Pharr.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Expansive Soils, Wildfires, Border Security and Terrorism, Hazardous Spills
Department or Agency Responsible:	Pharr Emergency Management Department
Timeline:	1 year
Estimated Cost:	\$5,000.00
Estimated Benefit:	\$20,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of Pharr- Previous Action #9	
Proposed Action:	Harden critical facilities by re- enforcing windows, roof construction, and enforcing covered parking areas for critical vehicles.
BACKGROUND INFORMATION	
Goal:	Harden critical facilities against tornadoes, severe thunderstorms /high winds, hurricanes/tropical storms, Severe Winter Storms, and hailstorms
Objective:	Evaluate the jurisdictions critical facilities and implement a hardening program.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Hurricanes/Tropical Storms, Severe Winter Storms, Hailstorms
Department or Agency Responsible:	Pharr Emergency Management Department
Timeline:	2 years
Estimated Cost:	\$200,000.00
Estimated Benefit:	\$800,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

CITY OF SAN JUAN

City of San Juan - Previous Action #1		
	Proposed Action:	Develop procedures for making mass notifications to citizens and merchants during a natural hazard incident. Solicit bids for system. Purchase Emergency Notification System and install. Distribute information on new system and conduct training.
	BACKGROUND INFORMATION	
	Goal:	Implement procedures for emergency communications using a notification system in the City of San Juan.
	Objective:	Develop emergency communications and determine the appropriate notification systems for San Juan.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Thunderstorms and High Winds, Flooding Hurricanes/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Hazardous Materials Spills, Drought, Extreme Heat, Hailstorms, Wildfire, Expansive Soils
Department or Agency Responsible:	San Juan Emergency Management Department
Timeline:	3 months to determine size. 1 month to advertise for purchase. 2 months for actual purchase.
Estimated Cost:	\$1,000- Determine size \$1,000 - Advertise for purchase \$75,000 -Purchase
Estimated Benefit:	\$4,000- Determine size \$4,000 - Advertise for purchase \$300,000 -Purchase
Funding Sources:	General Fund, FEMA

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of San Juan - Previous Action #2	
Proposed Action:	Identify appropriate size. Advertise for generator. Purchase generator.
BACKGROUND INFORMATION	
Goal:	Ensure all the City of San Juan critical facilities have access to alternate power sources.
Objective:	Provide auxiliary power to the City repair shop.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Hazardous Materials Spills, Drought, Extreme Heat, Hailstorms, Wildfire, Expansive Soils
Department or Agency Responsible:	San Juan Emergency Management Department
Timeline:	1 month to identify size. 1 month to advertise for purchase. 3 months for actual purchase.
Estimated Cost:	\$0- Identify size \$200 - Advertise for purchase \$50,000 -Purchase
Estimated Benefit:	\$0- Identify size \$0 - Advertise for purchase \$200,000 -Purchase
Funding Sources:	General Fund, FEMA

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of San Juan - Previous Action #3	
Proposed Action:	Complete activities required to be a NFIP participating community.
BACKGROUND INFORMATION	
Goal:	Utilize Federal flood prevention programs to ensure reduced vulnerability to flooding.
Objective:	Review and remove repetitive loss properties.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms
Department or Agency Responsible:	San Juan Emergency Management Department
Timeline:	1 year
Estimated Cost:	\$5,000.00
Estimated Benefit:	\$20,000.00
Funding Sources:	FEMA

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of San Juan - Previous Action #4	
Proposed Action:	Improve construction techniques through building code enhancements and educate construction contractors, homeowners, and business owners about mitigation techniques.
BACKGROUND INFORMATION	
Goal:	Mitigate expansive soils by educating the public about and enforcing building codes that aim to reduce their effects.
Objective:	Mitigate against expansive soils.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils, Drought
Department or Agency Responsible:	San Juan Emergency Management Department
Timeline:	1 year
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of San Juan - Previous Action #5	
Proposed Action:	Research and incorporate subgrade stabilization methods on street projects such as street reclamation and repairs.
BACKGROUND INFORMATION	
Goal:	Mitigate expansive soils by educating the public about and enforcing building codes that aim to reduce their effects.
Objective:	Mitigate against expansive soils.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils, Drought
Department or Agency Responsible:	San Juan Emergency Management Department
Timeline:	5 years
Estimated Cost:	Cost will vary widely based on the scope of the projects.
Estimated Benefit:	Roads resistant to damage from expansive soils.
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of San Juan - Previous Action #6	
Proposed Action:	Implement program to provide links to weather alerts and departmental phone listings with contact personnel for residents.
BACKGROUND INFORMATION	
Goal:	Provide the public with emergency management contact information and implement a public awareness campaign.
Objective:	Implement public awareness programs to assist the public with mitigation strategies.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Expansive Soils, Wildfires
Department or Agency Responsible:	San Juan Emergency Management Department
Timeline:	1 week
Estimated Cost:	\$1,000
Estimated Benefit:	\$5,000
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Completed.

SECTION 20: PREVIOUS ACTIONS

City of San Juan - Previous Action #7	
Proposed Action:	Educate construction contractors, homeowners, and business owners about mitigation techniques through public awareness programs. Implement public safety awareness programs using internet campaigns, classes, and community outreach.
BACKGROUND INFORMATION	
Goal:	Provide the public with emergency management contact information and implement a public awareness campaign.
Objective:	Implement public awareness programs to assist the public with mitigation strategies.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Expansive Soils, Wildfires
Department or Agency Responsible:	San Juan Emergency Management Department
Timeline:	1 year
Estimated Cost:	\$10,000.00
Estimated Benefit:	\$50,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of San Juan - Previous Action #8	
Proposed Action:	Implement a data recording system that captures extent and impact, related statistical information on fatalities, injuries and damages caused by each incident that occurs within the jurisdiction.
BACKGROUND INFORMATION	
Goal:	Develop a system to maintain records for all weather related incidents.
Objective:	Over the next five years, record the impact and the extent of natural hazard incidents within the jurisdiction.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Expansive Soils, Wildfires
Department or Agency Responsible:	San Juan Emergency Management Department
Timeline:	1 year
Estimated Cost:	\$3,000.00
Estimated Benefit:	\$12,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of San Juan - Previous Action #9	
Proposed Action:	Harden critical facilities by re- enforcing windows, roof construction, and enforcing covered parking areas for critical vehicles.
BACKGROUND INFORMATION	
Goal:	Harden critical facilities against tornadoes, severe thunderstorms /high winds, hurricanes/tropical storms, Severe Winter Storms, and hailstorms.
Objective:	Evaluate the jurisdictions critical facilities and implement a hardening program.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Hurricanes/Tropical Storms, Severe Winter Storms, Hailstorms
Department or Agency Responsible:	San Juan Sanitation and Public Works Department
Timeline:	2 years
Estimated Cost:	\$60,000.00
Estimated Benefit:	\$240,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

CITY OF SULLIVAN CITY

City of Sullivan City - Previous Action #1	
Proposed Action:	Call to acquire name, phone number, address, and contact person. Compile listing alphabetically. Include with City Business Permit listing.
BACKGROUND INFORMATION	
Goal:	Provide the necessary equipment and information needed to carryout mitigation measures.
Objective:	Compile a database of business contact information to ensure effective communications during an emergency.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Hazardous Materials Spills, Drought, Extreme Heat, Hailstorms, Wildfire, Expansive Soils
Department or Agency Responsible:	Sullivan City Secretary
Timeline:	1 year
Estimated Cost:	\$400 – Acquire information \$200 – Compile list \$400 –Including permit
Estimated Benefit:	\$1,600 – Acquire information \$800 – Compile list \$1,600 –Including permit
Funding Sources:	City Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Sullivan City- Previous Action #2	
Proposed Action:	Analysis, design and construction. Construction would include installation of drainage pipe networks and related appurtenances as well as any necessary pavement and/or right-of-way restoration around the entrance of Bougainvillea St. and corner of Blue Bird and El Pinto Rd in Sullivan City.
BACKGROUND INFORMATION	
Goal:	Enhance water drainage systems to provide the capacity for floodwaters.
Objective:	Improve the drainage system in the City of Sullivan.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Hazardous Materials Spills, Drought, Extreme Heat, Hailstorms, Wildfire, Expansive Soils
Department or Agency Responsible:	Sullivan City Manager and Maintenance Department
Timeline:	1 year
Estimated Cost:	\$100 – Identify work \$1,500 – Get estimate \$2,500 –Actual work
Estimated Benefit:	\$4,000 – Identify work \$6,000 – Get estimate \$10,000 –Actual work
Funding Sources:	Grant, Source Grant, Alternative Funding Source

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Sullivan City- Previous Action #3	
Proposed Action:	Identify size of generator for City Hall and Police Department. Purchase and install generator.
BACKGROUND INFORMATION	
Goal:	Ensure all of the City of Sullivan's critical facilities have access to alternate power sources.
Objective:	Provide auxiliary power to City Hall and the Police Department.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Border Security and Terrorism, Severe Winter Storms, Lightning, Hazardous Materials Spills, Drought, Extreme Heat, Hailstorms, Wildfire, Expansive Soils
Department or Agency Responsible:	Sullivan City Maintenance Department
Timeline:	1 year
Estimated Cost:	\$2,000.00
Estimated Benefit:	\$8,000.00
Funding Sources:	Grant, Source Grant, Alternative Funding Source

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Sullivan City- Previous Action #4	
Proposed Action:	Review repetitive loss properties and work with homeowners to remove them using FEMA funding.
BACKGROUND INFORMATION	
Goal:	Utilize Federal flood prevention programs to ensure reduced vulnerability to flooding.
Objective:	Review and remove repetitive loss properties.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flooding, Hurricanes/Tropical Storms, Severe Winter Storms
Department or Agency Responsible:	Sullivan City Emergency Management Department
Timeline:	1 week
Estimated Cost:	\$400.00
Estimated Benefit:	\$1,600.00
Funding Sources:	FEMA

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Sullivan City- Previous Action #5	
Proposed Action:	Improve construction techniques through building code enhancements and educate construction contractors, homeowners, and business owners about mitigation techniques.
BACKGROUND INFORMATION	
Goal:	Mitigate expansive soils by educating the public about and enforcing building codes that aim to reduce their effects.
Objective:	Mitigate against expansive soils.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils, Drought
Department or Agency Responsible:	Sullivan City Planning and Zoning Department
Timeline:	1 year
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Sullivan City- Previous Action #6	
Proposed Action:	Research and incorporate subgrade stabilization methods on street projects such as street reclamation and repairs
BACKGROUND INFORMATION	
Goal:	Mitigate expansive soils by educating the public about and enforcing building codes that aim to reduce their effects.
Objective:	Mitigate against expansive soils.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils Drought
Department or Agency Responsible:	Sullivan City Public Works Department
Timeline:	5 years
Estimated Cost:	Cost will vary widely based on the scope of the projects.
Estimated Benefit:	Roads resistant to damage from expansive soils.
Funding Sources:	Jurisdiction Budget, Grants

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Sullivan City- Previous Action #7	
Proposed Action:	Implement program to provide links to weather alerts and departmental phone listings with contact personnel for residents.
BACKGROUND INFORMATION	
Goal:	Provide the public with emergency management contact information and implement a public awareness campaign.
Objective:	Implement public awareness programs to assist the public with mitigation strategies.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Wildfires, Expansive Soils
Department or Agency Responsible:	Sullivan City Emergency Management Department
Timeline:	1 week
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Sullivan City- Previous Action #8	
Proposed Action:	Educate construction contractors, homeowners, and business owners about mitigation techniques through public awareness programs. Implement public safety awareness programs using internet campaigns, classes, and community outreach.
BACKGROUND INFORMATION	
Goal:	Provide the public with emergency management contact information and implement a public awareness campaign.
Objective:	Implement public awareness programs to assist the public with mitigation strategies.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Wildfires, Expansive Soils
Department or Agency Responsible:	Sullivan City Public Works Department
Timeline:	1 year
Estimated Cost:	\$1,000.00
Estimated Benefit:	\$5,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Sullivan City- Previous Action #9	
Proposed Action:	Implement a data recording system that captures extent and impact, related statistical information on fatalities, injuries and damages caused by each incident that occurs within the jurisdiction.
BACKGROUND INFORMATION	
Goal:	Develop a system to maintain records for all weather related incidents.
Objective:	Over the next five years, record the impact and the extent of natural hazard incidents within the jurisdiction.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Wildfires Expansive Soils
Department or Agency Responsible:	Sullivan City Emergency Management Department
Timeline:	1 year
Estimated Cost:	\$10,000.00
Estimated Benefit:	\$40,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Sullivan City- Previous Action #10	
Proposed Action:	Develop procedures for making mass notifications to citizens and merchants during a natural hazard incident. Solicit bids for system. Purchase Emergency Notification System and install Distribute information on new system and conduct training.
BACKGROUND INFORMATION	
Goal:	Implement procedures for emergency communications using a notification system in the City of Sullivan.
Objective:	To provide a means of disseminating emergency information to the citizens of Sullivan.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Flooding, Hurricanes/Tropical Storms, Severe Winter Storms, Lightning, Drought, Extreme Heat, Hailstorms, Wildfires, Expansive Soils, Border Security and Terrorism, Hazardous Material Spills
Department or Agency Responsible:	Sullivan City Emergency Management Department
Timeline:	1 year
Estimated Cost:	\$21,000.00
Estimated Benefit:	\$84,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Sullivan City - Previous Action #11	
Proposed Action:	Harden critical facilities by re- enforcing windows, roof construction, and enforcing covered parking areas for critical vehicles
BACKGROUND INFORMATION	
Goal:	Harden critical facilities against tornadoes, severe thunderstorms /high winds, hurricanes/tropical storms, Severe Winter Storms, and hailstorms
Objective:	Evaluate the jurisdictions critical facilities and implement a hardening program.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornadoes, Severe Thunderstorms and High Winds, Hurricanes/Tropical Storms, Severe Winter Storms, Hailstorms
Department or Agency Responsible:	Sullivan City Public Works Department
Timeline:	3 years
Estimated Cost:	\$70,000.00
Estimated Benefit:	\$128,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Sullivan City - Previous Action #12	
Proposed Action:	Perform dam inundation studies to establish consistent and justifiable risk factors. As a result, a risk screening will be conducted to support potential mitigation strategies such as acquisition of easements in downstream induction areas, establishment of downstream development regulations, buy-outs of affected property owners, flood proofing/elevation/relocation of structures, enhanced flood warning/evacuation system and plans.
BACKGROUND INFORMATION	
Goal:	Reduce jurisdiction vulnerability to flooding by evaluating the structure of dams and levees.
Objective:	Perform dam inundation studies to establish consistent and justifiable risk factors.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure
Department or Agency Responsible:	Sullivan City Public Works Department
Timeline:	3 years
Estimated Cost:	\$3,000.00
Estimated Benefit:	\$12,000.00
Funding Sources:	Jurisdiction Budget

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Sullivan City - Previous Action #13	
Proposed Action:	Analysis, design and construction. Construction would involve all necessary earthwork (i.e. compacted embankment and grading), construction of active/passive flood barriers, backflow prevention structures/devices and, installation of necessary riprap armoring and bank stabilization.
BACKGROUND INFORMATION	
Goal:	Reduce jurisdiction vulnerability to flooding by evaluating the structure of dams and levees.
Objective:	Improve existing levee system in Sullivan City.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure
Department or Agency Responsible:	Floodplain Administrator
Timeline:	2 years
Estimated Cost:	\$1,800,000 –Analysis and design \$30,000,000 – Construction
Estimated Benefit:	\$7,200,000 –Analysis and design \$120,000,000 - Construction
Funding Sources:	Grants, Matching City Funds

2021 ANALYSIS
Defer to 2021 Plan.

SECTION 20: PREVIOUS ACTIONS

City of Sullivan City - Previous Action #14	
Proposed Action:	Incorporating current inundation data and in cooperation with floodplain administration, review and revise dam/levee failure response plans for the city.
BACKGROUND INFORMATION	
Goal:	Reduce jurisdiction vulnerability to flooding by evaluating the structure of dams and levees.
Objective:	Review and update dam/levee failure response plans for Sullivan City.

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure
Department or Agency Responsible:	Sullivan City Emergency Management Department
Timeline:	2 years
Estimated Cost:	\$3,000
Estimated Benefit:	\$12,000
Funding Sources:	Jurisdiction Budget, Grants

2021 ANALYSIS
Defer to 2021 Plan.

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SUMMARY

As discussed in Section 2, at the mitigation workshop the planning team and stakeholders met to develop mitigation actions for each of the natural hazards included in the Plan Update. Each of the actions in this section were prioritized based on FEMA's Social, Technical, Administrative, Political, Legal, Economic, and Environmental (STAPLEE) criteria necessary for the implementation of each action.

As part of the economic evaluation of the STAPLEE analysis, jurisdictions analyzed each action in terms of the overall costs, measuring whether the potential benefit to be gained from the action outweighed costs associated with it. As a result of this exercise, priority was assigned to each

SECTION 21: MITIGATION ACTIONS

mitigation action by marking them as High (H), Moderate (M), or Low (L). An action that is ranked as “High” indicates that the action will be implemented as soon as funding is received. A “Moderate” action is one that may not be implemented right away depending on the cost and number of citizens served by the action. Actions ranked as “Low” indicate that they will not be implemented without first seeking grant funding and after “High” and “Moderate” actions have been completed.

All mitigation actions created by Planning Team members are presented in this section in the form of Mitigation Action Worksheets. More than one hazard is sometimes listed for an action, if appropriate. Actions presented in this section represent a comprehensive range of mitigation actions per current State and FEMA Guidelines, including two actions, per hazard, and of two different types for each participating jurisdiction. The term county-wide action refers to Hidalgo County and all participating jurisdictions.

SECTION 21: MITIGATION ACTIONS

Table 21-1. Hidalgo County Mitigation Action Matrix

TYPE OF ACTION	
Action #1 – Plans/Regulations (Blue)	Action #4 – Structural (Orange)
Action #2 – Education/Awareness (Red)	Action #5 – Preparedness/Response (Black)
Action #3 – Natural Systems Protections (Green)	

Jurisdiction	Flood	Hurricane Wind	Extreme Heat	Thunderstorm Wind	Lightning	Drought	Tornado	Hail	Winter Storm	Wildfire	Dam and Levee Failure	Expansive Soils
Hidalgo County	XXXXX	XXXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXXX	XXX
City of Alamo	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	N/A	XXX
City of Alton	XXX	XX	XX	XX	XX	XXX	XX	XX	XX	XXX	N/A	XXX
City of Donna	XXX	XXX	XX	XXX	XX	XX	XXX	XX	XX	XX	N/A	
City of Edcouch	XXXX	XXXX	XXX	XXXX	XXX	XX	XXX	XXX	XXXX	XXX	N/A	XXX
City of Edinburg	XXX	XXX	XXX	XXX	XXX	XX	XXX	XXX	XXX	XXX	XXX	XXX
City of Elsa	XXX	XX	XX	XX	XX	XX	XX	XX	XX	XX	N/A	XX
City of Granjeno	XXX	XX	XX	XX	XX	XX	XX	XX	XX	XXX	N/A	XX
City of Hidalgo	XXX	XXX	XX	XXX	XX	XX	XXX	XXX	XXX	XXX	N/A	XXX
City of La Joya	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	N/A	XX
City of La Villa	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	N/A	XXX
City of McAllen	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX		XXXX	XXXX	XXXX	N/A	XXXX
City of Mercedes	XXXX	XXXX	XXX	XXXX	XXX	XXX	XXX	XXX	XXXX	XXX	N/A	XXX
City of Mission	XXX	XXX	XXX	XXX	XXX	XX	XXX	XXX	XXX	XXX	N/A	XXX
City of Palmhurst	XXXX	XXX	XXXX	XXX	XXX	XXXX	XXX	XXX	XXX	XXX	N/A	XX
City of Palmview	XXX	XXX	XXX	XXX	XX	XXX	XXX	XXX	XXX	XXX	N/A	XXX
City of Peñitas	XXX	XX	XX	XX	XX	XX	XX	XX	XX	XX	N/A	XX
City of Pharr	XXXX	XXX	XXX	XXX	XXX	XX	XXX	XXX	XXX	XXX	N/A	XX
City of Progreso	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	N/A	XX
City of San Juan	XXXX	XXX	XX	XXX	XX	XX	XX	XXX	XXX	XX	N/A	
City of Sullivan City	XXX	XXX	XXX	XXX	XX	XX	XXX	XXX	XXX	XXX	N/A	XXX
Santa Cruz Irrigation District #15	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX

SECTION 21: MITIGATION ACTIONS

HIDALGO COUNTY – COUNTY-WIDE ACTIONS

Hidalgo County-wide – Action # 1	
Proposed Action:	Implement education and awareness program utilizing media, social media, bulletins, flyers, etc. To educate citizens of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages.
BACKGROUND INFORMATION	
Site and Location:	County-wide, including all participating jurisdictions
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damages.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure (applicable jurisdictions), Drought, Extreme Heat, Expansive Soils, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Materials, Mass Migration
Community Lifeline:	Safety and Security, Health and Medical
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	County and Local Emergency Managers
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County-wide – Action # 2	
Proposed Action:	Acquire and install generators with hard wired quick connections at all critical facilities.
BACKGROUND INFORMATION	
Site and Location:	County-wide, including all participating jurisdictions
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure (applicable jurisdictions), Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Energy (Power & Fuel)
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,000,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	County Public Works, City Engineer, City Administrator
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County-wide – Action # 3	
Proposed Action:	Upgrade critical facilities to include drought mitigation measures and expansive soils protection such as greywater reuse systems, drought tolerant landscaping, installation of a sprinkler system with regular watering schedule and installation of French drains where high plasticity soils are indicated.
BACKGROUND INFORMATION	
Site and Location:	County-wide, including all participating jurisdictions critical facilities
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages at critical facilities.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Expansive Soils
Community Lifeline:	Safety and Security, Health and Medical, Energy (Power & Fuel), Communications
Effect on New/Existing Buildings:	Reduce risk to existing and future structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$100,000/Per Facility
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	County Public Works, City Engineer, City Administrator
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Capital Improvement Plan (When applicable)

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County-wide – Action # 4	
Proposed Action:	Harden/retrofit critical facilities to hazard-resistant levels.
BACKGROUND INFORMATION	
Site and Location:	County-wide, including all participating jurisdictions critical facilities
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages at critical facilities; Ensure continuity of critical services during and after event; Reduce risk of injury to emergency and critical personnel.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure (where applicable), Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Communications, Health and Medical, Safety and Security, Energy (Power & Fuel)
Effect on New/Existing Buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	County Public Works, City Engineer, City Administrator
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan; Capital Improvement Plan (when applicable)

COMMENTS:

SECTION 21: MITIGATION ACTIONS

HIDALGO COUNTY

Hidalgo County – Action #1	
Proposed Action:	Emergency Preparedness School – Educational Program
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damages.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Extreme Heat, Expansive Soils, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security, Health and Medical
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,250 (per class)
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Emergency Management
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
The Hidalgo County Judge's Office partners with Texas A&M AgriLife Extension and other entities for this community education project. Includes a discussion and demonstration for preparing citizens and/or families in sustaining themselves at least 72 hours after any disaster. Goody bag included with emergency prep items.

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #2	
Proposed Action:	Implementation of community outreach programs within Hidalgo County promoting education and awareness on preparing and mitigating hazards impacting our County through social media, PSA's and educational handouts/materials.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Promote hazard awareness and protect citizens from potential injuries and damages.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material, Mass Migration
Community Lifeline:	Communications, Health and Medical, Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$50,000
Potential Funding Sources:	County Budget, CSBG Grants
Lead Agency/Department Responsible:	Community Service Agency
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
The CSA is currently providing support to local jurisdictions in preparing vulnerable communities for possible hazards identified to Hidalgo County. As community assistance is being provided the increase in education is proven to increase the chances of life safety and property preservation.

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #3	
Proposed Action:	Acquire and distribute NOAA weather radios to clients requesting utility assistance in order to prepare/mitigate possible severe weather.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk to citizens through improved communications and early warning.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material, Mass Migration
Community Lifeline:	Communications, Health and Medical, Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$50,000
Potential Funding Sources:	County Budget, CSBG Grants
Lead Agency/Department Responsible:	Community Service Agency
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
The CSA is currently providing support to local jurisdictions in preparing vulnerable communities for possible hazards identified to Hidalgo County. Clients applying for utility assistance typical pertain to an identified vulnerability, providing a NOAA radio will aide in preparing for potential life threatening weather.

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #4	
Proposed Action:	Undertake an initiative to increase the number of flood insurance policies.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk and build resiliency. Increase flood risk awareness. Reduce damage impact on residents after a flood event. Reduce the burden on State and Federal resources.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$300,000
Potential Funding Sources:	CSBG Grants
Lead Agency/Department Responsible:	Community Service Agency
Implementation Schedule:	Within 12-24 months of plan adoption, or upon available funding
Incorporation into Existing Plans:	Floodplain Management Plan

COMMENTS:
In providing a one time NFIP, a higher number of residents can become more resilient to damages caused by flooding.

SECTION 21: MITIGATION ACTIONS

Hidalgo County – Action #5	
Proposed Action:	Implement a community education program in coordination with local Fire Marshal and Fire Departments providing smoke detectors, fire extinguishers and carbon monoxide detectors for residents of vulnerable communities.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Promote hazard awareness and protect citizens from potential injuries and damages.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Community Lifeline:	Communications, Health and Medical, Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$100,000
Potential Funding Sources:	CSBG Grants
Lead Agency/Department Responsible:	Community Service Agency
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County – Action #6	
Proposed Action:	Emergency Preparedness Guide- The Hidalgo County Judge as Director of Emergency Management will create, publish and disseminate Emergency Preparedness Guide(s). A mail out to alert and prepare citizens and/or families to mitigate hazards. Guide(s) will be published in English and Spanish.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Immeasurable cost This community education project educates citizens about hazards and preparation thereof with the general purpose being to avoid the loss of life.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material, Mass Migration
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$150,000 to cover Hidalgo County residents
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Judge's Office
Implementation Schedule:	Within 3-6 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County – Action #7	
Proposed Action:	The Hidalgo County Judge as Director of Emergency Management will create and host a demonstration and discussion of an emergency preparedness kit. Promotional items which are useful during an emergency will be provided, demonstrated and discussed.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Measurable cost benefit The community education project educates citizens about hazards with the general purpose being to avoid the loss of life.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material, Mass Migration
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,250 per class
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Judge's Office
Implementation Schedule:	Within 3-6 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County – Action #8	
Proposed Action:	The Hidalgo County Judge as Director of Emergency Management will create, publish and disseminate a Community Cookbook designed to aid Hidalgo County residents in the mitigation, preparation, response and recovery from any potential hazard or disaster.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Measureable Cost Benefit This community education project educates citizens about hazards and preparation thereof with the general purpose of preparation and response to include sustainability for the recommended 72 hours to avoid the loss of life.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material, Mass Migration
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$200,000 to cover Hidalgo County residents
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Judge's Office
Implementation Schedule:	Within 3-6 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County – Action #9	
Proposed Action:	Adulticide chemicals for ULV Foggers. • 3 totes = Malathion • 3 totes = BioMist 4+4
BACKGROUND INFORMATION	
Site and Location:	To provide services to the 1,645 square miles of Unincorporated areas of Hidalgo County
Risk Reduction Benefit (Current Cost/Losses Avoided):	Lower incidence of vector infectious diseases (Dengue, Zika, West Nile Virus, etc.) and to mitigate the nuisance mosquito population
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Health and Medical
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$50,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Health Department
Implementation Schedule:	Within 6-12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County – Action #10	
Proposed Action:	Larviciding Chemical to treat flooded areas BTI Briquetes
BACKGROUND INFORMATION	
Site and Location:	To provide services to the 1645 square miles of Unincorporated areas of Hidalgo County
Risk Reduction Benefit (Current Cost/Losses Avoided):	Lower incidence of vector infectious diseases (Dengue, Zika, West Nile Virus, etc.) and to mitigate the nuisance mosquito population
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Health and Medical
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$150,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Health Department
Implementation Schedule:	Within 6-12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County – Action #11	
Proposed Action:	ULV Backpack Foggers Chemical needed: Malathion
BACKGROUND INFORMATION	
Site and Location:	To provide services to the 1645 square miles of Unincorporated areas of Hidalgo County
Risk Reduction Benefit (Current Cost/Losses Avoided):	Lower incidence of vector infectious diseases (Dengue, Zika, West Nile Virus, etc.) and to mitigate the nuisance mosquito population
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Health and Medical
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$25,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Health Department
Implementation Schedule:	Within 6-12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County – Action #12	
Proposed Action:	ULV Vehicle (truck or trailer) Mounted Foggers
BACKGROUND INFORMATION	
Site and Location:	To provide services to the 1645 square miles of Unincorporated areas of Hidalgo County
Risk Reduction Benefit (Current Cost/Losses Avoided):	Lower incidence of vector infectious diseases (Dengue, Zika, West Nile Virus, etc.) and to mitigate the nuisance mosquito population
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Health and Medical
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$50,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Health Department
Implementation Schedule:	Within 6-12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County – Action #13	
Proposed Action:	Pick-up truck vehicles to mount foggers on
BACKGROUND INFORMATION	
Site and Location:	To provide services to the 1645 square miles of Unincorporated areas of Hidalgo County
Risk Reduction Benefit (Current Cost/Losses Avoided):	Lower incidence of vector infectious diseases (Dengue, Zika, West Nile Virus, etc.) and to mitigate the nuisance mosquito population
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Health and Medical
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$500,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Health Department
Implementation Schedule:	Within 6-12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #14	
Proposed Action:	Mercedes Lateral Drainage Area Project: Channel and culvert improvements to the urbanized area with a new storm drainage system with associated detention ponds for two residential areas along Mile 11 North. It will include four new regional detentions ponds to relieve area from flooding.
BACKGROUND INFORMATION	
Site and Location:	Mercedes Lateral Drainage Area
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$46,966,243.13
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #15	
Proposed Action:	Mile 9 North & FM 1015 Drainage Area Project: Channel and culvert improvements to the drainage ditch network for the area, including the extension of an existing drainage ditch with new storm drainage system and associated detention ponds.
BACKGROUND INFORMATION	
Site and Location:	Mile 9 North & FM 1015 Drainage Area
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$14,070,120
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #16	
Proposed Action:	Elsa-Edcouch-La Villa Drain, Drainage Area Project: Improving an existing drain ditch by re-aligning it, adding new laterals, widening to add capacity, and upgrading all the road crossings necessary to alleviate drainage in the area. A new structure will be installed at IBWC Levee to consistently convey the flows to the floodway.
BACKGROUND INFORMATION	
Site and Location:	Elsa-Edcouch- La Villa Drain Drainage Area
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$33,099,440
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #17	
Proposed Action:	South Alamo Drain, Drainage Area Project: Alamo Expressway Drain collects runoff from a large urbanized area and will be improved to maximize capacity and help alleviate flooding. Improvements consist of widening the existing ditch, improved roadway culverts and extend ditch to reach new area.
BACKGROUND INFORMATION	
Site and Location:	South Alamo Drain, Drainage Area
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$10,370,238
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #18	
Proposed Action:	Mid Valley Airport, Drainage Area Project: Channel and culvert improvements to the drainage ditch network for the area. A new storm drainage system and detention ponds from Joe Stephens Avenue and the neighborhood east of the airport will relieve area flooding.
BACKGROUND INFORMATION	
Site and Location:	Mid Valley Airport
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$9,345,323.30
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #19	
Proposed Action:	TX 88 & Sugarcane Drive, Drainage Area Project: Channel and culvert improvements, provide storm sewer system to areas' adjacent properties to have proper outfall. New detention facilities will be constructed to alleviate drainage issues on the adjacent subdivisions.
BACKGROUND INFORMATION	
Site and Location:	TX 88 & Sugarcane Drive Drainage Area
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$2,982,548.25
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #20	
Proposed Action:	Mile 11 North & Mile 6 West, Drainage Area Project: Channel and culvert improvements for existing ditches, provide local drainage improvements to outfall with flap gates to detention ponds.
BACKGROUND INFORMATION	
Site and Location:	Mile 11 North & Mile 6 West Drainage Area
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$4,474,008
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #21	
Proposed Action:	Mile 10 North & Baseline Road, Drainage Area Project: Channel and culvert improvements to the major drainage ditch south of the urbanized area. New storm drainage system and a detention pond to relieve from area flooding.
BACKGROUND INFORMATION	
Site and Location:	Mile 10 North & Baseline Road Drainage Area
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$2,574,667.76
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #22	
Proposed Action:	Clark Road & Mile 1 West, Drainage Area Project: Improving existing Ditch 19 and 23 with local drainage improvements and construction of a detention pond. A sump pump will be installed to bypass ditch to tie-in with channel improvements to Ditch 23. Improvements at the IBWC Levee will consist of a pump station to prevent water from backing upstream.
BACKGROUND INFORMATION	
Site and Location:	Clark Road & Mile 1 West Drainage Area
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$14,272,958.70
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #23	
Proposed Action:	FM 491 & Mile 3, Drainage Area Project: Local drainage improvements for neighborhoods Northwest of Mile 3 North and FM 491 consisting of inlets, pipes, and culverts to provide local drainage to outfall to drainage Ditch 49.
BACKGROUND INFORMATION	
Site and Location:	FM 491 & Mile 3 Drainage Area
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$524,205
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #24	
Proposed Action:	Malone Drive & Pomelo Road, Drainage Area Project: New storm drainage system for the neighborhood northeast of Malone Drive and Pomelo Road.
BACKGROUND INFORMATION	
Site and Location:	Malone Drive & Pomelo Road Drainage Area
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$804,127.50
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #25	
Proposed Action:	International Blvd & Mile 5 Road, Drainage Area Project: Channel improvements of Ditch H21 & 34, roadway culvert improvements near 22ns St. and Cameron Dr., lateral detention pond along Ditch 34, bypass channel and a stormwater pump station consists of 2 axial flow pumps capable of handling 130,000 GPM total. It will include pump controls, intake structure with screen, discharge pipes through levee with flap gates to prevent backwater flow and backup generator.
BACKGROUND INFORMATION	
Site and Location:	International Blvd & Mile 5 Road Drainage Area
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$12,258,626
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #26	
Proposed Action:	Southwest Weslaco, Drainage Area Project: Channel and culvert improvements to the drainage district ditch network for the area with new regional storm drainage detention ponds and sump detention pumping stations at the Floodway.
BACKGROUND INFORMATION	
Site and Location:	Southwest Weslaco Drainage Area
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$16,391,084
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #27	
Proposed Action:	FM 439 & Country Road, Drainage Area Project: New storm drainage system for River Road subdivision, La Penata subdivision, and Tierra Belta subdivision located between South River Rd. and surrounding the Chaparral Drain.
BACKGROUND INFORMATION	
Site and Location:	FM 439 & County Road Drainage Area
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,717,402.50
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #28	
Proposed Action:	FM 1423 & Main Grove, Drainage Area Project: Local improvements in the neighborhood south of US-Business 83 and Val Verde Rd. to outfall to Donna ditch.
BACKGROUND INFORMATION	
Site and Location:	FM 1423 & Main Grove Drainage Area
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$936,292,.50
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #29	
Proposed Action:	Old La Blanca & Mile 10 North, Drainage Area Project: New storm drainage system along De Los Rios Ave. and Encino Dr. to outfall into an existing drainage ditch.
BACKGROUND INFORMATION	
Site and Location:	Old La Blanca & Mile 10 North Drainage Area
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$645,975
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #30	
Proposed Action:	Dillon Road & Roosevelt Road, Drainage Area Project: Provide local drainage improvements North of E. Roosevelt Rd. to outfall to Donna North Lateral to the East.
BACKGROUND INFORMATION	
Site and Location:	Dillion Road & Roosevelt Road Drainage Area
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$2,039,647.50
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #31	
Proposed Action:	Canton Drive & Dillon Road, Drainage Area Project: Provide local drainage improvements West of La Blanca Rd. and Mile 14 ½ N to outfall to Donna North Lateral.
BACKGROUND INFORMATION	
Site and Location:	Canton Drive & Dillon Road Drainage Area
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$3,996,877.50
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #32	
Proposed Action:	FM 1925 & Mile 4, Drainage Area Project: Local drainage improvements and construction of a retention pond along Bernal Court
BACKGROUND INFORMATION	
Site and Location:	FM 1925 & Mile 4 Drainage Area Project
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,357,735.50
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #33	
Proposed Action:	Pumps and Sumps: Installation of pumps and sumps at various locations
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$38,034,314.51
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #34	
Proposed Action:	Lott Road & Soderquist Road, Drainage Area Project: Local improvements East of FM 493 and Lott Rd to outfall to South Donna Drain
BACKGROUND INFORMATION	
Site and Location:	Lott Road & Soderquist Road Drainage Area
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,519,155
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #35	
Proposed Action:	Mile 2 East & Expressway 83, Drainage Area Project: Local improvements along Mile 2 and Interstate 2 to outfall to ditch 23E just East of Ditch 23F.
BACKGROUND INFORMATION	
Site and Location:	Mile 2 East & Expressway 83 Drainage Area
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,719,630
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #36	
Proposed Action:	Anaquitas Drain, Drainage Area Project: Channel, culvert, and IBWC structure improvements to the Anaquitas Drain.
BACKGROUND INFORMATION	
Site and Location:	Anaquitas Drain Drainage Area
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$10,147,524.75
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #37	
Proposed Action:	East Mercedes, Drainage Area Project: Channel, culvert, and IBWC structure improvements to the existing Ditch 23 drainage system.
BACKGROUND INFORMATION	
Site and Location:	East Mercedes Drainage Area
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$12,548,250
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #38	
Proposed Action:	Hwy 281 & FM 88, Drainage Area Project: A proposed storm water pump station located near Rachitos de Progreso subdivision
BACKGROUND INFORMATION	
Site and Location:	HWY 281 & FM 88 Drainage Area
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$2,079,000
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #39	
Proposed Action:	Alamo Expressway Drain, Drainage Area Project: Channel and culvert improvements to the existing Alamo Expressway Drain system from US Interstate 2 to US Highway 83
BACKGROUND INFORMATION	
Site and Location:	Alamo Expressway Drain Drainage Area
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,005,855
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #40	
Proposed Action:	Weslaco Drain, Drainage Area Project: Channel, culvert and IBWC structure improvements to the existing Weslaco Drain system.
BACKGROUND INFORMATION	
Site and Location:	Weslaco Drain Drainage Area
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$4,437,855
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #41	
Proposed Action:	North Weslaco Drain, Drainage Area Project: Channel and culvert improvements from the Midway pond to connect to the Weslaco North Lateral.
BACKGROUND INFORMATION	
Site and Location:	North Weslaco Drain Drainage Area
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$11,500
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #42	
Proposed Action:	Delta Regional Reservoir, Drainage Area Project: A regional mitigation project that consist of 199 acres for detention that will provide increase flood control for northern most area of Hidalgo County.
BACKGROUND INFORMATION	
Site and Location:	Delta Regional Reservoir Drainage Area
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce impacts to floodplain and provide additional potential for water sources.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Natural Systems Protection

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$10,000,000
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #43	
Proposed Action:	Mile 10 North & Mile 1 West, Drainage Area Project: Channel and culvert improvements to the major drainage ditch south of the urbanized area. New storm drainage system with associated retention ponds for two residential areas along Mile 11 North.
BACKGROUND INFORMATION	
Site and Location:	Mile 10 North & Mile 1 West Drainage Area
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$4,482,168
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #44	
Proposed Action:	Mile 11 North & FM 1015, Drainage Area Project: Channel and culvert improvements to the drainage ditch network for the existing Mercedes Lateral. Four new regional detention ponds to relieve area from flooding.
BACKGROUND INFORMATION	
Site and Location:	Mile 11 & FM 1015 Drainage Area
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$14,722,192
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #45	
Proposed Action:	Mile 11 North & Texas Boulevard, Drainage Area Project: Channel and culvert improvements to the drainage ditch network for the area. New storm drainage system along Beto Garcia, Tahiti, and Samoa Dr. and four detention ponds to relieve area flooding.
BACKGROUND INFORMATION	
Site and Location:	Mile 11 North & Texas BLVD. Drainage Area
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$10,628,888
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #46	
Proposed Action:	Ditch 3 South of La Villa/Edcouch, Drainage Area Project: A proposed IBWC structure and detention consisting of 9 acres. The ditch will be regarded and widened. Project is from Mile 4 East to IBWC structure.
BACKGROUND INFORMATION	
Site and Location:	Ditch 3 South of La Villa/Edcouch Drainage Area
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce impact to floodplain and provide additional water source. Reduce risk of damages and injuries.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$7,882,786
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #47	
Proposed Action:	Implement education and awareness program utilizing media, social media, bulletins, flyers, etc. to educate citizens of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Promote hazard awareness and protect citizens from potential injuries and damages.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material, Mass Migration
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Precinct #1
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #48	
Proposed Action:	Implement and enhance an area-wide telephone Emergency Notification System (“Reverse 911”).
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Promote hazard awareness and protect citizens from potential injuries and damages.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Flood, Hurricane Wind, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Communications, Health and Medical, Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$10,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Precinct #1
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Response Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #49	
Proposed Action:	Adopt and implement a routine tree trimming program that clears tree limbs near power lines and/or hanging in right-of-way; Remove dead trees from right-of way and drainage systems on a scheduled basis.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce damages to infrastructure. Ensure continuing of services during and after event. Reduce damages associated with power outages; Reduce risk of injuries or fatalities to vulnerable populations.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire
Community Lifeline:	Safety and Security, Energy (Power & Fuel)
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$100,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Precinct #1
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Maintenance Plan, Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #50	
Proposed Action:	Evaluate access and road conditions for response vehicles. Develop and implement options to improve access and/or add redundant access routes in high-risk areas
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk and spread of wildfires through and maintained/redundant access routes in high risk areas. Improve response time for emergency services. Reduce risk of injury or damages. Provide additional ingress/egress routes through high risk area to prevent loss of life and avoid rescue efforts.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Wildfire
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$500,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Precinct #1
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	Capital Improvement Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #51	
Proposed Action:	Adopt and implement a program for clearing debris from bridges, drains, and culverts.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce damages caused by flooding by maintain or restoring drainage capacity.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$50,000 (annually)
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Precinct #1
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #52	
Proposed Action:	Undertake a Hydrologic and Hydraulic study, comprehensive study of flood risk and reduction alternatives. Implement feasible alternatives for flood reduction.
BACKGROUND INFORMATION	
Site and Location:	Hidalgo County Precinct 2 outside of incorporated city limits
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Improve risk assessment; Reduce risk of damages or injuries through drainage improvements; Reduce risk of damages and injuries.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$500,000
Potential Funding Sources:	General Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Precinct# 2
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Master Rural Drainage Plan

COMMENTS:
Study will identify existing drainage conditions, drainage mitigation options and infrastructure costs/needs.

SECTION 21: MITIGATION ACTIONS

Hidalgo County – Action #53	
Proposed Action:	Undertake a comprehensive study of flood risk and reduction alternatives, with the assistance of the Drainage District 1. Implement feasible alternatives for flood reduction.
BACKGROUND INFORMATION	
Site and Location:	Harvest Times St., Wolf Creek Ave., Troser Rd., Abram Acres 7 ½ Western Rd., Paris St., 5 ½ Mile North Bentsen Palm Dr., Acosta Subdivision 7 ½ Glasscock Rd., 4 Mile at Minnesota Rd., 3 ¾ Shuerback Rd., 4 ¼ N Dofing Rd., Palmleaf 3 ½ N Bentsen Rd., Mayberry 7 ½, Buena Vida St & Mi Sueno St.
Risk Reduction Benefit (Current Cost/Losses Avoided):	Improve risk assessment. Reduce risk of damages and injuries.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$2,000,000 per site locations
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Precinct #3
Implementation Schedule:	Within 12-24 months of plan adoption or upon available funding
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County – Action #54	
Proposed Action:	Undertake a comprehensive study of flood risk and reduction alternatives, with the assistance of the Drainage District 1. Implement feasible alternatives for flood reduction.
BACKGROUND INFORMATION	
Site and Location:	Enchanted Valley Ranch, Pleasant Valley Ranch, Dream Valley, Sleepy Valley, Hidden Valley Ranch, Leisure Valley Ranch
Risk Reduction Benefit (Current Cost/Losses Avoided):	Improve risk assessment. Reduce risk of damages and injuries. Avoid backflow from septic tanks. Reduce risk of mosquito-borne diseases.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$2,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Precinct #3
Implementation Schedule:	Within 24-36 months of plan adoption or upon available funding
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County – Action #55	
Proposed Action:	Adopt and implement a program for clearing debris from bridges, drains and culverts.
BACKGROUND INFORMATION	
Site and Location:	Basham 8 Lanford St., 8 ½ Abram, Basham 27 at 3 ½ Bentsen Palm Dr., Amber St Mile 7 ¼ N Minnesota Rd., 9 Mile at 681 FM Rd., Palmerina Mile 2 Alexia Rd., Texan 9 to 10 Mile Line
Risk Reduction Benefit (Current Cost/Losses Avoided):	Improve risk assessment. Reduce risk of damages and injuries. Avoid backflow from septic tanks. Reduce risk of mosquito-borne diseases.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$50,000 (annually) per site location
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Precinct #3
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County – Action #56	
Proposed Action:	Increase drainage capacity; add stormwater detention and/or retention basins as deemed necessary to reduce flood risk.
BACKGROUND INFORMATION	
Site and Location:	Villa de las Flores Mile 7 West of Conway
Risk Reduction Benefit (Current Cost/Losses Avoided):	Improve risk assessment. Reduce risk of damages and injuries. Avoid backflow from septic tanks. Reduce risk of mosquito-borne diseases.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$2,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Precinct #3
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County – Action #57	
Proposed Action:	Implement educational and awareness programs utilizing social media, TV, news media, newspaper, website, bulletins/ magazine/ print media, flyers, promotional materials and items, presentations, etc.... to educate the residents of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities and property damages.
BACKGROUND INFORMATION	
Site and Location:	Hidalgo County Precinct 4 Field Operations Office, 1501 N Doolittle Rd, Edinburg TX
Risk Reduction Benefit (Current Cost/Losses Avoided):	Promote hazard awareness and protect citizens from potential injuries and damages.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness
MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material, Mass Migration
Community Lifeline:	Communications, Health and Medical, Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$100,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Precinct #4
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	N/A
COMMENTS:	

SECTION 21: MITIGATION ACTIONS

Hidalgo County – Action #58	
Proposed Action:	Equipment is necessary to support the Precinct efforts to mitigate further destruction of property post-disaster event. • Vector control trucks and all necessary equipment x 3 • Air curtain incinerators x 2 • Tub Shredder • Heavy Equipment necessary for operation of Tub Shredder • Pothole Heavy Equipment x 3 • Grapple trucks for Road and Bridge disaster recovery x 3 • Water Extraction Pumps of Various Sizes and all necessary equipment x 4 • Night lights for pumps x 4 • Enclosed Trailers for Disaster Recovery Equipment x 3
BACKGROUND INFORMATION	
Site and Location:	Hidalgo County Precinct 4 Field Operations Office 1501 N Doolittle Rd., Edinburg TX
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduces risk of damage and injury. Allows for the precinct to support needs of the community post-disaster events. Preparedness.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Hurricane Wind, Hail, Thunderstorm Wind, Tornado, Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,200,000
Potential Funding Sources:	Grants, County Operations and Budget, CIP/CO, Local donations
Lead Agency/Department Responsible:	Hidalgo County Precinct #4
Implementation Schedule:	Within 12-36 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County – Action #59	
Proposed Action:	Expand the Hidalgo County Drainage System to include the South Main Drain, West Main Drain, McAllen-Mission Lateral and North Main Drain to support Hidalgo County's Master Drainage System. The construction of the project will provide immediate and cost-effective floodwater mitigation to McAllen, Edinburg, and Mission, western part of the county and unincorporated areas of Pct 4. The project will expand the Drains within the Master Drainage System , which serves as the primary outfall to local drainage systems in Mission, McAllen, Western part of the county and Edinburg.
BACKGROUND INFORMATION	
Site and Location:	McAllen, Mission and Edinburg areas along and connecting into the County's Master Drainage Systems
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$15,000,000
Potential Funding Sources:	Grants, county operations/budget, Bond and CO monies, other.
Lead Agency/Department Responsible:	Hidalgo County Precincts #1 and #4
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
This drainage expansion is important to help increase our drainage capacity, which will ultimately remove water from homes and businesses. The South Main Drain was originally designed and constructed in the 1980s, largely for an agricultural population. The rapid urbanization of Hidalgo County has made it necessary to enhance the county's regional drainage systems.

SECTION 21: MITIGATION ACTIONS

Hidalgo County – Action #60	
Proposed Action:	Develop, Increase and/or expand drainage capacity to low-lying areas/ frequent flood-prone areas; add stormwater detention and/or retention basins as deemed necessary to reduce flood risk. This may include the acquisition of new properties/land and/or current county owned property.
BACKGROUND INFORMATION	
Site and Location:	Several areas in within Precinct 4.
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$10,000,000
Potential Funding Sources:	Grants, county operations/budget, Bond and CO monies, other.
Lead Agency/Department Responsible:	Hidalgo County Precinct 44
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
A recent drainage study in 2021 concludes the following areas identified for drainage improvements: Mile 6 & North Ware Rd; FM 28212 and FM 493; S McColl Rd & Canton Rd.; HWY 107 & Val Verde Rd; Texas Rd & Cesar Chavez Rd.; Hoehn Rd & Mile 11 Rd; Mile 8 ½ Rd & Ware Rd. Additional need to purchase/acquire Edinburg Lake as a retention pond.

SECTION 21: MITIGATION ACTIONS

Hidalgo County – Action #61	
Proposed Action:	Implement a routine schedule to maintain, clean, clear and trim drainage systems and culverts; clear right-of-way of debris and brush.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduces damages caused by flooding by maintain and restoring drainage capacity.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Hurricane Wind, Flood, Lightning, Extreme Heat, Hail, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$15,000
Potential Funding Sources:	County Operations and Budget, Bond and CO Funds, State and Federal Grants, local donations
Lead Agency/Department Responsible:	Hidalgo County Precinct 4
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #62	
Proposed Action:	Purchase a mobile communications unit.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Preparedness
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Preparedness
MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material
Community Lifeline:	Communications
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$50,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Office of Emergency Management
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan
COMMENTS:	
*Deferred action from previous plan.	

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #63	
Proposed Action:	Incorporate assessments of hazards, requiring site selection and design for new buildings to be sited on low risk parcels.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of damage to public structure by locating building outside of known hazard areas. Ensure continuing of public services following a significant event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Flood, Hurricane Wind, Wildfire
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$25,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Purchasing Department, Planning Department, Fire Marshal Office, Emergency Management Office
Implementation Schedule:	Within 12-36 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #64	
Proposed Action:	Assess the vulnerability of critical county infrastructure, including roads, bridges, pipelines, water treatment plants, and other important facilities.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Improve assessment to vulnerable areas. Reduce risk of damages or injuries through necessary improvements.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$100,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County and Precincts #1, #2, #3, and #4.
Implementation Schedule:	Within 12-36 months of plan adoption
Incorporation into Existing Plans:	Maintenance Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #65	
Proposed Action:	Develop and expand in-house County expertise to conduct loss analysis and risk assessment using HAZUS Software program and GIS analysis.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Improve risk assessment. Reduce risk of damages or injuries through necessary improvements.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material
Community Lifeline:	Communications, Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$10,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Office of Emergency Management
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #66	
Proposed Action:	Enhance the appropriate websites to provide convenient access to most current hazard maps.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Promote hazard awareness and protect citizens from potential injuries and damages.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material
Community Lifeline:	Communications, Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$50,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Office of Emergency Management
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #67	
Proposed Action:	Acquisition of GIS Based Permitting Software.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Improve risk assessment.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material
Community Lifeline:	Communications, Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$125,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Planning Department
Implementation Schedule:	Within 2-4 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #68	
Proposed Action:	Acquisition of Computer Hardware for Permitting Software.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Preparedness
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material
Community Lifeline:	Communications, Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$36,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Planning Department
Implementation Schedule:	Within 2-4 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #69	
Proposed Action:	Enlarge undersized drainage channels, culverts, ditches, storm sewers and other conduits, which cause localized flood hazards and damage. Additional storm sewer line from 5 TH Street to Flora. Widening drainage ditch from Military to Floodway. Raise floodway levels along Rio Grande.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$10,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County and Hidalgo County Drainage District
Implementation Schedule:	Within 12-36 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #70	
Proposed Action:	Elevate critical sections of Hidalgo County roads subject to flooding to allow additional time for access and egress during periods of flooding.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$10,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County and Precincts #1, #2, #3, and #4
Implementation Schedule:	Within 12-36 months of plan adoption
Incorporation into Existing Plans:	Transportation Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #71	
Proposed Action:	Develop drought plans and conservation programs. Develop a comprehensive planning approach to drought mitigation. Ensure plans and procedures addressing local drought response, drought mitigation, and long-term water planning are developed.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce water usage through planning and conservation
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought
Community Lifeline:	Communications, Health and Medical, Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$20,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Office of Emergency Management
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Water Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #72	
Proposed Action:	Work with local fire departments, state and federal agencies to identify areas in each community subject to wild fires and depict them on maps or include them on GIS layers.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of wildfires and the spread of wildfire through improved development practices; Improved Risk Assessment
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Community Lifeline:	Communications, Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$50,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Office of Emergency Management and Fire Marshal's Office
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	CWPP

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #73	
Proposed Action:	Enhance public awareness of wild fire mitigation and preparedness activities through internet campaign. Awareness classes and community outreach
BACKGROUND INFORMATION	
Site and Location:	Community outreach with Ranchers in Rural areas of Hidalgo County.
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of wildfires and the spread of wildfire through improved public education.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Community Lifeline:	Communications, Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$15,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Office of Emergency Management and Fire Marshal's Office
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	CWPP

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #74	
Proposed Action:	Enhance the operational capabilities and fire prevention programs of fire departments and fire districts.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of wildfires and the spread of wildfire through improved programs and training.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$50,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Office of Emergency Management, Hidalgo County Fire Departments and Fire Marshal's Office
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	CWPP

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #75	
Proposed Action:	Evaluate radio communication towers and supporting infrastructure located in areas at risk of wild land fire. Upon evaluation, enhance and implement mitigation measures to maintain operability.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of loss of critical communications.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Community Lifeline:	Communications
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$100,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Office of Emergency Management, Hidalgo County Fire Departments and Fire Marshal's Office
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	CWPP

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #76	
Proposed Action:	Incorporate higher standards for hazard resistance in local application of the building code and educate contractors, homeowners, and business owners about mitigation techniques.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of damages to structures through improved construction techniques; Reduce recovery efforts for the community after an event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations
MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Communications, Safety and Security
Effect on new/existing buildings:	Reduce risk to new structures
Priority (High, Moderate, Low):	High
Estimated Cost:	\$15,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Planning Department
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances
COMMENTS:	
*Deferred action from previous plan.	

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #77	
Proposed Action:	Research and incorporate subgrade stabilization methods on street projects such as street reclamation and repairs.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce damages to roadways through improved construction practices.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Expansive Soils
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$250,000
Potential Funding Sources:	Local, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County and Precincts #1, #2, #3, and #4
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Capital Improvement Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #78	
Proposed Action:	Develop an acquisition/buy-out program for those properties in flood hazard areas. Acquire and demolish repetitive loss properties. Acquire high risk vacant land and maintain as open space.
BACKGROUND INFORMATION	
Site and Location:	Repetitive loss properties within Hidalgo County.
Risk Reduction Benefit (Current Cost/Losses Avoided):	Eliminates risk of flood damage to high risk structures and prevent future losses in high risk flood hazard area. Reduce risk of injuries to citizens.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Natural Systems Protection Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Flood, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County and Precincts #1, #2, #3, and #4
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #79	
Proposed Action:	Identify flood-prone and repetitive loss properties through the Texas Water Development Board. Identify and implement actions to reduce or eliminate flooding at identified properties.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of damages or injuries through flood mitigation at high risk structure. Reduce the need for emergency response in high risk area. Reduce repetitive flood losses/claims. Reduce community recovery efforts and cost.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Flood, Hail, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Office of Emergency Management
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #80	
Proposed Action:	Educate the public regarding dam and levee mitigation actions the public can take to protect their lives and property, including the purchase of flood insurance, in the event of a dam or levee breach.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of damages or injury through education and awareness.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure
Community Lifeline:	Communications, Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$10,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Office of Emergency Management
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #81	
Proposed Action:	Ensure county facilities and equipment are adequately protected against lightning through the purchase of surge protection devices and protection through the use of lightning rods.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of power outages and ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Lightning
Community Lifeline:	Safety and Security, Energy (Power & Fuel)
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$25,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Office of Emergency Management
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #82	
Proposed Action:	Harden/retrofit critical facilities to hazard-resistant levels, which can include re-enforcing windows, roof construction, enforcing covered parking areas for critical vehicles, etc.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce damages at critical facilities. Ensure continuing of critical services during and after event. Reduce risk of injury to emergency and crucial personnel.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Extreme Heat, Flood, Hail, Hurricane Wind, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$2,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Facilities Management
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #83	
Proposed Action:	Improve drainage system capabilities. Enhance water drainage systems to provide the capacity for floodwaters. Improve drainage from residential areas in cities and colonias in Precinct #1.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$15,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Hidalgo County Precinct #1 and Hidalgo County Drainage District
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #84	
Proposed Action:	Access colonias to drain down falls through construction of additional drainage and/ or cleaning of existing drains. Enhance water drainage systems to provide the capacity for floodwaters. Improve drainage from residential areas in cities and colonias in Precinct #1.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,467,112
Potential Funding Sources:	Precinct Funds, GLO, CDBG
Lead Agency/Department Responsible:	Hidalgo County Precinct #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #85	
Proposed Action:	Purchase remaining necessary equipment needed to carryout mitigation and preparedness measure: Low Boy Trailer, 1 Wood Chipper, and 2 Engine Powered Light Tower.
BACKGROUND INFORMATION	
Site and Location:	County-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce of damages and injury. Ensure continuing of critical services during and after event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,200,000
Potential Funding Sources:	HMGP, PDM or FEMA
Lead Agency/Department Responsible:	Hidalgo County Precinct #4
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plans

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #86	
Proposed Action:	Hidalgo Drain: Upgrade existing culvert structures, cleaning, regarding, and widening of the existing ditch to increase linear detention and positive flow to the outfall at the Mission Inlet.
BACKGROUND INFORMATION	
Site and Location:	Drainage District within Hidalgo County Precinct #1
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$3,524,917.60
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #87	
Proposed Action:	Las Milpas & South Lateral: Project consists of a drainage system and culvert improvements that will include the widening of drain ditches leading up to the outfall pints at the South Lateral Drain, which will relieve the area of flooding. South Lateral will be widened to add capacity and expedite drain flow. The roadway crossing will be upgraded and new addition of detention facilities at the upstream end connecting to the Main Floodway will be added.
BACKGROUND INFORMATION	
Site and Location:	Las Milpas & South Lateral Drain
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$25,800,000
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #88	
Proposed Action:	P-SJ-A South Drain: The project consists of improving the existing drain ditch to allow for more capacity to include widening of the ditch upgrading the roadway culvert crossings and improve the outfall at the Pharr McAllen South Drain
BACKGROUND INFORMATION	
Site and Location:	P-SJ-A South Drain
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$2,571,860
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #89	
Proposed Action:	Mission/Palmview Lateral: The project consists of proposed widening, culvert crossing, and detention facilities to increase linear detention and functionality of existing Mission Lateral drainage ditch. The project has been divided into four phases.
BACKGROUND INFORMATION	
Site and Location:	Mission-Palmview Lateral
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$20,855,556.56
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #90	
Proposed Action:	Monte Cristo & Conway: The project consists of drainage improvements to alleviate flooding from the watershed that extends northwest of the intersection of Monte Cristo and Conway and affects the Air Moorefield Base and surrounding neighborhoods. The improvements include the cleaning of existing ditch and the realignment to connect to the existing J-09 drain and improved culvert crossings with an addition of detention facilities.
BACKGROUND INFORMATION	
Site and Location:	Monte Cristo & Conway
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$8,233,309.50
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #91	
Proposed Action:	West Main Drain: The project consists of extending the service area of the West Main Drain to each new communities to the North of Mile 6 Road and South Mile 4. The improvements will allow an outfall to connect and alleviate future flooding.
BACKGROUND INFORMATION	
Site and Location:	West Main Drain
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$6,856,909
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #92	
Proposed Action:	J-02 Monte Cristo: The project consists of the improving the existing drain ditch along Monte Cristo Road from Kenyon Road to the South Main Drain. The improvements will consist of widening the existing ditch to add capacity and alleviate flooding in the area. All the roadway culvert crossing will be improved and new field and roadway inlets will be installed.
BACKGROUND INFORMATION	
Site and Location:	Monte Cristo Road from Kenyon Road to the South Main Drain.
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$11,731,920
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #93	
Proposed Action:	J-08 Drain: The project consists of improving the existing J-08 Drain ditch. The improvements will include the extension of the ditch to Conway Road, constructing a new ditch and roadway crossings. The existing ditch will be widened and the roadway crossing will be improved to alleviate flooding issues in the area. The J-08 Drain outfalls at North Main Drain east of McColl Road.
BACKGROUND INFORMATION	
Site and Location:	J-08 Drain ditch
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$23,951,998
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #94	
Proposed Action:	J-08 Drain Phase III: The project consists of improving the existing J-08 Drain ditch by extending it to areas where repetitive flooding has occurred. The improvements include construction a new ditch with various roadway crossings which will help to alleviate flood issues in the area. The J-08 Drain outfalls at the North Main Drain east of McColl Road.
BACKGROUND INFORMATION	
Site and Location:	J-08 Drain ditch
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$10,201,490
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #95	
Proposed Action:	PD Lateral Phase II & III: Project consist of an extension of PD Lateral. Construction of the new ditch and roadway culvert crossings will allow communities within the area to have proper drainage outfall to alleviate flooding issues. Phase III will consist of new ditch lateral and roadway crossing connecting to the existing PD Lateral.
BACKGROUND INFORMATION	
Site and Location:	PD Lateral
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	Phase II \$17,452,223 Phase III \$3,906,148
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #96	
Proposed Action:	North Main Drain: Channel improvements to North Main drain from East of Interstate 69C to Brushline Rd. The improvements consist of channel widening and roadway culvert crossings.
BACKGROUND INFORMATION	
Site and Location:	North Main drain from East of Interstate 69C to Brushline Rd
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$10,147,615
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #97	
Proposed Action:	J-14 Drain: Project consists of the construction of a drain ditch from Brushline to Holmes Rd to outfall to J-01 ditch.
BACKGROUND INFORMATION	
Site and Location:	Brushline to Holmes Rd to outfall to J-01 ditch
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$4,665,749
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #98	
Proposed Action:	South Alamo Road & Rancho Blanco Road: Project consists of local drainage improvements to subdivision near intersection Alamo Rd. and Rancho Blanco to outfall into proposed detention facilities.
BACKGROUND INFORMATION	
Site and Location:	South Alamo Road & Rancho Blanco Road
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$4,860,999
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #99	
Proposed Action:	FM 1423 & Nolana Road: Local drainage improvements of neighborhood near N Val Verde Rd & Earling Rd to provide local drainage that can be discharged into proposed detention facilities.
BACKGROUND INFORMATION	
Site and Location:	FM 1423 & Nolana Road along with neighborhood near N Val Verde Rd & Earling Rd
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$2,927,726.51
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #100	
Proposed Action:	North Tower Road: Provide local drainage improvements to neighborhoods to outfall to LJ Ditch.
BACKGROUND INFORMATION	
Site and Location:	North Tower Rd
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,765,665
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #101	
Proposed Action:	Pharr McAllen South Drain: The project consists of new box culvert crossings at the Hidalgo County Irrigation District No. 2 irrigation canal and Ridge Road to increase capacity for the system.
BACKGROUND INFORMATION	
Site and Location:	Hidalgo County Irrigation District No. 2 irrigation canal and Ridge Road
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$891,250
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #102	
Proposed Action:	Sunflower Drain: Project consists of upgrading the existing culvert crossing underneath State Highway 107, upgrading the existing connection to South Main Drain, and purchase additional right of way to improve the existing drainage ditch.
BACKGROUND INFORMATION	
Site and Location:	Existing culvert crossing underneath State Highway 107
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,132,727
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #103	
Proposed Action:	Rancho Santa Cruz Drain: Project consists of channel and culvert improvements to the existing Rancho Santa Cruz/Jackson Drain system.
BACKGROUND INFORMATION	
Site and Location:	Rancho Santa Cruz/Jackson Drain system.
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$3,618,750
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #104	
Proposed Action:	J-01 Lateral: Project consists of channel and culvert improvements to the existing J-01 Lateral drainage system from Ramseyer Dr. to the South Main Drain II outfall.
BACKGROUND INFORMATION	
Site and Location:	Ramseyer Dr. to the South Main Drain II outfall.
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$2,994,601.44
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #105	
Proposed Action:	Faysville Drain: Project consists of the extension of a drainage ditch that was created to provide an outfall for US-281/ I-69C, the community of Faysville and surrounding area. Faysville Drain will ultimately outfall into the proposed Raymondville Drain.
BACKGROUND INFORMATION	
Site and Location:	US-281/ I-69C, the community of Faysville and surrounding area
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$6,902,445
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #106	
Proposed Action:	Rado Drain Alternative: The project consists of channel improvements between Colbath Ave and Uvalde Ave and a new box culvert from Rado Drain along Colbath Ave and Taylor Rd to the Mission Inlet drain ditch.
BACKGROUND INFORMATION	
Site and Location:	Colbath Ave and Uvalde Ave Colbath Ave and Taylor Rd
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$7,181,250
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #107	
Proposed Action:	Raymondville Drain Project: Currently exists as an authorized project with the US Army Corp of Engineers-Galveston District. Seeks to improve the Rio Grande Valley's Drainage situation by construction of a Diversion Channel and improving the existing Hargill and Raymondville Drains. The creation of a new Diversion Channel begin at the Edinburg North Main Drain East of Edinburg Lake and would connect to Hargill Drain Lateral 5 West of Hargill. Project can be broken into 6 phases and includes 76.5 miles of new or improved drainage channels.
BACKGROUND INFORMATION	
Site and Location:	Edinburg North Main Drain East of Edinburg Lake and would connect to Hargill Drain Lateral 5 West of Hargill
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$417,617,336
Potential Funding Sources:	Local, State and Federal Funds, USACE
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #108	
Proposed Action:	North Bentsen Palm Dr project consists of regrade of roadside and installation of driveway culverts along N. Bentsen Palm Dr, approximately 3,500ft North of Buddy Owens Blvd. Schuerbach Rd project consists of construction of a drainage ditch and roadway culver crossings extending from East N Schuerbach Rd to E Los Ebanos Rd into Linda Vista drainage ditch.
BACKGROUND INFORMATION	
Site and Location:	3 ¼ Mile Road & North Bentsen Palm Dr., 3,500ft North of Buddy Owens Blvd 3 ¼ Mile Road & Schuerbach Road, East N Schuerbach Rd to E Los Ebanos Rd
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$80,434 (N. Bentsen Palm Dr Project) \$2,235,749 (Schuerbach Rd Project)
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #109	
Proposed Action:	4 ½ Mile Road & North Doffing Road: Construction of a drainage ditch and roadway culvert crossing between North Doffing Rd and North Minnesota Road running from Mile 4 into West Drain III.
BACKGROUND INFORMATION	
Site and Location:	North Doffing Rd and North Minnesota Rod
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$950,974
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #110	
Proposed Action:	4 Mile Road & Minnesota Road: Regrade of roadside ditch and storm drainage system running North along Doffing Road and through proposed easements to outfall into a proposed drain ditch and ultimate into Lina Vista drainage ditch
BACKGROUND INFORMATION	
Site and Location:	North along Doffing Road
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$259,531
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #111	
Proposed Action:	5 ½ Mile Road & North Bentsen Palm Dr. Proposed construction of drainage swales, regrading of roadside ditches and installation of roadway culverts along North Bentsen Palm Drive to accommodate excess runoff from low areas.
BACKGROUND INFORMATION	
Site and Location:	5 ½ Mile Road & North Bentsen Palm Dr.
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$80,434
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #112	
Proposed Action:	7½ Mile Road & Glasscock Rd: Proposed storm drainage system along existing roadway right of way connecting to a future TxDOT system. 7 ½ Mile Road & Western Rd: Construction of a drainage ditch, roadway culvert crossings, and storm drainage system to increase additional detention volume to the existing J-08 drainage system.
BACKGROUND INFORMATION	
Site and Location:	7½ Mile Road & Glasscock Rd 7 ½ Mile Road & Western Rd
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$354,370 (Glasscock Rd) \$340,370 (Western Rd)
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #113	
Proposed Action:	Mission Lateral: The project consists of proposed widening, culvert crossings, and detention facilities to increase linear detention and functionality to existing Mission Lateral Drainage ditch. Project is divided into five phases.
BACKGROUND INFORMATION	
Site and Location:	Mission Lateral Drainage ditch
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$12,779,500
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #114	
Proposed Action:	Peñitas Drain: Extension of Peñitas drain consisting of a construction of a drainage ditch with roadway crossings.
BACKGROUND INFORMATION	
Site and Location:	Peñitas Drain
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$5,393,595
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #115	
Proposed Action:	South “I” Road Detention: New detention facilities to mitigate flooding and store potentially damaging floodwater temporarily until the channels can safely carry the water away.
BACKGROUND INFORMATION	
Site and Location:	South “I” Road Detention
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$4,408,000
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #116	
Proposed Action:	Western Road & 9 Mile Line: Regard of roadside ditch and installation of driveway culverts along North Abram Rd to alleviate flooding issues.
BACKGROUND INFORMATION	
Site and Location:	Western Road & 9 Mile Line, along N. Abram Rd
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$80,434
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #117	
Proposed Action:	J-08 Drainage Extension: Project consists of new channel and road culvert crossings to extend the existing J-08 drain from Conway to Doffing Rd.
BACKGROUND INFORMATION	
Site and Location:	Conway to Doffing Rd
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$24,985,664.89
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #118	
Proposed Action:	FM 681 Outfall: Project consists of new channel and road culvert crossings to extend the existing FM 681 drain from Mile 7 Rd to Moorefield Rd.
BACKGROUND INFORMATION	
Site and Location:	Mile 7 Rd to Moorefield Rd
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$6,201,520
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #119	
Proposed Action:	J-02-01: Project consists of new channel and road culvert crossings to extend the existing J-02-01 drain from Taylor Rd to Bryan Rd.
BACKGROUND INFORMATION	
Site and Location:	Taylor Rd to Bryan Rd
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$5,721,885.48
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #120	
Proposed Action:	PD Lateral Ext. 7: Project consists of new channel and road culvert crossings to extend the existing PD Lateral drain to Western Rd.
BACKGROUND INFORMATION	
Site and Location:	PD Lateral drain to Western Rd
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$2,324,085.11
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #121	
Proposed Action:	West Main Drain IV: Project consists of new channel and road culvert crossings to extend the existing West Main Drain IV from Abram Rd to Western Rd.
BACKGROUND INFORMATION	
Site and Location:	Abram Rd to Western Rd.
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$5,210,490.42
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #122	
Proposed Action:	Mile 6 & North Ware Rd: The project consists of proposed channel improvements, two regional detention facilities, culvert improvements, and localized underground drainage improvements connecting multiple local drainage systems to the ditch network.
BACKGROUND INFORMATION	
Site and Location:	Mile 6 & North Ware Rd
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$24,705,000
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #123	
Proposed Action:	FM 2812 & FM 493: The project consists of proposed channel widening, and improvements long the existing ditch to allow for more capacity, underground drainage improvements, as well as culvert improvements and detention ponds for storage.
BACKGROUND INFORMATION	
Site and Location:	FM 2812 & FM 493
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$6,350,000
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #124	
Proposed Action:	Hwy 107 & Val Verde Rd: The project consists of proposed channel improvements to area drainage channels, a proposed detention pond, as well as proposed storm drain systems that will connect adjacent neighborhoods to the drainage network.
BACKGROUND INFORMATION	
Site and Location:	Hwy 107 & Val Verde Rd
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$4,170,000
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #125	
Proposed Action:	Texas Rd & Cesar Chavez Rd: The project consists of a new location open channel ditch that will connect the adjacent area to the ditch network, culvert improvements as well as drainage improvements that are projected to alleviate flood risk.
BACKGROUND INFORMATION	
Site and Location:	Texas Rd & Cesar Chavez Rd
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$7,200,000
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #126	
Proposed Action:	Hoehn Rd & Mile 11 Rd: The project will improve drainage for the surround areas by implementation of channel improvements, new detention ponds for storage, as well as proposed storm drain systems and culvert improvements.
BACKGROUND INFORMATION	
Site and Location:	Hoehn Rd & Mile 11 Rd
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$4,215,000
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #127	
Proposed Action:	Alamo Rd & Rogers Rd: The project consists of proposed detention ponds, culvert and storm drain system improvements to provide storage and positive flow for the surrounding areas.
BACKGROUND INFORMATION	
Site and Location:	Alamo Rd & Rogers Rd
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$7,240,000
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #128	
Proposed Action:	Mile 8 ½ Rd & Ware Rd: Project will consist of two proposed new location channels, channel improvements to existing ditches, culvert improvements, along with new storm drain system connecting to the ditch network. Additionally, two proposed detention ponds are planned for this project that will provide storage to aid in mitigation for future flooding.
BACKGROUND INFORMATION	
Site and Location:	Mile 8 ½ Rd & Ware Rd
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$18,090,000
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Hidalgo County– Action #129	
Proposed Action:	S. McColl & Canton Rd: The project consists of channel and culvert improvements with associated new storm drainage systems and improvements to existing storm drainage systems.
BACKGROUND INFORMATION	
Site and Location:	S. McColl & Canton Rd
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$5,780,000
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Hidalgo County Precinct #1, Hidalgo County Drainage District #1
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

CITY OF ALAMO

City of Alamo – Action #1	
Proposed Action:	Clean, clear, and/or upgrade the 14.54 linear miles of storm ditches and 1.47 linear miles of culverts.
BACKGROUND INFORMATION	
Site and Location:	Community-wide drainage system
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$83,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Alamo Public Works
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan, Drainage Plan, Alamo MS4 Annual Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Alamo – Action #2	
Proposed Action:	Acquire and install generators with hard wired quick connections at the Alamo Police Department, City Hall, and Public Works Department.
BACKGROUND INFORMATION	
Site and Location:	Alamo Police Department, City Hall, and Public Works Department
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Health and Medical, Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Alamo Public Works
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
*Deferred from previous plan. APD is located just north of EMC & city hall is just north east of EMC & serves as a spill over EMC.

SECTION 21: MITIGATION ACTIONS

City of Alamo – Action #3	
Proposed Action:	Acquire and install generators with hard wired quick connections at lift stations throughout the city.
BACKGROUND INFORMATION	
Site and Location:	Lift stations throughout the city
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Communications
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$3,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Alamo Public Works
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
*Deferred from previous plan. The City of Alamo currently has 26 lift stations which are spread out throughout the city. Through a grant and infrastructure project, city was able to equip the main 11, leaving 15 to be equipped at later date.

SECTION 21: MITIGATION ACTIONS

City of Alamo – Action #4	
Proposed Action:	Acquire and install generators with hard wired quick connections at all critical facilities.
BACKGROUND INFORMATION	
Site and Location:	Community critical facilities
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Communications
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Alamo Public Works
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Alamo – Action #5	
Proposed Action:	Develop and populate incident database for hazardous material spills. Implement process to maintain and update tracking system.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Promote hazard awareness; improve risk assessment
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Hazardous Materials
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Low
Estimated Cost:	\$25,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	Alamo City Administration
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
*Deferred from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Alamo – Action #6	
Proposed Action:	Identify & finalize equipment, supplies & tools list and purchase identified items
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Preparedness
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Materials, Mass Migration, Drought
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Low
Estimated Cost:	\$250,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	Alamo City Administration
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Emergency Response

COMMENTS:
*Deferred from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Alamo – Action #7	
Proposed Action:	Create priority evacuation list for vulnerable populations.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to citizens by identifying and evacuating vulnerable populations in high-risk areas during extreme weather events.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind, Wildfire, Winter Storm, Extreme Heat
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Low
Estimated Cost:	\$10,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Alamo City Administration
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Emergency Response Plan

COMMENTS:
*Deferred from previous plan. The Alamo police department will create a working evacuation list which will be utilized for all emergency situations. Those can be flooding, fire or any other emergency which requires the area to be cleared. Prioritize flood-prone areas.

SECTION 21: MITIGATION ACTIONS

City of Alamo – Action #8	
Proposed Action:	Provide traffic control and evacuation assistance during any identified emergency situations.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to citizens by assisting safe evacuations.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Preparedness / Response

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind, Wildfire
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Low
Estimated Cost:	\$10,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Alamo Police Department
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Emergency Response Plan

COMMENTS:
*Deferred from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Alamo – Action #9	
Proposed Action:	Implement education and awareness program utilizing media, social media, bulletins, flyers, etc. to educate citizens of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages. Include links to weather alerts and departmental phone listings with contact personnel for residents.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damages.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Extreme Heat, Expansive Soils, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security, Health and Medical
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	Alamo City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
*Deferred from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Alamo – Action #10	
Proposed Action:	Implement a data recording system that captures extent and impact, related statistical information on fatalities, injuries and damages caused by each incident that occurs within the jurisdiction.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Promote hazard awareness and improve risk assessment
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Extreme Heat, Expansive Soils, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	Alamo City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
*Deferred from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Alamo – Action #11	
Proposed Action:	Improve construction techniques through building code enhancements and educate construction contractors, homeowners, and business owners about mitigation techniques.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of damages to structures through improved construction techniques; Reduce recovery efforts for the community after an event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$20,000
Potential Funding Sources:	Local Funds (staff time)
Lead Agency/Department Responsible:	Alamo City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes

COMMENTS:
*Deferred from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Alamo – Action #12	
Proposed Action:	Provide information to homeowners and businesses regarding the dos and don'ts of maintaining moisture around foundations to prevent cracking from expansive soils.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential damages.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Expansive Soils
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	Alamo City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
*Deferred from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Alamo – Action #13	
Proposed Action:	Develop and implement drought plans and conservation programs. Develop and conduct public education and awareness programs on drought mitigation, drought response and water conservation.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce impacts of drought through conservation; Reduce impacts of drought through educational programs; Reduce water usage and waste
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Extreme Heat
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$10,000
Potential Funding Sources:	Local Funds, State and Federal Grants)
Lead Agency/Department Responsible:	Alamo City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances

COMMENTS:
*Deferred from previous plan.

SECTION 21: MITIGATION ACTIONS

CITY OF ALTON

City of Alton – Action #1	
Proposed Action:	Build safe room shelters throughout the jurisdiction so that residents can reach shelter in less than five minutes.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to citizens by providing shelter in high-risk areas during extreme weather events or hazardous material spills. Temporary shelter for mass migration/migrant groups.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Thunderstorm Wind, Tornado, Hurricane Wind, Mass Migration, Hazardous Materials
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Low
Estimated Cost:	\$2,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Alton Emergency Management Coordinator
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan, Capital Improvement Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Alton – Action #2	
Proposed Action:	Harden/retrofit critical facilities to hazard-resistant levels.
BACKGROUND INFORMATION	
Site and Location:	Community critical facilities
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages at critical facilities; Ensure continuity of critical services during and after event; Reduce risk of injury to emergency and critical personnel.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Communications, Health and Medical, Safety and Security, Energy (Power & Fuel)
Effect on New/Existing Buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Alton Emergency Management Coordinator
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan, Capital Improvement Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Alton – Action #3	
Proposed Action:	Upgrade undersized stormwater drains and culverts.
BACKGROUND INFORMATION	
Site and Location:	Community-wide drainage system
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$3,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Alton Emergency Management Coordinator
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan, Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Alton – Action #4	
Proposed Action:	Acquire and install generators with hard wired quick connections at key critical facilities.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Energy (Power & Fuel)
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,000,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	Alton Emergency Management Coordinator
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Alton – Action #5	
Proposed Action:	Adopt a landscape ordinance (selection and planting guidelines).
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce impact on groundwater; Minimize impacts of expansive soils; Reduce rainfall runoff volume and risk of flooding; Reduce risk and spread of wildfire.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulation

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Flood, Wildfire, Expansive Soils
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$3,000
Potential Funding Sources:	Local Funds (staff time)
Lead Agency/Department Responsible:	Alton Emergency Management Coordinator
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances

COMMENTS:

SECTION 21: MITIGATION ACTIONS

CITY OF DONNA

City of Donna – Action #1	
Proposed Action:	Acquire and install generators with hard wired quick connections at all critical facilities.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Energy (Power & Fuel)
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,000,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	Donna City Administration
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Donna – Action #2	
Proposed Action:	Adopt and implement a routine tree trimming program that clears tree limbs near power lines and/or hanging in right-of-way; Remove dead trees from right-of way and drainage systems on a scheduled basis.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages to infrastructure; Ensure continuity of services during and after event; Reduce damages associated with power outages; Reduce risk of injuries or fatalities to vulnerable populations.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Hurricane Wind, Flood, Thunderstorm Wind, Hail, Lightning, Tornado, Winter Storm, Wildfire
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$100,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Donna Public Works
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Maintenance Plan, Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Donna – Action #3	
Proposed Action:	Equip sewer manholes with watertight covers and inflow guards.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood water contamination; Reduce risk of surface water infiltration and sewage backup; Ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Food, Water, Shelter
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$100,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Donna Public Works
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Wastewater Management Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Donna – Action #4	
Proposed Action:	Require "safe rooms" to be added when constructing new schools, daycares, rest homes and critical care facilities.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to citizens by providing shelter in new critical facilities during extreme weather event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornado, Thunderstorm Wind, Hurricane Wind
Community Lifeline:	Safety and Security, Health and Medical
Effect on New/Existing Buildings:	Reduce risk to existing and future structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds (staff time)
Lead Agency/Department Responsible:	Donna City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Donna – Action #5	
Proposed Action:	Undertake a comprehensive study of flood risk and reduction alternatives, with the assistance of the US Army Corps of Engineers. Adopt or revise flood damage prevention ordinance to include flood risk areas identified in the study. This study will cover all incorporated and unincorporated areas of the county that currently have limited studies with no determined base flood elevations as well as unmapped areas.
BACKGROUND INFORMATION	
Site and Location:	Community-wide flood hazard areas
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Improve risk assessment; reduce risk of damages or injuries through improved building standards; reduce risk of damages and injuries.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations (for unmapped or limited study areas)

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Donna Floodplain Administrator
Implementation Schedule:	Within 12-36 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan, Flood Damage Prevention Ordinance

COMMENTS:

SECTION 21: MITIGATION ACTIONS

CITY OF EDCOUCH

City of Edcouch– Action #1	
Proposed Action:	Purchase area or existing structure to construct an emergency dome evacuation shelter for community resident during hazard events.
BACKGROUND INFORMATION	
Site and Location:	Community-wide, site location to be determined.
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk to loss of injury and death. Reduce burden on emergency respond during hazardous events.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Health and Medical, Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$TBD
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edcouch City Administration
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Edcouch– Action #2	
Proposed Action:	Adopt and implement a routine clearing program that removes brush and debris from drainage system; Remove dead trees from right-of way and drainage systems on a scheduled basis.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce damages to infrastructure; Ensure continuity of services during and after event; Reduce damages associated with power outages; Reduce risk of injuries or fatalities to vulnerable populations.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$50,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edcouch Public Works
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Maintenance Plan, Drainage Plan, Disaster Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Edcouch– Action #3	
Proposed Action:	Equip sewer manholes with watertight covers and inflow guards.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood water contamination; Reduce risk of surface water infiltration and sewage backup; Ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$80,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edcouch Public Works
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Wastewater Management Plan, Disaster Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Edcouch– Action #4	
Proposed Action:	Acquire and distribute AC window units or fans for vulnerable populations.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce health risks to vulnerable citizens.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat
Community Lifeline:	Health and Medical
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$100,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edcouch Emergency Management Coordinator
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Edcouch– Action #5	
Proposed Action:	Build safe room shelters at community centers and/or manufactured home parks so that residents can reach shelter in less than five minutes.
BACKGROUND INFORMATION	
Site and Location:	City and ETJ
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk to citizens by providing shelter in high risk areas during extreme weather events.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Hurricane Wind, Thunderstorm, Tornado
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$100,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edcouch Emergency Management Coordinator
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan, Capital Improvement Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Edcouch– Action #6	
Proposed Action:	Construct Drainage Control Structures and Flood Control Gates: This action proposes constructing new, city-wide drainage control structures and flood control gates to reduce the potential impacts of future flood events.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$750,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edcouch Public Works
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Edcouch– Action #7	
Proposed Action:	Upgrade Outdated Sewer Treatment Plant and Service Lines: This action proposes upgrading existing sewer treatment plant, increasing and extending service lines, and manholes.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood water contamination. Reduce risk of surface water infiltration and sewage backup. Ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,250,000
Potential Funding Sources:	Local Funds, FEMA Corps, FEMA BRIC , FEMA HMGP, CDBG-MIT, TWDB and Other State and Federal Grants
Lead Agency/Department Responsible:	Edcouch Public Works
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Wastewater Management Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Edcouch– Action #8	
Proposed Action:	Upgrade Outdated Water Treatment Plant and Service Lines: This action proposes upgrading existing water treatment plant, widen service lines. Adding required appurtenances such as fire hydrants and valves.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood water contamination. Reduce risk of surface water infiltration and sewage backup. Ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,250,000
Potential Funding Sources:	Local Funds, FEMA Corps, FEMA BRIC , FEMA HMGP, CDBG-MIT, TWDB and Other State and Federal Grants
Lead Agency/Department Responsible:	Edcouch Public Works
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Wastewater Management Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Edcouch– Action #9	
Proposed Action:	Undertake Construction and/or Resurfacing of City Streets to Permit Greater Evacuation Accessibility Prior to Natural Hazard Events: The City of Edcouch will assess all existing streets and roads within the city limits and its extra-territorial jurisdiction (ETJ) to undertake construction and/or resurfacing of streets to allow for greater and safer evacuation of residents prior to the natural hazard event.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of injury or damages. Reduce risk and spread of wildfires through maintained and redundant access routes. Improve response time for emergency services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind, Wildfire
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,250,000
Potential Funding Sources:	Local Funds, FEMA Corps, FEMA BRIC , FEMA HMGP, CDBG-MIT, TWDB and Other State and Federal Grants
Lead Agency/Department Responsible:	Edcouch Public Works
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Disaster Response Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Edcouch– Action #10	
Proposed Action:	Purchase and install Self Priming Pumps.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$275,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edcouch Public Works
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Hurricane Preparedness Plan, Wastewater Management Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Edcouch– Action #11	
Proposed Action:	Develop Master Drainage Plan that addresses flood prone areas.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$75,000
Potential Funding Sources:	Local Funds, TWDB and Other State and Federal Grants
Lead Agency/Department Responsible:	Edcouch Public Works
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Edcouch– Action #12	
Proposed Action:	Upgrade undersized stormwater drains and culverts.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$5,000,000
Potential Funding Sources:	Local Funds, TWDB and Other State and Federal Grants
Lead Agency/Department Responsible:	Edcouch Public Works
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Edcouch– Action #13	
Proposed Action:	Implement a utility trailer to house emergency response equipment such as barricades, cones, and portable stop signs etc.
BACKGROUND INFORMATION	
Site and Location:	Edcouch Police Department, Public Works Department and Fire Department
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of damage and injury and/or fatalities.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind, Thunderstorm Wind, Winter Storm
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$12,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edcouch Police and Fire Department
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Disaster Response Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Edcouch– Action #14	
Proposed Action:	Incorporate higher standards for hazard resistance in local application of the building code.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of damages to structures through improved construction techniques; Reduce recovery efforts for the community after an event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$12,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edcouch City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Edcouch– Action #15	
Proposed Action:	Purchase of 250 KW Emergency Generator including an automatic transfer switch control Panel. This generator will provide adequate power to operate our Police Department communication equipment including but limited to our EOC building, emergency lighting, communication between City County, State, Federal and Emergency Response Agencies.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Provides an alternate power sources during power outages and ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security, Energy (Power & Fuel)
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$250,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edcouch Police Department
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Edcouch– Action #16	
Proposed Action:	Purchase 20 acres of land to create a water retention reservoir with a capacity of 20 million gallons to provide adequate retention of flood waters during a hurricane or flood event. Thus, prevent damages due to flooding of homes, streets, businesses, and school districts.
BACKGROUND INFORMATION	
Site and Location:	Community- wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Will prevent downstream impacts, reduce impacts to floodplain and provide additional potential water sources for firefighting uses.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind, Wildfire
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$600,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edcouch Public Works
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Edcouch– Action #17	
Proposed Action:	As a National Flood Insurance Program (NFIP) participating community, review ordinance and update/enhance NFIP standards to increase protection levels.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce additional flood risk and build resiliency.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	\$5,000
Potential Funding Sources:	FEMA, Local Funds (staff time)
Lead Agency/Department Responsible:	Edcouch Emergency Management Coordinator and Floodplain Administrator
Implementation Schedule:	Within 12 months of the plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan, Flood Damage Prevention Ordinance

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Edcouch– Action #18	
Proposed Action:	Develop an acquisition/buy-out program for those properties in flood hazard areas. Acquire and demolish repetitive loss properties. Acquire high risk vacant land and maintain as open space.
BACKGROUND INFORMATION	
Site and Location:	Repetitive loss properties. Community-wide flood risk areas.
Risk Reduction Benefit (Current Cost/Losses Avoided):	Eliminates risk of flood damage to high risk structures and prevent future losses in high risk flood hazard area. Reduce risk of injuries to citizens.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edcouch Emergency Management Coordinator
Implementation Schedule:	Within 12-36 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Edcouch– Action #19	
Proposed Action:	Incorporate higher standards for hazard resistance in local application of the building code.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of damages to structures through improved construction techniques; Reduce recovery efforts for the community after an event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm WInd, Tornado, Wildfire, Winter Storm
Community Lifeline:	Communications, Safety and Security
Effect on new/existing buildings:	Reduce risk to new structures and infrastructures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds (staff time)
Lead Agency/Department Responsible:	Edcouch City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/ Ordinances

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Edcouch– Action #20	
Proposed Action:	Provide information to homeowners and businesses regarding the do's and don'ts of maintaining moisture around foundations to prevent cracking from expansive soils.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of damages to structures through improved construction techniques; Reduce recovery efforts for the community after an event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new structures and infrastructures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds (staff time)
Lead Agency/Department Responsible:	Edcouch City Administration
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Edcouch– Action #21	
Proposed Action:	Implement program to provide links to weather alerts and departmental phone listings with contact personnel for residents.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Promote hazard awareness and protect citizens from potential injuries and damages.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness
MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material
Community Lifeline:	Communications, Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$2,000
Potential Funding Sources:	Local Funds (staff time)
Lead Agency/Department Responsible:	Edcouch Emergency Management Coordinator
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan
COMMENTS:	
*Deferred action from previous plan.	

SECTION 21: MITIGATION ACTIONS

City of Edcouch– Action #22	
Proposed Action:	Implement education and awareness program utilizing media, social media, bulletins, and flyer, etc. to educate citizens of hazards that can threaten the area and mitigation measure to reduce injuries, fatalities and property damages.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Promote hazard awareness and protect citizens from potential injuries and damages.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material, Mass Migration
Community Lifeline:	Communications, Health and Medical, Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$3,000
Potential Funding Sources:	Local Funds (staff time)
Lead Agency/Department Responsible:	Edcouch Emergency Management Coordinator
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Edcouch– Action #23	
Proposed Action:	Implement a data recording system that captures extent and impact, related statistical information on fatalities, injuries and damages caused by each incident that occurs within the jurisdiction.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Promote hazard awareness and improve risk assessment.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds (staff time)
Lead Agency/Department Responsible:	Edcouch City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Edcouch– Action #24	
Proposed Action:	Develop procedures for making mass notifications to citizens and merchants during a natural hazard incident. Solicit bids for system. Purchase Emergency Notification System and install. Distribute information on new system and conduct training.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk to citizens through improved communication and early warning.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material
Community Lifeline:	Communications, Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$25,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edcouch Emergency Management Coordinator
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Response Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Edcouch– Action #25	
Proposed Action:	Harden/retrofit critical facilities to hazard-resistant levels, which can include re-enforcing windows, roof construction, enforcing covered parking areas for critical vehicles, etc.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce damages at critical facilities. Ensure continuing of critical services during and after event. Reduce risk of injury to emergency and crucial personnel.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Flood, Hail, Hurricane Wind, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	\$100,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edcouch Public Works
Implementation Schedule:	Within 12 to 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Edcouch– Action #26	
Proposed Action:	Identify flood-prone and repetitive loss properties through the Texas Water Development Board. Identify and implement actions to reduce or eliminate flooding at identified properties.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of damages or injuries through flood mitigation at high risk structure. Reduce the need for emergency response in high risk area. Reduce repetitive flood losses/claims. Reduce community recovery efforts and cost.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hail, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to existing structure and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edcouch Emergency Management Coordinator
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

CITY OF EDINBURG

City of Edinburg – Action #1	
Proposed Action:	Pin Oak Drainage Improvements. Enhance water drainage systems to provide the capacity for floodwaters.
BACKGROUND INFORMATION	
Site and Location:	Pin Oak drainage system
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$2,360,175
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edinburg Engineering Department
Implementation Schedule:	Within 18-24 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan, Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Edinburg – Action #2	
Proposed Action:	Ebony Hills Drainage Improvements. Enhance water drainage systems to provide the capacity for floodwaters.
BACKGROUND INFORMATION	
Site and Location:	Ebony Hills drainage system
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,100,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edinburg Engineering Department
Implementation Schedule:	Within 18-24 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan, Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Edinburg – Action #3	
Proposed Action:	Anacua/Ash Drainage Improvements. Enhance water drainage systems to provide the capacity for floodwaters.
BACKGROUND INFORMATION	
Site and Location:	Anacua/Ash drainage system
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$875,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edinburg Engineering Department
Implementation Schedule:	Within 12-18 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan, Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Edinburg – Action #4	
Proposed Action:	Iowa Estates Drainage Improvements. Enhance water drainage systems to provide the capacity for floodwaters.
BACKGROUND INFORMATION	
Site and Location:	Iowa Estates drainage system
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$840,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edinburg Engineering Department
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan, Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Edinburg – Action #5	
Proposed Action:	Fairhaven Heights Drainage Improvements. Enhance water drainage systems to provide the capacity for floodwaters.
BACKGROUND INFORMATION	
Site and Location:	Fairhaven Heights drainage system
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,367,662
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edinburg Engineering Department
Implementation Schedule:	Within 18-24 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan, Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Edinburg – Action #6	
Proposed Action:	Lake Citrus Estates Drainage Improvements. Enhance water drainage systems to provide the capacity for floodwaters.
BACKGROUND INFORMATION	
Site and Location:	Lake Citrus Estates drainage system
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$865,662
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edinburg Engineering Department
Implementation Schedule:	Within 18-24 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan, Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Edinburg – Action #7	
Proposed Action:	Chapin Pumps Rehabilitation Drainage Improvements. Enhance water drainage systems to provide the capacity for floodwaters.
BACKGROUND INFORMATION	
Site and Location:	Chapin Pumps Rehabilitation drainage system
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,200,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edinburg Engineering Department
Implementation Schedule:	Within 12-18 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan, Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Edinburg – Action #8	
Proposed Action:	Baker Drive Drainage Improvements. Enhance water drainage systems to provide the capacity for floodwaters.
BACKGROUND INFORMATION	
Site and Location:	Baker Drive drainage system
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,025,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edinburg Engineering Department
Implementation Schedule:	Within 18-24 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan, Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Edinburg – Action #9	
Proposed Action:	Sprague Drainage Crossing Improvements. Enhance water drainage systems to provide the capacity for floodwaters.
BACKGROUND INFORMATION	
Site and Location:	Sprague Drainage Crossing
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$350,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edinburg Engineering Department
Implementation Schedule:	Within 12-18 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan, Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Edinburg – Action #10	
Proposed Action:	Faysville Subdivision Drainage Improvements. Enhance water drainage systems to provide the capacity for floodwaters.
BACKGROUND INFORMATION	
Site and Location:	Faysville Subdivision Drainage Improvements
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$4,051,342
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edinburg Engineering Department
Implementation Schedule:	Within 12-18 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan, Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Edinburg – Action #11	
Proposed Action:	Sol/Cactus Drainage Improvements. Enhance water drainage systems to provide the capacity for floodwaters.
BACKGROUND INFORMATION	
Site and Location:	Sol/Cactus Drainage Improvements
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,600,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edinburg Engineering Department
Implementation Schedule:	Within 18-24 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan, Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Edinburg – Action #12	
Proposed Action:	Utilize digital media, television, news media, wireless emergency alerts, print media, live presentations, promotional items/material, to educate, prepare and alert the public of current and/or future hazards that can threaten an area in order to mitigate damages, injuries and loss of life.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damages.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material, Mass Migration,
Community Lifeline:	Communication, Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$110,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edinburg Emergency Management Coordinator, Hidalgo County
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
Measurable Cost Benefit: Community education projects educate citizens about hazards and preparation thereof with the general purpose of preparation and response to include sustainability for the recommended 72 hours to avoid the loss of life.

SECTION 21: MITIGATION ACTIONS

City of Edinburg – Action #13	
Proposed Action:	Design and construct the extension of a runway at the airport so that larger aircraft can depart and arrive with supplies, cargo, equipment, and personnel during a disaster.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damages.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$20,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edinburg Public Works
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
*Deferred action from previous plan. This project will be beneficial during natural disasters and during a pandemic. Both state & federal assets will benefit from this in their response to a disaster

SECTION 21: MITIGATION ACTIONS

City of Edinburg – Action #14	
Proposed Action:	Develop alternative evacuation routes/plans and design emergency thoroughfares, particular in areas with limited capacity. Educate citizen on evacuation routes and procedures.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to citizens through improved evacuation alternatives and awareness efforts.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Flood, Hurricane Wind, Tornado, Wildfire
Community Lifeline:	Communications, Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edinburg Police Department
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Edinburg – Action #15	
Proposed Action:	Stadium and Dawson Drive Improvements. Enhance water drainage systems to provide the capacity for floodwaters.
BACKGROUND INFORMATION	
Site and Location:	Stadium and Dawson Drive
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$501,606
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edinburg Public Works
Implementation Schedule:	Within 6-12 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Edinburg – Action #16	
Proposed Action:	Northeast Holding Pond.
BACKGROUND INFORMATION	
Site and Location:	Northeast Holding Pond location
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,268,125
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edinburg Public Works
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Capital Improvement Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Edinburg – Action #17	
Proposed Action:	UTPA West Drainage Improvements. Enhance water drainage systems to provide the capacity for floodwaters.
BACKGROUND INFORMATION	
Site and Location:	UTPA West
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$999,406
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edinburg Public Works
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Edinburg – Action #18	
Proposed Action:	Hobbs and 2 nd Street Flooding Improvements. Enhance water drainage systems to provide the capacity for floodwaters.
BACKGROUND INFORMATION	
Site and Location:	Hobbs and 2 nd Street
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$880,789
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edinburg Public Works
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Edinburg – Action #19	
Proposed Action:	Freddy Gonzalez and Mon Mack Rd. Drainage Improvements. Enhance water drainage systems to provide the capacity for floodwaters.
BACKGROUND INFORMATION	
Site and Location:	Freddy Gonzalez and Mon Mack Rd (Schunior Detention Pond)
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$4,876,536
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edinburg Public Works
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Edinburg – Action #20	
Proposed Action:	Phase 2 of Hidalgo County Irrigation District #1 Canal replacement Project. Enhance water drainage systems to provide the capacity for floodwaters.
BACKGROUND INFORMATION	
Site and Location:	Hidalgo County Irrigation District #1 Canal replacement
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$4,116,169
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edinburg Public Works, Hidalgo County
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Edinburg – Action #21	
Proposed Action:	Fire Department Central Roof Project: Replace 25 year old flat roof that houses fire administration
BACKGROUND INFORMATION	
Site and Location:	Edinburg Fire Department
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event. Ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure
MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hail, Hurricane Wind, Thunderstorm, Tornado
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to existing structure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$150,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edinburg Fire Department
Implementation Schedule:	Within 6-12 months of plan adoption
Incorporation into Existing Plans:	N/A
COMMENTS:	
*Deferred action from previous plan.	

SECTION 21: MITIGATION ACTIONS

City of Edinburg– Action #22	
Proposed Action:	Develop an acquisition/buy-out program for those properties in flood hazard areas. Acquire and demolish repetitive loss properties. Acquire high risk vacant land and maintain as open space.
BACKGROUND INFORMATION	
Site and Location:	Repetitive loss properties. Community-wide flood risk areas.
Risk Reduction Benefit (Current Cost/Losses Avoided):	Eliminates risk of flood damage to high risk structures and prevent future losses in high risk flood hazard area. Reduce risk of injuries to citizens.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edinburg Emergency Management Coordinator
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Edinburg – Action #23	
Proposed Action:	Incorporate higher standards for hazard resistance in local application of the building code.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of damages to structures through improved construction techniques; Reduce recovery efforts for the community after an event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new structures
Priority (High, Moderate, Low):	High
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds (staff time)
Lead Agency/Department Responsible:	Edinburg City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Edinburg – Action #24	
Proposed Action:	Provide information to homeowners and businesses regarding the do's and don'ts of maintaining moisture around foundations to prevent cracking from expansive soils.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of damages to structures through improved construction techniques; Reduce recovery efforts for the community after an event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to existing and new structures
Priority (High, Moderate, Low):	High
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds (staff time)
Lead Agency/Department Responsible:	Edinburg Emergency Management Coordinator
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Edinburg – Action #25	
Proposed Action:	Implement education and awareness program utilizing media, social media, bulletins, flyers, etc. To educate citizens, contractors, homeowners, and business owners of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damages.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Extreme Heat, Expansive Soils, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security, Health and Medical
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$10,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	Edinburg Emergency Management Coordinator
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Edinburg – Action #26	
Proposed Action:	Implement a data recording system that captures extent and impact, related statistical information on fatalities, injuries and damages caused by each incident that occurs within the jurisdiction.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Promote hazard awareness and improve risk assessment
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Extreme Heat, Expansive Soils, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	Edinburg City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Edinburg – Action #27	
Proposed Action:	Perform dam inundation studies to establish consistent and justifiable risk factors. Utilize studies to implement mitigation strategies including construction, acquisition, regulations and warning systems/evacuation plans.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk residents through improved dam failure mitigation, evacuation alternatives and awareness efforts; Improved Risk Assessment; Reduce damages and risk to residents.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Flood
Community Lifeline:	Safety and Security, Health and Medical
Effect on New/Existing Buildings:	Reduce risk to future structures
Priority (High, Moderate, Low):	High
Estimated Cost:	\$5,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Edinburg Emergency Management Coordinator
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Emergency Action Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

CITY OF ELSA

City of Elsa – Action #1	
Proposed Action:	Develop a land acquisition program in flood hazard areas. Acquire and demolish repetitive loss properties. Acquire high risk vacant land and maintain as open space.
BACKGROUND INFORMATION	
Site and Location:	Community-wide flood risk areas
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Eliminate risk of flood damages to high risk structures and prevent future losses in high risk flood hazard areas; Reduce downstream impacts associated with development in the floodplain; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$1,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Elsa City Manager
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Flood Management Plan, Disaster Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Elsa – Action #2	
Proposed Action:	Adopt and implement a routine clearing program that removes brush and debris from drainage system; Remove dead trees from right-of way and drainage systems on a scheduled basis.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages to infrastructure; Ensure continuity of services during and after event; Reduce damages associated with power outages; Reduce risk of injuries or fatalities to vulnerable populations.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Hurricane Wind, Flood, Thunderstorm Wind, Hail, Lightning, Tornado, Winter Storm, Wildfire
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$50,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Elsa Public Works
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Maintenance Plan, Drainage Plan, Disaster Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Elsa – Action #3	
Proposed Action:	Equip sewer manholes with watertight covers and inflow guards.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood water contamination; Reduce risk of surface water infiltration and sewage backup; Ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Food, Water, Shelter
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$80,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Elsa Public Works
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Wastewater Management Plan, Disaster Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Elsa – Action #4	
Proposed Action:	Acquire and install generators with hard wired quick connections at all critical facilities.
BACKGROUND INFORMATION	
Site and Location:	Community-wide. Priority locations: Water Plant, Sewer Plant, Police Station
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Energy (Power & Fuel)
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$200,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	Elsa Public Works
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Elsa – Action #5	
Proposed Action:	Acquire and distribute AC window units or fans for vulnerable populations.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce health risks to vulnerable citizens.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat
Community Lifeline:	Communications
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$100,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Elsa Emergency Management Coordinator
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Elsa – Action #6	
Proposed Action:	Harden/retrofit critical facilities to hazard-resistant levels.
BACKGROUND INFORMATION	
Site and Location:	Community critical facilities. Priority locations: Sewer and Water Plant, Fire Station, Police Station, City Hall
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages at critical facilities; Ensure continuity of critical services during and after event; Reduce risk of injury to emergency and critical personnel.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Communications, Health and Medical, Safety and Security, Energy (Power & Fuel)
Effect on New/Existing Buildings:	Reduce risk to existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$200,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Elsa Emergency Management Coordinator
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan,

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Elsa – Action #7	
Proposed Action:	Implement education and awareness program utilizing media, social media, bulletins, flyers, etc. To educate citizens of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damages.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Extreme Heat, Expansive Soils, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security, Health and Medical
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	Elsa Emergency Management Coordinator
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Elsa – Action #8	
Proposed Action:	Acquire and distribute NOAA weather radios.
BACKGROUND INFORMATION	
Site and Location:	Community critical buildings
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to citizens through improved communications and early warning.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Communications
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$80,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Elsa Emergency Management Coordinator
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Elsa – Action #9	
Proposed Action:	Build safe room shelters at community centers and/or manufactured home parks so that residents can reach shelter in less than five minutes.
BACKGROUND INFORMATION	
Site and Location:	Abel Drive
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to citizens by providing shelter in high risk areas during extreme weather events.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Thunderstorm Wind, Tornado, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$100,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Elsa Emergency Management Coordinator
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan,

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Elsa – Action #10	
Proposed Action:	Adopt and implement a program for clearing debris from bridges, drains and culverts.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages caused by flooding by maintaining or restoring drainage capacity.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to existing and future structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$10,000 (annually)
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Elsa Public Works
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Elsa – Action #11	
Proposed Action:	Undertake a comprehensive study of flood risk and reduction alternatives, with the assistance of the US Army Corps of Engineers. Implement feasible alternatives for flood reduction.
BACKGROUND INFORMATION	
Site and Location:	Community-wide flood hazard areas
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Improve risk assessment; Reduce risk of damages or injuries through drainage improvements; Reduce risk of damages and injuries.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Local Plans and Regulations (for unmapped areas)

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$25,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Elsa Emergency Management Coordinator
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Elsa – Action #12	
Proposed Action:	Upgrade undersized stormwater drains and culverts.
BACKGROUND INFORMATION	
Site and Location:	Community-wide drainage system
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$1,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Elsa City Manager and Elsa Public Works
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan, Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Elsa – Action #13	
Proposed Action:	Provide how-to information to residents for installing backflow valves to prevent reverse-flow floods. Provide flyers and educational materials.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damage impact on residents after a flood event; Reduce risk of sewage back-up in structures; Reduce risk of injury or illness to residents
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$10,000
Potential Funding Sources:	Local Funds (staff time)
Lead Agency/Department Responsible:	Elsa Emergency Management Coordinator
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Elsa – Action #14	
Proposed Action:	Increase drainage capacity; add stormwater detention and/or retention basins as deemed necessary to reduce flood risk.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce flood risk through improved drainage capacity; Reduce risk of damages and injuries; Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,000,000
Potential Funding Sources:	Local Funds, HMGP, CDBG, Other State and Federal Grants
Lead Agency/Department Responsible:	Elsa Public Works and Elsa City Manager
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Elsa – Action #15	
Proposed Action:	Educate citizens on mitigation measures to prevent frozen pipes; Educate homeowners on carbon monoxide monitors/alarms.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of damages and injuries through mitigation education and awareness.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Winter Storm
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Low
Estimated Cost:	\$10,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Elsa Emergency Management Coordinator
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Elsa – Action #16	
Proposed Action:	Build safe room shelters throughout the jurisdiction to include community centers and/or manufactured home parks so that residents can reach shelter in less than five minutes.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to citizens by providing shelter in high risk areas during extreme weather events.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Thunderstorm Wind, Tornado, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$500,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Elsa Emergency Management Coordinator
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

CITY OF GRANJENO

City of Granjeno – Action #1	
Proposed Action:	Implement education and awareness program utilizing media, social media, bulletins, flyers, etc. To educate citizens of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damages.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Extreme Heat, Expansive Soils, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security, Health and Medical
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	Granjeno City Administration
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Granjeno – Action #2	
Proposed Action:	Undertake an initiative to increase the number of flood insurance policies
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce flood risk and build resiliency; Increase flood risk awareness; Reduce damage impact on residents after a flood event; Reduce the burden on state and federal resources.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulation

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Low
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds (staff time)
Lead Agency/Department Responsible:	Granjeno Floodplain Administrator
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan, Flood Damage Prevention Ordinance

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Granjeno – Action #3	
Proposed Action:	Adopt and implement a program for clearing debris from bridges, drains and culverts.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages caused by flooding by maintaining or restoring drainage capacity.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to existing and future structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$10,000 (annually)
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Granjeno Public Works
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Granjeno – Action #4	
Proposed Action:	Adopt and implement a routine tree trimming program that clears tree limbs near power lines and/or hanging in right-of-way; Remove dead trees from right-of way and drainage systems on a scheduled basis.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages to infrastructure; Ensure continuity of services during and after event; Reduce damages associated with power outages; Reduce risk of injuries or fatalities to vulnerable populations.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Hurricane Wind, Flood, Thunderstorm Wind, Hail, Lightning, Tornado, Winter Storm, Wildfire
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to existing and future structure and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$100,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Granjeno Public Works
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Maintenance Plan, Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Granjeno – Action #5	
Proposed Action:	Build safe room shelters tat community centers and/or manufactured home parks so that residents can reach shelter in less than five minutes.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to citizens by providing shelter in high risk areas during extreme weather events.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Thunderstorm Wind, Tornado, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Granjeno Emergency Management Coordinator
Implementation Schedule:	Within 12-36 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Granjeno – Action #6	
Proposed Action:	Conduct public education program on fire risks and wildland fire mitigation, with the assistance of the Texas Forest Service.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires through education and awareness programs; Reduce risk of damages and injuries.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Community Lifeline:	Safety and Security, Health and Medical
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$10,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Granjeno Fire Chief
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Granjeno – Action #7	
Proposed Action:	Adopt and implement routine fire hydrant maintenance plan.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk and spread of wildfires through routine maintenance of fire hydrants; Reduce risk of injury or damages.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds (staff time)
Lead Agency/Department Responsible:	Granjeno Fire Chief
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

SECTION 21: MITIGATION ACTIONS

CITY OF HIDALGO

City of Hidalgo– Action #1	
Proposed Action:	Add additional storm sewer line from 5 th St. Azalia to Texano East to Eight St. Install 24" cement pipe to help drainage.
BACKGROUND INFORMATION	
Site and Location:	5 th St. Azalia to Texano East to Eight St
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,300,000
Potential Funding Sources:	Local Funds, State and Federal Grants, Urban County
Lead Agency/Department Responsible:	City of Hidalgo Public Works
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan, Drainage Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Hidalgo– Action #2	
Proposed Action:	Widening of drainage ditch from Military to Floodway.
BACKGROUND INFORMATION	
Site and Location:	Military to Floodway
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$804,000
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	City of Hidalgo Public Works, Hidalgo County Drainage District, and Hidalgo County Precinct #1
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan, Drainage Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Hidalgo– Action #3	
Proposed Action:	Increase storage capacity along Rio Grande and Floodway.
BACKGROUND INFORMATION	
Site and Location:	Rio Grande to Floodway
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	High
Estimated Cost:	\$40,000,000
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	City Administration, Hidalgo County Drainage District and IWBC
Implementation Schedule:	Within 24-48 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Hidalgo– Action #4	
Proposed Action:	Clean and maintain existent ditches located along Hwy 281, SH 336 and Spur 115.
BACKGROUND INFORMATION	
Site and Location:	Hwy 281, SH 336 and Spur 115
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce damages caused by flooding by maintain or restoring drainage capacity.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	High
Estimated Cost:	\$120,000
Potential Funding Sources:	Local Funds
Lead Agency/Department Responsible:	City of Hidalgo Public Works
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Hidalgo– Action #5	
Proposed Action:	Install security cameras and surveillance equipment along main arterials.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Increase boarder security in Hidalgo County reducing impact of illegal immigration.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Mass Migration
Community Lifeline:	Communications, Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$500,000
Potential Funding Sources:	FEMA, DHS
Lead Agency/Department Responsible:	City Administration, Hidalgo County and Department of Homeland Security
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Hidalgo– Action #6	
Proposed Action:	Implement drainage projects that support low maintenance and cleaning of drainage ditches.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	High
Estimated Cost:	\$10,000
Potential Funding Sources:	Local Funds
Lead Agency/Department Responsible:	City of Hidalgo Public Works
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Hidalgo– Action #7	
Proposed Action:	Implement program to provide links to weather alerts and departmental phone listings with contact personnel for residents.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Promote hazard awareness and protect citizens from potential injuries and damages.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material
Community Lifeline:	Communications, Health and Medical, Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds (staff time)
Lead Agency/Department Responsible:	City of Hidalgo Emergency Management Coordinator
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Hidalgo– Action #8	
Proposed Action:	Harden/retrofit critical facilities to hazard-resistant levels, which can include re-enforcing windows, roof construction, enforcing covered parking areas for critical vehicles, etc.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce damages at critical facilities. Ensure continuing of critical services during and after event. Reduce risk of injury to emergency and crucial personnel.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Extreme Heat, Flood, Hail, Hurricane Wind, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	High
Estimated Cost:	\$100,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	City of Hidalgo Emergency Management Coordinator and Engineering Department
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Hidalgo– Action #9	
Proposed Action:	Perform dam inundation studies to establish consistent and justifiable risk factors. Utilize studies to implement mitigation strategies including construction, acquisition, regulations and warning systems/evacuation plans.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk residents through improved dam failure mitigation, evacuation alternatives and awareness efforts; Improved Risk Assessment; Reduce damages and risk to residents.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$5,000,000
Potential Funding Sources:	Local Funds
Lead Agency/Department Responsible:	City of Hidalgo Emergency Management Coordinator
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Hidalgo– Action #10	
Proposed Action:	Develop procedures for making mass notifications to citizens and merchants during a natural hazard incident. Purchase Emergency Notification System and conduct training.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Promote hazard awareness and protect citizens from potential injuries and damages.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material
Community Lifeline:	Communications, Health and Medical, Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$30,000
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	City of Hidalgo Emergency Management Coordinator
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Hidalgo– Action #11	
Proposed Action:	Incorporate higher standards for hazard resistance in local application of the building code.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of damages to structures through improved construction techniques; Reduce recovery efforts for the community after an event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam Failure, Expansive Soils, Flood, Hail, Hurricane Wind, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	High
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds (staff time)
Lead Agency/Department Responsible:	City of Hidalgo Emergency Management Coordinator
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

CITY OF LA JOYA

City of La Joya – Action #1	
Proposed Action:	Raise electrical components of sewage lift stations and water plan motors/electrical systems above BFE.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood damages; Reduce risk of sewage infiltration; Reduce risk of damage and injuries.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security, Energy (Power & Fuel)
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,500,000
Potential Funding Sources:	Grants through USDA or TWDB
Lead Agency/Department Responsible:	La Joya City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
Project would allow for sewer and water system to efficiently sustain economic development. The current cost of this project is estimated to be \$1.5 million, however if not consider the cost in damage would exceed project cost.

SECTION 21: MITIGATION ACTIONS

City of La Joya – Action #2	
Proposed Action:	Increase drainage capacity; add stormwater detention and/or retention basins as deemed necessary to reduce flood risk. Additional, work to acquire and preserve open spaces adjacent to floodplain areas.
BACKGROUND INFORMATION	
Site and Location:	Community-wide, especially south on Military Rd. where drainage issues are prevalent.
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damage and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructures.
Priority (High, Moderate, Low):	High
Estimated Cost:	\$3,500,000
Potential Funding Sources:	Grants through USDS or FEMA
Lead Agency/Department Responsible:	La Joya City Administration
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
The current cost of this project is estimated to be \$3.5 million, however if not consider the cost in damage would exceed project cost.

SECTION 21: MITIGATION ACTIONS

City of La Joya– Action #3	
Proposed Action:	Upgrade sewer manholes and equip with water tight covers and inflow guards. Upgrade to TCEQ standards for all manholes.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood water contamination Risk of surface water infiltration and sewage backup. Ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	High
Estimated Cost:	\$2,000,000
Potential Funding Sources:	Grants through USDA and TWDB
Lead Agency/Department Responsible:	La Joya City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Wastewater Management Plan

COMMENTS:
Project would allow for sewer system to efficiently sustain economic development and growth. The current cost of this project is estimated to be \$2 million, however if not consider the cost in damage would exceed project cost.

SECTION 21: MITIGATION ACTIONS

CITY OF LA VILLA

City of La Villa – Action #1	
Proposed Action:	Build a community safe room to provide protection to area residents and to serve as an evacuation center.
BACKGROUND INFORMATION	
Site and Location:	Within the community at a location to be determined
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to citizens by providing shelter in high risk areas during extreme weather events.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Thunderstorm Wind, Tornado, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$500,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	La Villa City Administration
Implementation Schedule:	Within 12-36 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan, Capital Improvement Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of La Villa – Action #2	
Proposed Action:	Purchase 8" water pumps.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of damages or injuries through flood mitigation at high risk structure.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$30,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	La Villa City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan, Capital Improvement Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of La Villa – Action #3	
Proposed Action:	Delta Regional 500 acre Watershed Project.
BACKGROUND INFORMATION	
Site and Location:	Site location to be determined
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of damages or injuries. Reduce impacts to floodplain and provide additional water source.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Extreme Heat, Wildfire
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$64,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	La Villa City Administration, Hidalgo County, and Water District
Implementation Schedule:	Within 36-48 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of La Villa – Action #4	
Proposed Action:	Upgrade the capacity of La Villa's Water Plant.
BACKGROUND INFORMATION	
Site and Location:	Water Plant
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Will provide additional water source. Reduce risk of fatalities and injuries.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Extreme Heat, Wildfire
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$64,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	La Villa Public Works
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of La Villa – Action #5	
Proposed Action:	Increase drainage capacity, Add stormwater detention or retentions basins/ponds as deemed necessary to reduce flood risk.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$10,000,000
Potential Funding Sources:	Local Funds, HMGP, CDBG, Other State and Federal Grants
Lead Agency/Department Responsible:	La Villa Public Works
Implementation Schedule:	Within 24-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of La Villa – Action #6	
Proposed Action:	Build underground water storage tank.
BACKGROUND INFORMATION	
Site and Location:	Site location to be determined
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages to infrastructure. Ensure continuing of critical services during and after an event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$10,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	La Villa Public Works
Implementation Schedule:	Within 24-48 months of plan adoption
Incorporation into Existing Plans:	Capital Improvement Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of La Villa – Action #7	
Proposed Action:	Continue with rehabilitation of manhole.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Ensure continuing of critical services during and after an event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Extreme Heat, Flood, Wildfire
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$100,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	La Villa Public Works
Implementation Schedule:	Within 24-48 months of plan adoption
Incorporation into Existing Plans:	Capital Improvement Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of La Villa– Action #8	
Proposed Action:	Develop an acquisition/buy-out program for those properties in flood hazard areas. Acquire and demolish repetitive loss properties. Acquire high risk vacant land and maintain as open space.
BACKGROUND INFORMATION	
Site and Location:	Repetitive loss properties. Community-wide flood risk areas.
Risk Reduction Benefit (Current Cost/Losses Avoided):	Eliminates risk of flood damage to high risk structures and prevent future losses in high risk flood hazard area. Reduce risk of injuries to citizens.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	La Villa Emergency Management Coordinator
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of La Villa– Action #9	
Proposed Action:	Implement a data recording system that captures extent and impact, related statistical information on fatalities, injuries and damages caused by each incident that occurs within the jurisdiction.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Promote hazard awareness and improve risk assessment.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Extreme Heat, Expansive Soils, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	La Villa City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of La Villa– Action #10	
Proposed Action:	Develop procedures for making mass notification to citizens during a natural hazard incident. Purchase Emergency Notification System and conduct training.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Promote hazard awareness and improve risk assessment.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Extreme Heat, Expansive Soils, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$30,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	La Villa Emergency Management Coordinator
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of La Villa– Action #11	
Proposed Action:	Purchase 40 KW light station generator for sewer plant and 250 KW generator for water plant.
BACKGROUND INFORMATION	
Site and Location:	City of La Villa Sewer Plant and Water Plant
Risk Reduction Benefit (Current Cost/Losses Avoided):	Provide power for critical facilities during power outages and ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Energy (Power & Fuel)
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$20,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	La Villa Public Works Director
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of La Villa– Action #12	
Proposed Action:	Improve construction techniques through building code enhancements and educate construction contractors, homeowners, and business owners about mitigation techniques.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of damages to structures through improved construction techniques; Reduce recovery efforts for the community after an event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Expansive Soils, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Communications, Safety and Security
Effect on new/existing buildings:	Reduce risk to new structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$1,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	La Villa Emergency Management Coordinator
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of La Villa– Action #13	
Proposed Action:	Research and incorporate subgrade stabilization methods on street projects such as street reclamation and repairs.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce damages to roadways through improved construction practices.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Expansive Soils
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$250,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	La Villa Public Works Director
Implementation Schedule:	Within 48-60 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of La Villa– Action #14	
Proposed Action:	Develop and implement drought plans and water conservation programs.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce impacts of drought through conservation; Reduce water usage and waste.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Extreme Heat
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$10,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	La Villa Emergency Management Coordinator
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

CITY OF MCALLEN

City of McAllen – Action #1	
Proposed Action:	Control potential backflow of stormwater in storm sewer systems.
BACKGROUND INFORMATION	
Site and Location:	Storm sewer systems and respective outfalls
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce damages caused by flooding.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	High
Estimated Cost:	\$500,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	McAllen Public Works
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Operations

COMMENTS:
Assess and identify areas susceptible to reverse stormwater flows, identify effective control measures, and implement improvements

SECTION 21: MITIGATION ACTIONS

City of McAllen – Action #2	
Proposed Action:	Implement active warning technologies for roadways affected by ice or floodwaters.
BACKGROUND INFORMATION	
Site and Location:	Roadways and bridge crossings
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce damages caused by flooding. Reduce risk of injuries on roadways during storm events. Reduce demand on emergency response.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Winter Storm
Community Lifeline:	Communications, Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$250,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Traffic Operations Department
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Emergency Operations Plan

COMMENTS:
Assess and identify vulnerable thoroughfares, research available technologies, and implement necessary infrastructure.

SECTION 21: MITIGATION ACTIONS

City of McAllen – Action #3	
Proposed Action:	Winterize plant infrastructure to minimize service and operation disruptions resulting from freezing temperatures.
BACKGROUND INFORMATION	
Site and Location:	Water and Wastewater Treatment Plant Facilities
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of damages resulting from freezing temperatures. Ensure continuity of public services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure & Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Winter Storms
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$500,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	McAllen Public Utilities
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Emergency Operations Plan

COMMENTS:
Identify and assess vulnerable infrastructure, determine effective weatherization protocols, and implement necessary infrastructure

SECTION 21: MITIGATION ACTIONS

City of McAllen – Action #4	
Proposed Action:	Elevate bridge structures and related roadway approaches at waterway crossings vulnerable to inundation.
BACKGROUND INFORMATION	
Site and Location:	Culvert/Bridge waterway crossings subject to inundation
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of damages and injuries. Reduces emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	High
Estimated Cost:	\$20,000,000
Potential Funding Sources:	Federal Grants
Lead Agency/Department Responsible:	McAllen Engineering Department and Public Works
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
Program would include assessment/prioritization of locations, conceptual/preliminary& final design, and construction.

SECTION 21: MITIGATION ACTIONS

City of McAllen – Action #5	
Proposed Action:	Incorporate debris/floatables control devices for stormwater infrastructure.
BACKGROUND INFORMATION	
Site and Location:	Main drainage ways and contributing upstream drainage system.
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce damages caused by flooding.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	NA
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$250,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	McAllen Public Works
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Operations

COMMENTS:
Assess and identify potential debris and floatables of concerns, identify and prioritize vulnerable waterways, research available technologies, and implement effective infrastructure strategies.

SECTION 21: MITIGATION ACTIONS

City of McAllen– Action #6	
Proposed Action:	Enhance emergency communication and notification system expanding fiber optic network to provide redundancy between critical City facilities. This would include identifying available routes, and the purchasing and installation of equipment.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk to citizen through improved communication and early warning.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material
Community Lifeline:	Communications, Safety and Security, Energy (Power & Fuel)
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$500,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	McAllen Information Technology Department
Implementation Schedule:	Within 12-48 months years of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of McAllen– Action #7	
Proposed Action:	Update and / or upgrade Emergency Notification System. This would include soliciting bids to update / upgrade system. Once system updated / upgraded, will need to conduct training and provide information on new system.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk to citizens through improved communications and early warning.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material
Community Lifeline:	Communications, Health and Medical, Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$500,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	McAllen Emergency Management Coordinator
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of McAllen– Action #8	
Proposed Action:	Purchase and Integrate a notification system that will be linked to Traffic Operations and Emergency Operations Center and will include dynamic message boards deployed on major thoroughfares.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk to citizens through improved communication and early warning. Reduce risk of injury.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material
Community Lifeline:	Communications, Health and Medical, Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	McAllen Emergency Management Coordinator and Traffic Operations
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of McAllen– Action #9	
Proposed Action:	Analyze and implement mitigation measures to reduce flood impacts within the community such as constructing active / passive flood barriers, backflow prevention structures / devices and, installation of necessary riprap armoring and bank stabilization.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of damages or injury through flood mitigation. Reduce community recovery efforts and cost.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,800,000 - \$30,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	McAllen Emergency Management Coordinator and Floodplain Administrator
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of McAllen– Action #10	
Proposed Action:	Analyze and implement mitigation measures to enhance drainage capacity within the community including excavation and grading of earthen drainage channels, removal / replacement of bridge or culvert structures, removal / replacement of affected lateral outfall structures, and bank stabilization.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of damages through improving drainage capacity.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructures.
Priority (High, Moderate, Low):	High
Estimated Cost:	\$2,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	McAllen Engineering Department
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of McAllen– Action #11	
Proposed Action:	Analyze current stormwater drainage system, and implement necessary upgrades to storm sewer pipe networks and related appurtenances as well as any necessary pavement and/or right-of-way restoration.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of damage due to increasing drainage capacity.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	High
Estimated Cost:	\$2,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	McAllen Engineering Department
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of McAllen– Action #12	
Proposed Action:	Design and construct regional facility. Create regional storm water detention facilities to detain runoff prior to discharge into limited downstream receiving streams in the City of McAllen.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of damages and injuries.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	High
Estimated Cost:	\$3,500,000
Potential Funding Sources:	2018 Bond Initiative
Lead Agency/Department Responsible:	McAllen Engineering Department
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of McAllen– Action #13	
Proposed Action:	Continue to identify and inventory slope and bank failures through maintenance program and identify necessary mitigation actions required. Stabilize and armor drainage channel banks and slopes in the City of McAllen.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind, Winter Storm
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	High
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	McAllen Engineering and Public Works Department
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of McAllen– Action #14	
Proposed Action:	Design re-profile channel geometries and additional mitigation measures. Stabilize and armor drainage channel banks and slopes in the City of McAllen.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	High
Estimated Cost:	\$50,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	McAllen Engineering and Public Works Department
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of McAllen– Action #15	
Proposed Action:	Construction of re-profile channel geometries; salvage and incorporate available topsoil prior to final vegetative stabilization. Stabilize and armor drainage channel banks and slopes in the City of McAllen.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind, Winter Storm
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$500,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	McAllen Engineering and Public Works Department
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of McAllen– Action #16	
Proposed Action:	Gate Structure Improvement Project. Improve existing gated storm water outfall structures in the City of McAllen, which will enhance water drainage systems to provide the capacity for floodwaters.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$500,000
Potential Funding Sources:	Stormwater Utility Fee
Lead Agency/Department Responsible:	McAllen Engineering Department
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of McAllen– Action #17	
Proposed Action:	Construction of portable pump stations throughout the City of McAllen and implementing portable pump by-pass stations.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$250,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	McAllen Engineering Department
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of McAllen– Action #18	
Proposed Action:	Purchase and install monitoring equipment. Develop project scope and begin implementation phase. The monitoring program would involve the implementation of a rain gauge and flood gauge network to forecast potential flood risks and assist in providing advance warnings, determining pre-deployment of resources and necessary evacuations.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Improved Risk Assessment.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind, Winter Storm
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$400,000
Potential Funding Sources:	2018 Bond Program
Lead Agency/Department Responsible:	McAllen Engineering and Public Works Department
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of McAllen– Action #19	
Proposed Action:	Continue with analysis of raw water transmission. Upon analysis, develop scope of work to promote redundancy.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Improved Risk Assessment
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind, Winter Storm
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,200,000 – Design \$20,000,000 – Construction
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	McAllen Engineering and Public Works Department
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of McAllen– Action #20	
Proposed Action:	Analysis, design and construction. Construction would involve building new reservoir and/or storage tank infrastructure as well as upgrading existing infrastructure with the intent to mitigate water loss and improve operational efficiency.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce impacts to floodplain and provide additional potential water sources for firefighting uses.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$300,000 – Design \$5,000,000 – Construction
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	McAllen Public Utilities Department
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of McAllen– Action #21	
Proposed Action:	Generated scope of work to conduct regional storm water master planning studies.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood damages and risk of injuries through comprehensive plans.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind, Winter Storm
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$150,000
Potential Funding Sources:	CIP Funding Cycle
Lead Agency/Department Responsible:	McAllen Engineering Department
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Drainage Plans

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of McAllen– Action #22	
Proposed Action:	Facility design and construction to ensure backup power and emergency interconnect capabilities for sewer lift stations.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Provide alternative power to critical facilities during power outages to ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure
MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Energy (Power & Fuel)
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$60,000 – Design \$1,000,000 –Construction
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	McAllen Public Utilities Department
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan
COMMENTS:	
*Deferred action from previous plan.	

SECTION 21: MITIGATION ACTIONS

City of McAllen– Action #23	
Proposed Action:	Identify correct size and type of generator for critical facilities in McAllen. Acquire and install generators with hard wired quick connections at identified critical facilities.
BACKGROUND INFORMATION	
Site and Location:	Community-wide, especially EOC and Fire Stations.
Risk Reduction Benefit (Current Cost/Losses Avoided):	Provide alternative power to critical facilities during power outages to ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security, Energy (Power & Fuel)
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$100,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	McAllen Fire Department and City Project Managers
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of McAllen– Action #24	
Proposed Action:	PM/Service Generators and fuel to run generators
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Provide alternative power to critical facilities during power outages to ensure continuity of critical services. Preparedness
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security, Energy (Power & Fuel)
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,000 (annually service cost) \$500 (annual fuel cost)
Potential Funding Sources:	Local Funds
Lead Agency/Department Responsible:	McAllen Fire Department
Implementation Schedule:	Within 6 months of plan adoption
Incorporation into Existing Plans:	Maintenance Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of McAllen– Action #25	
Proposed Action:	Evaluate power requirements to keep shelters at full power and request/review bids for auxiliary generators.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Provide alternative power to critical facilities during power outages to ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security, Energy (Power & Fuel)
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$3,000
Potential Funding Sources:	Local Funds
Lead Agency/Department Responsible:	McAllen Engineering and Purchasing Department
Implementation Schedule:	Within 12 months of upon plan adoption
Incorporation into Existing Plans:	Maintenance Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of McAllen– Action #26	
Proposed Action:	Evaluate power requirements to keep McAllen Schools at full power.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Provide alternative power to critical facilities during power outages to ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Energy (Power & Fuel)
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,000
Potential Funding Sources:	Local Funds
Lead Agency/Department Responsible:	McAllen Engineering Department
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Maintenance Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of McAllen– Action #27	
Proposed Action:	Implement automated monitoring and control systems (SCADA) in the City of McAllen.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk to citizen through improved communication and early warning.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Communications, Health and Medical, Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,000
Potential Funding Sources:	Local Funds
Lead Agency/Department Responsible:	McAllen Public Utilities Department
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of McAllen– Action #28	
Proposed Action:	Assessment, planning and implement recommended measures to protect drinking water supply and infrastructure.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of injuries and fatalities.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$120,000 – Design \$2,000,000 –Construction
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	McAllen Emergency Management Coordinator and Public Utilities Department
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Water Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of McAllen– Action #29	
Proposed Action:	Identify eligible repetitive flood loss properties and perform analysis to explore appropriate mitigation actions such as acquisition of properties, elevate structures, and implement structural measures.
BACKGROUND INFORMATION	
Site and Location:	Repetitive loss properties. Community-wide flood risk areas.
Risk Reduction Benefit (Current Cost/Losses Avoided):	Eliminates risk of flood damage to high risk structures and prevent future losses in high risk flood hazard area. Reduce risk of injuries to citizens.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	McAllen Emergency Management Coordinator and Public Utilities Department
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of McAllen– Action #30	
Proposed Action:	Incorporate higher standards for hazard resistance in local application of the building code.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of damages to structures through improved construction techniques; Reduce recovery efforts for the community after an event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds (staff time)
Lead Agency/Department Responsible:	McAllen Planning Department
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/ Ordinances

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of McAllen– Action #31	
Proposed Action:	Implement drainage projects that support low maintenance and cleaning of drainage ditches.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce vulnerability to flooding by evaluating jurisdictions dam and levee maintenance procedures and protocols.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$3,000
Potential Funding Sources:	Local Funds
Lead Agency/Department Responsible:	McAllen Public Works
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of McAllen– Action #32	
Proposed Action:	Implement a data recording system that captures extent, impact, related statistical information on fatalities, injuries and damages caused by each incident that occurs within the jurisdiction.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Promote hazard awareness and improve risk assessment.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	McAllen City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of McAllen– Action #33	
Proposed Action:	Harden/retrofit critical facilities to hazard-resistant levels, which can include re-enforcing windows, roof construction, enforcing covered parking areas for critical vehicles, etc.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce damages at critical facilities. Ensure continuing of critical services during and after event. Reduce risk of injury to emergency and crucial personnel.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Extreme Heat, Flood, Hail, Hurricane Wind, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$50,000-\$100,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	McAllen Public Works
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan, Capital Improvement Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

CITY OF MERCEDES

City of Mercedes – Action #1	
Proposed Action:	Evaluate access and road conditions for response vehicles. Develop and implement options to improve access and/or add redundant access routes in high-risk areas
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of injury or damages. Reduce risk and spread of wildfires through maintained and redundant access routes. Improve response time for emergency services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Hurricane Wind, Thunderstorm Wind, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$50,000
Potential Funding Sources:	Local funding (staff time), State and Federal Grants
Lead Agency/Department Responsible:	Mercedes Police Department and Planning Department
Implementation Schedule:	Within 24 months of plan adoption then every 24 months
Incorporation into Existing Plans:	Disaster Response Plan

COMMENTS:
Knowing what streets and roads are available during disasters ahead of time will allow proper notification to the public of what is available for evacuation of persons.

SECTION 21: MITIGATION ACTIONS

City of Mercedes – Action #2	
Proposed Action:	Adopt and implement a program for clearing debris from canals, roadside ditches, culverts, and inlets.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduces damages caused by flooding by maintaining or restoring drainage capacity.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$250,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Mercedes Public Works
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Hurricane Preparedness Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Mercedes – Action #3	
Proposed Action:	Have City employees become Certified Floodplain Managers.
BACKGROUND INFORMATION	
Site and Location:	City Employees
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk to residents and commercial structures by implementing FEMA regulations to proposed buildings.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline:	Communications
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$3,000
Potential Funding Sources:	Local Funds
Lead Agency/Department Responsible:	Mercedes Planning Department
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
The City of Mercedes will begin having its City Employees getting certified as floodplain managers.

SECTION 21: MITIGATION ACTIONS

City of Mercedes – Action #4	
Proposed Action:	Construct detention ponds in flood prone areas.
BACKGROUND INFORMATION	
Site and Location:	Community-wide flood prone areas
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce impacts to floodplain. Reduce risk of damage and injury in flood prone areas.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,000,000
Potential Funding Sources:	Local Funds, Local, State and Federal Grants
Lead Agency/Department Responsible:	Mercedes Public Works
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Hurricane Preparedness Plan

COMMENTS:
The City of Mercedes has begun identifying flood prone areas that would benefit from detention ponds.

SECTION 21: MITIGATION ACTIONS

City of Mercedes – Action #5	
Proposed Action:	Purchase Back Up Power Generators: This action proposed installing generators to critical facilities which will help ensure physical safety for facility occupants and maintain electronic systems functionality during power outages. Portable generators will maintain additional systems functionality including but not limited to lift stations, pumps, and communications infrastructure.
BACKGROUND INFORMATION	
Site and Location:	Community-wide critical facilities
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk to the City and residents by providing continued operation of essential services during severe weather events.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Extreme Heat, Flood, Hailstorm, Hurricane Wind, Lightning, Tornado, Wildfire
Community Lifeline:	Power (Energy & Fuel)
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,000,000
Potential Funding Sources:	Local Funds, FEMA, BRIC, FEMA FMA, HMGP, CDBG-MIT
Lead Agency/Department Responsible:	Mercedes Emergency Management Coordinator and Public Works Department
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Mercedes – Action #6	
Proposed Action:	Construct New Drainage Pump Stations: This action proposes constructing new drainage pump stations to reduce the potential impacts of future flood events. Areas adjacent to flood relief outfalls will be prioritized.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$200,000
Potential Funding Sources:	Local Funds, FEMA Cops, FEMA PDM, FEMA HMGP
Lead Agency/Department Responsible:	Mercedes Public Works
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Mercedes – Action #7	
Proposed Action:	Purchase Portable or Permanent Pumps: This action proposes purchasing portable or permanent pumps that can be deployed as needed to reduce the potential impacts of future flood events.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$200,000
Potential Funding Sources:	Local Funds, FEMA BRIC, FEMA FMA, FEMA HMGP
Lead Agency/Department Responsible:	Mercedes Public Works
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Mercedes – Action #8	
Proposed Action:	Construct or Upgrade Storm Drainage Infrastructure: This action proposes constructing new or upgrading existing storm drainage infrastructure, including but not limited to storm sewer, drainage ditches, and culverts city-wide, to reduce the potential impacts of future flood events.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$750,000
Potential Funding Sources:	Local Funds, FEMA, BRIC, FEMA FMA, FEMA HMGP
Lead Agency/Department Responsible:	Mercedes Public Works
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Mercedes – Action #9	
Proposed Action:	Construct Retention and Detention Ponds: This action proposes constructing water retention and detention facilities to reduce the potential impacts of future flood events.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce impacts to floodplain. Reduce risk of damage and injury in flood prone areas.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$750,000
Potential Funding Sources:	Local Funds, FEMA Corps, FEMA PDM, FEMA HMGP
Lead Agency/Department Responsible:	Mercedes Public Works
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Mercedes – Action #10	
Proposed Action:	Create Drainage Master Plan: This action proposes creating a drainage master plan for The City that will provide the County with a comprehensive planning document that provides basic information and necessary guidance for the city-wide drainage system.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$100,000
Potential Funding Sources:	Local Funds, FEMA, BRIC, FEMA FMA, FEMA HMGP, CDBG-MIT
Lead Agency/Department Responsible:	Mercedes City Administration
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Mercedes – Action #11	
Proposed Action:	Widen Ditches: This action proposes widening existing City of Mercedes drainage ditches to reduce the potential impacts of future flood events.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$750,000
Potential Funding Sources:	Local Funds, FEMA Corps, FEMA BRIC, FEMA HMGP
Lead Agency/Department Responsible:	Mercedes Public Works
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Mercedes – Action #12	
Proposed Action:	Construct or Upgrade Storm Drainage Infrastructure: This action proposes constructing new or upgrading existing storm drainage infrastructure, including but not limited to storm sewer pipe, manholes, and inlets to reduce the potential impacts of future flood events.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$750,000
Potential Funding Sources:	Local Funds, FEMA Corps, FEMA BRIC, FEMA HMGP
Lead Agency/Department Responsible:	Mercedes Public Works
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Mercedes – Action #13	
Proposed Action:	Construct Drainage Control Structures and Flood Control Gates: This action proposes constructing new, city-wide drainage control structures and flood control gates to reduce the potential impacts of future flood events.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$750,000
Potential Funding Sources:	Local Funds, FEMA Corps, FEMA BRIC, FEMA HMGP, CDBG-MIT, TWDB
Lead Agency/Department Responsible:	Mercedes Public Works
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Mercedes – Action #14	
Proposed Action:	Upgrade Outdated Sewer Treatment Plant and Service Lines: This action proposes upgrading existing sewer treatment plant, increasing and extending service lines, and manholes.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood water contamination. Reduce risk of surface water infiltration and sewage backup. Ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,250,000
Potential Funding Sources:	Local Funds, FEMA Corps, FEMA BRIC, FEMA HMGP, CDBG-MIT, TWDB
Lead Agency/Department Responsible:	Mercedes Public Works
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Wastewater Management Plan

COMMENTS:
This project would reduce on-going repair costs.

SECTION 21: MITIGATION ACTIONS

City of Mercedes – Action #15	
Proposed Action:	Upgrade Outdated Water Treatment Plant and Service Lines: This action proposes upgrading existing water treatment plant, widen service lines. Adding required appurtenances such as fire hydrants and valves.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood water contamination. Reduce risk of surface water infiltration and sewage backup. Ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,250,000
Potential Funding Sources:	Local Funds, FEMA Corps, FEMA BRIC, FEMA HMGP, CDBG-MIT, TWDB
Lead Agency/Department Responsible:	Mercedes Public Works
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Wastewater Management Plan

COMMENTS:
This project would reduce on-going repair costs.

SECTION 21: MITIGATION ACTIONS

City of Mercedes – Action #16	
Proposed Action:	Undertake Construction and/or Resurfacing of City Streets to Permit Greater Evacuation Accessibility Prior to Natural Hazard Events: The City of Mercedes will assess all existing streets and roads within the city limits and its extra-territorial jurisdiction (ETJ) to undertake construction and/or resurfacing of streets to allow for greater and safer evacuation of residents prior to the natural hazard event.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of injury or damages. Reduce risk and spread of wildfires through maintained and redundant access routes. Improve response time for emergency services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind, Wildfire
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,250,000
Potential Funding Sources:	Local Funds, FEMA BRIC, FEMA HMGP, CDBG-MIT, TWDB
Lead Agency/Department Responsible:	Mercedes Public Works
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Disaster Response Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Mercedes – Action #17	
Proposed Action:	Purchase and install Self Priming Pumps.
BACKGROUND INFORMATION	
Site and Location:	701 Mathis St., 124 North St., and 4079 Beech Ave.
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline:	Safety and Security, Energy (Power & Fuel)
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$275,000
Potential Funding Sources:	Local Funds/Loan, State and Federal Grants
Lead Agency/Department Responsible:	Mercedes Public Works
Implementation Schedule:	Within 3 months of plan adoption
Incorporation into Existing Plans:	Hurricane Preparedness Plan, Wastewater Management Plan

COMMENTS:
The City of Mercedes is currently working on purchasing self-priming pumps to alleviate the storm sewer system and flood prone areas. Quotes have been obtained.

SECTION 21: MITIGATION ACTIONS

City of Mercedes – Action #18	
Proposed Action:	Equip sewer lift stations with hard wire quick connections for generators.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Provide power for critical facilities to ensure continuity of critical services. Reduce damages and injury.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline:	Energy (Power & Fuel)
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$100,000
Potential Funding Sources:	Local Funds, TWDB, City Loan, State and Federal Grants
Lead Agency/Department Responsible:	Mercedes Public Works
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Storm Preparedness

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Mercedes – Action #19	
Proposed Action:	Develop Master Drainage Plan that addresses flood prone areas.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$75,000
Potential Funding Sources:	TWDB, Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Mercedes Public Works
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
The City of Mercedes has instructed the City Engineer to develop a Master Drainage Plan.

SECTION 21: MITIGATION ACTIONS

City of Mercedes – Action #20	
Proposed Action:	Raise/Rehab storm or sewer manholes.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood water contamination. Reduce risk of surface water infiltration and sewage back up. Ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$750,000
Potential Funding Sources:	TWDB, Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Mercedes Public Works
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
The City of Mercedes is currently getting quotes to rehab or raise manholes.

SECTION 21: MITIGATION ACTIONS

City of Mercedes – Action #21	
Proposed Action:	Equip sewer manholes with watertight covers and inflow guards.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduces Sewer Backup
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$800,000
Potential Funding Sources:	TWDB, Local, State and Federal Funds
Lead Agency/Department Responsible:	Mercedes Public Works
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Mercedes – Action #22	
Proposed Action:	Construct a water reservoir.
BACKGROUND INFORMATION	
Site and Location:	Community-wide (within city limits)
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of injury and fatalities. Ensure water availability during droughts
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$3,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Mercedes Public Works
Implementation Schedule:	Within 36-48 months of plan adoption
Incorporation into Existing Plans:	Water Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Mercedes – Action #23	
Proposed Action:	Upgrade undersized stormwater drains and culverts.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$5,000,000
Potential Funding Sources:	TWDB, Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Mercedes Public Works
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
The City of Mercedes is currently working on several drainage projects.

SECTION 21: MITIGATION ACTIONS

City of Mercedes – Action #24	
Proposed Action:	Install backup battery to current server to resolve issues when power generator powers on due to electricity loss for the Mercedes Police Department.
BACKGROUND INFORMATION	
Site and Location:	Police Department computers along with emergency communications center.
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce the risk of loss of information and loss of emergency communication network. Provide power for critical facility during power outages to ensure continuing of critical services and emergency response.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material
Community Lifeline:	Communications, Energy (Power & Fuel)
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$2,000
Potential Funding Sources:	General Fund
Lead Agency/Department Responsible:	Mercedes I.T. Department
Implementation Schedule:	Within 36 months of plan adoption then every 36 months
Incorporation into Existing Plans:	Disaster Response Plan

COMMENTS:
Currently phones and computer software upon loss of electricity will cause the system to crash and will need to be rebooted for emergency communications to continue the backup battery packs will allow for a short period of time for the power generator to turn on and will allow system to continue without crashing

SECTION 21: MITIGATION ACTIONS

City of Mercedes– Action #25	
Proposed Action:	Implement a utility trailer to house emergency response equipment such as barricades, cones, and portable stop signs etc.
BACKGROUND INFORMATION	
Site and Location:	Mercedes Police Department and Public Works Department
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of damage and injury and/or fatalities.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind, Thunderstorm Wind, Winter Storm
Community Lifeline:	Communications, Health and Medical, Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$6,000
Potential Funding Sources:	General Fund, State and Federal Grants
Lead Agency/Department Responsible:	Mercedes Police Department
Implementation Schedule:	Within 24 months of plans adoption
Incorporation into Existing Plans:	Disaster Response Plan

COMMENTS:
The availability of an enclosed utility trailer with the proper street barricades, traffic cones and portable stop signs would allow for a quick deployment during emergencies and provide a safe passage for citizens during road closures due a disaster response.

SECTION 21: MITIGATION ACTIONS

City of Mercedes– Action #26	
Proposed Action:	Acquire an additional 5x8 box culverts at 2 locations and buildup of ditch banks at 3 locations plus ditch and bottom widening at 1 ditch.
BACKGROUND INFORMATION	
Site and Location:	Widen South Portion of West Ditch in Mercedes
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$485,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Mercedes City Administration, Hidalgo County
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Merced– Action #27	
Proposed Action:	Culvert upgrading at 12 locations plus ditch cleaning.
BACKGROUND INFORMATION	
Site and Location:	Widen South Portion of West Ditch in Merced
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$254,187
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Merced City Administration, Hidalgo County
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Merced— Action #28	
Proposed Action:	Capisallo Terrace Subdivision.
BACKGROUND INFORMATION	
Site and Location:	Widen South Portion of West Ditch in Merced
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,200,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Merced Public Works and City Engineers
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
*Deferred action from previous plan. Identify Drainage Projects that Will alleviate neighborhood flooding during heavy rains in the City of Merced, to enhance water drainage systems to provide the capacity for floodwaters.

SECTION 21: MITIGATION ACTIONS

City of Merced– Action #29	
Proposed Action:	Upgrade undersized stormwater drains and culverts.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$600,000
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Mercedes Public Works and City Engineers
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
*Deferred action from previous plan. Identify Drainage Projects that will alleviate neighborhood flooding during heavy rains in the City of Merced, to enhance water drainage systems to provide the capacity for floodwaters.

SECTION 21: MITIGATION ACTIONS

City of Mercedes– Action #30	
Proposed Action:	Identify levee pump station and acquire 10” and 12” pumps.
BACKGROUND INFORMATION	
Site and Location:	Community-wide pump stations
Risk Reduction Benefit (Current Cost/Losses Avoided):	Identify Drainage Projects that will alleviate neighborhood flooding during heavy rains in the City of Mercedes, to enhance water drainage systems to provide the capacity for floodwaters.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$220,000
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Mercedes Public Works and City Engineers
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Mercedes– Action #31	
Proposed Action:	Obtain Cameras, Badge/ID systems and Bulletproof Windows.
BACKGROUND INFORMATION	
Site and Location:	Mercedes School Districts
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of injuries to citizens.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Mass Migration
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$2,000,000
Potential Funding Sources:	Mercedes ISD, Department of Education, Homeland Security
Lead Agency/Department Responsible:	Mercedes ISD
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Mercedes– Action #32	
Proposed Action:	Improve fencing in Campuses
BACKGROUND INFORMATION	
Site and Location:	Mercedes School Districts
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of injuries to citizens.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Mass Migration
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$750,000
Potential Funding Sources:	Mercedes ISD, Department of Education
Lead Agency/Department Responsible:	Mercedes ISD
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Mercedes– Action #33	
Proposed Action:	Drill test wells: Investigate water wells and research land for acquisition for water reservoirs.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Improve risk assessment. Reduce risk of damages or injuries through necessary improvements.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local plans and Regulations Structure and infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$150,000
Potential Funding Sources:	Local Funds, Utility Bond
Lead Agency/Department Responsible:	TCEQ and Mercedes City Administration
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Water Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Mercedes– Action #34	
Proposed Action:	Develop an acquisition/buy-out program for those properties in flood hazard areas. Acquire and demolish repetitive loss properties. Acquire high risk vacant land and maintain as open space.
BACKGROUND INFORMATION	
Site and Location:	Repetitive loss properties. Community-wide flood risk areas.
Risk Reduction Benefit (Current Cost/Losses Avoided):	Eliminates risk of flood damage to high risk structures and prevent future losses in high risk flood hazard area. Reduce risk of injuries to citizens.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Mercedes Emergency Management Coordinator
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Mercedes– Action #35	
Proposed Action:	Implement drainage projects that support low maintenance and cleaning of drainage ditches.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and infrastructure Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds
Lead Agency/Department Responsible:	Mercedes Public Works
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Mercedes– Action #36	
Proposed Action:	Implement program to provide links to weather alerts and departmental phone listings with contact personnel for residents. Implement public awareness programs to assist the public with mitigation strategies and provide emergency management contact information and implement a public awareness campaign.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk to citizens through improved communications and early warning.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material
Community Lifeline:	Communications
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds
Lead Agency/Department Responsible:	Mercedes Emergency Management Coordinator
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Mercedes– Action #37	
Proposed Action:	Incorporate higher standards for hazard resistance in local application of the building code.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of damages to structures through improved construction techniques; Reduce recovery efforts for the community after an event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new structures
Priority (High, Moderate, Low):	High
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds (staff time)
Lead Agency/Department Responsible:	Mercedes Building and Inspection Department
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Mercedes– Action #38	
Proposed Action:	Implement a data recording system that captures extent, impact, related statistical information on fatalities, injuries and damages caused by each incident that occurs within the jurisdiction.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Promote hazard awareness and improve risk assessment.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$3,000
Potential Funding Sources:	Local Funds
Lead Agency/Department Responsible:	Mercedes Emergency Management Coordinator
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
*Deferred action from previous plan. Over the next five years, record the impact and the extent of natural hazard incidents within the jurisdiction in order to maintain records for all weather related incidents.

SECTION 21: MITIGATION ACTIONS

City of Mercedes– Action #39	
Proposed Action:	Develop procedures for making mass notifications to citizens and merchants during a natural hazard incident. Solicit bids for system. Purchase Emergency Notification System and install. Distribute information on new system and conduct training.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk to citizens through improved communications and early warning.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$25,000
Potential Funding Sources:	Local Funds
Lead Agency/Department Responsible:	Mercedes Emergency Management Coordinator
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
*Deferred action from previous plan. Implement procedures for emergency communication using a notification system in the City of Mercedes, as a means of disseminating emergency information to the citizens of Mercedes.

SECTION 21: MITIGATION ACTIONS

City of Mercedes– Action #40	
Proposed Action:	Perform dam inundation studies to establish consistent and justifiable risk factors. Utilize studies to implement mitigation strategies including construction, acquisition, regulations and warning systems/evacuation plans.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk residents through improved dam failure mitigation, evacuation alternatives and awareness efforts; Improved Risk Assessment; Reduce damages and risk to residents.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure, Flood
Community Lifeline:	Safety and Security, Health and Medical
Effect on new/existing buildings:	Reduce risk to future structures
Priority (High, Moderate, Low):	Low
Estimated Cost:	\$5,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Mercedes Emergency Management Coordinator
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Emergency Action Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

CITY OF MISSION

City of Mission – Action #1	
Proposed Action:	Reduce damages and minimize future flood losses through implementation of comprehensive drainage improvements to the 72 subbasins identified in the Mission Master Drainage Plan (Appendix H).
BACKGROUND INFORMATION	
Site and Location:	Community-wide drainage system
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$93,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Mission Grants Administrator
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan, Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Mission – Action #2	
Proposed Action:	Acquire and install generators with hard wired quick connections at the Mission City Hall, shelters, and any other critical facility identified.
BACKGROUND INFORMATION	
Site and Location:	Mission critical facilities
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Health and Medical, Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Mission Public Works
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
*Deferred from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Mission – Action #3	
Proposed Action:	Develop an acquisition program in flood hazard areas. Acquire and demolish repetitive loss properties.
BACKGROUND INFORMATION	
Site and Location:	Community-wide repetitive loss areas
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Eliminate risk of flood damages to high-risk structures and prevent future losses in high risk flood hazard areas; Reduce downstream impacts associated with development in the floodplain; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$1,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Mission Grants Administrator
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Flood Management Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Mission – Action #4	
Proposed Action:	Incorporate higher standards for hazard resistance in local application of the building code.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of damages to structures through improved construction techniques; Reduce recovery efforts for the community after an event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds (staff time)
Lead Agency/Department Responsible:	Mission City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Mission – Action #5	
Proposed Action:	Incorporate subgrade stabilization methods on street projects such as street reclamation and repairs.
BACKGROUND INFORMATION	
Site and Location:	Community-wide street projects
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages on new streets throughout the city.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Expansive Soils
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to future structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$250,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Mission Public Works
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Mission – Action #6	
Proposed Action:	Implement education and awareness program utilizing media, social media, bulletins, flyers, etc. To educate citizens, contractors, homeowners, and business owners of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damages.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Extreme Heat, Expansive Soils, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security, Health and Medical
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$10,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	Mission Emergency Management Coordinator
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Mission – Action #7	
Proposed Action:	Implement a data recording system that captures extent and impact, related statistical information on fatalities, injuries and damages caused by each incident that occurs within the jurisdiction.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Promote hazard awareness and improve risk assessment
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Extreme Heat, Expansive Soils, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	Mission City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Mission – Action #8	
Proposed Action:	Harden/retrofit critical facilities to hazard-resistant levels and construct covered parking areas for critical vehicles.
BACKGROUND INFORMATION	
Site and Location:	Community critical facilities
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages at critical facilities; Ensure continuity of critical services during and after event; Reduce risk of injury to emergency and critical personnel; Protect critical equipment
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Communications, Health and Medical, Safety and Security, Energy (Power & Fuel)
Effect on New/Existing Buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$1,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Mission Emergency Management Coordinator
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
*Deferred action from previous plan.

SECTION 21: MITIGATION ACTIONS

City of Mission – Action #9	
Proposed Action:	Perform dam inundation studies to establish consistent and justifiable risk factors. Utilize studies to implement mitigation strategies including construction, acquisition, regulations and warning systems/evacuation plans.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk residents through improved dam failure mitigation, evacuation alternatives and awareness efforts; Improved Risk Assessment; Reduce damages and risk to residents.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security, Health and Medical
Effect on New/Existing Buildings:	Reduce risk to future structures
Priority (High, Moderate, Low):	Low
Estimated Cost:	\$5,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Mission Emergency Management Coordinator
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Emergency Action Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

CITY OF PALMHURST

City of Palmhurst – Action #1	
Proposed Action:	Acquire and install generators with hard wired quick connections at critical facilities.
BACKGROUND INFORMATION	
Site and Location:	City Hall, Police Department, Administration Bldg., and Maintenance Bldg. 4417 N Shary Rd. Palmhurst TX 78573 26.256063021131197, -98.27853003864712
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Energy (Power & Fuel)
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$100,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	Palmhurst Emergency Management Coordinator
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Emergency Operations Plan

COMMENTS:
Response personnel, city personnel, public works personnel, debris removal staff and first responders, are subject to injury or illness resulting from exposure to extreme cold temperatures. Operations or service delivery may experience impacts from electricity blackouts due to winter storms. Power outages are possible throughout the planning area due to downed trees and power lines and/or rolling blackouts. Critical facilities without emergency backup power may not be operational during power outages.

SECTION 21: MITIGATION ACTIONS

City of Palmdurst – Action #2	
Proposed Action:	Implement education and awareness program utilizing media, social media, bulletins, flyers, etc. To educate citizens of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damages.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Extreme Heat, Expansive Soils, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security, Health and Medical
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	Palmdurst Emergency Management Coordinator
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
Implement education and awareness programs to educate citizens of the hazards that can threaten the area and mitigation measures they can take to reduce injuries, fatalities, and property damage.

SECTION 21: MITIGATION ACTIONS

City of Palmdurst – Action #3	
Proposed Action:	Implement measures to secure traffic lights and traffic controls from high wind damage.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages to structures and infrastructure; Reduce risk of injuries or fatalities.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Hurricane Wind, Thunderstorm Wind, Tornado
Community Lifeline:	Communications, Transportation
Effect on New/Existing Buildings:	Reduce risk to existing and future structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$3,000
Potential Funding Sources:	Local Funds (staff time)
Lead Agency/Department Responsible:	Palmdurst Emergency Management Coordinator
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances, Emergency Operations Plan

COMMENTS:
Secure traffic lights and traffic controls from high wind damage to avoid accidents and or injuries.

SECTION 21: MITIGATION ACTIONS

City of Palmhurst – Action #4	
Proposed Action:	Establish, adopt and implement a "green infrastructure" program for parks, nature preserves, greenbelts, etc.
BACKGROUND INFORMATION	
Site and Location:	Community-wide. Priority location: Palmhurst City Park – Shary Chapel. 5000 Block N Shary Rd Palmhurst, TX 78573 26.26181664721354, -98.27646205086766
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce impacts of flood through expanded greenspace and restoration of floodplains and wetlands; Reduce impacts of drought through green infrastructure that works to replenish ground water reserves; Reduce impacts of Urban Island Heat effect in densely populated areas through tree planting.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Natural Systems Protection Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Extreme Heat, Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$10,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Palmhurst Emergency Management Coordinator
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances

COMMENTS:
Future plans for our first "green infrastructure" program for our future parks, nature preserves, greenbelts, etc.

SECTION 21: MITIGATION ACTIONS

City of Palmdurst – Action #5	
Proposed Action:	Upgrade undersized stormwater drains and culverts.
BACKGROUND INFORMATION	
Site and Location:	Community-wide drainage system
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$500,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Palmdurst Public Works
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan, Drainage Plan

COMMENTS:
Improve drainage systems by expanding capacity through an increase in channel size and culvert size

SECTION 21: MITIGATION ACTIONS

City of Palmhurst – Action #6	
Proposed Action:	Educate citizens on mitigation measures to prevent frozen pipes; Educate homeowners on carbon monoxide monitors/alarms.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of damages and injuries through mitigation education and awareness.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Winter Storm
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Palmhurst Emergency Management Coordinator
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
All populations, buildings, critical facilities, and infrastructure in the entire City of Palmhurst planning area, including all participating jurisdictions, are vulnerable to severe winter events.

SECTION 21: MITIGATION ACTIONS

City of Palmdurst – Action #7	
Proposed Action:	Adopt and implement a routine tree trimming program that clears tree limbs near power lines and/or hanging in right-of-way; Remove dead trees from right-of way and drainage systems on a scheduled basis.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages to infrastructure; Ensure continuity of services during and after event; Reduce damages associated with power outages; Reduce risk of injuries or fatalities to vulnerable populations.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Winter Storm, Wildfire
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to existing and future structure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$100,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Palmdurst Public Works
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Maintenance Plan, Drainage Plan

COMMENTS:
Significant debris and downed trees can also result in emergency response vehicles being unable to access areas of the community.

SECTION 21: MITIGATION ACTIONS

City of Palmhurst – Action #8	
Proposed Action:	Acquire and distribute NOAA weather radios.
BACKGROUND INFORMATION	
Site and Location:	Community critical buildings
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to citizens through improved communications and early warning.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Communications
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$50,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Palmhurst Emergency Management Coordinator
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Operations Plan

COMMENTS:
Assist the General public on early warning of Extreme Weather events.

SECTION 21: MITIGATION ACTIONS

City of Palmdurst – Action #9	
Proposed Action:	Adopt and implement a program for clearing debris from bridges, drains and culverts.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages caused by flooding by maintaining or restoring drainage capacity.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to existing and future structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$10,000 (annually)
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Palmdurst Public Works
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances

COMMENTS:
Assist the City of Palmdurst to clean crucial areas of debris from culverts to reduce flooding in residential and Commercial areas.

SECTION 21: MITIGATION ACTIONS

City of Palmhurst – Action #10	
Proposed Action:	Build safe room shelters at community centers and/or manufactured home parks so that residents can reach shelter in less than five minutes.
BACKGROUND INFORMATION	
Site and Location:	Within the City of Palmhurst, Location not yet determined
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to citizens by providing shelter in high risk areas during extreme weather events.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Hurricane Wind, Thunderstorm Wind, Tornado, Winter Storm
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$500,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Palmhurst Emergency Management Coordinator
Implementation Schedule:	Within 12-36 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan, Capital Improvement Plan

COMMENTS:
Provide shelter to the public on the dangers of Hurricanes, Tornadoes, Severe Storms, Winter Weather and extreme heat.

SECTION 21: MITIGATION ACTIONS

CITY OF PALMVIEW

City of Palmview – Action #1	
Proposed Action:	Drainage improvement 11 designated locations. These drainage systems need to be upgraded due to high risk areas that are prone to flooding.
BACKGROUND INFORMATION	
Site and Location:	Bentsen Palm Dr. and FM 495 -\$121,750 GGG- \$131,254 Pammy Ave- \$129,375 Tierra Linda- \$1,375,259 Joshua- \$118,200 Spring Glen- \$183,500 Rio Palm- \$114,000 Jaime Ave- \$105,300 Bentson Business Center- \$121,900 Foshee- \$102,400 South Abram- \$475,240
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$2,875,578
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Palmview Public Works
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan, Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Palmview – Action #2	
Proposed Action:	Riverside Subdivision: Subdivision has no drainage system and will need to have drainage system installed to prevent flooding.
BACKGROUND INFORMATION	
Site and Location:	Riverside Subdivision
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind, Winter Storm
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$593,425
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Palmview Public Works
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan, Drainage Plan

COMMENTS:
*Deferred from previous plan

SECTION 21: MITIGATION ACTIONS

City of Palmview – Action #3	
Proposed Action:	Buckhorn St.: Street has no drainage system and will need to have drainage system installed to prevent flooding.
BACKGROUND INFORMATION	
Site and Location:	Buckhorn St.
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind, Winter Storm
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$200,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Palmview Public Works
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan, Drainage Plan

COMMENTS:
*Deferred from previous plan

SECTION 21: MITIGATION ACTIONS

City of Palmview – Action #4	
Proposed Action:	Mile 2 and East Goodwin Rd.: Drainage system will need to be upgraded. The area has poor drainage which causes flood waters on roadway creating a major hazard to citizens and emergency responders.
BACKGROUND INFORMATION	
Site and Location:	Mile 2 and East Goodwin Rd.
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind, Winter Storm
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$200,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Palmview Public Works
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan, Drainage Plan

COMMENTS:
*Deferred from previous plan

SECTION 21: MITIGATION ACTIONS

City of Palmview – Action #5	
Proposed Action:	La Homa Rd. South of I2: Drainage ditch needs to be assessed and upgraded due to flooding on the roadways and surrounding subdivisions.
BACKGROUND INFORMATION	
Site and Location:	La Homa Rd. South of I2
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure
MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind, Winter Storm
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$50,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Palmview Public Works
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan, Drainage Plan
COMMENTS:	
*Deferred from previous plan	

SECTION 21: MITIGATION ACTIONS

City of Palmview – Action #6	
Proposed Action:	Silver Spur, I2 and Business 83: Drainage ditch systems needs to be assessed and upgraded due to severe flooding on the roadways and surrounding subdivisions.
BACKGROUND INFORMATION	
Site and Location:	Silver Spur, I2 and Business 83
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure
MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind, Winter Storm
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$100,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Palmview Public Works
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan, Drainage Plan
COMMENTS:	
*Deferred from previous plan	

SECTION 21: MITIGATION ACTIONS

City of Palmview – Action #7	
Proposed Action:	Showers Rd., I2 and Business 83: Drainage ditch systems needs to be assessed and upgraded due to severe flooding on the roadways and surrounding subdivisions.
BACKGROUND INFORMATION	
Site and Location:	Showers Rd., I2 and Business 83
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind, Winter Storm
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$100,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Palmview Public Works
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan, Drainage Plan

COMMENTS:
*Deferred from previous plan

SECTION 21: MITIGATION ACTIONS

City of Palmview – Action #8	
Proposed Action:	Purchase private property located on Showers Rd. to assess, re-design and reconstruction water retention canal to allow flood waters to release to the drainage system.
BACKGROUND INFORMATION	
Site and Location:	Showers Rd., I2 and Business 83
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind, Winter Storm
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$600,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Palmview Public Works
Implementation Schedule:	Within 36-48 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan, Drainage Plan

COMMENTS:
*Deferred from previous plan

SECTION 21: MITIGATION ACTIONS

City of Palmview – Action #9	
Proposed Action:	Develop a buy-out/ land acquisition program in flood hazard areas. Acquire and demolish repetitive loss properties. Acquire high risk vacant land and maintain as open space.
BACKGROUND INFORMATION	
Site and Location:	Community-wide flood risk areas
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Eliminate risk of flood damages to high risk structures and prevent future losses in high risk areas. Reduce risk of injuries to citizens. Reduce burden on emergency services during and after a flood event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$2,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Palmview Emergency Management Coordinator
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan

COMMENTS:
*Deferred from previous plan

SECTION 21: MITIGATION ACTIONS

City of Palmview – Action #10	
Proposed Action:	Incorporate higher standards for hazard resistance in local application of the building code.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of damages to structures through improved construction techniques; Reduce recovery efforts for the community after an event
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$25,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Palmview Emergency Management Coordinator
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Building Codes, Emergency Management Plan

COMMENTS:
*Deferred from previous plan

SECTION 21: MITIGATION ACTIONS

City of Palmview – Action #11	
Proposed Action:	Research and incorporate subgrade stabilization methods on street projects such as street reclamation and repairs.
BACKGROUND INFORMATION	
Site and Location:	Community-wide street projects
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages on new streets throughout the city.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils, Drought
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to future structures
Priority (High, Moderate, Low):	High
Estimated Cost:	\$250,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Palmview Public Works
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	Capital Improvement Plan

COMMENTS:
*Deferred from previous plan

SECTION 21: MITIGATION ACTIONS

City of Palmview – Action #12	
Proposed Action:	Implement a data recording system that capture extent and impact, related statistical information on fatalities, injuries and damages caused by each incident that occurs within the jurisdiction.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Promote hazard awareness and improve risk assessment.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness
MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material
Community Lifeline:	Communications
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Palmview City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	N/A
COMMENTS:	
*Deferred from previous plan	

SECTION 21: MITIGATION ACTIONS

City of Palmview – Action #13	
Proposed Action:	Acquire and install generator with hard wired quick connections for new public safety substation that serves the City of Palmview's west side for law enforcement and fire response. The substation currently does not have any alternate power sources to maintain functioning in the event of an outage. Acquire and install generator with hard wired quick connections for new public safety central fire station that serves the City of Palmview's central and east side for fire response. The central station currently does not have any alternate power sources to maintain functioning in the event of an outage.
BACKGROUND INFORMATION	
Site and Location:	City of Palmview public safety substation, City of Palmview safety central fire station
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Provide power for critical facilities during power outages and ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure
MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material
Community Lifeline:	Energy (Power & Fuel)
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$120,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Palmview Police and Fire Department
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	N/A
COMMENTS:	
*Deferred from previous plan	

SECTION 21: MITIGATION ACTIONS

City of Palmview – Action #14	
Proposed Action:	Develop procedures for making mass notifications to citizens and merchants during a natural hazard incident. Solicit bids for system. Purchase Emergency Notification System and install. Distribute information on new system and conduct training.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Promote hazard awareness and protect citizens from potential injuries and damages.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material
Community Lifeline:	Communications, Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$31,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Palmview Public Safety Department
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
*Deferred from previous plan

SECTION 21: MITIGATION ACTIONS

CITY OF PEÑITAS

City of Peñitas– Action #1	
Proposed Action:	Acquire and preserve open space adjacent floodplain area.
BACKGROUND INFORMATION	
Site and Location:	11 th St. & 3 Mile Line and Liberty Intersection (26.16N,98.26W)
Risk Reduction Benefit (Current Cost/Losses Avoided):	Preserve and restore natural function of floodplain. Reduce flood damages and risk of injuries or fatalities.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Natural Systems Protection

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,000,000
Potential Funding Sources:	Local, State and Federal Grants
Lead Agency/Department Responsible:	Peñitas City Administration
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Peñitas– Action #2	
Proposed Action:	Acquire and install generators with hardwired quick connections at identified critical facilities.
BACKGROUND INFORMATION	
Site and Location:	Sewer Plant- 2301 Chihuahua Rd. Abram, TX. Fire Station- 1609 W Military Rd. Peñitas, TX. City Hall- 1111 S. Main St. Peñitas, TX Library- 1111 S. Main St. Peñitas, TX Police Sub Station- 2001 Mile 3 Rd Peñitas, TX
Risk Reduction Benefit (Current Cost/Losses Avoided):	Provide power for critical facilities during power outages and ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure
MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Energy (Power & Fuel)
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$45,000
Potential Funding Sources:	Local, State and Federal Grants
Lead Agency/Department Responsible:	Peñitas Emergency Management Coordinator
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan
COMMENTS:	
Functioning shelter and command center in case of power failure. (Inclement weather or sever storm).	

SECTION 21: MITIGATION ACTIONS

City of Peñitas– Action #3	
Proposed Action:	Increase drainage capacity; add stormwater detention and / or retention facility as deemed necessary to reduce flood risk.
BACKGROUND INFORMATION	
Site and Location:	Mile 2 North Rd. and Tom Gill Rd.
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity; Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	TBD upon securing engineering firm and scope of work
Potential Funding Sources:	Local, State and Federal Grants
Lead Agency/Department Responsible:	Peñitas Planning Department
Implementation Schedule:	Within 48 months of plan adoption or upon receipt of available funding
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

CITY OF PHARR

City of Pharr – Action #1	
Proposed Action:	Drainage Improvements: Downtown Pharr (Sugar & Egly) Alternatives, Pharr Drainage Master Plan Addendum #2
BACKGROUND INFORMATION	
Site and Location:	Sugar Rd. & Egly St.
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages caused by flooding by improving drainage capacity.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to existing and future structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$22,210,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Pharr Engineering Department
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Pharr – Action #2	
Proposed Action:	Drainage Improvements: South Pharr Mitigation Project, Pharr Master Drainage Plan
BACKGROUND INFORMATION	
Site and Location:	South Pharr
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages caused by flooding by improving drainage capacity.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to existing and future structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$43,420,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Pharr Engineering Department
Implementation Schedule:	Within 12-36 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Pharr – Action #3	
Proposed Action:	Drainage Improvements: Dicker and I Road Relief Project
BACKGROUND INFORMATION	
Site and Location:	Dicker and I Road
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages caused by flooding by improving drainage capacity.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to existing and future structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$5,845,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Pharr Engineering Department
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Pharr – Action #4	
Proposed Action:	Drainage Improvements: Southeast Pharr Drainage Mitigation Project, Pharr Master Drainage Plan
BACKGROUND INFORMATION	
Site and Location:	Southeast Pharr
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages caused by flooding by improving drainage capacity.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to existing and future structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$34,993,120
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Pharr Engineering Department
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Pharr – Action #5	
Proposed Action:	Drainage Improvements: Southwest Pharr Drainage Mitigation Project, Pharr Master Drainage Plan
BACKGROUND INFORMATION	
Site and Location:	Southwest Pharr
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages caused by flooding by improving drainage capacity.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to existing and future structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$5,587,275
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Pharr Engineering Department
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Pharr – Action #6	
Proposed Action:	Drainage Improvements: Downtown Pharr Drainage Mitigation Project, Pharr Master Drainage Plan
BACKGROUND INFORMATION	
Site and Location:	Downtown Pharr
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages caused by flooding by improving drainage capacity.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to existing and future structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$41,128,266
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Pharr Engineering Department
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Pharr – Action #7	
Proposed Action:	Drainage Improvements: Downtown Pharr Backwater Relief Project, Pharr Master Drainage Plan
BACKGROUND INFORMATION	
Site and Location:	Downtown Pharr
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages caused by flooding by improving drainage capacity.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to existing and future structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$3,510,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Pharr Engineering Department
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Pharr – Action #8	
Proposed Action:	Drainage Improvements: Downtown Pharr Underground Mitigation, Phase 1
BACKGROUND INFORMATION	
Site and Location:	Downtown Pharr
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages caused by flooding by improving drainage capacity.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to existing and future structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$31,070,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Pharr Engineering Department
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Pharr – Action #9	
Proposed Action:	Drainage Improvements: Downtown Regional Detention, Pharr Master Drainage Plan
BACKGROUND INFORMATION	
Site and Location:	Downtown Pharr
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages caused by flooding by improving drainage capacity.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to existing and future structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$32,510,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Pharr Engineering Department
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Pharr – Action #10	
Proposed Action:	Drainage Improvements: Northeast Pharr Mitigation Project, Pharr Master Drainage Plan
BACKGROUND INFORMATION	
Site and Location:	Northeast Pharr
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages caused by flooding by improving drainage capacity.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to existing and future structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$14,670,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Pharr Engineering Department
Implementation Schedule:	Within 18-24 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Pharr – Action #11	
Proposed Action:	Drainage Improvements: North Pharr Mitigation Project, Pharr Master Drainage Plan
BACKGROUND INFORMATION	
Site and Location:	North Pharr
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages caused by flooding by improving drainage capacity.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to existing and future structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$7,450,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Pharr Engineering Department
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Pharr – Action #12	
Proposed Action:	Drainage Improvements: North Pharr Backwater Relief Project B Pharr Master Drainage Plan
BACKGROUND INFORMATION	
Site and Location:	North Pharr
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages caused by flooding by improving drainage capacity.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to existing and future structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,480,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Pharr Engineering Department
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Pharr – Action #13	
Proposed Action:	Drainage Improvements: North Pharr Culvert Improvements, Pharr Master Drainage Plan
BACKGROUND INFORMATION	
Site and Location:	North Pharr
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages caused by flooding by improving drainage capacity.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to existing and future structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$790,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Pharr Engineering Department
Implementation Schedule:	Within 6-12 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Pharr – Action #14	
Proposed Action:	Drainage Improvements: Pharr San Juan Regional Detention Facility, Pharr Master Drainage Plan
BACKGROUND INFORMATION	
Site and Location:	Pharr San Juan Regional Detention Facility
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages caused by flooding by improving drainage capacity.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to existing and future structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$4,680,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Pharr Engineering Department
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Pharr – Action #15	
Proposed Action:	Adopt and implement a program to optimize the drainage system by actions such as upgrading undersized stormwater infrastructure, clearing debris from the system, and maintaining natural vegetation in channels.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages caused by flooding by maintaining or restoring drainage capacity.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to existing and future structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$2,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Pharr Public Works Assistant Director
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Pharr – Action #16	
Proposed Action:	Acquire specially equipped RVs to serve as temporary animal shelters for pets that cannot be evacuated with their owner.
BACKGROUND INFORMATION	
Site and Location:	Pharr Public Works
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Preparedness
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$600,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	Pharr Public Works
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	Emergency Response Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Pharr – Action #17	
Proposed Action:	Adopt and implement a comprehensive hazard preparation and response program to increase community resiliency. The program will include training of City staff and community volunteers, outreach to and education of the public, and support services to first responders.
BACKGROUND INFORMATION	
Site and Location:	Pharr City Hall
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Preparedness
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,500,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Pharr Emergency Management Coordinator
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Response Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Pharr – Action #18	
Proposed Action:	Acquire temporary (pop-up) shower units to serve evacuees in shelters.
BACKGROUND INFORMATION	
Site and Location:	Pharr Parks & Recreation
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Preparedness
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$45,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Pharr Parks & Recreation Assistant Director
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Response Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Pharr – Action #19	
Proposed Action:	Acquire RVs to serve as temporary housing for displaced residents after a disaster.
BACKGROUND INFORMATION	
Site and Location:	Pharr Parks & Recreation
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Preparedness
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$1,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Pharr Parks & Recreation Assistant Director
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Response Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Pharr – Action #20	
Proposed Action:	Acquire high water vehicles with lift capacity to respond to emergencies located in flooded areas, as well as transport residents in flooded areas to nearby shelters.
BACKGROUND INFORMATION	
Site and Location:	Pharr City Hall
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Preparedness
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$500,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Pharr Emergency Management Coordinator
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Response Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Pharr – Action #21	
Proposed Action:	Build safe room shelters throughout the jurisdiction so that residents can reach shelter in less than five minutes. Option: retrofit existing buildings to serve as safe rooms, including addition of amenities for health and hygiene. The safe rooms would be multi-purpose to serve in various hazards such as extreme heat and winter storms.
BACKGROUND INFORMATION	
Site and Location:	Community-wide – Locations TBD
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to citizens by providing shelter in high risk areas during extreme weather events.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heater, Hurricane Wind, Thunderstorm Wind, Tornado, Winter Storm
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$3,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Pharr Emergency Management Coordinator
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan; Capital Improvement Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Pharr – Action #22	
Proposed Action:	Adopt and implement a flood data collection program (Flood Data Task Force) to meet the following goals: • Create accurate and detailed inventory of drainage infrastructure in city. • Gather valuable flood data on major flood events in city. • Use data to create city-wide, accurate and detailed inundation maps. • Use data to properly size drainage infrastructure for improvements and evaluate success of capital improvement projects.
BACKGROUND INFORMATION	
Site and Location:	Community-wide flood hazard areas
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Improve risk assessment; reduce risk of damages or injuries through improved drainage; reduce risk of damages and injuries.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$250,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Pharr Engineering Department
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan; Flood Damage Prevention Ordinance

COMMENTS:
Funds would be used to acquire tools and equipment, and train staff and community volunteers.

SECTION 21: MITIGATION ACTIONS

City of Pharr – Action #23	
Proposed Action:	Adopt and implement a program to assist homeowners in identified flood areas with rehabilitation or reconstruction of their homes and bring into compliance with National Flood Insurance Program standards.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce recovery time; Maintain NFIP compliance
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$2,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Pharr Grants Management and Community Development Manager
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan

COMMENTS:
A component of the proposed action would be to adopt widely recognized and documented flood prone areas (aside from FEMA's Flood Zone A) as areas that must comply with NFIP.

SECTION 21: MITIGATION ACTIONS

City of Pharr – Action #24	
Proposed Action:	Develop a buy-out/ land acquisition program in flood hazard areas. Acquire and demolish repetitive loss properties. Acquire high risk vacant land and maintain as open space.
BACKGROUND INFORMATION	
Site and Location:	Community-wide flood risk areas
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Eliminate risk of flood damages to high risk structures and prevent future losses in high risk areas. Reduce risk of injuries to citizens. Reduce burden on emergency services during and after a flood event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$2,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Pharr Emergency Management Coordinator, Grants Management, Community Development Manager
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan

COMMENTS:
*Deferred from previous plan

SECTION 21: MITIGATION ACTIONS

CITY OF PROGRESO

City of Progreso– Action #1	
Proposed Action:	Implement education and awareness program utilizing media, social media, bulletins, flyers, etc. to educate citizens of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Promote hazard awareness and protect citizens from potential injuries and damages.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material, Mass Migration
Community Lifeline:	Communications
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	Progreso City Administration
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Progreso– Action #2	
Proposed Action:	Assess critical infrastructure such as generators and water pumps. Upon assessment make necessary improvements to ensure emergency response readiness.
BACKGROUND INFORMATION	
Site and Location:	Community-wide critical facilities, such as City Hall, Fire and Police Station, Maintenance Department
Risk Reduction Benefit (Current Cost/Losses Avoided):	Provide critical facilities with ability to ensure continuing of critical services. Reduce risk of damage or injury.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security, Energy (Power & Fuel)
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$500,000 -\$1,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Progreso City Administration, Maintenance Department, and Fire/Police Department
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Progreso– Action #3	
Proposed Action:	Increase drainage capacity; add stormwater detention and/or retention basins as deemed necessary to reduce flood risk
BACKGROUND INFORMATION	
Site and Location:	1015 Roadway and Bridge
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce flood risk through improved drainage capacity. Reduce risk of damages and injuries. Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structure and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$10,000,000
Potential Funding Sources:	Local Funds, HMGP, CDBG, Other State and Federal Grants
Lead Agency/Department Responsible:	Progreso City Administration
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Progreso– Action #4	
Proposed Action:	Acquire and distribute NOAA weather radios.
BACKGROUND INFORMATION	
Site and Location:	Community-wide critical facilities
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk to citizens through improved communications and early warning.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Communications
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$50,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Progreso City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Progreso– Action #5	
Proposed Action:	Adopt and implement a program for clearing debris from bridges, drains and culverts.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce damages caused by flooding by maintain or restoring drainage capacity.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structure and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$50,000 (annually)
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Progreso City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes/Ordinances

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Progreso– Action #6	
Proposed Action:	Implement a community education program regarding fire damages for identified risk areas. Distribute pamphlets through neighborhood association or water bills. Promote through radio and social media outlets to ensure residents are aware of wildfire hazard areas and fire protection measure for home and yards.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk and spread of wildfires through education and awareness programs. Reduce risk of damages and injuries.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Community Lifeline:	Communications
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Progreso City Administration
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	CWPP

COMMENTS:

SECTION 21: MITIGATION ACTIONS

CITY OF SAN JUAN

City of San Juan – Action #1	
Proposed Action:	Construct emergency potable water inter-connect between the City of Alamo Texas as an emergency Water Source.
BACKGROUND INFORMATION	
Site and Location:	Cesar Chavez Rd. and Business Highway 83
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Provide backup water source when primary source is compromised during extreme weather events; Additional water supply during drought.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Flood, Hurricane Wind, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Drought, Expansive Soils
Community Lifeline:	Health and Medical, Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$40,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	San Juan City Administration and Department of Utilities
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Water Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of San Juan – Action #2	
Proposed Action:	Expansion and add capacity to detention/retention ponds. Construction will include the purchase of the following equipment for excavating and removal of soils: -Excavator -Bulldozer -Dump Truck for excavating and removal of spoils
BACKGROUND INFORMATION	
Site and Location:	Monte Grande Park Sun Valley Detention Pond Public Works Detention Pond
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure Preparedness (equipment purchase)

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,240,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	San Juan City Administration and Public Works
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan, Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of San Juan – Action #3	
Proposed Action:	Acquire and install generators with hard wired quick connections at Water Plant 1, 2 and Wastewater Plant, large enough to handle full load during emergencies and rolling blackouts. Acquire portable generators for Sanitary Sewer Lift Stations.
BACKGROUND INFORMATION	
Site and Location:	Water Plant 1, 700 S. Kansas Avenue, San Juan Water Plant 2, 2011 N. Veterans Road, San Juan Wastewater Plant, 201 W. Hall Acres Road, San Juan; Sanitary Sewer Lift Stations 1-24
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Mitigate damage to infrastructure, personal property and the environment due to lack of adequate water supply, pressure and untreated sanitary sewer overflows.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Energy (Power & Fuel)
Effect on New/Existing Buildings:	Reduce risk to existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$793,500
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	San Juan City Administration and Department of Utilities
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of San Juan – Action #4	
Proposed Action:	Acquire to purchase Two-Way Radios for Communication During Emergencies.
BACKGROUND INFORMATION	
Site and Location:	Community critical facilities and vulnerable populations
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk to citizens through improved communications and early warning.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Communications
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$2,500,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	San Juan City Administration and Public Works
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of San Juan – Action #5	
Proposed Action:	Purchase and install 8 Inch Trash/Water Pumps
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Mitigate drainage to personal property due to flooding; Reduce risk of flood damages through improved drainage; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$90,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	San Juan City Administration and Public Works
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan, Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of San Juan – Action #6	
Proposed Action:	Conduct study on adopting ordinances for standards for construction in flood prone areas and low-lying areas.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce flood damages through development restrictions and improved construction requirements in flood-prone areas.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulation

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$100,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	San Juan Floodplain Administrator
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Flood Damage Prevention Ordinance

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of San Juan – Action #7	
Proposed Action:	Undertake a comprehensive study of flood risk and reduction alternatives, with the assistance of the US Army Corps of Engineers. Adopt or revise flood damage prevention ordinance to include flood risk areas identified in the study. This study will cover areas of the community that currently have limited studies with no determined base flood elevations as well as unmapped areas.
BACKGROUND INFORMATION	
Site and Location:	Community-wide flood hazard areas
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Improve risk assessment; reduce risk of damages or injuries through improved building standards; reduce risk of damages and injuries.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$100,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	San Juan Floodplain Administrator
Implementation Schedule:	Within 12-36 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan, Flood Damage Prevention Ordinance

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of San Juan – Action #8	
Proposed Action:	Purchase a GIS software system to map flood hazard areas, lift stations, drainage ditches, storm inlets, drainage manholes, and utilities and other critical infrastructure and structures.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Improve risk assessment.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind, Wildfire
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$50,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	San Juan Emergency Management Coordinator
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of San Juan – Action #9	
Proposed Action:	Relocated the Sanitation & Public Works Department out of a high hazard area.
BACKGROUND INFORMATION	
Site and Location:	San Juan Sanitation Department
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce risk of damages to structures; Ensure continuity of critical services; Reduce risk of injuries to critical service employees.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Wildfire
Community Lifeline:	Health and Medical, Safety and Security
Effect on New/Existing Buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$500,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	San Juan Public Works
Implementation Schedule:	Within 12-36 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of San Juan – Action #10	
Proposed Action:	Develop Direct and Indirect Non-Potable Water Reuse as an Alternate Source of Potable Water; Develop Ground Water Well(s) as an Alternate Source of Potable Water
BACKGROUND INFORMATION	
Site and Location:	Wastewater Plant, Water Plant 1 and 2
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Provide backup water source when primary source is compromised during extreme weather events; Additional water supply during drought or other emergency.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Flood, Wildfire, Winter Storm, Drought
Community Lifeline:	Health and Medical, Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$7,000,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	San Juan City Administration and Department of Utilities
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of San Juan – Action #11	
Proposed Action:	Acquire portable pumps for emergency bypass of Sanitary Sewer Lift Stations During Emergencies.
BACKGROUND INFORMATION	
Site and Location:	Sanitary Sewer Lift Stations
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Mitigate damage to infrastructure, personal property and the environment due to lack of adequate water supply, pressure and untreated sanitary sewer overflows.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Health and Medical
Effect on New/Existing Buildings:	Reduce risk to existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$560,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	San Juan City Administration and Department of Utilities
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of San Juan – Action #12	
Proposed Action:	Purchase Roll Off Containers for debris management during emergencies.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Preparedness
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind, Winter Storm, Hail, Thunderstorm Wind
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$400,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	San Juan City Administration and Public Works
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Emergency Response Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of San Juan – Action #13	
Proposed Action:	Develop a Storm Drainage Master Plan
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Improve risk assessment; A Storm Drainage Master Plan can serve as a guide for all future developments. The plan will address material types and rules for proper and adequate drainage for future projects. It will also improve the Storm Drainage System.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$150,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	San Juan City Administration and Public Works
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of San Juan – Action #14	
Proposed Action:	Research and incorporate subgrade stabilization methods on street projects such as street reclamation and repairs.
BACKGROUND INFORMATION	
Site and Location:	Community-wide street projects
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Reduce damages on new streets throughout the city.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Expansive Soils
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	Reduce risk to future structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$250,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	San Juan Public Works
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
*Deferred from previous plan

SECTION 21: MITIGATION ACTIONS

City of San Juan – Action #15	
Proposed Action:	Implement a data recording system that captures extent and impact, related statistical information on fatalities, injuries and damages caused by each incident that occurs within the jurisdiction.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit: (Current Cost/Losses Avoided)	Promote hazard awareness and improve risk assessment.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	San Juan City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
*Deferred from previous plan

SECTION 21: MITIGATION ACTIONS

CITY OF SULLIVAN CITY

City of Sullivan City– Action #1	
Proposed Action:	Identify vulnerable populations and develop notification system. Acquire name, phone number, address, and contact person. Compile listing alphabetically. Include with City Business Permit listing. To be utilized for evacuations and emergency notifications.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk to citizens through improved communication and early warning.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material
Community Lifeline:	Communications, Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,000
Potential Funding Sources:	Local Funds
Lead Agency/Department Responsible:	Sullivan City Administration (Secretary)
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Sullivan City– Action #2	
Proposed Action:	Analysis, design and construction. Construction would include installation of drainage pipe networks and related appurtenances as well as any necessary pavement and/or right-of-way restoration around the entrance of Bougainvillea St. and corner of Blue Bird and El Pinto Rd in Sullivan City.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of flood damages through improved drainage capacity. Reduce risk of injuries to citizens. Reduce emergency response services during and after flooding event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safe and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$50,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Sullivan City Manager and Maintenance Department
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Sullivan City– Action #3	
Proposed Action:	Identify size of generator for City Hall and Police Department. Purchase and install generator with hard wired quick connections.
BACKGROUND INFORMATION	
Site and Location:	City Hall and Police Station
Risk Reduction Benefit (Current Cost/Losses Avoided):	Provide power for critical facilities during power outages and ensure continuity of critical services.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Communications, Health and Medical, Energy (Power & Fuel), Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$200,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Sullivan City Maintenance Department
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Sullivan City– Action #4	
Proposed Action:	Develop an acquisition/buy-out program for those properties in flood hazard areas. Acquire and demolish repetitive loss properties. Acquire high risk vacant land and maintain as open space.
BACKGROUND INFORMATION	
Site and Location:	Repetitive loss properties. Community-wide flood prone areas.
Risk Reduction Benefit (Current Cost/Losses Avoided):	Eliminate risk of flooding damages to high risk structure and prevent future losses in high risk flood hazard area. Reduce risk of injuries to citizen and first responders.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructures.
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Sullivan City Emergency Management Coordinator
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Sullivan City– Action #5	
Proposed Action:	Identify flood-prone and repetitive loss properties through the Texas Water Development Board. Identify and implement actions to reduce or eliminate flooding at identified properties
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of damages or injuries through flood mitigation at high risk structure. Reduce the need for emergency response in high risk area. Reduce repetitive flood losses/claims. Reduce community recovery efforts and cost.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Sullivan City Emergency Management Coordinator
Implementation Schedule:	Within 12-48 months of plan adoption
Incorporation into Existing Plans:	Floodplain Management Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Sullivan City– Action #6	
Proposed Action:	Incorporate higher standards for hazard resistance in local application of the building code.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk of damages to structures through improved construction techniques; Reduce recovery efforts for the community after an event.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new structures
Priority (High, Moderate, Low):	High
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds (staff time)
Lead Agency/Department Responsible:	Sullivan City Planning and Zoning Department
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Local Building Codes Ordinances

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Sullivan City– Action #7	
Proposed Action:	Implement program to provide links to weather alerts and departmental phone listings with contact personnel for residents.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Promotes hazard awareness and protect citizens from potential injuries and damage
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness
MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material
Community Lifeline:	Communications
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$1,000
Potential Funding Sources:	Local Funds
Lead Agency/Department Responsible:	Sullivan City Emergency Management Coordinator
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan
COMMENTS:	

SECTION 21: MITIGATION ACTIONS

City of Sullivan City– Action #8	
Proposed Action:	Implement education and awareness program utilizing media, social media, bulletins, flyers, etc. to educate citizens of hazards that can threaten the area and mitigation measure to reduce injuries, fatalities and property damages.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Promotes hazard awareness and protect citizens from potential injuries and damage
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material
Community Lifeline:	Communications, Health and Medical, Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	Sullivan City Emergency Management Coordinator
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Sullivan City– Action #9	
Proposed Action:	Implement a data recording system that captures extent and impact, related statistical information on fatalities, injuries and damages caused by each incident that occurs within the jurisdiction.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Promote hazard awareness and improve risk assessment
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	Moderate
Potential Funding Sources:	Local Funds (staff time), State and Federal Grants
Lead Agency/Department Responsible:	Sullivan City Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Sullivan City– Action #10	
Proposed Action:	Develop procedures for making mass notifications to citizens and merchants during a natural hazard incident. Solicit bids for system. Purchase Emergency Notification System and install Distribute information on new system and conduct training.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Promotes hazard awareness and protect citizens from potential injuries and damage.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Expansive Soils, Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm, Hazardous Material
Community Lifeline:	Communications, Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	\$20,000
Potential Funding Sources:	Local Funds
Lead Agency/Department Responsible:	Sullivan City Emergency Management Coordinator
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Sullivan City– Action #11	
Proposed Action:	Harden/retrofit critical facilities to hazard-resistant levels, which can include re-enforcing windows, roof construction, enforcing covered parking areas for critical vehicles, etc.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce damages at critical facilities. Ensure continuing of critical services during and after event. Reduce risk of injury to emergency and crucial personnel.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Flood, Hail, Hurricane Wind, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	High
Estimated Cost:	\$50,000- \$100,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Sullivan City Emergency Management Coordinator
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Sullivan City– Action #12	
Proposed Action:	Perform dam inundation studies to establish consistent and justifiable risk factors. Utilize studies to implement mitigation strategies including construction, acquisition, regulations and warning systems/evacuation plans.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk residents through improved dam failure mitigation, evacuation alternatives and awareness efforts; Improved Risk Assessment; Reduce damages and risk to residents.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security, Health and Medical
Effect on new/existing buildings:	Reduce risk to future structures
Priority (High, Moderate, Low):	Low
Estimated Cost:	\$5,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Sullivan City Emergency Management Coordinator
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Emergency Action Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Sullivan City– Action #13	
Proposed Action:	Utilizing best available data, review and revise dam/levee failure response plans for the city.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk residents through improved response plans; Improved Risk Assessment.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	Low
Estimated Cost:	\$75,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Sullivan City Floodplain Administrator and Emergency Management Coordinator
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Emergency Action Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Sullivan City– Action #14	
Proposed Action:	Incorporating current inundation data and in cooperation with floodplain administration, review and revise dam/levee failure response plans for the city.
BACKGROUND INFORMATION	
Site and Location:	Community-wide
Risk Reduction Benefit (Current Cost/Losses Avoided):	Improve risk assessment. Reduce risk of damages or injuries through necessary improvements.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	\$5,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Sullivan City Emergency Management Coordinator
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Emergency Action Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

City of Sullivan City– Action #15	
Proposed Action:	Research and incorporate subgrade stabilization methods on street projects such as street reclamation and repairs.
BACKGROUND INFORMATION	
Site and Location:	Community-wide street projects
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce damages on new streets throughout the city.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils, Drought
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Reduce risk to future structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	\$250,000
Potential Funding Sources:	Local, State and Federal Funds
Lead Agency/Department Responsible:	Sullivan City Public Works
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	Capital Improvement Plan

COMMENTS:

SECTION 21: MITIGATION ACTIONS

SANTA CRUZ IRRIGATION DISTRICT NO. 15

Santa Cruz Irrigation District No. 15 – Action #1	
Proposed Action:	Retama Dam Hydrologic and Hydraulic Analysis and Emergency Action Plan Update
BACKGROUND INFORMATION	
Site and Location:	Retama Dam (aka Lake Edinburg), 5 miles north of Downtown Edinburg
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk to downstream residents, structures and infrastructure by updating the Emergency Action Plan with information to be gained from Hydrologic and Hydraulic Analysis. The EAP includes a plan to notify potentially affected residents, emergency personnel and the Drainage District of possible dam failure.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Flooding
Priority (High, Moderate, Low):	High
Estimated Cost:	\$75,000
Potential Funding Sources:	FEMA HHPD Grant administered through TCEQ
Lead Agency/Department Responsible:	District General Manager
Implementation Schedule:	Funding by March 2022, Completion in 240 days.
Incorporation into Existing Plans:	N/A

COMMENTS:

SECTION 21: MITIGATION ACTIONS

Santa Cruz Irrigation District No. 15– Action #2	
Proposed Action:	Retama Dam Improvements to comply with TCEQ Dam Safety Regulations
BACKGROUND INFORMATION	
Site and Location:	Retama Dam (aka Lake Edinburg), 5 miles north of Downtown Edinburg
Risk Reduction Benefit (Current Cost/Losses Avoided):	Reduce risk to downstream residents, structures and infrastructure by improving the Dam to comply with current state regulations to reduce risk to downstream residents, structures and infrastructure. Increase water supply reliability to North Alamo WSC and irrigation customers.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam and Levee Failure
Community Lifeline:	Safety and Security
Effect on new/existing buildings:	Flooding
Priority (High, Moderate, Low):	High
Estimated Cost:	\$10,000,000
Potential Funding Sources:	FEMA HHPD Grant administered through TCEQ
Lead Agency/Department Responsible:	District General Manager
Implementation Schedule:	Funding no sooner than March 2023, Completion two years from funding.
Incorporation into Existing Plans:	N/A

COMMENTS:

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PLAN MAINTENANCE PROCEDURES

The following is an explanation of how the participating jurisdictions within Hidalgo County, and the general public will be involved in implementing, evaluating, and enhancing the Plan over time. When the plan is discussed in all maintenance procedures it includes mitigation actions and hazard assessments. The sustained hazard mitigation planning process consists of four main parts:

- Incorporation
- Monitoring and Evaluation
- Updating
- Continued Public Involvement

INCORPORATION

Participating jurisdictions within Hidalgo County will be responsible for further development and implementation of mitigation actions. Each action has been assigned to a specific department within the participating jurisdictions. The following describes the process by which participating jurisdictions will incorporate elements of the mitigation plan into other planning mechanisms.

PROCESS OF INCORPORATION

Once the Plan Update is adopted, participating jurisdictions within Hidalgo County will implement actions based on priority and the availability of funding. The Planning Area currently implements policies and programs to reduce loss to life and property from hazards. The mitigation actions developed for this Plan Update enhance this ongoing effort and will be implemented through other program mechanisms where possible.

The potential funding sources listed for each identified action may be used when the jurisdiction seeks funds to implement actions. An implementation time period or a specific implementation date has been assigned to each action as an incentive for completing each task and gauging whether actions are implemented in a timely manner.

SECTION 22: PLAN MAINTENANCE

Participating jurisdictions within Hidalgo County will integrate implementation of their mitigation actions with other plans and policies such as construction standards and emergency management plans, and ensure that these actions, or proposed projects, are reflected in other planning efforts. Coordinating and integrating components of other plans and policies into goals and objectives of the Plan Update will further maximize funding and provide possible cost-sharing of key projects, thereby reducing loss of lives and property and mitigating hazards affecting the area.

Upon formal adoption of the Plan Update, planning team members from each participating jurisdiction will work to integrate the hazard mitigation strategies into other plans and codes as they are developed. Participating team members will conduct periodic reviews of plans and policies, once per year at a minimum, and analyze the need for amendments in light of the approved Plan. The planning team will review all comprehensive land use plans, capital improvement plans, annual budget reviews, emergency operations or management plans, and transportation plans (applicable jurisdictions only) to guide and control development. Participating jurisdictions will ensure that capital improvement planning in the future will also contribute to the goals of this hazard mitigation Plan Update to reduce the long-term risk to life and property from all hazards. Within one year of formal adoption of the hazard mitigation Plan Update, existing planning mechanisms will be reviewed by each jurisdiction.

Hidalgo County is committed to supporting the participating jurisdictions as they implement their mitigation actions. Planning team members will review and revise, as necessary, the long-range goals and objectives in strategic plan and budgets to ensure that they are consistent with this mitigation action plan. Additionally, the Planning Area will work to advance the goals of this hazard mitigation plan through its routine, ongoing, long-range planning, budgeting, and work processes.

Table 22-1 identifies types of planning mechanisms and examples of methods for incorporating the Plan Update into other planning efforts. The team members, listed in Table 22-2 below, will be responsible for the review of these planning mechanisms and their incorporation of the plan, with the exception of the Floodplain Management Plans; the jurisdictions who have a Floodplain Administrator on staff will be responsible for incorporating the plan when floodplain management plans are updated or new plans are developed.

Table 22-1. Methods of Incorporation of the Plan

PLANNING MECHANISM	DEPARTMENT / TITLE RESPONSIBLE	INCORPORATION OF PLAN
Annual Budget Review	Hidalgo County: Deputy EMC City of Alamo: Fire Chief/EMC City of Alton: EMC City of Donna: Public Works Director City of Edcouch: Fire Chief/EMC City of Edinburg: Fire Chief/EMC City of Elsa: Chief of Police/EMC City of Granjeno: Mayor/EMC City of Hidalgo: Code Enforcement Director City of La Joya: City Manager	Various departments and key personnel that participated in the planning process for participating jurisdictions within Hidalgo County will review the Plan and mitigation actions therein when conducting their annual budget review. Allowances will be made in accordance with grant applications sought, and mitigation actions that will be undertaken, according to the implementation schedule of the specific action.

SECTION 22: PLAN MAINTENANCE

PLANNING MECHANISM	DEPARTMENT / TITLE RESPONSIBLE	INCORPORATION OF PLAN
	City of La Villa: Operations Manager City of McAllen: Director of Engineering City of Mercedes: Fire Chief/EMC City of Mission: EMC City of Palmhurst: Chief of Police/EMC City of Palmview: Planning Director City of Peñitas: Emergency Management/EDC City of Pharr: Deputy EMC City of Progreso: City Manager City of San Juan: Director of Utilities City of Sullivan City: Chief of Police Santa Cruz Irrigation District #15: REMD	
Capital Improvement Plans	Hidalgo County: Deputy EMC City of Alamo: Fire Chief/EMC City of Alton: EMC City of Donna: Public Works Director City of Edinburg: Fire Chief/EMC City of La Joya: City Manager City of La Villa: Operations Manager City of McAllen: Director of Engineering City of Palmhurst: Chief of Police/EMC City of Palmview: Planning Director City of Peñitas: Emergency Management/EDC City of Pharr: Deputy EMC City of Progreso: City Manager City of Sullivan City: Chief of Police Santa Cruz Irrigation District #15: REMD	Participating jurisdictions within Hidalgo County have a Capital Improvement Plan (CIP) in place. Prior to any revisions to the CIP, County and City departments will review the risk assessment and mitigation strategy sections of the HMAP, as limiting public spending in hazardous zones is one of the most effective long-term mitigation actions available to local governments.

SECTION 22: PLAN MAINTENANCE

PLANNING MECHANISM	DEPARTMENT / TITLE RESPONSIBLE	INCORPORATION OF PLAN
Comprehensive Plans	City of Alamo: Fire Chief/EMC City of Donna: Public Works Director City of Edinburg: Fire Chief/EMC City of Elsa: Chief of Police/EMC City of La Joya: City Manager City of La Villa: Operations Manager City of McAllen: Director of Engineering City of Mission: EMC City of Palmhurst: Chief of Police/EMC City of Peñitas: Emergency Management/EDC City of Pharr: Deputy EMC City of Progreso: City Manager City of San Juan: Director of Utilities City of Sullivan City: Chief of Police	Participating jurisdictions within Hidalgo County have Long-term Comprehensive Development Plans in place. Since comprehensive plans involve developing a unified vision for a community, the mitigation vision and goals of the Plan will be reviewed in the development or revision of a Comprehensive Plan.
Floodplain Management Plans	Hidalgo County: Floodplain Administrator City of Alamo: Floodplain Administrator City of Alton: EMC City of Donna: Floodplain Administrator City of Edcouch: Fire Chief/EMC City of Edinburg: Floodplain Administrator City of Elsa: Chief of Police/EMC City of Granjeno: Mayor/EMC City of Hidalgo: Code Enforcement Director City of La Joya: City Manager City of La Villa: Floodplain Administrator City of McAllen: Floodplain Administrator City of Mercedes: Fire Chief/EMC City of Mission: Floodplain Administrator	Floodplain management plans include preventative and corrective actions to address the flood hazard. Therefore, the actions for flooding and information found in Section 5 of this Plan Update discussing the people and property at risk to flood will be reviewed and revised when participating jurisdictions within Hidalgo County update their management plans or develops new plans.

SECTION 22: PLAN MAINTENANCE

PLANNING MECHANISM	DEPARTMENT / TITLE RESPONSIBLE	INCORPORATION OF PLAN
	City of Palmhurst: Chief of Police/ EMC City of Palmview: Floodplain Administrator City of Peñitas: Floodplain Administrator City of Pharr: Floodplain Administrator City of Progreso: City Manager City of San Juan: Floodplain Administrator City of Sullivan City: Chief of Police	
Grant Applications	Hidalgo County: Deputy EMC City of Alamo: Fire Chief/EMC City of Alton: EMC City of Donna: Public Works Director City of Edcouch: Fire Chief/EMC City of Edinburg: Fire Chief/EMC City of Elsa: Chief of Police/EMC City of Granjeno: Mayor/EMC City of Hidalgo: Code Enforcement Director City of La Joya: City Manager City of La Villa: Operations Manager City of McAllen: Director of Engineering City of Mercedes: Fire Chief/EMC City of Mission: EMC City of Palmhurst: Chief of Police/ EMC City of Palmview: Planning Director City of Peñitas: Emergency Management/EDC City of Pharr: Deputy EMC City of Progreso: City Manager City of San Juan: Director of Utilities City of Sullivan City: Chief of Police	The Plan will be evaluated by participating jurisdictions within Hidalgo County when grant funding is sought for mitigation projects. If a project is not in the Plan Update, an amendment may be necessary to include the action in the Plan.

SECTION 22: PLAN MAINTENANCE

PLANNING MECHANISM	DEPARTMENT / TITLE RESPONSIBLE	INCORPORATION OF PLAN
	Santa Cruz Irrigation District #15: REMD	
Regulatory Plans	Hidalgo County: Deputy EMC City of Alamo: Fire Chief/EMC City of Donna: Public Works Director City of Edcouch: Fire Chief/EMC City of Edinburg: Fire Chief/EMC City of Elsa: Chief of Police/EMC City of La Joya: City Manager City of La Villa: Operations Manager City of McAllen: Director of Engineering City of Mission: EMC City of Palmhurst: Chief of Police/EMC City of Peñitas: Emergency Management/EDC City of Pharr: Deputy EMC City of Progreso: City Manager City of San Juan: Director of Utilities City of Sullivan City: Chief of Police Santa Cruz Irrigation District #15: REMD	Currently, participating jurisdictions within Hidalgo County have regulatory plans in place, such as Emergency Management Plans, Continuity of Operations Plans, Land Use Plans, and Evacuation Plans. The Plan Update will be consulted when County and City departments review or revise their current regulatory planning mechanisms, or in the development of regulatory plans that are not currently in place.

MONITORING AND EVALUATION

Periodic revisions of the Plan are required to ensure that goals, objectives, and mitigation actions are kept current. When the plan is discussed in these sections it includes the risk assessment and mitigation actions as a part of the monitoring, evaluating, updating and review process. Revisions may be required to ensure the Plan is in compliance with federal and state statutes and regulations. This section outlines the procedures for completing Plan revisions, updates, and review. Table 22-2 indicates the department and title of the party responsible for Plan monitoring, evaluating, updating, and review of the Plan.

SECTION 22: PLAN MAINTENANCE

Table 22-2. Team Members Responsible for Plan Monitoring, Evaluating, Updating, and Review of the Plan

JURISDICTION	TITLE
Hidalgo County	Deputy Emergency Management Coordinator
City of Alamo	Fire Chief / Emergency Management Coordinator
City of Alton	Emergency Management Coordinator
City of Donna	Public Works Director
City of Edcouch	Fire Chief / Emergency Management Coordinator
City of Edinburg	Fire Chief / Emergency Management Coordinator
City of Elsa	Chief of Police / Emergency Management Coordinator
City of Granjeno	Mayor / Emergency Management Coordinator
City of Hidalgo	Code Enforcement Director
City of La Joya	City Manager
City of La Villa	Operations Manager
City of McAllen	Director of Engineering
City of Mercedes	Fire Chief / Emergency Management Coordinator
City of Mission	Emergency Management Coordinator
City of Palmhurst	Chief of Police / EMC
City of Palmview	Planning Director
City of Peñitas	Emergency Management / EDC
City of Pharr	Deputy Emergency Management Coordinator
City of Progreso	City Manager
City of San Juan	Director of Utilities
City of Sullivan City	Chief of Police
Santa Cruz Irrigation District #15	REMD

MONITORING

Designated Planning Team members are responsible for monitoring, evaluating, updating, and reviewing the Plan, as shown in Table 22-2. Individuals holding the title listed in Table 22-2 will be responsible for monitoring the Plan on an annual basis. Plan monitoring includes reviewing

SECTION 22: PLAN MAINTENANCE

and incorporating into the Plan other existing planning mechanisms that relate or support goals and objectives of the Plan; monitoring the incorporation of the Plan into future updates of other existing planning mechanisms as appropriate; reviewing mitigation actions submitted and coordinating with various County and City departments to determine if mitigation actions need to be re-evaluated and updated; evaluating and updating the Plan as necessary; and monitoring plan maintenance to ensure that the process described is being followed, on an annual basis, throughout the planning process. The Planning Team will develop a brief report that identifies policies and actions in the plan that have been successfully implemented and any changes in the implementation process needed for continued success. A summary of meeting notes will report the particulars involved in developing an action into a project. In addition to the annual monitoring, the Plan will be similarly reviewed immediately after extreme weather events include but not limited to state and federally declared disasters.

EVALUATION

As part of the evaluation process, the Planning Team will assess changes in risk; determine whether the implementation of mitigation actions is on schedule; determine whether there are any implementation problems, such as technical, political, legal, or coordination issues; and identify changes in land development or programs that affect mitigation priorities for each respective department or organization.

The Planning Team will meet on an annual basis to evaluate the Plan and identify any needed changes and assess the effectiveness of the plan achieving its stated purpose and goals. The team will evaluate the number of mitigation actions implemented along with the loss-reduction associated with each action. Actions that have not been implemented will be evaluated to determine if any social, political or financial barriers are impeding implementation and if any changes are necessary to improve the viability of an action. The team will evaluate changes in land development and/or programs that affect mitigation priorities in their respective jurisdictions. The annual evaluation process will help to determine if any changes are necessary. In addition, the Plan will be similarly evaluated immediately after extreme weather events including but not limited to state and federally declared disasters.

UPDATING

PLAN AMENDMENTS

At any time, minor technical changes may be made to update the Hidalgo County Hazard Mitigation Action Plan Update 2021. Material changes to mitigation actions or major changes in the overall direction of the Plan or the policies contained within it, must be subject to formal adoption by the participating jurisdictions.

The participating jurisdictions within Hidalgo County will review proposed amendments and vote to accept, reject, or amend the proposed change. Upon ratification, the amendment will be transmitted to TDEM.

In determining whether to recommend approval or denial of a Plan amendment request, participating jurisdictions will consider the following factors:

- Errors or omissions made in the identification of issues or needs during the preparation of the Plan Update;
- New issues or needs that were not adequately addressed in the Plan Update; and

SECTION 22: PLAN MAINTENANCE

- Changes in information, data, or assumptions from those on which the Plan Update was based.

FIVE (5) YEAR REVIEW

The Plan will be thoroughly reviewed by the Planning Team at the end of three years from the approval date, to determine whether there have been significant changes in the planning area that necessitate changes in the types of mitigation actions proposed. Factors that may affect the content of the Plan include new development in identified hazard areas, increased exposure to hazards, disaster declarations, increase or decrease in capability to address hazards, and changes to federal or state legislation.

The Plan review process provides the participating jurisdictions within Hidalgo County an opportunity to evaluate mitigation actions that have been successful, identify losses avoided due to the implementation of specific mitigation measures, and address mitigation actions that may not have been successfully implemented as assigned.

It is recommended that the full Executive and Advisory Planning Team (Section 2, Tables 2-1 and 2-2) meet to review the Plan at the end of three years because grant funds may be necessary for the development of a five-year update. Reviewing planning grant options in advance of the five-year Plan update deadline is recommended considering the timelines for grant and planning cycles can be in excess of a year.

Following the Plan review, any revisions deemed necessary will be summarized and implemented according to the reporting procedures and Plan amendment process outlined herein. Upon completion of the review, update, and amendment process the revised Plan will be submitted to TDEM for final review and approval in coordination with FEMA.

CONTINUED PUBLIC INVOLVEMENT

Public input was an integral part of the preparation of this Plan and will continue to be essential for Plan updates. The Public will be directly involved in the annual evaluation, monitoring, reviews and cyclical updates. Changes or suggestions to improve or update the Plan will provide opportunities for additional public input.

The public can review the Plan on the participating jurisdictions' websites, where officials and the public are invited to provide ongoing feedback, via email.

The Planning Team may also designate voluntary citizens from the planning area or willing stakeholder members from the private sector businesses that were involved in the Plan's development to provide feedback on an annual basis. It is important that stakeholders and the immediate community maintain a vested interest in preserving the functionality of the planning area as it pertains to the overall goals of the mitigation plan. The Planning team is responsible for notifying stakeholders and community members on an annual basis and maintaining the Plan.

Media, including local newspaper and radio stations, will be used to notify the public of any maintenance or periodic review activities during the implementation, monitoring, and evaluation phases. Additionally, local news media will be contacted to cover information regarding Plan updates, status of grant applications, and project implementation. Local and social media outlets, such as Facebook and Twitter, will keep the public and stakeholders apprised of potential opportunities to fund and implement mitigation projects identified in the Plan.

APPENDIX A: PLANNING TEAM

Planning Team Members	1
Stakeholders	4

PLANNING TEAM MEMBERS

The Hidalgo County Hazard Mitigation Action Plan Update 2021 was organized using a direct representative model. An Executive Planning Team from the participating jurisdictions, shown in Table A-1, was formed to coordinate planning efforts and request input and participation in the planning process. Table A-2 reflects the Advisory Planning Team, consisting of area organizations and departments that participated throughout the planning process. Table A-3 is comprised of stakeholders who were invited to provide Plan input. Public outreach efforts and meeting documentation is provided in Appendix E.

Table A-1. Executive Planning Team

ORGANIZATION / DEPARTMENT	TITLE
Hidalgo County	Chief of Staff
Hidalgo County	Assistant Chief of Staff
Hidalgo County	Deputy Emergency Management Coordinator
Hidalgo County	Emergency Management Coordinator
City of Alamo	Fire Chief / Emergency Management Coordinator
City of Alton	Emergency Management Coordinator
City of Donna	Public Works Director
City of Edcouch	Fire Chief / Emergency Management Coordinator
City of Edinburg	Fire Chief / Emergency Management Coordinator
City of Elsa	Chief of Police / Emergency Management Coordinator
City of Granjeno	Mayor / Emergency Management Coordinator
City of Hidalgo	Code Enforcement Director
City of La Joya	City Manager
City of La Villa	Operations Manager
City of McAllen	Director of Engineering

APPENDIX A: PLANNING TEAM

ORGANIZATION / DEPARTMENT	TITLE
City of Mercedes	Fire Chief / Emergency Management Coordinator
City of Mission	Emergency Management Coordinator
City of Palmhurst	Chief of Police / EMC Coordinator
City of Palmview	Planning Director
City of Peñitas	Emergency Management / EDC
City of Pharr	Deputy Emergency Management Coordinator
City of Progreso	City Manager
City of San Juan	Director of Utilities
City of Sullivan City	Chief of Police
Santa Cruz Irrigation District #15	REMD

Table A-2. Advisory Planning Team

ORGANIZATION / DEPARTMENT	TITLE
Hidalgo County	Precinct 1 County Committee
Hidalgo County	Program Manager
Hidalgo County	Director of Field Operations
Hidalgo County	Assistant Field Operations Director
Hidalgo County	Program Manager
Hidalgo County	Precinct 3 County Committee
Hidalgo County	Chief of Staff
Hidalgo County	Commissioner Executive Assistant
Hidalgo County	Precinct 4 County Committee
Hidalgo County	Precinct 4 Administrator
Hidalgo County	Chief Administrator for External Affairs
Hidalgo County	Public Affairs Specialist
Hidalgo County	County Executive Officer
City of Alamo	Police Chief / Assistant Emergency Management Coordinator

APPENDIX A: PLANNING TEAM

ORGANIZATION / DEPARTMENT	TITLE
City of Alton	AEMC
City of Alton	Business Development Manager
City of Donna	Assistant Public Works Director
City of Donna	City Planner
City of Edcouch	Assistant Emergency Management Coordinator
City of Edinburg	Deputy Chief / Assistant Emergency Management Coordinator
City of Edinburg	City Engineer
City of Elsa	City Manager
City of Elsa	Human Resource Director
City of Granjeno	City Clerk
City of Hidalgo	Lieutenant / Emergency Management Coordinator
City of La Joya	Fire Chief
City of La Villa	Chief of Police
City of La Villa	City Secretary
City of McAllen	Drainage Engineer
City of McAllen	Assistant Emergency Management Coordinator
City of Mercedes	Deputy Emergency Management Coordinator
City of Mission	Grants Coordinator
City of Palmhurst	City Manager / EMC Asst. Coordinator
City of Palmview	Fire Chief / Emergency Management Coordinator
City of Peñitas	Project Manager
City of Peñitas	Fire Chief
City of Pharr	City Engineer
City of Pharr	Interim PW Director
City of Pharr	Engineer in Training

APPENDIX A: PLANNING TEAM

ORGANIZATION / DEPARTMENT	TITLE
City of Progreso	Maintenance Director
City of San Juan	Fire Chief / Emergency Management Coordinator
City Of Sullivan City	City Manager
Santa Cruz Irrigation District #15	Professional Engineer (PE)

STAKEHOLDERS

The following groups listed in Table A-3 represent a list of organizations invited to stakeholder meetings, public meetings, and workshops throughout the planning process and include: non-profit organizations, private businesses, universities, and legislators. The public were also invited to participate via e-mail throughout the planning process. Many of the invited organizations and stakeholders participated and were integral to providing comments and data for the Plan. For a list of attendees at meetings, please see Appendix E¹.

Table A-3. Stakeholders

AGENCY	TITLE
Brooks County	County Sheriff
Cameron County	Emergency Management Coordinator
Cameron County	Assistant Emergency Management Coordinator
Cameron County	Assistant Emergency Management Coordinator
Kenedy County	County Sheriff
Starr County	911 Coordinator
Willacy County	Emergency Management Coordinator
City of Brownsville	Emergency Management Coordinator
Drainage District #1	District General Manager
Drainage District #1	Operations Manager
Donna ISD	Superintendent
Edcouch-Elsa ISD	Superintendent
Edinburg CISD	Superintendent
Hidalgo ISD	Superintendent

¹ Information contained in Appendix E is exempt from public release under the Freedom of Information Act (FOIA).

APPENDIX A: PLANNING TEAM

AGENCY	TITLE
Hidalgo ISD	Secretary to Superintendent
La Joya ISD	Superintendent
La Joya ISD	Police Department EMC
La Joya ISD	Teacher
La Villa ISD	Superintendent
McAllen ISD	Superintendent
McAllen ISD	Executive Assistant
Mercedes ISD	Superintendent
Mission CISD	Superintendent
Monte Alto ISD	Superintendent
Monte Alto ISD	CFO
Pharr-San Juan-Alamo ISD	Superintendent
Progreso ISD	Superintendent
Progreso ISD	Secretary
Sharyland ISD	Superintendent
South Texas ISD	Superintendent
Valley View ISD	Superintendent
Weslaco ISD	Superintendent
AEP	Manager, External Affairs
American Red Cross	Executive Director
GLO-CDR Intergovernmental Relations	Community Outreach Coordinator
HRA Associates	Grant Administrator
Lower Rio Grande Valley Development Council	Assistant Director of Homeland Security
Lower Rio Grande Valley Development Council	Executive Director
Lower Rio Grande Valley Development Council	Director of Community and Economic Development
Lower Rio Grande Valley Development Council	Program Specialist

APPENDIX A: PLANNING TEAM

AGENCY	TITLE
Texas Commission of Environmental Quality	Regional Director
Texas Commission of Environmental Quality	Local Government Compliance Assistance Specialist
Texas Division of Emergency Management	District Coordinator
Texas Department of Transportation	District Engineer
Texas House District 35	Representative
Texas House District 39	Representative
Texas House of District 40	Representative
Texas House of District 40	Representative
Texas Senate District 20	Senator
Texas Senate District 27	Senator
Texas Senate District 36	Senator
University of Texas Rio Grande Valley	Emergency Management Coordinator

APPENDIX B: PUBLIC SURVEY RESULTS

Overview	1
Public Survey Results	2

OVERVIEW

Hidalgo County prepared a public survey that requested public opinion on a wide range of questions relating to natural hazards. The survey was made available via the County’s websites, along with participating jurisdictions. This survey link was also distributed at public meetings and stakeholder events throughout the planning process.

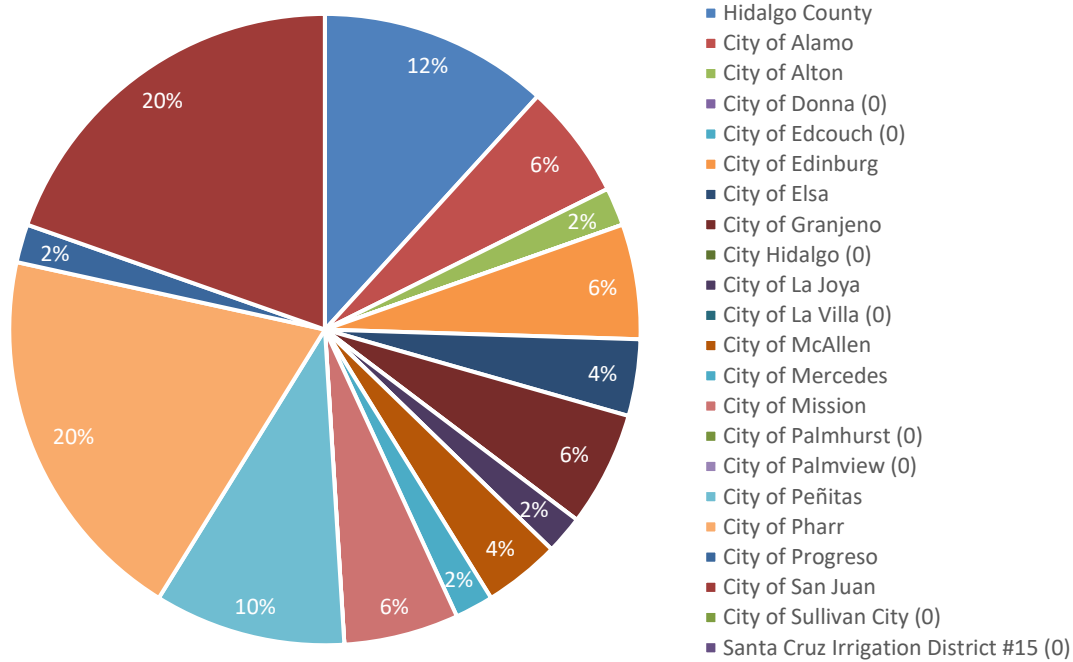
A total of 52 surveys were collected, the results of which are analyzed in Appendix B. The purpose of the survey was twofold: 1) to solicit public input during the planning process, and 2) to help the jurisdictions identify any potential actions or problem areas.

The following survey results depict the percentage of responses for each answer. Similar responses have been summarized for questions that did not provide a multiple-choice answer or that required an explanation.

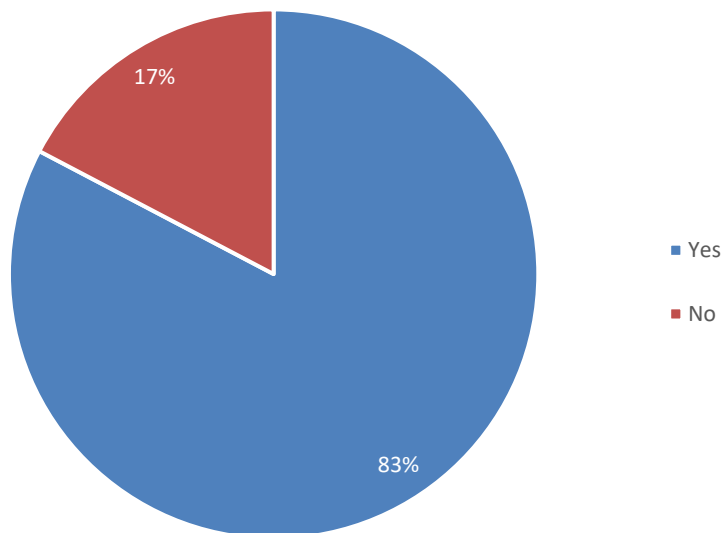
APPENDIX B: PUBLIC SURVEY RESULTS

PUBLIC SURVEY RESULTS

1. Please state the jurisdiction (city or community) where you reside.

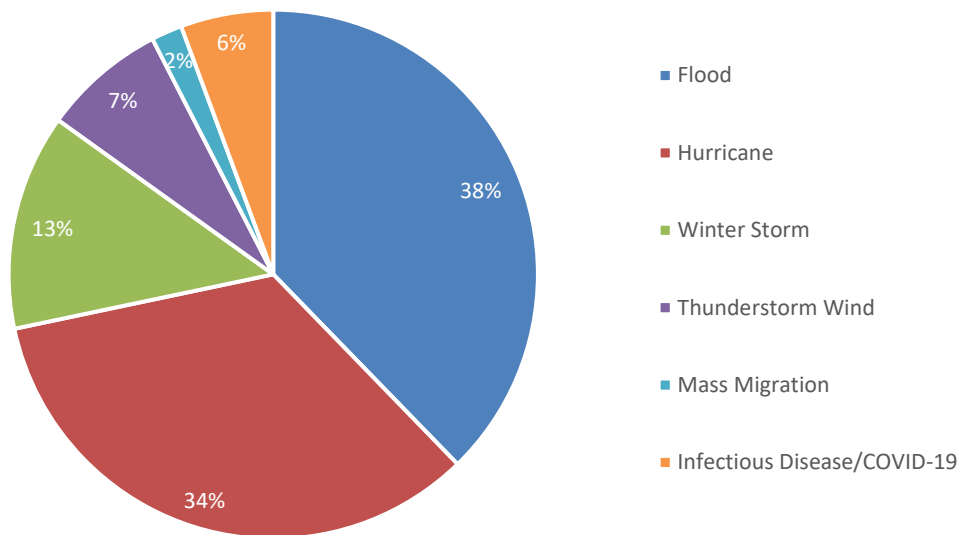


2. Have you ever experienced or been impacted by a disaster?

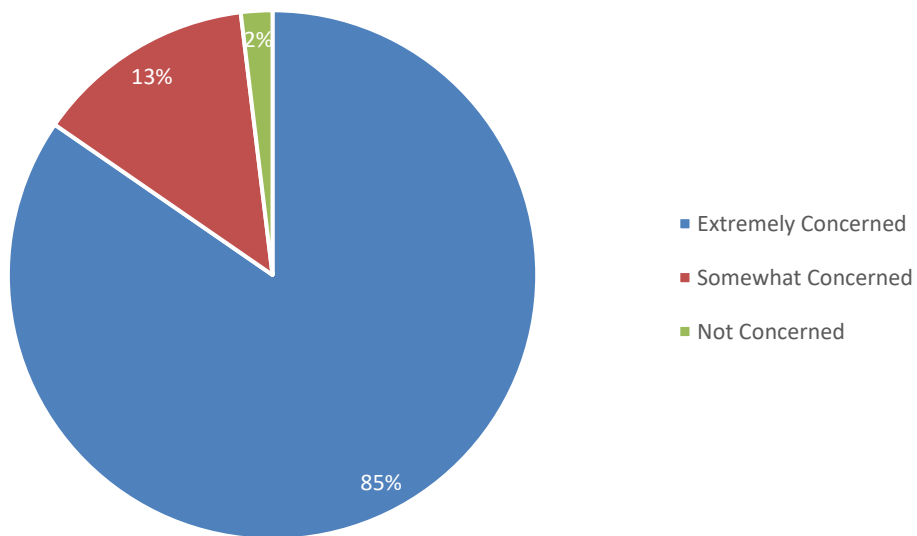


APPENDIX B: PUBLIC SURVEY RESULTS

3. If you answered “Yes” to Question #2, please explain.

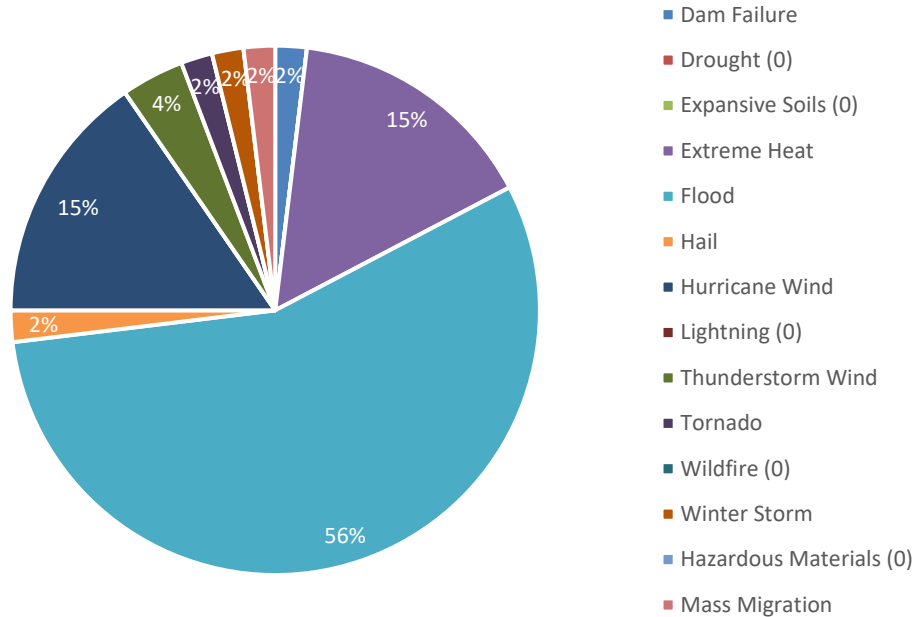


4. How concerned are you about the possibility of your community being impacted by a disaster?

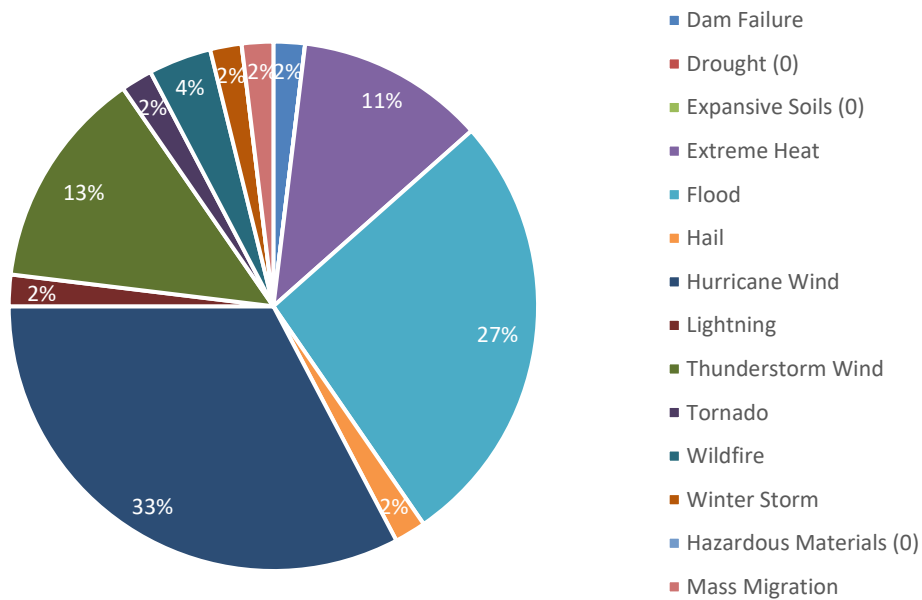


APPENDIX B: PUBLIC SURVEY RESULTS

5. Please select the one hazard you think is the highest threat to your neighborhood:

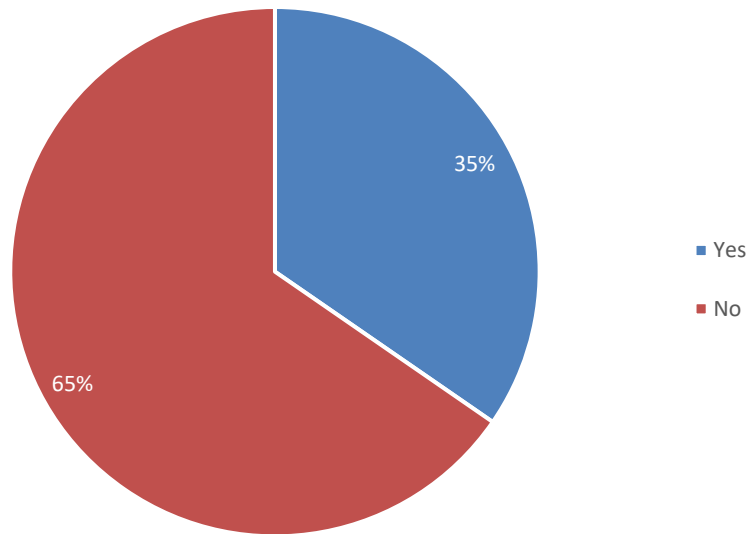


6. Please select the one hazard you think is the second highest threat to your neighborhood:

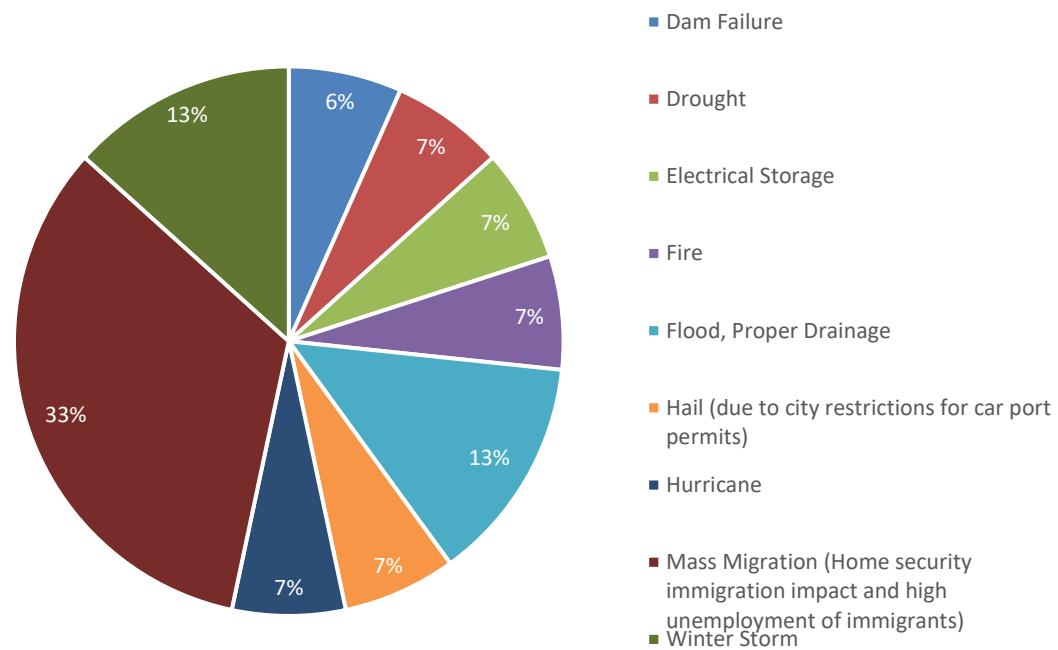


APPENDIX B: PUBLIC SURVEY RESULTS

7. Is there another hazard not listed above that you think is a wide-scale threat to your neighborhood?

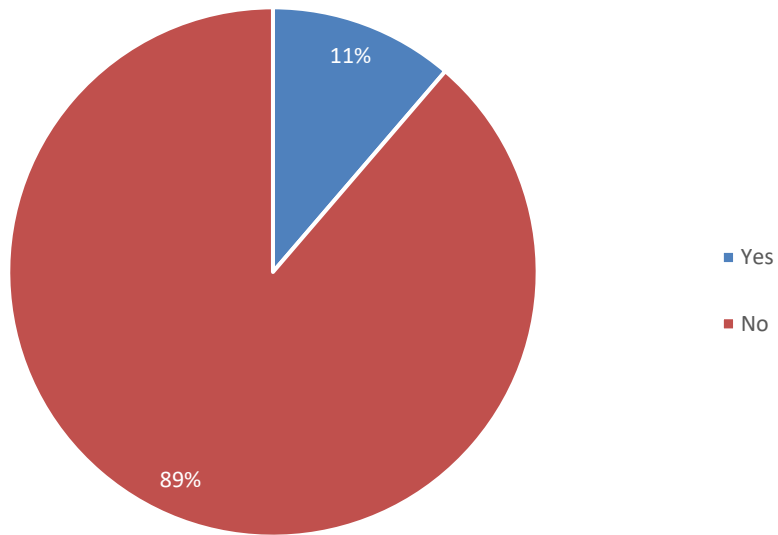


8. If you answered "Yes" to Question #7, please explain.

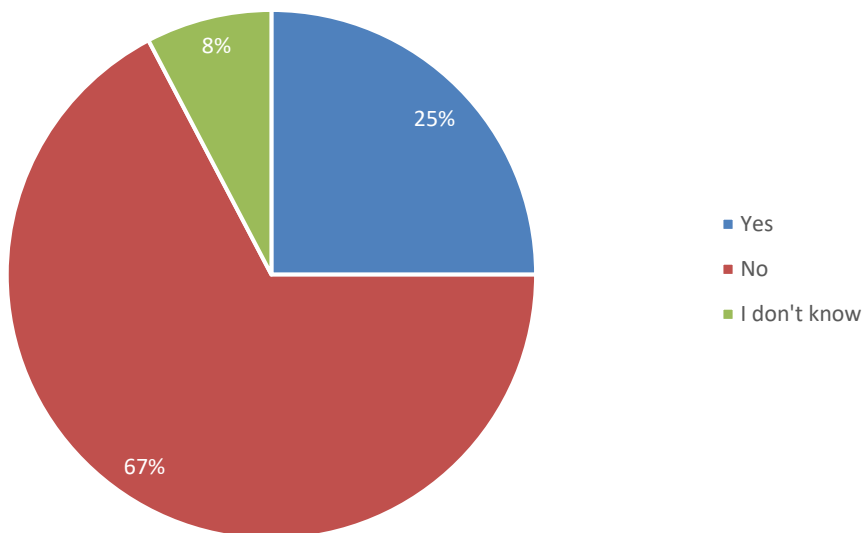


APPENDIX B: PUBLIC SURVEY RESULTS

9. Is your home located in a floodplain?

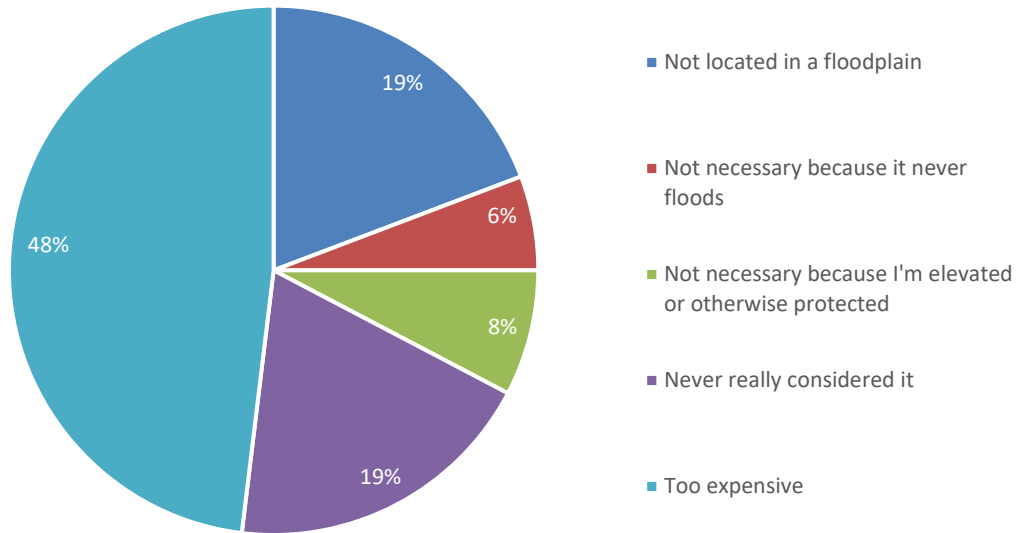


10. Do you have flood insurance?

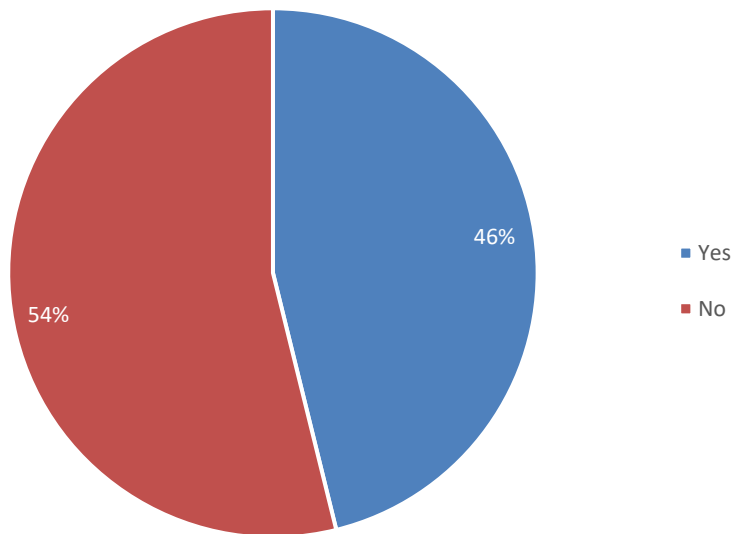


APPENDIX B: PUBLIC SURVEY RESULTS

11. If you do not have flood insurance, why not?

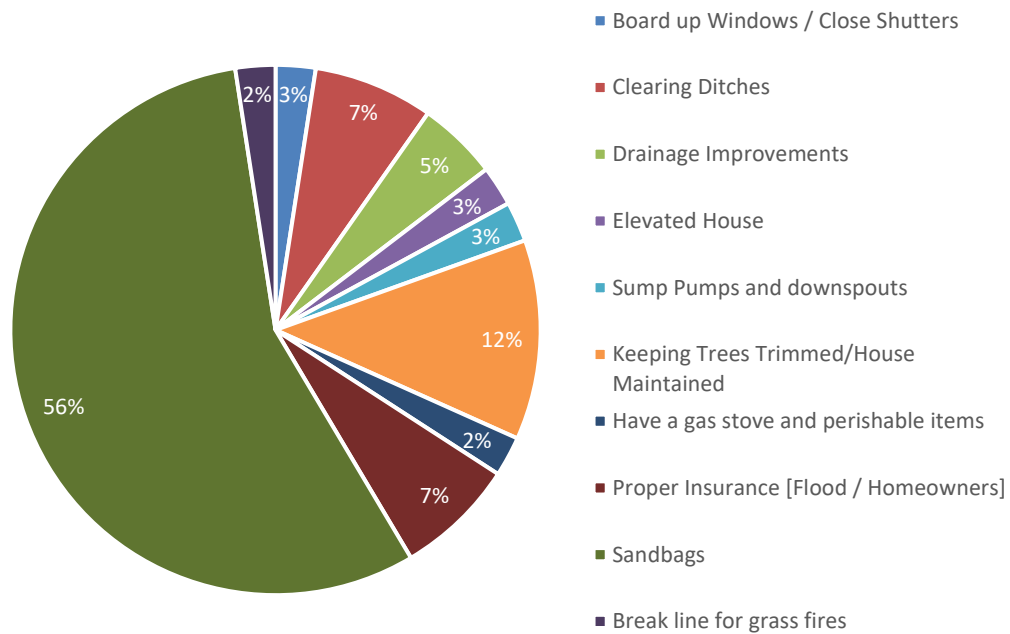


12. Have you taken any actions to make your home or neighborhood more resistant to hazards?

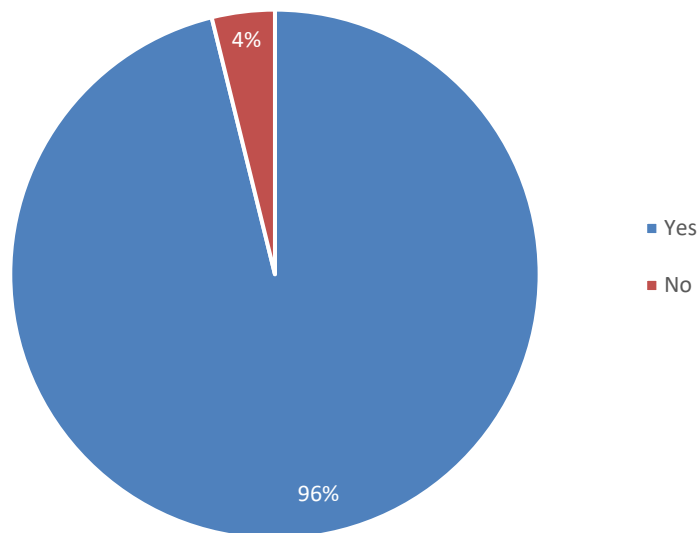


APPENDIX B: PUBLIC SURVEY RESULTS

13. If you answered “Yes” to Question #12, please explain.

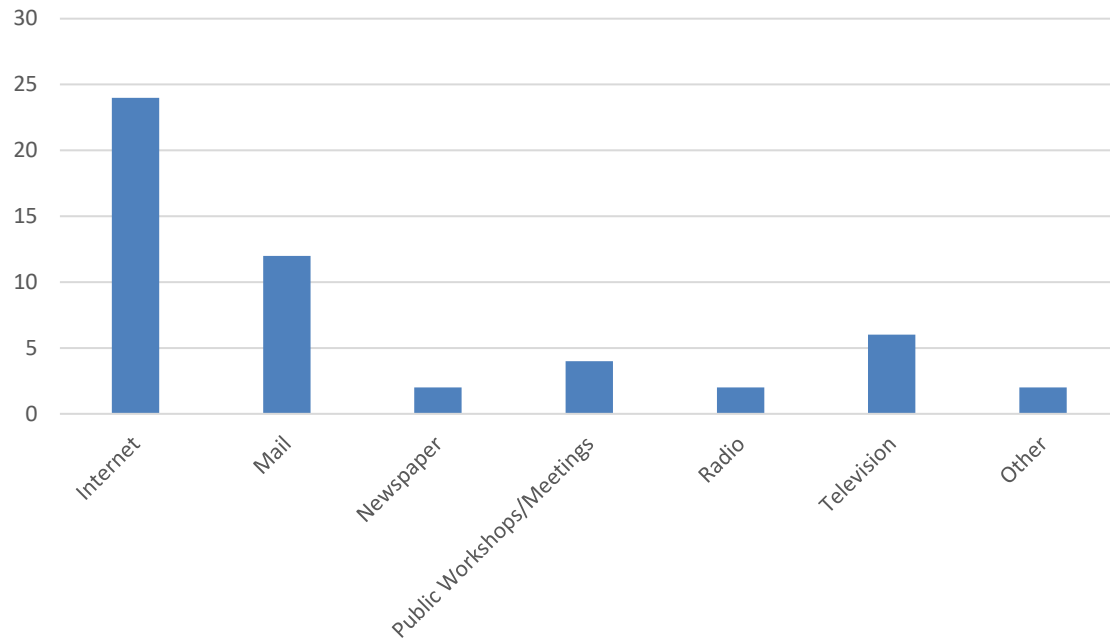


14. Are you interested in making your home or neighborhood more resistant to hazards?

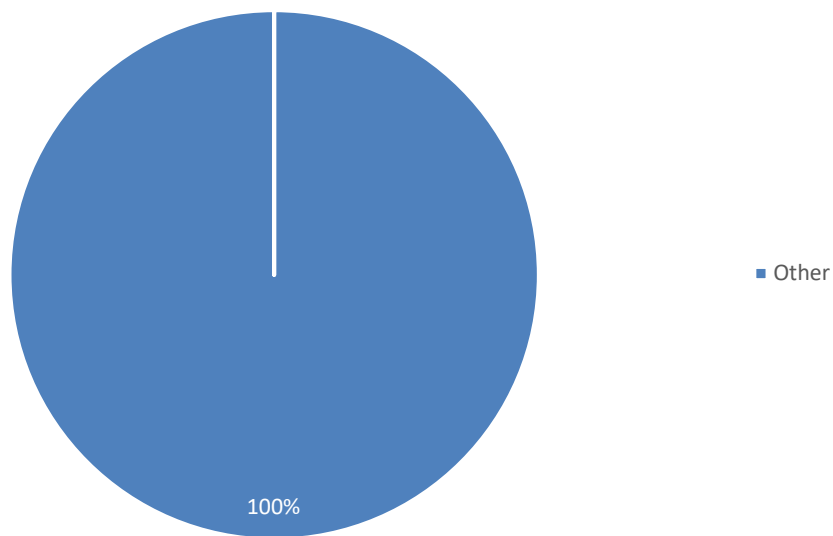


APPENDIX B: PUBLIC SURVEY RESULTS

15. What is the most effective way for you to receive information about how to make your home and neighborhood more resistant to hazards?

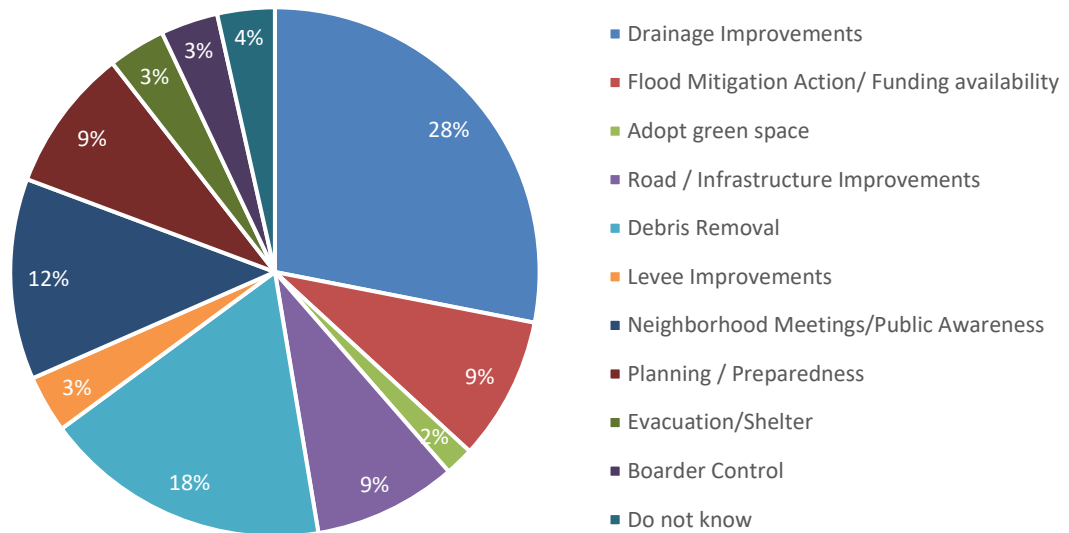


16. If you answered "Other" to Question #15, please explain.

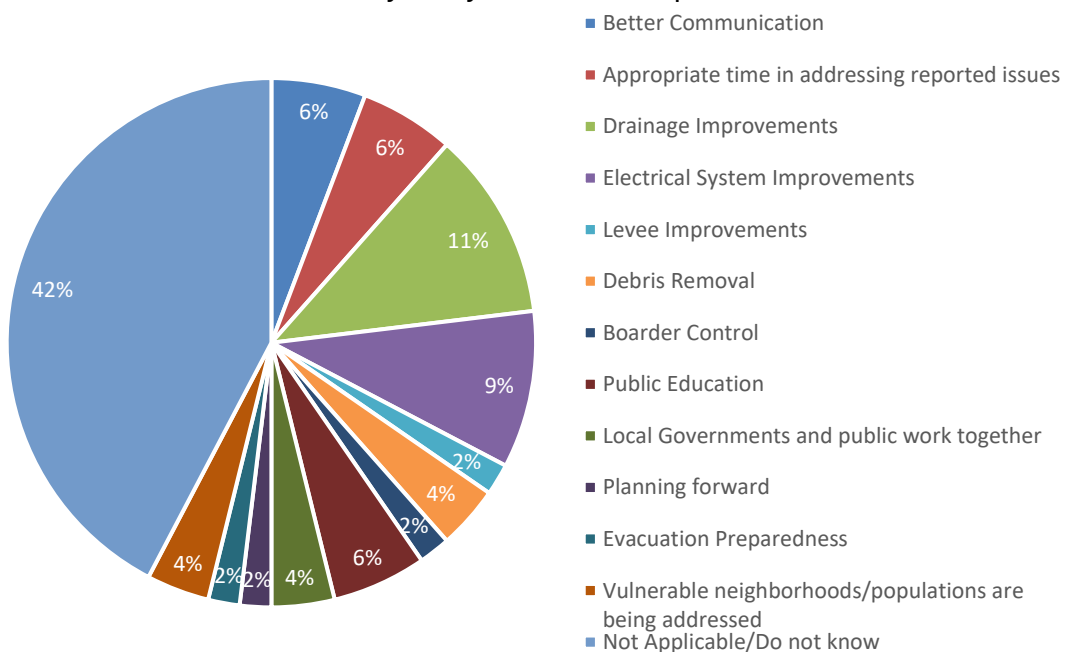


APPENDIX B: PUBLIC SURVEY RESULTS

17. In your opinion, what are some steps your local government could take to reduce or eliminate the risk of future hazard damages in your neighborhood?

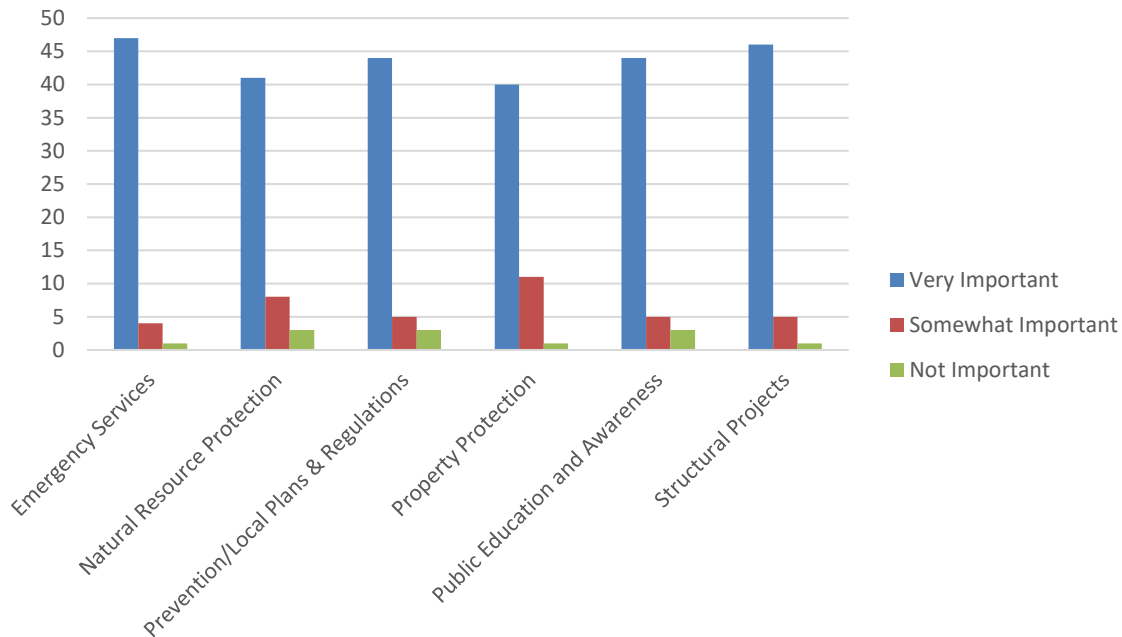


18. Are there any other issues regarding the reduction of risk and loss associated with hazards or disaster in the community that you think are important?



APPENDIX B: PUBLIC SURVEY RESULTS

19. A number of community-wide activities can reduce our risk from hazards. In general, these activities fall into one of the following six broad categories. Please tell us how important you think each one is for your community to consider pursuing.



Emergency Services - Actions that protect people and property during and immediately after a hazard event. Examples include warning systems, evacuation planning, emergency response training, and protection of critical facilities or systems.

Natural Resource Protection - Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems. Examples include floodplain protection, habitat preservation, slope stabilization, riparian buffers, and forest management.

Prevention / Local Plans & Regulations - Administrative or regulatory actions that influence the way land is developed and buildings are built. Examples include planning and zoning, building codes, open space preservation, and floodplain regulations.

Property Protection - Actions that involve the modification of existing buildings to protect them from a hazard or removal from the hazard area. Examples include acquisition, relocation, elevation, structural retrofits, and storm shutters.

Public Education and Awareness - Actions to inform citizens about hazards and techniques they can use to protect themselves and their property. Examples include outreach projects, school education programs, library materials, and demonstration events.

Structural Projects - Actions intended to lessen the impact of a hazard by modifying the natural progression of the hazard. Examples include dams, levees, seawalls detention / retention basins, channel modification, retaining walls, and storm sewers.

APPENDIX C: CRITICAL FACILITIES

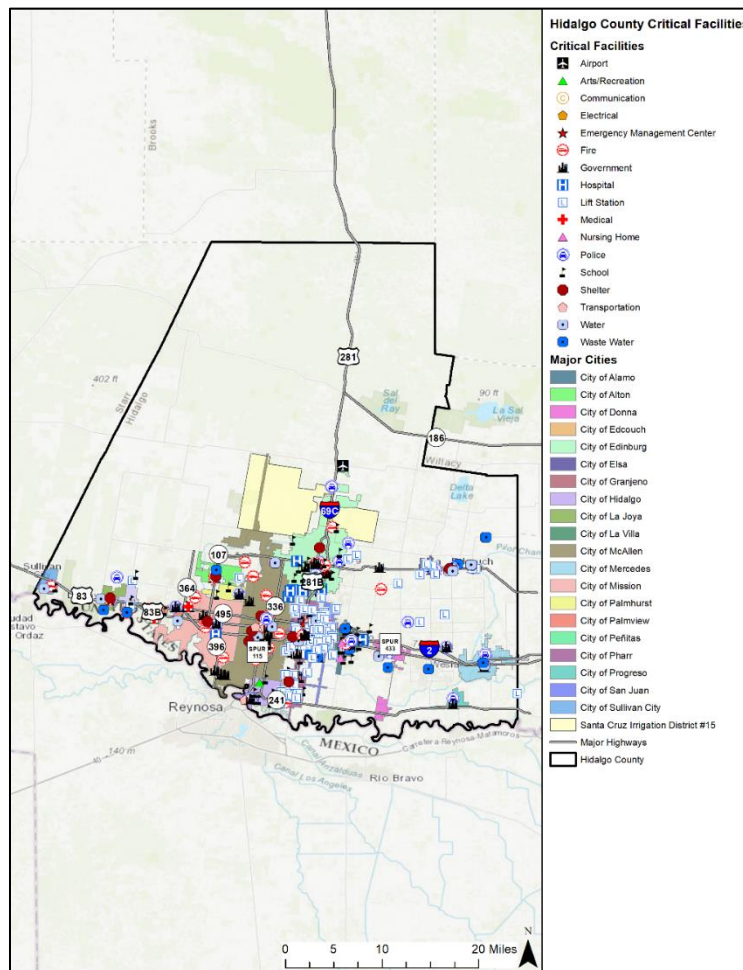
Overview.....	1
Critical Facilities	1

OVERVIEW

This Appendix is **For Official Use Only (FOUO)** and may be exempt from public release under FOIA. Figures C-1 through C-22 locate all critical facilities that were included in the risk assessment. Mapped facilities were provided by Planning Team members. Tables C-1 through C-22 note the critical facilities by type.

CRITICAL FACILITIES

Figure C-1. Critical Facilities in Hidalgo County



APPENDIX C: CRITICAL FACILITIES

Table C-1. Critical Facilities by Type in Hidalgo County

TYPE	NUMBER
Administrative Office	5
Adult Probation	1
Building & Ground	2
Community Center	1
Constable	2
County Clerk	2
County Buildings	2
Courts/Annex	3
Election Administration	1
Fire/Marshal Department	1
Heath Office	2
Justice of the Peace	3
Planning Department	2
Resource Center	1
Sheriff's Department	7
Shop	3
Storage Facility	1
WIC	1

APPENDIX C: CRITICAL FACILITIES

Figure C-2. Critical Facilities in the City of Alamo

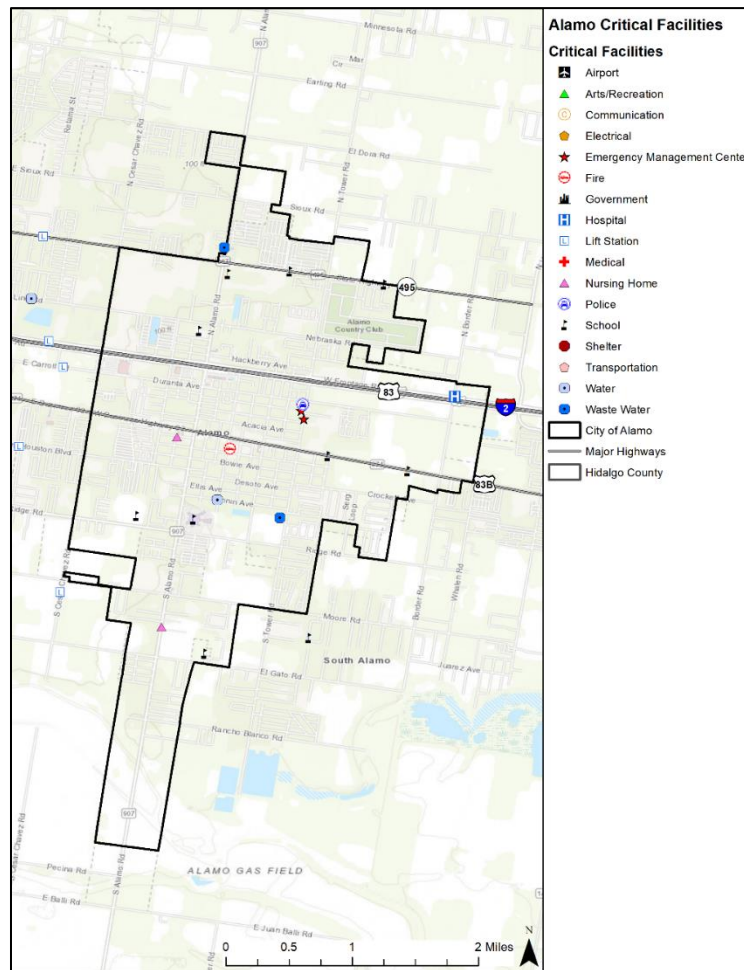


Table C-2. Critical Facilities by Type in the City of Alamo

TYPE	NUMBER
City Hall	1
Elderly Housing	1
Fire Department	2
Health System/ 24hr ER	1
Nursing Home	1
Police Department	1
School	11
Waste/Water Plant	1
Water Plant	1

APPENDIX C: CRITICAL FACILITIES

Figure C-3. Critical Facilities in the City of Alton

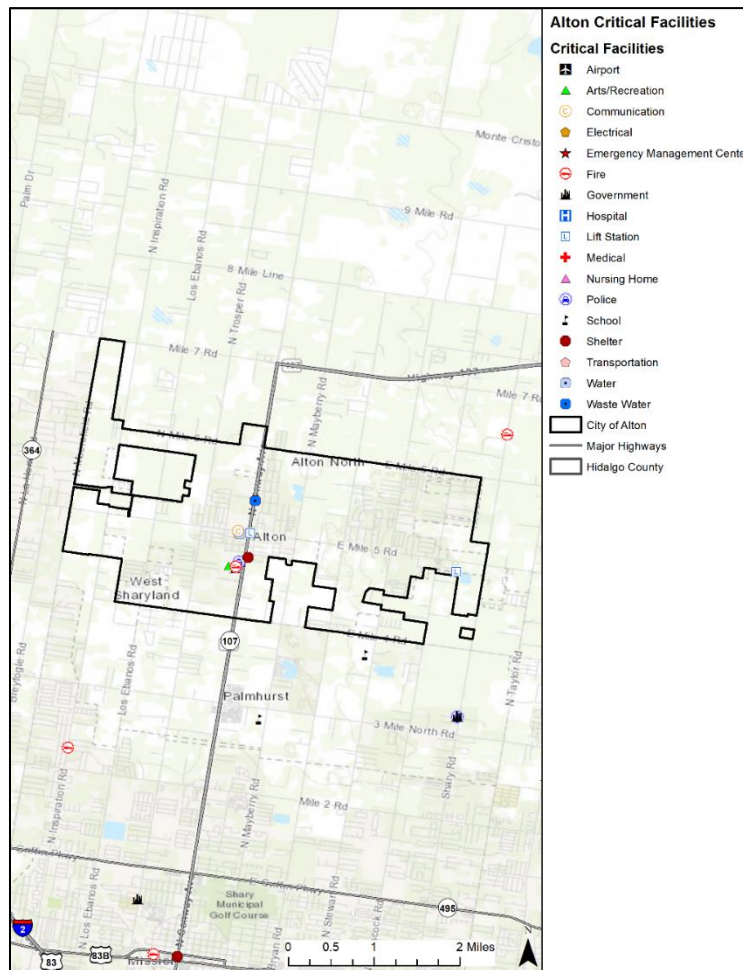


Table C-3. Critical Facilities by Type in the City of Alton

TYPE	NUMBER
City Hall	1
Development Center	1
Fire Department	1
Internet (WIFI) Tower	1
Lift Station	1
Parks	1
Police Department/Public Safety	2
Recreation Center	1
Water Tower	1

APPENDIX C: CRITICAL FACILITIES

Figure C-4. Critical Facilities in the City of Donna

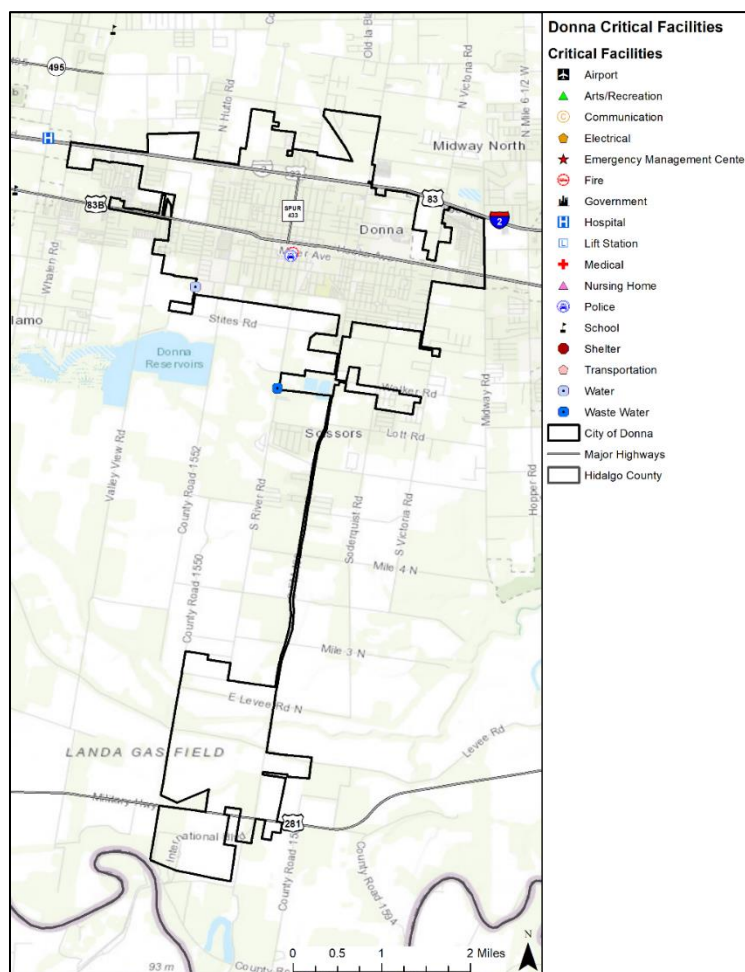


Table C-4. Critical Facilities by Type in the City of Donna

TYPE	NUMBER
Fire Department	1
Police Department	1
Sewer Treatment	1
Water Treatment	1

APPENDIX C: CRITICAL FACILITIES

Figure C-5. Critical Facilities in the City of Edcouch

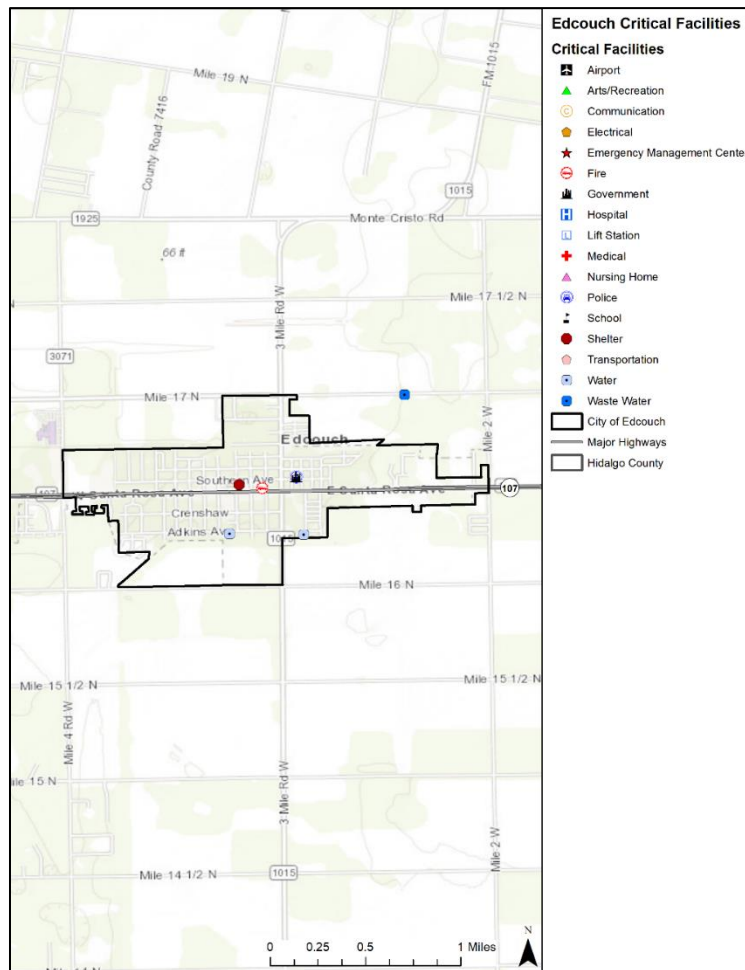


Table C-5. Critical Facilities by Type in the City of Edcouch

TYPE	NUMBER
City Hall	1
Community Center	1
Fire Department (Volunteer)	1
Police Department	1
Sewer Plant	1
Water Plant	1
Water Tower	1

APPENDIX C: CRITICAL FACILITIES

Figure C-6. Critical Facilities in the City of Edinburg

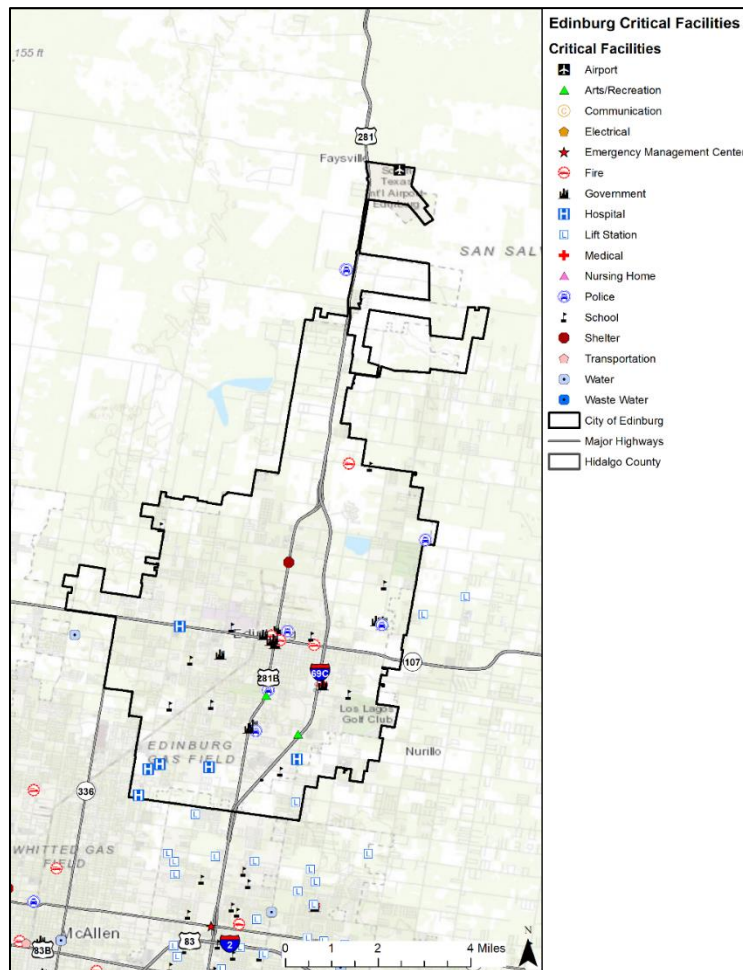


Table C-6. Critical Facilities by Type in the City of Edinburg

TYPE	NUMBER
AEP	1
Airport	1
City Hall	1
Courthouse	1
County Jail	1
Fire Department	5
Hospital/Emergency	6
Housing Authority	1
Juvenile Detention	2

APPENDIX C: CRITICAL FACILITIES

TYPE	NUMBER
Landfill	1
Library	1
Lift Station	26
Police Department	1
Power Plant	2
School	32
Theater	1
Water Plant/Supply	3
WWTP	1

APPENDIX C: CRITICAL FACILITIES

Figure C-7. Critical Facilities in the City of Elsa

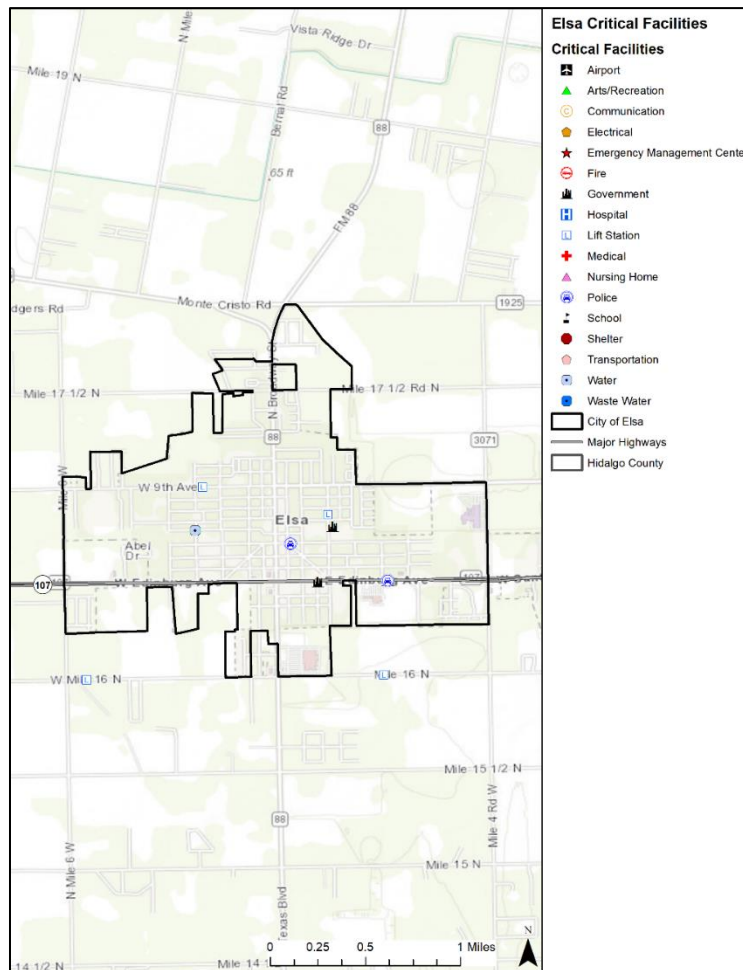


Table C-7. Critical Facilities by Type in the City of Elsa

TYPE	NUMBER
City Hall	1
Chlorine Bldg.	2
Ground Water Tank	2
Lift Stations	14
Public Safety	1
Public Works	1
Waste Water Plant	2
Water Plant/ Pumping	2
Water Tower	1

APPENDIX C: CRITICAL FACILITIES

Figure C-8. Critical Facilities in the City of Granjeno

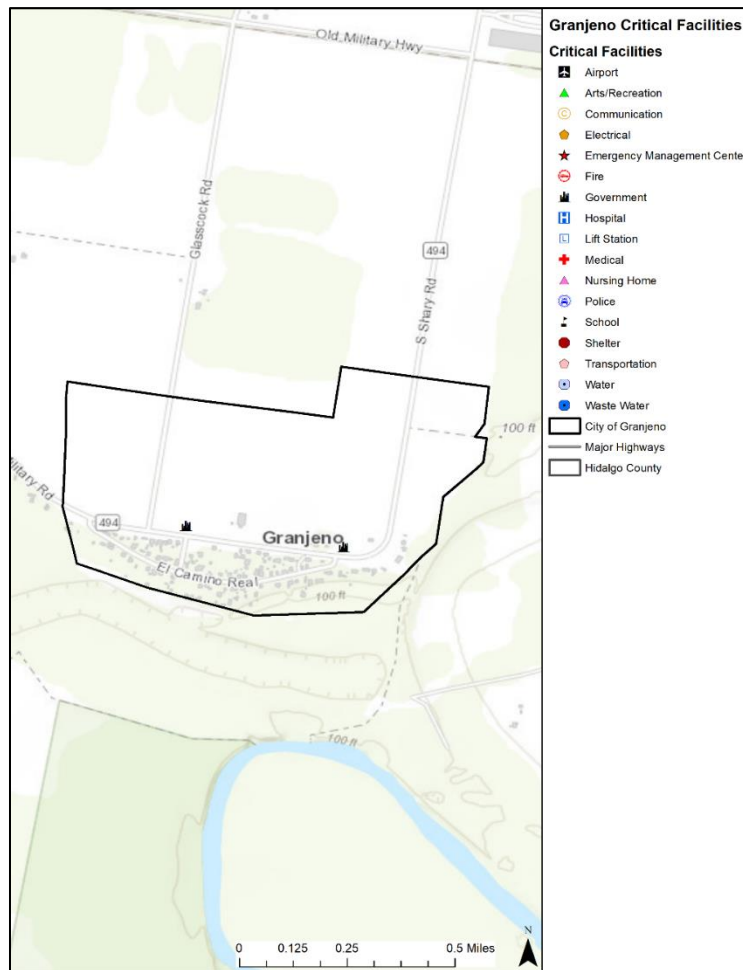


Table C-8. Critical Facilities by Type in the City of Granjeno

TYPE	NUMBER
City Hall	1
Public Facility	1

APPENDIX C: CRITICAL FACILITIES

Figure C-9. Critical Facilities in the City of Hidalgo

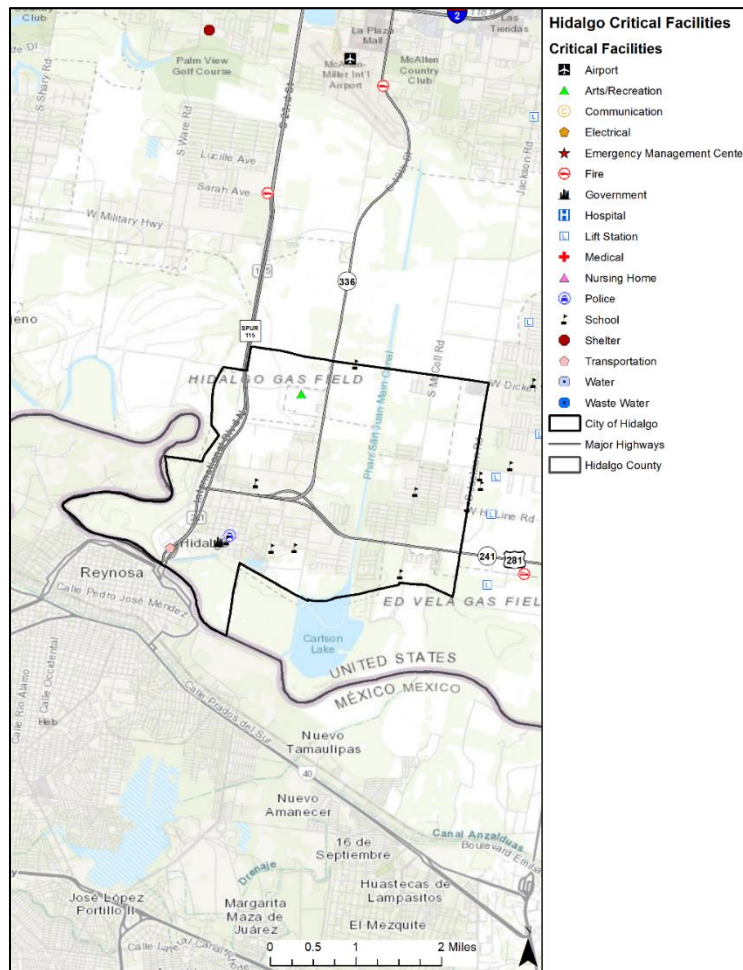


Table C-9. Critical Facilities by Type in the City of Hidalgo

TYPE	NUMBER
Arena	1
Bridge	1
City Hall	1
Court House	1
Fire/Police Department	1
Health Clinic	1
Library	1
School	8
Waste/Sewer Plant	1

APPENDIX C: CRITICAL FACILITIES

Figure C-10. Critical Facilities in the City of La Jota

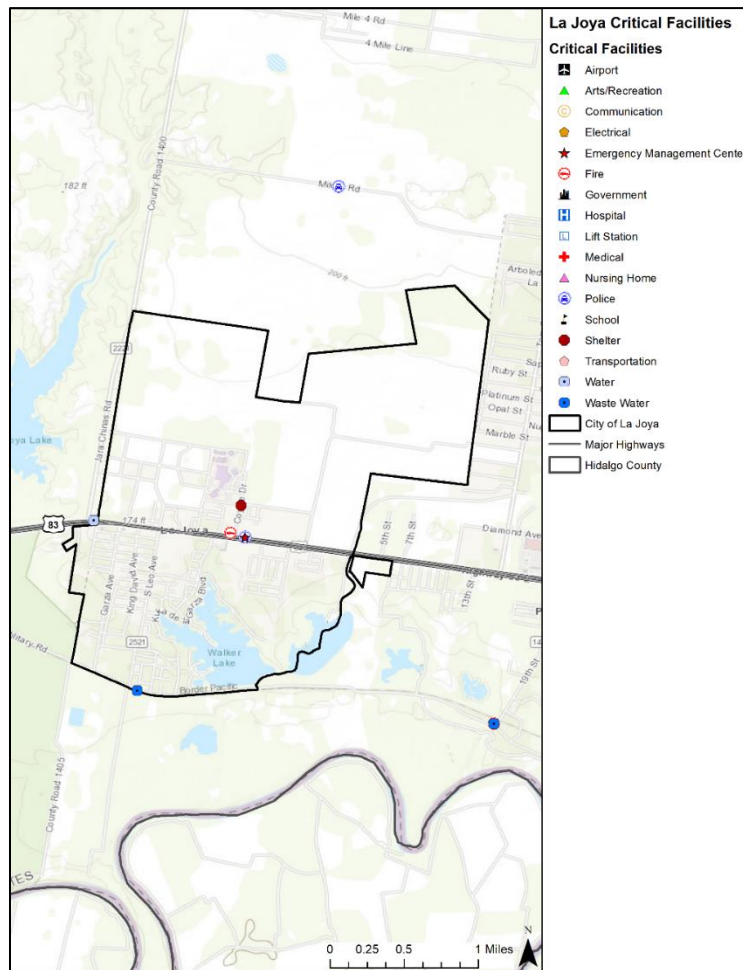


Table C-10. Critical Facilities by Type in the City of La Jota

TYPE	NUMBER
City Hall	1
Fire Department	1
Police Department	1
Shelter	1
Waste Water Plant	1
Water Plant	1

APPENDIX C: CRITICAL FACILITIES

Figure C-11. Critical Facilities in the City of La Villa

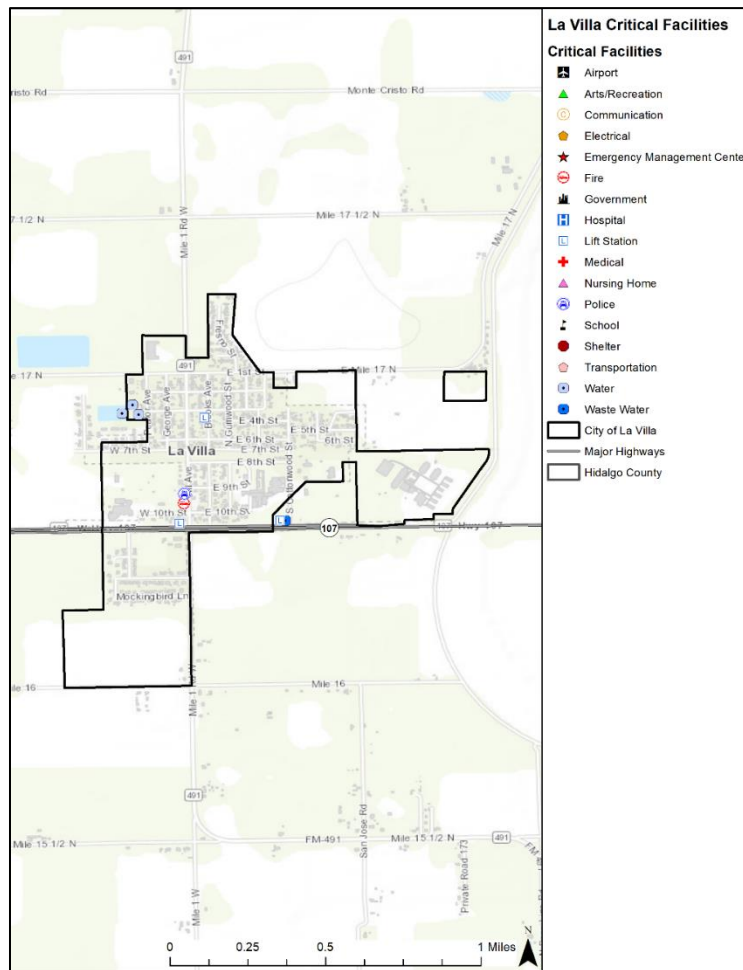


Table C-11. Critical Facilities by Type in the City of La Villa

TYPE	NUMBER
City Hall	1
Fire Department	1
Lift Stations	3
Mile 17 North	1
Police Department	1
Sewer Plant Department	2
Water Plant Department	2
Water Tower	2

APPENDIX C: CRITICAL FACILITIES

Figure C-12. Critical Facilities in the City of McAllen

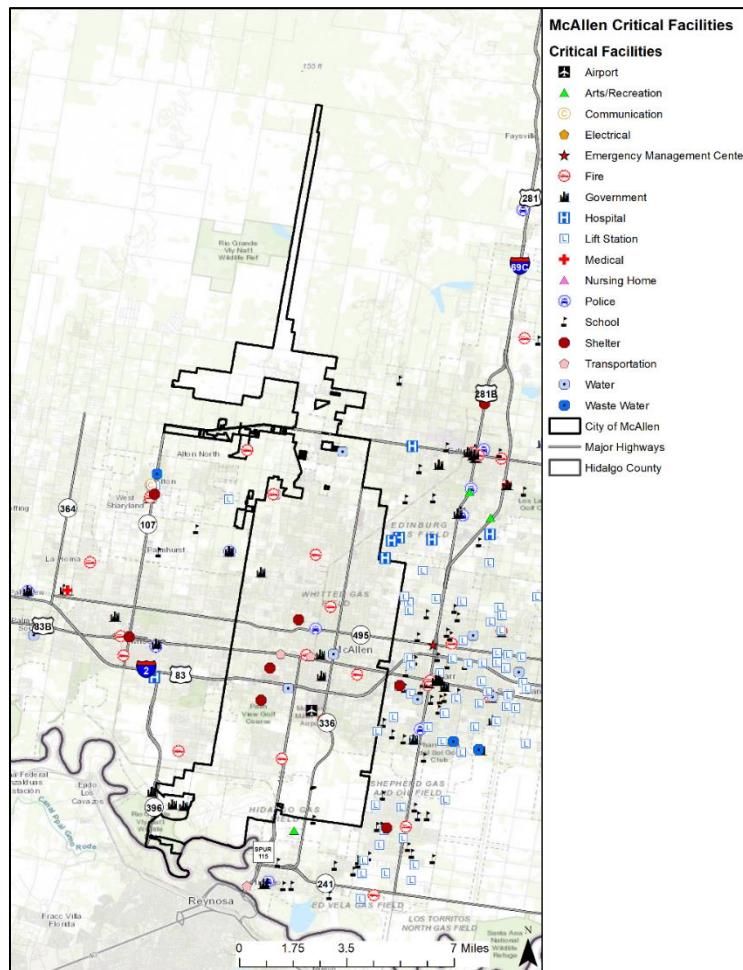


Table C-12. Critical Facilities by Type in the City of McAllen

TYPE	NUMBER
Airport	1
Bus Station	1
City Hall	1
Community Center/Shelter	3
Development Center	1
Emergency Operation Center	1
Fire Department	6
Public Safety	1
Public Works/Maintenance Facility	1

APPENDIX C: CRITICAL FACILITIES

TYPE	NUMBER
Reservoir	2
Traffic Operation	1
Waste Water Plant	1
Water Plant	2

APPENDIX C: CRITICAL FACILITIES

Figure C-13. Critical Facilities in the City of Merced

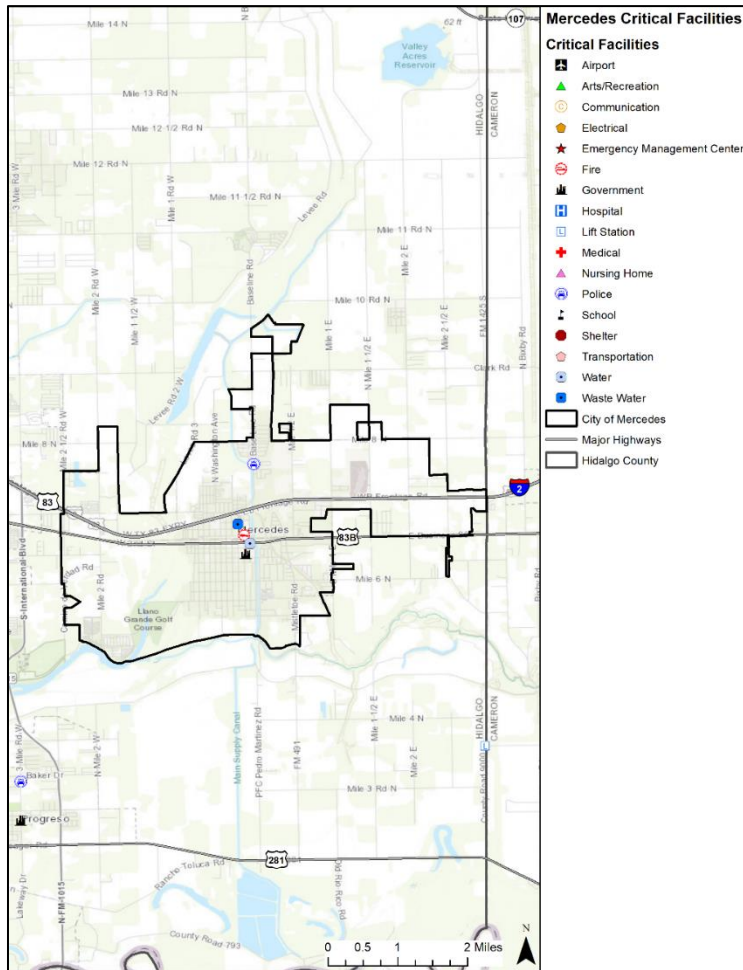


Table C-13. Critical Facilities by Type in the City of Merced

TYPE	NUMBER
Arena/Dome	1
City Hall	1
Fire Department	1
Police Department	1
Waste Water Plant	1
Water Plant	1

APPENDIX C: CRITICAL FACILITIES

Figure C-14. Critical Facilities in the City of Mission

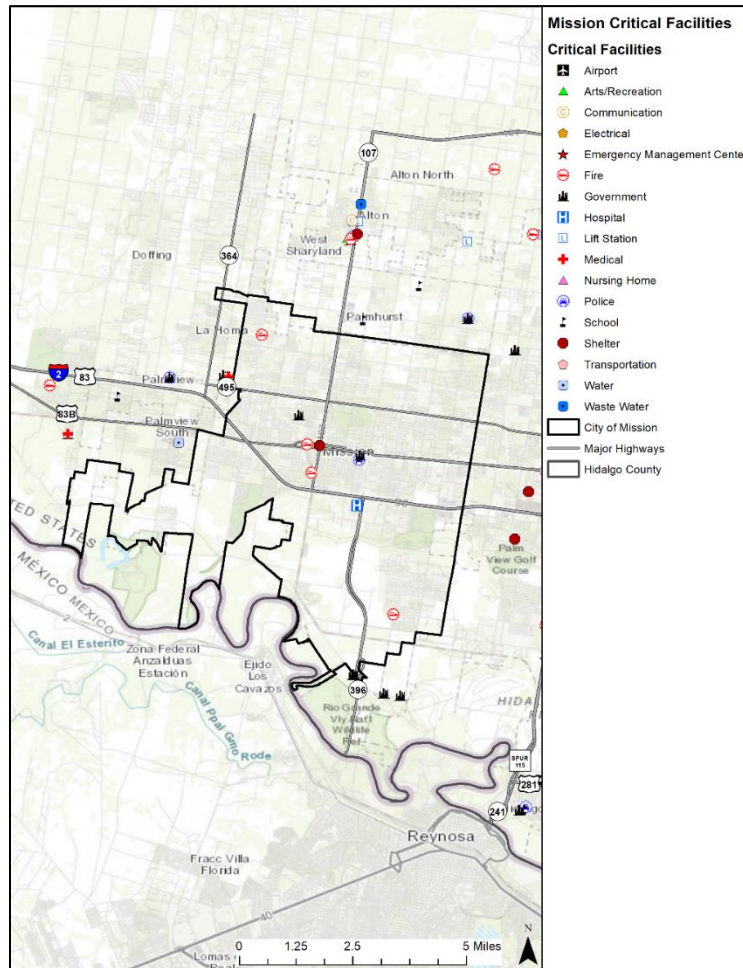


Table C-14. Critical Facilities by Type in the City of Mission

TYPE	NUMBER
City Hall	1
City Gym	1
Fire Department	5
Hospital	1
Police Department	1
PW Facility	1
School	1
Shelter	1
Waste/Water Plant	1

APPENDIX C: CRITICAL FACILITIES

Figure C-15. Critical Facilities in the City of Palmhurst

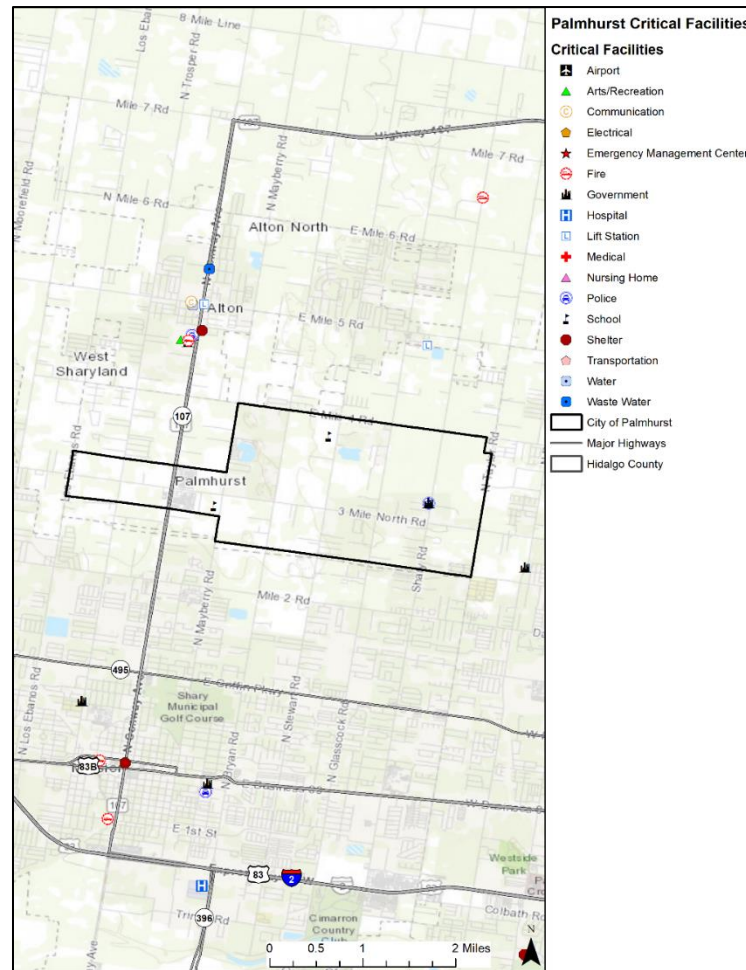


Table C-15. Critical Facilities by Type in the City of Palmhurst

TYPE	NUMBER
Administrative Building	1
City Hall	1
Police Department	1
Power Stations	2
Public Works	1
School	2

APPENDIX C: CRITICAL FACILITIES

Figure C-16. Critical Facilities in the City of Palmview

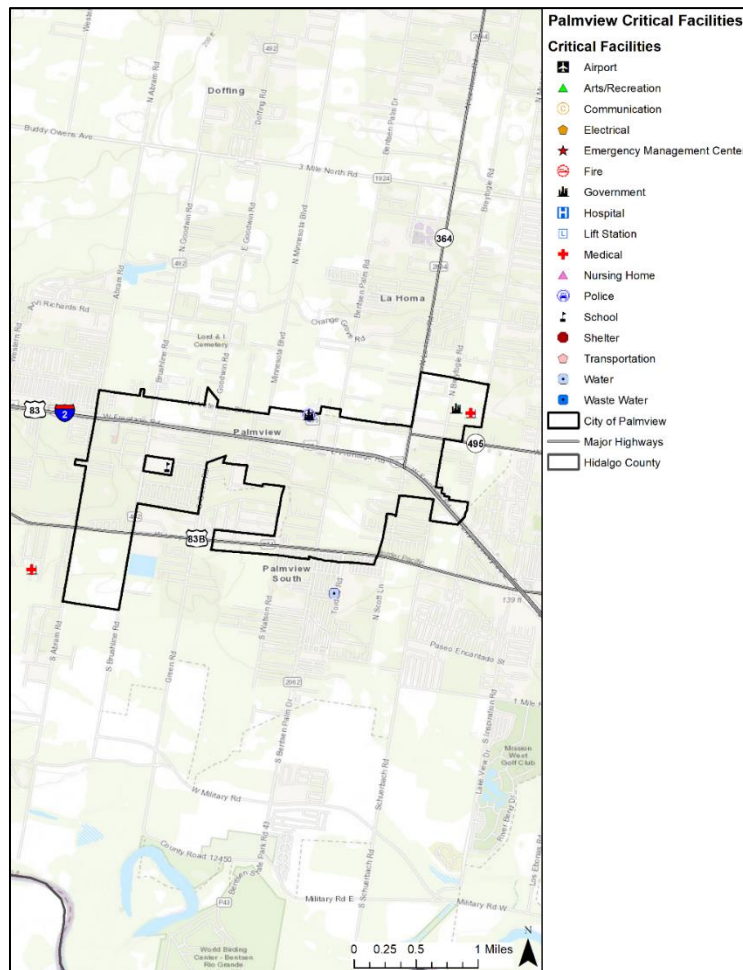


Table C-16. Critical Facilities by Type in the City of Palmview

TYPE	NUMBER
City Hall	1
Fire Department	1
Police Department	1
School	1

APPENDIX C: CRITICAL FACILITIES

Figure C-17. Critical Facilities in the City of Peñitas

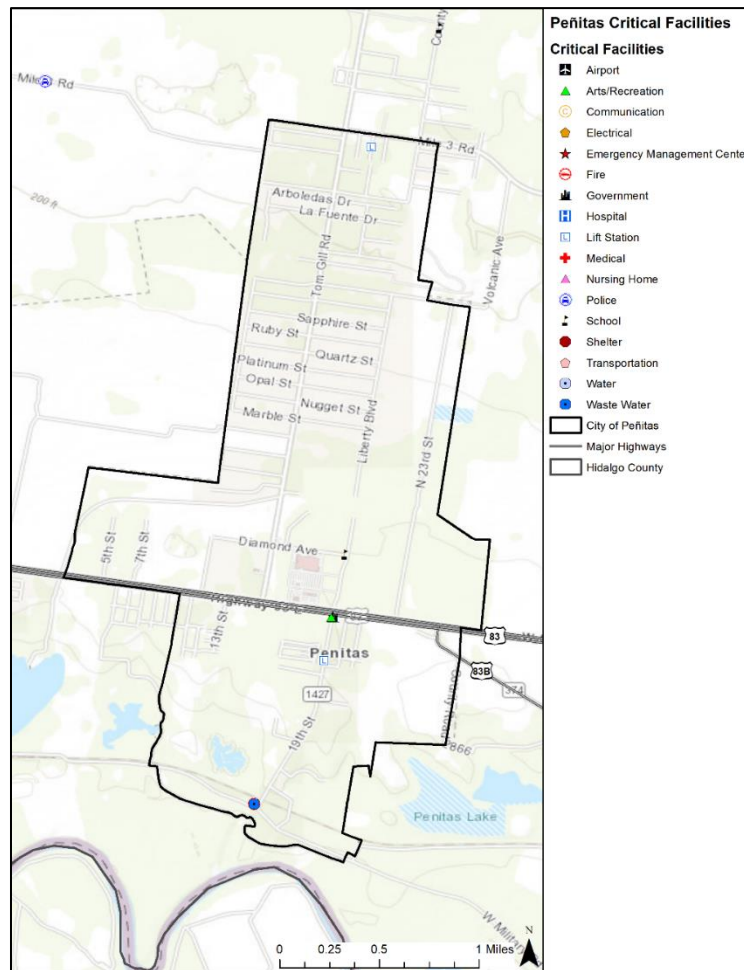


Table C-17. Critical Facilities by Type in the City of Peñitas

TYPE	NUMBER
City Hall	1
Fire Department	1
Gas Station	1
Library	1
Lift Station	3
Police Department	1
School	2
Waster/Water Plant	2
Wal-Mart	1

APPENDIX C: CRITICAL FACILITIES

Figure C-18. Critical Facilities in the City of Pharr

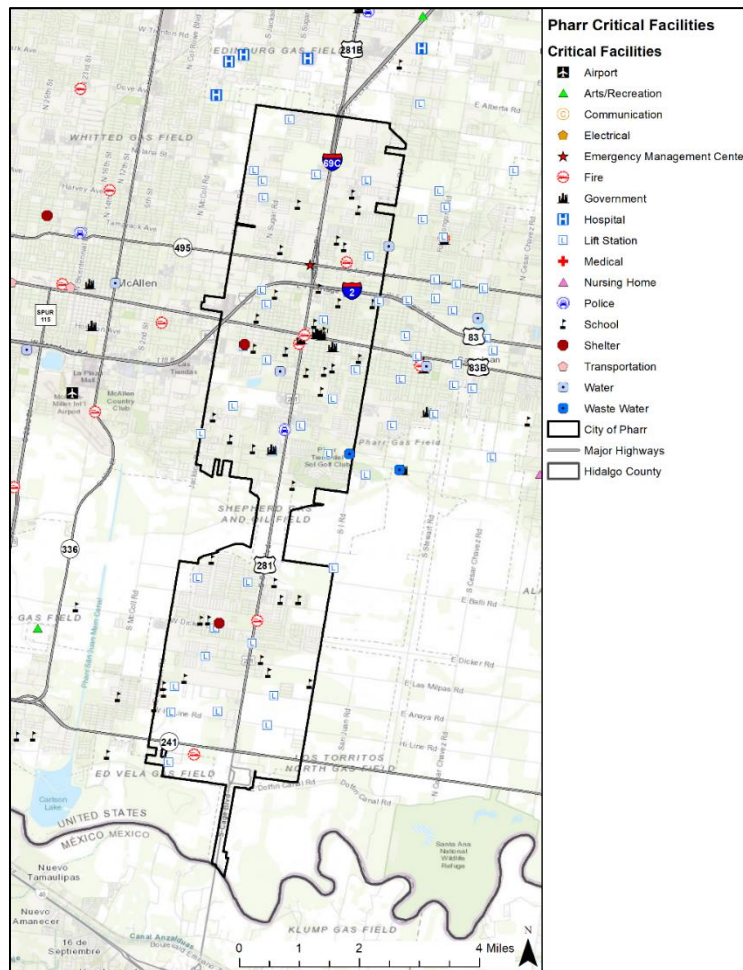


Table C-18. Critical Facilities by Type in the City of Pharr

TYPE	NUMBER
City Hall	1
Emergency Management Center	1
Evacuation Center	2
Fire Department	4
Lift Station	34
Police Department	1
School	41
Waste Water Plant	1
Water Plant	1

APPENDIX C: CRITICAL FACILITIES

Figure C-19 Critical Facilities in the City of Progreso

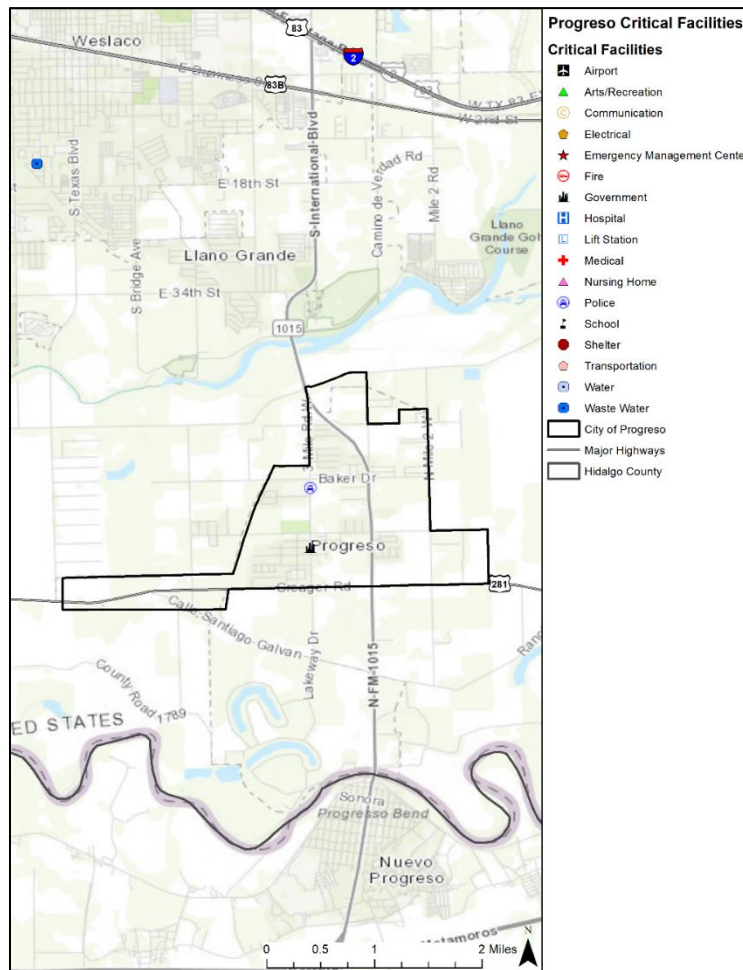


Table C-19. Critical Facilities by Type in the City of Progreso

TYPE	NUMBER
City Hall	1
Fire/Police Department	1

APPENDIX C: CRITICAL FACILITIES

Figure C-20 Critical Facilities in the City of San Juan

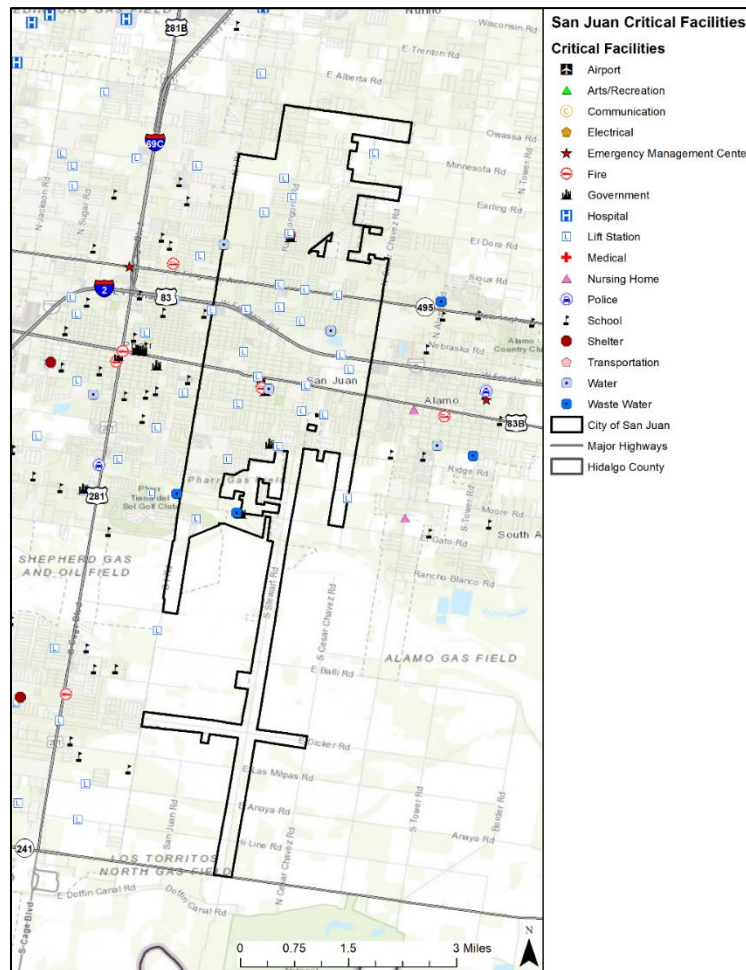


Table C-20. Critical Facilities by Type in the City of San Juan

TYPE	NUMBER
City Hall	2
Fire Department	2
Lift Station	23
Public Safety	2
Public Works	1
Reservoir	2
Waste/Water Plant	1
Water Plant/Station	4

APPENDIX C: CRITICAL FACILITIES

Figure C-21. Critical Facilities in the City of Sullivan City

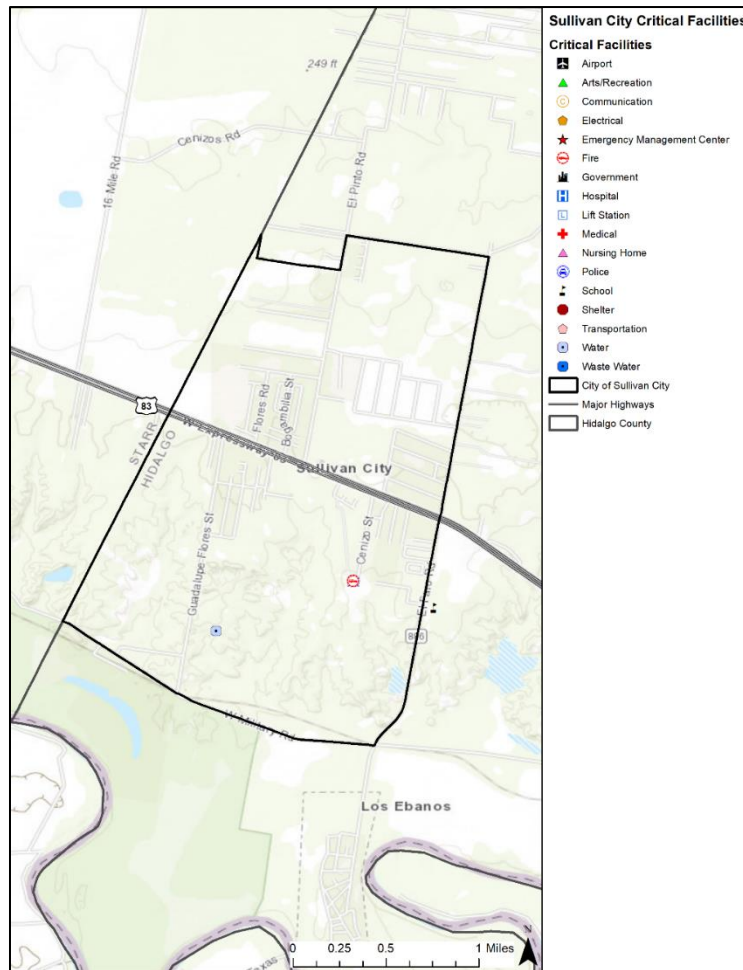


Table C-21. Critical Facilities by Type in the City of Sullivan City

TYPE	NUMBER
City Hall	1
Fire Department	1
Police Department	1
School	1
Water Plant	1

APPENDIX C: CRITICAL FACILITIES

Figure C-22. Critical Facilities in the Santa Cruz Irrigation District #15

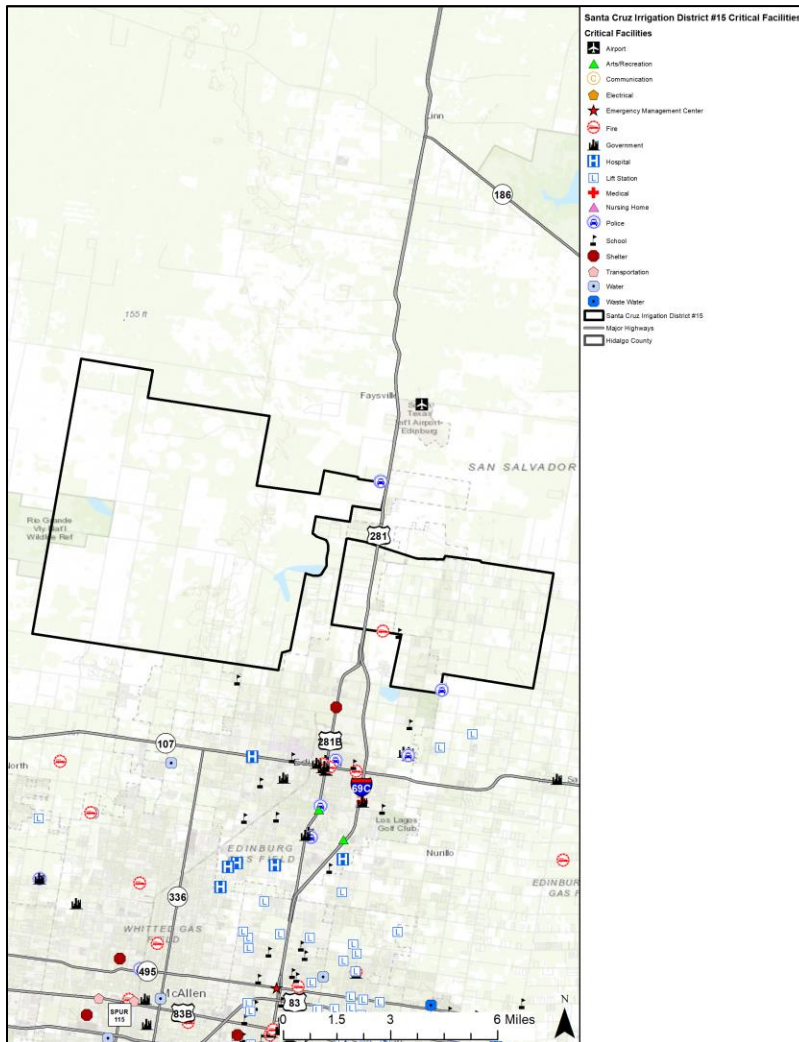


Table C-22. Critical Facilities by Type in the Santa Cruz Irrigation District #15

TYPE	NUMBER
Equipment Shop / Maintenance	1
Office / Mobile Office	2

APPENDIX D: DAM LOCATIONS

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Dam Locations.....	1

OVERVIEW

Appendix D is **For Official Use Only (FOUO)** and may be exempt from public release under the Freedom of Information Act (FOIA).

DAM LOCATIONS

Table D-1 below reflects all dams that are located in the participating jurisdictions within the Hidalgo County Hazard Mitigation Action Plan Update. This list includes High, Significant, and Low Hazard Dams. Section 13 of the Plan doesn't profile dams that were deemed to pose no past, current, or future risk to the planning area as no loss of life or impact to critical facilities or infrastructure is expected in the event of a breach. The asterisk denotes those that were profiled in the hazard assessment.

Table D-1. List of Dam Locations and Storage Capacities

JURISDICTION	LATITUDE	LONGITUDE	HEIGHT (Feet)	STORAGE (Acre Feet)
Hidalgo County	26.1191	-98.2612	8.35	123.8
Hidalgo County	26.469037	-98.010882	8	240
Hidalgo County	26.234182	-98.466555	12.4	461
Hidalgo County	26.228332	-98.425	12	576
Hidalgo County	26.317007	-98.388231	11	751
Hidalgo County	26.153562	-98.083195	12	795
Hidalgo County	26.233153	-98.469705	12.4	797.5
Hidalgo County	26.373065	-98.038392	12	800
Hidalgo County	26.088846	-98.239527	10	920
Hidalgo County*	26.25	-98.498332	19	3,500
Hidalgo County	26.0510006	-98.03299713	36	6,000
Hidalgo County*	26.419496	-97.956412	12	7,350
Hidalgo County	26.065	-97.893332	10	8,610
Hidalgo County*	26.383352	-98.162762	9	13,500
Hidalgo County*	26.430571	-97.936507	16	22,545

APPENDIX D: DAM LOCATIONS

JURISDICTION	LATITUDE	LONGITUDE	HEIGHT (Feet)	STORAGE (Acre Feet)
City of Donna	26.152398	-98.066371	11	2,102
City of Edinburg	26.333546	-98.136452	11	1,500
City of Hidalgo	26.13699913	-98.33399963	23	16,400
City of McAllen	26.188332	-98.246667	16	770
City of McAllen	26.16132	-98.237575	16	974
City of McAllen	26.285449	-98.25826	30	900
City of Mercedes	26.249285	-97.893071	7	6,422

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WORKSHOP DOCUMENTATION

Appendix E is **For Official Use Only (FOUO)** and may be exempt from public release under the Freedom of Information Act (FOIA).

Hidalgo County held a series of Planning Team workshops: a Kickoff Workshop on April 14th, 2021, a Risk Assessment Workshop on May 24th, 2021, and a Mitigation Strategy Workshop on June 16th, 2021. At each of these workshops members of the Planning Team were informed of the planning process, expressed opinions, and volunteered information. Hidalgo County hosted public meetings. The sign-in sheets for each workshop and public meeting are included below. For more details on the workshops and planning process, see Section 2.

Figure E-1. Hidalgo County Kickoff Workshop, April 14th, 2021



HIDALGO COUNTY HAZARD MITIGATION PLAN UPDATE
Kickoff Workshop
Pharr Event Center
3000 N Cage Blvd., Pharr, TX 78577
April 14th, 2021

Name/Title	Department	Phone	Email
Mario Lopez-Hernandez/City Engineer	City of Edinburg	956-467-9536	mlopez@cityofedinburg.com
Vincent Guevara	City of Hidalgo	956-235-2339	vguevara@cityofhidalgo.net
Jorge L. Perea	Port 2 H.E.	956-532-7282	Jorge.perea@port2hidalgo.com
Suzanne Bazar	City of La Joya	956-600-0774	j.bazar@cityoflajoya.com
Jorge D. Hinojosa	HC Port 2	956-257-6817	jorge.hinojosa@port2hidalgo.com
Renee St. Clair	HC	956-289-6549	reneestclair@hidalgo.tx.us
Leo Longoria	PCIT 3	956-574-8659	leond@longoria.com
Isaac Suleman	County Judge	956-797-6613	isaac.suleman@co.hidalgo.tx.us

APPENDIX E: MEETING DOCUMENTATION



HIDALGO COUNTY HAZARD MITIGATION PLAN UPDATE

Kickoff Workshop
Pharr Event Center
3000 N Cage Blvd., Pharr, TX 78577
April 14th, 2021

Name/Title	Department	Phone	Email
José Montoya Business Development Manager / Alamo EDC		956-619-3458	Jose.Montoya@alamo-edc.org
Edith Acuña HR Director / City of El Paso		956-667-8436	eacuna@cityofelpaso.net
Coreena Alvarado Granjeno City Clerk		956-222-8883	coreenad@cityofgranjeno.com
Victor Nieves Edcouch Fire Chief		956-463-6344	vnieves2007@gmail.com
Yvette Cabrera City of Granjeno		956-227-7127	ycabrera@cityofgranjeno.com

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HIDALGO COUNTY HAZARD MITIGATION PLAN UPDATE

Kickoff Workshop
Pharr Event Center
3000 N Cage Blvd., Pharr, TX 78577
April 14th, 2021

Name/Title	Department	Phone	Email
Roy Cartwright Fire Chief / SMC Alamo F.D.		(956) 212-2297	rcartwright@alamofire.com
Jose D. Hinojosa H. Pat 2		259-6817	jose.hinojosa@cityofmercedes.com
Javier Campos Jr. Fire Chief / BMC Mercedes F.D.		956-463-1329	jcampos@cityofmercedes.com
Michael Elizalde City of Mission Emergency Management		956-557-0613	mizalde@cityofmission.com

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APPENDIX E: MEETING DOCUMENTATION




HIDALGO COUNTY HAZARD MITIGATION PLAN UPDATE
 Kickoff Workshop
 Pharr Event Center
 3000 N Cage Blvd., Pharr, TX 78577
 April 14th, 2021

Name/Title	Department	Phone	Email
Evana Vleck	County Judge		evana.vleck@co.hidalgo.tx.us
Richard Dzura	Chief	956-340-5359	rdzura@hidalgo.tx.us
Velinda Reyes	Pct 4 Admin	956-249-9763	Velinda.reyes@co.hidalgo.tx.us
Frankie Joe Salinas	Fire Chief	956-400-6621	F.Salinas@cityofpharr.com

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HIDALGO COUNTY HAZARD MITIGATION PLAN UPDATE
 Kickoff Workshop
 Pharr Event Center
 3000 N Cage Blvd., Pharr, TX 78577
 April 14th, 2021

Name/Title	Department	Phone	Email
GABRIEL GONZALEZ	PCT 3	512-205-9394	gabriel.gonzalez@county.hidalgo.tx.us
Pilar Rodriguez	City of Pharr	956-638-6335	pilar.rodriguez@pharr-tx.gov
Mario A. Cruz	City of McAllen	956-342-9664	mcruz@mcallen.tx.gov

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APPENDIX E: MEETING DOCUMENTATION




HIDALGO COUNTY HAZARD MITIGATION PLAN UPDATE
Kickoff Workshop
Pharr Event Center
3000 N Cage Blvd., Pharr, TX 78577
April 14th, 2021

Name/Title	Department	Phone	Email
Michael Vela / Chief	City of Palmhurst	(956) 239-0011	MVela@cityofpalmhurst.com
Desi Romero	City of Pecos	956-477-4137	projectmanager@cityofpecos.com
Steve Pena	City of Alton	956-925-5869	Steve.pena@alton-tx.gov
David Salinas	City of San Juan	956-588-1191	dsalinas@sjtx.us
Robert McGinnis	City of Elsa	956-332-8588	rmcginnis@cityofelsa.net
Jesus Ortega	City of Hidalgo	956-239-1514	Jortega@hidalgo-pd.org
Omar Anzaldua Jr	City of Pharr	956-540-9122	omar.anzaldua@pharr-tx.gov

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Figure E-2. Hidalgo County Risk Assessment Workshop, May 24th, 2021




HIDALGO COUNTY HAZARD MITIGATION PLAN
Risk Assessment Workshop
Adobe Connect Webinar
May 24th, 2021

Name	Jurisdiction	Title	Email	Phone
Roy Contreras	City of Alamo	Fire Chief / EMC	rcontreras@alamotexas.org	956-212-2297
Jason Martinez	City of Alton	Business Development Manager	jason.martinez@alton-tx.gov	956-432-0730
Steve Pena	City of Alton	EMC	Steve.pena@alton-tx.gov	956-432-0730
Victor Nieves	City of Edcouch	Fire Chief / EMC	vnieves2008@gmail.com	956-463-6344
Mardoqueo Hinojosa	City of Edinburg	City of Engineer	mhinojosa@cityofedinburg.com	956-388-8211
Ubaldo Perez	City of Edinburg	Deputy Chief/Asst. EMC	bperez@cityofedinburg.com	956-279-8056
Shawn Snider	City of Edinburg	Fire Chief	ssnider@cityofedinburg.com	956-605-0760
Edith Acua	City of Elsa	Human Resources Director	eacua@cityofelsa.net	956-262-2127
Robert McGinnis	City of Elsa	Chief of Police/EMC	rmcginnis@cityofelsa.net	956-332-8588
Coreena Alvarado	City of Granjeno	City Clerk	Cityofgranjeno@yahoo.com	956-222-8183
Yvette Cabrera	City of Granjeno	Mayor	yvettecabrera@aol.com	956-227-7127
Jesus Ortega	City of Hidalgo	Lieutenant	jortega@hidalgo-pd.org	956-843-2737
Yvette Barrera	City of McAllen	City Engineer	ybarrera@mcallen.net	956-681-1151
Mario Cruz	City of McAllen	Drainage Engineer	mcruz@mcallen.net	956-681-1151

APPENDIX E: MEETING DOCUMENTATION



HIDALGO COUNTY HAZARD MITIGATION PLAN

Risk Assessment Public Meeting

Adobe Connect Webinar

May 24th, 2021

Javier Campos Jr.	City of Mercedes	Fire Chief / EMC	JCampos@cityofmercedes.com	956-565-7755
James Cardoza	City of Mission	EMC	jcardoza@missiontexas.us	956-508-8705
Michael Elizalde	City of Mission	Grants Administrator	grants@missiontexas.us	956-580-8649
Michael Vela	City of Palmhurst	Chief of Police/EMC	mvela@cityofpalmhurst.com	956-239-0011
Desiderio Romero	City of Penitas	Project Manager	projectmanager@cityofpenitas.com	956-877-4137
Omar Anzaldua Jr	City of Pharr	City Engineer	omar.anzaldua@pharr-tx.gov	956-540-9122
David Salinas	City of San Juan	Director of Utilities	dsalinas@sjtx.us	956-223-2300
Joseph Cordova	City of Sullivan	Chief of Police/EMC	jcordova@sullivancity.org	956-485-9208
Ana Mercado	City of Sullivan	City Manager	citymanager@sullivancity.org	956-485-2828
Valde Guerra	Hidalgo County	County Executive Officer	valde.guerra@co.hidalgo.tx.us	956-292-7655
Jaime Salazar	Hidalgo County	Operations Manager	jaime.salazar@hcdd1.org	956-292-7080
Isaac Sulmana	Hidalgo County	Chief of Staff	isaac.sulemana@co.hidalgo.tx.us	956-793-6613
Ricardo Saldana	Hidalgo County	EMC	ricardo.saldana@co.hidalgo.tx.us	956-289-6549
Maria Salinas	Hidalgo County	Asst. Chief of Staff	maria.salinas@co.hidalgo.tx.us	956-318-2600
Jorge Pena	Hidalgo County Pct. 1	Deputy Chief Administrator	Jorge.pena1@co.hidalgo.tx.us	956-332-7282



HIDALGO COUNTY HAZARD MITIGATION PLAN

Risk Assessment Public Meeting

Adobe Connect Webinar

May 24th, 2021

Jorge Hinojosa	Hidalgo County Pct. 2	Director of Field Operations	jorge.hinojosa@co.hidalgo.tx.us	956-257-6817
Roy Garcia	Hidalgo County Pct. 2	Asst. Field Ops Dir	roy.garcia@co.hidalgo.tx.us	956-279-9365
Gabriel Gonzalez	Hidalgo County Pct. 3	Commissioner Villarreal Executive Assistant	gabriel.gonzalez@co.hidalgo.tx.us	956-358-6612
Leo Longoria	Hidalgo County Pct. 3	Dir. Of Internal Operations	Leonardo.Longoria@co.hidalgo.tx.us	956-585-4509
Jennifer Culbertson	Hidalgo County Pct. 4	Chief of Staff for Internal Affairs	jennifer.mendoza@co.hidalgo.tx.us	956-383-3112
Velinda Reyes	Hidalgo County Pct. 4	Chief Administrator for External Affairs	velinda.reyes@co.hidalgo.tx.us	956-249-9763
Rhonda Murphy	H2O Partners Inc.	Sr. Mitigation Specialist	rmurphy@h2opartnersusa.com	512-571-2088

APPENDIX E: MEETING DOCUMENTATION

Figure E-3. Hidalgo County Mitigation Strategy Workshop, June 16th, 2021

Mitigation Strategy Workshop Sign In - Hidalgo County.pdf - Adobe Acrobat

File Edit View Window Help

Open Create Print Comment

1 / 3 75%

Common Tools Fill & Sign Comment

McAllen EOC Sign In				
/ / 2021				
Name	Agency	Phone	Time In	Time Out
Maria Butanacourt	HCOEM	956-318-2615		
Jeff Teer	McAllen EM	956-681-2626		
Javier Campos A.	Mercedes F.O.	956-463-1324		
M. Esteban	MDA	956-565-2200		
D. M. Culbertson	HC Pct. 4	956-383-3112		
F.D. U	HC Pct. 2	956-257-6817		
Paul Ryan	Peritas	956-960-8220		
Michael Elizalde	City of Mission	956-570-8699		
Monica Hingosa	HC CSR	956-408-3174		
Tiajuana Lugo	PCT 3	352-6612		
MARIO A. CARR	City of McAllen	956-392-4664		

Mitigation Strategy Workshop Sign In - Hidalgo County.pdf - Adobe Acrobat

File Edit View Window Help

Open Create Print Comment

2 / 3 75%

Common Tools Fill & Sign Comment

McAllen EOC Sign In				
/ / 2021				
Name	Agency	Phone	Time In	Time Out
Edith Arce	City of Elsa	956-667-8436		
Robert McInnis	City of Elsa	956-332-8588		
Jesus Ortega	City of Hidalgo	956-289-1514		
Joe A. Hingosa	San Antonio	956-448-1446	9:00	
Roy Jimenez	City of Donna	956-460-2469	9:30	
Leroy Salinas	City of Peritas	956-458-2213	9:30 AM	
Frankie Joe Salinas	City of La Joya	956-400-6621	9:30	
Joan Martinez	City of Alton	956-482-0730	9:45 AM	
Isabella Maria Ruiz Lopez	City of Alton	956-432-0730	9:45 AM	
David Salinas	City of San Juan	956-588-1191	9:53 AM	
Renee Sandoval	Hidalgo County OERI	956-318-2615		
LEO Longoria	Hidalgo County PCT 3	956-588-4509	9:55 AM	

APPENDIX E: MEETING DOCUMENTATION

Mitigation Strategy Workshop Sign In - Hidalgo County.pdf - Adobe Acrobat

File Edit View Window Help

Open Create 3 / 3 75% Common Tools Fill & Sign Comment

McAllen EOC Sign In				
_____/_____/2021				
Name	Agency	Phone	Time In	Time Out
Michael Vela	R City of Palmhurst	(956) 237-0011	10:00 AM	
MARIA RANGEL PROJECT ENGINEER	CITY OF PHARR	956-402-4221	10:00 AM	
Lupita Suarez	city of La Villa	956-242-2122	10:02 AM	
David Alaniz	city of La Villa	956-242-2122	10:12 AM	
Meena V. Telsa	City of McAllen	956-243-0710	10:13 AM	
Jose Rana	Det. I. H.C.	156-370-7552	10:05	
Maria O. L.	City of McAllen	(956) 671-4031	10:05	
Roy Contreras	Alamo F.D.	(956) 212-2247	11:20	
Ricardo O. Luna	Alamo P.D.	(956)	10:20	

11:05 AM
6/21/2021

APPENDIX E: MEETING DOCUMENTATION

PUBLIC MEETING DOCUMENTATION

As discussed in Section 2, public meetings were held in Hidalgo County. Documentation in the form of sign-in sheets for each of the meetings follows.

Figure E-4. Public Meeting, April 14th, 2021



HIDALGO COUNTY HAZARD MITIGATION PLAN
Kickoff Public Meeting
Adobe Connect Webinar
April 14th, 2021

Name	Department	Title	Email	Phone
Rick Carrera	Lower Rio Grande Valley Development Council		rcarrera@lrgvdc.org	956-682-3481
Elijah Casas			elijah.casas.glo@recovery.texas.gov	
Michael Elizalde	City of Mission	Grants Coordinator	Melizalde@missiontexas.us	956-580-8649
David Nacianceno	City of La Joya		d.nacianceno@lajoyaisd.net	
Carol Perez	City of Mission CISD	Superintendent	cgperez95@mcisd.org	956-323-5500
Juanita Saenz	Lower Rio Grande Valley Development Council	Assistant Director of Homeland Security	jsaenz@lrgvdc.org	956-682-3481
Heidi Watson	H2O Partners	Mitigation Specialist	heidi@h2opartnersusa.com	512-568-2259
Laura Haverlah	H2O Partners	Mitigation Specialist	haverlah@h2opartnersusa.com	512-831-2167
Stevie-Ann O'Donnell	H2O Partners	Project Specialist	shodgson@h2opartnersusa.com	631-708-4491

APPENDIX E: MEETING DOCUMENTATION

Figure E-5. Public Meeting, May 19th, 2021



HIDALGO COUNTY HAZARD MITIGATION PLAN
Risk Assessment Public Meeting
Adobe Connect Webinar
May 19th, 2021

Name	Department	Title	Email	Phone
Derek Katznelson	Lower Rio Grande Valley Development Council Edinburg	Program Specialist	Dkatznelson@lrgvdc.org	401-641-5565
Lorena Singh	Hidalgo County	Social Worker	lorenasingh@yahoo.com	956-460-9905
Rick Carrera	Lower Rio Grande Valley Development Council Weslaco	Director - Community and Economic Development	rcarrera@lrgvdc.org	956-682-3481
Maggie Quintanilla	Hidalgo County	n/a	Maggiequintanilla@gmail.com	832-493-6715
Cindy Villarreal	Sullivan City	Teacher	cindyvillarreal53@gmail.com	956-832-3680
Juanita Saenz	Lower Rio Grande Valley Development Council	Assistant Director of Homeland Security	jsaenz@lrgvdc.org	956-682-3481
Fern McClaugherty	Hidalgo County	OWLS	pinkysuphh@aol.com	956-330-9107
Nicolette Diaz-Luna	Hidalgo County	Graduate Student	Nicolettediaz1203@gmail.com	956-330-0099
Epifanio Flores	Pct. 4- Hidalgo County	EHS Specialist	eflores1765@hotmail.com	956-457-0432



HIDALGO COUNTY HAZARD MITIGATION PLAN
Risk Assessment Public Meeting
Adobe Connect Webinar
May 19th, 2021

Elijah Casas	Lower Rio Grande Valley Development Council	Community Outreach Coordinator	elijah.casas.glo@recovery.texas.gov	512-657-9673
Amy Zambrano	City of Hidalgo	n/a	amy_zambrano11@yahoo.com	956-451-9050
Victor Cervantes	Hidalgo County	n/a	Victorcervantesg78@gmail.com	956-225-9066
Angelica Garcia	Hidalgo County	n/a	Angelicagm321@gmail.com	956-777-4842
Francisco Velez	MX	Engineer	fvelezmeza@yahoo.com	833-487-1229
Velinda Reyes	Pct. 4- Hidalgo County	Chief Administrator for External Affairs	velinda.reyes@co.hidalgo.tx.us	956-249-9763
Matthew Moncus	Pct. 4- Hidalgo County	n/a	moncusm@gmail.com	956-638-2656
Rafael Ramirez	Penitas	n/a	Rafaelramirez05@yahoo.com	956-257-3999
John Pankratz	HRA Associates	Grant Administrator	johnp.rutledgeassociates@gmail.com	281-570-8030
John Luke Garcia	Hidalgo County	n/a	johnluke.a.garcia@gmail.com	956-607-0735
Santiago Torres	Penitas	Resident	nancytortres258@hotmail.com	956-359-1126
Shawn Sinder	City of Edinburg	Fire Chief	ssnider@cityofedinburg.com	956-605-0760
Heidi Watson	H2O Partners	Mitigation Specialist	heidi@h2opartnersusa.com	512-568-2259
Stevie-Ann O'Donnell	H2O Partners	Project Specialist	shodgson@h2opartnersusa.com	631-708-4491

APPENDIX E: MEETING DOCUMENTATION

Figure E-6. Public Meeting, June 16th, 2021



HIDALGO COUNTY HAZARD MITIGATION PLAN
Mitigation Strategy Public Meeting
Adobe Connect Webinar
June 16th, 2021

Name	Department	Title	Email	Phone
Lorena Singh	Hidalgo County	Social Worker	lorenasingh@yahoo.com	956-460-9905
Carol Perez	Hidalgo County	Superintendent	cpere95@mcisd.org	956-323-5505
Brittany Bales	Hidalgo County	Provider	brittany.bales@yahoo.com	956-588-5107
Elijah Casas	LRGV	Outreach Coordinator	elijah.casas.glo@recovery.texas.gov	512-657-9673
Kayla Salazar	City of Elsa	Resident	kaylasalazar661@gmail.com	956-272-5283
Derek Katznelson	City of Edinburg	Program Specialist LRGV	Dkatznelson@lrgvdc.org	401-641-5565
Sandra Villalon	City of Penitas	Resident	svillalon35@yahoo.com	956-926-9195
Margil Flores	City of Penitas	Resident	margil.flores@gmail.com	956-222-8866
Elva Ramirez	City of Pharr	Resident	audrey_elva@yahoo.com	956-607-8857
Reymundo Casarez	City of San Juan	Captain	rcasarez@sanjuanpolice.com	956-223-2400
Rolando Casas	Cameron County	Asst. EMC	rolando.casas@co.cameron.tx.us	956-312-8344
Itzayanna Alanis	N/A	N/A	Aztic94@gmail.com	N/A



HIDALGO COUNTY HAZARD MITIGATION PLAN
Mitigation Strategy Public Meeting
Adobe Connect Webinar
June 16th, 2021

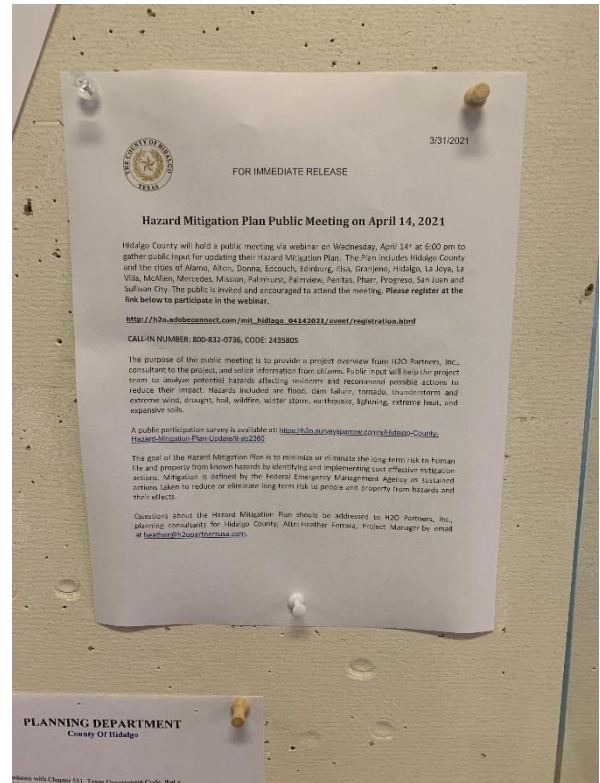
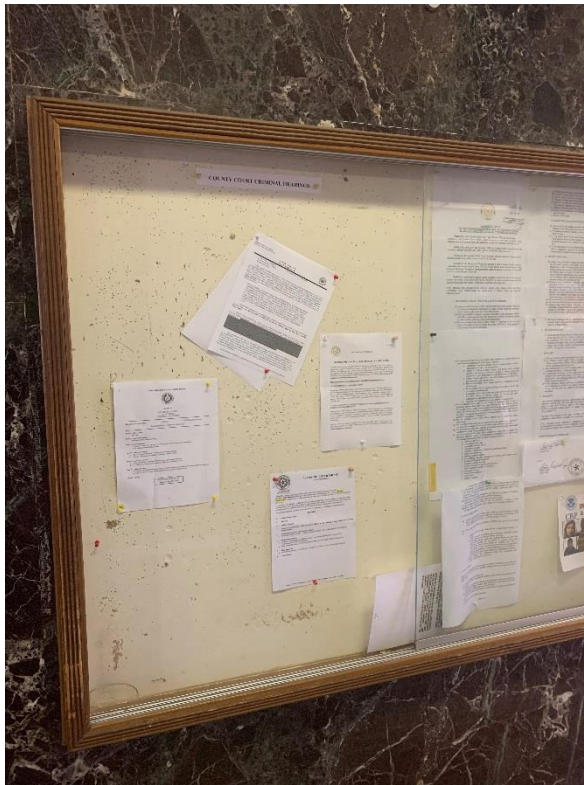
Name	Department	Title	Email	Phone
Heidi Watson	H2O Partners	Mitigation Specialist	heidi@h2opartnersusa.com	512-568-2259
Stevie-Ann O'Donnell	H2O Partners	Project Specialist	shodgson@h2opartnersusa.com	631-708-4491

APPENDIX E: MEETING DOCUMENTATION

PUBLIC NOTICES

Public notices to announce Hidalgo County's participation in the Plan Update development process were posted on their website, on social media sources including Facebook and Twitter, through the local media, and/or posting the information on bulletin boards in public facilities.

Figure E-7. Hidalgo County Public Notice, County Courthouse



APPENDIX E: MEETING DOCUMENTATION

Figure E-8. Hidalgo County Public Notice, The Monitor

**Hazard Mitigation Plan
Public Meeting
on June 16th, 2021**

Hidalgo County will hold a public meeting via webinar on Wednesday, June 16th at 6:00 pm to gather public input for updating their Hazard Mitigation Plan. The Plan includes Hidalgo County and the cities of Alamo, Alton, Donna, Edcouch, Edinburg, Elisa, Granjeno, Hidalgo, La Joya, La Villa, McAllen, Mercedes, Mission, Palmhurst, Palmview, Penitas, Pharr, Progreso, San Juan and Sullivan City. The public is invited and encouraged to attend the meeting. **Please register at the link below to participate in the webinar.**

http://h2o.adobeconnect.com/mit_hidalgo_co_public_mtg_06032021/event/registration.html

The purpose of the public meeting is to provide a project overview from H2O Partners, Inc., consultant to the project, and solicit information from citizens. Public input will help the project team to analyze potential hazards affecting residents and recommend possible actions to reduce their impact. Hazards included are flood, dam failure, tornado, thunderstorm and extreme wind, drought, hail, wildfire, winter storm, earthquake, lightning, extreme heat, and expansive soils.

A public participation survey is available at: <https://h2o.surveyparrot.com/s/Hidalgo-County-Hazard-Mitigation-Plan-Update/tt-ab2360>

The goal of the Hazard Mitigation Plan is to minimize or eliminate the long-term risk to human life and property from known hazards by identifying and implementing cost-effective mitigation actions. Mitigation is defined by the Federal Emergency Management Agency as sustained actions taken to reduce or eliminate long-term risk to people and property from hazards and their effects.

Questions about the Hazard Mitigation Plan should be addressed to H2O Partners, Inc., planning consultants for Hidalgo County; Attn: Heather Ferrara, Project Manager by email at heather@h2opartnersusa.com

Figure E-9. City of Alamo Public Notice, Facebook

The screenshot shows the Facebook interface for the City of Alamo. The main post is a public notice for a Hazard Mitigation Plan Public Meeting on May 19th, 2021. The notice includes details about the meeting, the purpose of the plan, and a link to register. The page also shows related pages like Alamo Police Department, Lube Master Plus, and Materiales El Alamo. The bottom of the page shows the Windows taskbar with various application icons and the system clock indicating 12:16 PM on 5/16/2021.

City of Alamo

Check out our quick news video that sho...

12
435 Views · 3 weeks ago

Page Transparency See All

Facebook is showing information to help you better understand the purpose of a Page. See actions taken by the people who manage and post content.

CITY OF ALAMO is responsible for this Page.

Page manager location: United States

Related Pages

- Alamo Police Department Police Station Like
- Lube Master Plus Oil Lube & Filter Service Like
- Materiales El Alamo Building Material Store Like

Add Your Business to Facebook

Showcase your work, create ads and connect with customers or supporters.

Create Page

Privacy · Terms · Advertising · Ad Choices · Cookies · More

City of Alamo May 10 at 2:16 PM

Hidalgo County will hold a public meeting via webinar on Wednesday, May 19th at 6:00pm to gather public input for updating their Hazard Mitigation Plan. The public is invited and encouraged to attend the meeting. Public input will help the project team to analyze potential hazards affecting residents and recommend possible actions to reduce their impact. Please register at the link below to participate in the webinar.

http://h2o.adobeconnect.com/mit_hidalgo_05192021/event/reg... See More

4/29/2021

FOR IMMEDIATE RELEASE

Hazard Mitigation Plan Public Meeting on May 19, 2021

Hidalgo County will hold a public meeting via webinar on Wednesday, May 19th at 6:00 pm to gather public input for updating their Hazard Mitigation Plan. The Plan includes Hidalgo County and the cities of Alamo, Alton, Donna, Edinburg, Elisa, Grapeno, Hidalgo, La Joya, La Villa, McAllen, Mercedes, Mission, Palmhurst, Palmview, Penitas, Pharr, Progreso, San Juan and Sullivan City. The public is invited and encouraged to attend the meeting. Please register at the link below to participate in the webinar.

http://h2o.adobeconnect.com/mit_hidalgo_05192021/event/registration.html

CALL IN NUMBER: 800-832-0766, CODE: 2405805

The purpose of the public meeting is to provide a project overview from H2O Partners, Inc., consultant to the project, and solicit information from citizens. Public input will help the project team to analyze potential hazards affecting residents and recommend possible actions to reduce their impact. Hazards included are flood, dam failure, tornado, thunderstorm and extreme wind, drought, hail, wildfire, winter storm, earthquake, lightning, extreme heat, and expansive soils.

A public participation survey is available at: <https://h2o.surveyparrot.com/s/Hidalgo-County-Hazard-Mitigation-Plan-Update/tt-ab2360>

The goal of the Hazard Mitigation Plan is to minimize or eliminate the long term risk to human life and property from known hazards by identifying and implementing cost-effective mitigation actions. Mitigation is defined by the Federal Emergency Management Agency as sustained actions taken to reduce or eliminate long-term risk to people and property from hazards and their effects.

Questions about the Hazard Mitigation Plan should be addressed to H2O Partners, Inc., planning consultants for Hidalgo County; Attn: Heather Ferrara, Project Manager by email at heather@h2opartnersusa.com

APPENDIX E: MEETING DOCUMENTATION

Figure E-10. City of Alton, Public Notice City Hall

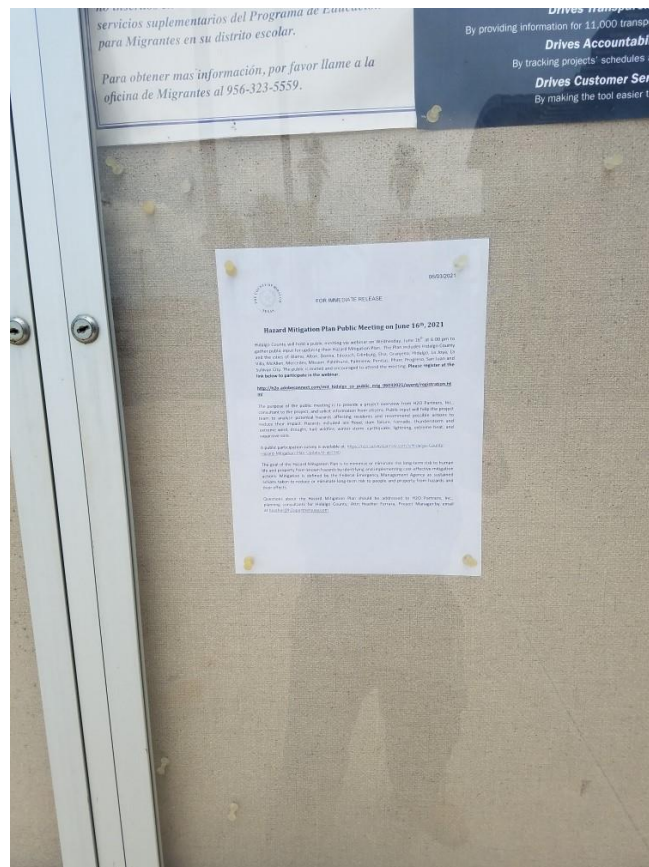
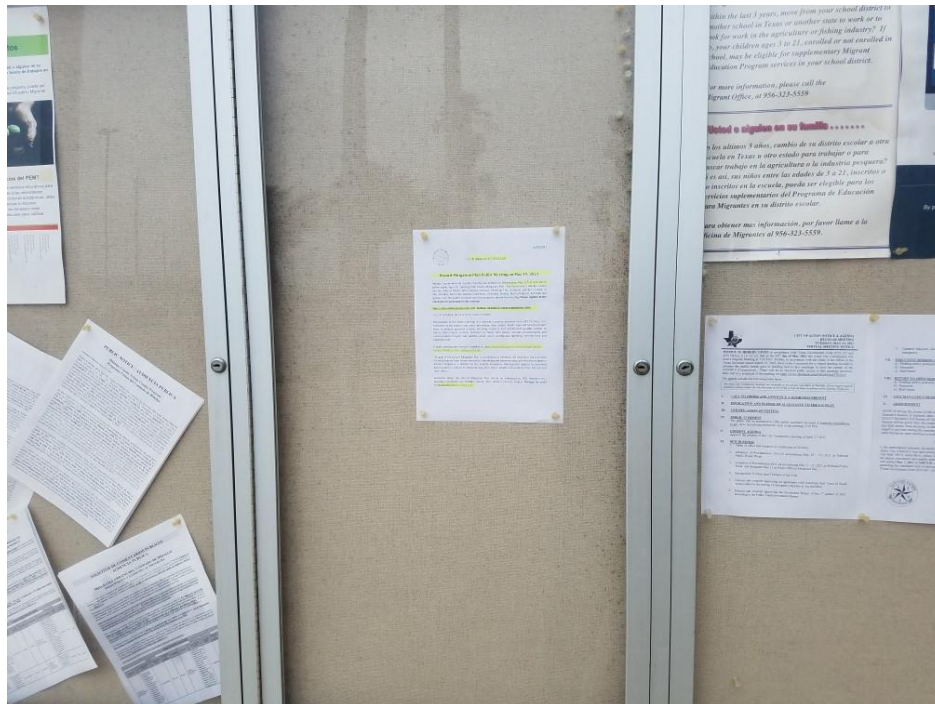
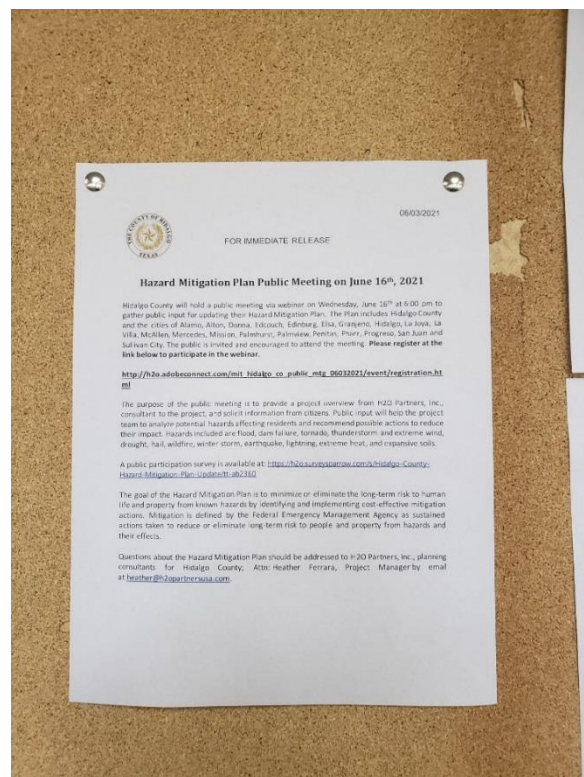


Figure E-11. City of Donna Public Note, City Hall



APPENDIX E: MEETING DOCUMENTATION

Figure E-12. City of Donna Public Notice, City Website

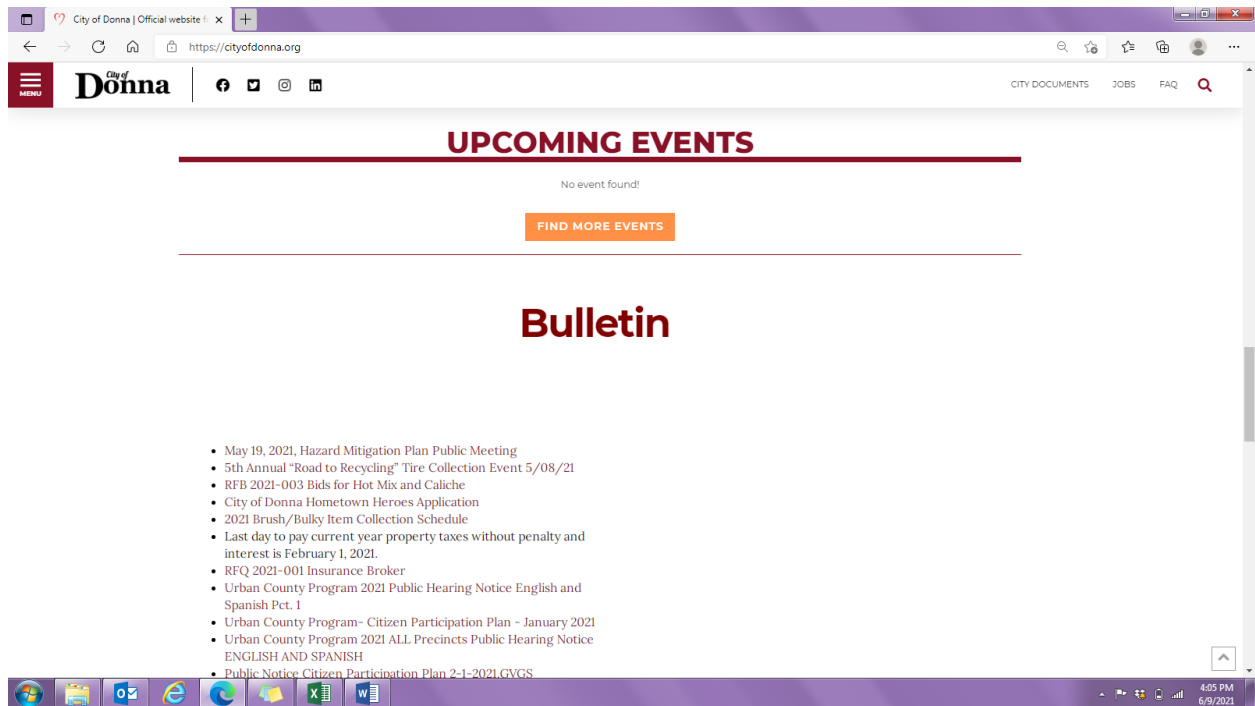
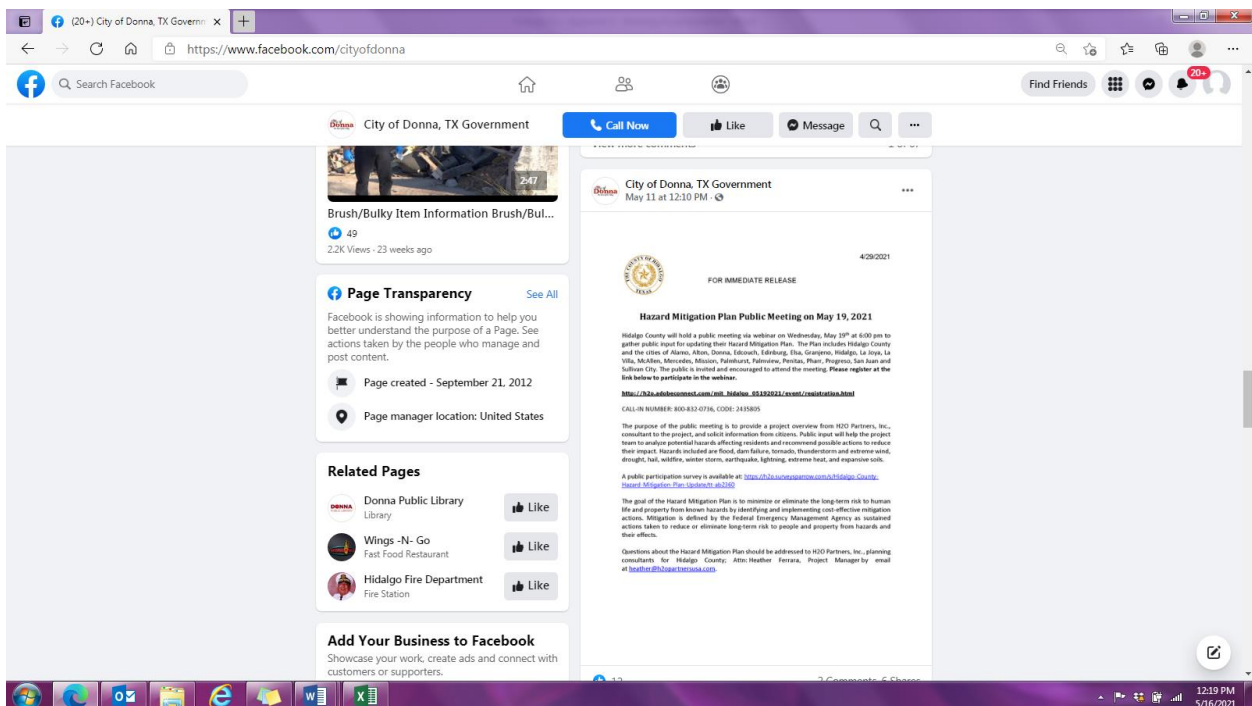
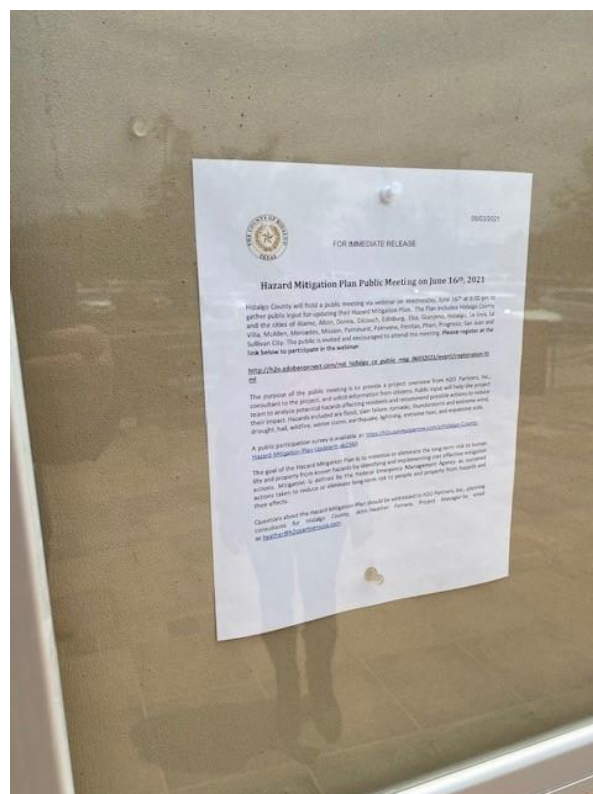
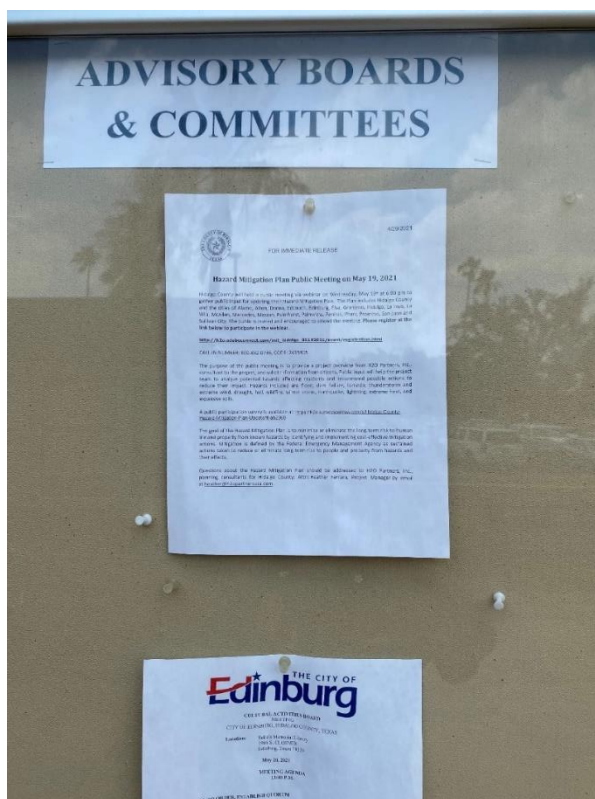


Figure E-13. City of Donna Public Notice, Facebook



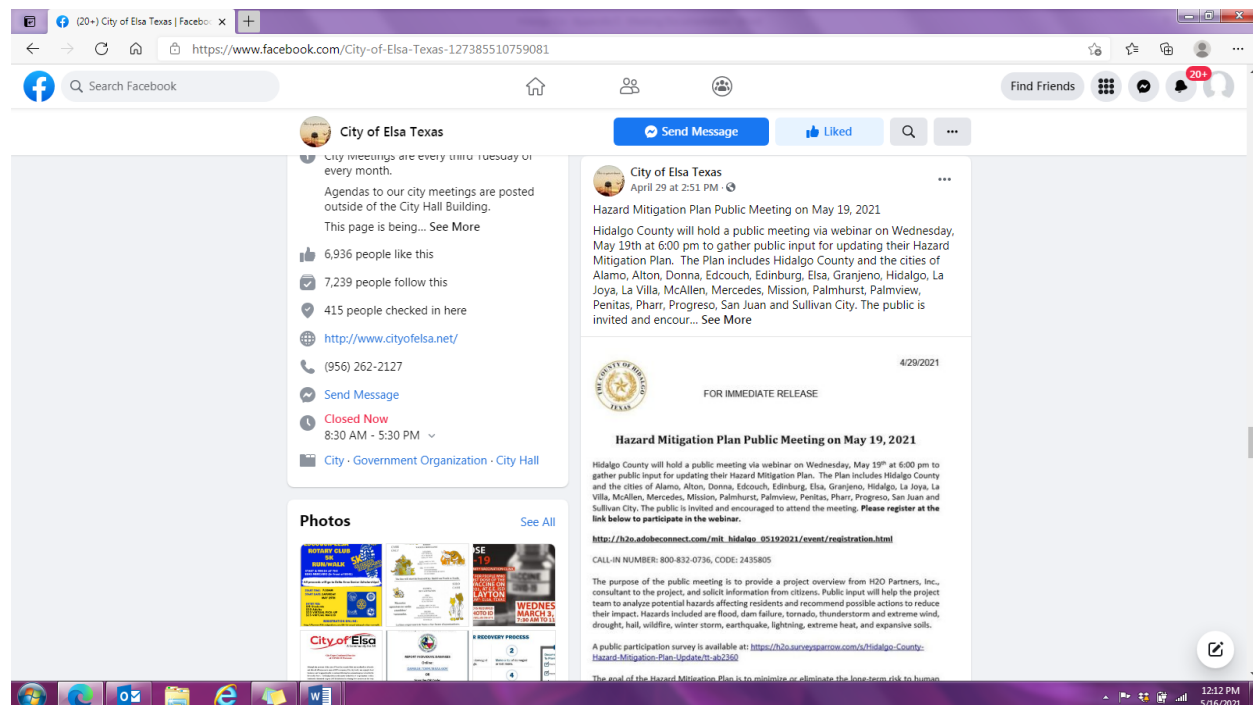
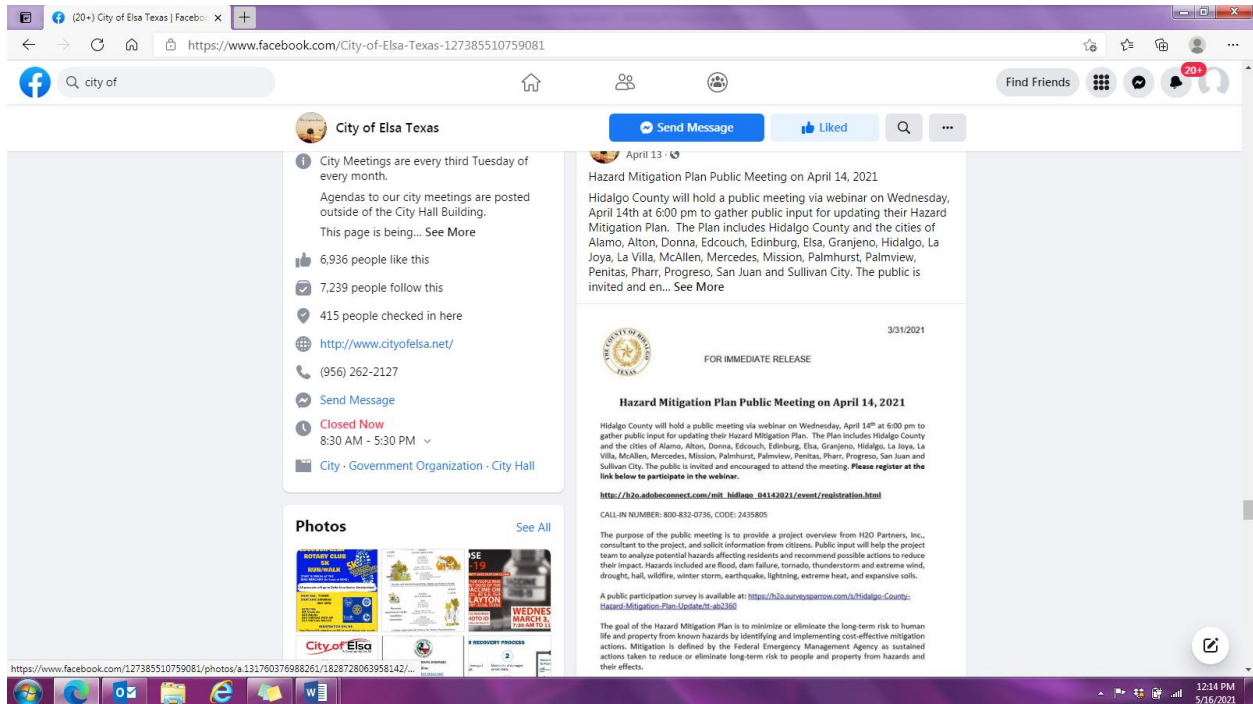
APPENDIX E: MEETING DOCUMENTATION

Figure E-14. City of Edinburg Public Notice, City Hall



APPENDIX E: MEETING DOCUMENTATION

Figure E-15. City of Elsa Public Notice, Facebook



APPENDIX E: MEETING DOCUMENTATION

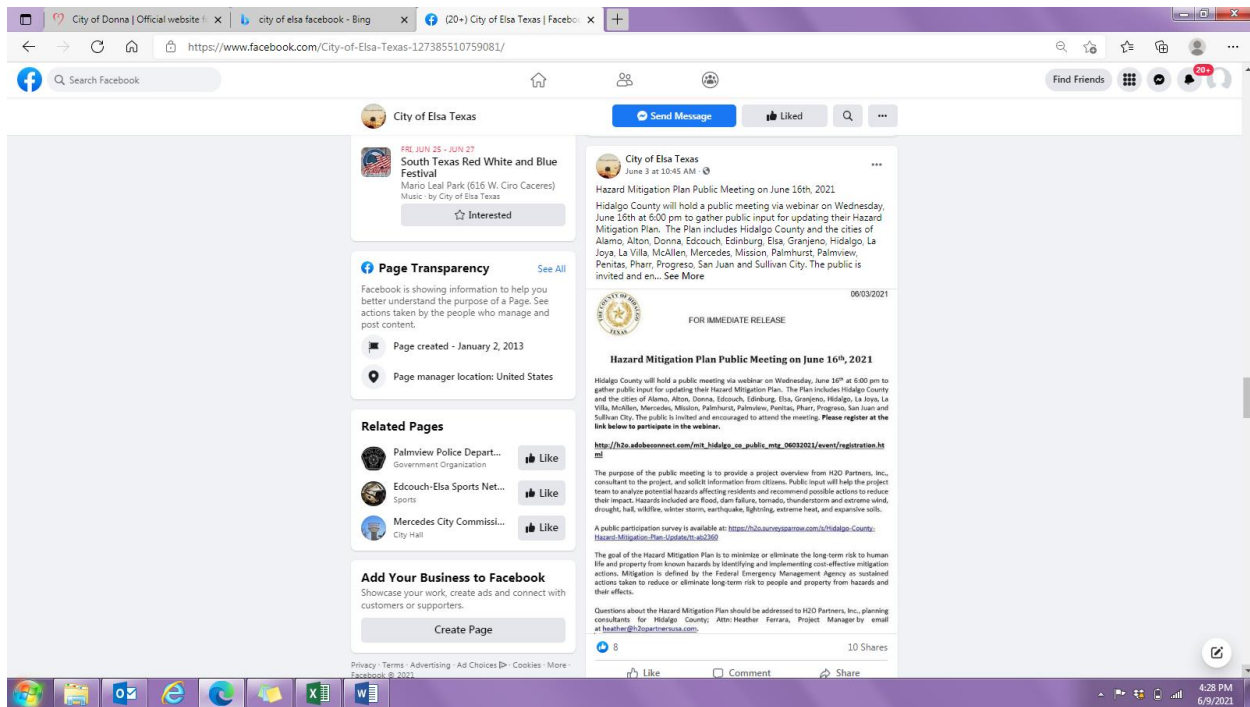
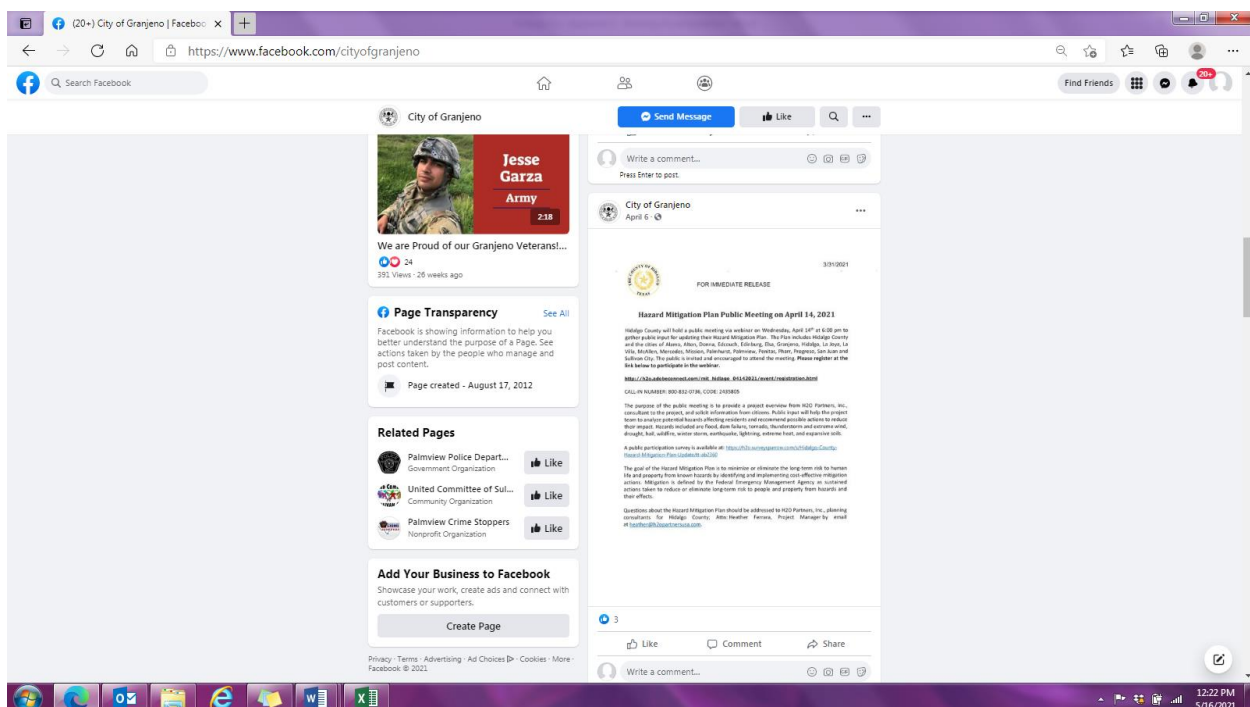


Figure E-16. City of Granjeno Public Notice, Facebook



APPENDIX E: MEETING DOCUMENTATION

The screenshot shows the Facebook profile of the City of Granjeno. The 'About' section on the left provides details about the city, including its location, website, and contact information. The main post, dated May 12 at 4:28 PM, is titled 'Hazard Mitigation Plan Public Meeting on May 19, 2021'. It includes a 'FOR IMMEDIATE RELEASE' header and a detailed announcement about a public meeting to discuss the Hazard Mitigation Plan. The post also mentions a public participation survey and provides a link to the meeting agenda.

About

The city of Granjeno is a small community of 313 residents. With a State Historic Cemetery "Grijeno Cemetery" we have an annual Friendship Festival ... See More

Welcome to the official City of Granjeno's Facebook page!

619 people like this

642 people follow this

<https://www.cityofgranjeno.org/>

(956) 519-0032

Send Message

cityofgranjeno@yahoo.com

Price Range: \$

Public & Government Service - Government Building

Photos

Create Post

Photo/Video Check in Tag Friends

City of Granjeno
May 12 at 4:28 PM

FOR IMMEDIATE RELEASE

Hazard Mitigation Plan Public Meeting on May 19, 2021

Hidalgo County will hold a public meeting on Wednesday, May 19 at 6:00 pm to gather public input for updating the Hazard Mitigation Plan. The Plan includes Hidalgo County and the cities of Altamira, Del Rio, Edinburg, Mission, Pharr, Pecos, and Weslaco. The cities of Del Rio, Mission, Pharr, Pecos, and Weslaco are also included in the Plan. The public is invited to attend the meeting. Please register at the link below to participate in the webinar.

<https://hcs.surveyparrot.com/.../Hidago.../t-4b2360>

CALL US TODAY: 956-519-0032

The purpose of the public meeting is to provide a project overview from HCS, Inc., consultant to the project, and solicit information from citizens. Public input will help the project team to develop a Hazard Mitigation Plan and implement projects to reduce the impact. Hazards include are flood, drought, wildfire, terrorism, hazardous waste, and other events. A public participation survey is available at: <https://hcs.surveyparrot.com/.../Hidago.../t-4b2360>

The goal of the Hazard Mitigation Plan is to identify and eliminate the long-term risk to human life and property from known hazards by identifying and implementing cost-effective mitigation actions. Mitigation is defined by the Federal Emergency Management Agency as sustained actions taken to reduce or eliminate long-term risk to people and property from hazards and their effects.

Questions about the Hazard Mitigation Plan should be addressed to HCS, Inc., planning consultant for Hidalgo County. Also, Heather Hansen, Project Manager for HCS, Inc. can be reached at heather@hcsinc.com

The screenshot shows the Facebook profile of the City of Granjeno. The 'Videos' section on the left features a video titled 'Jesse Garza Army' with 24 likes and 391 views. The main post, dated May 5 at 2:54 PM, is titled 'Hidalgo County Hazard Mitigation Plan Update'. It includes a 'FOR IMMEDIATE RELEASE' header and a detailed announcement about a public meeting to discuss the Hazard Mitigation Plan. The post also mentions a public participation survey and provides a link to the meeting agenda.

City of Granjeno

Videos

Jesse Garza Army

We are Proud of our Granjeno Veterans!...

24 likes

391 Views · 26 weeks ago

Page Transparency

Facebook is showing information to help you better understand the purpose of a Page. See actions taken by the people who manage and post content.

Page created · August 17, 2012

Related Pages

Palmview Police Depart... Government Organization

United Committee of Sul... Community Organization

Palmview Crime Stoppers Nonprofit Organization

Add Your Business to Facebook

Showcase your work, create ads and connect with customers or supporters.

City of Granjeno
May 5 at 2:54 PM

FOR IMMEDIATE RELEASE

Hidalgo County Hazard Mitigation Plan Update

Built with love by SurveySparrow, a FREE online survey software wh...

3 likes

1 Share

Like Comment Share

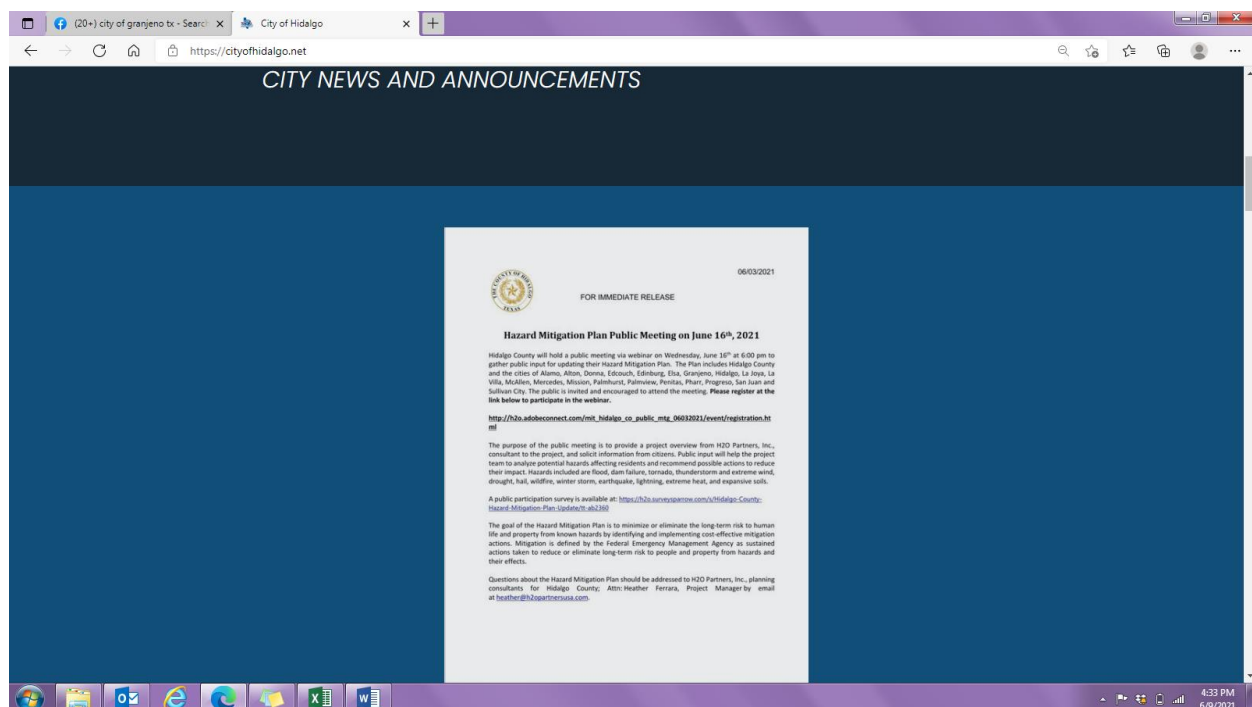
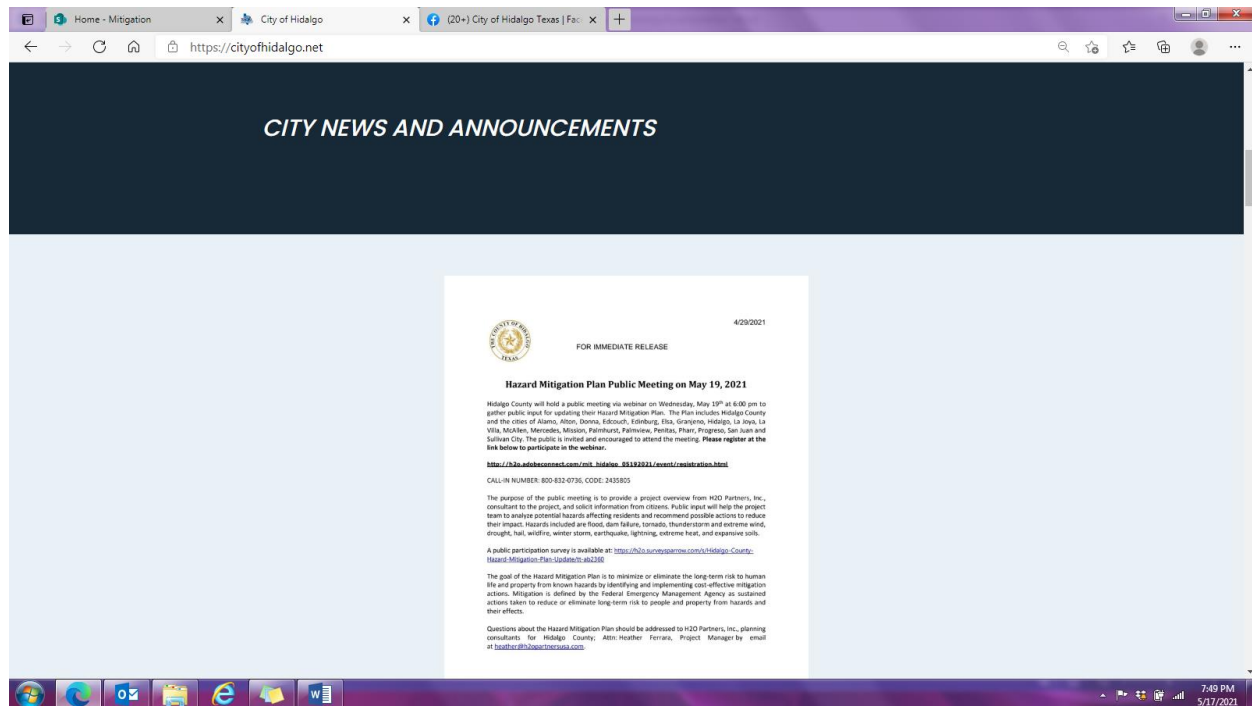
Write a comment... Press Enter to post.

City of Granjeno
April 6

FOR IMMEDIATE RELEASE

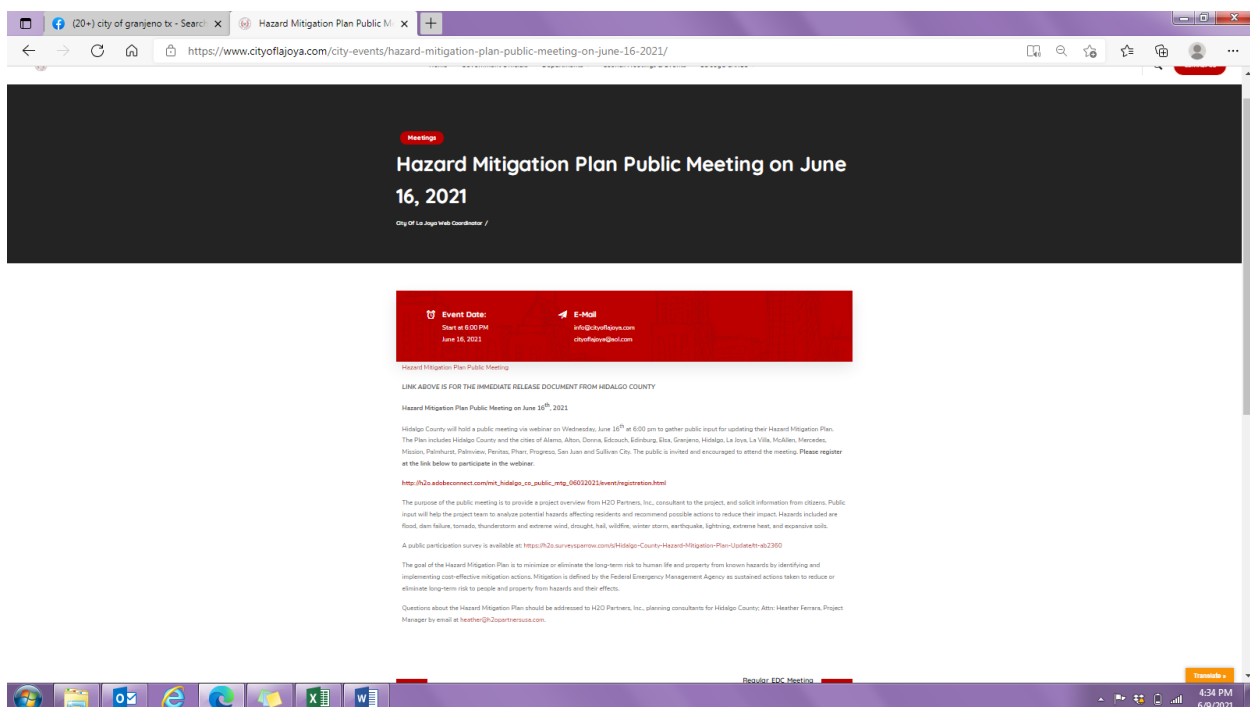
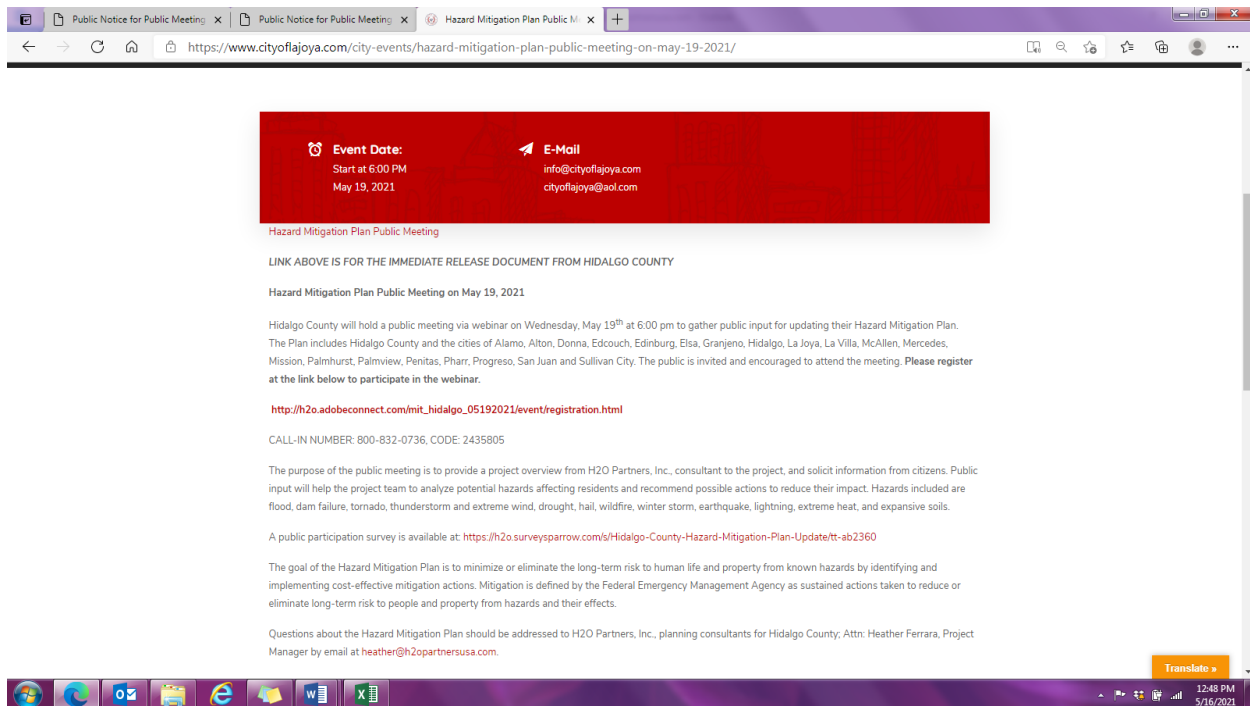
APPENDIX E: MEETING DOCUMENTATION

Figure E-17. City of Hidalgo Public Notice, City Website



APPENDIX E: MEETING DOCUMENTATION

Figure E-18. City of La Joya Public Notice, City Website



APPENDIX E: MEETING DOCUMENTATION

Figure E-19. City of McAllen Public Notice, Facebook

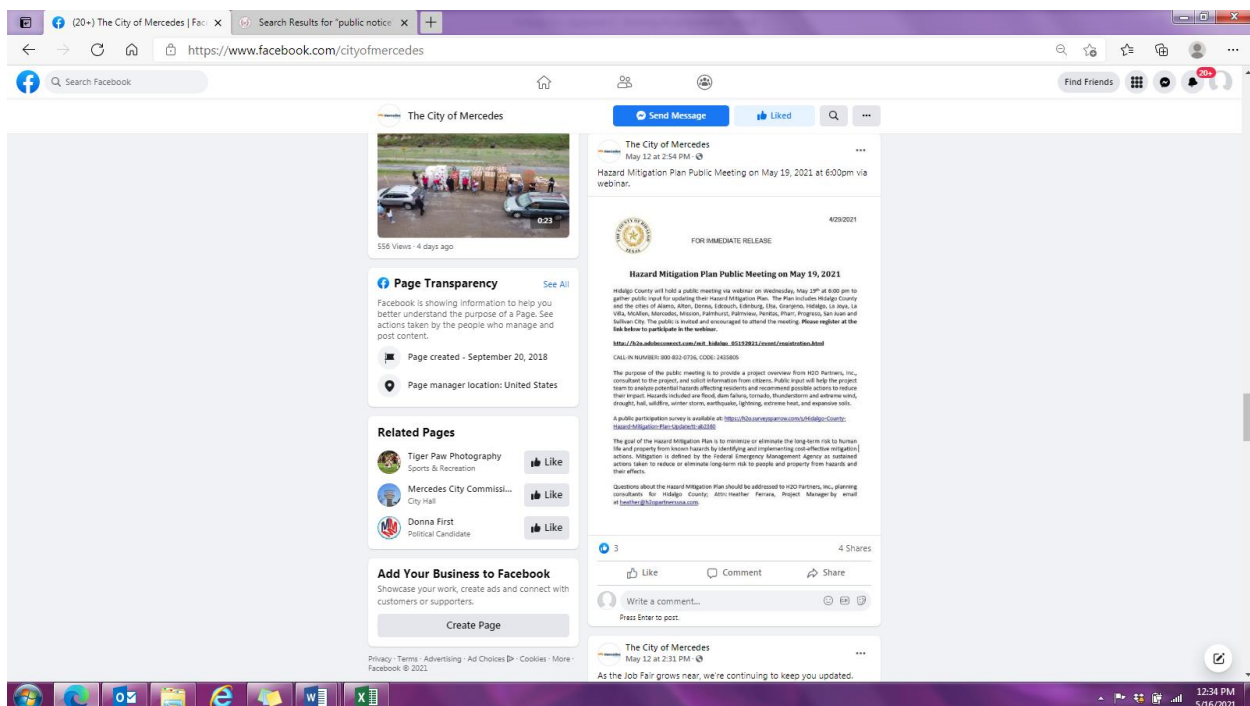


APPENDIX E: MEETING DOCUMENTATION

Figure E-20. City of McAllen Public Notice, Twitter



Figure E-21. City of Mercedes Public Notice, Facebook



APPENDIX E: MEETING DOCUMENTATION

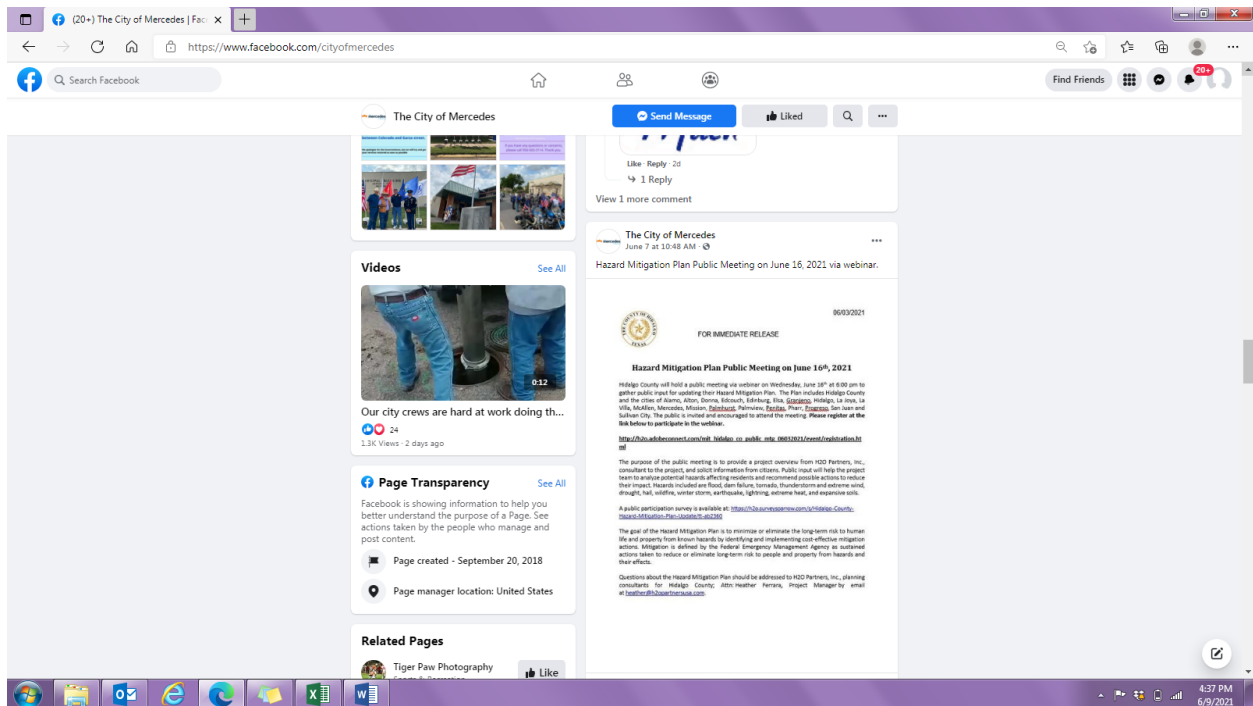
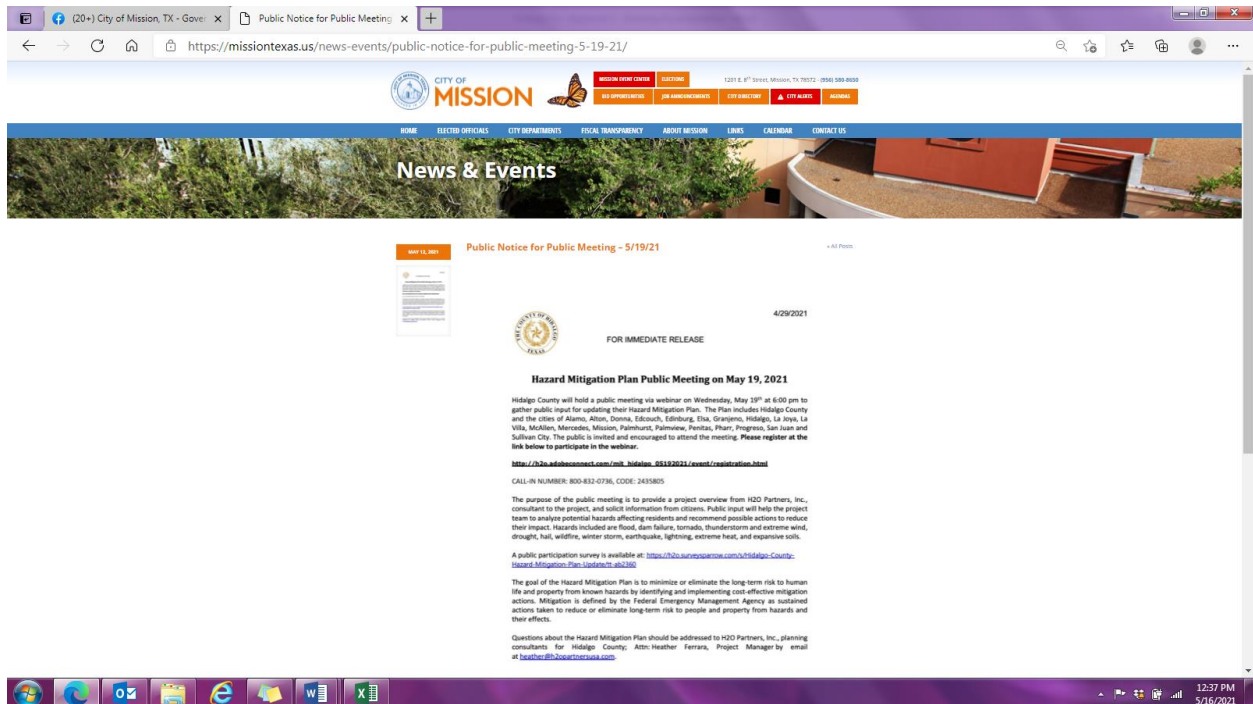


Figure E-22. City of Mission Public Notice, County Website



APPENDIX E: MEETING DOCUMENTATION

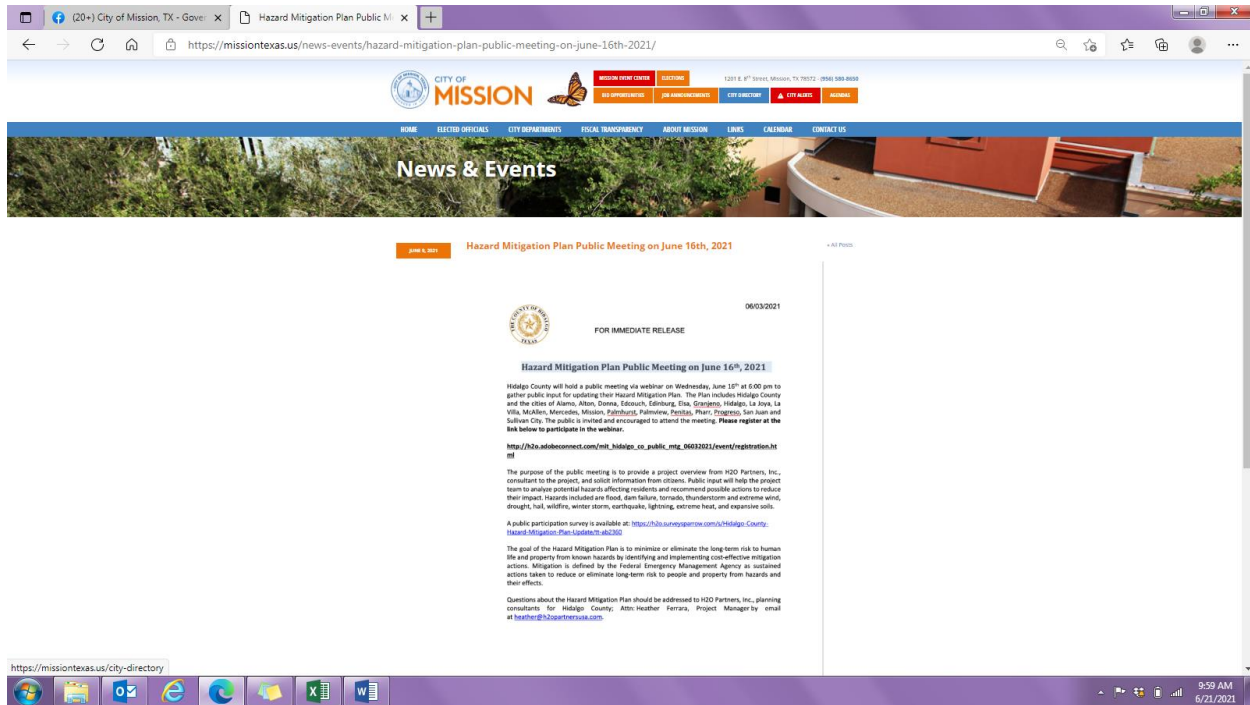
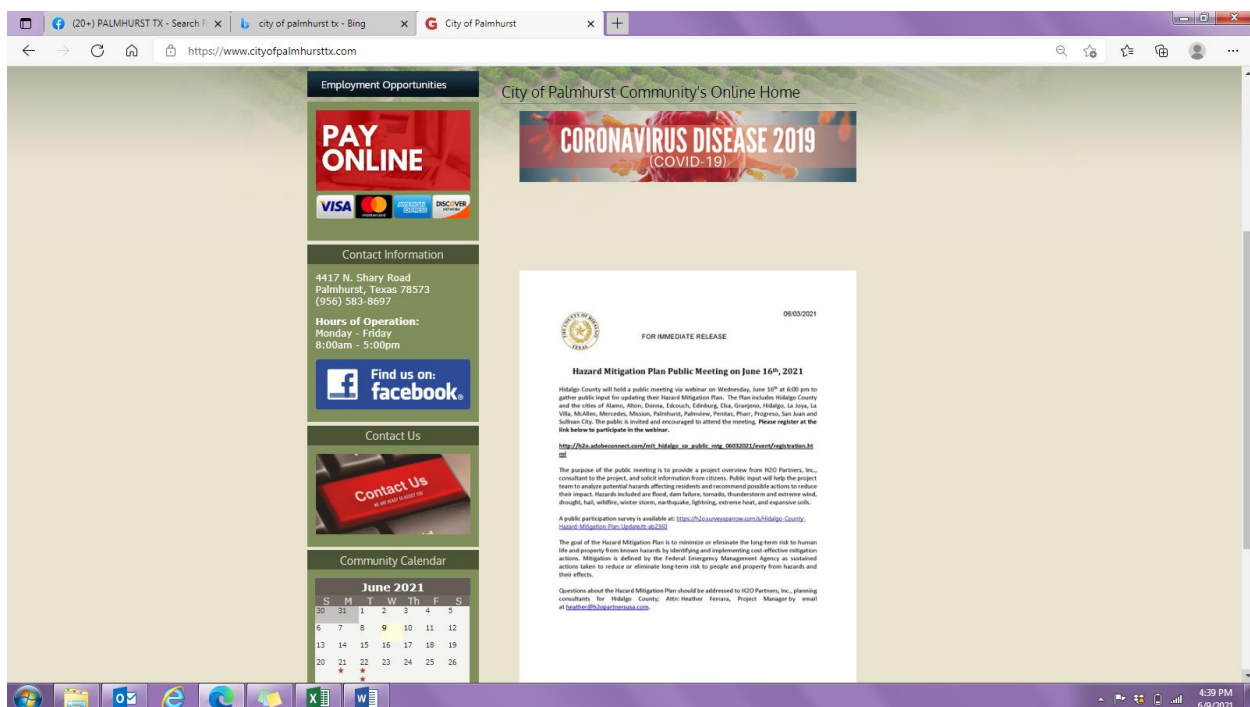
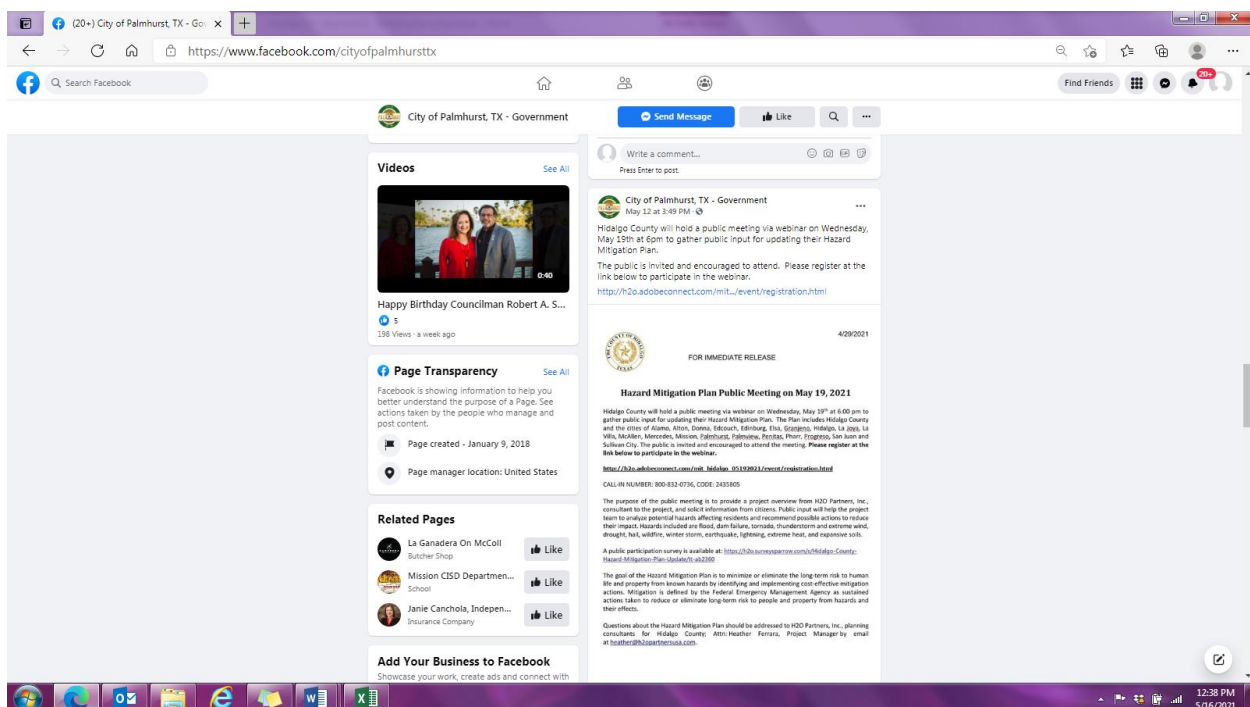
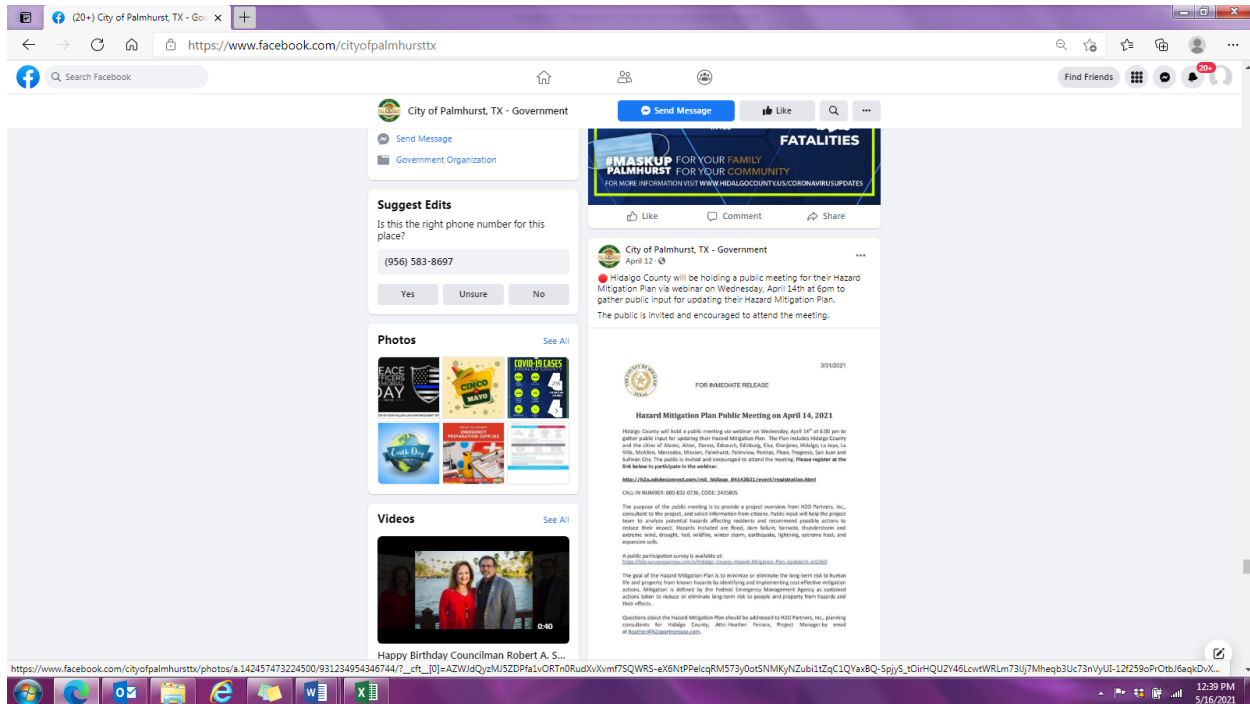


Figure E-23. City of Palmhurst Public Notice, City Website



APPENDIX E: MEETING DOCUMENTATION

Figure E-24. City of Palmdurst Public Notice, Facebook



APPENDIX E: MEETING DOCUMENTATION

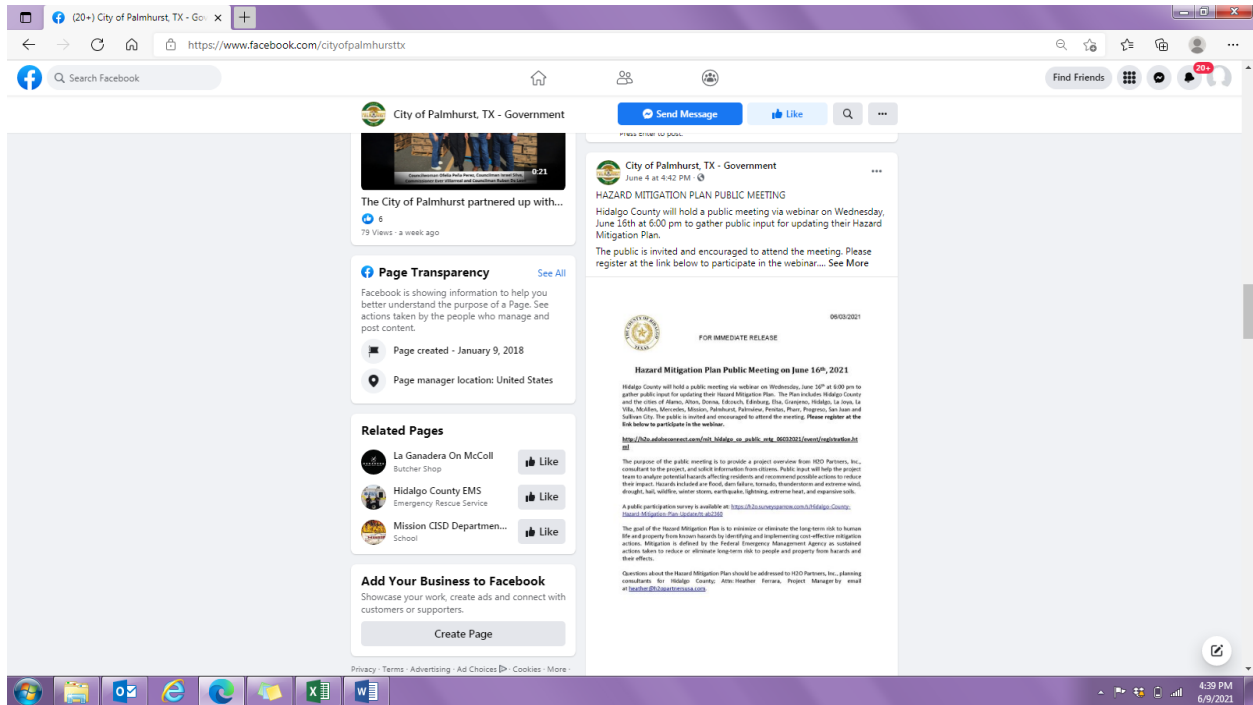
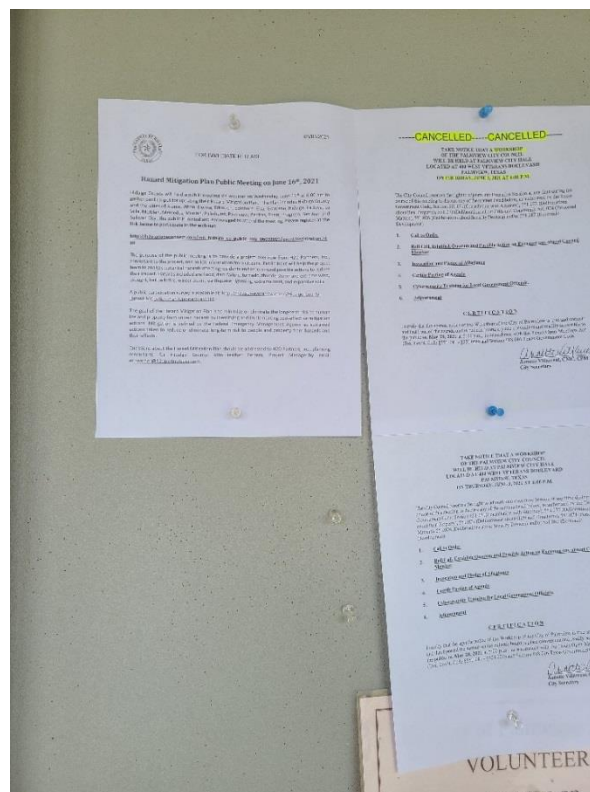
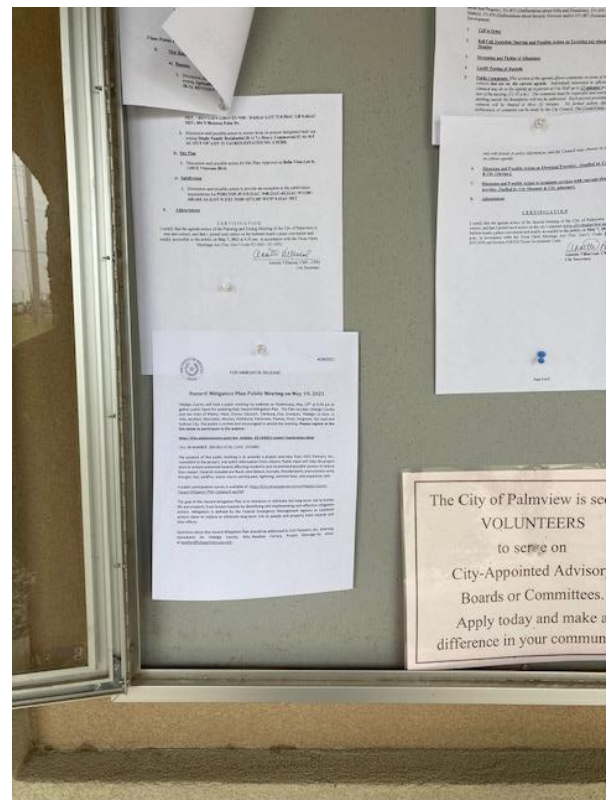
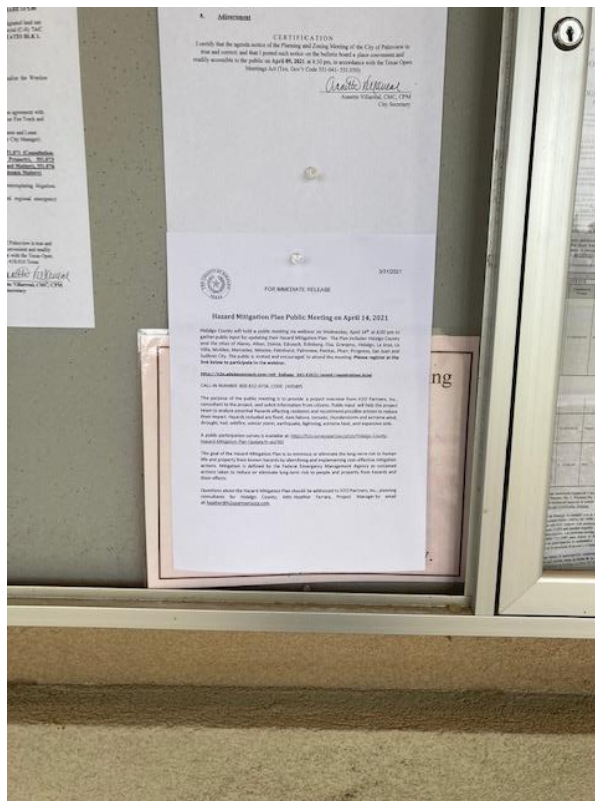


Figure E-25. City of Palmview Public Notice, City Hall



APPENDIX E: MEETING DOCUMENTATION



APPENDIX E: MEETING DOCUMENTATION

Figure E-26. City of Peñitas Public Notice, City Website

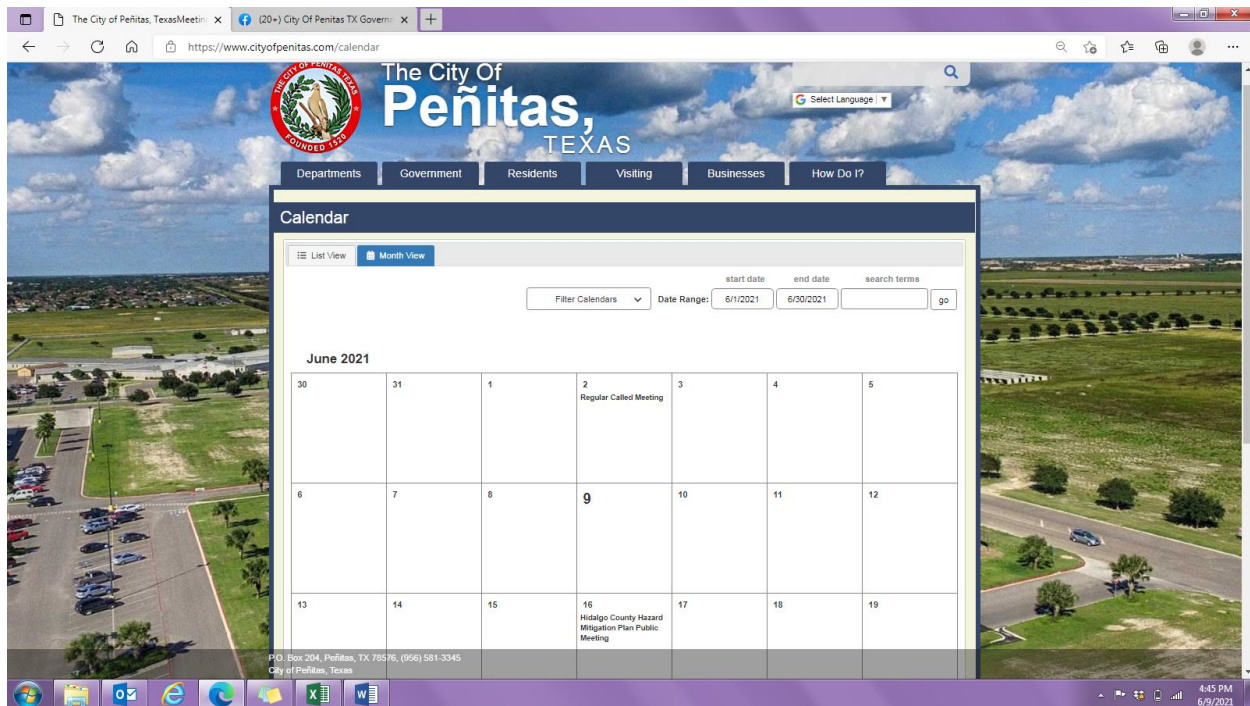


Figure E-28. City of Peñitas Public Notice, Facebook

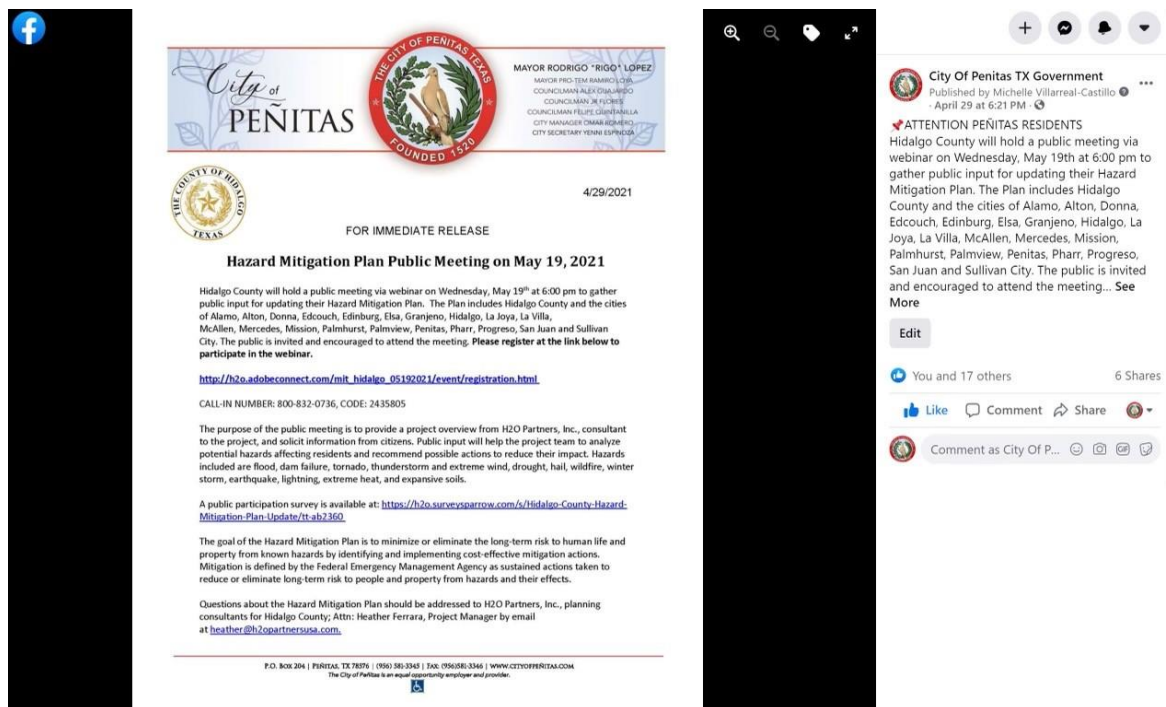
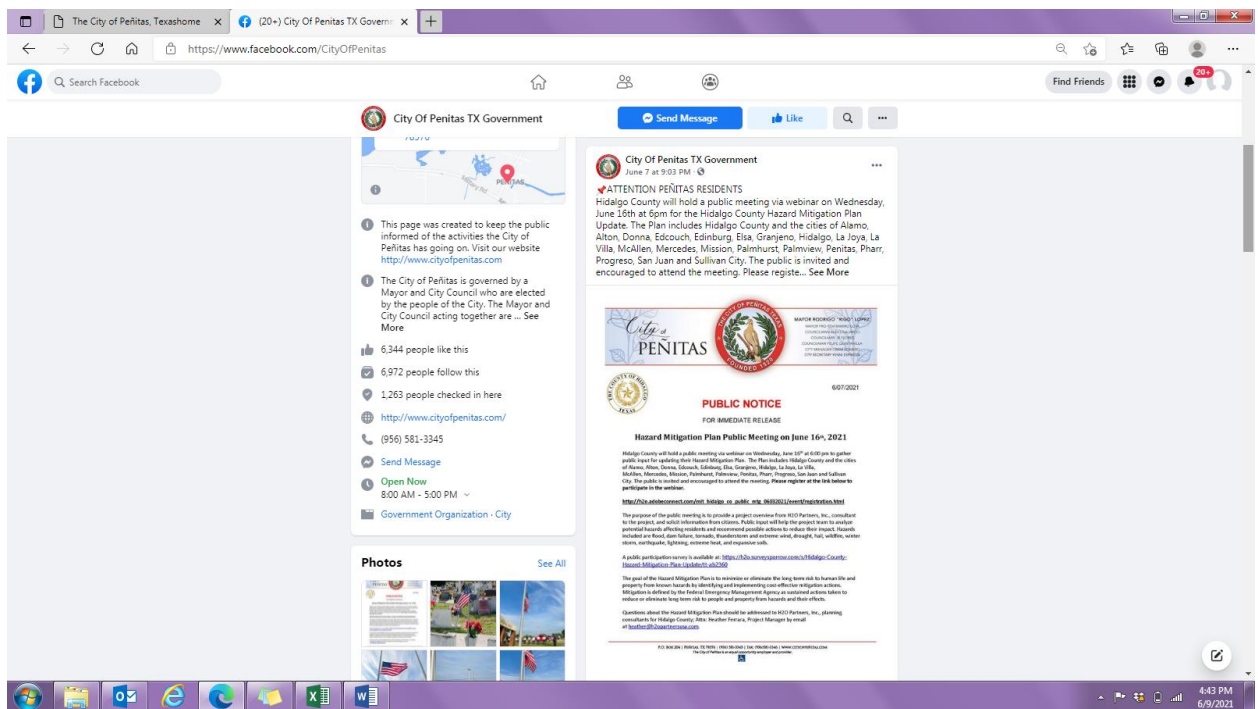


Figure E-27. City of Pharr Public Notice, City Website

APPENDIX E: MEETING DOCUMENTATION



APPENDIX E: MEETING DOCUMENTATION

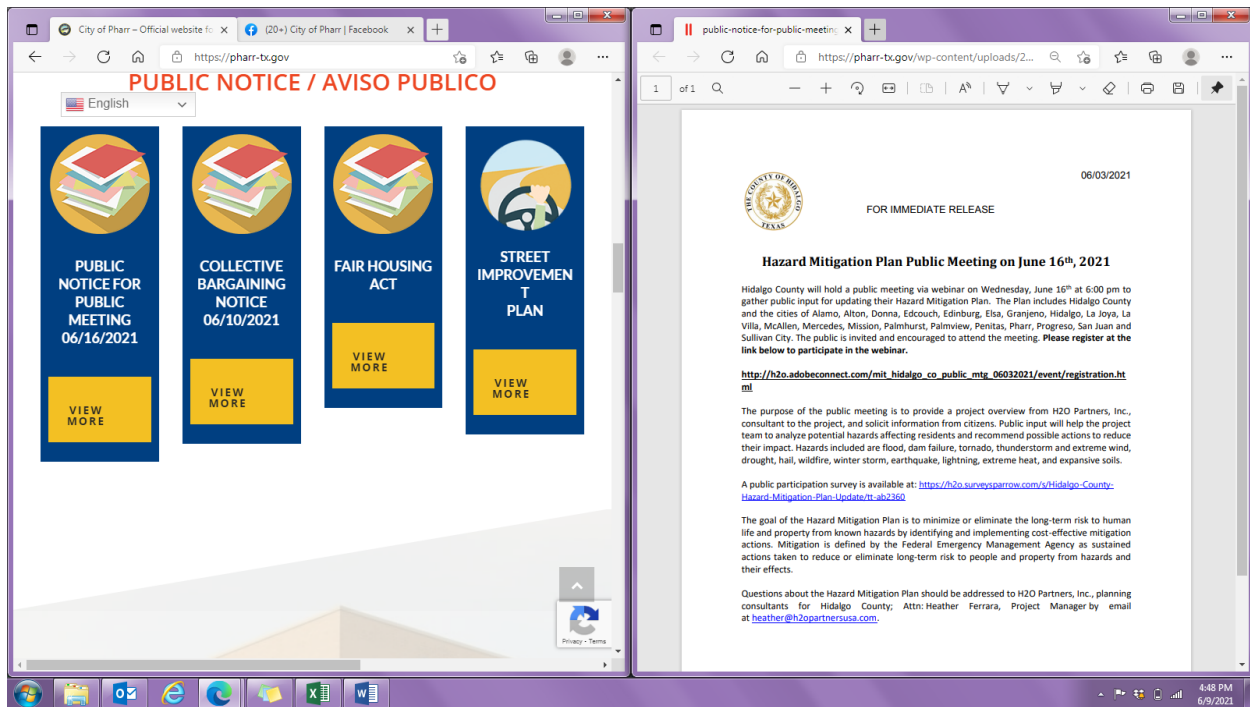
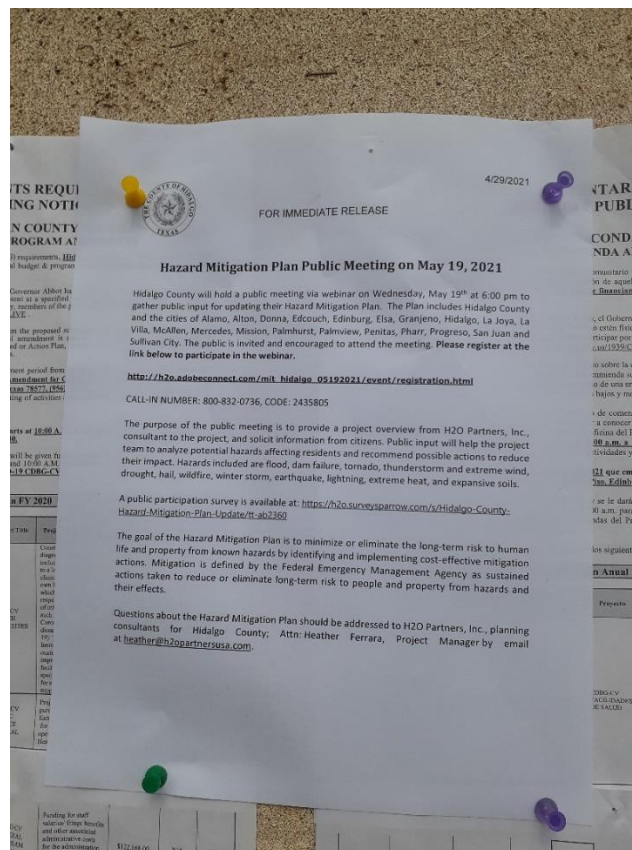
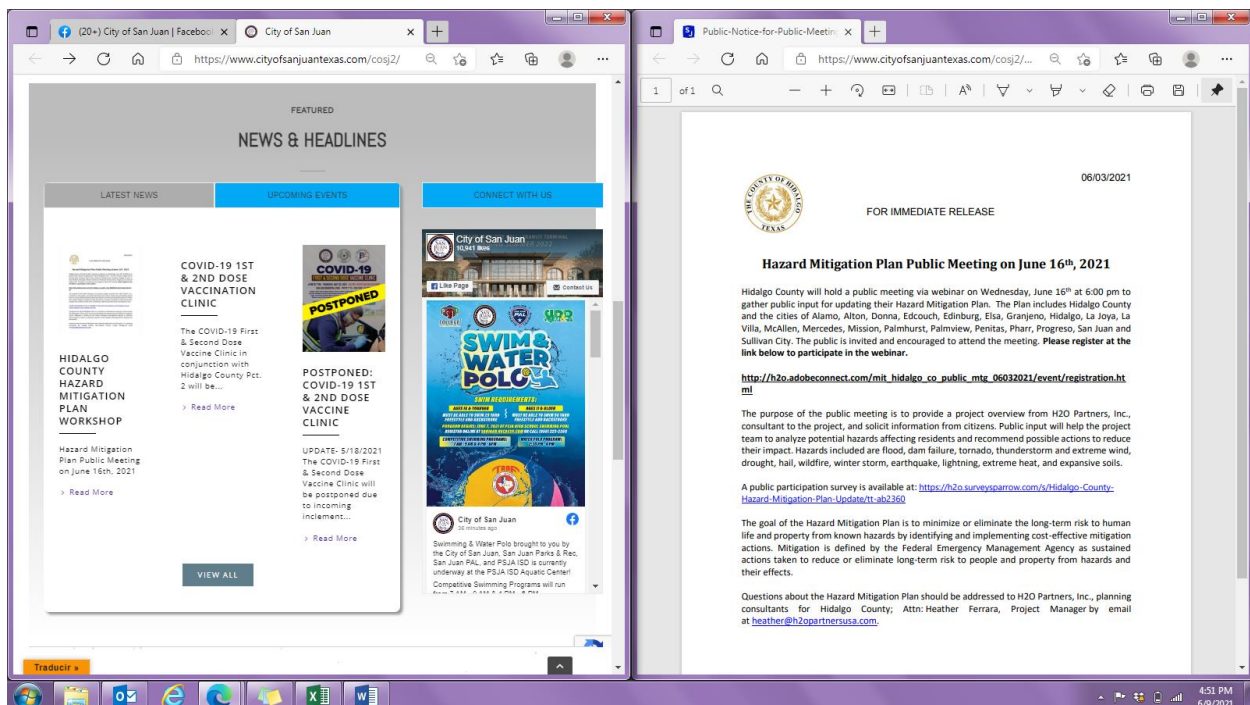
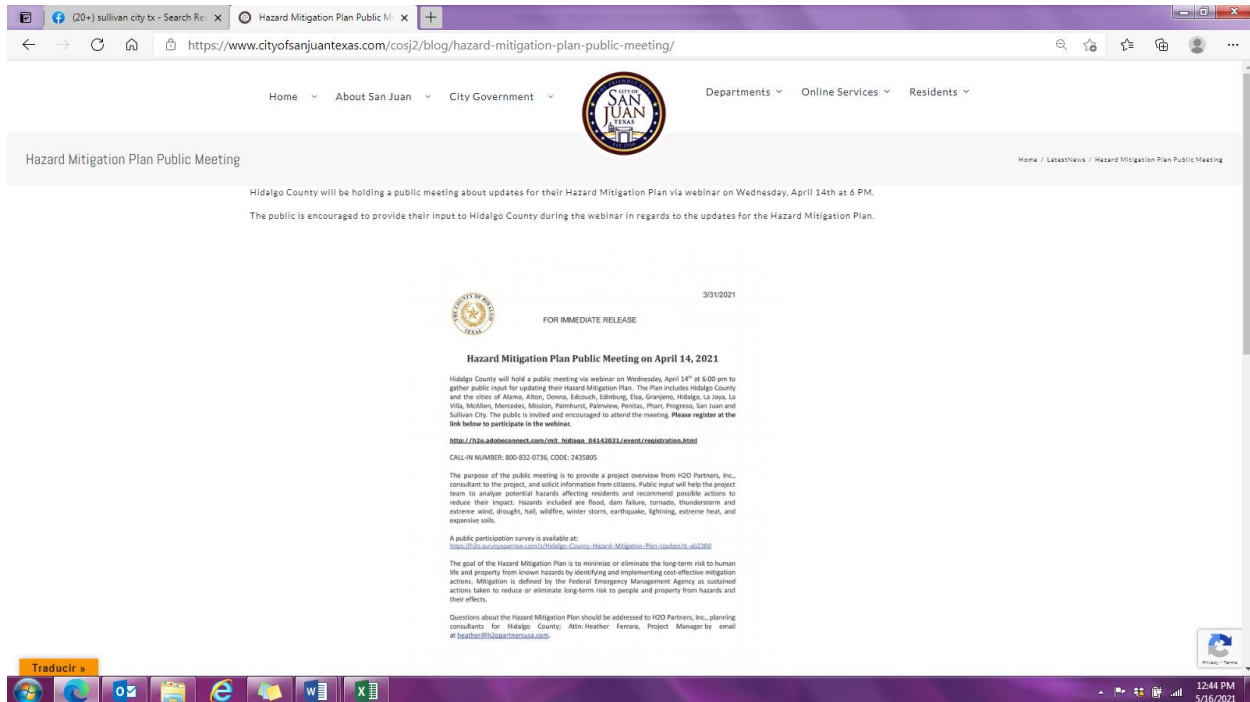


Figure E-28. City of Progreso Public Notice, City Hall



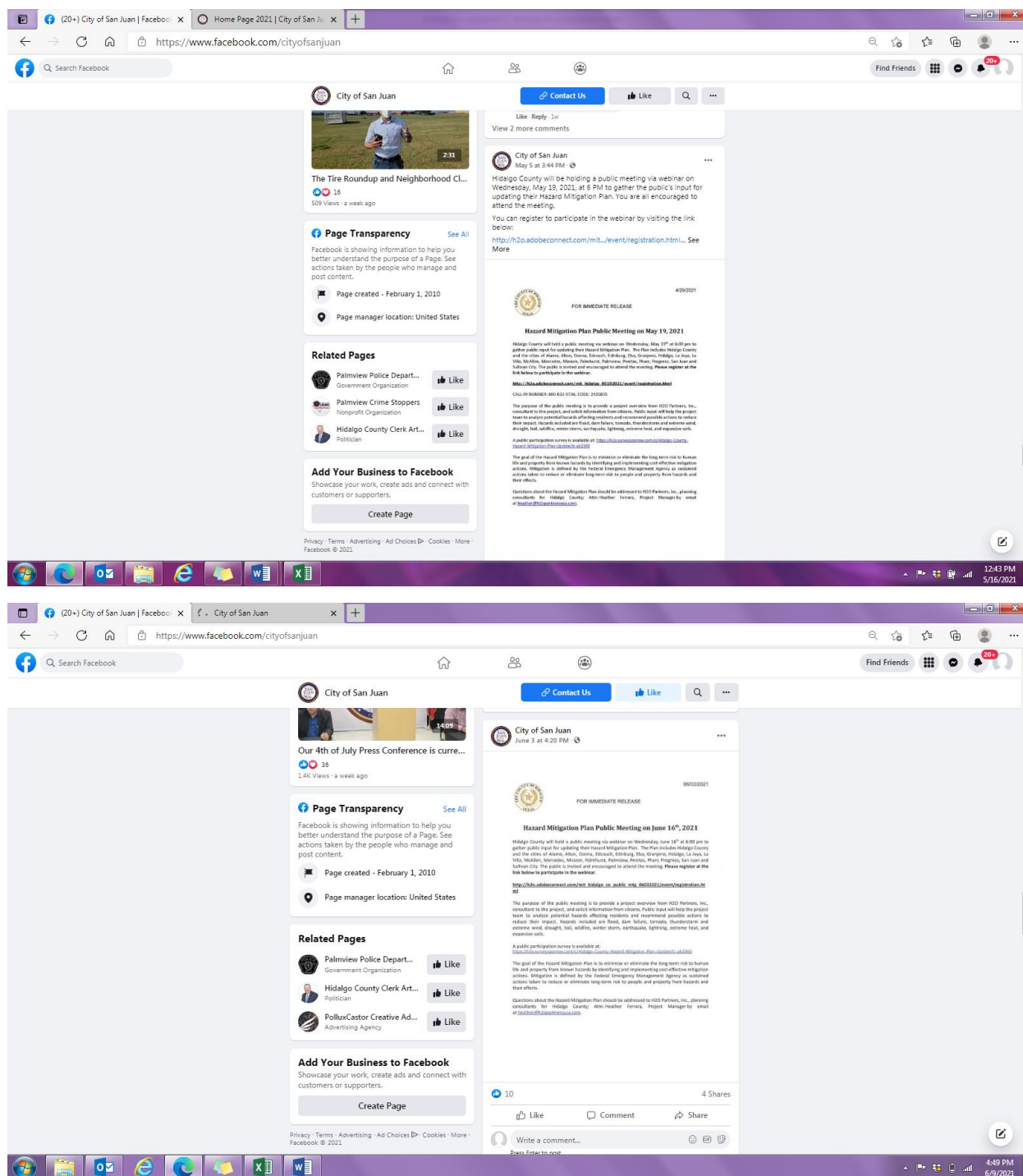
APPENDIX E: MEETING DOCUMENTATION

Figure E-29. City of San Juan Public Notice, City Website



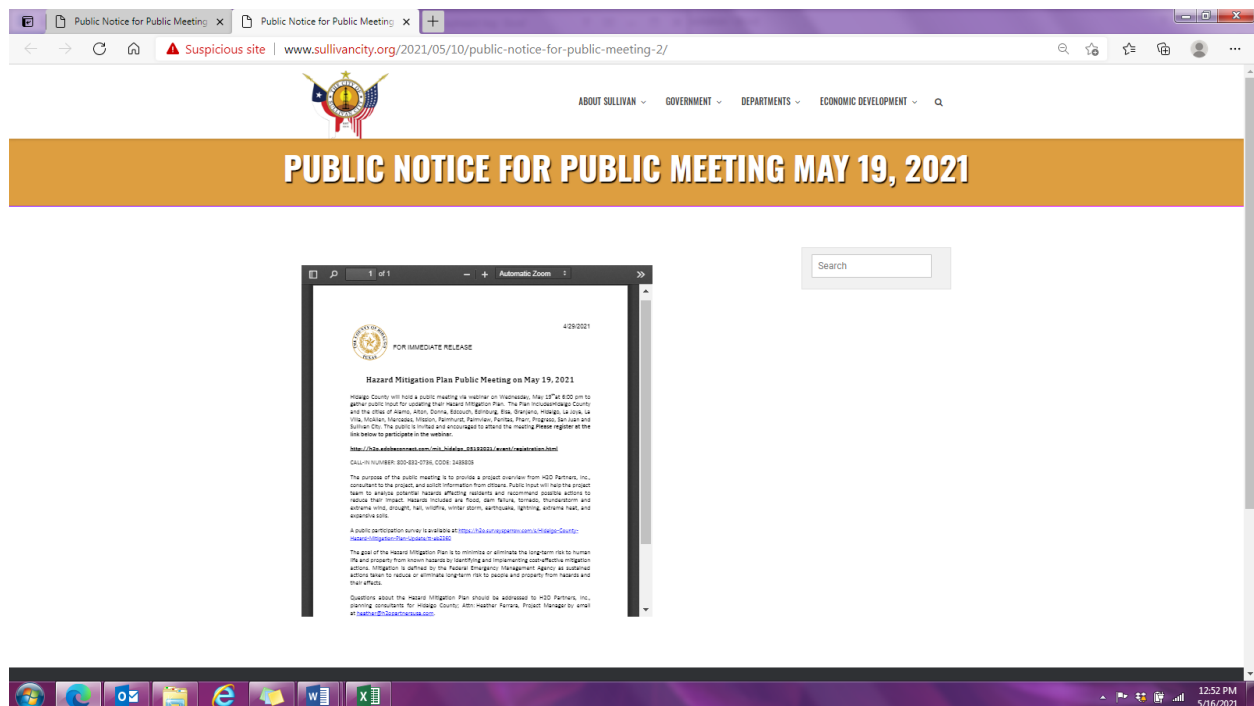
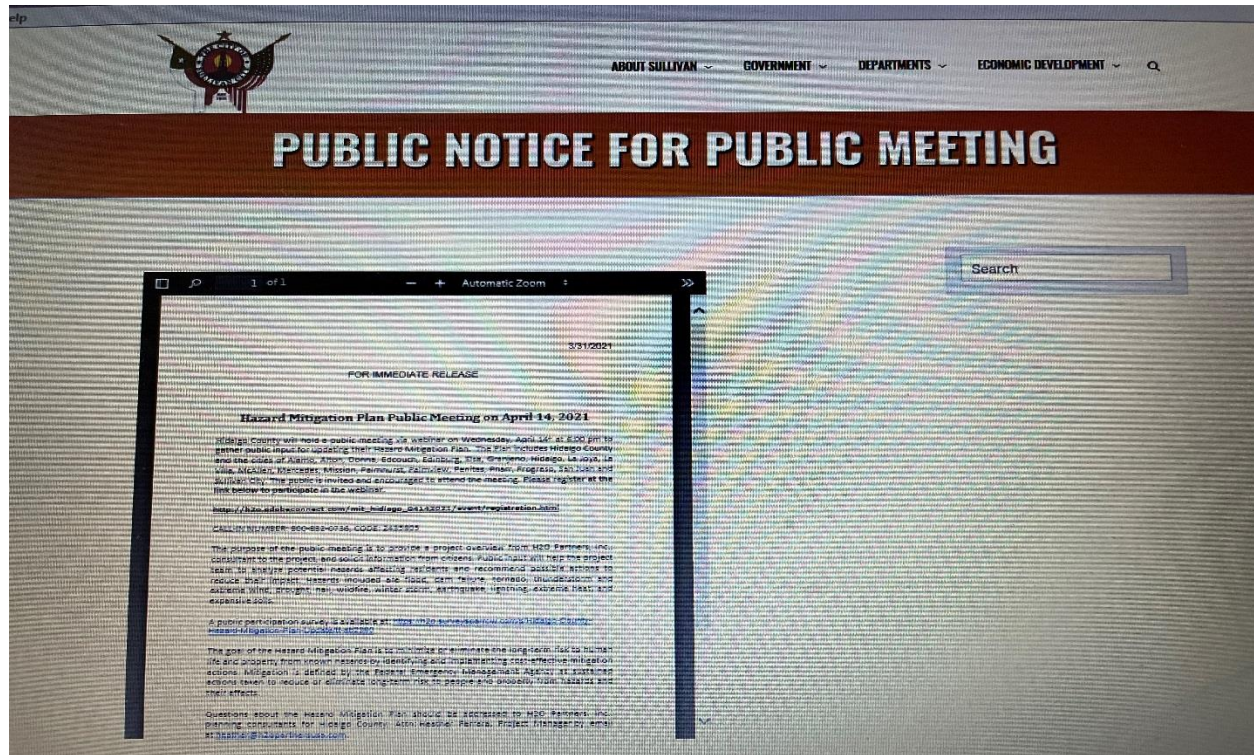
APPENDIX E: MEETING DOCUMENTATION

Figure E-30. City of San Juan Public Notice, Facebook

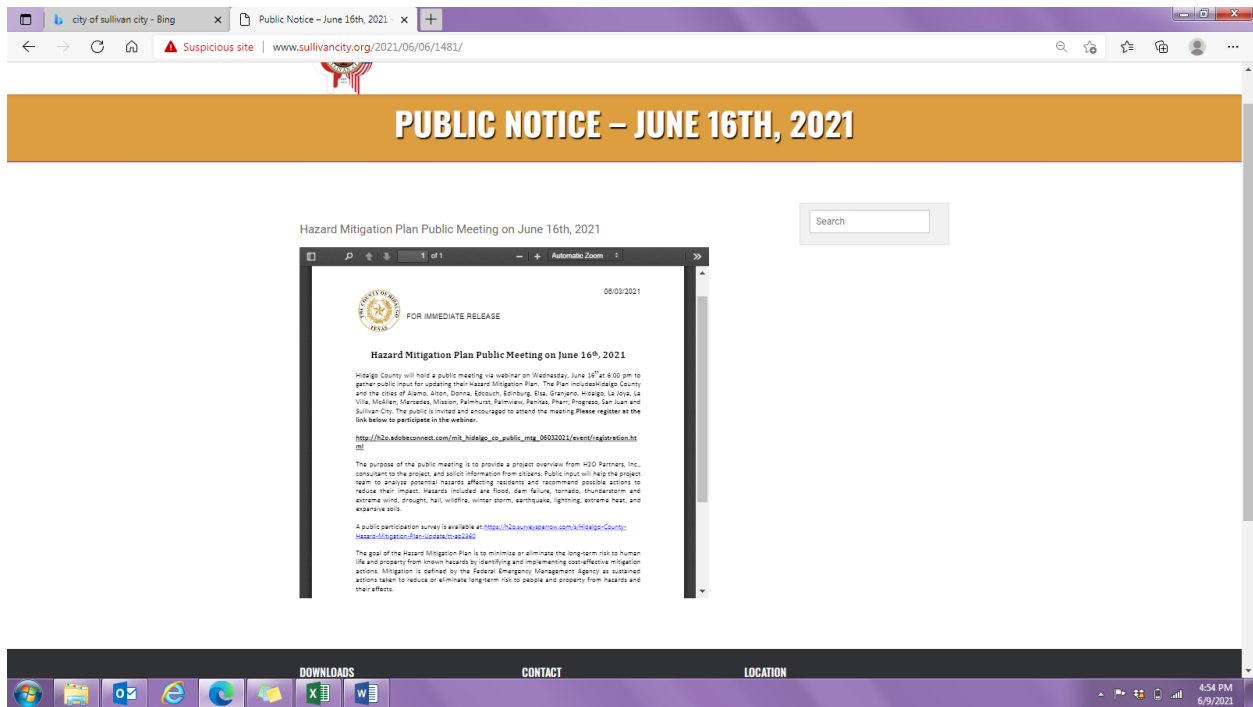


APPENDIX E: MEETING DOCUMENTATION

Figure E-31. City of Sullivan City Public Notice, City Website



APPENDIX E: MEETING DOCUMENTATION



APPENDIX F: CAPABILITY ASSESSMENT

Overview.....	1
Community Capability Assessments	2

OVERVIEW

A Community Capability Assessment is an integral component of the Hazard Mitigation Planning Process. It is an invaluable tool in assessing a community's existing planning and regulatory capabilities to support implementation of mitigation strategy objectives.

Beginning on Page 2, a completed Capability Assessment Checklist provides information on existing policies, plans, and regulations in place for Planning Team members at the local level or that may be provided by the County on an as-needed basis. ***Participation is denoted with an "x" on the Checklist.***

APPENDIX F: CAPABILITY ASSESSMENT

COMMUNITY CAPABILITY ASSESSMENTS

COMMUNITY CAPABILITY CHECKLIST	<i>Hidalgo County</i>	<i>City of Alamo</i>	<i>City of Alton</i>	<i>City of Donna</i>	<i>City of Edcouch</i>
Plans					
Capital Improvements Plan	X	X	X	X	
Community Wildfire Protection Plan	X				
Comprehensive / Master Plan / Land Use Plan		X		X	
Continuity of Operations	X			X	
Emergency Operations Plan	X	X			X
Evacuation Plan	X	X		X	X
Hazard Mitigation Plan	X	X		X	X
Stormwater Management Plan		X	X	X	
Policies/Ordinances					
Building Codes		X	X	X	
Fire Code	X	X		X	
Floodplain Ordinance	X	X	X	X	
Stormwater Ordinance	X	X	X	X	
Subdivision Regulations	X	X	X	X	
Wildfire Ordinance	X	X			
Zoning Ordinance/Land Use Restrictions	X	X	X	X	
Programs					
Floodplain Maps/Flood Insurance Studies	X	X		X	
Hydrologic/Hydraulic Studies	X	X			
Mutual Aid Agreement	X	X		X	X

APPENDIX F: CAPABILITY ASSESSMENT

COMMUNITY CAPABILITY CHECKLIST	<i>Hidalgo County</i>	<i>City of Alamo</i>	<i>City of Alton</i>	<i>City of Donna</i>	<i>City of Edcouch</i>
National Flood Insurance Program Participant	X	X	X		
NFIP Community Rating System Participant	X	X			
Property Acquisition Program		X			
Public Education/Awareness Programs	X	X			
Storm Drainage Systems Maintenance Program	X	X			
Stream Maintenance Program	X	X			
Warning Systems/Services	X	X	X		
Staff/Departments					
Building Code Official	X	X	X	X	X
Emergency Manager	X	X	X	X	X
Engineers	X	X	X		X
Environmental Conservation Specialist	X				
Floodplain Administrator	X	X		X	
GIS Coordinator	X				
Personnel with Hazard Knowledge	X	X		X	
Planners	X	X	X	X	
Public Information Official	X	X	X		
Resource Development/Grant Writer		X	X	X	X

APPENDIX F: CAPABILITY ASSESSMENT

COMMUNITY CAPABILITY CHECKLIST	City of Edinburg	City of Elsa	City of Granjeno	City of Hidalgo	City of La Joya
Plans					
Capital Improvements Plan	X				X
Community Wildfire Protection Plan					X
Comprehensive / Master Plan / Land Use Plan	X	X			X
Continuity of Operations	X				X
Emergency Operations Plan	X	X			X
Evacuation Plan	X	X			X
Hazard Mitigation Plan	X	X			X
Stormwater Management Plan	X	X			X
Policies/Ordinances					
Building Codes	X	X	X		X
Fire Code	X	X	X		X
Floodplain Ordinance	X				X
Stormwater Ordinance	X	X			X
Subdivision Regulations	X	X	X		X
Wildfire Ordinance					X
Zoning Ordinance/Land Use Restrictions	X	X			X
Programs					
Floodplain Maps/Flood Insurance Studies	X				X
Hydrologic/Hydraulic Studies	X				
Mutual Aid Agreement	X	X			X
National Flood Insurance Program Participant	X				X

APPENDIX F: CAPABILITY ASSESSMENT

COMMUNITY CAPABILITY CHECKLIST	City of Edinburg	City of Elsa	City of Granjeno	City of Hidalgo	City of La Joya
NFIP Community Rating System Participant					X
Property Acquisition Program					
Public Education/Awareness Programs	X	X			
Storm Drainage Systems Maintenance Program	X	X			
Stream Maintenance Program	X				
Warning Systems/Services	X				
Staff/Departments					
Building Code Official	X	X		X	X
Emergency Manager	X	X		X	X
Engineers	X	X			X
Environmental Conservation Specialist					
Floodplain Administrator	X				
GIS Coordinator	X				
Personnel with Hazard Knowledge	X	X		X	
Planners	X	X			
Public Information Official	X	X		X	X
Resource Development/Grant Writer	X	X		X	X

COMMUNITY CAPABILITY CHECKLIST	City of La Villa	City of McAllen	City of Mercedes	City of Mission	City of Palmhurst
Plans					
Capital Improvements Plan	X	X			X
Community Wildfire Protection Plan	X				

APPENDIX F: CAPABILITY ASSESSMENT

COMMUNITY CAPABILITY CHECKLIST	City of La Villa	City of McAllen	City of Mercedes	City of Mission	City of Palmhurst
Comprehensive / Master Plan / Land Use Plan	X	X		X	X
Continuity of Operations	X	X		X	X
Emergency Operations Plan	X	X		X	X
Evacuation Plan	X	X		X	X
Hazard Mitigation Plan	X	X	X	X	X
Stormwater Management Plan	X	X		X	X
Policies/Ordinances					
Building Codes	X	X	X	X	X
Fire Code		X		X	X
Floodplain Ordinance	X	X		X	
Stormwater Ordinance	X	X		X	X
Subdivision Regulations	X	X	X	X	X
Wildfire Ordinance	X				
Zoning Ordinance/Land Use Restrictions	X	X	X	X	X
Programs					
Floodplain Maps/Flood Insurance Studies	X	X		X	
Hydrologic/Hydraulic Studies	X	X		X	
Mutual Aid Agreement	X	X		X	X
National Flood Insurance Program Participant	X	X		X	X
NFIP Community Rating System Participant	X			X	
Property Acquisition Program	X	X		X	
Public Education/Awareness Programs	X	X		X	

APPENDIX F: CAPABILITY ASSESSMENT

COMMUNITY CAPABILITY CHECKLIST	<i>City of La Villa</i>	<i>City of McAllen</i>	<i>City of Mercedes</i>	<i>City of Mission</i>	<i>City of Palmhurst</i>
Storm Drainage Systems Maintenance Program	X	X		X	
Stream Maintenance Program	X	X		X	
Warning Systems/Services	X	X		X	
Staff/Departments					
Building Code Official	X	X	X	X	X
Emergency Manager	X	X	X	X	X
Engineers	X	X		X	
Environmental Conservation Specialist					
Floodplain Administrator	X	X		X	
GIS Coordinator	X	X		X	
Personnel with Hazard Knowledge		X		X	X
Planners	X	X	X	X	X
Public Information Official	X	X	X	X	X
Resource Development/Grant Writer	X	X		X	X

COMMUNITY CAPABILITY CHECKLIST	<i>City of Palmview</i>	<i>City of Peñitas</i>	<i>City of Pharr</i>	<i>City of Progreso</i>	<i>City of San Juan</i>
Plans					
Capital Improvements Plan	X	X	X	X	
Community Wildfire Protection Plan		X		X	
Comprehensive / Master Plan / Land Use Plan		X	X	X	X
Continuity of Operations		X	X	X	
Emergency Operations Plan		X	X	X	X

APPENDIX F: CAPABILITY ASSESSMENT

COMMUNITY CAPABILITY CHECKLIST	City of Palmview	City of Peñitas	City of Pharr	City of Progreso	City of San Juan
Evacuation Plan		X	X	X	X
Hazard Mitigation Plan	X	X	X	X	X
Stormwater Management Plan	X	X	X	X	X
Policies/Ordinances					
Building Codes	X	X	X	X	X
Fire Code		X	X	X	X
Floodplain Ordinance	X	X	X	X	X
Stormwater Ordinance	X	X	X	X	X
Subdivision Regulations	X	X	X	X	X
Wildfire Ordinance		X		X	
Zoning Ordinance/Land Use Restrictions	X	X	X	X	X
Programs					
Floodplain Maps/Flood Insurance Studies	X	X	X	X	X
Hydrologic/Hydraulic Studies		X	X	X	
Mutual Aid Agreement		X	X	X	X
National Flood Insurance Program Participant		X	X	X	X
NFIP Community Rating System Participant		X	X	X	
Property Acquisition Program		X		X	
Public Education/Awareness Programs		X	X	X	
Storm Drainage Systems Maintenance Program		X	X	X	X
Stream Maintenance Program		X		X	
Warning Systems/Services		X	X	X	X

APPENDIX F: CAPABILITY ASSESSMENT

COMMUNITY CAPABILITY CHECKLIST	City of Palmview	City of Peñitas	City of Pharr	City of Progreso	City of San Juan
Staff/Departments					
Building Code Official	X	X	X	X	X
Emergency Manager		X	X	X	X
Engineers		X	X		X
Environmental Conservation Specialist					X
Floodplain Administrator	X	X	X		X
GIS Coordinator		X	X		
Personnel with Hazard Knowledge		X	X	X	
Planners	X		X		X
Public Information Official	X	X	X		X
Resource Development/Grant Writer		X	X	X	X

COMMUNITY CAPABILITY CHECKLIST	City of Sullivan City	Santa Cruz Irrigation District #15
Plans		
Capital Improvements Plan	X	X
Community Wildfire Protection Plan	X	
Comprehensive / Master Plan / Land Use Plan	X	
Continuity of Operations	X	
Emergency Operations Plan	X	X
Evacuation Plan	X	
Hazard Mitigation Plan	X	X
Stormwater Management Plan	X	

APPENDIX F: CAPABILITY ASSESSMENT

COMMUNITY CAPABILITY CHECKLIST	City of Sullivan City	Santa Cruz Irrigation District #15
Policies/Ordinances		
Building Codes	X	
Fire Code	X	
Floodplain Ordinance	X	
Stormwater Ordinance	X	
Subdivision Regulations	X	
Wildfire Ordinance	X	
Zoning Ordinance/Land Use Restrictions	X	
Programs		
Floodplain Maps/Flood Insurance Studies	X	
Hydrologic/Hydraulic Studies	X	X
Mutual Aid Agreement	X	
National Flood Insurance Program Participant	X	
NFIP Community Rating System Participant	X	
Property Acquisition Program	X	
Public Education/Awareness Programs	X	
Storm Drainage Systems Maintenance Program	X	
Stream Maintenance Program	X	
Warning Systems/Services	X	
Staff/Departments		
Building Code Official		
Emergency Manager	X	X

APPENDIX F: CAPABILITY ASSESSMENT

COMMUNITY CAPABILITY CHECKLIST	<i>City of Sullivan City</i>	<i>Santa Cruz Irrigation District #15</i>
Engineers		X
Environmental Conservation Specialist	X	
Floodplain Administrator		
GIS Coordinator		
Personnel with Hazard Knowledge	X	
Planners	X	
Public Information Official	X	
Resource Development/Grant Writer	X	X

APPENDIX G: DRAINAGE DISTRICT PROJECTS

Overview.....	1
Drainage District Projects.....	2

OVERVIEW

Appendix G is **For Official Use Only (FOUO)** and may be exempt from public release under the Freedom of Information Act (FOIA).

APPENDIX G: DRAINAGE DISTRICT PROJECTS

DRAINAGE DISTRICT PROJECTS



HIDALGO COUNTY DRAINAGE DISTRICT NO 1 Drainage Area Projects

PROJECT NAME	SCOPE OF WORK	ESTIMATED COST
Mercedes Lateral Drainage Area Project	The project consists of channel and culvert improvements to the major drainage ditch south of the urbanized area with a new storm drainage system with associated detention ponds for two residential areas along Mile 11 North. It will include four new regional detention ponds to relieve area from flooding.	\$ 46,966,243.13
Mile 9 North & FM 1015 Drainage Area Project	Channel and culvert improvements to the drainage ditch network for the area, including the extension of an existing drainage ditch with new storm drainage system and associated detention ponds.	\$ 14,070,120.00
Elsa-Edcouch-La Villa Drain Drainage Area Project	The project consists of improving an existing drain ditch by re-aligning it, adding new laterals, widening to add capacity, and upgrading all the road crossings necessary to alleviate drainage in the area. A new structure will be installed at IBWC Levee to consistently convey the flows to the floodway.	\$ 33,099,440.00
Hidalgo Drain Drainage Area Project	Upgrade existing culvert structures, cleaning, regrading, and widening of the existing ditch to increase linear detention and positive flow to the outfall at the Mission Inlet.	\$ 3,524,917.60
Las Mipás & South Lateral Drainage Area Project	The project consists of a drainage system and culvert improvements that will include the widening of drain ditches leading up to the outfall points at the South Lateral Drain, which will relieve the area of flooding. South Lateral will be widened to add capacity and expedite drain flow. The roadway crossing will be upgraded and new addition of detention facilities at the upstream end connecting to the Main Floodway will be added.	\$ 25,800,000.00
South Alamo Drain Drainage Area Project	Alamo Expressway Drain collects runoff from a large urbanized area and will be improved to maximize capacity and help alleviate flooding. Improvements consist of widening the existing ditch, improved roadway culverts and extend ditch to reach new areas.	\$ 10,370,238.00
P-SJ-A South Drain Drainage Area Project	The project consists of improving the existing drain ditch to allow for more capacity to include widening of the ditch, upgrading the roadway culvert crossings and improve the outfall at the Pharr McAllen South Drain.	\$ 2,571,860.00
Mission / Palmview Lateral Drainage Area Project	The project consists of proposed widening, culvert crossings and detention facilities to increase linear detention and functionality of existing Mission Lateral drainage ditch. This project has been divided into four phases.	\$ 20,855,556.56
Monte Cristo & Conway Drainage Area Project	The project consists of drainage improvements to alleviate flooding from the watershed that extends northwest of the intersection of Monte Cristo and Conway and affects the Air Moorefield Base and surrounding neighborhoods. The improvements include the cleaning of existing ditch and the realignment to connect to the existing J-09 drain and improved culvert crossings with an addition of detention facilities.	\$ 8,233,309.50
West Main Dain Drainage Area Project	The project consists of extending the service area of West Main Drain to reach new communities to the North of Mile 6 Road and South to Mile 4. The improvements will allow an outfall to connect and alleviate future flooding.	\$ 6,856,909.00

APPENDIX G: DRAINAGE DISTRICT PROJECTS



HIDALGO COUNTY DRAINAGE DISTRICT NO 1 Drainage Area Projects

PROJECT NAME	SCOPE OF WORK	ESTIMATED COST
J-02 Monte Cristo Drain Drainage Area Project	The project consists of improving the existing drain ditch along Monte Cristo Road from Kenyon Road to the South Main Drain. The improvements will consist of widening the existing ditch to add capacity and alleviate flooding in the area. All the roadway culvert crossing will be improved and new field and roadway inlets will be installed.	\$ 11,731,920.00
J-08 Drain (North Main Drain to Monte Cristo) Drainage Area Project	The project consists of improving the existing J-08 Drain ditch. The improvements will include the extension of the ditch to Conway Road, constructing a new ditch and roadway crossings. The existing ditch will be widened and the roadway crossing will be improved to alleviate flooding issues in the area. The J-08 Drain outfalls at the North Main Drain east of McColl Road.	\$ 23,951,998.00
J-08 Drain Phase III Drainage Area Project	The project consists of improving the existing J-08 Drain ditch by extending it to areas where repetitive flooding has occurred. The improvements include the constructing a new ditch with various roadway crossings which will help to alleviate flooding issues in the area. The J-08 Drain outfalls at the North Main Drain east of McColl Road.	\$ 10,201,490.00
PD Lateral Phase II Drainage Area Project	Project consists of an extension of PD Lateral. Construction of the new ditch and roadway culvert crossings will allow communities within the area to have proper drainage outfall to alleviate flooding issues.	\$ 17,452,223.00
PD Lateral Phase III Drainage Area Project	Project will consist of new ditch laterals and roadway crossing connecting to the existing PD Lateral.	\$ 3,906,148.00
North Main Drain Drainage Area Project	Channel improvements to North Main drain from East of Interstate 69C to Brushline Rd. The improvements consist of channel widening and roadway culvert crossings.	\$ 10,147,615.00
J-14 Drain Drainage Area Project	Project consists of the construction of a drain ditch from Brushline to Holmes Rd to outfall to J-01 ditch.	\$ 4,665,749.00
Mid Valley Airport Drainage Area Project	Project consists of channel and culvert improvements to the drainage ditch network for the area. A new storm drainage system and detention ponds for Joe Stephens Avenue and the neighborhood east of the airport will relieve area flooding.	\$ 9,345,323.30
TX 88 & Sugarcane Drive Drainage Area Project	Project consists of channel and roadway culvert improvements, provide storm sewer system to areas adjacent properties to have proper outfall. New detention facilities will be constructed to alleviate drainage issues on the adjacent subdivisions.	\$ 2,982,548.25
Mile 11 North & Mile 6 West Drainage Area Project	Project consists of channel and culvert improvements for existing ditches, provide local drainage improvements to outfall with flap gates to detention ponds.	\$ 4,474,008.00
Mile 10 North & Baseline Road Drainage Area Project	Project consists of channel and culvert improvements to the major drainage ditch south of the urbanized area. New storm drainage system and a detention pond to relieve from area flooding.	\$ 2,574,667.76
Clark Road & Mile 1 West Drainage Area Project	Project consists of improving existing Ditch 19 and 23 with local drainage improvements and construction of a detention pond. A sump pump will be installed to bypass ditch to tie-in with channel improvements to Ditch 23. Improvements at the IBWC Levee will consist of a pump station to prevent water from backing upstream.	\$ 14,272,958.70
FM 491 & Mile 3 Drainage Area Project	Local Drainage Improvements for a neighborhood Northwest of Mile 3 N and FM 491 consisting of inlets, pipes, and culverts to provide local drainage to outfall to drainage ditch 49.	\$ 524,205.00

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APPENDIX G: DRAINAGE DISTRICT PROJECTS



HIDALGO COUNTY DRAINAGE DISTRICT NO 1 Drainage Area Projects

PROJECT NAME	SCOPE OF WORK	ESTIMATED COST
Malone Drive & Pomelo Road Drainage Area Project	Project consists of a new storm drainage system for the neighborhood northeast of Malone Drive and Pomelo Road	\$ 804,127.50
International Blvd & Mile 5 Road Drainage Area Project	Project consists of channel improvements of ditch H21 & 34, roadway culvert improvements near 22nd St. and Cameron Dr., lateral detention pond along ditch 34, bypass channel and a storm water pump station consists of 2 axial flow pumps capable of handling 130,000 GPM total. It will include pump controls, intake structure with screen, discharge pipes through levee with flap gates to prevent backwater flow and backup generator.	\$ 12,258,626.00
Southwest Weslaco Drainage Area Project	Project consists of channel and culvert improvements to the drainage district ditch network for the area with new regional storm drainage detention ponds and sump detention ponds with pumping stations at the Floodway.	\$ 16,391,084.00
FM 493 & Country Road Drainage Area Project	Project consists of new storm drainage system for River Road Subdivision, La Piñata Subdivision, and Tierra Bella Subdivision located between South River Road and surrounding the Chaparral Drain.	\$ 1,717,402.50
South Alamo Road & Rancho Blanco Road Drainage Area Project	Project consists of local drainage improvements to subdivisions near intersection Alamo Rd. and Rancho Blanco to outfall into proposed detention facilities.	\$ 4,860,999.00
FM 1423 & Main Grove Drainage Area Project	Local improvements in the neighborhood south of US-Business 83 and Val Verde Rd to outfall to Donna ditch.	\$ 936,292.50
Old La Blanca & Mile 10 North Drainage Area Project	Project consists of a new storm drainage system along De Los Rios Avenue and Encino Drive to outfall into an existing drain ditch.	\$ 645,975.00
FM 1423 & Nolana Road Drainage Area Project	Local Drainage Improvements of neighborhood near of N Val Verde Rd & Earling Rd to provide local drainage that can be discharged into proposed detention facilities.	\$ 2,927,726.51
North Tower Road Drainage Area Project	Provide local drainage improvements neighborhoods to outfall to LJ ditch.	\$ 1,765,665.00
Dillon Road & Roosevelt Road Drainage Area Project	Provide local drainage improvements North of E Roosevelt Rd. to outfall to existing channel to outfall to Donna North Lateral o the east.	\$ 2,039,647.50
Canton Drive & Dillon Road Drainage Area Project	Provide local drainage improvements to neighborhood west of La Blanca Rd and Mile 14 ½ N to outfall to Donna North Lateral.	\$ 3,996,877.50
FM 1925 & Mile 4 Drainage Area Project	Project consists of local drainage improvements and a construction of a retention pond along Bernal Court.	\$ 1,357,735.50
Pumps & Sumps	Installation of pumps and sumps at various locations.	\$ 38,034,314.51
Lott Road & Soderquist Road Drainage Area Project	Local drainage improvements East of FM 493 and Lott Rd to outfall to South Donna Drain	\$ 1,519,155.00
Mile 2 East & Expressway 83 Drainage Area Project	Project consists of local improvements along Mile 2 and Interstate 2 to outfall to ditch 23E just East of ditch 23F.	\$ 1,719,630.00
Anaquitas Drain Drainage Area Project	Project consists of channel, culvert, and IBWC structure improvements to the Anaquitas Drain.	\$ 10,147,524.75

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APPENDIX G: DRAINAGE DISTRICT PROJECTS



HIDALGO COUNTY DRAINAGE DISTRICT NO 1 Drainage Area Projects

PROJECT NAME	SCOPE OF WORK	ESTIMATED COST
East Mercedes Drainage Area Project	Project consists of channel, culvert, and IBWC structure improvements to the existing Ditch 23 drainage system.	\$ 12,548,250.00
Hwy 281 & FM 88 Drainage Area Project	Project consists of a Proposed storm water pump station located near Ranchitos de Progreso Subdivision.	\$ 2,079,000.00
Pharr McAllen South Drain Drainage Area Project	The project consists of new box culvert crossings at the Hidalgo County Irrigation District No. 2 irrigation canal and Ridge Road to increase capacity for the system.	\$ 891,250.00
Sunflower Drain Drainage Area Project	Project consists of upgrading the existing culvert crossing underneath State Highway 107, upgrade the existing connection to South Main Drain, and purchase additional right of way to improve the existing drainage ditch.	\$ 1,132,727.00
Rancho Santa Cruz Drain Drainage Area Project	Project consists of channel and culvert improvements to the existing Rancho Santa Cruz/Jackson Drain system .	\$ 3,618,750.00
J-01 Lateral Drainage Area Project	Project consists of channel and culvert improvements to the existing J-01 Lateral drainage system from Ramseyer Dr. to the South Main Drain II outfall.	\$ 2,994,601.44
Faysville Drain Drainage Area Project	Project consists of the extension of a drainage ditch that was created to provide an outfall for US 281 /I-69C, the Community of Faysville and surrounding areas. Faysville Drain will ultimately outfall into the proposed Raymondville Drain.	\$6,902,445.00
Alamo Expressway Drain Drainage Area Project	Project consists of channel and culvert improvements to the existing Alamo Expressway Drain system from US Interstate 2 to US Highway 83 rd .	\$ 1,005,855.00
Rado Drain Alternate Drainage Area Project	The project consists of channel improvements between Colbath Avenue and Uvalde Avenue and a new box culvert from Rado Drain along Colbath Avenue and Taylor Road to the Mission Inlet drain ditch.	\$ 7,181,250.00
Weslaco Drain Drainage Area Project	Project consists of channel, culvert, and IBWC structure improvements to the existing Weslaco Drain system.	\$ 4,437,855.00
North Weslaco Drain Drainage Area Project	The project consists of channel and culvert improvements from the Midway pond to connect to the Weslaco North Lateral.	\$ 11,500.00
Raymondville Drain Project Drainage Area Project	The Raymondville Drain Project currently exists as an authorized federal project with the US Army Corp of Engineers - Galveston District (USACE) as the Project for Flood Control, Lower Rio Grande Basin, Texas. The project seeks to improve the Rio Grande Valley's Drainage situation by construction a Diversion Channel and by improving the existing Hargill and Raymondville Drains. The creation of a new Diversion Channel begins at the Edinburg North Main Drain East of Edinburg Lake and would connect to Hargill Drain Lateral 5 West of Hargill. Channel Improvements would begin at the intersection of the proposed new channel and the existing channel, and would be done along the existing Hargill and Raymondville Drains to the Outfall into the Laguna Madre near SH 186. The project can be broken into at least 6 phases and includes 76.5 miles of new or improved drainage channels. Each phase may be constructed at different times resulting in a varied or staggered cost/benefit ration, however each phase shall be constructed so that is has a BCA above 1.0	\$ 417,617,336.00

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APPENDIX G: DRAINAGE DISTRICT PROJECTS



HIDALGO COUNTY DRAINAGE DISTRICT NO 1 Drainage Area Projects

PROJECT NAME	SCOPE OF WORK	ESTIMATED COST
3 1/4 Mile Road & North Bentsen Palm Dr. Drainage Area Project	Regrade of roadside ditch and installation of driveway culverts along North Bentsen Palm Drive, approximately 3,500 ft. North of Buddy Owens Boulevard (Mile 3).	\$ 80,434.00
3 3/4 Mile Road & Schuerbach Road Drainage Area Project	Construction of a drainage ditch and roadway culvert crossings extending from East North Schuerbach Road to East Los Ebanos Road into Linda Vista drainage ditch.	\$ 2,235,749.00
4 1/2 Mile Road & North Doffing Road Drainage Area Project	Construction of a drainage ditch and roadway culvert crossing between North Doffing Road and North Minnesota Road running from Mile 4 into West Main Drain III.	\$ 950,974.00
4 Mile Road & Minnesota Road Drainage Area Project	Regrade of roadside ditch and storm drainage system running North along Doffing Road and through proposed easements to outfall into a proposed drain ditch and ultimately into Linda Vista drainage ditch.	\$ 259,531.00
5 1/2 Mile Road & North Bentsen Palm Dr. Drainage Area Project	Proposed construction of drainage swales, regrading of roadside ditches and installation of roadway culverts along North Bentsen Palm Drive to accommodate excess runoff from low areas.	\$ 80,434.00
7 1/2 Mile Road & Glasscock Road Drainage Area Project	Proposed storm drainage system along existing roadway right of way connecting to a future TxDOT system.	\$ 354,370.00
7 1/2 Mile Road & Western Road Drainage Area Project	Construction of a drainage ditch, roadway culvert crossings and storm drainage system to increase additional detention volume to the existing J-08 drainage ditch.	\$ 340,938.00
Delta Regional Reservoir Drainage Area Project	The Delta Region Water Management Project is a regional mitigation project that consists of 199 acres for detention that will provide increased flood control for the northernmost areas of Hidalgo County.	\$ 10,000,000.00
Mile 10 North & Mile 1 West Drainage Area Project	Channel and culvert improvements to the major drainage ditch south of the urbanized area. New storm drainage system with associated detention ponds for two residential areas along Mile 11 North.	\$ 4,482,168.00
Mile 11 North & FM 1015 Drainage Area Project	Channel and culvert improvements to the drainage ditch network for the existing Mercedes Lateral. Four new regional detention ponds to relieve area from flooding.	\$ 14,722,192.00
Mile 11 North & Texas Boulevard Drainage Area Project	Channel and culvert improvements to the drainage ditch network for the area. New storm drainage system along Beto Garcia, Tahiti, and Samoa Drive and four detention ponds to relieve area flooding.	\$ 10,628,888.00
Mission Lateral Drainage Area Project	The project consists of proposed widening, culvert crossings and detention facilities to increase linear detention and functionality of existing Mission Lateral drainage ditch. This project has been divided into five phases.	\$ 12,779,500.00
Peritas Drain Drainage Area Project	Extension of Peritas Drain consisting of a construction of a drainage ditch with roadway crossings.	\$ 5,393,595.00
South "I" Road Detention Drainage Area Project	New detention facilities to mitigate flooding and store potentially damaging floodwaters temporarily until the channels can safely carry the water away.	\$ 4,408,000.00
Western Road & 9 Mile Line Drainage Area Project	Regrade of roadside ditch and installation of driveway culverts along North Abram Road to alleviate flooding issues.	\$ 80,434.00
J08 Drain Extension(Conway to Doffing Rd) Drainage Area Project	Project consists of new channel and road culvert crossings to extend the existing J-08 Drain from Conway to Doffing Road.	\$ 24,985,664.89
FM 681 Outfall (Mile 7 Rd to Moorefield Rd) Drainage Area Project	Project consists of new channel and road culvert crossings to extend the existing FM 681 Drain from Mile 7 Road to Moorefield Road.	\$ 6,201,520.00
J-02-01 (Taylor Rd to Bryan Rd) Drainage Area Project	Project consists of new channel and road culvert crossings to extend the existing J-02-01 Drain from Taylor Road to Bryan Road.	\$ 5,721,885.48

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APPENDIX G: DRAINAGE DISTRICT PROJECTS



HIDALGO COUNTY DRAINAGE DISTRICT NO 1 Drainage Area Projects

PROJECT NAME	SCOPE OF WORK	ESTIMATED COST
PD Lateral Ext 7 (Western Rd to PD Lateral) Drainage Area Project	Project consists of new channel and road culvert crossings to extend the existing PD Lateral Drain to Western Road.	\$ 2,324,085.11
West Main Drain IV (Abram Rd to Western Rd) Drainage Area Project	Project consists of new channel and road culvert crossings to extend the existing West Main Drain IV from Abram Road to Western Road.	\$ 5,210,490.42
Mile 6 & North Ware Road Drainage Area Project	The project consists of proposed channel improvements, two regional detention facilities, culvert improvements, and localized underground drainage improvements connecting multiple local drainage systems to the ditch network.	\$ 24,705,000.00
FM 2812 & FM 493 Drainage Area Project	The project consists of proposed channel widening and improvements along the existing ditch to allow for more capacity, underground drainage improvements, as well as culvert improvements and detention ponds for storage.	\$ 6,350,000.00
Hwy 107 & Val Verde Road Drainage Area Project	Project will consist of channel improvements to area drainage channels, a proposed detention pond, as well as proposed storm drain systems that will connect adjacent neighborhoods to the drainage network.	\$ 4,170,000.00
Texas Road & Cesar Chavez Road Drainage Area Project	This project consists of a new location open channel ditch that will connect the adjacent areas to the ditch network, culvert improvements, as well as drainage improvements that are projected to alleviate flood risk.	\$ 7,200,000.00
Hoehn Road & Mile 11 Road Drainage Area Project	The proposed project will improve drainage for the surrounding areas by the implementation of channel improvements, new detention ponds for storage, as well as proposed storm drain systems and culvert improvements.	\$ 4,215,000.00
Alamo Road & Rogers Road Drainage Area Project	This project consists of proposed detention ponds, culvert and storm drain system improvements to provide storage and positive flow for the surrounding areas.	\$ 7,240,000.00
Mile 8.5 Road & Ware Road Drainage Area Project	Project will consist of two proposed new location channels, channel improvements to existing ditches, culvert improvements, along with new storm drain system connecting to the ditch network. Additionally, two proposed detention ponds are planned for this project that will provide storage to aid in mitigation of future flooding.	\$ 18,090,000.00
S. McColl & Canton Road Drainage Area Project	This project consists of channel and culvert improvements with associated new storm drainage systems and improvements to existing storm drainage systems.	\$ 5,780,000.00
Ditch 2 South of La Villa / Edcouch Drainage Area Project	Project consists of a proposed IBWC structure and detention consisting of 9 acres. The ditch will be regarded and widened. Project is from Mile 4 East to the IBWC structure.	\$7,882,786
Total:		\$ 1,046,996,688.91

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APPENDIX H: MISSION COMPREHENSIVE STORM DRAINAGE ASSESSMENT

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OVERVIEW

Appendix H is **For Official Use Only (FOUO)** and may be exempt from public release under the Freedom of Information Act (FOIA).

June 2020

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EXECUTIVE SUMMARY

This Master Drainage Plan was prepared to provide the City of Mission a planning tool to guide and prioritize future capital expenditures for the City's drainage systems (open ditches and storm sewers) within its boundaries. The City currently operates and maintains a network of approximately 160 miles of storm sewers and 36 miles of drainage ditches. Several of these drainage systems require improvements to reduce existing frequent flooding problems as well as to cater to the City's future development needs and facilitate resiliency to extreme weather.

The existing drainage systems were evaluated to identify system inadequacies and to determine drainage improvements required to upgrade the existing systems. While no formal drainage criteria currently exist for the City of Mission, a relatively high standard of flood risk reduction was adopted for this study. Most jurisdictions including nearby cities typically utilize a 2-year or 5-year standard for Storm Sewers and 25-year or 50-year for drainage ditches. This masterplan focused on eliminating the 10-year flood risk to streets and property and reducing the 100-year flood risk to property. The higher standard was evaluated because NOAA rainfall records show that within the last 30 years, 24-hr event totals larger than the 10-year storm have occurred at least 4 times with 3 of them occurring within the past 5 years.

Flood risk areas were identified, and alternative drainage improvement solutions were analyzed and optimized to reduce the existing flooding risks as well as mitigate for future conditions. A Capital Improvement Plan (CIP) was developed to present the recommended improvements, estimated costs, and project priority. Estimated cost values were based on unit cost that reflect bid tabulations from similar local projects. Project priorities were determined for the CIP projects based on a set of established prioritization criteria. Areas of extensive existing flooding were accorded the highest priority.

Detailed hydrologic and hydraulic modeling analyses were performed in developing the Master Drainage Plan. US Army Corps of Engineers' hydrologic modeling program, HEC-HMS, was utilized to generate hydrographs for multiple storm events. The HEC-RAS hydraulic modeling program was used to analyze water surface profiles for the existing and proposed drainage ditches that informed the FEMA Hazard Mitigation Grant Program Application for select areas. Innovyze XPSWMM 2D hydrodynamic modeling program was used to perform a comprehensive area-wide two-dimensional integrated analysis of all drainage systems.

Historical flooding areas were emphasized in developing the plan. The causes of historical flooding were investigated with detailed hydrologic and hydraulic modeling analyses. Other high flood risk areas were also identified with detailed analysis within the study area. Flooding risks were typically associated with the following causes: backwater from outfall

or receiving ditches, insufficient storm sewer capacities, insufficient drainage ditch capacity, insufficient topographic relief, and inadequate maintenance leading to excess siltation and vegetative growth. The Master Drainage Plan identifies such problems and presents alternative solutions to reduce or eliminate the flooding risk.

Geographic Information Systems (GIS) was extensively used to facilitate various engineering efforts throughout the project development. Specific GIS applications included the use of 2018 South Texas Hi-Res (1m) 2018 LiDAR dataset from USGS to perform drainage basin delineations, watershed parameters extraction, channel cross-section geometric data extraction, storm catchment delineations, drainage systems (drainage ditches and storm sewers) inventory and mapping. HEC-RAS RAS Mapper, ArcMap 10.7, and ArcGIS Pro 2.1 were utilized extensively to perform model pre-and post-processing of data.

All runoff within the City of Mission ultimately drains to two main channels which also serve to convey overall Mission Inlet Watershed flows through the City limits. The Northern third of the City drains to the Mission Lateral Channel, while the southern two-thirds drain into the Mission Inlet Channel. Both channels are owned and maintained by the Hidalgo County Drainage District No. 1 (HCDD#1). A total of 31 drainage systems were delineated for the city with 11 draining to Mission Lateral, and 20 draining to Mission Inlet. The 11 drainage systems analyzed for Mission Lateral are: ML01 – Upper Mission Lateral; ML02 – Esperanza Ditch; ML03 – Ala Blanca N Ditch; ML04 – White Oak Pond Drain; ML05 – Middle Mission Lateral; ML06 – Edinburg Canal Drain; ML07 – Encantado Ditch; ML08 – Sommerset Ditch; ML09 – Sharyland ISD; ML10 – Shary Palms Ditch/Lost Pines Ditch/Taylor Trunk Line; and ML11 – Lower Mission Lateral. The 20 receiving drainage systems evaluated for Mission Inlet are MI01 – Perezville Drain/ Upper Mission Inlet; MI02 – Tierra Dorada Drain; MI03 – Mission Inlet Trib #1 (Military Rd); MI04 – CoM Ditch 5-J (Inspiration Rd); MI05 – Bus 83/Adams Ditch; MI06 (La Cuchilla Drain; MI07 – Upper Melba Carter Drain; MI08 – Hike & Bike Trail Ditch; MI09 Madero Lateral; MI10 – Melba Carter Drain Trib #1; MI11 – Lower Melba Carter Drain; MI12 – CoM Ditch 5-D (Expressway Business Park); MI13 – Kmart Ditch; MI14 – Mission Stub; MI15 – San Efrain Drain; MI16 – Rado Alternate; MI17 – Taylor Ditch; MI18 – Wilson Ditch; MI19 – Lower Mission Inlet; MI20 – San Tomas Drain.

The Capital Improvement Plan recommendations developed in this Master Plan include approximately 3 miles of channel improvements, 5 new detentions basins, over 50 miles of storm sewer system improvements, 15 bridge/culverts expansion or replacements, and property buyout/relocation. The limited Channel Improvements are indicative of the lack of R.O.W availability in a highly urbanized setting like the City of Mission. Although a severe lack of capacity at Mission Lateral is responsible for significant existing flooding in the City North, no recommendations were made to the Mission Lateral channel due to

ongoing improvements by HCDD#1. The improved condition was considered baseline conditions for the masterplan.

The total cost for implementing the proposed CIP was estimated at approximately \$93 million.

It should be noted that the Capital Improvement Plan is an ongoing planning/implementation process. The CIP proposes conceptual designs only and does not include sufficient detail for final design nor construction. Prior to final design of the proposed improvements, a detailed analysis should be performed to verify conditions for the proposed plan. In addition, it is recommended that the City adopt and strictly enforce a “no-adverse impact” policy for all new development projects and applied to this masterplan to ensure that any impacts incurred due to the proposed projects are mitigated.

SECTION I – INTRODUCTION

This section provides an overview of the project and discusses the overall flooding concerns within the City of Mission, TX. In addition, the purpose and objectives of the project are presented.

BACKGROUND

The City of Mission has experienced frequent flooding of varying degrees throughout its history. Adequate drainage of storm water runoff has long been a challenge for the City due to the flat topography, periodic intense rainfalls, and limited capacities of existing drainage systems. Localized flooding that hinders traffic mobility and threatens residences and business has occurred frequently.

The City of Mission has experienced steady population increase and growth in recent years commensurate with the Lower Rio Grande Valley region. According to the United States Census Bureau, the 2018 population estimate for the City of Mission is 84,829. This reflects a 1% annual increase in population from the 2010 Census figure of 77,586. As the city continues to grow in population, increasing development to accommodate the growth results in land use changes with additional impervious cover thus resulting in increased rainfall runoff volume and peak discharges. City growth in addition to changing climatic weather patterns has contributed to the frequency, severity and extent of drainage and flooding problems in many areas of the city in recent years.

Future growth and development of the city will be greatly influenced by how well the existing and future drainage systems perform. The City recognizes the need to develop a master drainage plan that addresses the existing drainage issues and prepares the city for the future. A drainage plan is required to identify the location and extent of drainage inadequacies, needed drainage system improvements, the cost to implement the improvements, and assist the city in prioritizing the improvements and provide information in support of grant applications and other financing needs. In June 2019, the City of Mission contracted with TEDSI Infrastructure Group and its sub-consultants to provide professional engineering services and develop a Master Drainage Plan for the City.

This report summarizes the effort by the Hydrology and Hydraulics sub-consultant, Civil Systems Engineering (CSE) in developing the Master Drainage Plan. Efforts include data collection of existing drainage systems, field surveying, GIS applications, LiDAR digital elevation model (DEM) dataset processing, HEC-HMS watershed hydrologic modeling, HEC-RAS hydraulic modeling, XP-SWMM integrated 2D open channel and storm sewer system modeling, and development of the Capital Improvement Plan (CIP).

STUDY AREA

The study area addressed in this study covers all the area within the City of Mission corporate limits (City Limits). Detailed studies were performed for only the areas within the city limits as shown in **Figure 1**.

The City of Mission is located in Hidalgo County, Texas along Interstate Highway 2 in between the cities of McAllen and Palmview to the east and west respectively. The City's southern border is the Rio Grande River and boundary with Mexico which adds an international component to the economic status of the City. The City covers a total area of 34.25 square miles and is located within the Mission Inlet watershed. Mission Inlet is the one of two main channels flowing through the city and is the ultimate receiving stream for the southern two-thirds of the City to the south. The other channel is Mission Lateral which is the receiving body of water for a third of the city to the north. The topography of the study area is typical of areas located in the Gulf Coastal Plan. It is generally flat, sloping gently toward the coast at an average grade of about 1 foot per mile. The flat topography imposes problems on the design of practical drainage systems because the hydraulic grades for drainage ditches are limited.

The City is mostly urbanized and is primarily served by underground storm sewer systems interconnected with several small open channels to convey flows to the two main HCDD#1 open channels, Mission Inlet and Mission Lateral. The storm sewers vary in dimension from 12 to 72 inches in diameter. Open drainage ditches also exist in many parts of the urbanized area, as shown in **Figure 2**. Approximately the northern third of the city area drains into Mission Lateral. The rest of the city area drains south to Mission Inlet. Mission Lateral. Flows from Mission Lateral are split at its outlet discharge point just outside the city limits with a portion going north via the Mission-McAllen Lateral to West Main Drain and the remaining flows conveyed south via the Rado Alternate to discharge into Mission Inlet outside the city limits. Limited capacity in the Mission-McAllen Lateral is partly responsible for a backwater problem that exacerbates flooding in City of Mission Drainage Systems that ultimately discharge into the Mission Lateral channel. There are also several overflow locations around the watershed divide between both the Mission Lateral and Mission Inlet subwatershed systems within the City of Mission. Most of the overflow is a spill over the watershed divide in the southern direction toward Mission Inlet drainage systems. Detailed investigation of the overflow areas was not performed as part of this study.

The primary soil present in the study area is classified as Hydrologic Soil Group B. The Soil Group B is indication of fairly well drained soils with water easily removed but not rapidly. This hydrologic soil group is associated with low runoff potential. This is due to

the natural occurrence of loamy soil. In the areas south of the banks of Mission Inlet, soils have poorer drainage and more Hydrologic Soil Group C.

The study area has a subtropical and semi-arid climate with dry winters and hot, humid summers. The average annual rainfall is approximately 22 inches. Most precipitation occurs in summer thundershowers and intense rainfall associated with tropical depressions and hurricanes that characterize the Gulf Coast from June to October. A review of NOAA National Weather Service historical rainfall records from 1990 to present day (30-year record length) indicated multiple rainfall events above the 10-year storm (6-inch rainfall 24-hour event). Hurricane Dolly on July 24, 2008 dumped almost 7 inches of rainfall in the City of Mission area in a 24-hr period. A similar event was recorded on August 20, 2015. However, 2018 saw almost 12 inches of rainfall on July 21, almost 7 inches on July 22, and over 9 inches on September 11. Although 2018 was a year of record rainfall around the country, it is still worth noting that the events larger than the 10-year recurrence interval (10% annual exceedance probability) appear to be occurring more frequently.

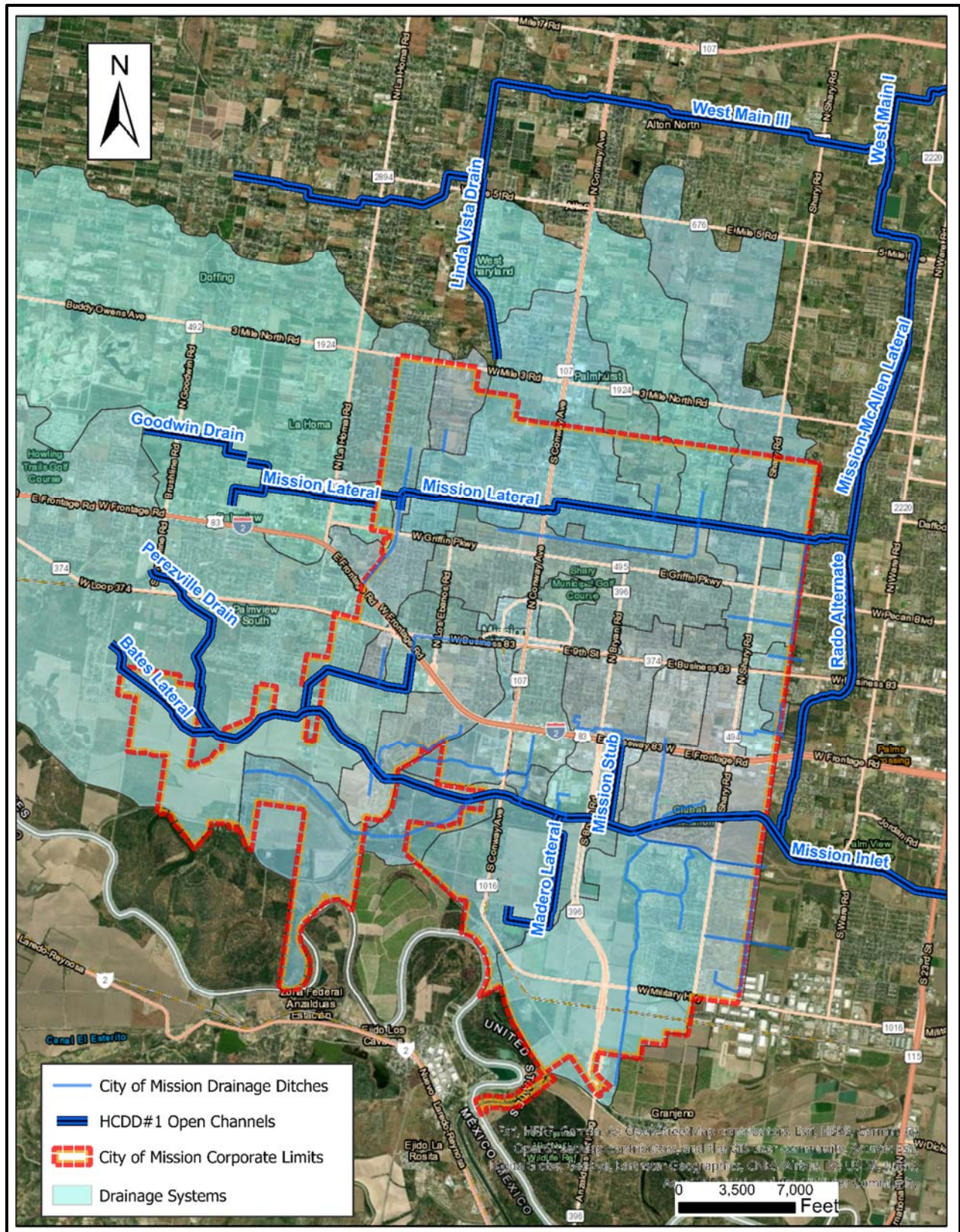


FIGURE 1. STUDY AREA

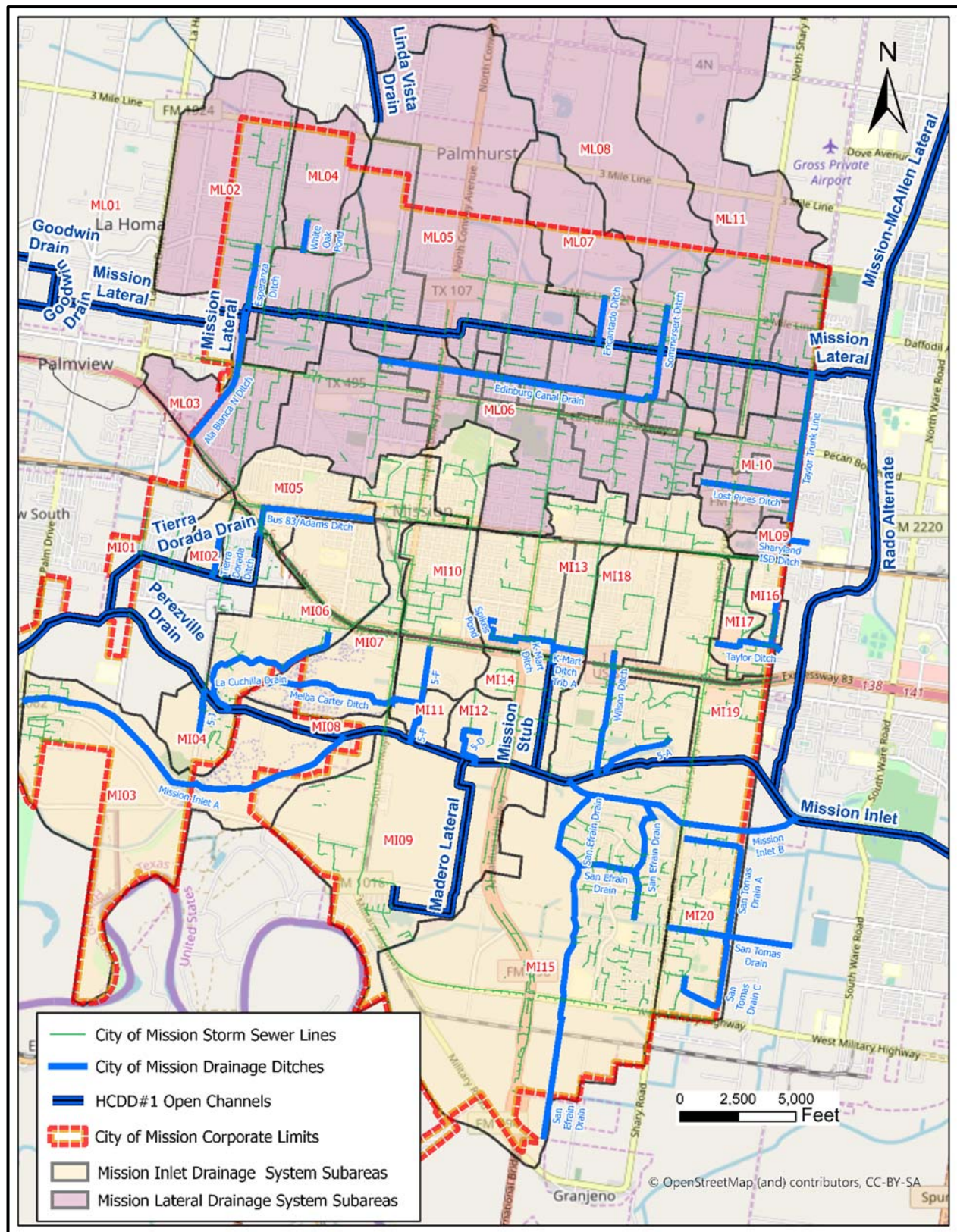


FIGURE 2. DRAINAGE SYSTEM NETWORK

PURPOSE AND OBJECTIVES

The purpose of this project is to develop a Master Drainage Plan to assist the City staff, City Council, and citizens in making decisions toward a more comprehensive and integrated drainage system approach that meets the needs of the community. The Master Drainage Plan was developed to provide a road map for improving the city's drainage infrastructure to address existing flooding conditions and prepare the city for future development and climatic conditions. A Capital Improvement Plan (CIP) was developed, which allows the City to plan and program the necessary investment required to implement the master plan.

Specific objectives of this project include:

- Identify locations and extent of flooding problems areas.
- Evaluate and optimize drainage improvement requirements (plans) to eliminate or reduce flooding problems under existing and ultimate development conditions.
- Estimate probable costs associated with proposed drainage system improvements.
- Prioritize proposed drainage improvement plans.
- Provide a digital record (GIS layers of proposed improvements, hydrologic and hydraulic models) that can be utilized by the city as base information for the future engineering phases and continuous system improvement.

SECTION II - PROJECT APPROACH

This section summarizes the overall project approach, main engineering tasks and workflows, project assumptions, and other necessary efforts in developing the Master Drainage Plan.

PLAN CONSIDERATIONS

Several factors were considered in evaluating the existing drainage systems (open ditches and underground storm sewers), identifying flooding problem areas and inadequate drainage systems, and determining and optimizing drainage improvements. These considerations are:

- Historical flooding areas within the City of Mission – information of historical flooding was obtained by geocoding the address locations of citizen flood calls
- Flood Hazard – The most current FEMA map for the City of Mission has an effective date of 1991. This was considered completely outdated and no further consideration was given to its use. However, CSE had developed a rain-on-grid HEC-RAS 2D model for the entire City limits and utilized it with 100-year rainfall to estimate likely ponding areas within the City. The City also provided HCDD#1 2D HEC-RAS models for both Mission Lateral and Mission Inlet. The Mission Lateral model included improvements to the channel that are currently part of the 2018 County Bond Projects. The proposed improvements at Mission Lateral were utilized as the base condition for this Master Drainage Plan so the plan recommendations have an underlying assumption that current 2018 bond funded projects for Mission Lateral will be completed. Because the 10-year event appeared to be more frequent in occurrence recently, the 10-year was the minimum standard this study evaluated. 2D XPSWMM models were created for both the Mission Inlet and Mission Lateral Areas and 10-year flows.
- Due to backwater conditions being an issue, it was necessary to improve several outfall channels. However, most open channels simply had either severely limited or no Right of Way (R.O.W) availability for expansion. The plan focused on maximizing ROW availability for all channels as available.

Figure 3 shows the 2D modeled 100-year flood risk map based on riverine flooding at both Mission Inlet and Mission Lateral. Also shown are the locations of reported historical flooding to streets and in some instances, property.

The HEC-RAS 2D model for Mission Inlet shows limited 100-year flood risk as a direct result of flows in the channel. However, the Mission Lateral model indicates riverine flood risk associated with bottlenecks at the two canal crossings at N Los Ebanos Rd and at N

Stewart (between N Bryan and N Shary). What this shows is that even if a perfect storm sewer system exists, these mapped areas of flood depth will be highly susceptible to flooding during a 100-year event. The modeled flood risk to streets and property during a 10-year storm is shown in **Figure 4**. The floodplain here shows more flood depth in the watershed as runoff ponds around storm sewer entry locations due to unfavorable tailwater conditions in the channels particularly at Mission Lateral. The modeled floodplain correlates better with the reported flood locations and formed the baseline risk for existing flooding that was addressed by this masterplan.

The City of Mission provided a GIS layer of the existing Storm Sewer and Ditch Drainage system. The available storm sewer data includes pipe size, lengths, flow line elevation, and manhole invert and rim elevations. However, the vast majority of the available storm sewer data does not include elevation data. Survey data was the prime source of data for all geometry elevations. Where any deficiencies in survey data existed, assumptions were made by utilizing LiDAR elevations for top of manhole and nearby sewer depths to establish invert elevations.

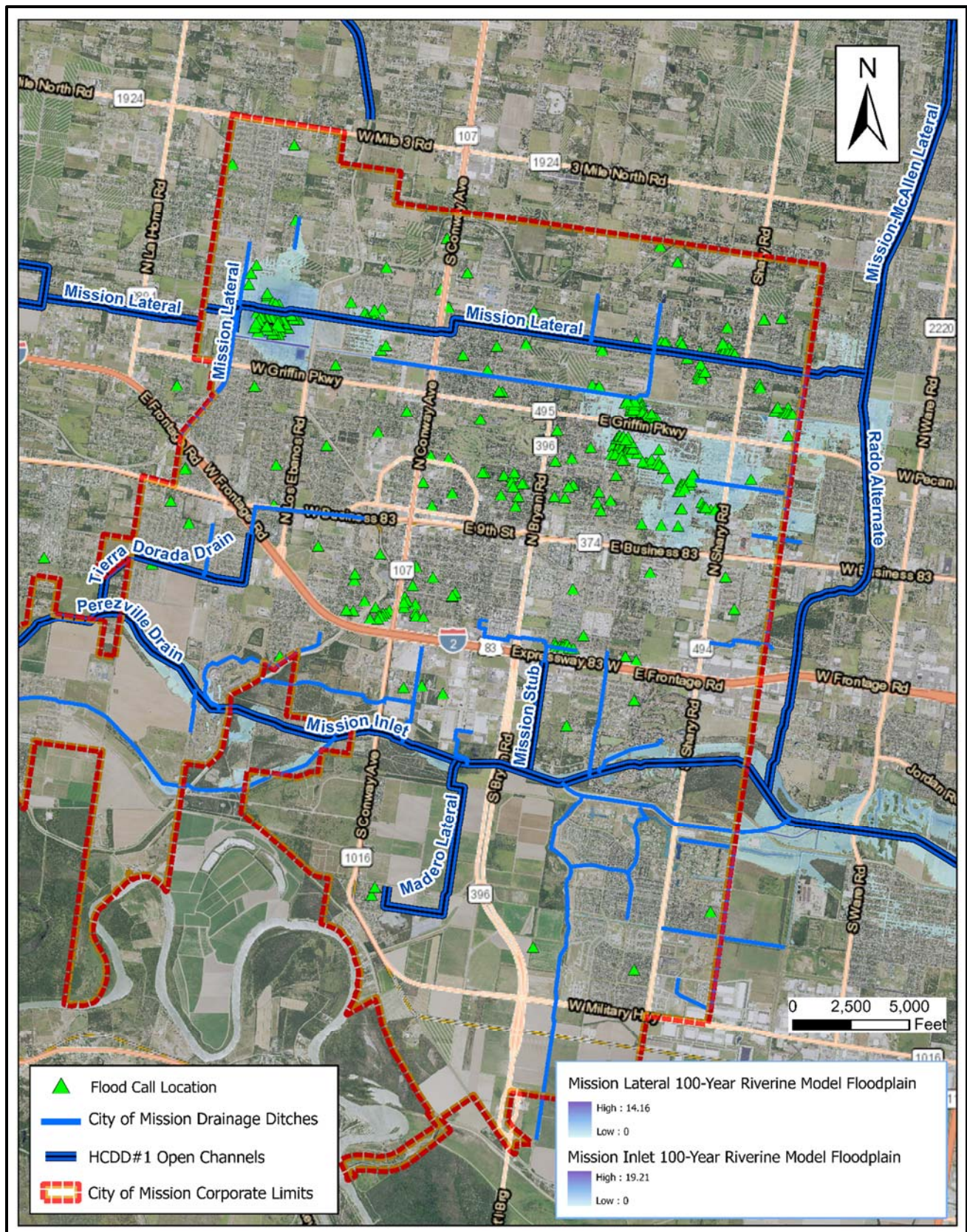


FIGURE 3. 100-YEAR MODEL RIVERINE FLOODPLAIN AND EXISTING FLOOD LOCATIONS



GEOGRAPHIC INFORMATION SYSTEM

Geographic Information Systems (GIS) provides a powerful workspace for storing, compiling, overlaying, integrating, updating and exchanging, analyzing, displaying, and managing geospatial data. It provides a consistent method for watershed and stream network delineations using digital elevation models (DEMs) of land-surface terrain. GIS provided a vital role, from GIS data manipulation to geospatial data layers creation in developing this project.

GIS Applications

ESRI ArcMap 10.7 and ArcGIS Pro 2.1 were used to perform the various spatial processing required for the project development, including base mapping, topographic data development, drainage system delineations, drainage and hydrologic parameter extraction, hydrologic and hydraulic model development and analyses, and drainage system inventory. The suite of ArcGIS tools utilized for the purpose of this project include Spatial Analyst, 3D Analyst and ArcHydro. Also, the HEC-RAS RAS Mapper GIS was utilized for hydraulic pre-processing of network geometry data and post-processing floodplains generated in HEC-RAS.

Digital base maps were compiled from various sources. These datasets were manipulated using conversion, geographical referencing, and integration based on standard GIS shape file format. GIS base map data layers for this project included raster aerial photographs, vector street maps, political boundaries (cities, counties, districts), and stream and drainage ditch centerlines.

Automated extraction of topographic parameters from DEMs has been recognized as a viable alternative to traditional surveys and manual evaluation of topographic maps, particularly as the quality and coverage of DEM data increase. A continuous DEM dataset was developed based on tiled 2018 High Resolution LiDAR datasets obtained from the United States Geological Survey (USGS). The LiDAR dataset has a resolution of 1m (3.28 feet). These tiled LiDAR datasets were converted to the feet-based State Plane Texas South projection system and elevation values converted from metric. The resulting tiled grid datasets were then merged into one single grid dataset while maintaining the resolution at 3.28 feet. By examining the high-resolution LiDAR DEM imagery, natural streams and drainage ditches are generally well defined by the LiDAR data. However, at many stream crossings (culverts and bridges), elevations on top of the structures were included in the DEM. If the original DEM data was used for automated drainage delineations, the natural drainage patterns could be erroneously modeled without removing these structures from the DEM.

To remove the dam-like hydraulic structures in the DEM, stream and drainage ditch lines and aerial photographs were used to identify stream crossing structure locations. Stream crossing breaklines were created at each hydraulic structure where the top elevation of the structure was included in the DEM. ArcHydro reconditioning tool was used to burn the resulting stream crossing breaklines into the DEM with a certain depth based on the adjacent flowline elevations at the structure. A hydro-enforced DEM was created.

In developing project hydrology and the HEC-HMS models, ArcHydro tools were extensively used to facilitate the delineation of drainage areas and extraction of drainage parameters. HEC-RAS mapper was utilized for the extraction of channel cross section geometry data for use in HEC-RAS and/or XPSWMM 2D.

As part of the watershed delineation effort, the GIS storm sewer layer was burned into the LiDAR DEM to ensure surface drainage patterns included the influence of the storm sewer systems. However, since the focus of drainage areas was also to reflect the overland drainage pattern of extreme storm events like the 100-year, there were some rare instances where portions of storm sewer lines were outside the watershed boundary because they were significantly against the prevailing slope and flow direction of the larger watershed boundary. Care was taken to ensure that the drainage area boundary was tweaked to ensure that each storm inlet had a catchment flow area.

Drainage catchment sub delineations were initially performed for the first round of drainage systems evaluated. However, the effect of watershed discretization resulted in a significant jump in peak flows when compared to the flows calculated for the containing system drainage area. For subsequent evaluations, rather than delineate areas to each storm sewer node, the HEC-HMS hydrograph for the containing system area was applied in XPSWMM 2D as a precipitation Runoff on Grid input to the lowest point in the drainage area and let the program automatically distribute the hydrograph to the wet cells and allow them to drain to their nearest input node. This was performed for all subareas where the primary entry to the drainage system was via multiple upstream storm sewer nodes. For subareas that for example were drainage ditch only, the hydrograph was input directly into the upstream node of the 1D conduit. All drainage catchment delineations were verified based on street patterns, aerial photographs, and field visits.

GIS Feature Layers

As part of the engineering efforts in developing the master drainage plan, a set of GIS data layers were created, which provide a digital version of the master drainage plan. The GIS data layers can be updated by incorporating future drainage projects and provide an easy way to locate drainage features such as:

- Locations of storm sewer and manholes

- Locations of drainage ditches and hydraulic structures (bridges and culverts)
- Characteristics of drainage systems (pipe shape, sizes, material, sizes, flowline, channel sizes, and structural sizes)
- Flood prone areas
- Soil and land use data

The common datum, projection, and coordinate system for this project are:

- Horizontal Datum - North American Datum 1983 (NAD83) (Feet)
- Vertical Datum - North American Vertical Datum 1988 (NAVD88)
- Projection - Lambert Conformal Conic
- Coordinate System - State Plane Texas South 4205

PROJECT DATA DEVELOPMENT

Pertinent project data, previous drainage studies, construction plans, field survey, aerial mapping, soil and land use maps, were collected from various sources, including local, state and Federal agencies. Compilation of GIS datasets required conversion of file formats and coordinates systems, as well as geographical referencing of nonspatial datasets.

Flooding History

A list of 416 records was provided by the City with the addresses of locations that reported flooding. Also, several photographs were provided showing flooded streets and bank full drainage facilities. The data was geocoded as point files and utilized as part of the limited model verification and calibration process.

Drainage Network

A GIS file with approximately 160 miles of Storm Sewer mains, and 36 miles of Drainage Ditches were received from the City. A generalized version of the file was constructed for use in the model. The file had very good pipe size information available for all circular pipe. However very limited elevation data was available for all nodal points (manholes, inlets, outflows) and no size or elevation data was available for culverts or incorrect sizes were attributed for non-circular pipes in the storm layer. All gaps were filled using Survey Data, LiDAR, and visual estimates from street view or 3D satellite imagery.

LiDAR Data

Tiled 2018 LiDAR datasets in IMAGINE format for the Hidalgo County area was extracted from the South Texas dataset obtained from the United States Geological Survey (USGS). The tiled LiDAR data for the study area was converted to ESRI grid format and merged

into a single continuous dataset using ArcGIS tools, as discussed in detail in the Geographic Information System (GIS) Section.

Field Survey Data

Extensive field survey data was collected by Javier Hinojosa Engineering for this project. Approximately 3,500 GIS data points were received including channel cross-section, hydraulic structure data points, storm sewer manhole invert and rim elevations, outfall pipe elevations, and bridge. Hydraulic structure data included information related to bridges and culverts, within each drainage ditch corridor. The field survey data is referenced to NAD 83 State Plane Coordinate System – Texas South and the vertical datum of NAVD 88. These datum references are consistent with the coordinate system and vertical datum of the available mosaicked and re-projected USGS LiDAR data utilized for the project. The surveyed data was used in combination with the LiDAR dataset to create the geometry used for integrated storm sewer and ditch modeling in the XP SWMM 2D hydraulic modeling analysis.

Soil Map

Hydrologic soil group type is an important hydrologic parameter for Natural Resource Conservation Service (NRCS) dimensionless unit hydrograph rainfall-runoff hydrologic modeling. Soil data and Hydrologic Soil Group (HSG) was assigned to each subarea based on pre-designated groupings for the entire United States provided by NRCS. The NRCS service is available as live gridded data via the living atlas on ArcGIS online for direct geoprocessing.

Land Use Map

Land use within a drainage basin generally has the greatest impact on the rainfall – runoff relationship. Land Use information was based on GIS Parcel Layers obtained from the Hidalgo County Appraisal District. The parcel maps helped confirm current or future land use especially when determining developable land or land possibly available for ROW. Land use information was also developed for input to the XPSWMM 2D model. Bing data was used as source for building footprints and census data was utilized to create roadway landuse polygons.

Aerial Photographs

2016 70cm National Agricultural Imagery Program (NAIP) was utilized in addition to satellite image services like Google, Bing, and ESRI. 2018 NAIP imagery was available for Hidalgo County from TNRIS but the data inexplicably stopped right on the eastern boundary of the City of Mission.

DRAINAGE BASIN MODELING

Drainage basin modeling analysis included drainage area delineations, watershed and hydrologic parameters estimation, development of HEC-HMS hydrologic models, computation of peak flows and hydrographs at various locations for various storm events.

Drainage Area Delineation

Drainage areas were delineated using the LiDAR DEM dataset developed for the project area. LiDAR-based DEM provides a more detailed terrain representation than traditional USGS DEM. ArcGIS tools including Spatial Analyst, 3D Analyst, ArcHydro and GeoHMS were used for automation of drainage basin delineations and extraction of drainage parameters for the hydrologic models for this study. ArcHydro and GeoHMS have the capability to process DEM datasets for automated drainage and stream delineations and generation of spatially based hydrologic input files for HEC-HMS. Automated drainage delineation included a series of spatial data processing steps to derive the drainage networks from the DEM dataset. Specific steps consisted of computing the flow direction, flow accumulation, stream definition, watershed delineation, watershed polygon processing, stream processing, and watershed aggregation. The resulting delineations were verified by consulting with city engineering staff, aerials photographs, and field visits.

HEC-HMS Modeling

The Hydrologic Modeling Systems (HEC-HMS) modeling program was used to compute peak flows and hydrographs at various locations within the drainage systems for various storm events. The HEC-HMS program is the most widely used software package for hydrologic modeling analysis and was developed by the Hydrologic Engineering Center (HEC) of the U.S. Army Corps of Engineers (USACE). The program is designed to simulate the precipitation-runoff-routing processes of watershed systems. HEC-HMS requires three input components: basin component, precipitation component, and control component. The basin model was generated using GIS based on the LiDAR DEM dataset. The basin file contains the schematic, the hydrologic methods, and watershed and hydrologic parameters. The basin schematic represents drainage patterns with the connectivity of the hydrologic elements (subbasin, reach, junctions, detentions, and diversions).

ESRI's ArcHydro was used to estimate hydrologic parameters by providing tables of physical characteristics of the streams and watersheds. When the streams and subbasins delineation were finalized, stream physical characteristics, such as longest flow lengths, upstream and downstream elevations, and slopes, were extracted from the terrain data.

These physical characteristics were then exported and used externally to estimate other drainage and hydrologic parameters.

Precipitation Data

The frequency-based hypothetical storm method was selected within the HEC-HMS meteorologic model. This method defines a storm event that the precipitation depths that have a consistent exceedance probability for various storm durations. Using this method requires input of depths of precipitation for various durations and frequencies. NOAA's Atlas 14 Region 11 precipitation data for Texas was utilized in this study (see **Table 1**). The data was created and last revised in 2018 and reflects the increased rainfall observed in recent years probably except for 2018. The data utilized was for the point at the center of Mission, TX located midway between the NOAA station at McAllen International Airport and a station at La Joya, TX.

TABLE 1: RAINFALL DEPTHS-DURATION-FREQUENCY (NOAA ATLAS 14)

Duration	Precipitation Frequency Estimates (inches)						
	Average Recurrence Interval (years)						
	2-Year	5-Year	10-Year	25\l-Year	50-Year	100-Year	500-Year
5-min	0.517	0.664	0.785	0.952	1.08	1.21	1.53
10-min	0.824	1.06	1.25	1.52	1.73	1.94	2.43
15-min	1.04	1.32	1.56	1.89	2.15	2.41	3.04
30-min	1.46	1.86	2.19	2.64	2.98	3.33	4.23
60-min	1.88	2.42	2.86	3.47	3.93	4.4	5.68
2-hr	2.27	2.92	3.5	4.34	5.03	5.76	7.74
3-hr	2.48	3.21	3.88	4.88	5.72	6.66	9.16
6-hr	2.86	3.72	4.54	5.8	6.9	8.13	11.5
12-hr	3.24	4.27	5.24	6.72	7.99	9.43	13.5
24-hr	3.64	4.85	5.97	7.65	9.07	10.7	15.3
2-day	4.1	5.45	6.71	8.58	10.2	12	16.9
3-day	4.42	5.87	7.2	9.16	10.8	12.6	17.7
4-day	4.67	6.19	7.56	9.57	11.2	13.1	18.2
7-day	5.23	6.87	8.31	10.4	12.1	13.9	19.1
10-day	5.68	7.42	8.92	11.1	12.8	14.6	19.8
20-day	6.89	8.97	10.7	13	14.8	16.7	21.9
30-day	7.86	10.2	12.1	14.7	16.5	18.5	23.8
45-day	9.24	11.9	14	16.9	19	21.2	26.8
60-day	10.5	13.3	15.7	18.9	21.3	23.7	29.6

The frequency-based hypothetical storm meteorologic model was used for this study. This model employs a balanced and nested rainfall distribution, which positions the block of

maximum incremental depth at the middle of the required duration. The remaining blocks are arranged then in descending order, alternately before and after the central block.

Unit Hydrograph

A rainfall/runoff transformation is required to convert rainfall excess (total rainfall minus infiltration losses) into runoff from a particular drainage area. The unit hydrograph is a well-known, commonly used empirical model of the relationship of direct runoff to excess precipitation. The unit hydrograph method represents a hydrograph generated from one unit (inch) of direct runoff and is a nationally accepted, standard engineering practice approach. The underlying concept of the unit hydrograph is that the runoff process is linear, so the runoff from greater or less than one unit of rainfall is simply a multiple of the unit runoff hydrograph.

The NRCS Dimensionless Unit Hydrograph method was used for this study. This method has been used for several studies in the area. The standard dimensionless unit hydrograph was an “averaged” hydrograph derived from a large number of natural unit hydrographs from watersheds ranging in sizes and geographical locations. Using the standard NRCS UH, it is assumed that 37.5 percent of the total runoff volume occurring in the rising side of the curvilinear hydrograph (or the receding time from the peak is 1.67 times of the time to peak). Based on this assumption and with consideration of unit conversion factors in the equation (such as square miles to acres, acre to cubic feet, and hour to seconds) in peak discharge computation, a peaking rate factor (PRF) of 484 was derived as shown in the following equation:

$$Q_p = \frac{484A}{T_p} \quad \text{Equation 1}$$

in which T_p is time of peak and is related to the duration of the unit of excess precipitation as:

$$T_p = \frac{\Delta t}{2} + t_{lag} \quad \text{Equation 2}$$

in which Δt is the excess precipitation duration and t_{lag} is the subbasin lag.

Peaking Rate Factor (PRF)

Recent studies have shown that peaking rate factor (PRF) has a range of value from below 100 to more than 600. The University of Florida has found that a peak rate factor of 75-100 is appropriate for Flatwoods watersheds. A study done by University of Lamar, University of Houston, and Texas Tech University has shown a mean PRF of 370 from

watersheds including Trinity River, Brazos River, Colorado River, San Antonio River in Texas. Since the City of Mission is located in the Gulf Coastal Plain, it is obvious that the constant peaking rate factor of 484 does not represent the runoff behavior for the study area.

The U.S. Bureau of Reclamation (USBR) developed a dimensionless unit hydrograph for drainage design purposes for a project entitled “Valley Gravity Project” in 1948. The dimensionless unit hydrograph was obtained by averaging two study areas with 48.56 and 22.83 square miles respectively within the Valley. By examining the dimensionless unit hydrograph, a PRF value of 130 was derived.

A theoretical PRF was computed for each subarea with a constraint minimum PRF of 150. Most subareas were at the minimum. A 150 PRF value was used for this project. This value is consistent with previous project experience within the Hidalgo County

Initial Abstraction

The initial loss parameter represents the rainfall volumes that do not contribute to the excess runoff. Typical representative rainfall losses include land-cover interception, depression storage, and infiltration. The NRCS Runoff Curve Number (CN) method was used for this project. This method relates accumulated runoff to accumulated rainfall with an empirical curve number (CN). CN is a function of land use and cover, soil classification, hydrologic conditions, and antecedent soil moisture. The initial abstraction is approximated by the following empirical equation:

$$I_a = 0.2S \quad \text{Equation 3}$$

Where S is the potential maximum retention and defined as:

$$S = (1000/CN) - 10 \quad \text{Equation 4}$$

Curve Number (CN)

The CN for a drainage basin can be estimated as a function of land use, soil type, and antecedent watershed moisture, using tables published by the NRCS. With these tables and knowledge of the soil type and land use, a single-valued CN can be found. For a watershed that consists of several soil types and land uses, a composite CN is calculated as:

$$CN_{\text{composite}} = \frac{\sum A_i CN_i}{\sum A_i} \quad \text{Equation 5}$$

The NRCS runoff curve numbers are published for three types of Antecedent Moisture Conditions (AMC): I, II and III. AMC I represents dry soil conditions and AMC III represents saturated soil conditions. AMC I is used for areas that have the lowest runoff potential. In general, AMC II is considered to be the typical soil condition; however, studies have indicated that AMC II is not appropriate in all parts of Texas. Investigations have shown that the average condition ranges from AMC I in west Texas to between AMC II and III for east Texas. Runoff curve numbers vary from 0 to 100, with the smaller values representing soils with lower runoff potential and the larger values representing soils with higher runoff potential. AMC I is more appropriate to represent average condition for the study area with dry soil conditions.

A pervious CN number was associated with each hydrologic soil group for this study and a composite CN computed based on the composite HSG for each subarea.

Lag Time

The lag time represents the time difference between hyetograph center of mass to the peak of the hydrograph for a subbasin. The following NRCS Lag Time equation was used for this study:

$$L_p = \frac{L_w^{0.8} [(1000 / CN) - 9]^{0.7}}{31.67 S^{0.5}} \quad \text{Equation 6}$$

Where L_p is the lag time in minutes, L_w is the length of the longest flow path in feet, S (%) is the slope of the longest flow path, and CN is the composite curve number.

The computed lag time was applied in HEC-HMS with the 150 PRF as transform value for

Percent of Imperviousness

Impervious cover reflecting 2011 development was available as a raster layer in the Living Atlas on ArcGIS from the USGS National Land Cover Database (NLCD). Zonal statistics were utilized to obtain the composite impervious cover for each subarea. Parcel data from, 2016 and newer satellite maps, and the City's subdivision base map were utilized to enhance the impervious cover information to ensure that current and future development conditions were adequately represented. The assumption was that all developable land will undertake development that is subject to mitigation requirements but will overall have a net increase in impervious limited to 30%.

Reach Routing

No reach routing was performed in HEC-HMS. Because unsteady flow hydraulics was performed using XPSWMM 2D or HEC-RAS 2D, all flows were routed within the hydraulics model.

INTERGRATED DRAINAGE DITCH & STORM SEWER MODELING

The 31 Drainage Systems delineated for the study area contain 35 drainage channels and several storm sewer outfall systems. Further sub-delineation was performed within each drainage system into individual outfall systems. A total of 72 outfall systems were delineated and evaluated. The Mission Lateral System contains 41 drainage outfall system areas while Mission Inlet contains 31 drainage outfall system areas. An integrated 1D-2D connected system approach was utilized for the hydraulic modeling which was primarily performed in XPSWMM 2D as discussed later.

HEC-RAS & XP SWMM Hydraulic Modeling

The U.S. Army Corps of Engineers' HEC-RAS hydraulic software package was used for initial open ditch modeling analysis for this project. The HEC-RAS program is the most widely used software package for open channel hydraulic modeling analysis. The program was designed to perform one-dimensional steady and 1-D and/or 2-D unsteady flow hydraulic calculations for a full network of natural and constructed channels. The HEC-RAS model creation requires definition of the land surface to be modeled and flow data for hydrologic events analyzed. The geometric and flow data is used to calculate water surface profiles from energy loss computations.

Channel geometric data is used to characterize the flow-carrying capacity of the stream and adjacent floodplain. Reach lengths are used to define the distance between cross sections and for energy loss calculations in HEC-RAS and indicated the path of flow between cross sections. Various energy loss coefficients are required for HEC-RAS hydraulic models, including channel and overbank friction, contraction-expansion losses, bridge losses and miscellaneous losses.

Base models for both Mission Lateral and Mission Inlet channels were obtained from HCDD#1. The Mission Lateral Model was important because it contained proposed conditions geometry for existing 2018 bond projects along the channel. This proposed condition was assumed to be the base condition for Mission Lateral going forward in this masterplan study. The assumed base condition for Mission Lateral included the following:

- Channel Improvements along the reach of Mission Lateral through the City of Mission with widening and deepening of the channel to improve conveyance capacity
- Improved bridge and culvert crossings throughout the Mission City reach including relief at the Mission Canal crossing choke point at N Los Ebanos Rd.
- Removal of the culvert outfall restricting flow from the Edinburg Canal Drain

- Improvement of the channel outlet conditions at the confluence with Mission-McAllen Lateral/Rado Alternate.

The HEC-RAS Ras Mapper was used to create the geometries of all ditches and existing detention basins. The geometry extent in HEC-RAS was limited to channel banks only since overbanks and other floodplain areas were to be modeled in 2D. The existing conditions geometries were then imported into two XPSWMM 2D models.

1. The Mission Lateral model contained storm sewer and drainage ditch geometries for 41 drainage outfall areas to cover all 11 Drainage Systems in the Mission Lateral subwatershed.
2. The Mission Inlet model contained storm sewer and drainage ditch geometries for 31 drainage outfall areas to cover all 20 Drainage Systems in the Mission Inlet subwatershed.

Bridge information was reviewed, and corrections made as necessary to adequately reflect the HEC-RAS geometry. HEC-HMS hydrographs were then input to the model. In the few areas where a subarea was served by one open channel and no storm sewers, the hydrograph for the subarea was input to the upstream node of the channel as a user defined inflow hydrograph. In most situations a subarea was served by storm sewer and receiving ditch. In such cases with multiple entry points into the drainage system, the subarea hydrograph was input as a Runoff on Grid (ROG) scheme. Depending on best fit, the ROG was applied by equal distribution across the cells that make up the specified subarea boundary, or by lowest point application after which the hydrograph is equally distributed among the wet cells.

The 2D setup was performed for each of the two XPSWMM 2D models. Each model utilized a 30-ft grid mesh with 5 second time steps in the 2D domain. 2D model setup also included designating 2D inactive areas such as channel sections to eliminate double accounting of storage for areas in the 1D model, creating 1D-2D Connection Interfaces, and assigning Manning's N for roadway, building, and pasture land uses. 1D tailwater conditions were based on the HCDD#1 HEC-RAS models, while the tailwater boundary condition for the 2-D areas was an elevation below the lowest 2-D cell to essentially simulate a free outfall.

Alternative channel geometries were designed using the HEC-RAS Channel Modification tool to evaluate alternative channel improvements and using Bridge/Culvert module to analyze hydraulic structure modifications. Accepted modifications were then reflected in the proposed conditions XPSWMM models.

Roughness Coefficients

Various energy loss coefficients are required for hydraulic models, including channel and overbank friction, contraction-expansion losses, bridge losses and miscellaneous losses.

Typically, channel roughness is indicated by Manning's n-values. It is the most important of the hydraulic loss coefficients. The variation of water surface elevation along a stream is largely a function of the boundary roughness and the stream energy required to overcome friction losses. The N value varies with flow depth, alignment, amount and type of vegetation, and flow obstructions. For all hydraulic models in this study, a Manning's roughness coefficient of 0.04 was assumed for drainage ditches, and 0.06 for overbanks within the 1-D section of the XPSWMM model. In the 2-D areas, 0.025 was utilized for roadway polygons and a high Manning's value of 3 was assumed for building footprints beginning at elevations 1.5 feet above natural ground. All other areas were defaulted to an "Overland" land use category where a Manning's N of 0.06 was specified.

CAPITAL IMPROVEMENT PLAN (CIP)

The purpose of the CIP is to give the City a tool to plan its future capital improvement expenditures for drainage systems within the City. The CIP enables the City and its stakeholders to identify when projects can be implemented and to coordinate the schedule and funding. The CIP identifies the general characteristics of proposed drainage modifications or improvements required for the drainage systems that are currently considered to be inadequate relative to City's drainage design criteria and other factors.

Proposed improvements considered within the Capital Improvement Plan include:

- Storm Sewer enlargements
- Storm Sewer System Extensions
- Drainage ditch channel modifications
- Drainage ditch structure replacements/ modifications
- Detention basins
- Property Buyouts

Proposed Structural Measures

Proposed storm sewer improvements include the replacement and upsizing of the existing system, either portions or the entire system. Drainage ditch proposed improvements include channel modification including channel excavation and concrete riprap lining. Drainage ditch structure improvements include the replacement of existing culvert crossings or the addition of culvert barrels to the existing structure. Detention basins include the excavation

of tracts to provide storage volumes for the reduction of flow rate within the channel or to provide a lower tailwater condition for storm sewer systems.

Modifications to the existing drainage systems, both open ditches and underground storm sewers, were proposed based on extensive hydrologic and hydraulic modeling analyses to eliminate or significantly reduce the 10-year flood risk from storm sewer systems and reduce the 100-year under future conditions. Due to the urban density of the study area, there is limited opportunity to improve City owned open channels because of limited R.O.W

Proposed Non-Structural Measures

One of the most effective tools for flood damage reduction involves buyout and demolishing of structures that were built deep in flood prone areas where structural flood reduction projects are impractical. Structures in this situation were typically built years ago before detailed floodplain maps and studies were available and prior to the adoption of floodplain management regulations. The purchase or "buyout" of houses that are flood-prone has proven to be one of the most cost-effective tools in many communities, when used under the correct conditions. Buying and removing flood-prone structures is the best way to ensure that they are not damaged by floods in the future. When compared to the high costs of larger channels, stormwater detention basins or other flood damage reduction options, a buyout can be a more cost-effective method of addressing the risk to people and their property.

Flooding in the City of Mission is relatively shallow, however, there were some areas particularly in the Mission Lateral Drainage Systems where property buyout may be in the best long-term interests of the City.

CIP recommendations targeted areas with high risk of flooding to properties and roads as topmost Priority 1. Areas of potential flooding to local streets during the 10-year were addressed as Priority 2. Other areas were designated Priority 3 with the focus to ensure that drainage infrastructure was available to serve future development

Unit Cost

Probable construction costs associated with the proposed improvements were estimated based on unit cost information obtained from previous local projects.

Unit costs for conceptual design recommendations include:

- Channel excavation
- Bridge/culvert replacement
- Detention excavation
- Replacement of pavement

- Trench Safety Protection
- Traffic control
- Removal of existing storm sewer pipe and pavement
- Placement of new pipe, manholes, and inlets
- Replacement of pavement
- Dewatering
- Engineering contingency

The unit costs do not include any cost allowance for major utility relocations, additional pavement replacement beyond the alignment of the proposed system, or acquisition of additional rights-of-way. Furthermore, the cost of any hydraulic impact mitigation on receiving streams or ditches is not included.

SECTION IV – DRAINAGE BASIN EVALUATIONS & RECOMMENDATIONS

WATERSHED DELINEATIONS

There are 31 drainage systems and 72 subbasins that were delineated based on the LiDAR DEM dataset for this project using ArcHydro tools and HEC-GeoHMS extension. The 31 drainage systems cover approximately 95 square miles. Approximately 62 miles drains through the city via Mission Inlet main stem, and the remainder 33 square miles drains through the city via Mission Lateral.

The Mission Lateral subareas are shown in **Figure 5**. As seen in **Figure 5**, coverage of the delineated Mission Lateral Drainage Systems extends beyond the city limit. The 11 Mission Lateral Drainage Systems and 41 associated outfall and ditch subareas are listed in **Table 2**.

The Mission Inlet subareas are shown in **Figure 6**. Except for the large piece outside the boundary to the West, coverage of the delineated Mission Inlet Drainage Systems does not extend beyond the city limit. The 20 Mission Inlet Drainage Systems and 31 associated outfall and ditch subareas are listed in **Table 3**.



TABLE 2: MISSION LATERAL DRAINAGE SYSTEMS

Rec#	Drainage System	Drainage System Subarea	Ditch System	Storm System	Owner	Priority
1	ML01	ML01	Mission Lateral Upper	Multiple	HCDD#1	3
2	ML02	ML02	Esperanza Ditch	Esperanza	CoM	2
3	ML03	ML03	Ala Blanca N Ditch	Tulipan	CoM	2
4	ML04	ML04	White Oak Pond	Basham	CoM	1
5	ML05	ML05a	Mission Lateral	Leandro	CoM	1
6	ML05	ML05b	Mission Lateral	Gabriel	HCDD#1	1
7	ML05	ML05c	Mission Lateral	Trosper	HCDD#1	1
8	ML05	ML05d	Mission Lateral	Holland B	HCDD#1	2
9	ML05	ML05e	Mission Lateral	Mayberry C	HCDD#1	2
10	ML05	ML05f	Mission Lateral	Miller	HCDD#1	2
11	ML05	ML05g	Mission Lateral	Alyssa	HCDD#1	2
12	ML05	ML05h	Mission Lateral	Mayberry B	HCDD#1	2
13	ML05	ML05i	Mission Lateral	Stewart B	HCDD#1	2
14	ML06	ML06a	Edinburg Canal Drain	Holland A	CoM	2
15	ML06	ML06b	Edinburg Canal Drain	Stacie	CoM	3
16	ML06	ML06c	Edinburg Canal Drain	Conway A	CoM	2
17	ML06	ML06d	Edinburg Canal Drain	Conway B	CoM	2
18	ML06	ML06e	Edinburg Canal Drain	Augusta	CoM	2
19	ML06	ML06f	Edinburg Canal Drain	Thornwood	CoM	2
20	ML06	ML06g	Edinburg Canal Drain	Mayberry A	CoM	2
21	ML06	ML06h	Edinburg Canal Drain	Woodland	CoM	3
22	ML06	ML06i	Edinburg Canal Drain	Bryan	CoM	1
23	ML06	ML06j	Edinburg Canal Drain	Orange	CoM	3
24	ML06	ML06k	Edinburg Canal Drain	Stewart A	CoM	1
25	ML06	ML06l	Edinburg Canal Drain	Sundrop	CoM	1
26	ML06	ML06m	Edinburg Canal Drain	Tulip	CoM	1
27	ML06	ML06n	Edinburg Canal Drain	Glasscock	CoM	1
28	ML06	ML06o	Edinburg Canal Drain	Solar	CoM	3
29	ML06	ML06p	Edinburg Canal Drain		CoM	3
30	ML07	ML07	Encantado Ditch	Encantado	CoM	2
31	ML08	ML08	Sommersert Ditch	Stonegate	CoM	2
32	ML09	ML09	Sharyland ISD	Brentwood	CoM	3
33	ML10	ML10a	Taylor Trunk Line	Country Club	CoM	2
34	ML10	ML10b	Lost Pines Ditch	Sunset	CoM	1
35	ML10	ML10c	Taylor Trunk Line	Griffin	CoM	2
36	ML10	ML10d	Taylor Trunk Line	Driftwood	CoM	1
37	ML11	ML11a	Mission Lateral	Sunrise	CoM	1
38	ML11	ML11b	Mission Lateral	Shary B	HCDD#1	1
39	ML11	ML11c	Mission Lateral	Wernecke	CoM	3
40	ML11	ML11d	Mission Lateral	Grapefruit	HCDD#1	2
41	ML11	ML11e	Mission Lateral	Norma	HCDD#1	2

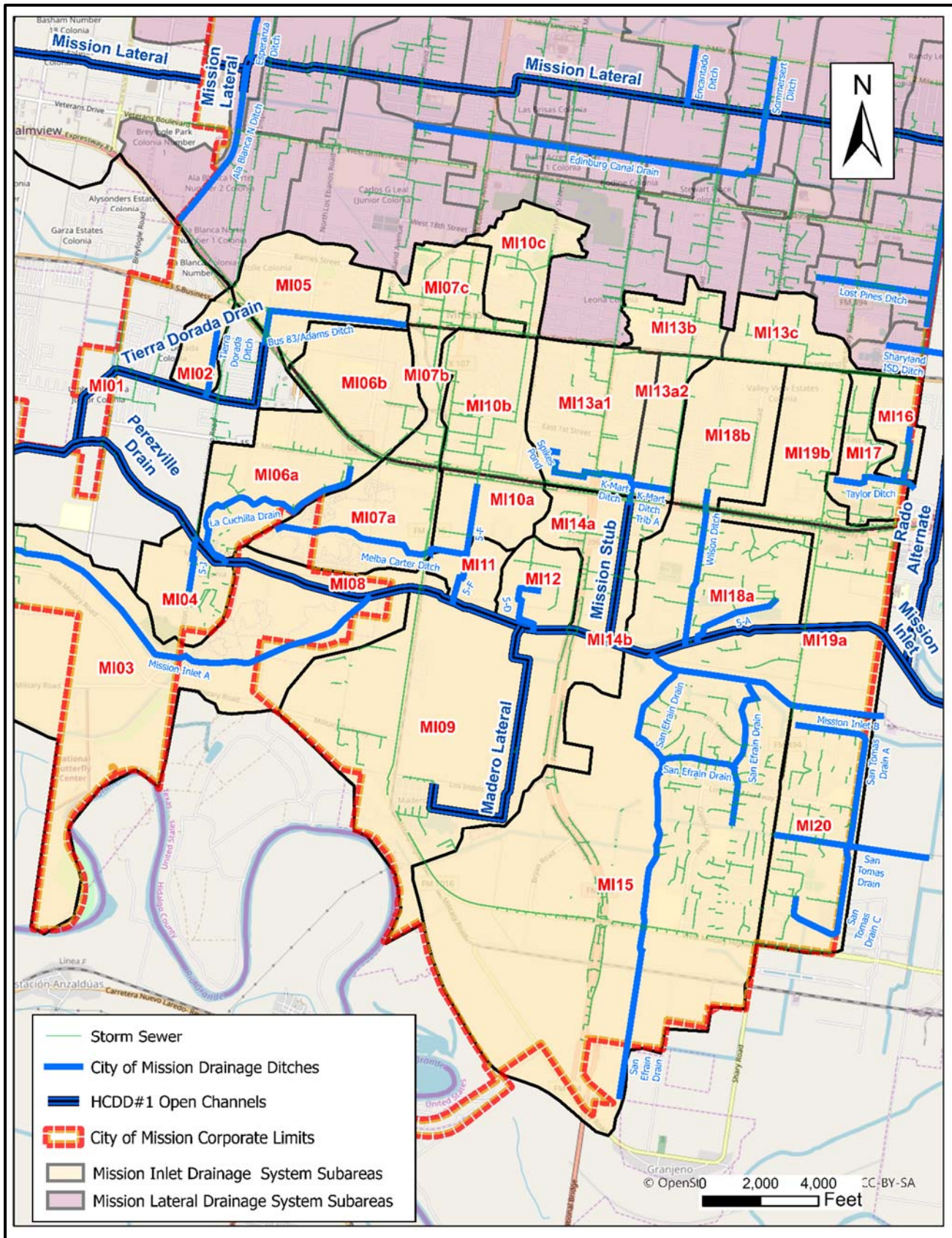


FIGURE 6. MISSION INLET DRAINAGE SYSTEMS MAP

TABLE 3: MISSION INLET DRAINAGE SYSTEMS

Rec#	Drainage System	Drainage System Subarea	Ditch System	Storm System	Owner	Priority
1	MI01	MI01	Perezville Drain		HCDD#1	3
2	MI02	MI02	Tierra Dorada Ditch	El Dorado	CoM	2
3	MI03	MI03	Mission Inlet Trib 01	Hummingbird	CoM	2
4	MI04	MI04	5-J	Lake View	CoM	3
5	MI05	MI05	Business83/Adams Ditch	Greenlawn	CoM	2
6	MI06	MI06a	La Cuchilla	Erma	CoM	2
7	MI06	MI06b	Nicholas & Leal Pond	Leal	CoM	2
8	MI07	MI07a	Melba Carter Ditch	Farias	CoM	3
9	MI07	MI07b	Melba Carter Ditch	Guadalupe	CoM	1
10	MI07	MI07c	Melba Carter Ditch	Perkins	CoM	2
11	MI08	MI08	Hike & Bike Trail Ditch		CoM	3
12	MI09	MI09	Madero Lateral	Los Indios	HCDD#1	2
13	MI10	MI10a	5-F	Melba Carter	CoM	2
14	MI10	MI10b	5-F	Astroland	CoM	1
15	MI10	MI10c	Golf Course Ditch	Keralum	CoM	2
16	MI11	MI11	5-F		CoM	3
17	MI12	MI12	5-D	Bus Park	CoM	3
18	MI13	MI13a1	KMart Ditch	Spikes	CoM	1
19	MI13	MI13a2	KMart Ditch A	Jupiter	CoM	1
20	MI13	MI13b	KMart Ditch A	Elm	CoM	2
21	MI13	MI13c	KMart Ditch	Ragland	CoM	2
22	MI14	MI14a	Mission Stub	Mission Medical Center	HCDD#1	3
23	MI14	MI14b	Mission Stub	Travis	HCDD#1	3
24	MI15	MI15	San Efrain Drain	Sharyland Plantation A	CoM	3
25	MI16	MI16	Rado Alternate	Rosalinda	CoM	3
26	MI17	MI17	Taylor Ditch	Taylor	CoM	2
27	MI18	MI18a	Wilson Ditch	Frio	CoM	2
28	MI18	MI18b	Wilson Ditch	Mission Palms	CoM	2
29	MI19	MI19a	Mission Inlet	Sabine	HCDD#1	3
30	MI19	MI19b	Mission Inlet	Home Depot	HCDD#1	3
31	MI20	MI20	San Tomas Drain	Sharyland Plantation B	CoM	3

HYDROLOGIC ANALYSIS

All drainage areas were simulated in a single HEC-HMS model. Peak flows and hydrographs were computed for each frequency storm event. Full development watershed and hydrologic parameters and peak discharges for the 31 drainage system subareas in the Mission Inlet Subwatershed and for the 41 areas in Mission Lateral are shown in **Tables 4 and 5**.

TABLE 4. MISSION INLET DRAINAGE SYSTEMS HYDROLOGIC PARAMETERS AND PEAK FLOW

DA NAME	Area Ac	Area SqMi	Watershed Slope Pct	Imp%	HSG	CN	Lag (min)	Peak Flow 10-Year	Peak Flow 100-Year
MI01	26303.18	41.0987	0.13	8%	B	64	261	261.1	702.5
MI02	97.77	0.1528	1.10	53%	B	81	68	68.1	140.3
MI03	1749.32	2.7333	0.17	11%	C	77	155	154.5	348.8
MI04	219.67	0.3432	0.17	11%	B	65	23	22.6	60.9
MI05	351.87	0.5498	0.23	48%	B	79	74	74.2	165.3
MI06a	430.68	0.6729	0.19	29%	B	72	53	53.2	129.3
MI06b	329.98	0.5156	0.34	42%	B	77	76	75.8	173.1
MI07a	381.24	0.5957	0.72	9%	C	76	105	105.4	243.4
MI07b	121.16	0.1893	0.17	49%	B	79	35	34.7	77.2
MI07c	210.26	0.3285	0.08	63%	B	84	45	45.3	95.1
MI08	115.98	0.1812	0.68	2%	D	80	60	60.3	128.6
MI09	1523.87	2.3810	0.43	21%	C	79	233	233.3	518.9
MI10a	201.32	0.3146	0.38	41%	B	76	55	55.3	127.8
MI10b	347.98	0.5437	0.32	57%	B	82	100	100.4	215.3
MI10c	231.21	0.3613	0.14	35%	B	74	36	36.4	86.3
MI11	108.02	0.1688	0.46	23%	C	80	50	49.9	107.4
MI12	170.33	0.2661	0.39	31%	B	72	40	40.2	98.3
MI13a1	443.29	0.6926	0.44	51%	B	80	119	119.0	261.3
MI13a2	160.35	0.2505	0.37	66%	B	85	77	76.8	155.8
MI13b	160.47	0.2507	0.27	52%	B	80	52	52.1	114.0
MI13c	198.86	0.3107	0.07	37%	B	75	26	25.6	59.9
MI14a	225.49	0.3523	0.45	34%	B	74	57	57.0	135.4
MI14b	91.94	0.1437	0.36	35%	B	74	30	29.7	70.0
MI15	2769.02	4.3266	0.13	16%	C	78	190	189.8	423.7
MI16	114.07	0.1782	0.62	50%	B	80	58	58.0	123.9
MI17	184.94	0.2890	0.61	39%	B	75	60	59.7	139.1
MI18a	545.02	0.8516	0.22	31%	B	72	65	64.9	157.7
MI18b	366.68	0.5729	0.34	53%	B	81	100	99.7	216.3
MI19a	622.26	0.9723	0.14	21%	C	79	87	86.6	192.3
MI19b	313.26	0.4895	0.31	54%	B	81	88	87.9	190.8
MI20	786.52	1.2289	0.61	32%	C	82	213	213.1	457.2

TABLE 5. MISSION LATERAL DRAINAGE SYSTEMS HYDROLOGIC PARAMETERS AND PEAK FLOW

DA NAME	Area Ac	Area SqMi	Watershed Slope Pct	Imp%	HSG	CN	Lag (min)	Peak Flow 10-Year	Peak Flow 100-Year
ML01	7958.62	12.4353	0.19	21%	B	69	230	230.2	575.6
ML02	1061.13	1.6580	0.29	25%	B	70	98	97.7	242.4
ML03	497.70	0.7777	0.11	36%	B	74	52	51.9	122.2
ML04	385.07	0.6017	0.34	17%	B	67	48	47.5	124.6
ML05a	280.39	0.4381	0.19	17%	B	67	31	30.7	80.4
ML05b	169.41	0.2647	0.11	37%	B	75	28	28.1	65.8
ML05c	448.64	0.7010	0.36	27%	B	71	67	67.2	166.2
ML05d	87.97	0.1375	0.18	29%	B	72	20	19.5	47.7
ML05e	1645.82	2.5716	0.18	24%	B	70	104	104.1	256.8
ML05f	48.46	0.0757	0.02	51%	B	80	8	7.9	17.4
ML05g	29.29	0.0458	0.19	45%	B	78	14	14.0	30.8
ML05h	95.52	0.1493	0.17	33%	B	73	22	21.6	52.2
ML05i	158.77	0.2481	0.15	21%	B	69	22	22.0	56.0
ML06a	603.73	0.9433	0.20	38%	B	75	79	79.1	184.8
ML06b	18.34	0.0287	0.93	32%	B	73	14	13.6	30.5
ML06c	161.75	0.2527	0.44	43%	B	77	54	53.6	121.6
ML06d	46.79	0.0731	0.28	65%	B	85	31	31.1	61.8
ML06e	26.73	0.0418	0.74	41%	B	76	19	19.0	41.3
ML06f	20.31	0.0317	0.10	45%	B	78	9	8.7	19.3
ML06g	40.76	0.0637	0.07	46%	B	78	12	11.8	26.6
ML06h	51.20	0.0800	0.44	34%	B	74	22	22.0	51.2
ML06i	443.25	0.6926	0.11	38%	B	75	51	51.4	119.7
ML06j	53.45	0.0835	0.33	24%	B	70	16	16.1	40.3
ML06k	240.35	0.3755	0.28	53%	B	80	67	67.4	148.0
ML06l	23.50	0.0367	0.90	55%	B	82	25	25.3	49.2
ML06m	47.65	0.0745	0.11	51%	B	80	17	17.3	37.7
ML06n	183.71	0.2871	0.14	57%	B	82	49	48.8	104.7
ML06o	64.04	0.1001	0.06	26%	B	71	10	9.8	24.4
ML06p	30.21	0.0472	0.24	26%	B	70	10	10.0	24.9
ML07	593.82	0.9278	0.32	16%	B	67	60	60.2	157.1
ML08	2444.33	3.8193	0.14	19%	B	68	102	102.1	258.9
ML09	78.63	0.1229	0.07	46%	B	78	18	17.6	39.7
ML10a	26.28	0.0411	0.12	24%	B	70	7	7.1	17.8
ML10b	228.03	0.3563	0.18	35%	B	74	40	39.8	94.5
ML10c	173.88	0.2717	0.15	51%	B	80	43	43.2	95.0
ML10d	64.03	0.1000	0.06	28%	B	71	10	10.1	25.1
ML11a	91.98	0.1437	0.22	44%	B	77	29	28.8	65.4
ML11b	2237.53	3.4961	0.10	21%	B	69	85	85.0	212.6
ML11c	82.22	0.1285	0.20	36%	B	74	22	22.1	52.5
ML11d	80.99	0.1265	0.53	40%	B	76	35	35.2	79.6
ML11e	140.87	0.2201	0.38	22%	B	69	30	29.7	76.0

HYDRAULICS ANALYSIS

All drainage areas were simulated within two subwatershed-wide 1D-2D XPSWMM models as discussed earlier. All storm sewer systems were sized to convey 10-year flood flows. However, the entire network has its challenges because of backwater conditions at Mission Lateral and in some cases, Mission Inlet. The solution to backwater issues appear to lie within HCDD#1 efforts. However, the CIP recommendations result in flood depth reductions up to an average above 3 feet at Mission Lateral Drainage Systems and an average less than 1 foot at Mission Inlet Systems.

CIP RECOMMENDATIONS AND PRIORITIZATION

The CIP recommendation sheets are included in this report as **Appendix A**. The cost summary for all project packages is shown in **Table 6**. The proposed CIP fiscal year implementation schedule is based on three prioritization criteria:

1. Flooding Complaint Call locations - This ensures that projects that address existing flooding particularly areas where citizens have reported observed flooding at their address locations. The assigned weight for this measure is 2.0
2. Floodplain Area Reduction – This provides additional priority to a project based on how much floodplain area is reduced as a percentage of the existing floodplain area. This targets all land uses whether developed or not and thus promotes removal of flood depths of all areas including roads and also facilitates future development. The assigned weight for this measure is 1.0
3. Floodplain Property Reduction – This targets project effectiveness at eliminating flood depths at buildings. This accounts for all buildings including commercial that are in modeled flood depth locations but may not necessarily have called to report flooding. The assigned weight for this measure is 1.0

Some project areas with lower priority were grouped with higher priority projects due to their codependent benefits. All project areas with no recommendations (zero dollars) are to be re-evaluated during design to ensure upstream projects have provided benefits to those areas or that their flood risk remains low.

CIP COST

The CIP recommendation sheets are included in this report as **Appendix A**. The associated Cost Estimate details are provided in **Appendix B**.

The required investment projection totals for each fiscal year of implementation summarized from **Table 6** are as follows:

- Project Implementation Fiscal Year #1 - \$13.8 million
- Project Implementation Fiscal Year #2 - \$21.4 million
- Project Implementation Fiscal Year #3 - \$17.5 million
- Project Implementation Fiscal Year #4 - \$4.2 million
- Project Implementation Fiscal Year #5 - \$11.9 million
- Project Implementation Fiscal Year #6 - \$8.8 million
- Project Implementation Fiscal Year #7 - \$4.8 million
- Project Implementation Fiscal Year #8 - \$4.3 million
- Project Implementation Fiscal Year #9 - \$4.9 million
- Project Implementation Fiscal Year #10 - \$1.4 million

The 10-year total investment required to alleviate flooding is approximately \$93 million.

TABLE 6. CITY OF MISSION MASTER DRAINAGE PLAN – CIP PROJECT PACKAGE RECOMMENDATIONS

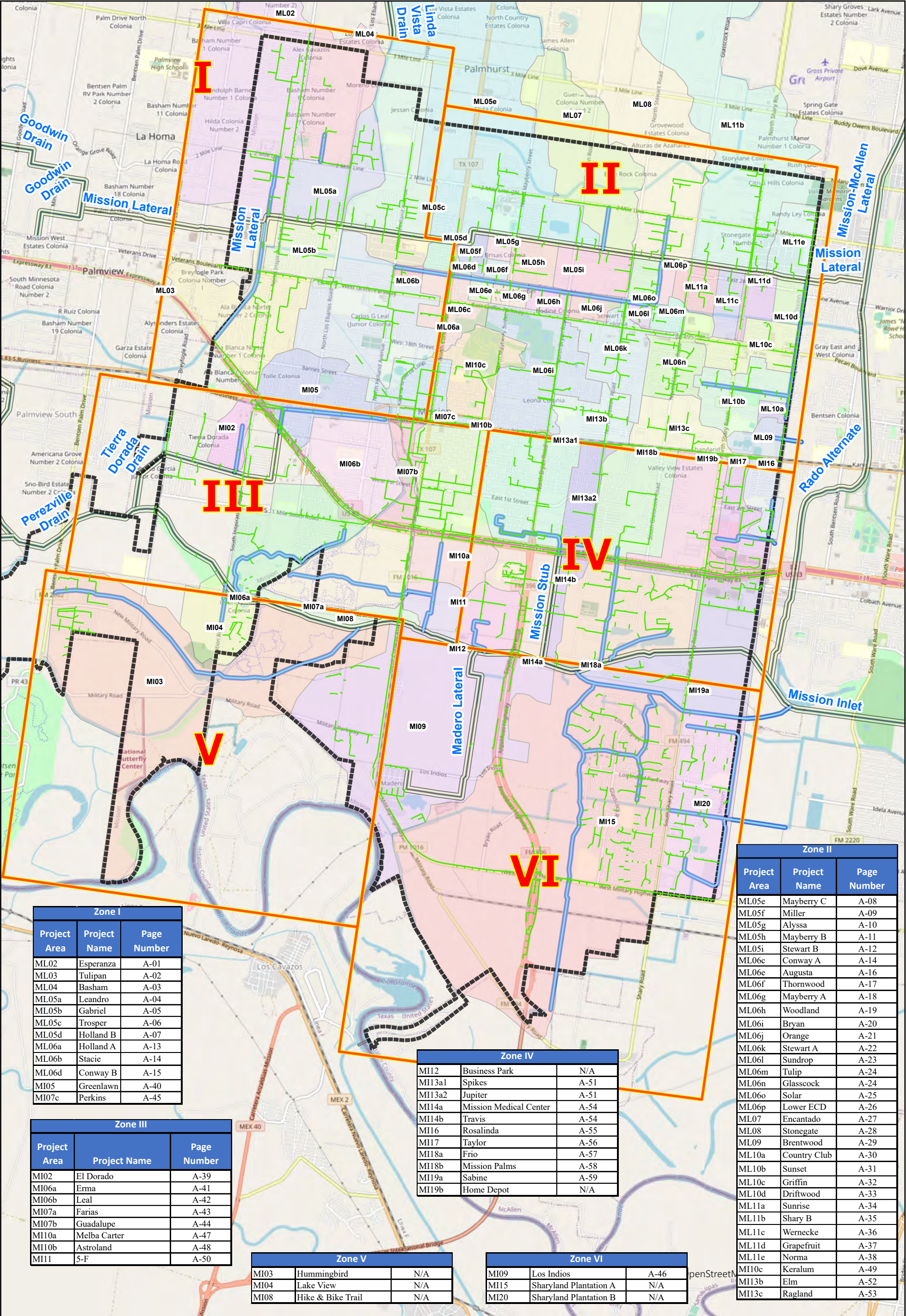
Area Seq #	Project Area	Project Name	Project Costs	Prioritization Criteria 1: Address Flooding Complaints	Prioritization Criteria 2: Floodplain Area Reduction	Prioritization Criteria 3: Floodplain Property Reduction	Total Score	Rank	CIP FY Schedule Package
1	ML06l	Sundrop	\$328,830	6.00	0.97	0.92	7.89	1	1
2	ML06k	Stewart A	\$2,322,862	5.10	0.91	0.94	6.96	2	
3	ML05b	Gabriel	\$1,972,404	5.85	0.41	0.45	6.71	3	
4	ML06n	Glasscock	\$2,429,410	3.60	0.94	1.00	5.54	4	
5	ML11b	Shary B	\$1,723,252	3.45	0.66	0.77	4.88	5	
6	ML10b	Sunset	\$3,389,186	2.55	0.96	1.00	4.51	6	
7	ML06m	Tulip	\$1,659,873	2.25	1.00	1.00	4.25	7	
8	MI13a1	Spikes	\$5,031,398	0.00	0.00	0.00	0.00	8	2
9	MI13a2	Jupiter		2.25	0.46	1.00	3.71	8	
10	MI10b	Astroland	\$3,340,899	2.55	0.40	0.67	3.62	10	
11	MI07b	Guadalupe	\$1,681,487	1.65	0.91	1.00	3.56	11	
12	ML06i	Bryan	\$3,352,771	2.85	0.20	0.12	3.17	12	
13	ML11a	Sunrise	\$774,404	1.20	0.95	1.00	3.15	13	
14	ML08	Stonegate	\$1,431,639	1.20	0.89	1.00	3.09	14	
15	ML02	Esperanza	\$5,743,391	0.75	0.97	1.00	2.72	15	3
16	ML05e	Mayberry C	\$6,648,400	1.35	0.27	0.78	2.40	16	
17	ML06a	Holland A	\$2,940,588	0.45	0.95	1.00	2.40	16	
18	ML06g	Mayberry A	\$1,103,733	0.75	0.63	1.00	2.38	18	
19	MI10a	Melba Carter	\$1,174,032	0.60	0.77	1.00	2.37	19	
20	ML05h	Mayberry B	\$2,203,560	0.45	0.89	1.00	2.34	20	
21	ML05i	Stewart B	\$2,103,420	0.60	0.71	1.00	2.31	21	
22	MI13b	Elm	\$1,330,507	0.75	0.58	0.88	2.21	22	4
23	ML05f	Miller	\$908,161	0.15	0.93	1.00	2.08	23	
24	ML06c	Conway A	\$497,991	0.15	0.93	1.00	2.08	23	
25	ML06d	Conway B	\$239,470	0.00	1.00	1.00	2.00	25	
26	ML06f	Thornwood	\$431,140	0.00	1.00	1.00	2.00	25	
27	MI13c	Ragland	\$1,537,039	0.90	0.46	0.56	1.92	27	
28	ML06e	Augusta	\$557,492	0.00	0.88	1.00	1.88	28	5
29	ML05c	Trosper	\$4,044,941	1.80	0.04	0.00	1.84	29	
30	ML10d	Driftwood	\$1,709,875	1.65	0.04	0.11	1.80	30	
31	ML05a	Leandro	\$1,656,408	1.05	0.42	0.21	1.68	31	
32	ML11c	Wernecke	\$291,662	0.00	0.69	0.96	1.64	32	
33	ML03	Tulipan	\$2,245,013	0.30	0.34	1.00	1.64	32	
34	MI10c	Keralum	\$711,975	0.60	0.39	0.54	1.53	34	
35	MI06b	Leal	\$1,260,322	1.05	0.13	0.18	1.36	35	6
36	MI02	El Dorado	\$676,861	0.30	0.34	0.67	1.31	36	
37	MI06a	Erma	\$2,409,059	0.00	0.21	1.00	1.21	37	
38	MI01	Perezville Drain	\$0	1.20	0.00	0.00	1.20	38	
39	ML10c	Griffin	\$1,592,558	0.15	0.47	0.58	1.20	38	
40	ML11e	Norma	\$398,198	0.15	0.44	0.43	1.02	40	
41	MI09	Los Indios	\$2,563,694	0.30	0.71	0.00	1.01	41	
42	ML04	Basham	\$1,132,664	0.45	0.51	0.00	0.96	42	

Area Seq #	Project Area	Project Name	Project Costs	Prioritization Criteria 1: Address Flooding Complaints	Prioritization Criteria 2: Floodplain Area Reduction	Prioritization Criteria 3: Floodplain Property Reduction	Total Score	Rank	CIP FY Schedule Package
43	MI18b	Mission Palms	\$361,846	0.75	0.05	0.03	0.83	43	7
44	MI17	Taylor	\$1,049,842	0.30	0.16	0.33	0.80	44	
45	ML06p	Lower ECD	\$918,332	0.00	0.76	0.00	0.76	45	
46	ML06b	Stacie	\$255,363	0.00	0.74	0.00	0.74	46	
47	ML11d	Grapefruit	\$132,447	0.45	0.13	0.13	0.72	47	
48	MI05	Greenlawn	\$1,123,831	0.30	0.41	0.00	0.71	48	
49	ML06o	Solar	\$916,920	0.00	0.68	0.00	0.68	49	
50	ML01	Mission Lateral Upper	\$0	0.00	0.67	0.00	0.67	50	8
51	ML05g	Alyssa	\$336,668	0.00	0.50	0.00	0.50	51	
52	ML06j	Orange	\$198,139	0.00	0.48	0.00	0.48	52	
53	ML06h	Woodland	\$689,370	0.00	0.41	0.00	0.41	53	
54	MI11	5-F	\$145,649	0.00	0.34	0.00	0.34	54	
55	MI07c	Perkins	\$1,378,333	0.15	0.18	0.00	0.33	55	
56	ML05d	Holland B	\$1,593,537	0.30	0.00	0.00	0.30	56	
57	MI18a	Frio	\$1,621,613	0.30	0.00	0.00	0.30	57	9
58	MI20	Sharyland Plantation B	\$0	0.15	0.00	0.00	0.15	58	
59	MI19a	Sabine	\$1,327,063	0.00	0.15	0.00	0.15	58	
60	MI07a	Farias	\$1,946,185	0.00	0.07	0.00	0.07	60	
61	MI03	Hummingbird	\$0	0.00	0.04	0.00	0.04	61	
62	MI19b	Home Depot	\$0	0.00	0.02	0.00	0.02	62	
63	MI08	Hike & Bike Trail	\$0	0.00	0.00	0.00	0.00	63	
64	MI12	Bus Park	\$0	0.00	0.00	0.00	0.00	63	10
65	MI14a	Mission Medical Center	\$371,543	0.00	0.00	0.00	0.00	65	
66	MI14b	Travis		0.00	0.00	0.00	0.00	65	
67	MI16	Rosalinda	\$690,604	0.00	0.00	0.00	0.00	65	
68	ML09	Brentwood	\$0	0.00	0.00	0.00	0.00	65	
69	ML10a	Country Club	\$336,096	0.00	0.00	0.00	0.00	65	
70	MI15	Sharyland Plantation A	\$0	0.00	0.00	0.00	0.00	65	
71	MI04	Lake View	\$0	0.00	0.00	0.00	0.00	65	
72	ML07	Encantado	\$0	0.00	0.00	0.00	0.00	65	

Appendix A

City of Mission Master Drainage Plan

CIP Recommendations



Zone II		
Project Area	Project Name	Page Number
ML05e	Mayberry C	A-08
ML05f	Miller	A-09
ML05g	Alyssa	A-10
ML05h	Mayberry B	A-11
ML05i	Stewart B	A-12
ML06c	Conway A	A-14
ML06e	Augusta	A-16
ML06f	Thornwood	A-17
ML06g	Mayberry A	A-18
ML06h	Woodland	A-19
ML06i	Bryan	A-20
ML06j	Orange	A-21
ML06k	Stewart A	A-22
ML06l	Sundrop	A-23
ML06m	Tulip	A-24
ML06n	Glasscock	A-24
ML06o	Solar	A-25
ML06p	Lower ECD	A-26
ML07	Encantado	A-27
ML08	Stonegate	A-28
ML09	Brentwood	A-29
ML10a	Country Club	A-30
ML10b	Sunset	A-31
ML10c	Griffin	A-32
ML10d	Driftwood	A-33
ML11a	Sunrise	A-34
ML11b	Shary B	A-35
ML11c	Wernecke	A-36
ML11d	Grapefruit	A-37
ML11e	Norma	A-38
ML10e	Keralum	A-49
ML13b	Elm	A-52
ML13c	Ragland	A-53

Zone IV		
MI12	Business Park	N/A
MI13a1	Spikes	A-51
MI13a2	Jupiter	A-51
MI14a	Mission Medical Center	A-54
MI14b	Travis	A-54
MI16	Rosalinda	A-55
MI17	Taylor	A-56
MI18a	Frio	A-57
MI18b	Mission Palms	A-58
MI19a	Sabine	A-59
MI19b	Home Depot	N/A

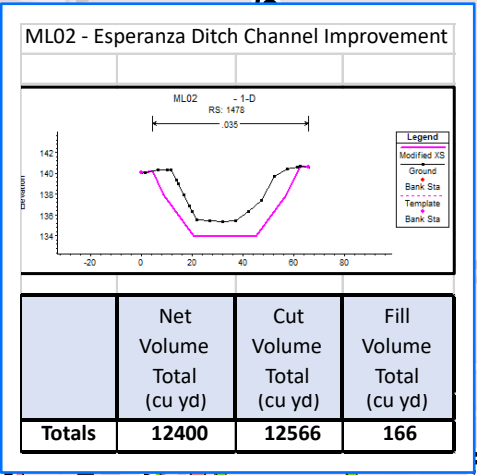
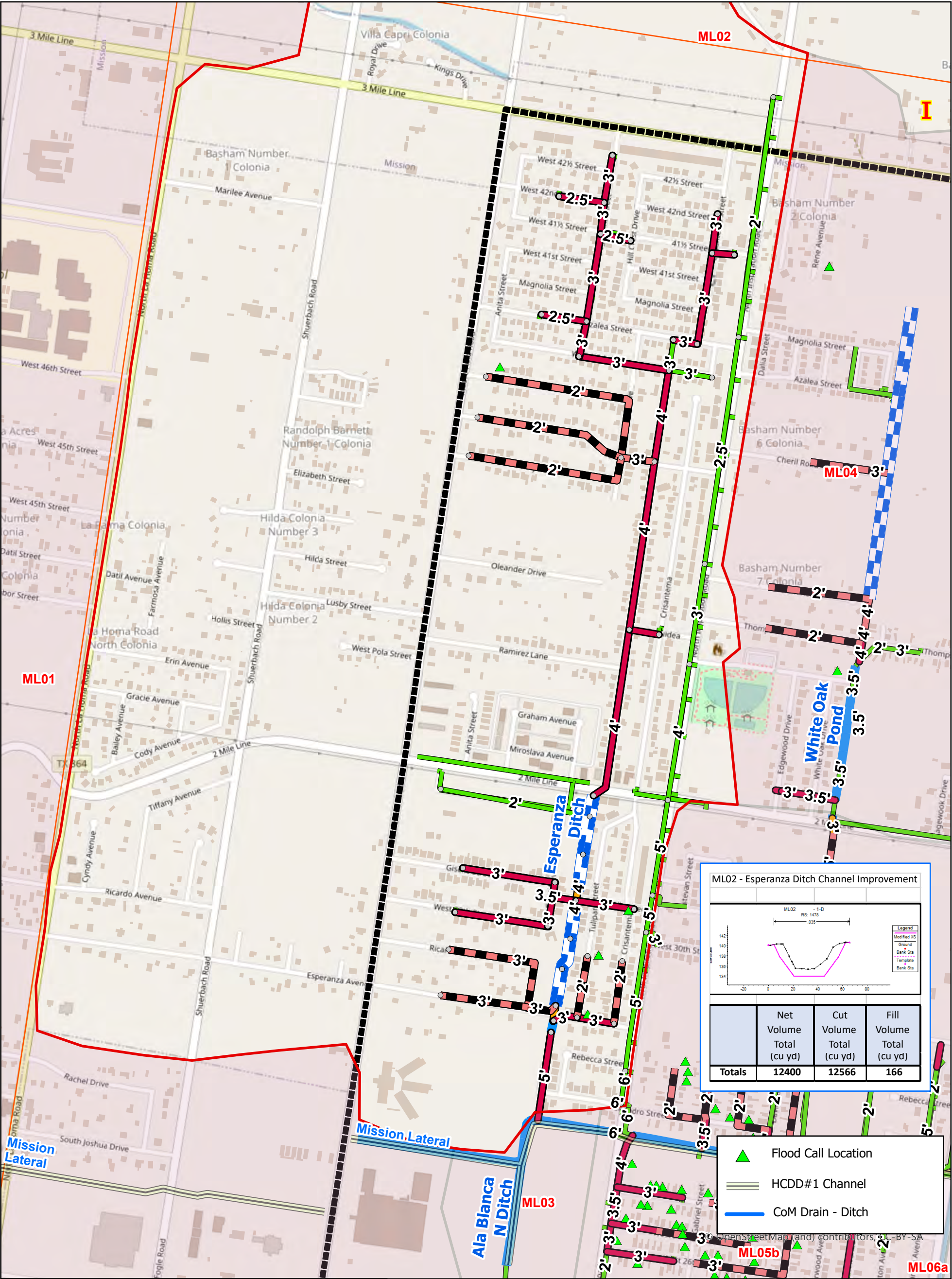
Zone V		
MI03	Hummingbird	N/A
MI04	Lake View	N/A
MI08	Hike & Bike Trail	N/A

Zone VI		
MI09	Los Indios	A-46
MI15	Sharyland Plantation A	N/A
MI20	Sharyland Plantation B	N/A

Zone I		
Project Area	Project Name	Page Number
ML02	Esperanza	A-01
ML03	Tulipan	A-02
ML04	Basham	A-03
ML05a	Leandro	A-04
ML05b	Gabriel	A-05
ML05c	Trosper	A-06
ML05d	Holland B	A-07
ML06a	Holland A	A-13
ML06b	Stacie	A-14
ML06d	Conway B	A-15
MI05	Greenlawn	A-40
MI07c	Perkins	A-45

Zone III		
Project Area	Project Name	Page Number
MI02	El Dorado	A-39
MI06a	Erma	A-41
MI06b	Leal	A-42
MI07a	Farias	A-43
MI07b	Guadalupe	A-44
MI10a	Melba Carter	A-47
MI10b	Astroland	A-48
MI11	5-F	A-50

City of Mission 2020 Master Drainage Plan
Map Index



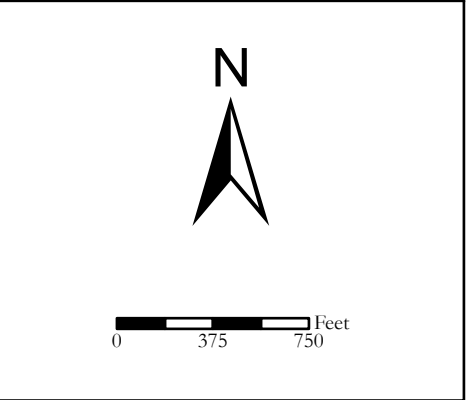
- Flood Call Location
- HCDD#1 Channel
- CoM Drain - Ditch

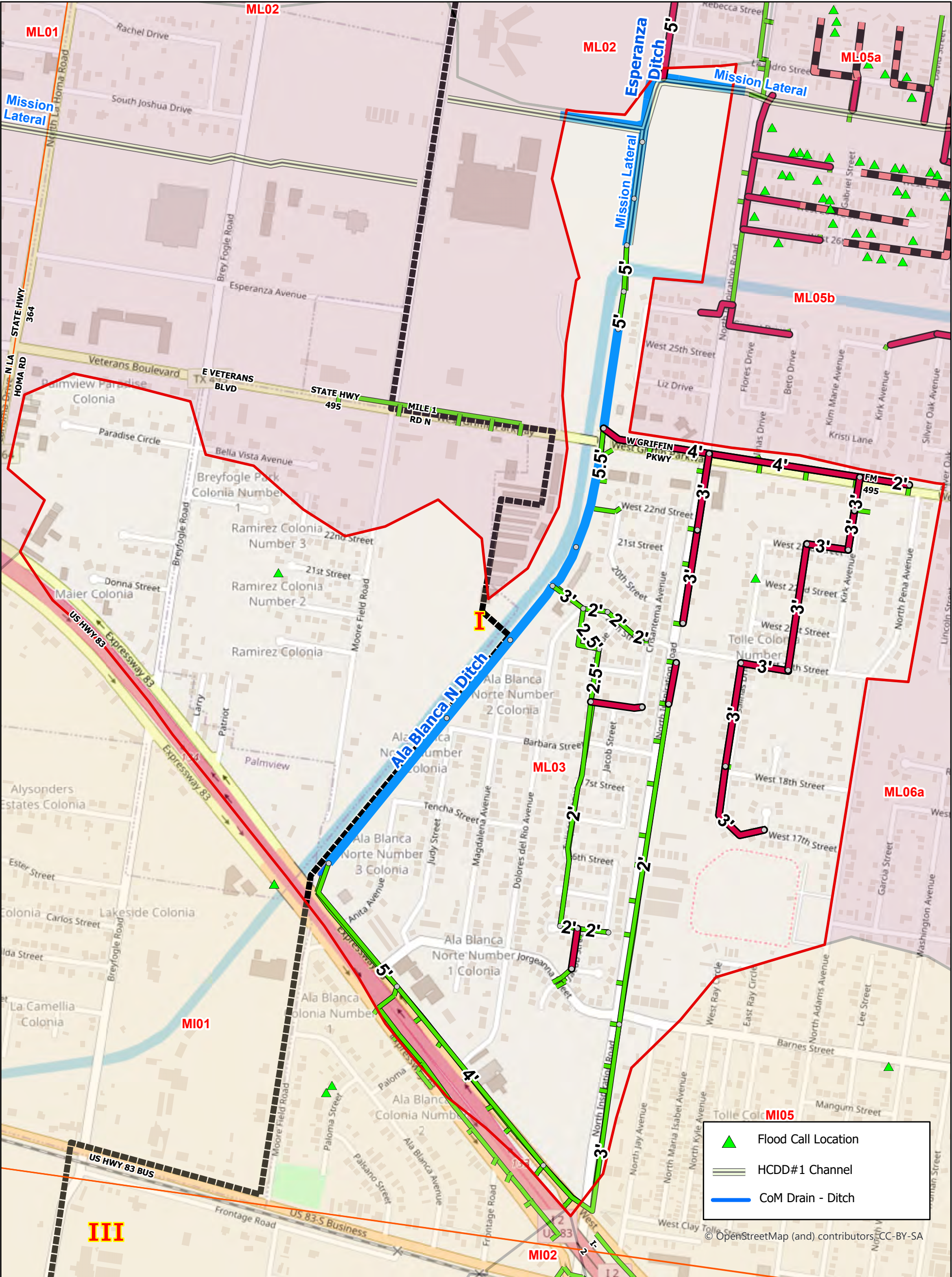
- Channel Improvement
- Crossing Improvement
- No Modifications
- New Pipe Addition
- Pipe Upsizing Locations

Drainage Area ML02 Esperanza

Location Recommendations:

- Storm Sewer Upgrade - 11,423 Feet
- Storm Sewer Extension - 7,628 Feet
- Channel Improvements (4'D, 24'BW, 3:1 SS) - 1,589 Feet
- Crossing Improvement #1 (Esperanza Ditch U/S Culvert)
Upsize from 2-48" to 4-48" RCP Barrels
- Crossing Improvement #2 (Esperanza Ditch D/S Culvert)
Upsize from 2-24" to 2-48" RCP Barrels





Channel Improvement

Crossing Improvement

No Modifications

New Pipe Addition

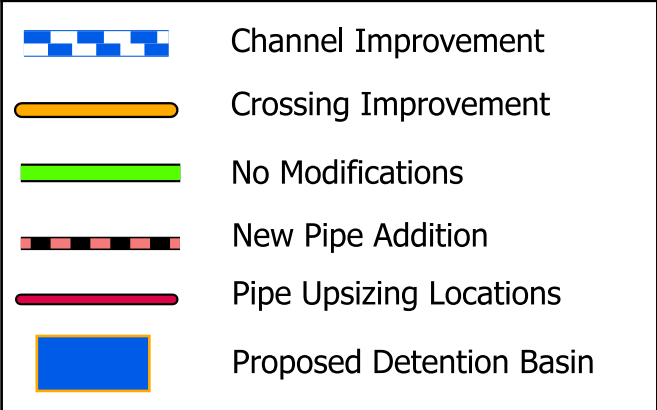
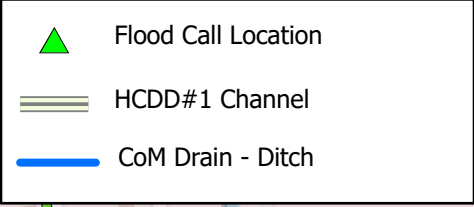
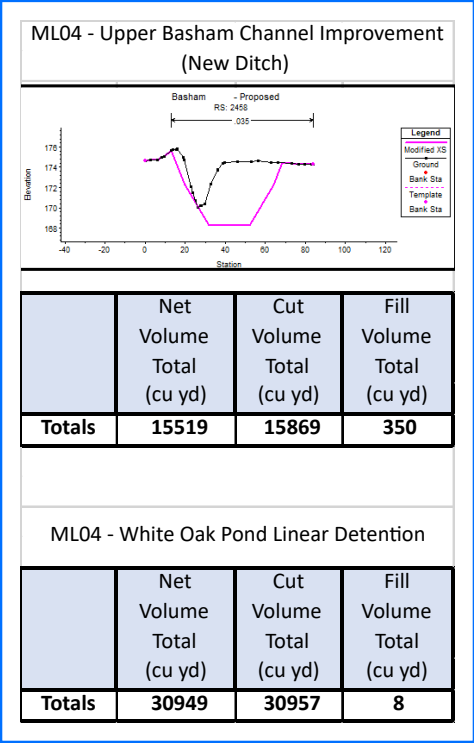
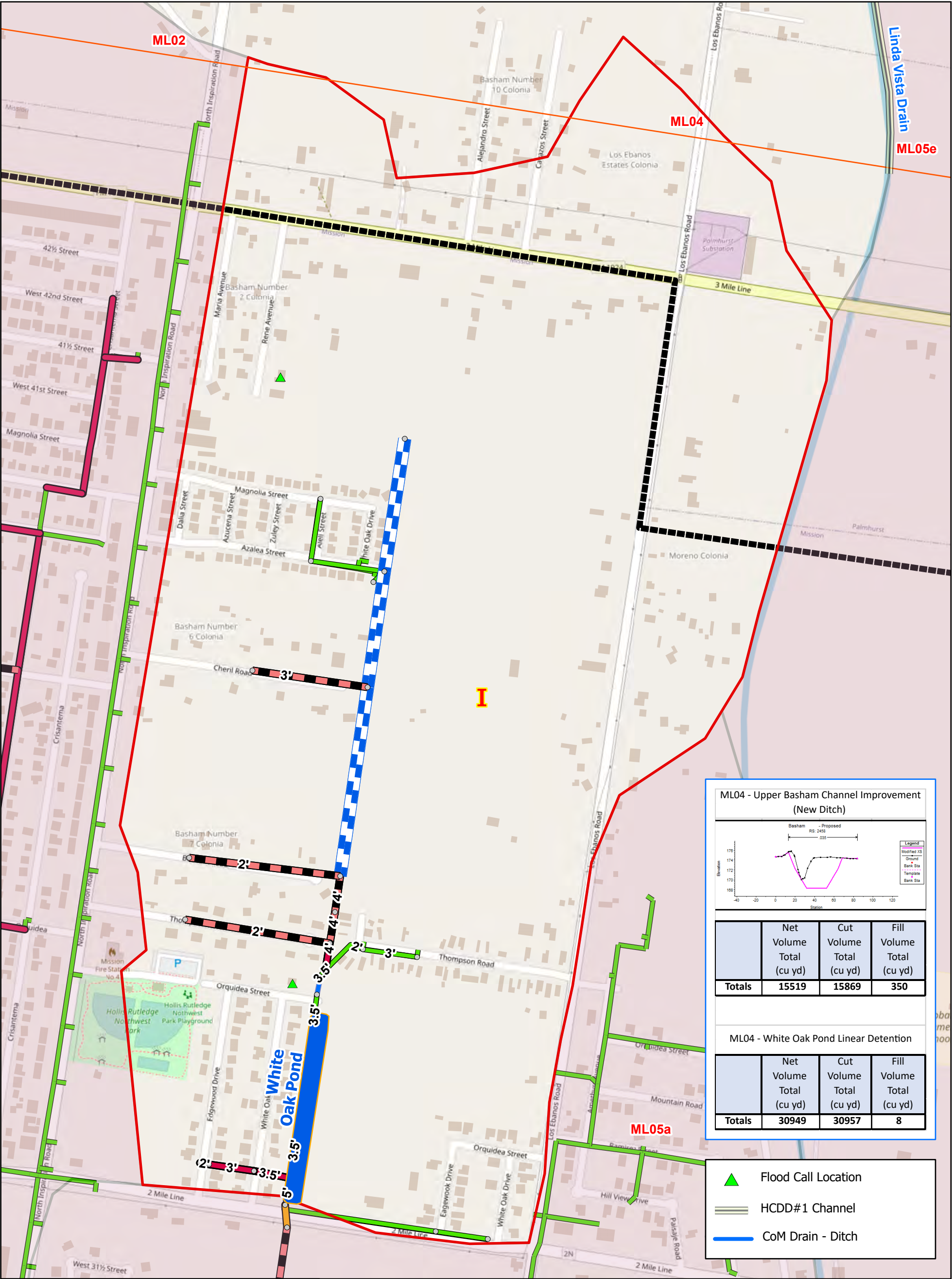
Pipe Upsizing Locations

Drainage Area ML03
Tulipan

Location Recommendations:
1. Storm Sewer Upgrade - 7,410 Feet

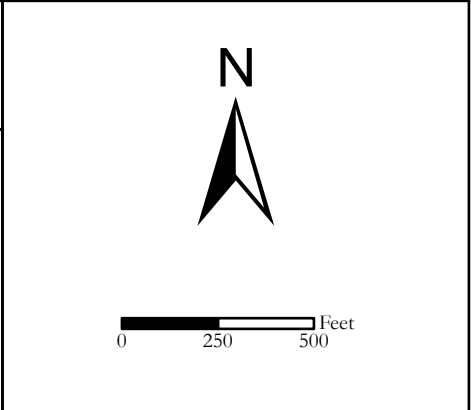
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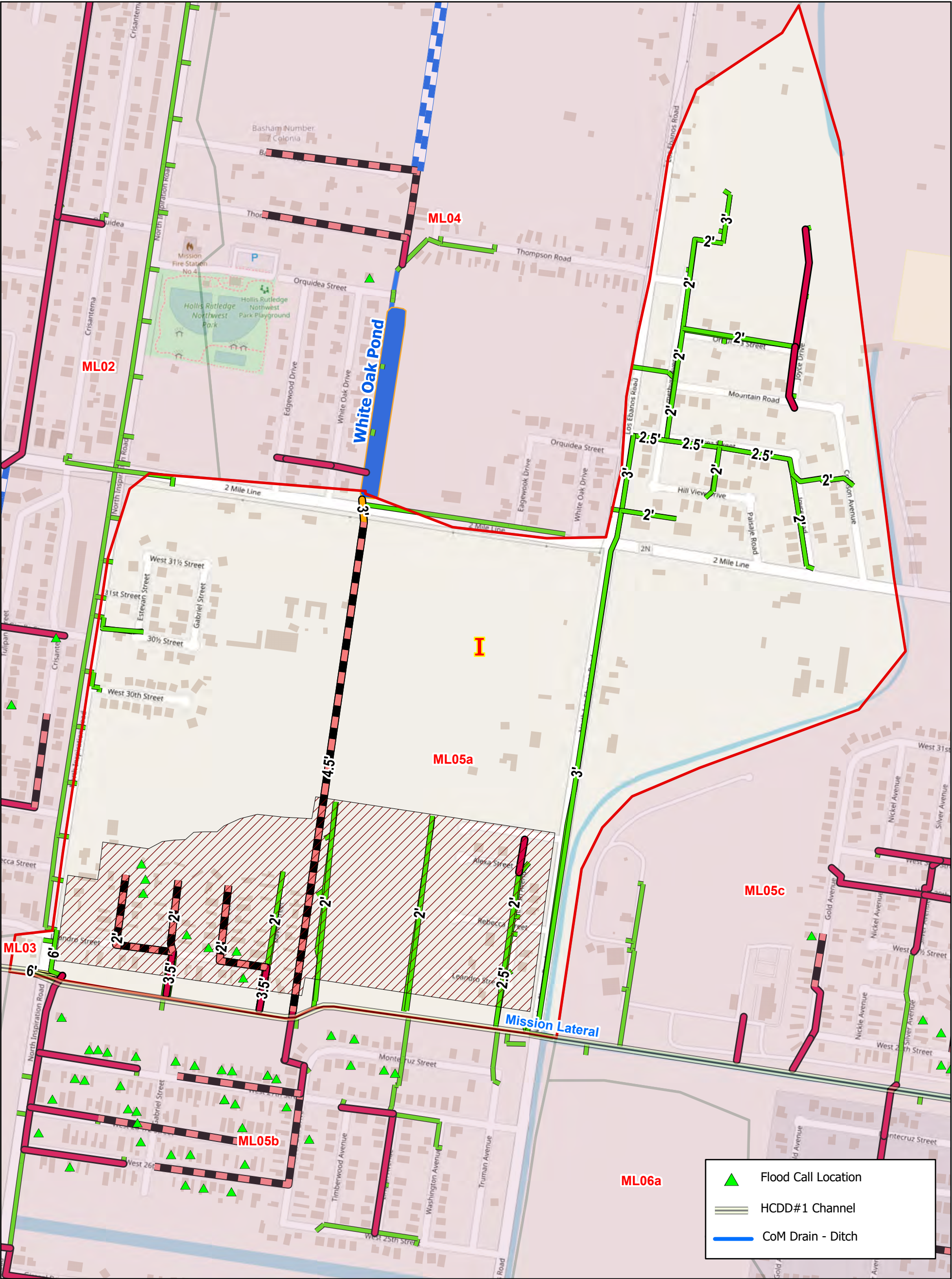
0325650Feet



Drainage Area ML04
Basham

Location Recommendations:
1. Storm Sewer Upgrade - 910 Feet
2. Storm Sewer Extension - 2,589 Feet
3. Channel Improvements (4'D, 20'BW, 3:1 SS) - 2,368 Feet
4. Convert White Oak Pond Drain to 12 ac-ft Detention Basin. (4.8'D, 3:1 SS) - 2.5 Acre





Channel Improvement
Crossing Improvement
No Modifications
New Pipe Addition
Pipe Upsizing Locations
Proposed Buyout Option

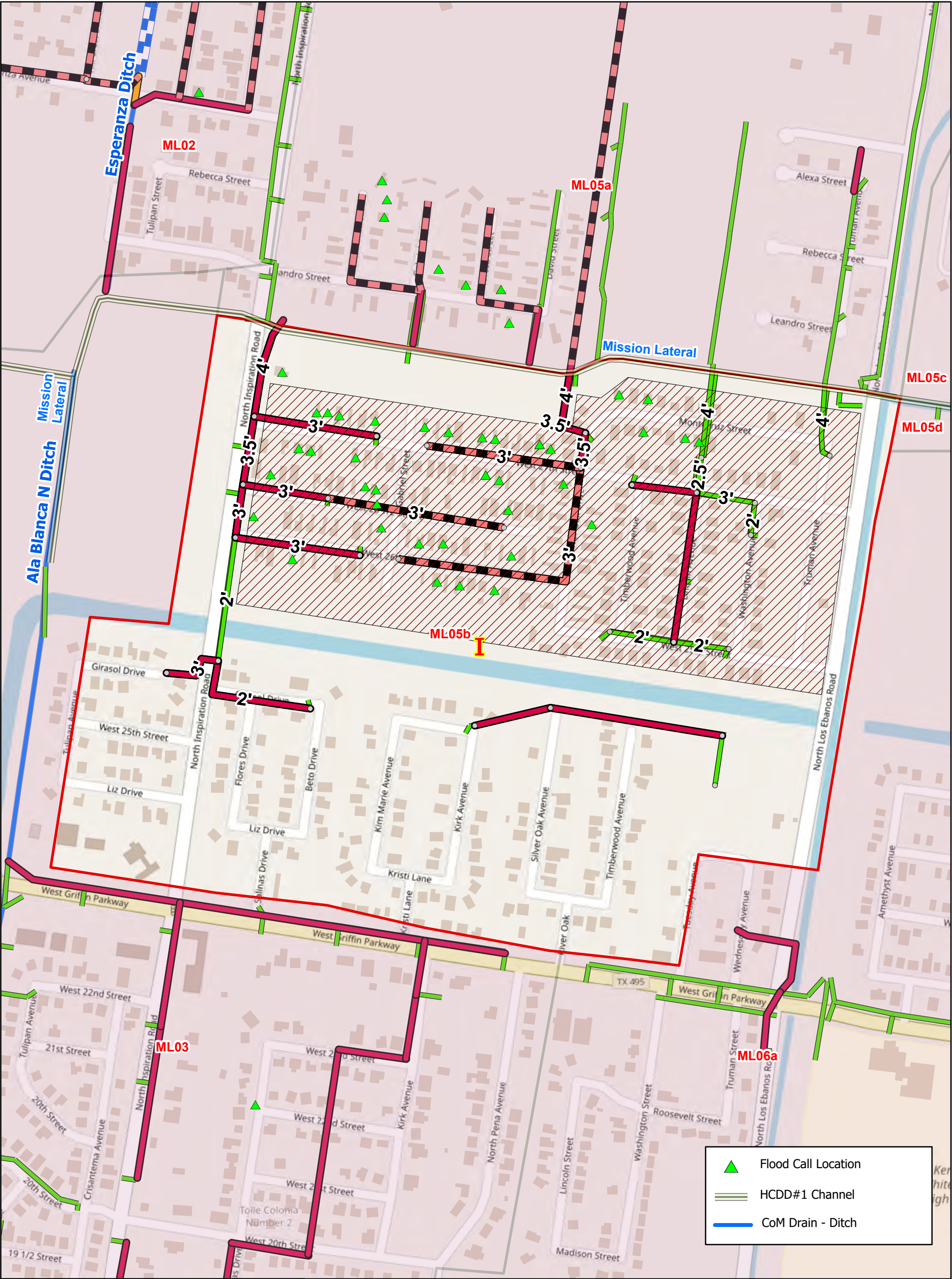
Drainage Area ML05a
Leandro

Location Recommendations:

1. Storm Sewer Upgrade - 462 Feet
2. Storm Sewer Extension - 4,381 Feet
3. Channel Improvements - 0 Feet
4. Detention Basin - 0 Acre
5. Buyout & Relocation for floodplain conservation - 51 Acres
(Shaded area includes Inspiration Manor & Crystal Estates)

N

0300600
Feet



Channel Improvement

Crossing Improvement

No Modifications

New Pipe Addition

Pipe Upsizing Locations

Drainage Area ML05b

Gabriel

Location Recommendations:

1. Storm Sewer Upgrade - 3,834 Feet

2. Storm Sewer Extension - 2,647 Feet

3. Channel Improvements - 0 Feet

4. Detention Basin - 0 Acre

5. Alternative Buyout & Relocation for floodplain conservation - 62 Acres

(Shaded area includes El Valle, Las Plamas, & Woodland Ridge

Subdivisions with > 2ft residual 10-year flood depth)

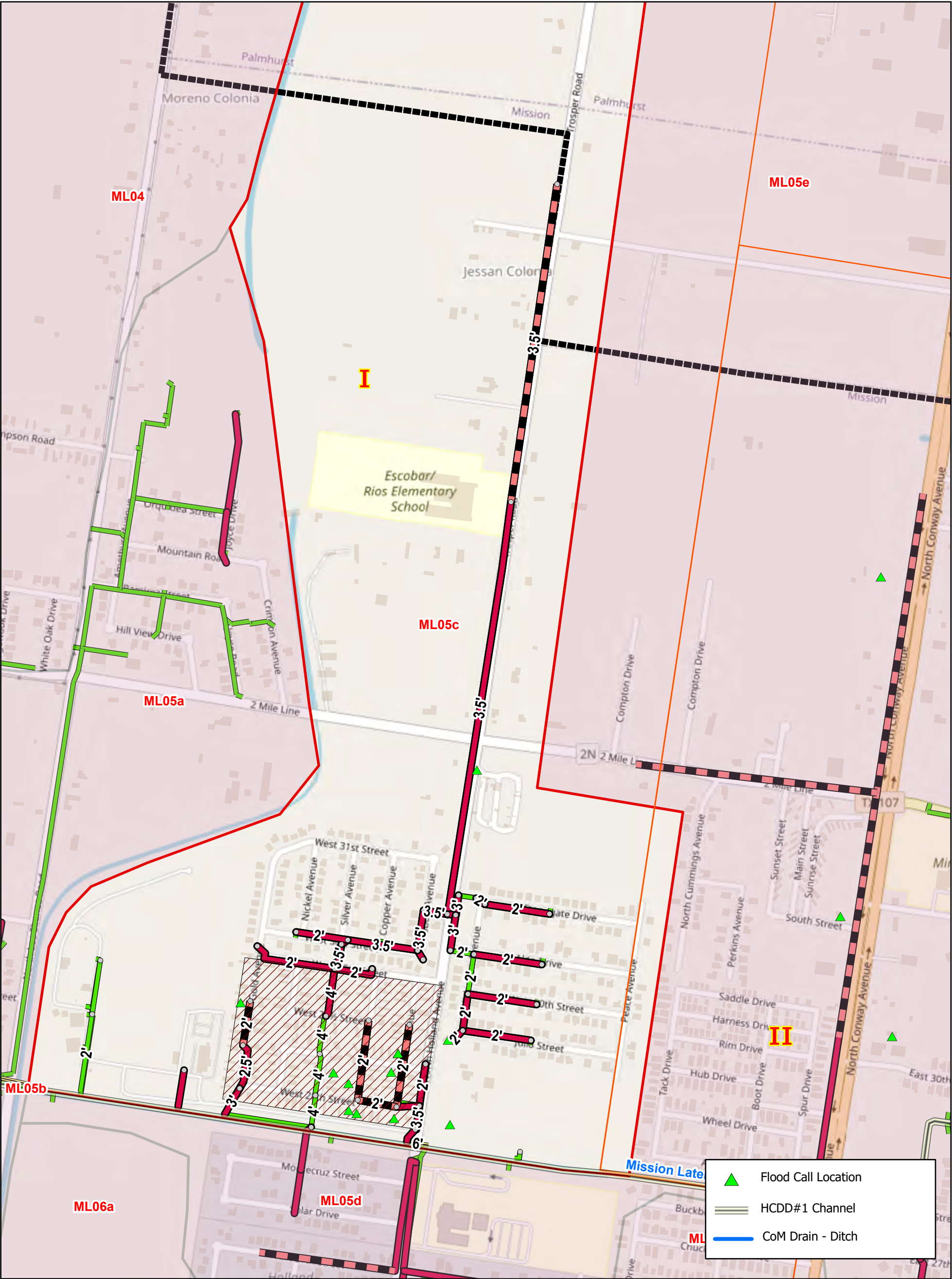
N

0

200

400

Feet



	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Proposed Detention Basin

Drainage Area ML05c

Troster

Location Recommendations:

1. Storm Sewer Upgrade - 7,151 Feet

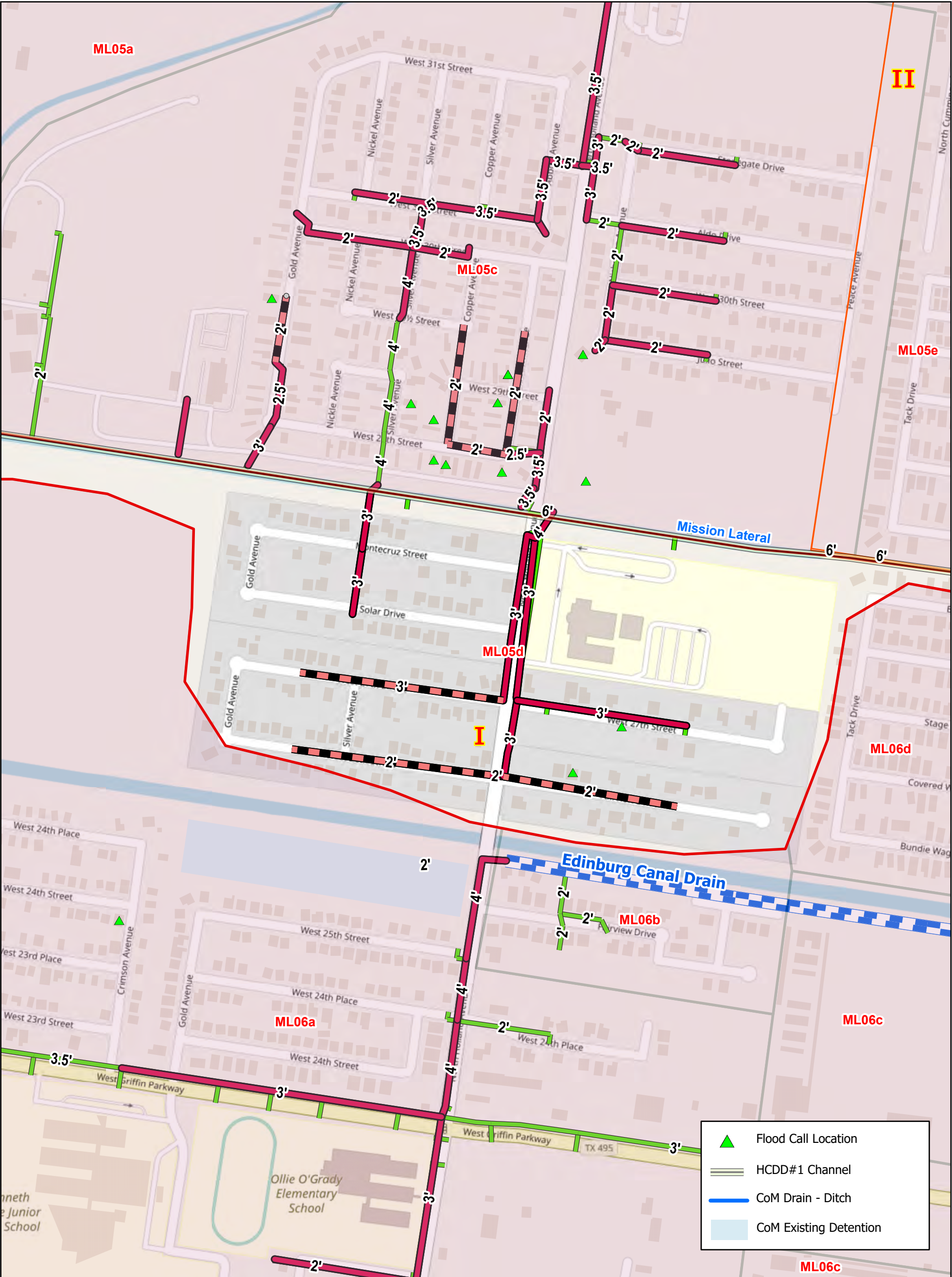
2. Storm Sewer Extension - 3,660 Feet

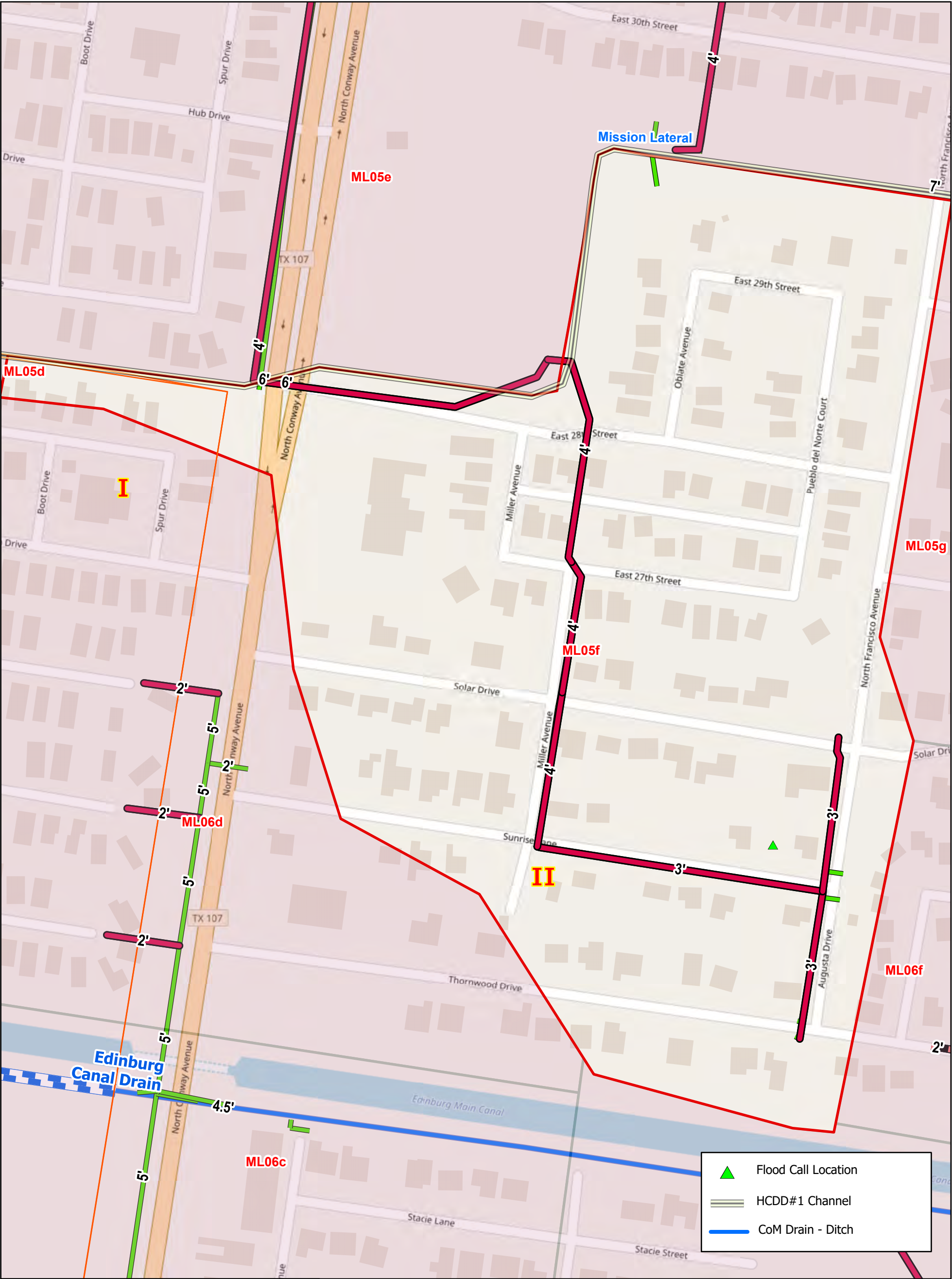
3. Channel Improvements - 0 Feet

4. Detention Basin - 0 Acre

5. Alternative Buyout & Relocation for floodplain conservation - 27 Acres

(Shaded area includes Abbott Subdivision with > 2ft residual 10-year flood depth)





 Channel Improvement

 Crossing Improvement

 No Modifications

 New Pipe Addition

 Pipe Upsizing Locations

 Proposed Detention Basin

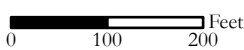
Drainage Area ML05f Miller

Location Recommendations:

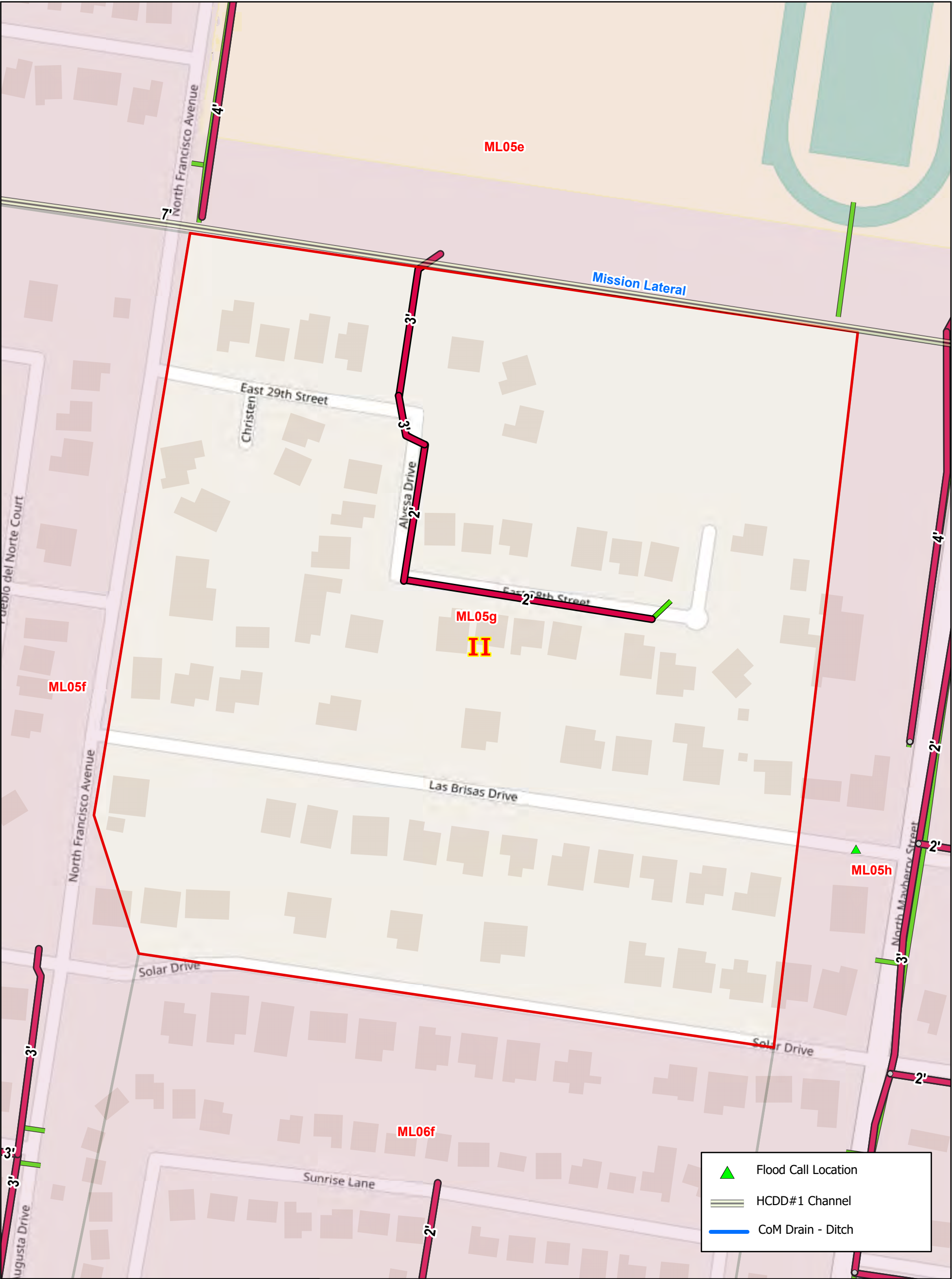
1. Storm Sewer Upgrade - 1,897 Feet
2. Storm Sewer Extension - 0 Feet
3. Channel Improvements - 0 Feet
4. Detention Basin - 0 Acre



N



0 100 200 Feet

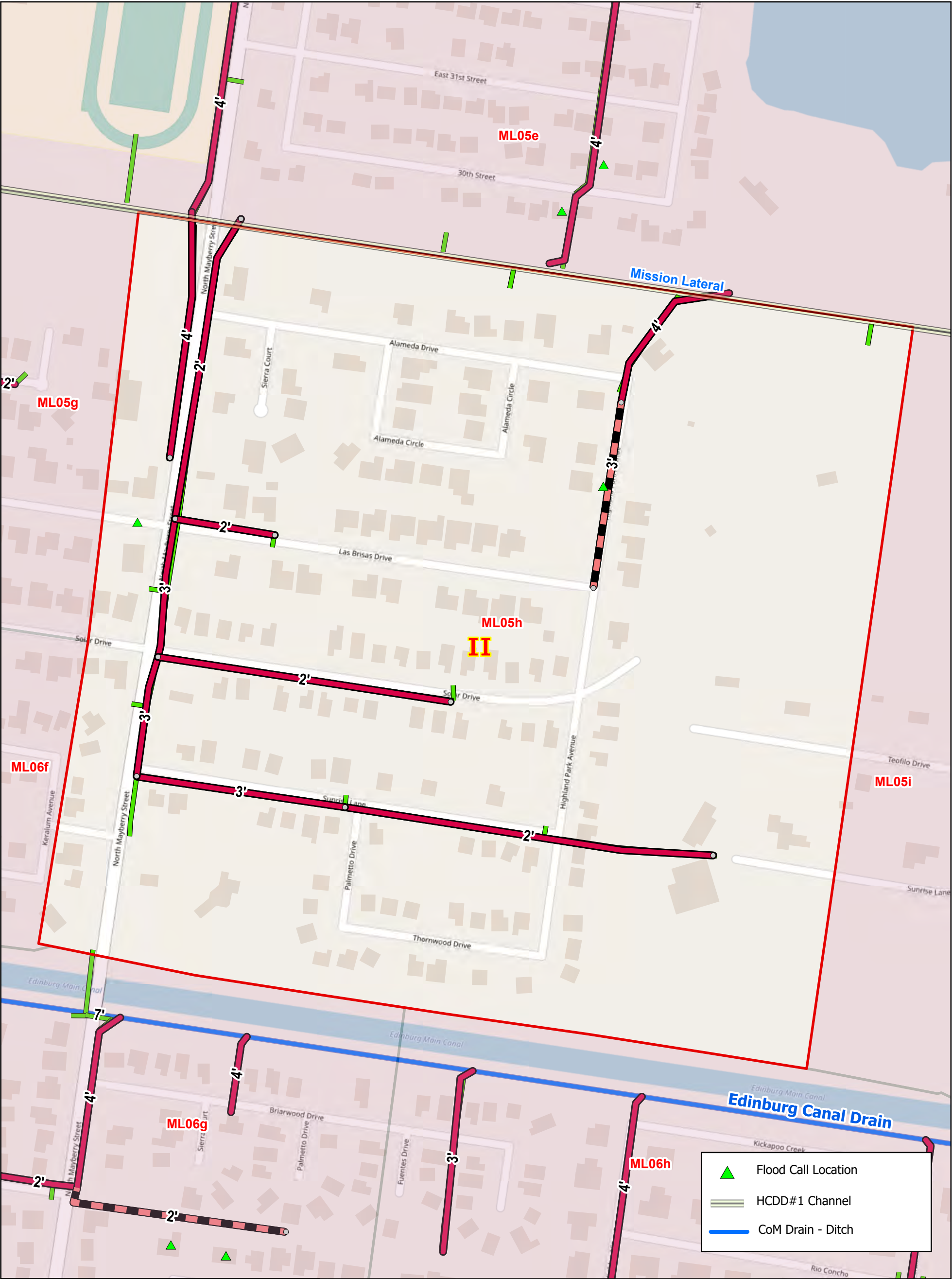


	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Proposed Detention Basin

Drainage Area ML05g Alyssa

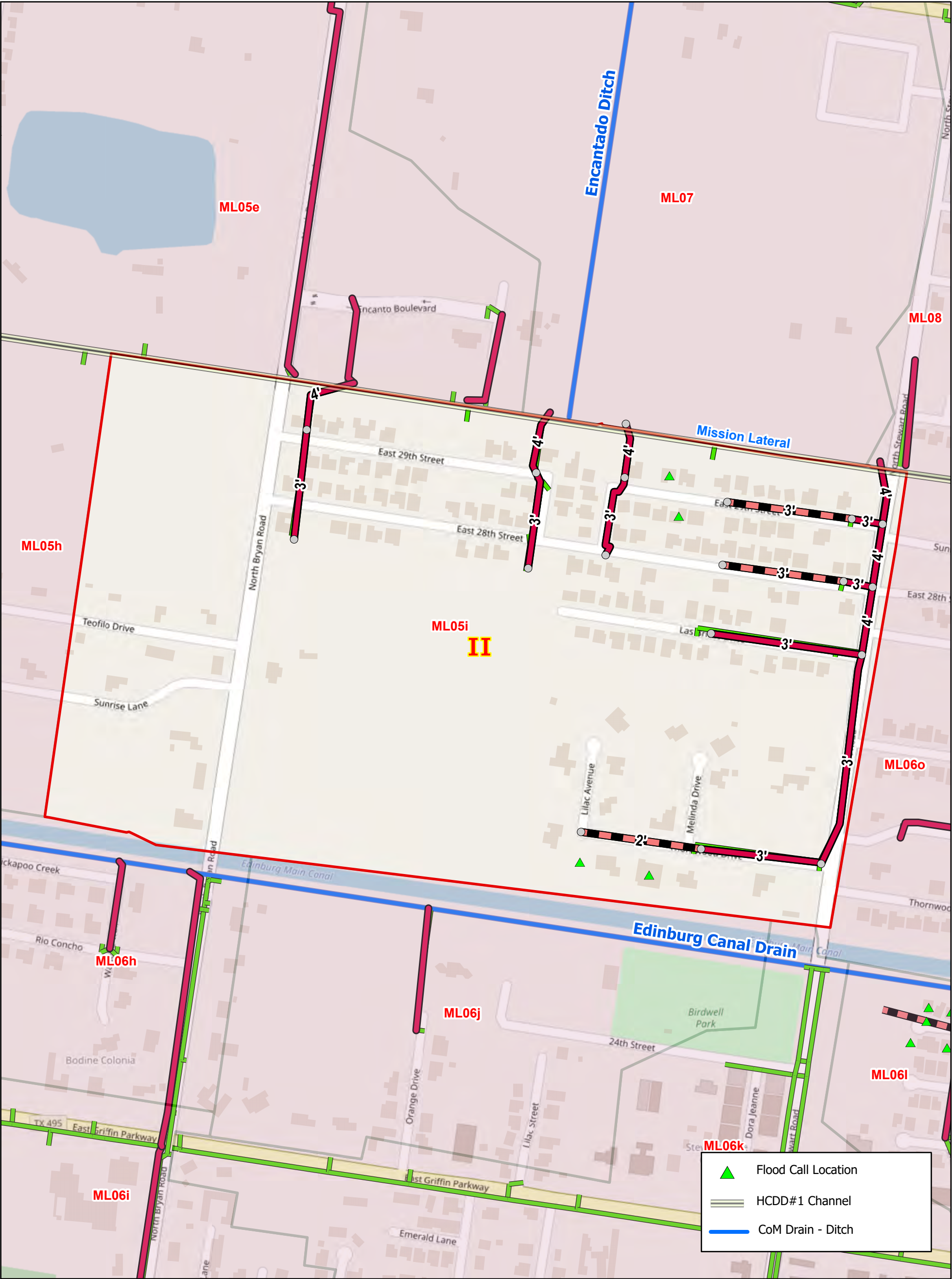
Location Recommendations:

1. Storm Sewer Upgrade - 978 Feet
2. Storm Sewer Extension - 0 Feet
3. Channel Improvements - 0 Feet
4. Detention Basin - 0 Acre



	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Proposed Detention Basin

Drainage Area ML05h Mayberry B
Location Recommendations: 1. Storm Sewer Upgrade - 3,323 Feet 2. Storm Sewer Extension - 513 Feet 3. Channel Improvements - 0 Feet 4. Detention Basin - 0 Acre



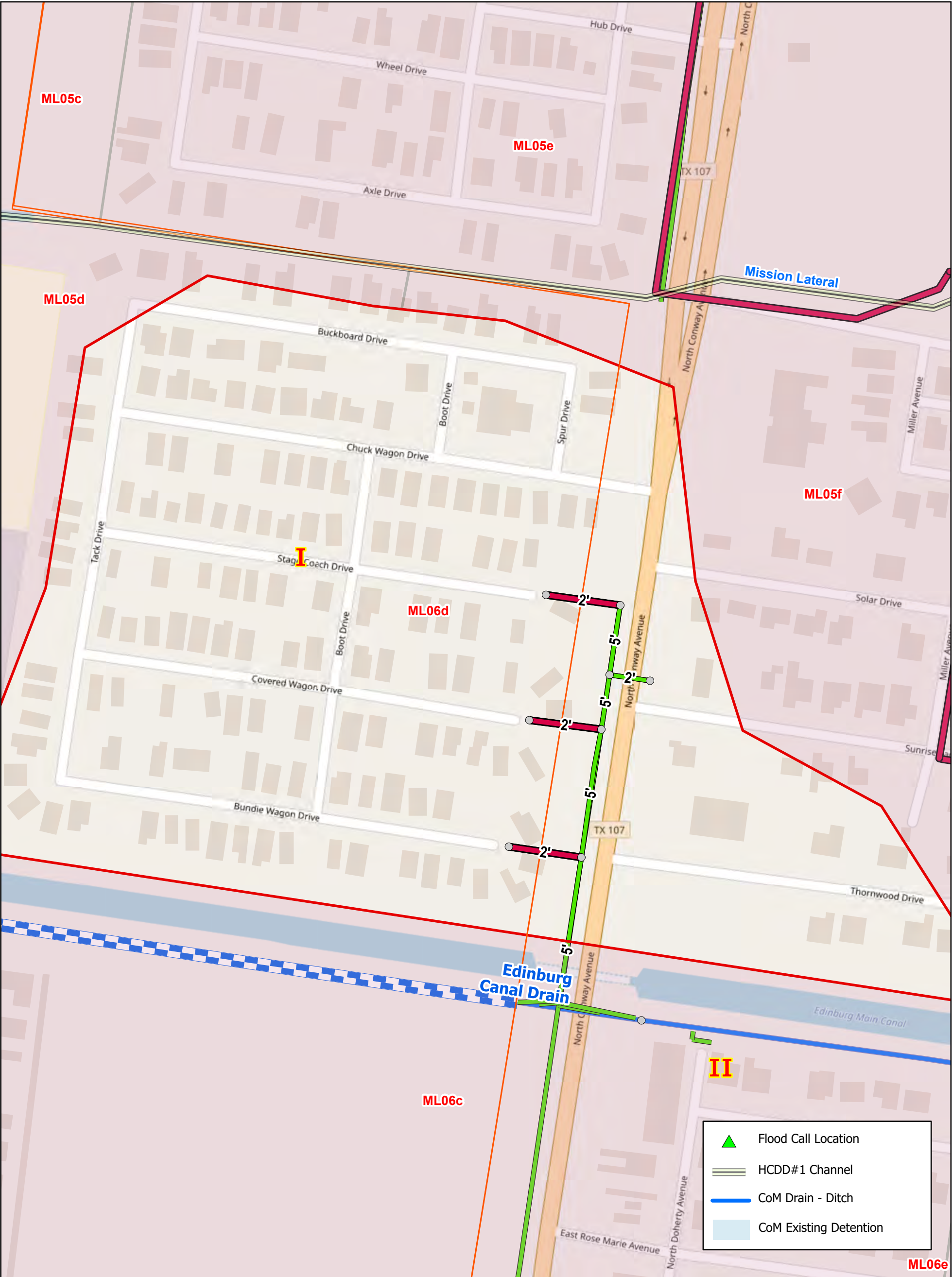
	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Proposed Detention Basin

Drainage Area ML05i

Stewart B

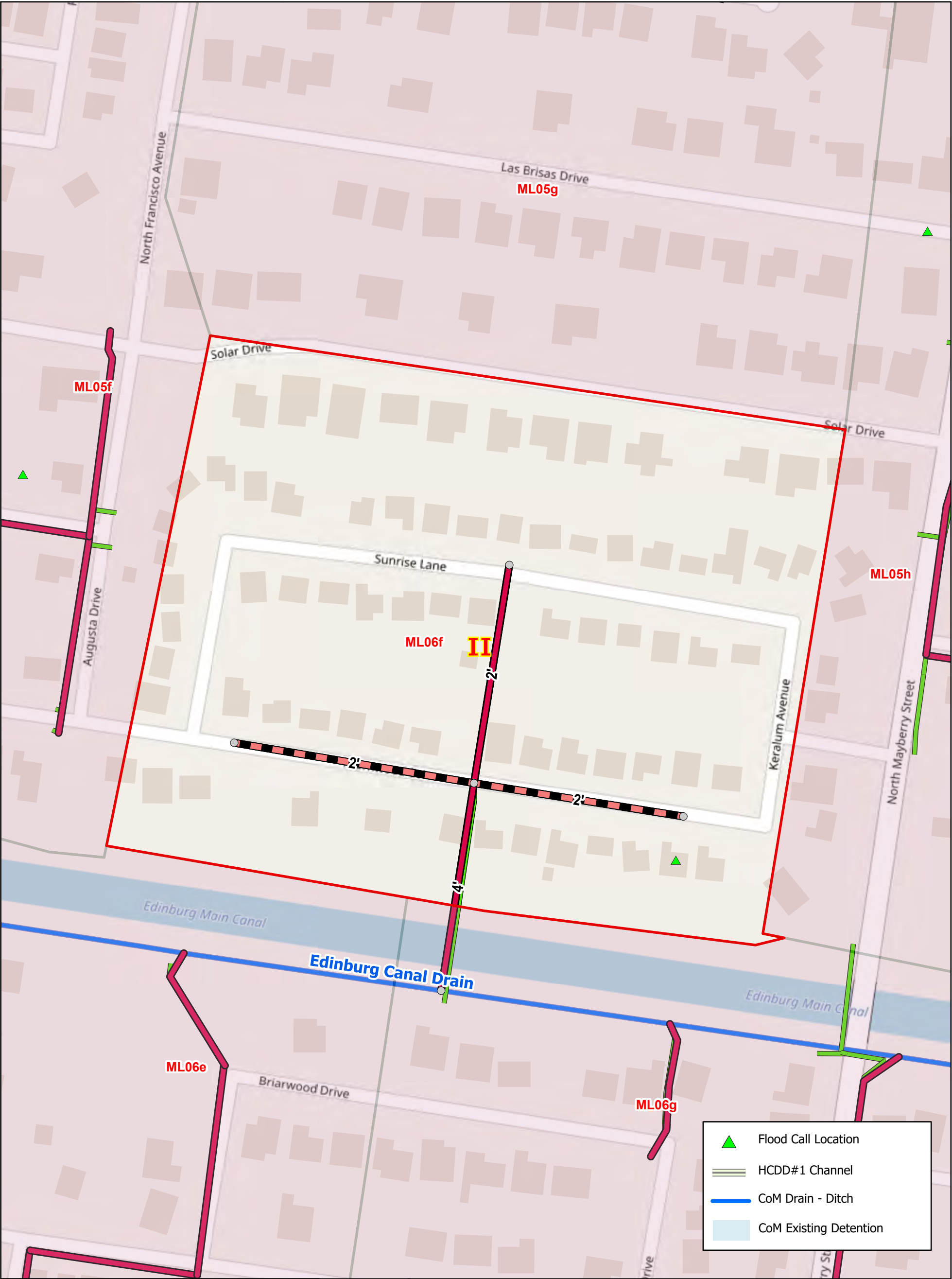
Location Recommendations:

1. Storm Sewer Upgrade - 5,363 Feet
2. Storm Sewer Extension - 1,617 Feet
3. Channel Improvements - 0 Feet
4. Detention Basin - 0 Acre



	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Proposed Detention Basin

Drainage Area ML06d Conway B
Location Recommendations: 1. Storm Sewer Upgrade - 476 Feet 2. Storm Sewer Extension - 0 Feet 3. Channel Improvements - 0 Feet 4. Detention Basin - 0 Acre

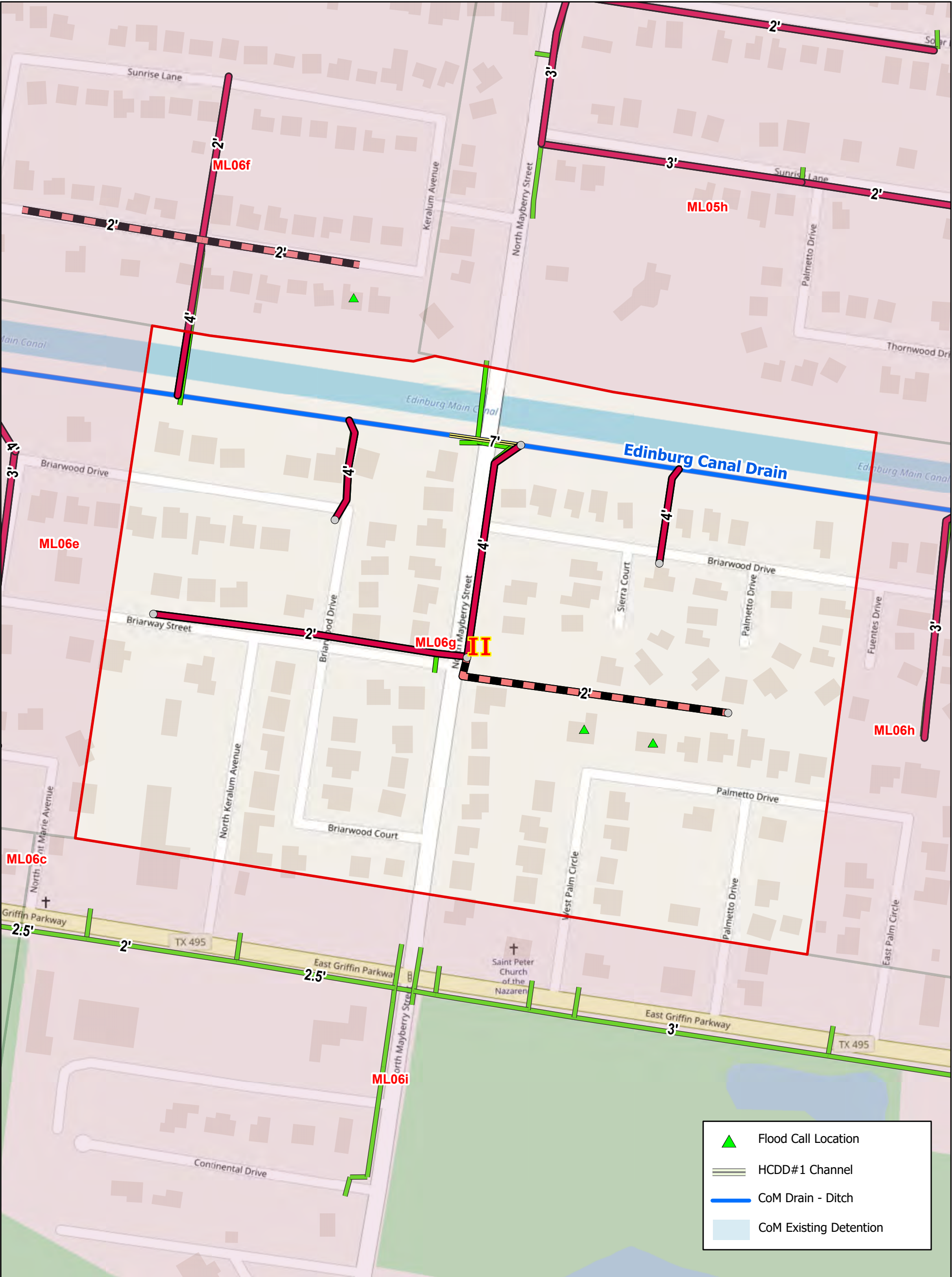


	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Proposed Detention Basin

Drainage Area ML06f Thornwood
Location Recommendations: 1. Storm Sewer Upgrade - 693 Feet 2. Storm Sewer Extension - 731 Feet 3. Channel Improvements - 0 Feet 4. Detention Basin - 0 Acre

N

0 75 150 Feet



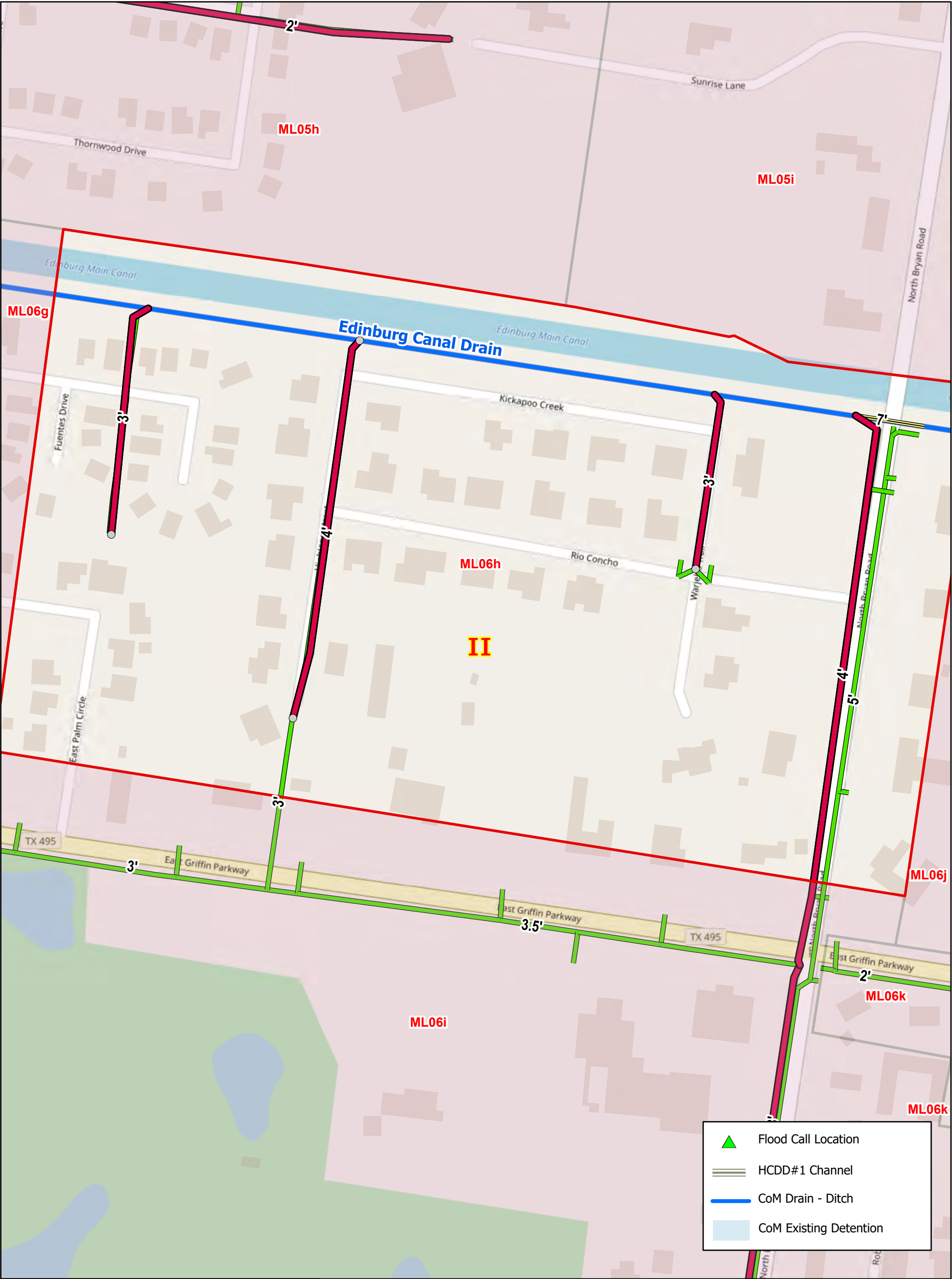
Drainage Area ML06g Mayberry A

Location Recommendations:

1. Storm Sewer Upgrade - 1,599 Feet
2. Storm Sewer Extension - 616 Feet
3. Channel Improvements - 0 Feet
4. Detention Basin - 0 Acre

N

0 100 200 Feet

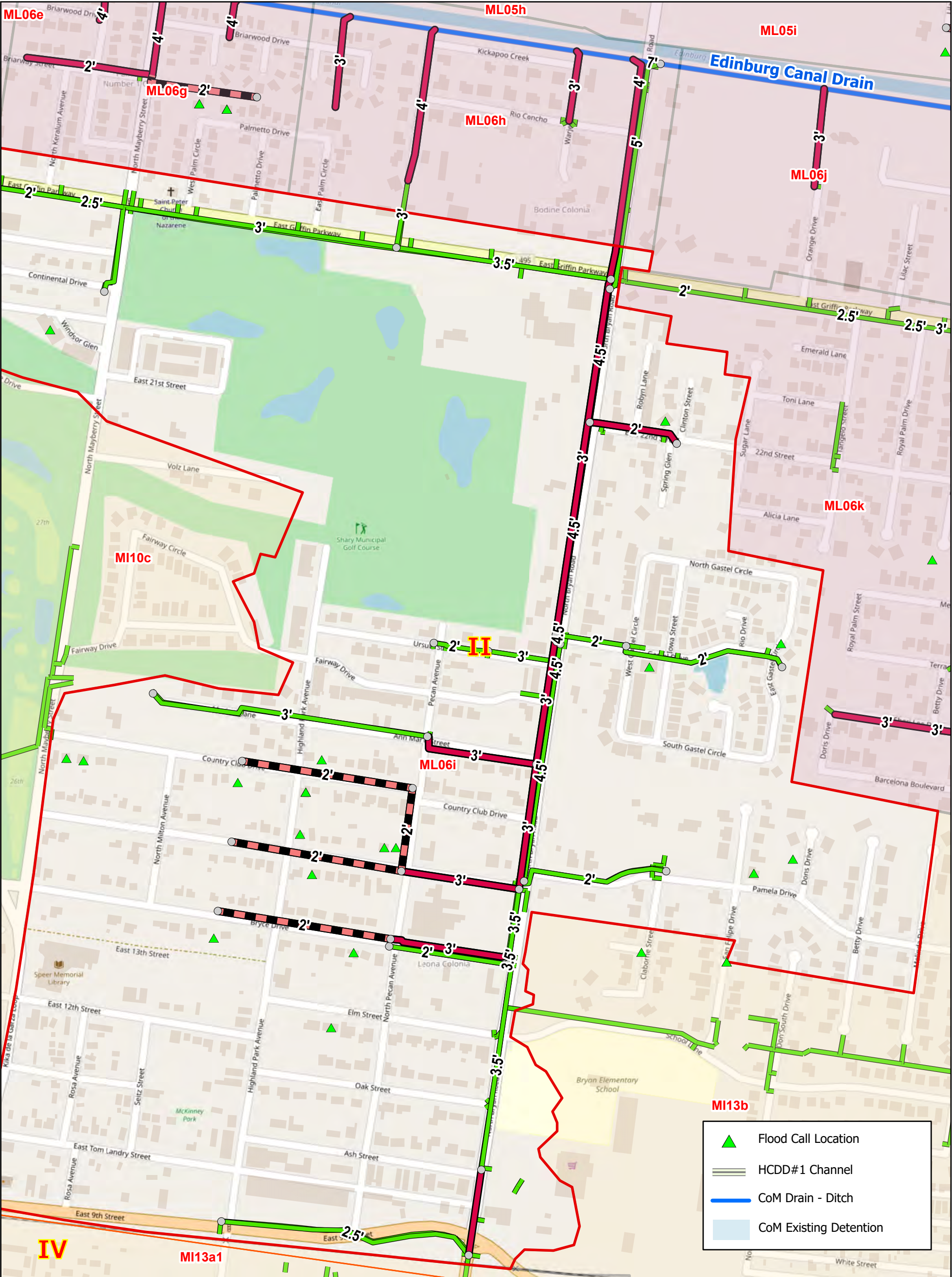


	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Proposed Detention Basin

Drainage Area ML06h Woodland

Location Recommendations:

1. Storm Sewer Upgrade - 1,715 Feet
2. Storm Sewer Extension - 0 Feet
3. Channel Improvements - 0 Feet
4. Detention Basin - 0 Acre

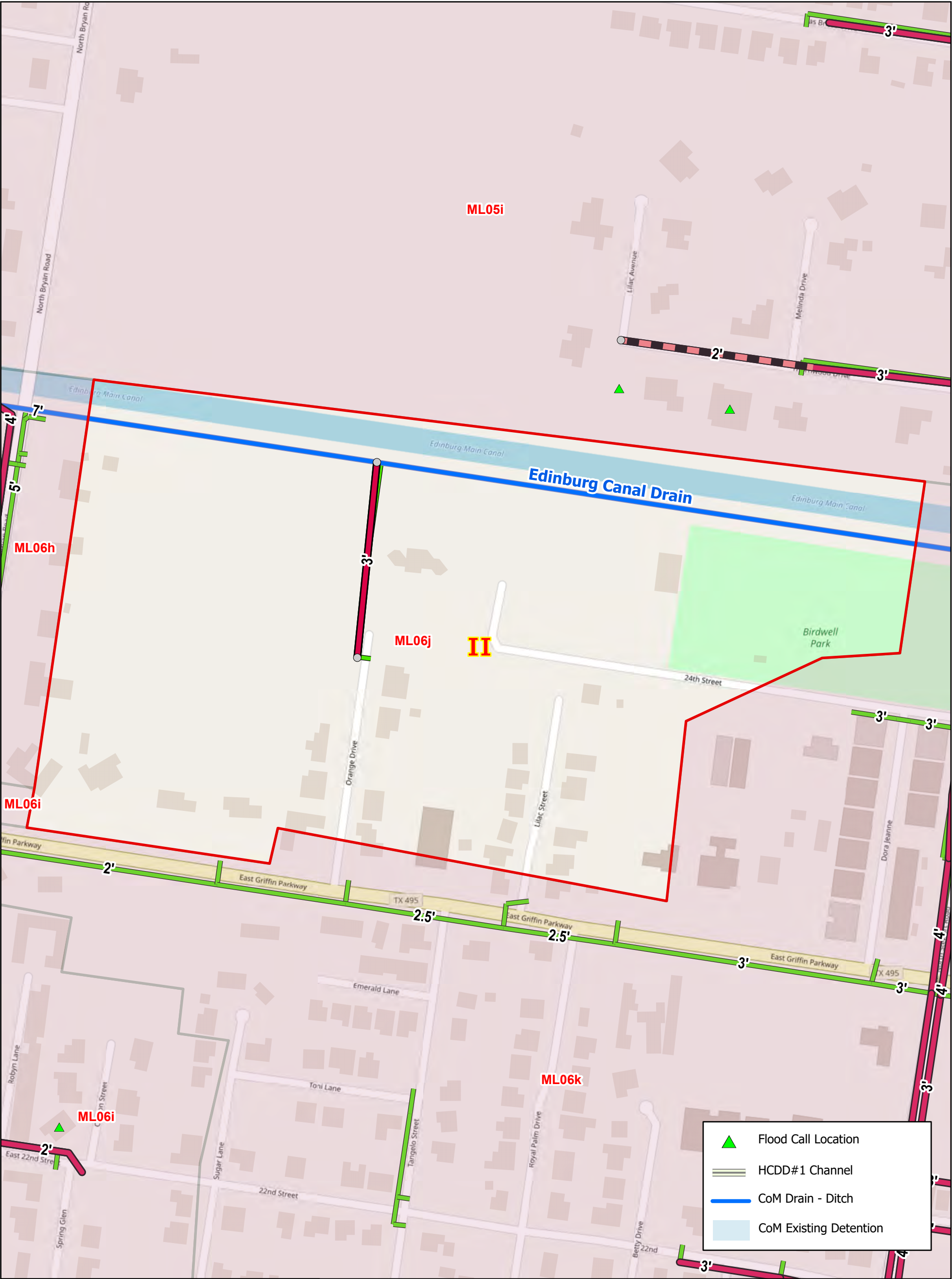


	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Proposed Detention Basin

Drainage Area ML06i Bryan

Location Recommendations:

1. Storm Sewer Upgrade - 6,976 Feet
2. Storm Sewer Extension - 3,234 Feet
3. Channel Improvements - 0 Feet
4. Detention Basin - 0 Acre



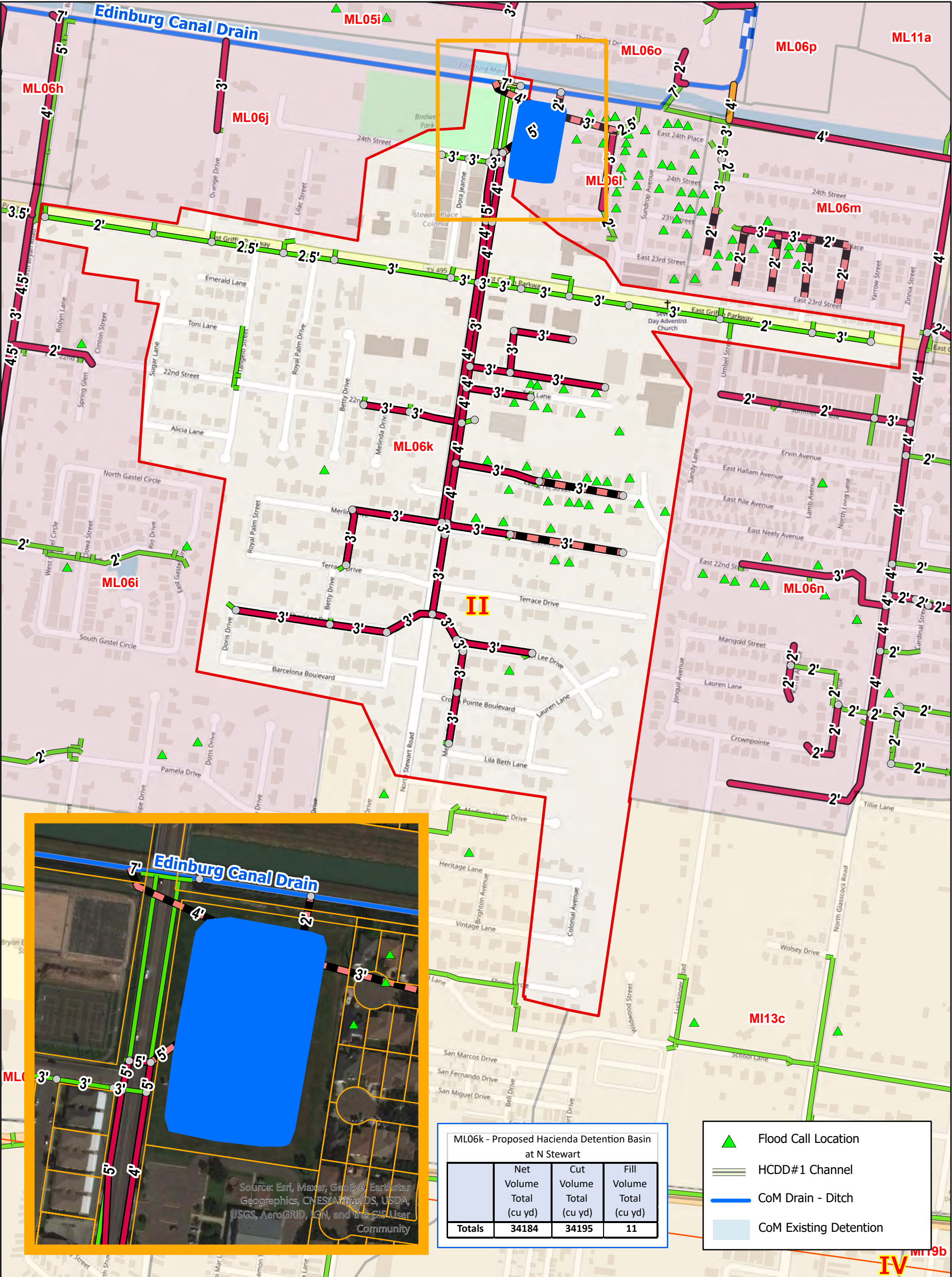
	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Proposed Detention Basin

Drainage Area ML06j
Orange

Location Recommendations:
1. Storm Sewer Upgrade - 526 Feet
2. Storm Sewer Extension - 0 Feet
3. Channel Improvements - 0 Feet
4. Detention Basin - 0 Acre

N

0 100 200 Feet



ML06k - Proposed Hacienda Detention Basin at N Stewart			
	Net Volume Total (cu yd)	Cut Volume Total (cu yd)	Fill Volume Total (cu yd)
Totals	34184	34195	11

Flood Call Location

HCDD#1 Channel

CoM Drain - Ditch

CoM Existing Detention

Channel Improvement

Crossing Improvement

No Modifications

New Pipe Addition

Pipe Upsizing Locations

Proposed Detention Basin

Drainage Area ML06k
Stewart A

Location Recommendations:

1. Storm Sewer Upgrade - 4,147 Feet

2. Storm Sewer Extension - 1,175 Feet

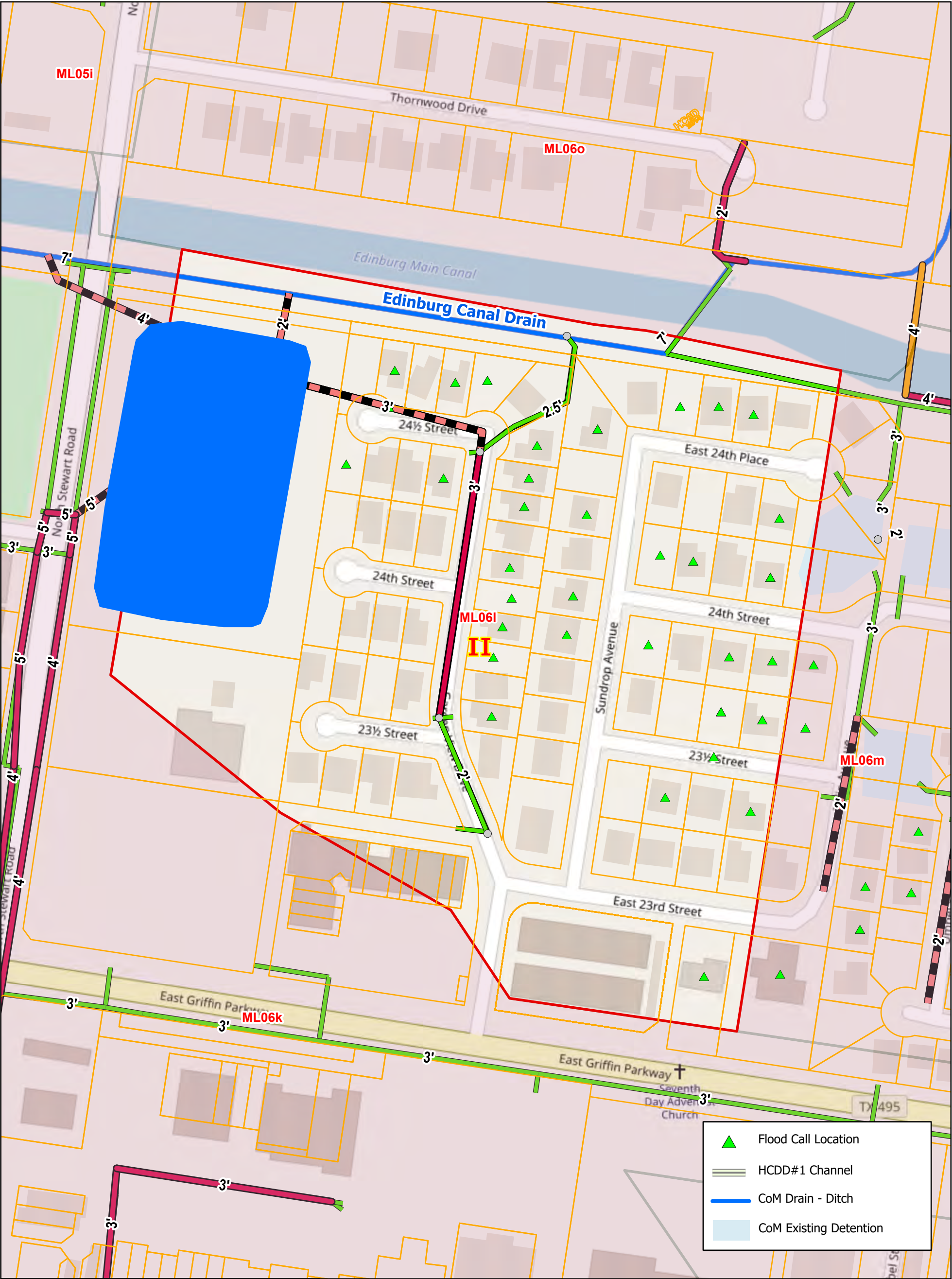
3. Channel Improvements - 0 Feet

4. New Hacienda Detention Basin at N Stewart Rd - 20 Acre-Ft (6'D, 3:1 SS) - 4 Acre Site

Basin receives inflow from ML06k, ML06l, and ECD High Flows

N

0 275 550 Feet



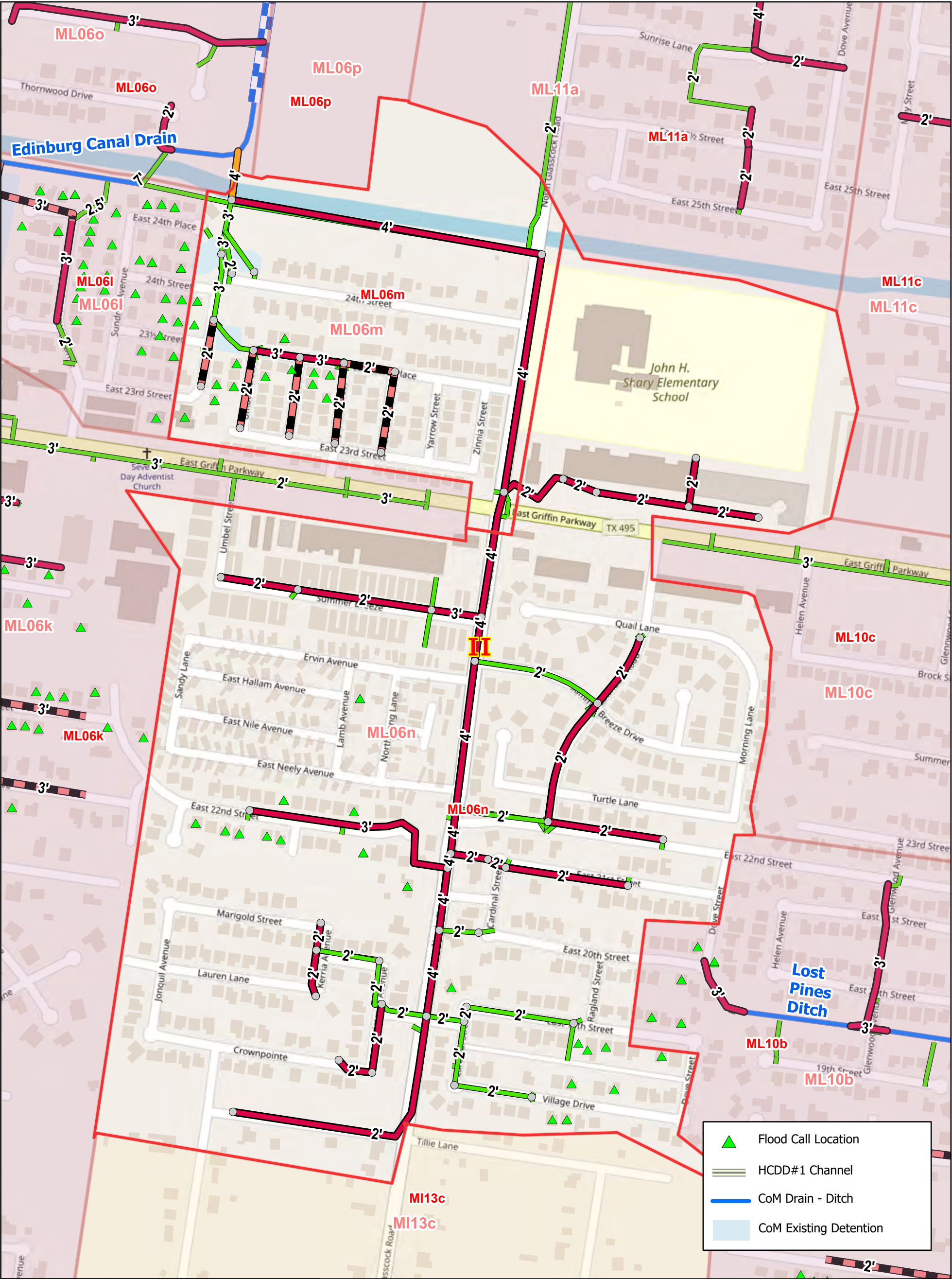
	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Proposed Detention Basin

Drainage Area ML061

Sundrop

Location Recommendations:

1. Storm Sewer Upgrade - 408 Feet
2. Storm Sewer Extension - 382 Feet
3. Channel Improvements - 0 Feet
4. Detention Basin - 20 Acre-Feet (See ML06k)

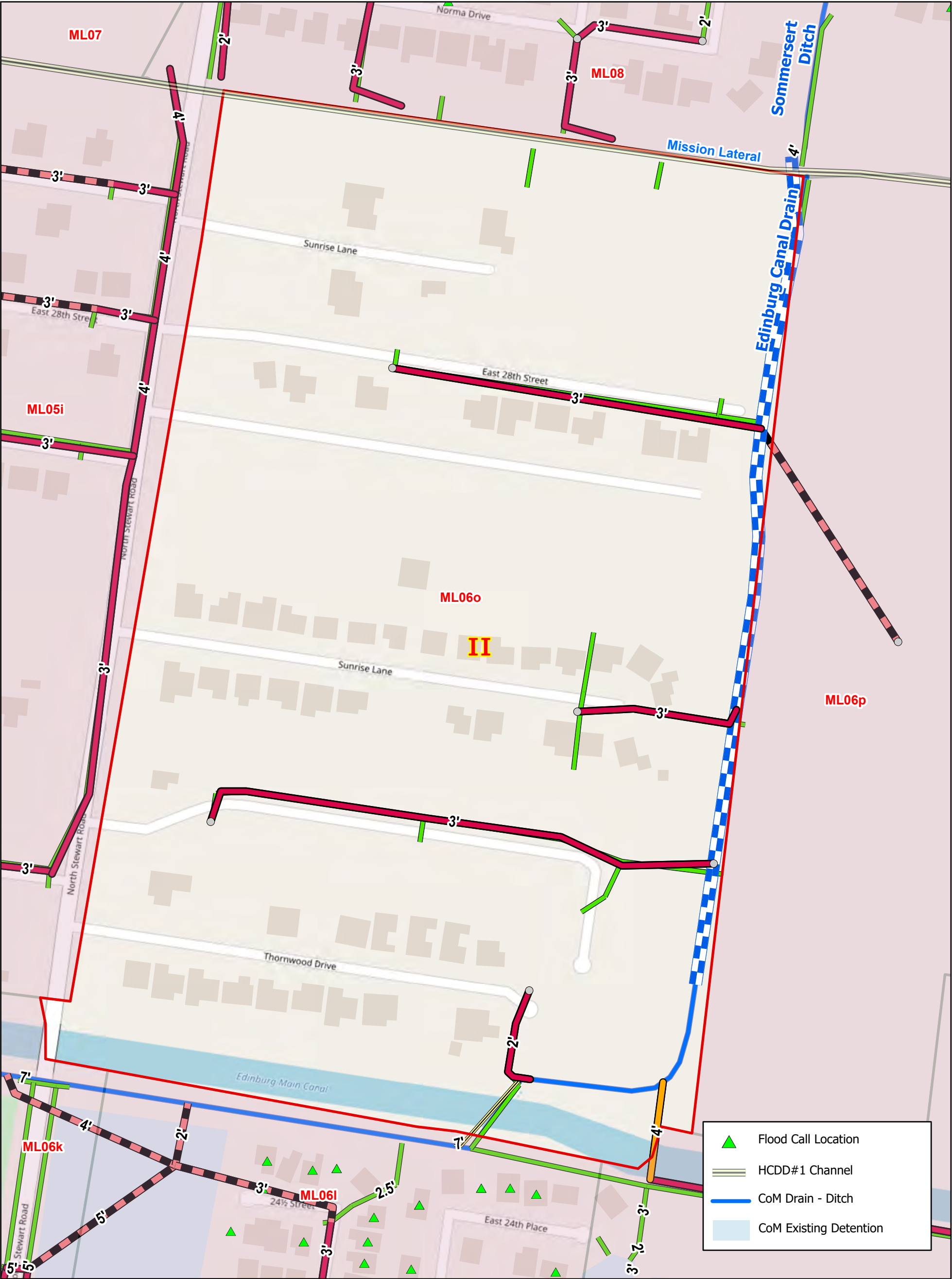


	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Proposed Detention Basin

Drainage Area ML06m & ML06n Tulip/Glasscock

Location Recommendations:

1. Storm Sewer Upgrade - 11,767 Feet
2. Storm Sewer Extension - 1,880 Feet
(Includes new 48" RCP canal crossing)
3. Channel Improvements - 0 Feet
4. Detention Basin - 0 Acre



Flood Call Location

HCDD#1 Channel

CoM Drain - Ditch

CoM Existing Detention

Channel Improvement

Crossing Improvement

No Modifications

New Pipe Addition

Pipe Upsizing Locations

Proposed Detention Basin

Drainage Area ML06o
Solar

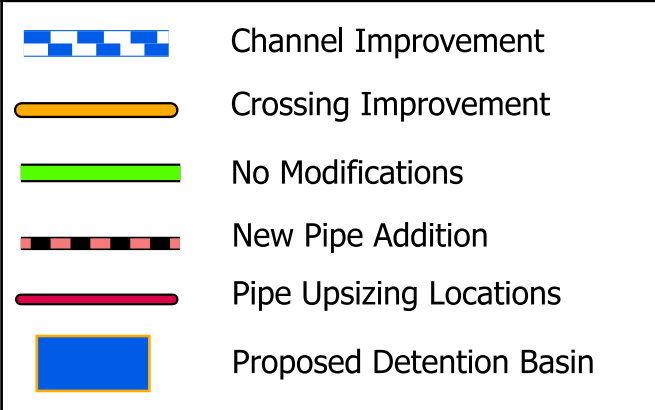
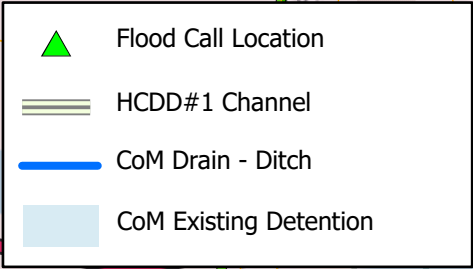
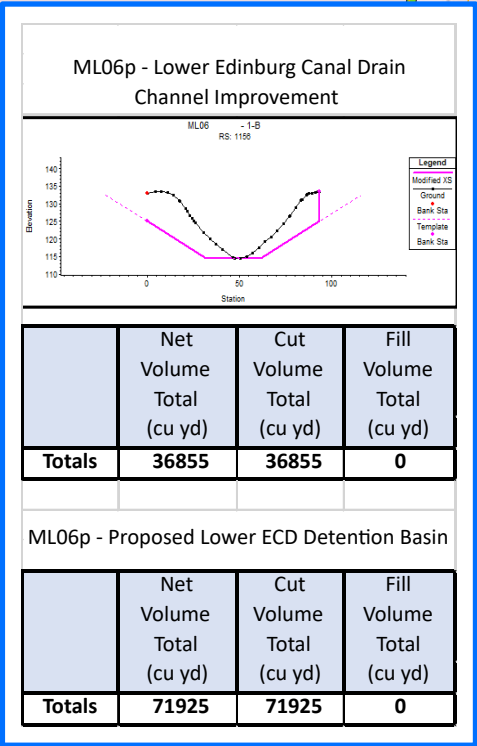
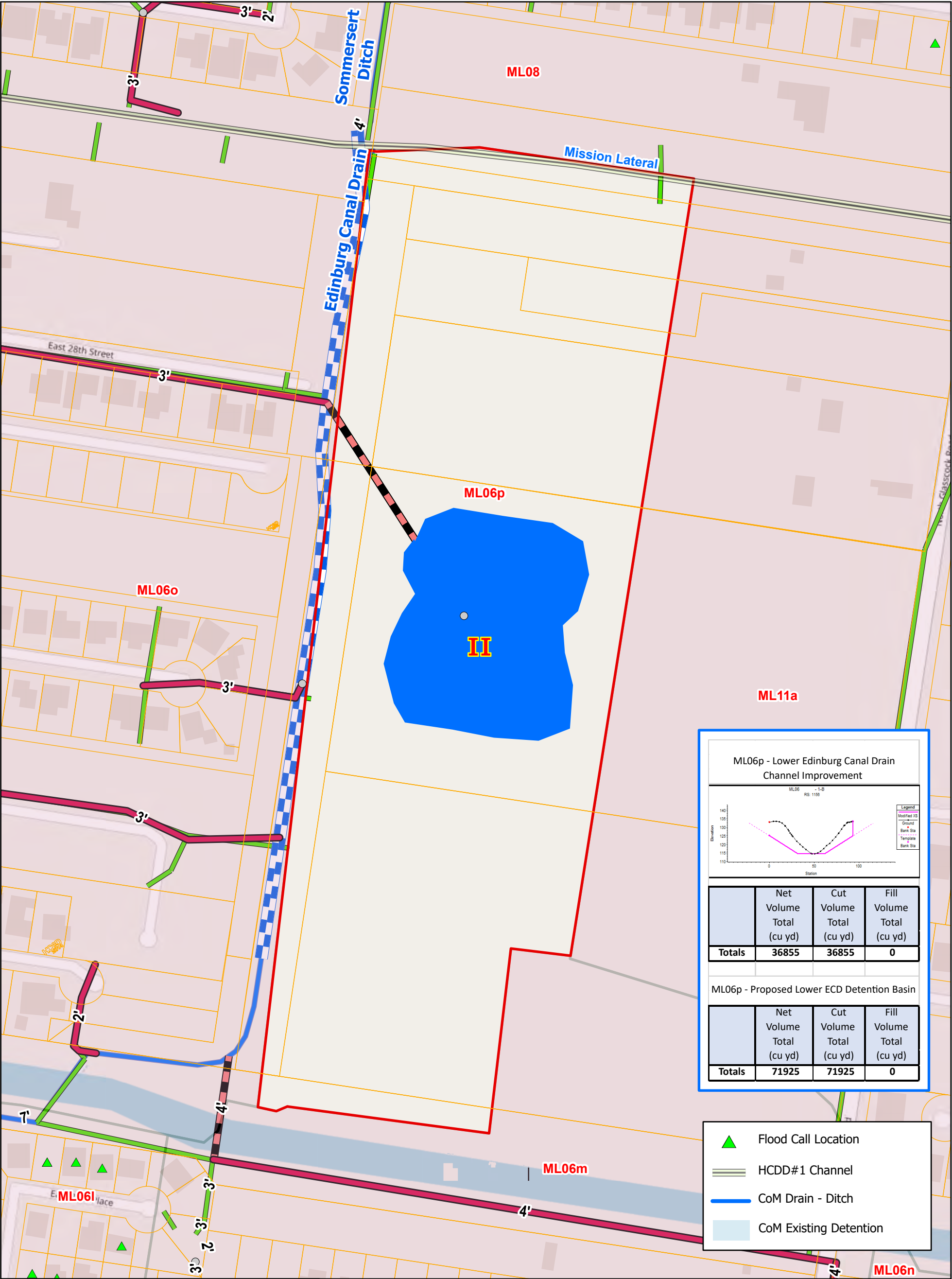
Location Recommendations:

1. Storm Sewer Upgrade - 2,543 Feet

2. Storm Sewer Extension - 0 Feet

3. Channel Improvements - 0 Feet

4. Detention Basin - 0 Acre

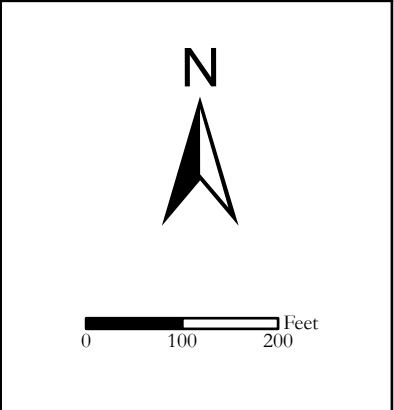


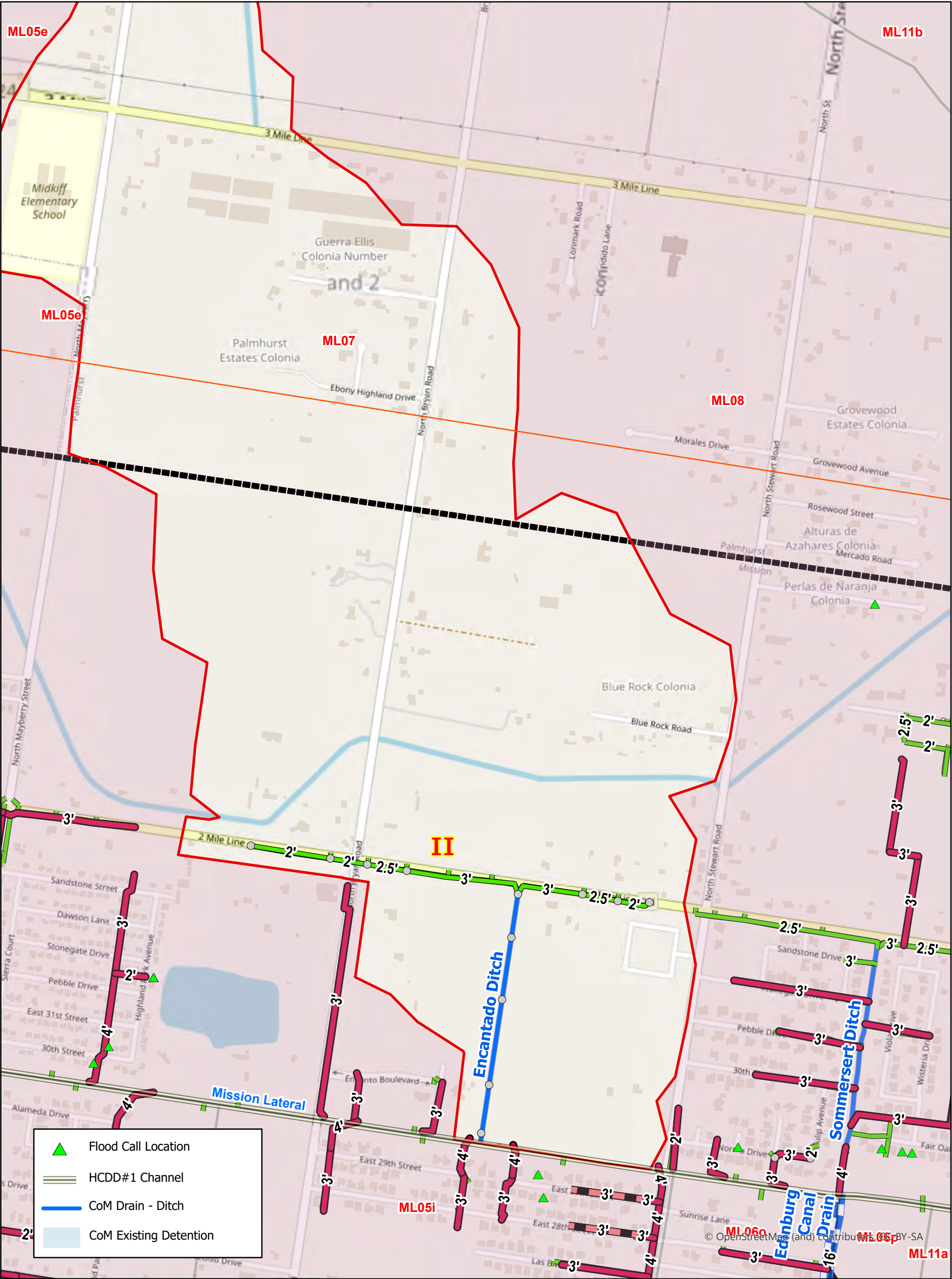
Drainage Area ML06p

Location Recommendations:

- Storm Sewer Upgrade - 0 Feet
- Storm Sewer Extension - 0 Feet
- Channel Improvements (16"D, 30'BW, 3:1 Concrete Lined SS) - 13,720 Feet
- New Edinburg Canal Drain Detention Basin at Glasscock Rd - 40 Acre-Ft (12"D, 4:1 SS) - 6 Acre Site

Basin receives inflow from ECD via 200-foot concrete side channel weir





	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Proposed Detention Basin

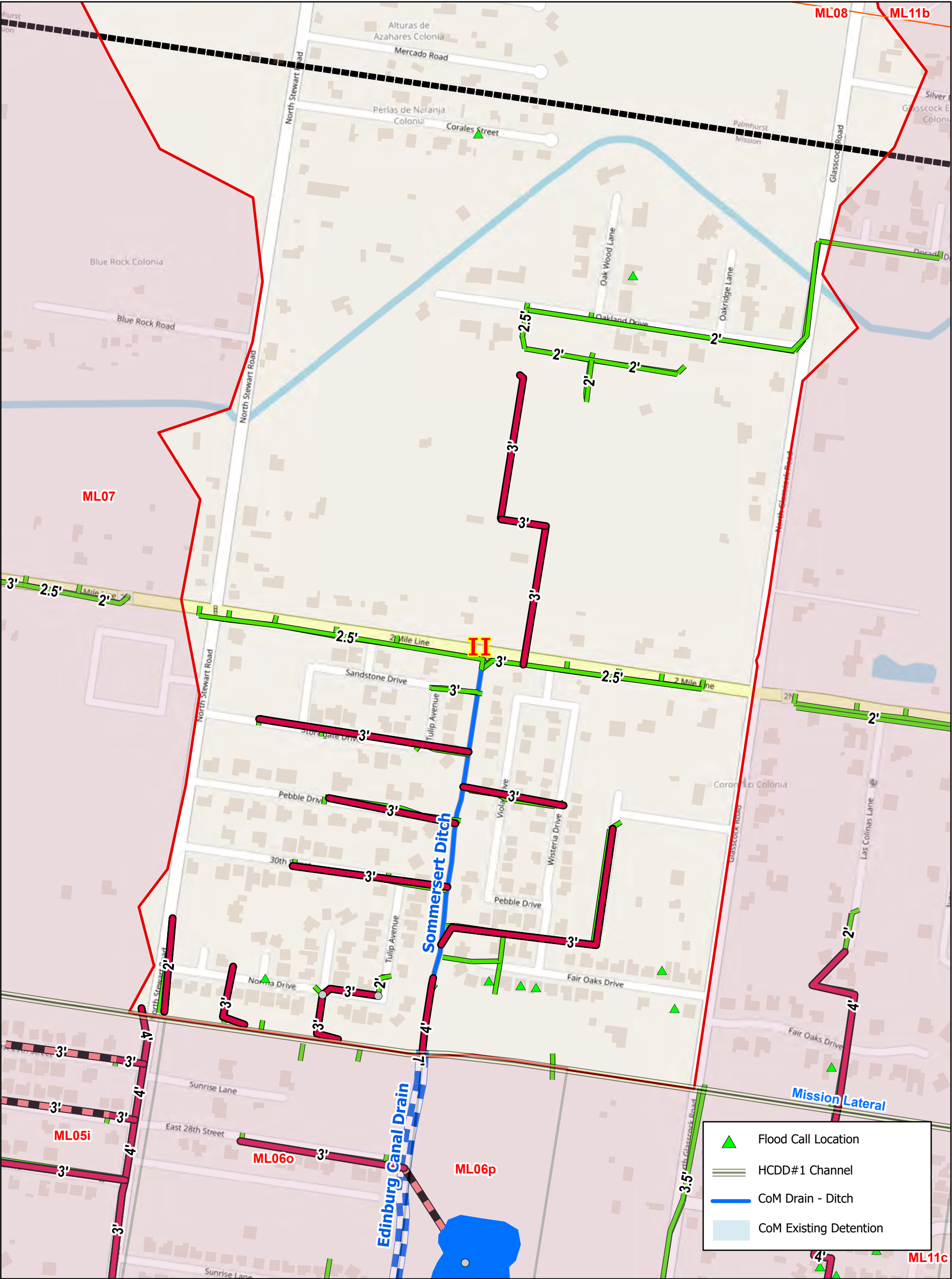
Drainage Area ML07 Encantado

Location Recommendations:

1. Storm Sewer Upgrade - 0 Feet
2. Storm Sewer Extension - 0Feet
3. Channel Improvements - 0 Feet
4. Detention Basin - 0 Acre-Feet



0 350 700 Feet



	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Proposed Detention Basin

Drainage Area ML08

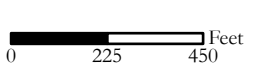
Stonegate

Location Recommendations:

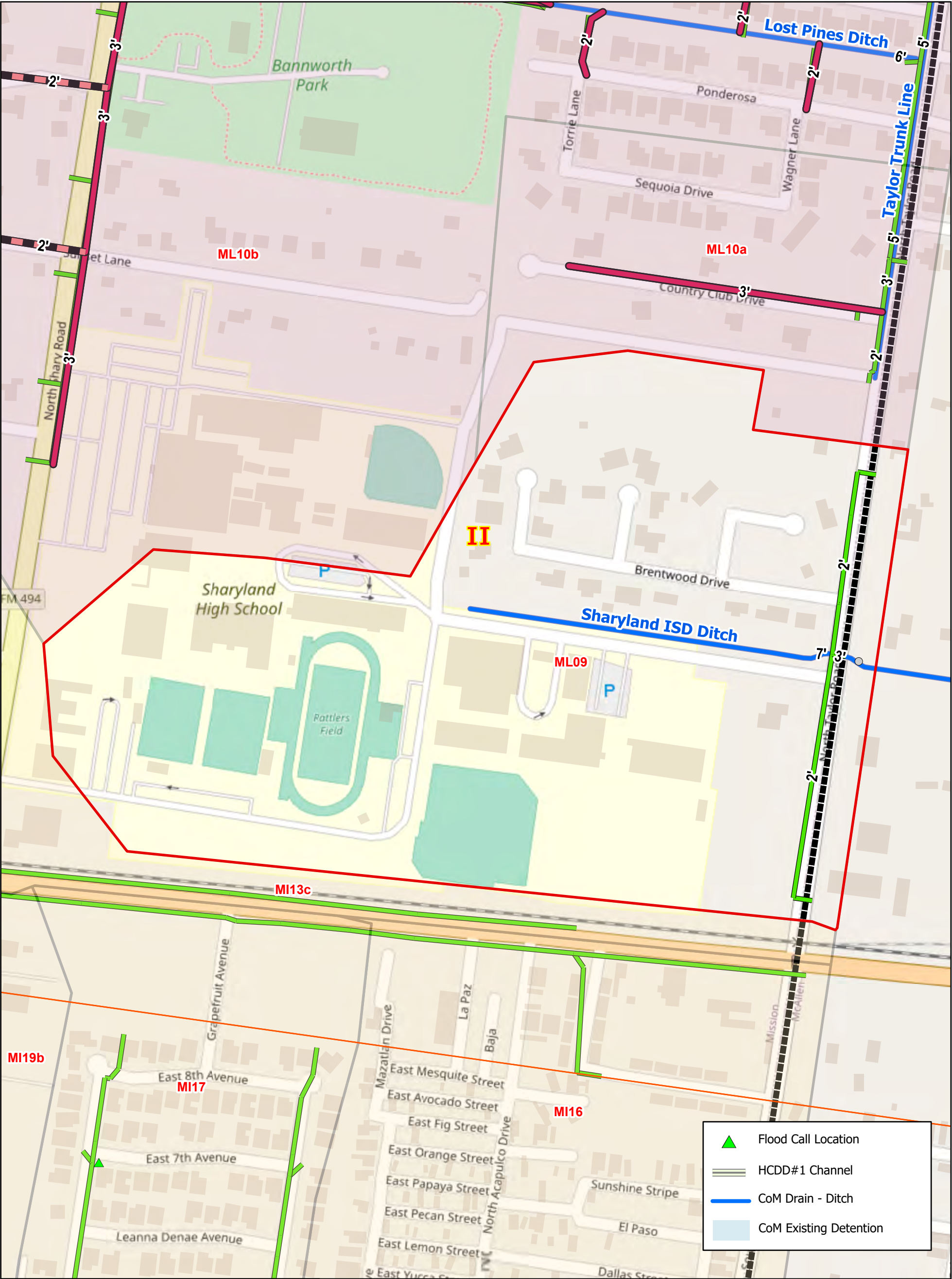
- Storm Sewer Upgrade - 5,641 Feet
- Storm Sewer Extension - 0 Feet
- Channel Improvements - 0 Feet
- Detention Basin - 0 Acre-Ft



N



0 225 450 Feet

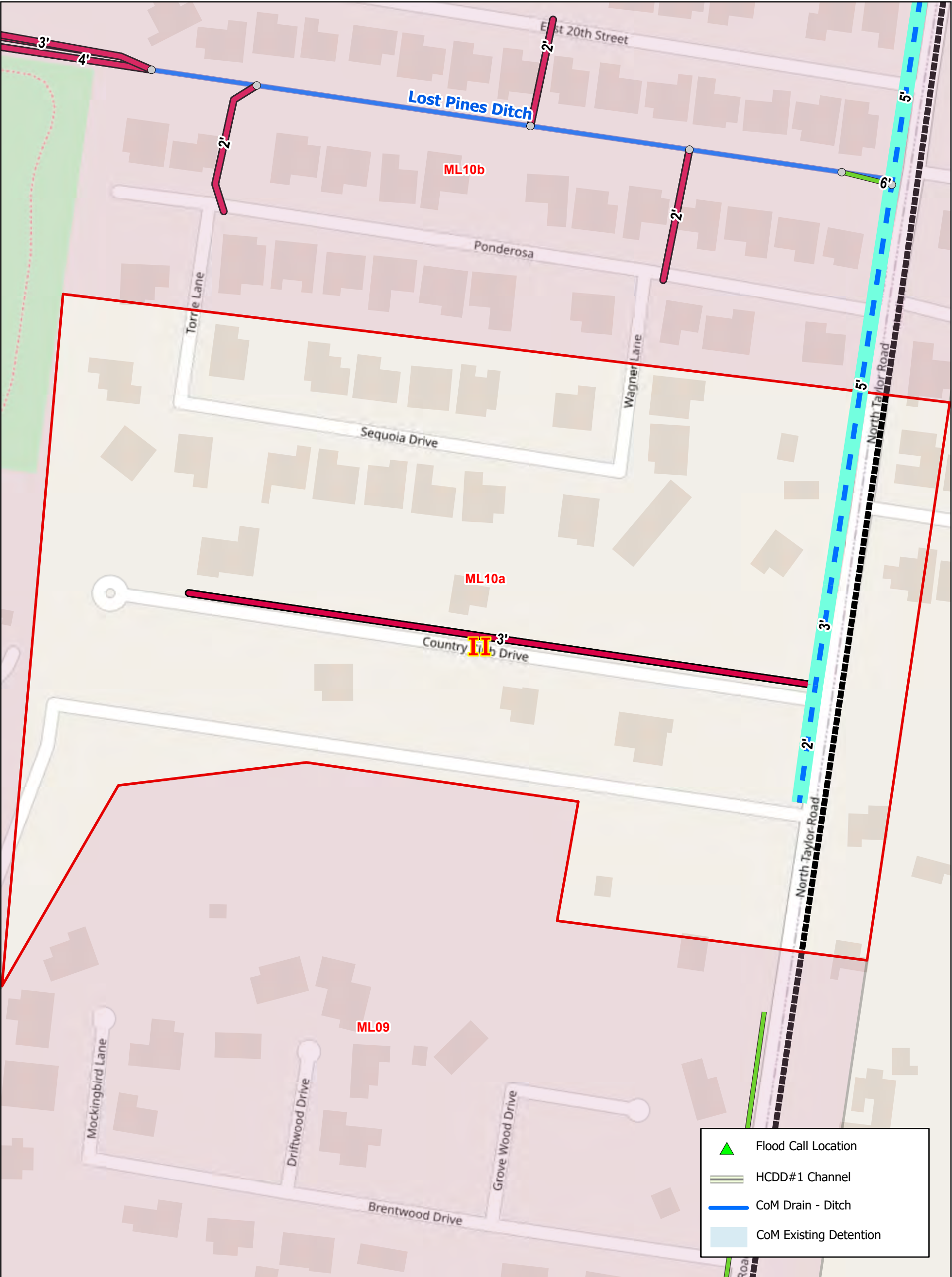


	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Proposed Detention Basin

Drainage Area ML09 Brentwood

Location Recommendations:

1. Storm Sewer Upgrade - 0 Feet
2. Storm Sewer Extension - 0 Feet
3. Channel Improvements - 0 Feet
4. Detention Basin - 0 Acre-Feet



	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Taylor Trunk Upgrade

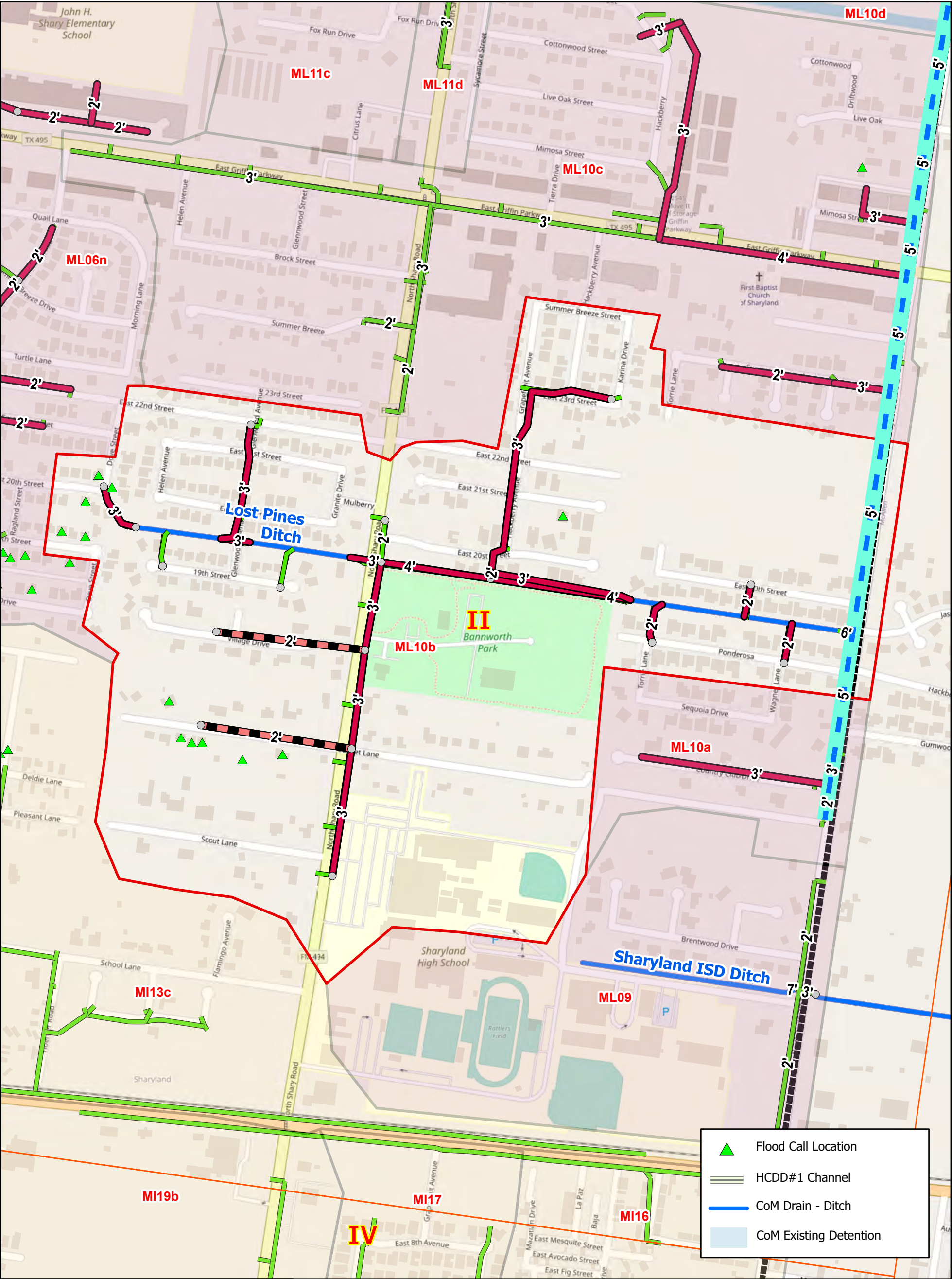
Drainage Area ML10a Country Club

Location Recommendations:

- 1. Storm Sewer Upgrade - 1,364 Feet
(Includes 346 feet of Upgrade to Trunk Line segments along N Taylor Road)
- 2. Storm Sewer Extension - 0 Feet
- 3. Channel Improvements - 0 Feet
- 4. Detention Basin - 0 Acre-Ft

N

0 75 150 Feet

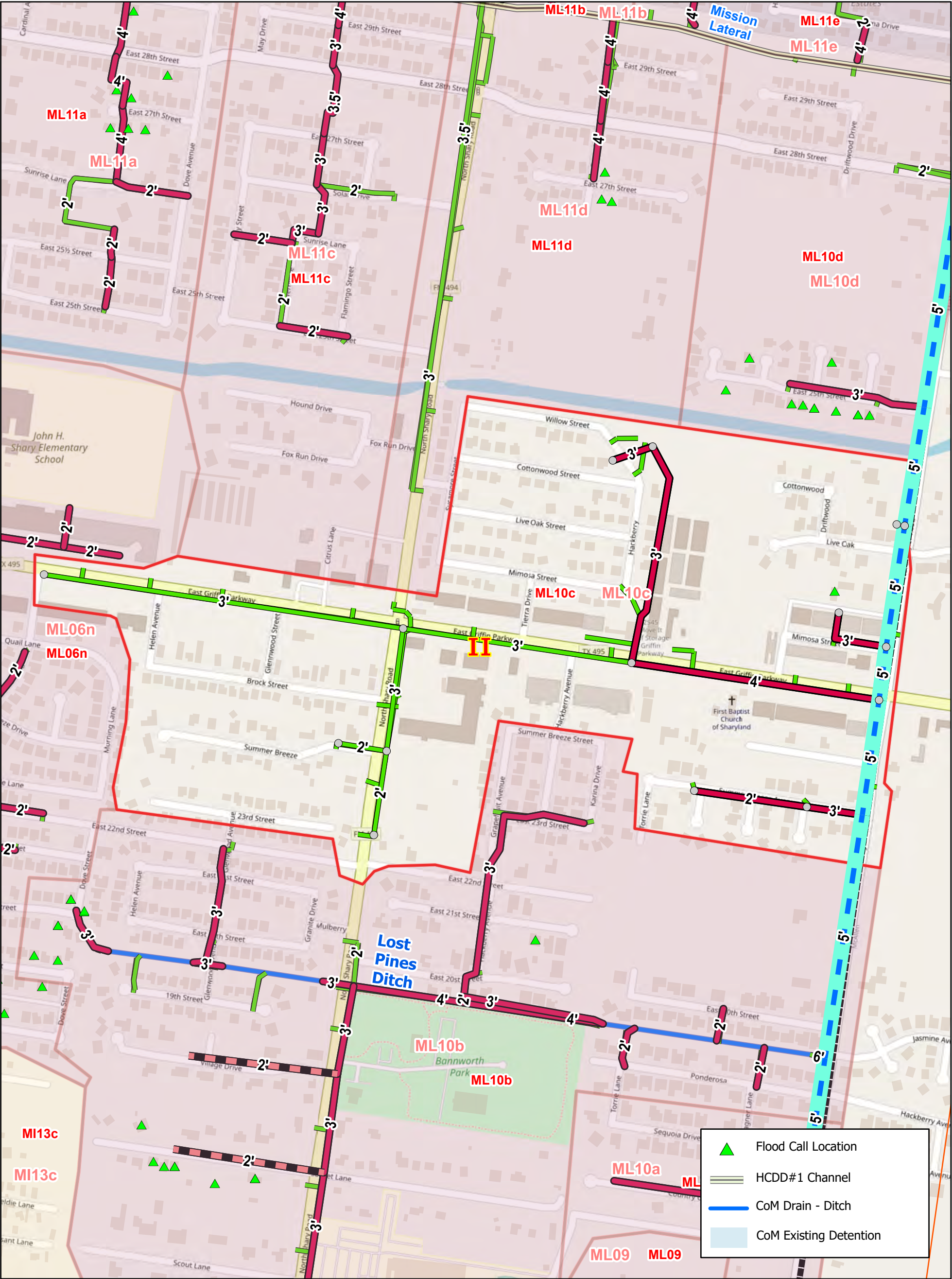


	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Taylor Trunk Upgrade

Drainage Area ML10b Sunset

Location Recommendations:

- Storm Sewer Upgrade - 9,173 Feet
(Includes 1,962 feet of Upgrades to Trunk Line segments along N Taylor Road)
- Storm Sewer Extension - 1,620 Feet
- Channel Improvements - 0 Feet
- Detention Basin - 0 Acre-Ft

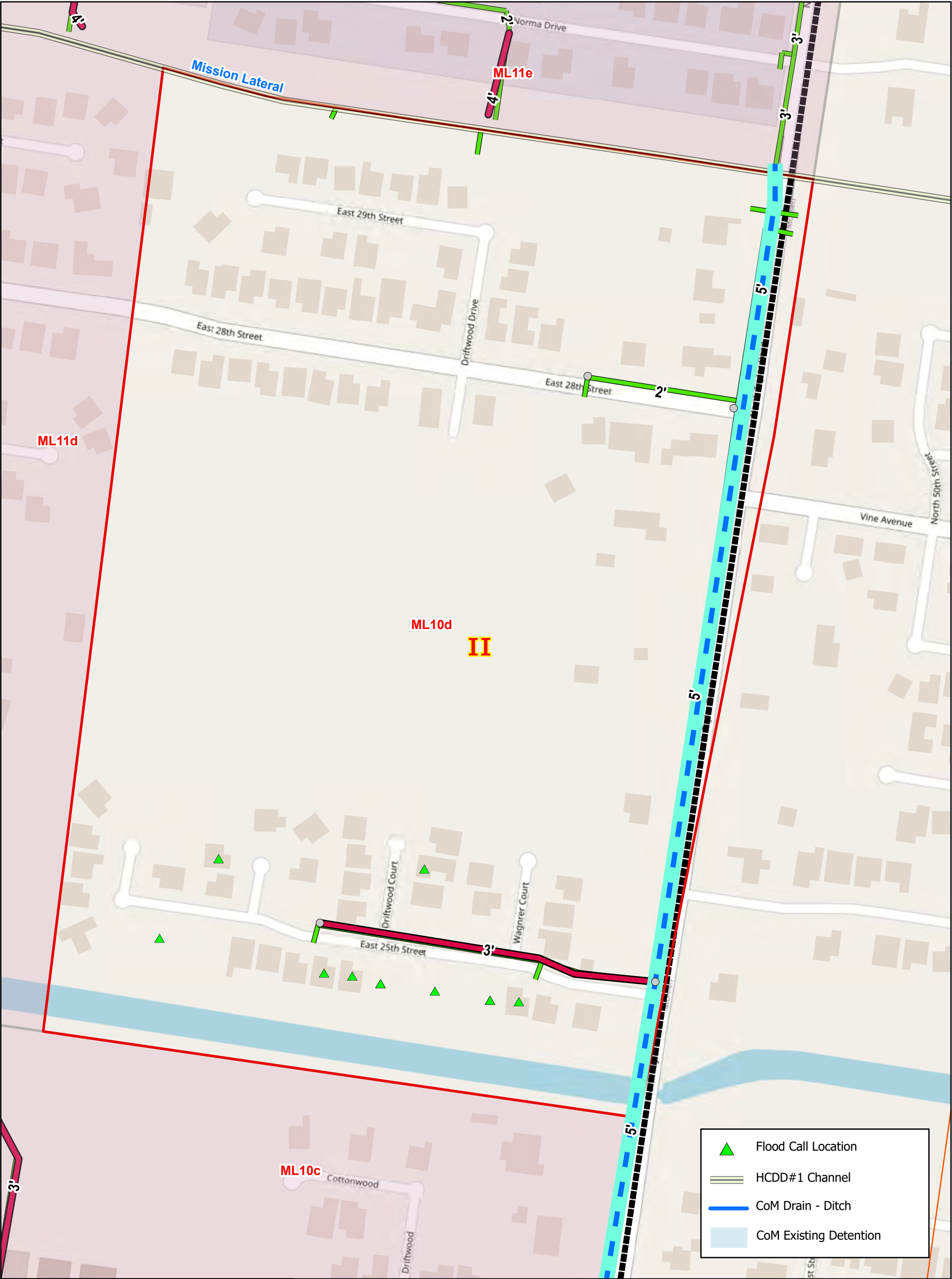


	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Taylor Trunk Upgrade

Drainage Area ML10c Griffin

Location Recommendations:

- Storm Sewer Upgrade - 5,481 Feet
(Includes 1,568 feet of Upgrades to Trunk Line segments along N Taylor Road)
- Storm Sewer Extension - 0 Feet
- Channel Improvements - 0 Feet
- Detention Basin - 0 Acre-Ft



	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Taylor Trunk Upgrade

Drainage Area ML10d Driftwood

Location Recommendations:

- Storm Sewer Upgrade - 3,150 Feet
(Includes 2,417 feet of Upgrades to Trunk Line segments along N Taylor Road)
- Storm Sewer Extension - 0 Feet
- Channel Improvements - 0 Feet
- Detention Basin - 0 Acre-Ft

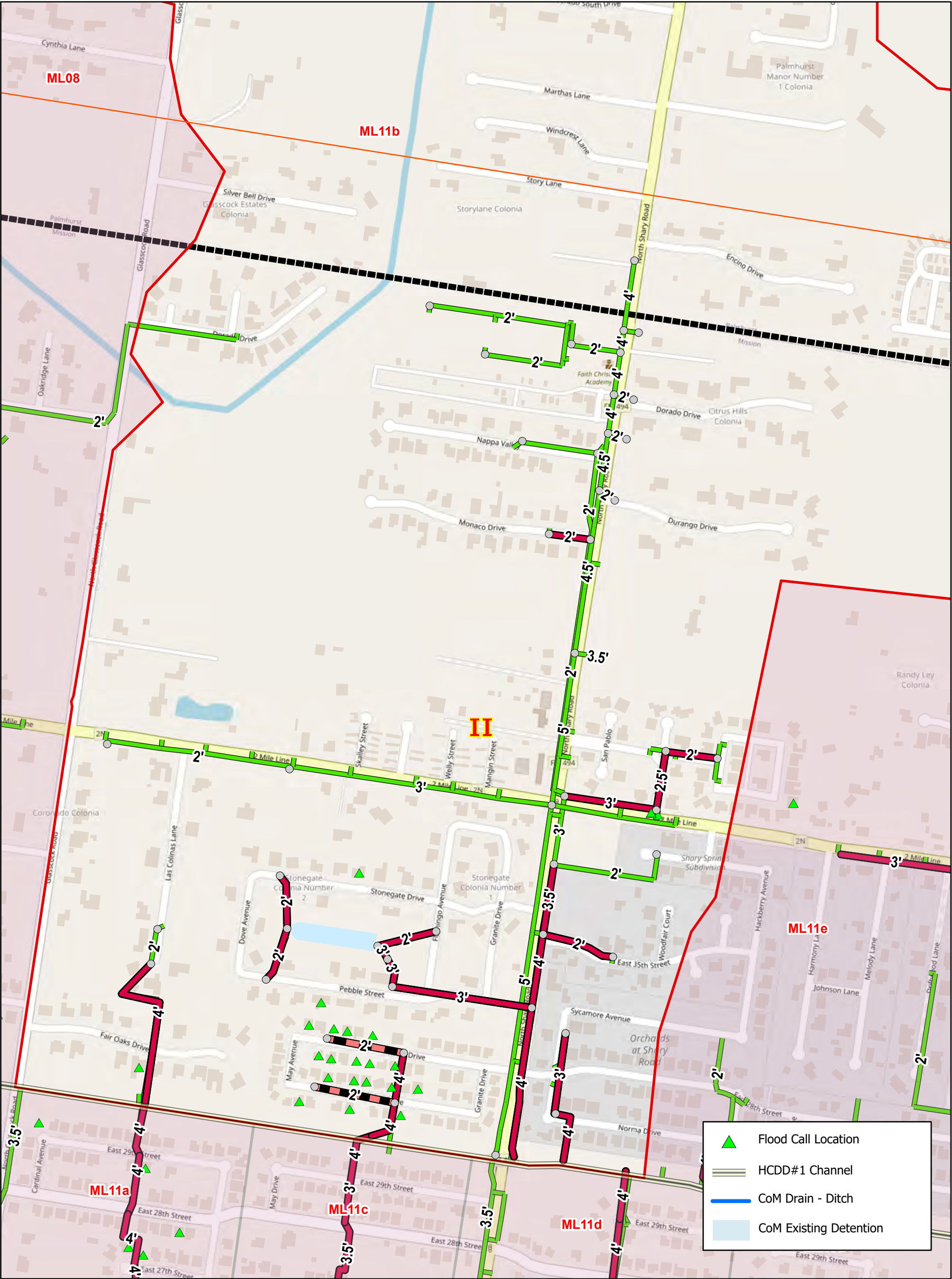


	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Proposed Detention Basin

Drainage Area ML11a Sunrise

Location Recommendations:

1. Storm Sewer Upgrade - 1,880 Feet
2. Storm Sewer Extension - 0 Feet
3. Channel Improvements - 0 Feet
4. Detention Basin - 0 Acre-Feet

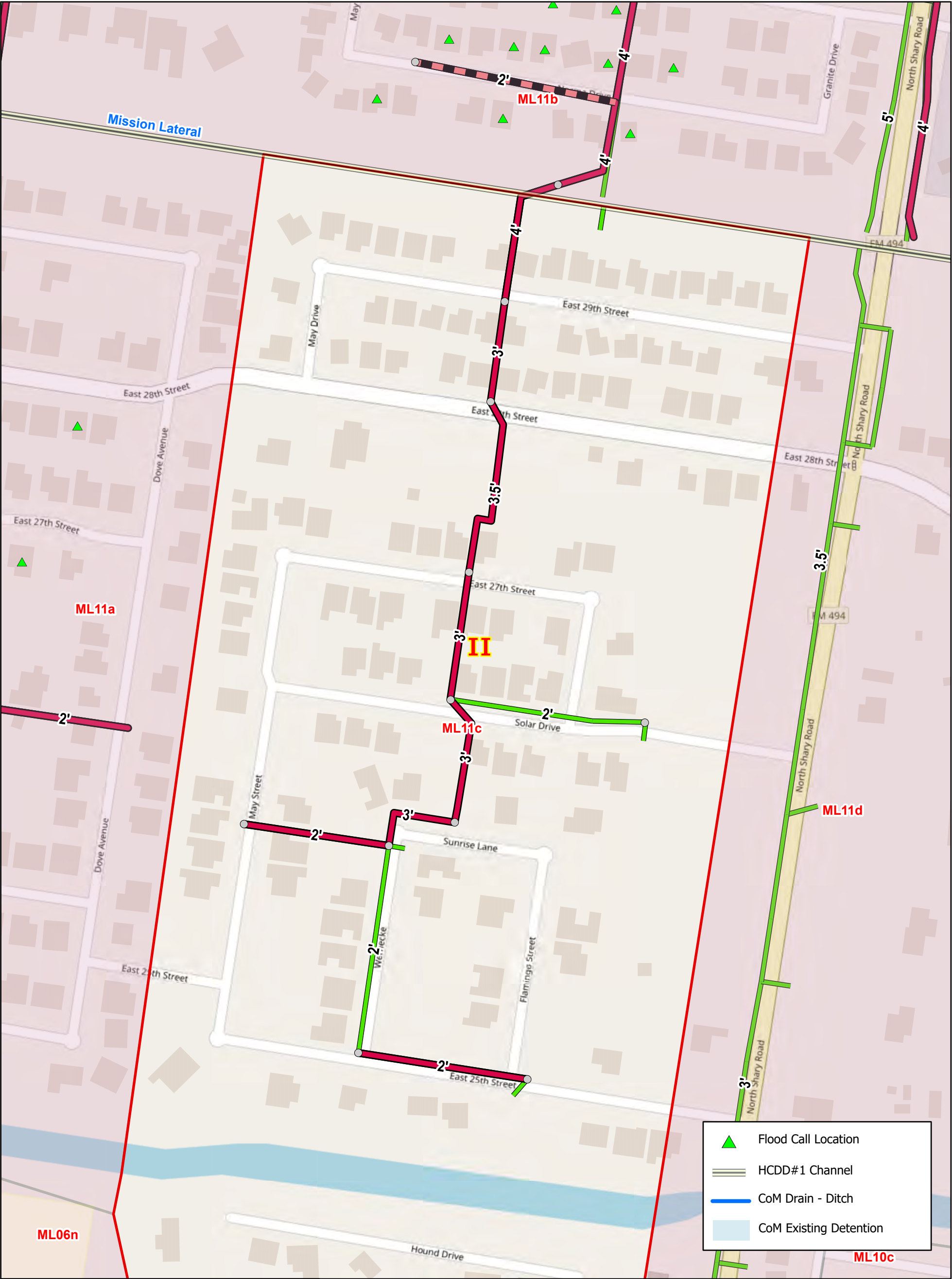


	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Proposed Detention Basin

Drainage Area ML11b Shary B

Location Recommendations:

1. Storm Sewer Upgrade - 6,249 Feet
2. Storm Sewer Extension - 856 Feet
3. Channel Improvements - 0 Feet
4. Detention Basin - 0 Acre-Feet

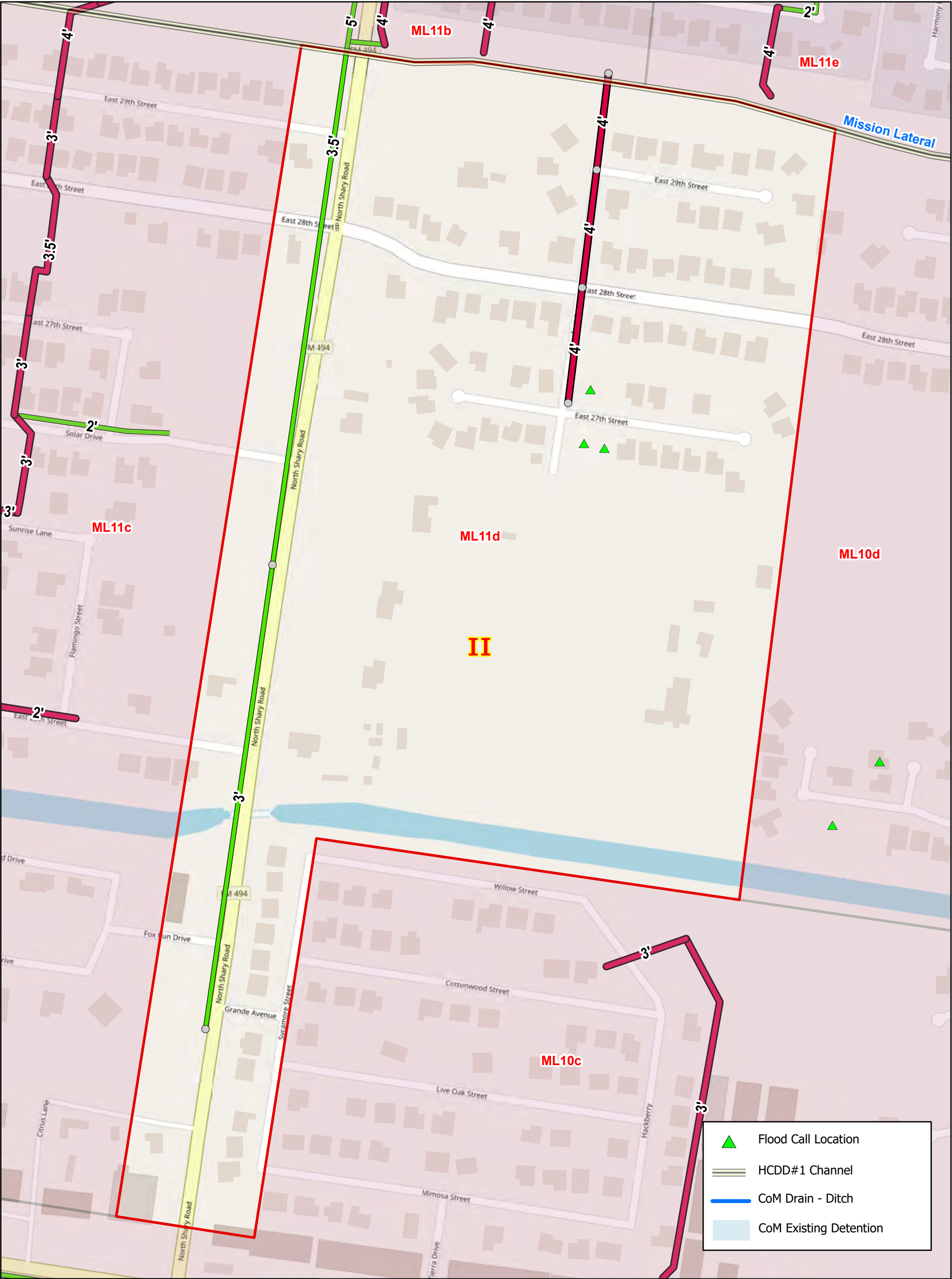


	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Proposed Detention Basin

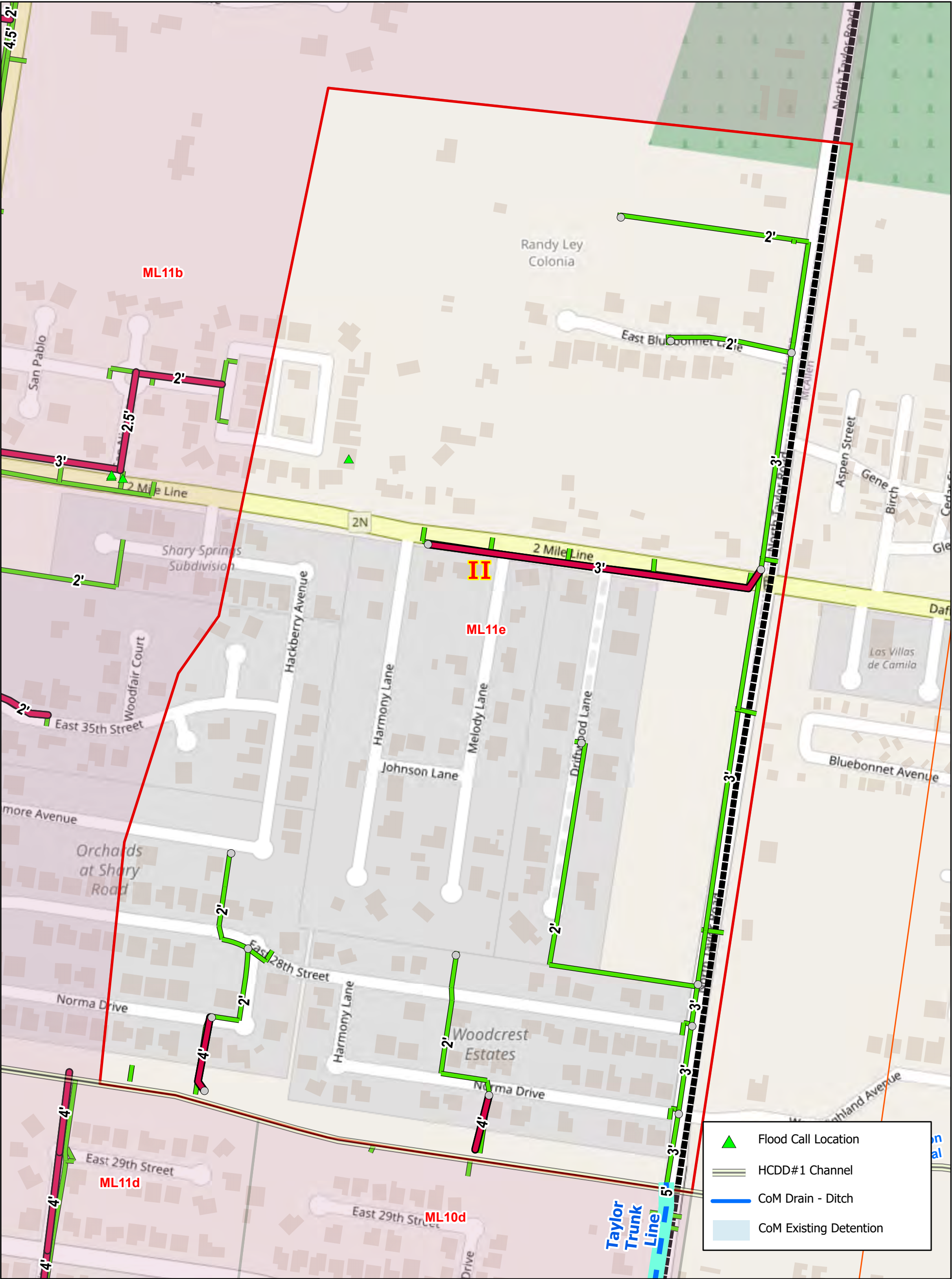
Drainage Area ML11c Wernecke

Location Recommendations:

1. Storm Sewer Upgrade - 1680 Feet
2. Storm Sewer Extension - 0 Feet
3. Channel Improvements - 0 Feet
4. Detention Basin - 0 Acre-Feet



Channel Improvement Crossing Improvement No Modifications New Pipe Addition Pipe Upsizing Locations Proposed Detention Basin	Drainage Area ML11d Grapefruit Location Recommendations: 1. Storm Sewer Upgrade - 582 Feet 2. Storm Sewer Extension - 0 Feet 3. Channel Improvements - 0 Feet 4. Detention Basin - 0 Acre-Feet	N 0125250Feet
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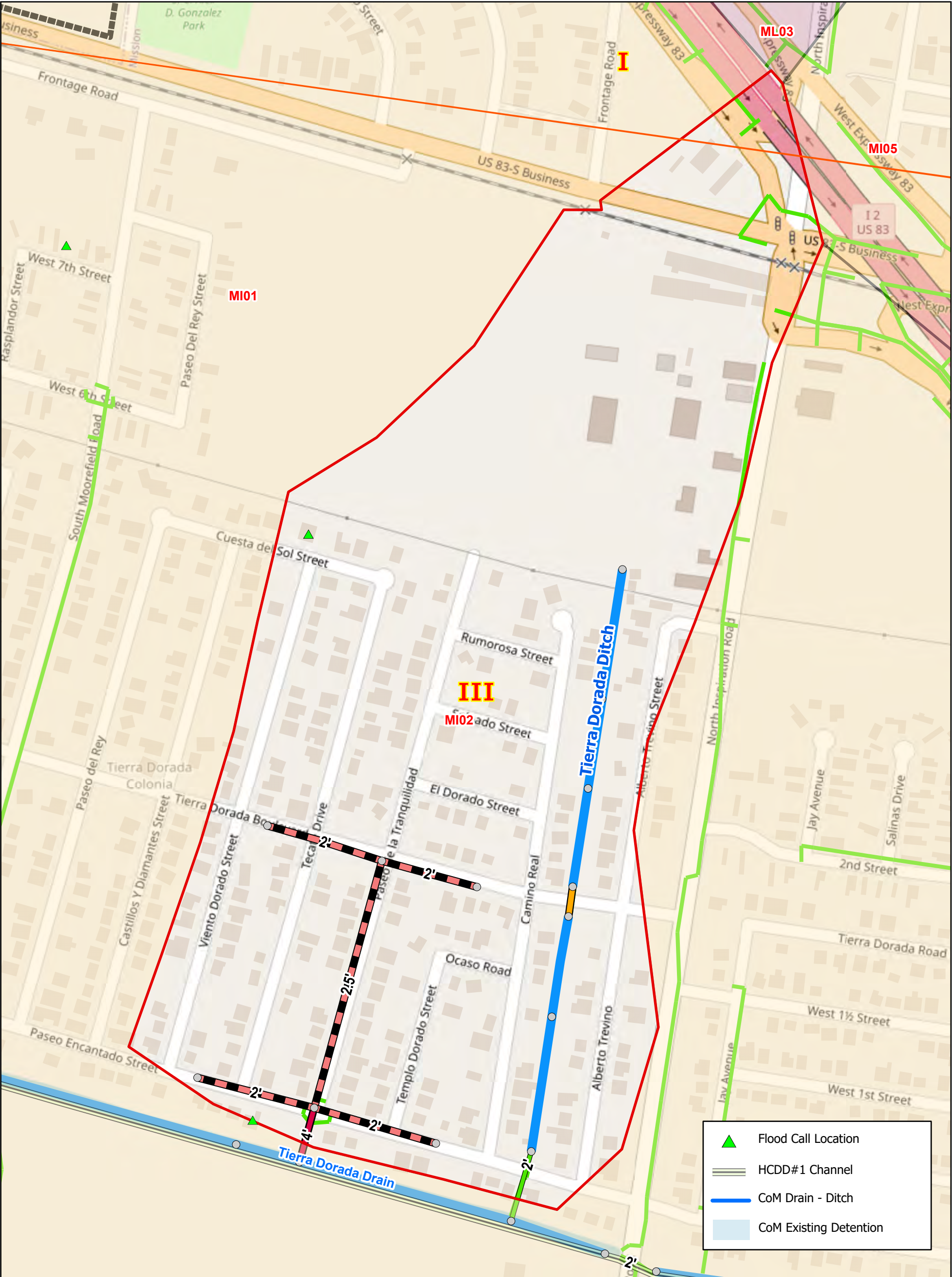
	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Proposed Detention Basin

Drainage Area ML11e

Norma

Location Recommendations:

1. Storm Sewer Upgrade - 1,545 Feet
2. Storm Sewer Extension - 0 Feet
3. Channel Improvements - 0 Feet
4. Detention Basin - 0 Acre-Feet



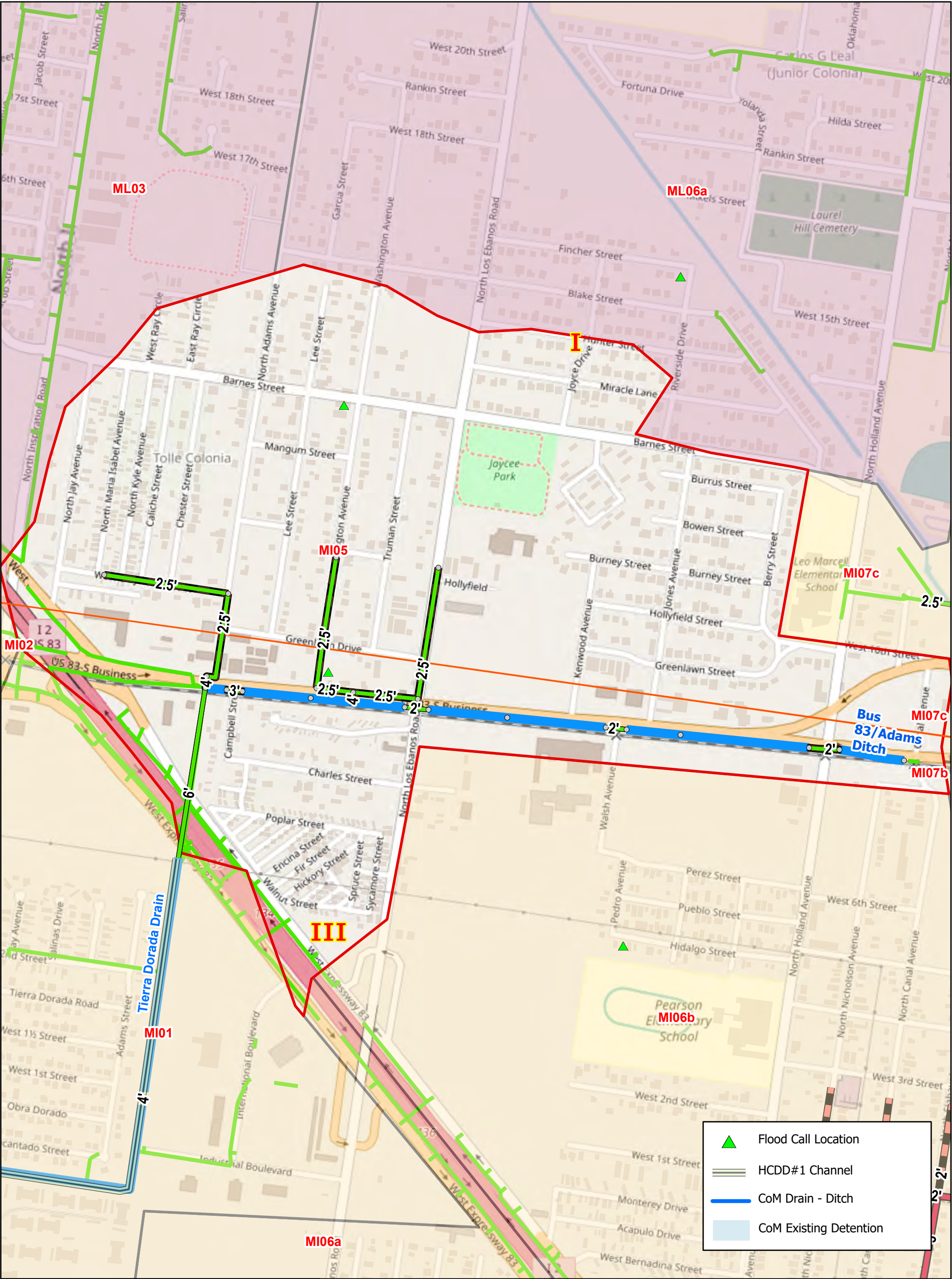
	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Proposed Detention Basin

Drainage Area MI02

El Dorado

Location Recommendations:

1. Storm Sewer Upgrade - 180 Feet
2. Storm Sewer Extension - 2,320 Feet
3. Channel Improvements - 0 Feet
4. Detention Basin - 0 Acre-Feet
5. Flap Gates at 2 Outfall Locations





Channel Improvement

Crossing Improvement

No Modifications

New Pipe Addition

Pipe Upsizing Locations

Proposed Detention Basin

Drainage Area MI06a

Erma

Location Recommendations:

1. Storm Sewer Upgrade - 7,042 Feet

2. Storm Sewer Extension - 2,354 Feet

3. Channel Improvements - 0 Feet

4. Proposed Detention Basin at Upper Reach of La Cuchilla Drain - 12 Acre-Feet (10'D 4:1SS Benched) - 2.2 Acre Site.

N

0

300

600

Feet



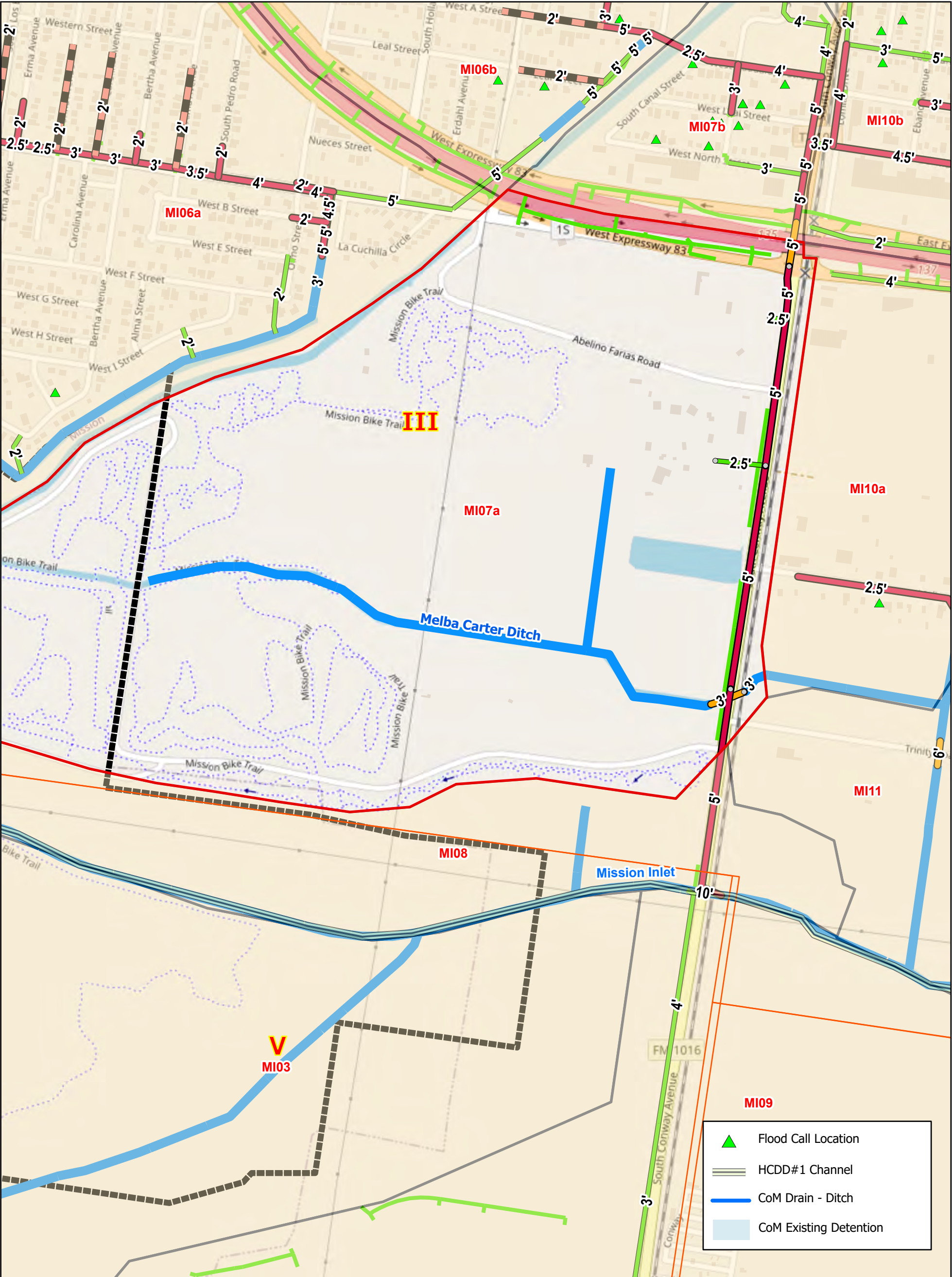
	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Proposed Detention Basin

Drainage Area MI06b

Leal

Location Recommendations:

1. Storm Sewer Upgrade - 2,165 Feet
2. Storm Sewer Extension - 2,987 Feet
3. Channel Improvements - 0 Feet
4. Detention Basin - 0 Acre-Feet



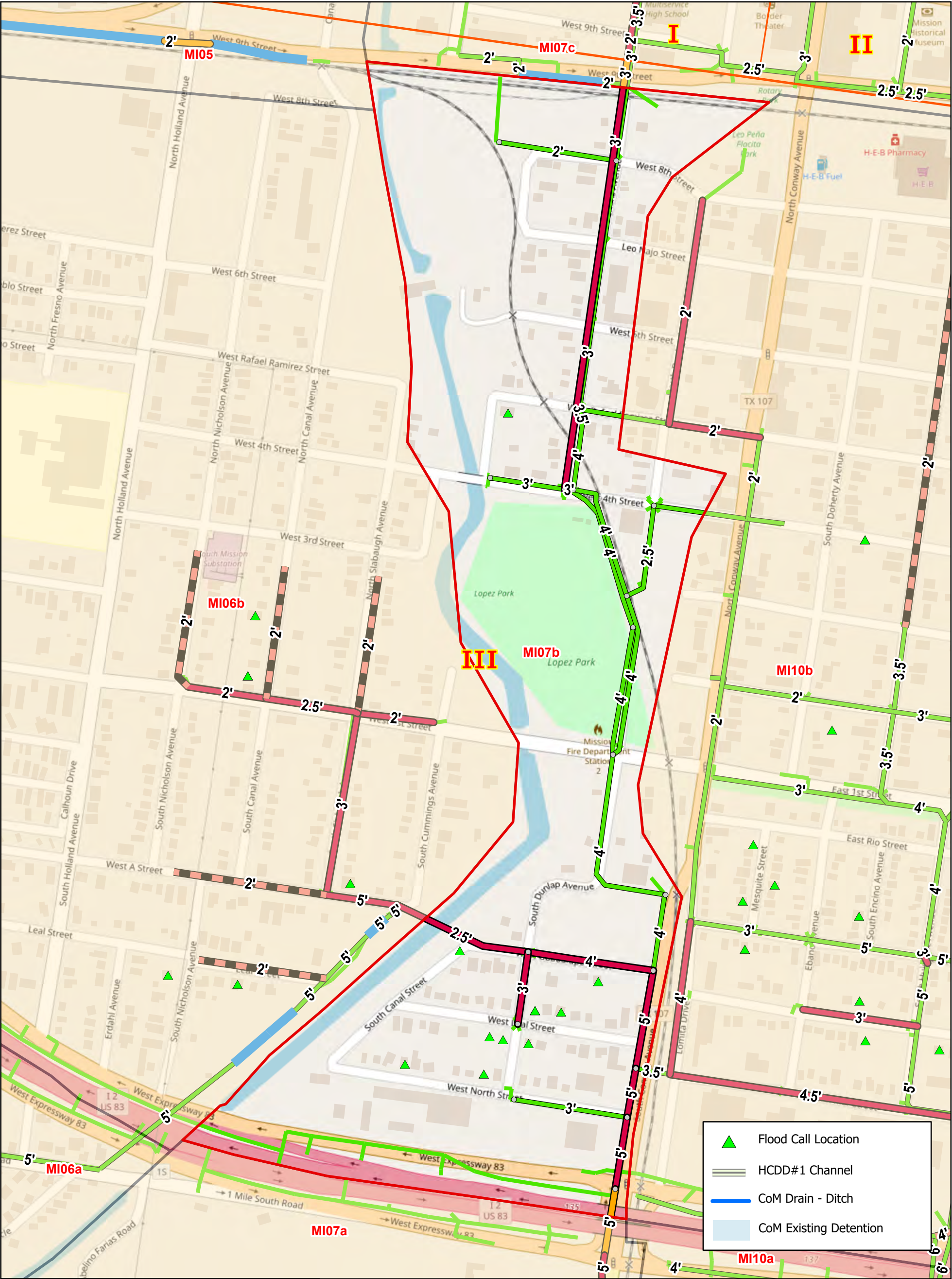
	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Proposed Detention Basin

Drainage Area MI07a

Farias

Location Recommendations (All Priority 3):

1. Storm Sewer Upgrade - 4,171 Feet
2. Storm Sewer Extension - 0 Feet
3. Channel Improvements - 0 Feet
4. Detention Basin - 0 Acre-Feet



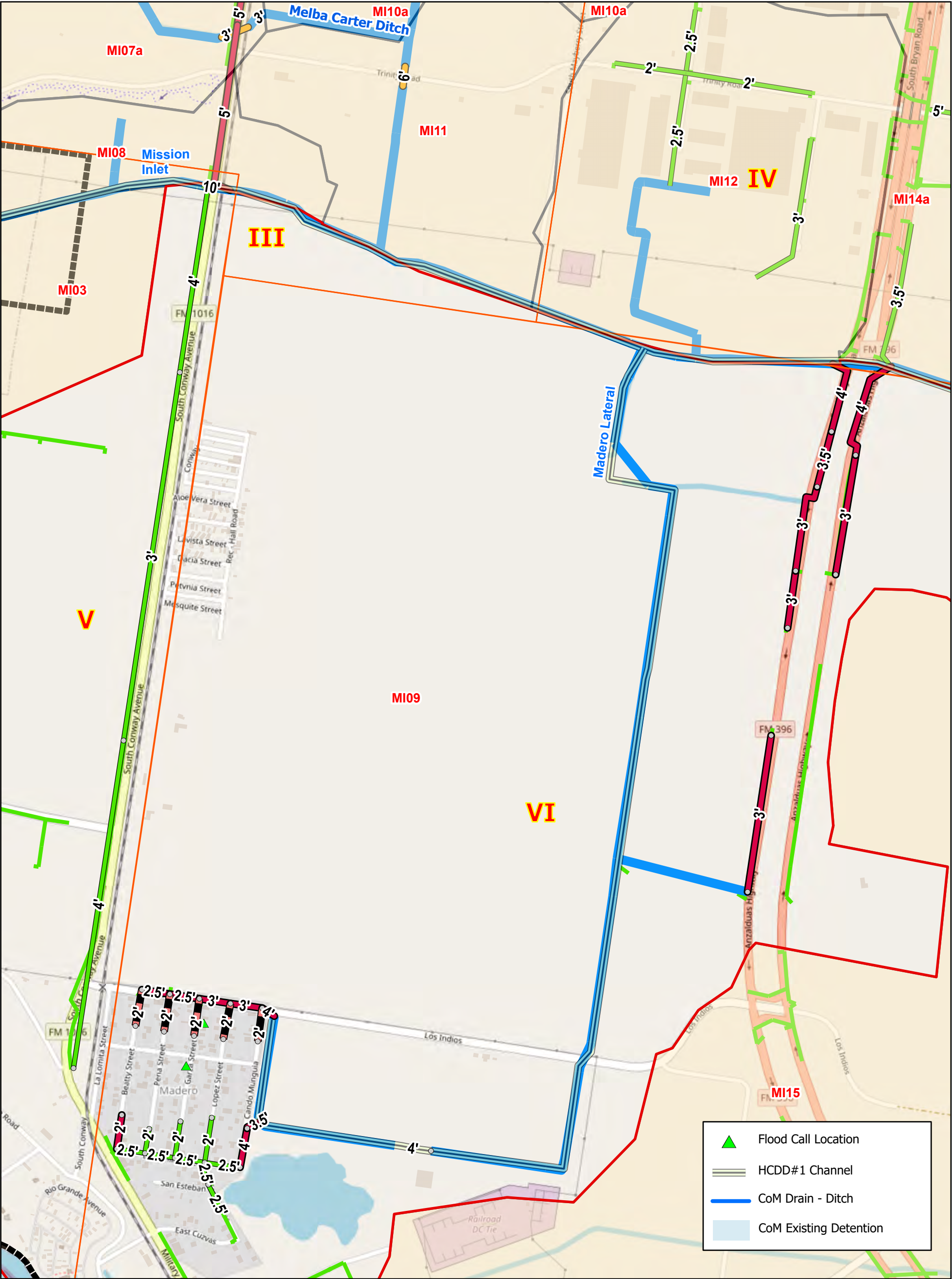
	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Proposed Detention Basin

Drainage Area MI07b

Guadalupe

Location Recommendation:

1. Storm Sewer Upgrade - 3,559 Feet
2. Storm Sewer Extension - 0 Feet
3. Channel Improvements - 0 Feet
4. Detention Basin - 0 Acre-Feet
5. Crossing Improvement at 12 (Upgrade from 42" to 60" Pipe at 1 location)



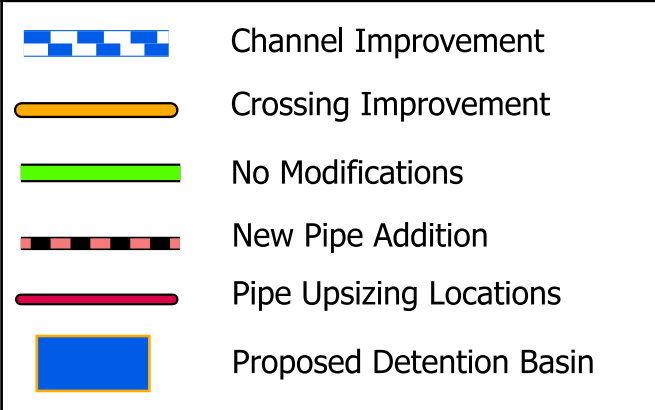
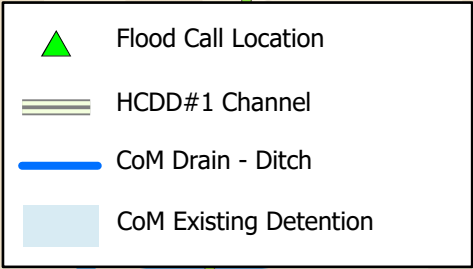
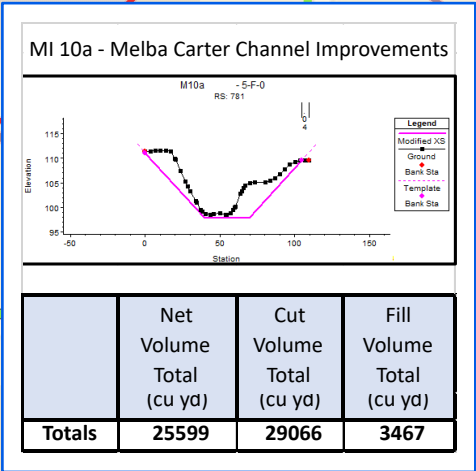
	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Proposed Detention Basin

Drainage Area MI09

Los Indios

Location Recommendations:

1. Storm Sewer Upgrade - 7,248 Feet
2. Storm Sewer Extension - 1,465 Feet
3. Channel Improvements - 0 Feet
4. Detention Basin - 0 Acre-Feet



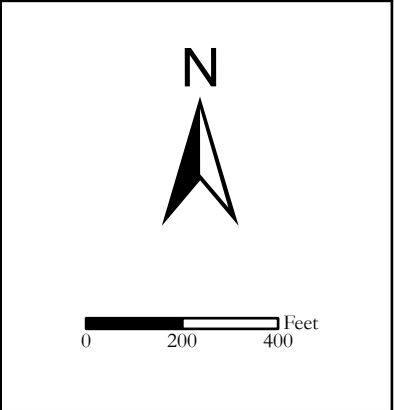
Drainage Area MI10a

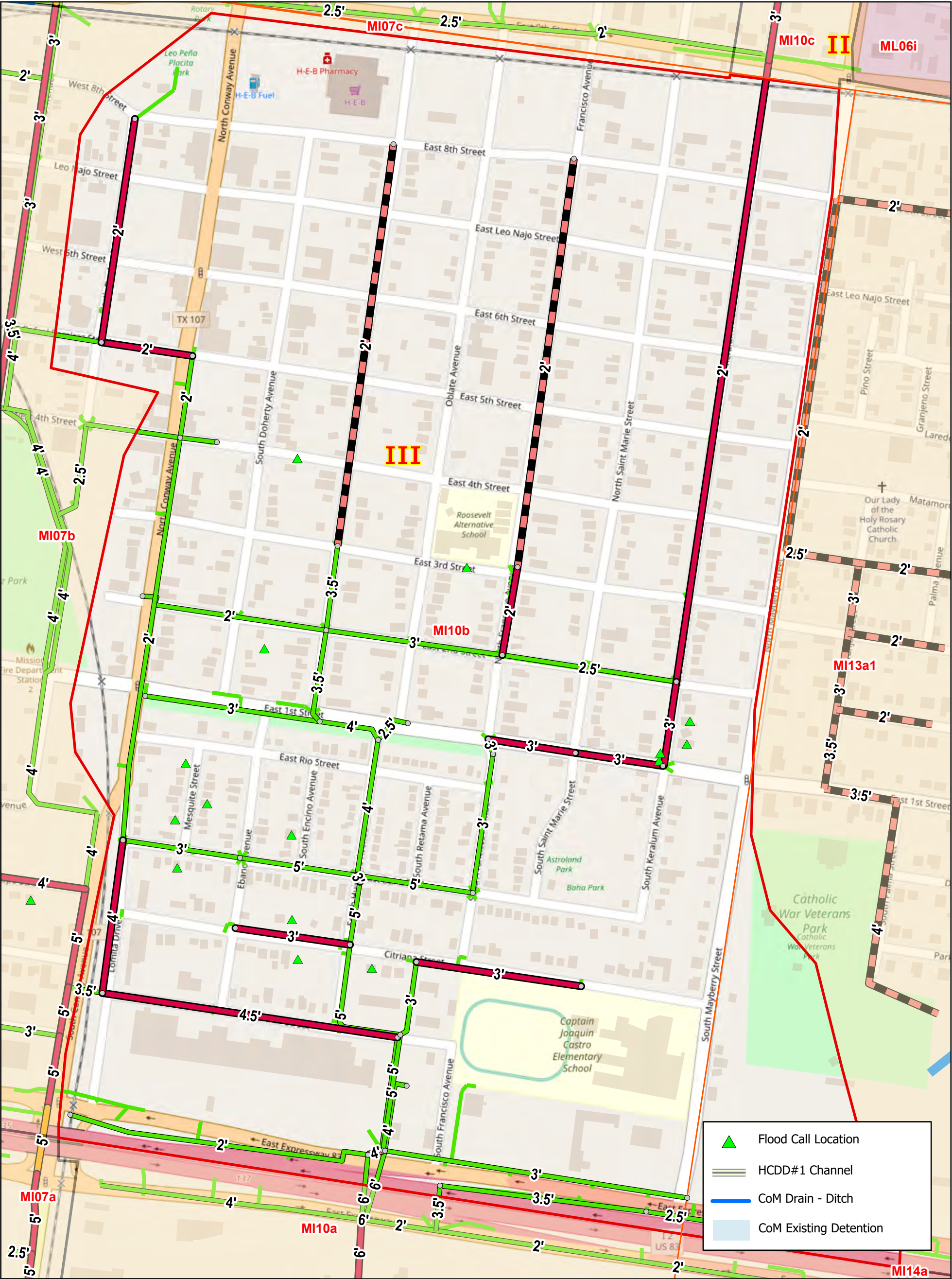
Melba Carter

Location Recommendations:

- Storm Sewer Upgrade - 1,449 Feet
- Storm Sewer Extension - 997 Feet
- Channel Improvements (13.5"D 30'BW, 3:1 SS) - 2,224 Feet
- Detention Basin - 0 Acre-Feet

Includes Two Crossing Improvement Locations (Additional 60" Barrel each location)







Channel Improvement



Crossing Improvement



No Modifications



New Pipe Addition



Pipe Upsizing Locations



Proposed Detention Basin

Drainage Area MI10b

Astroland

Location Recommendations:

1. Storm Sewer Upgrade - 8,712 Feet

2. Storm Sewer Extension - 3,572 Feet

3. Channel Improvements - 0 Feet

4. Detention Basin - 0 Acre-Feet

N

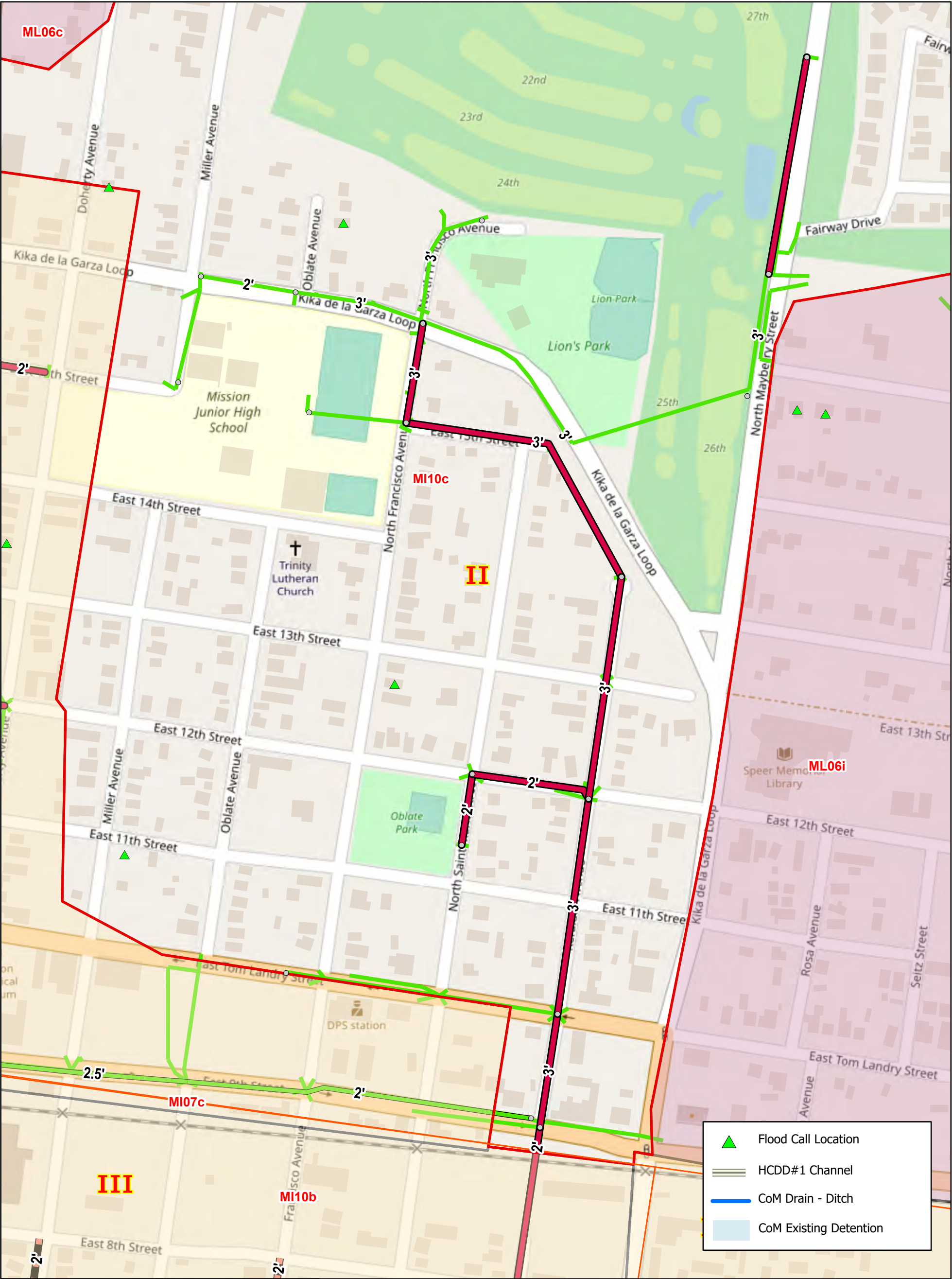


0

250

500

Feet



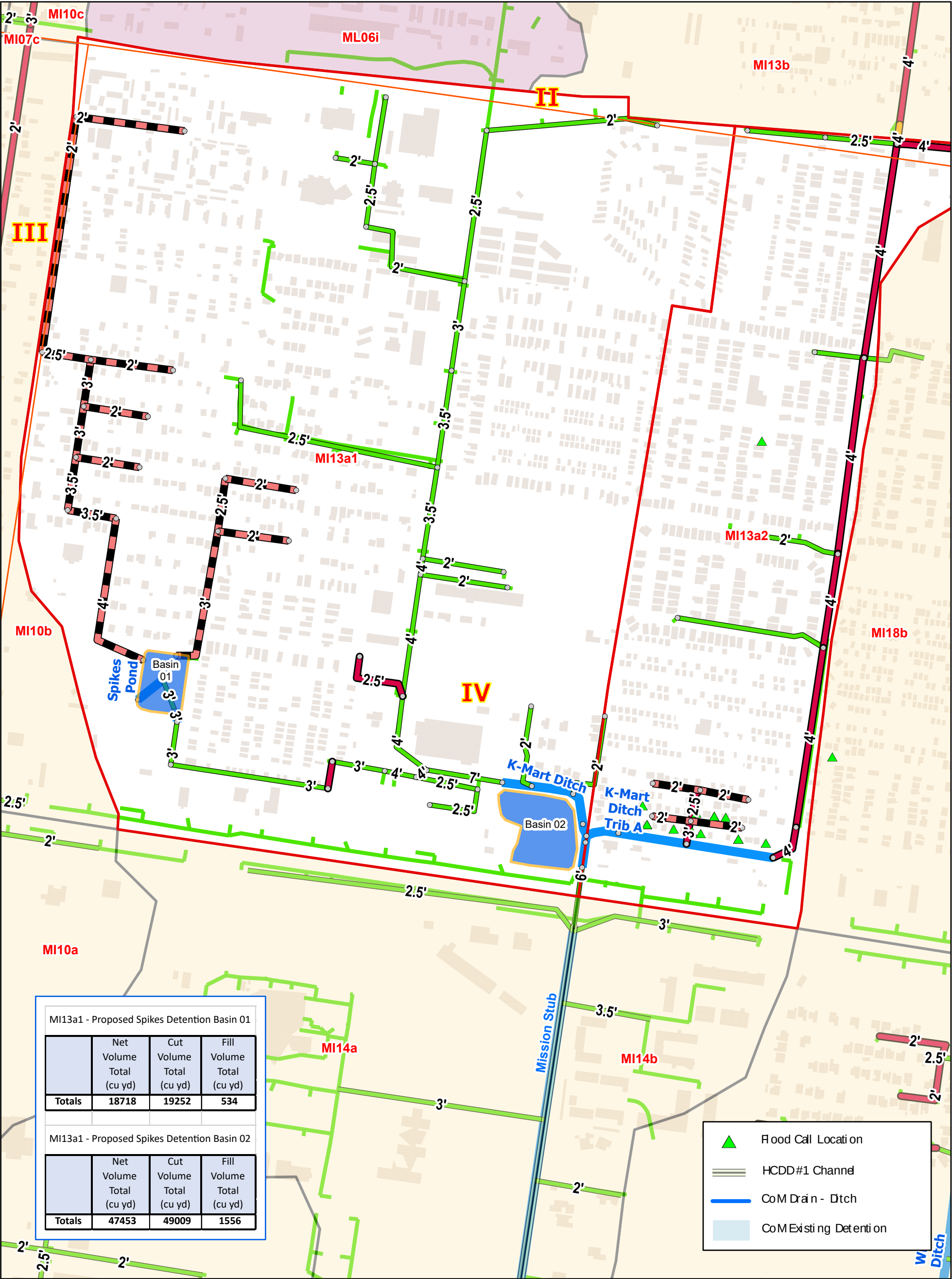
	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Proposed Detention Basin

Drainage Area MI10c

Keralum

Location Recommendations:

1. Storm Sewer Upgrade - 2,413 Feet
2. Storm Sewer Extension - 0 Feet
3. Channel Improvements - 0 Feet
4. Detention Basin - 0 Acre-Feet



MI13a1 - Proposed Spikes Detention Basin 01			
	Net Volume Total (cu yd)	Cut Volume Total (cu yd)	Fill Volume Total (cu yd)
Totals	18718	19252	534

MI13a1 - Proposed Spikes Detention Basin 02			
	Net Volume Total (cu yd)	Cut Volume Total (cu yd)	Fill Volume Total (cu yd)
Totals	47453	49009	1556

Flood Call Location

HCDD#1 Channel

CoM Drain - Ditch

CoM Existing Detention

Channel Improvement

Crossing Improvement

No Modifications

New Pipe Addition

Pipe Upsizing Locations

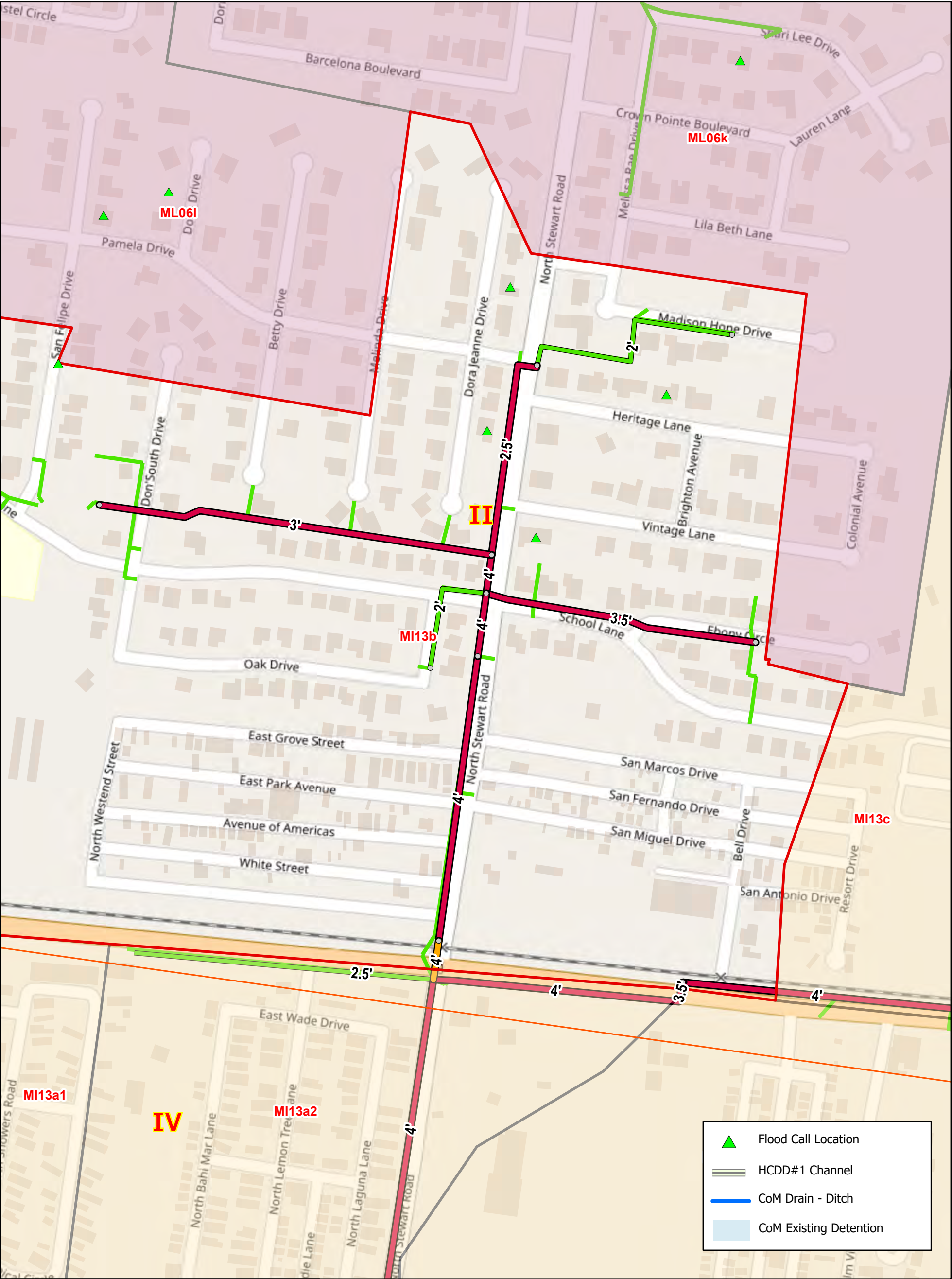
Proposed Detention Basin

Drainage Area MI13a1 & MI13a2
Spikes & Jupiter

Location Recommendations:
1. Storm Sewer Upgrade - 7,042 Feet
2. Storm Sewer Extension - 2,354 Feet
3. Channel Improvements - 0 Feet
4a. Proposed Detention Basin 01 - 10 Acre-Feet on a 2.5 Acre Site
4b. Proposed Detention Basin 02 - 40 Acre-Feet on a 4.4 Acre Site

N

0 300 600 Feet

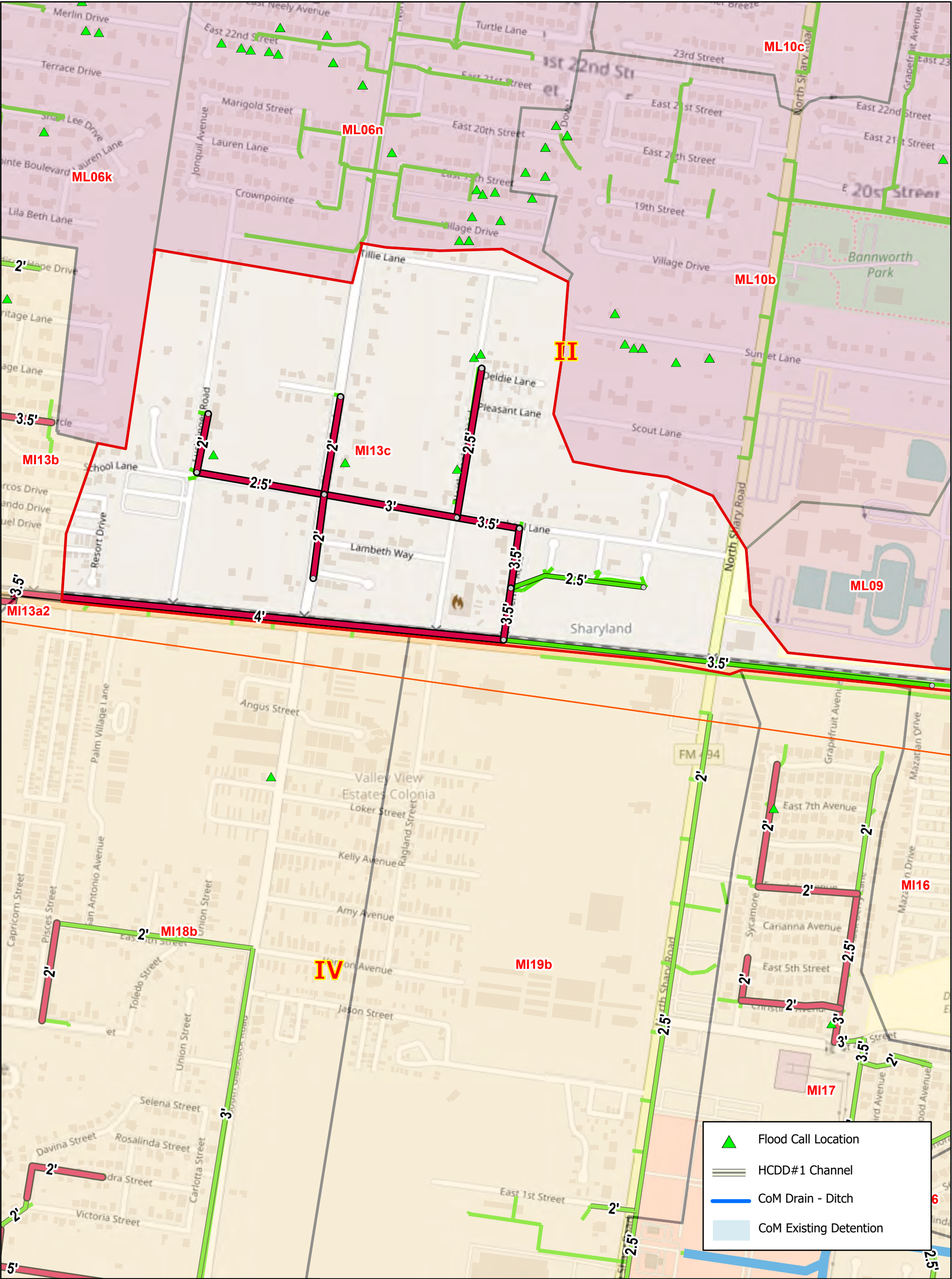


	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Proposed Detention Basin

Drainage Area MI13b Elm

Location Recommendations:

1. Storm Sewer Upgrade - 4,105 Feet
2. Storm Sewer Extension - 0 Feet
3. Channel Improvements - 0 Feet
4. Detention Basin - 0 Acre-Feet



	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Proposed Detention Basin

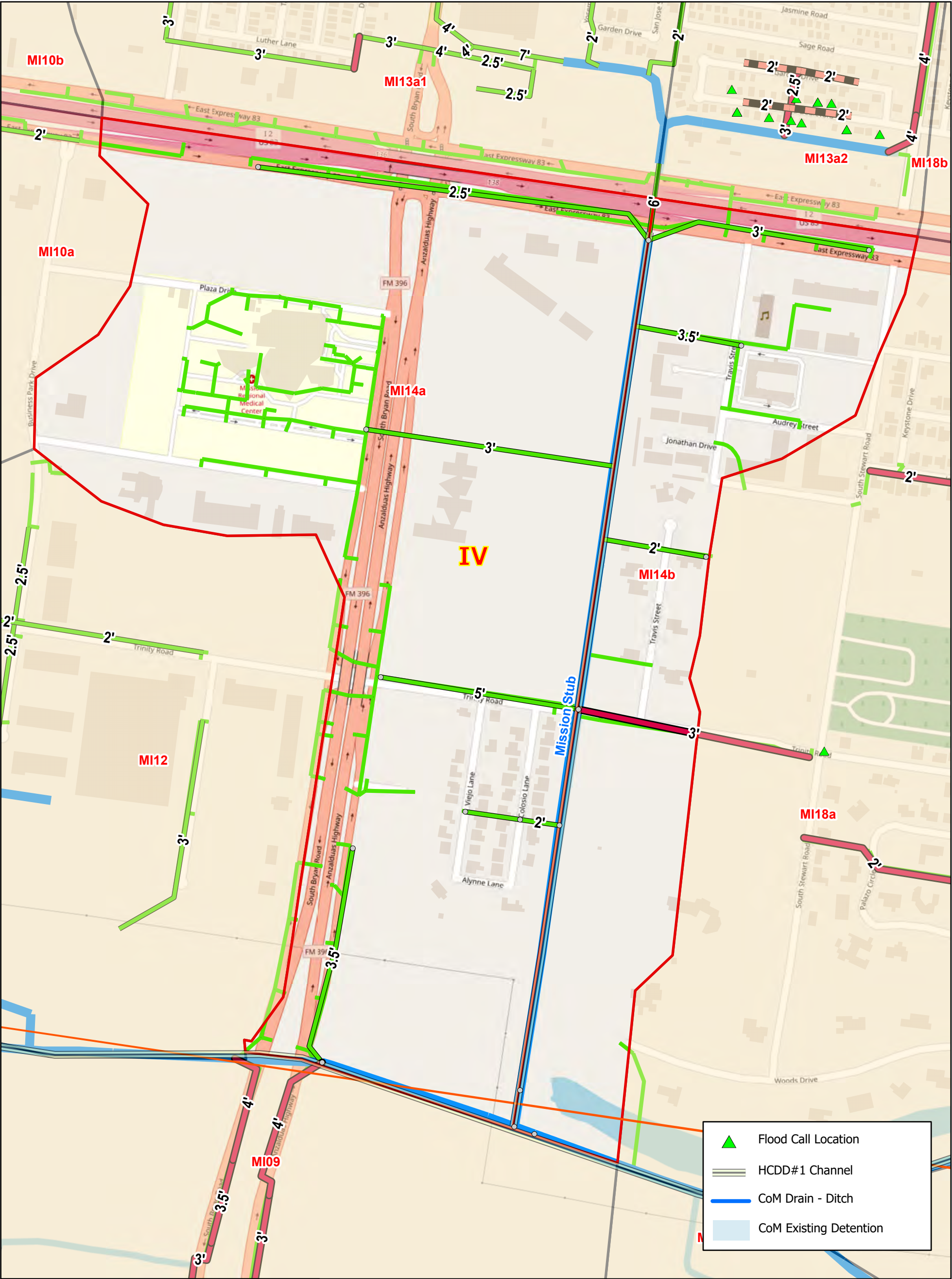
Drainage Area MI13c Ragland

Location Recommendations:

1. Storm Sewer Upgrade - 5,363 Feet
2. Storm Sewer Extension - 0 Feet
3. Channel Improvements - 0 Feet
4. Detention Basin - 0 Acre-Feet



0 150 300 Feet



	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Proposed Detention Basin

Drainage Area MI14a & MI14b

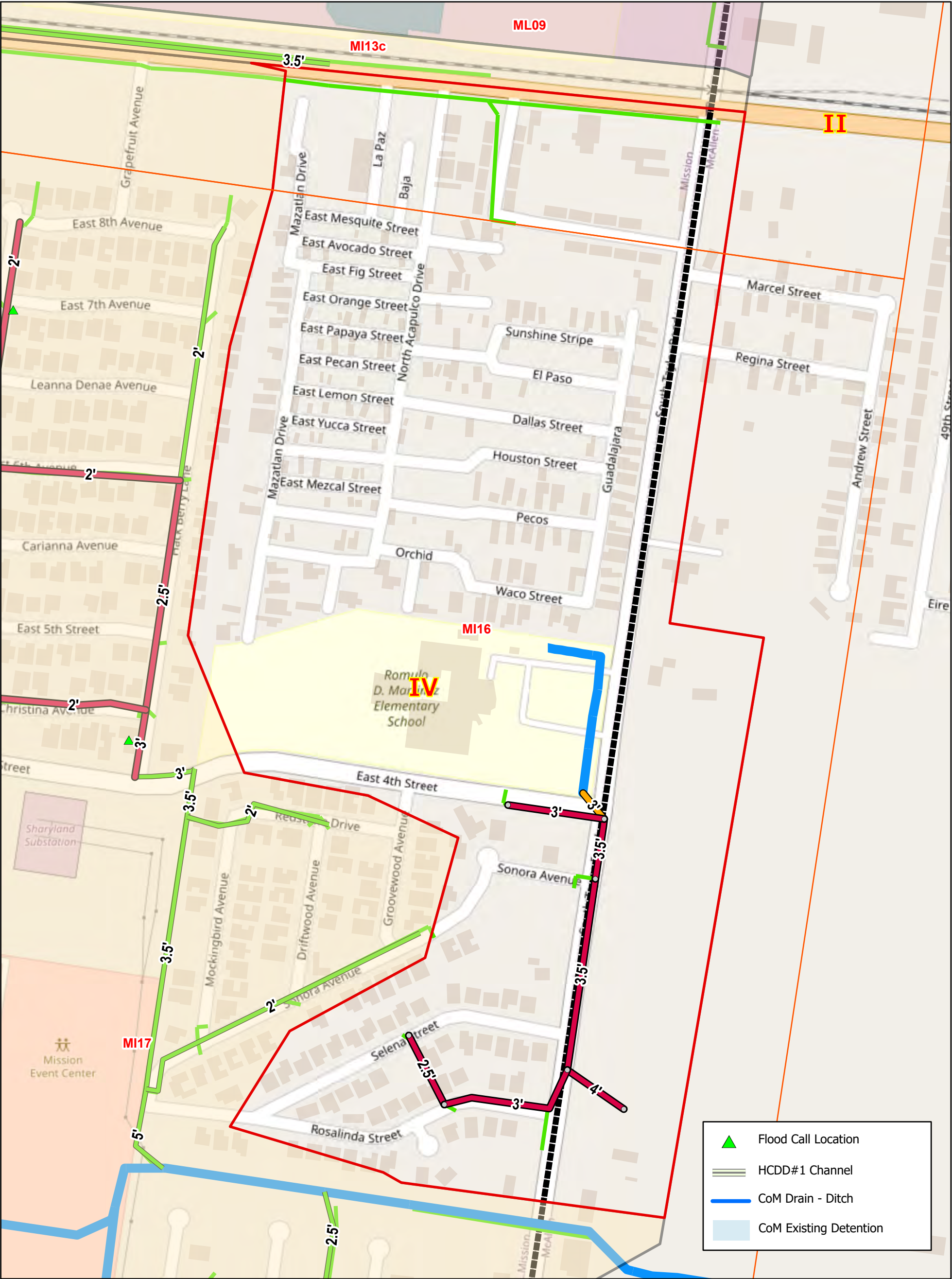
Mission Medical Center/Travis

Location Recommendations:

1. Storm Sewer Upgrade - 1,263 Feet
2. Storm Sewer Extension - 0 Feet
3. Channel Improvements - 0 Feet
4. Detention Basin - 0 Acre-Feet

N

0 250 500 Feet

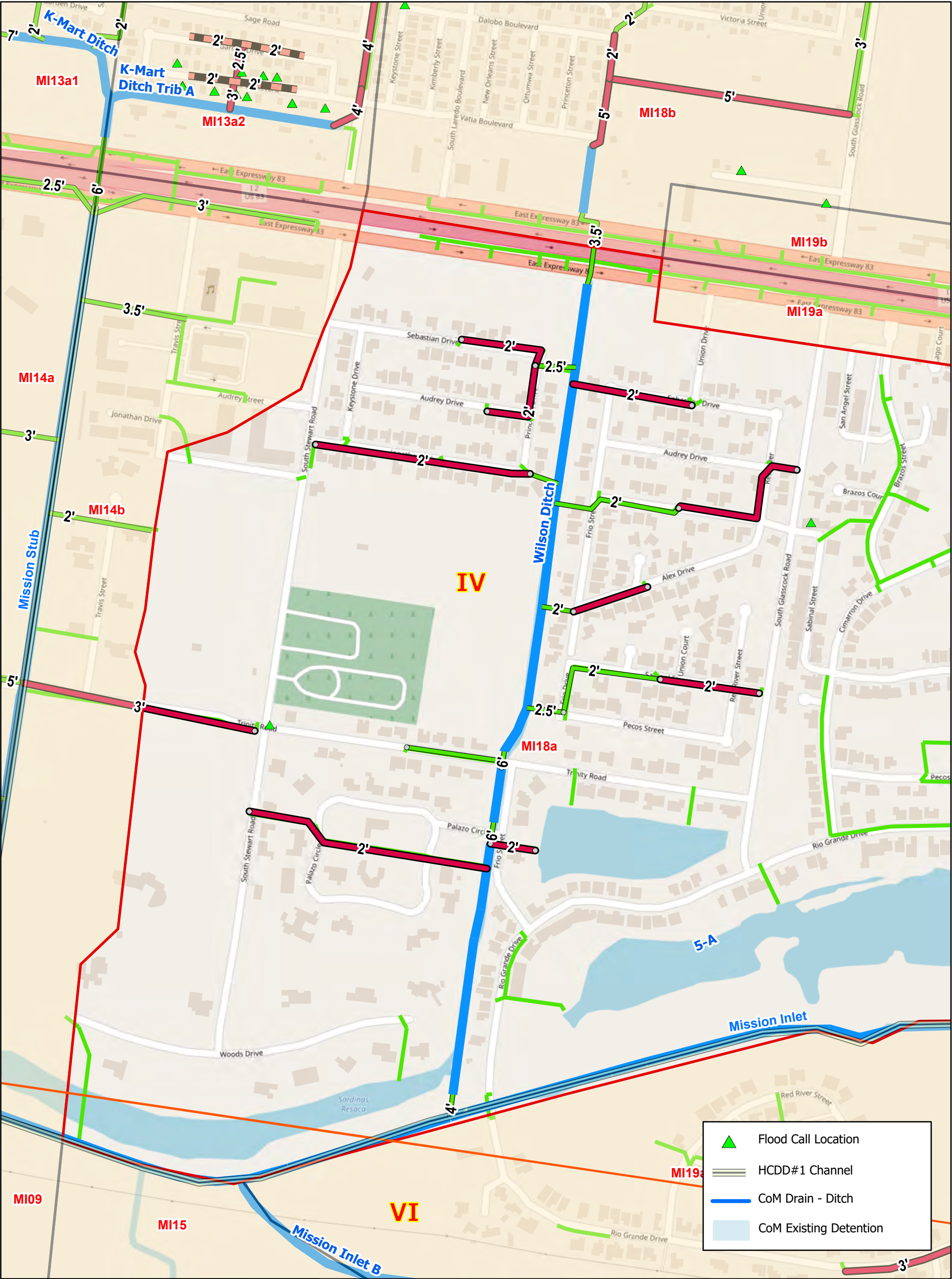


	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Proposed Detention Basin

Drainage Area MI16 Rosalinda

Location Recommendations:

1. Storm Sewer Upgrade - 1,263 Feet
Includes Crossing Improvement on 4th St upgrading from 24" to 36" pipe.
2. Storm Sewer Extension - 0 Feet
3. Channel Improvements - 0 Feet
4. Detention Basin - 0 Acre-Feet



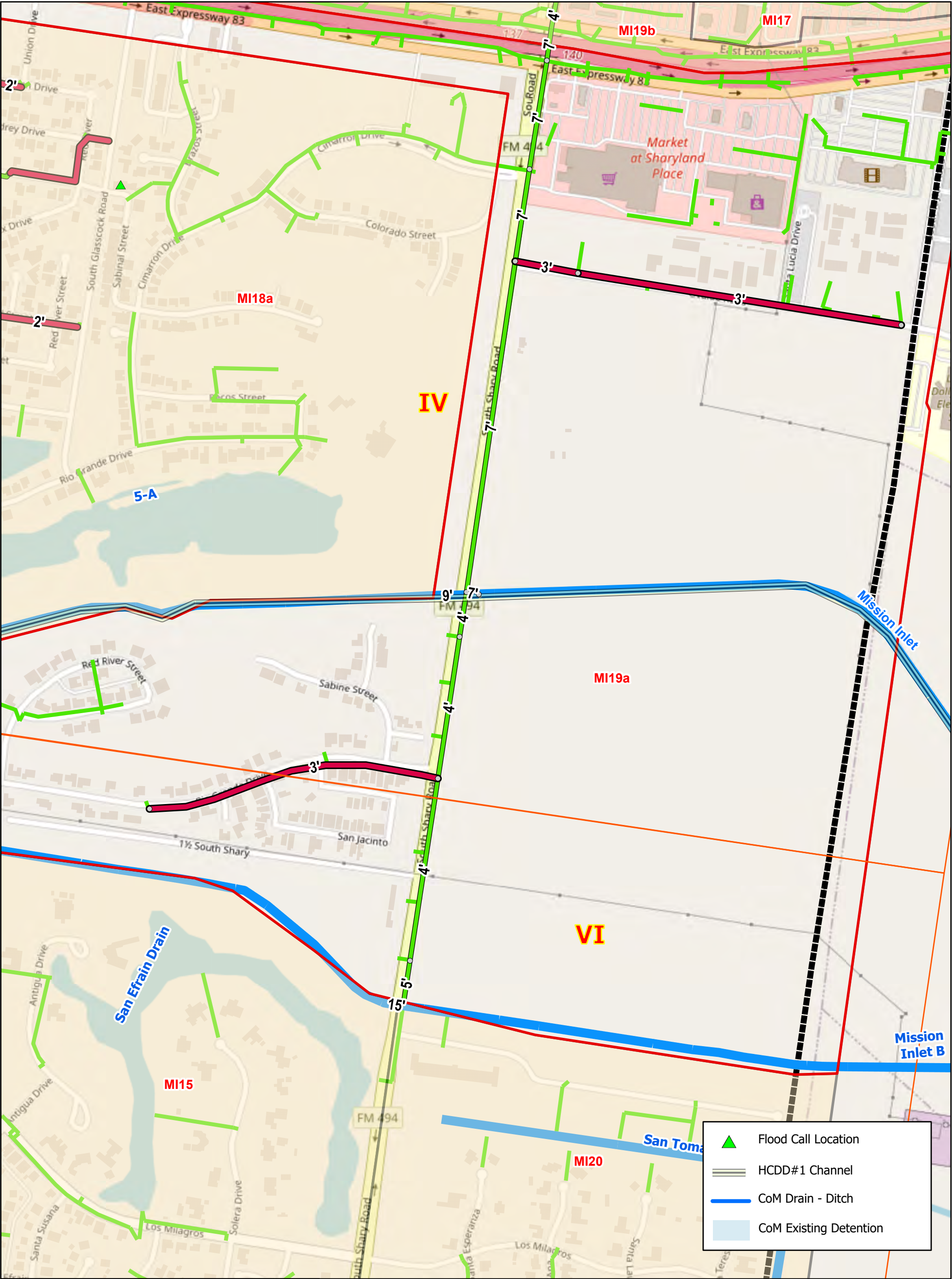
	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Proposed Detention Basin

Drainage Area MI18a

Frio

Location Recommendations:

1. Storm Sewer Upgrade - 6,259 Feet
2. Storm Sewer Extension - 0 Feet
3. Channel Improvements - 0 Feet
4. Detention Basin - 0 Acre-Feet



	Channel Improvement
	Crossing Improvement
	No Modifications
	New Pipe Addition
	Pipe Upsizing Locations
	Proposed Detention Basin

Drainage Area MI19a Sabine

Location Recommendations:

1. Storm Sewer Upgrade - 4,417 Feet
2. Storm Sewer Extension - 0 Feet
3. Channel Improvements - 0 Feet
4. Detention Basin - 0 Acre-Feet

Appendix B

City of Mission Master Drainage Plan

CIP Cost Estimate Details



M2
Engineering, PLLC

PROJECT:	CITY OF MISSION - MASTER DRAINAGE PLAN	PREPARED DATE:	4/8/20
		PREPARED BY:	EMIGDIO "MILO" SALINAS, PE
ENGINEER:	M2 ENGINEERING, PLLC - FIRM NO. 19545	ENGINEER'S OPINION OF PROBABLE CONST. COST NO DESIGN X PRELIMINARY DESIGN FINAL DESIGN	
	463 W. PALM VISTA, SUITE A, PALMVIEW, TX 78572		
CLIENT:	CITY OF MISSION		
ITEM	DESCRIPTION		AMOUNT
	CIP PACKAGE SCHEDULE 1		
1	SUNDROP (MLO6i)		\$ 328,830
3	STEWART A (MLO6k)		\$ 2,322,862
2	GABRIEL (ML05b)		\$ 1,972,404
4	GLASSCOCK (MLO6n)		\$ 2,429,410
5	SHARY B (ML11b)		\$ 1,723,252
6	SUNSET (ML10d)		\$ 3,389,186
7	TULIP (ML06m)		\$ 1,659,873
	PROJECT GRAND TOTAL (EOPCC + SOFT COST)		\$ 13,825,817
	NOTE: THIS IS AN ENGINEER'S OPINION OF PROBABLE COSTS OF CONSTRUCTION AND FEES.		
	RIGHT-OF-WAY AND EASEMENT ACQUISITION FEES ARE NOT PART OF THIS ESTIMATE.		

ITEM	DESCRIPTION	UNIT	QUANTITY	PRICE	AMOUNT
1	SUNDROP (MLO6l)				
1	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	410	\$ 125.00	\$ 51,250.00
2	24" RCP CLIII RJ STORM DRAIN PIPE	LF	90	\$ 65.00	\$ 5,850.00
3	36" RCP CLIII RJ STORM DRAIN PIPE	LF	300	\$ 100.00	\$ 30,000.00
4	TRENCH SAFETY PROTECTION	LF	800	\$ 10.00	\$ 8,000.00
5	PAVEMENT REPAIR	LF	800	\$ 38.00	\$ 30,400.00
6	DRAINAGE STRUCTURES	EA	7	\$ 6,000.00	\$ 42,000.00
7	SAFETY END TREATMENT WITH INLINE CHECK VALVE	EA	1	\$32,500.00	32,500.00
8	UPGRADE EXISTING OUTFALL S.E.T. WITH INLINE CHECK VALVE	EA	1	\$32,500.00	32,500.00
7	TRAFFIC CONTROL	LS	0	\$ 100,000.00	\$ 10,000.00
				SUB-TOTAL=	242,500.00
2	STEWART A (MLO6k)				
1	REWORK DITCH EXCAVATION (CUT) & DRAINAGE DITCH	CY	34,195	\$5.50	188,072.50
2	REWORK DITCH EXCAVATION (FILL) & DRAINAGE DITCH	CY	11	\$2.50	27.50
3	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	4,805	\$125.00	600,625.00
4	48" RCP CLIII RJ STORM DRAIN PIPE	LF	275	\$160.00	44,000.00
5	36" RCP CLIII RJ STORM DRAIN PIPE	LF	1,350	\$100.00	135,000.00
6	TRENCH SAFETY PROTECTION	LF	6,430	\$10.00	64,300.00
7	PAVEMENT REPAIR	LF	6,000	\$38.00	228,000.00
8	48" BORE @ STEWART RD.	LF	80	\$750.00	60,000.00
9	DRAINAGE STRUCTURES	EA	43	\$6,000.00	258,000.00
10	SAFETY END TREATMENT	EA	1	\$2,500.00	2,500.00
11	SAFETY END TREATMENT WITH INLINE CHECK VALVE	EA	1	\$32,500.00	32,500.00
12	TRAFFIC CONTROL	LS	1	\$100,000.00	100,000.00
				SUB-TOTAL=	1,713,025.00
3	GABRIEL (ML05b)				
1	PIPE UPSIZE 42" RCP CLIII RJ STORM DRAIN PIPE	LF	430	\$150.00	64,500.00
2	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	2,400	\$125.00	300,000.00
3	48" RCP CLIII RJ STORM DRAIN PIPE	LF	850	\$160.00	136,000.00
4	42" RCP CLIII RJ STORM DRAIN PIPE	LF	575	\$125.00	71,875.00
5	36" RCP CLIII RJ STORM DRAIN PIPE	LF	1,800	\$100.00	180,000.00
6	24" RCP CLIII RJ STORM DRAIN PIPE	LF	650	\$65.00	42,250.00
7	TRENCH SAFETY PROTECTION	LF	6,705	\$10.00	67,050.00
8	PAVEMENT REPAIR	LF	5,050	\$38.00	191,900.00
9	DRAINAGE STRUCTURES	EA	41	\$6,000.00	246,000.00
10	SAFETY END TREATMENT WITH INLINE CHECK VALVE	EA	2	\$32,500.00	65,000.00
11	UPGRADE EXISTING OUTFALL S.E.T. WITH INLINE CHECK VALVE	EA	2	\$32,500.00	65,000.00
12	TRAFFIC CONTROL	LS	1	\$25,000.00	25,000.00
				SUB-TOTAL=	1,454,575.00
4	GLASSCOCK (MLO6n)				
1	PIPE UPSIZE 48" RCP CLIII RJ STORM DRAIN PIPE	LF	2,780	\$185.00	\$514,300.00
2	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	330	\$125.00	\$41,250.00
3	PIPE UPSIZE 24" RCP CLIII RJ STORM DRAIN PIPE	LF	6,100	\$90.00	\$549,000.00
4	TRENCH PROTECTION	LF	9,210	\$10.00	\$92,100.00
5	DRAINAGE STRUCTURES	EA	45	\$6,000.00	\$270,000.00
6	PAVEMENT REPAIR	LF	8,025	\$38.00	\$304,950.00
7	TRAFFIC CONTROL	LS	1	\$20,000.00	\$20,000.00
				SUB-TOTAL=	1,791,600.00

ITEM	DESCRIPTION	UNIT	QUANTITY	PRICE	AMOUNT
5	SHARY B (ML11b)				
1	PIPE UPSIZE 48" RCP CLIII RJ STORM DRAIN PIPE	LF	3,339	\$185.00	\$617,715.00
2	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	1,490	\$125.00	\$186,250.00
3	PIPE UPSIZE 24" RCP CLIII RJ STORM DRAIN PIPE	LF	1,420	\$90.00	\$127,800.00
4	24" RCP CLIII RJ STORM DRAIN PIPE	LF	856	\$65.00	\$55,640.00
5	TRENCH PROTECTION	LF	7,105	\$10.00	\$71,050.00
6	DRAINAGE STRUCTURES	EA	15	\$6,000.00	\$90,000.00
7	SAFETY END TREATMENT	EA	3	\$2,500.00	\$7,500.00
8	PAVEMENT REPAIR	LF	2,760	\$38.00	\$104,880.00
9	TRAFFIC CONTROL	LS	1	\$10,000.00	\$10,000.00
				SUB-TOTAL=	1,270,835.00
6	SUNSET (ML10d)				
1	PIPE UPSIZE 48" RCP CLIII RJ STORM DRAIN PIPE	LF	1,410	\$185.00	\$260,850.00
2	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	5,000	\$125.00	\$625,000.00
3	PIPE UPSIZE 24" RCP CLIII RJ STORM DRAIN PIPE	LF	600	\$90.00	\$54,000.00
4	60" TRUNK LINE (ALONG NORTH TAYLOR ROAD)	LF	1,962	\$270.00	\$529,740.00
5	24" RCP CLIII RJ STORM PIPE	LF	1,620	\$65.00	\$105,300.00
6	FM 494 (SHARY RD) CROSSING	LF	200	\$750.00	\$150,000.00
7	TRENCH PROTECTION	LF	10,592	\$10.00	\$105,920.00
8	DRAINAGE STRUCTURES	EA	44	\$6,000.00	\$264,000.00
9	SAFETY END TREATMENT	EA	8	\$2,500.00	\$20,000.00
10	PAVEMENT REPAIR	LF	8,805	\$38.00	\$334,590.00
11	TRAFFIC CONTROL	LS	1	\$50,000.00	\$50,000.00
				SUB-TOTAL=	2,499,400.00
7	TULIP (ML06m)				
1	PIPE UPSIZE 48" RCP CLIII RJ STORM DRAIN PIPE	LF	2,050	\$185.00	379,250.00
2	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	430	\$125.00	53,750.00
3	48" RCP CLIII RJ STORM DRAIN PIPE	LF	260	\$160.00	41,600.00
4	24" RCP CLIII RJ STORM DRAIN PIPE	LF	2,157	\$65.00	140,205.00
5	TRENCH SAFETY PROTECTION	LF	4,897	\$10.00	48,970.00
6	PAVEMENT REPAIR	LF	3,390	\$38.00	128,820.00
7	48" BORE @ IRRIGATION CANAL	LF	280	\$750.00	210,000.00
8	DRAINAGE STRUCTURES	EA	29	\$6,000.00	174,000.00
9	SAFETY END TREATMENT WITH INLINE CHECK VALVE	EA	1	\$32,500.00	32,500.00
10	TRAFFIC CONTROL	LS	1	\$15,000.00	15,000.00
				SUB-TOTAL=	1,224,095.00



M2
Engineering, PLLC

PROJECT:	CITY OF MISSION - MASTER DRAINAGE PLAN	PREPARED DATE:	4/8/20
		PREPARED BY:	EMIGDIO "MILO" SALINAS, PE
ENGINEER:	M2 ENGINEERING, PLLC - FIRM NO. 19545	ENGINEER'S OPINION OF PROBABLE CONST. COST NO DESIGN X PRELIMINARY DESIGN FINAL DESIGN	
	463 W. PALM VISTA, SUITE A, PALMVIEW, TX 78572		
CLIENT:	CITY OF MISSION		
ITEM	DESCRIPTION		AMOUNT
	CIP PACKAGE SCHEDULE 2		
8 9	SPIKES & JUPITER (MI13a1 & MI13a2)		\$ 5,031,398
10	ASTROLAND (MI10b)		\$ 3,340,899
11	GUADALUPE (MI07b)		\$ 1,681,487
12	BRYAN (ML06i)		\$ 3,352,771
13	SUNRISE (ML11a)		\$ 774,405
14	STONEGATE (ML08)		\$ 1,431,639
15	ESPERANZA (ML02)		\$ 5,743,391
	PROJECT GRAND TOTAL (EOPCC + SOFT COST)		\$ 21,355,990
	NOTE: THIS IS AN ENGINEER'S OPINION OF PROBABLE COSTS OF CONSTRUCTION AND FEES.		
	RIGHT-OF-WAY AND EASEMENT ACQUISITION FEES ARE NOT PART OF THIS ESTIMATE.		

ITEM	DESCRIPTION	UNIT	QUANTITY	PRICE	AMOUNT
8 9	SPIKES & JUPITER (MI13a1 & MI13a2)				
1	NEW DETENTION POND 1 EXCAVATION (CUT)	CY	19,252	\$5.50	105,886.00
2	NEW DETENTION POND 1 EXCAVATION (FILL)	CY	534	\$2.50	1,335.00
3	NEW DETENTION POND 2 EXCAVATION (CUT)	CY	49,009	\$5.50	269,549.50
4	NEW DETENTION POND 2 EXCAVATION (FILL)	CY	1,556	\$2.50	3,890.00
5	PIPE UPSIZE 48" RCP CLIII RJ STORM DRAIN PIPE	LF	4,800	\$185.00	888,000.00
6	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	860	\$125.00	107,500.00
7	PIPE UPSIZE 30" RCP CLIII RJ STORM DRAIN PIPE	LF	110	\$110.00	12,100.00
8	48" RCP CLIII RJ STORM DRAIN PIPE	LF	1,110	\$160.00	177,600.00
9	42" RCP CLIII RJ STORM DRAIN PIPE	LF	635	\$125.00	79,375.00
10	36" RCP CLIII RJ STORM DRAIN PIPE	LF	1,580	\$100.00	158,000.00
11	30" RCP CLIII RJ STORM DRAIN PIPE	LF	665	\$85.00	56,525.00
12	24" RCP CLIII RJ STORM DRAIN PIPE	LF	5,710	\$65.00	371,150.00
13	TRENCH SAFETY PROTECTION	LF	15,470	\$10.00	154,700.00
14	PAVEMENT REPAIR	LF	15,470	\$38.00	587,860.00
15	DRAINAGE STRUCTURES	EA	117	\$6,000.00	702,000.00
16	SAFETY END TREATMENT	EA	4	\$2,500.00	10,000.00
17	TRAFFIC CONTROL	LS	1	\$25,000.00	25,000.00
				SUB-TOTAL=	3,710,470.50
10	ASTROLAND (MI10b)				
1	PIPE UPSIZE 54" RCP CLIII RJ STORM DRAIN PIPE	LF	1,250	\$220.00	275,000.00
2	PIPE UPSIZE 48" RCP CLIII RJ STORM DRAIN PIPE	LF	640	\$185.00	118,400.00
3	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	2,310	\$125.00	288,750.00
4	PIPE UPSIZE 24" RCP CLIII RJ STORM DRAIN PIPE	LF	4,075	\$90.00	366,750.00
5	48" RCP CLIII RJ STORM DRAIN PIPE	LF	50	\$160.00	8,000.00
6	24" RCP CLIII RJ STORM DRAIN PIPE	LF	3,560	\$65.00	231,400.00
7	24" RCP CLIII RJ STORM DRAIN PIPE W/ PROP. 15' DRAINAGE EASEMENT	LF	220	\$100.00	22,000.00
8	24" BORE (9TH STREET)	LF	150	\$275.00	41,250.00
9	TRENCH SAFETY PROTECTION	LF	12,255	\$10.00	122,550.00
10	PAVEMENT REPAIR	LF	12,255	\$38.00	465,690.00
11	DRAINAGE STRUCTURES	EA	79	\$6,000.00	474,000.00
11	TRAFFIC CONTROL	LS	1	\$50,000.00	50,000.00
				SUB-TOTAL=	2,463,790.00
11	GUADALUPE (MI07b)				
1	PIPE UPSIZE 60" RCP CLIII RJ STORM DRAIN PIPE	LF	930	\$270.00	251,100.00
2	PIPE UPSIZE 48" RCP CLIII RJ STORM DRAIN PIPE	LF	550	\$185.00	101,750.00
3	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	2,079	\$125.00	259,875.00
4	FM 1016 (CONWAY RD) CROSSING	LF	300	\$750.00	225,000.00
5	TRENCH SAFETY PROTECTION	LF	2,859	\$10.00	28,590.00
6	PAVEMENT REPAIR	LF	3,940	\$38.00	149,720.00
7	DRAINAGE STRUCTURES	EA	29	\$6,000.00	174,000.00
8	TRAFFIC CONTROL	LS	1	\$50,000.00	50,000.00
				SUB-TOTAL=	1,240,035.00

ITEM	DESCRIPTION	UNIT	QUANTITY	PRICE	AMOUNT
12	BRYAN (ML06i)				
1	PIPE UPSIZE 54" RCP CLIII RJ STORM DRAIN PIPE	LF	2,110	\$220.00	464,200.00
2	PIPE UPSIZE 48" RCP CLIII RJ STORM DRAIN PIPE	LF	1,200	\$185.00	222,000.00
3	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	3,215	\$125.00	401,875.00
4	PIPE UPSIZE 24" RCP CLIII RJ STORM DRAIN PIPE	LF	740	\$90.00	66,600.00
5	24" RCP CLIII RJ STORM DRAIN PIPE	LF	3,670	\$65.00	238,550.00
6	TRENCH SAFETY PROTECTION	LF	10,935	\$10.00	109,350.00
7	PAVEMENT REPAIR	LF	10,815	\$38.00	410,970.00
8	48" BORE CROSSING @ FM 495	LF	120	\$750.00	90,000.00
9	DRAINAGE STRUCTURES	EA	59	\$6,000.00	354,000.00
10	SAFETY END TREATMENT WITH INLINE CHECK VALVE	EA	1	\$32,500.00	32,500.00
11	UPGRADE EXISTING OUTFALL S.E.T. WITH INLINE CHECK VALVE	EA	1	\$32,500.00	32,500.00
10	TRAFFIC CONTROL	LS	1	\$50,000.00	50,000.00
				SUB-TOTAL=	2,472,545.00
13	SUNRISE (ML11a)				
1	PIPE UPSIZE 48" RCP CLIII RJ STORM DRAIN PIPE	LF	1,400	\$185.00	\$259,000.00
2	PIPE UPSIZE 24" RCP CLIII RJ STORM DRAIN PIPE	LF	910	\$90.00	\$81,900.00
3	TRENCH PROTECTION	LF	2,310	\$2.50	\$5,775.00
4	DRAINAGE STRUCTURES	EA	29	\$6,000.00	\$174,000.00
5	PAVEMENT REPAIR	LF	340	\$38.00	\$12,920.00
6	SAFETY END TREATMENT WITH INLINE CHECK VALVE	EA	1	\$32,500.00	32,500.00
7	TRAFFIC CONTROL	LS	1	\$5,000.00	\$5,000.00
				SUB-TOTAL=	571,095.00
14	STONEGATE (ML08)				
1	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	5,035	\$125.00	629,375.00
2	PIPE UPSIZE 24" RCP CLIII RJ STORM DRAIN PIPE	LF	475	\$90.00	42,750.00
3	TRENCH SAFETY PROTECTION	LF	5,510	\$10.00	55,100.00
4	PAVEMENT REPAIR	LF	4,962	\$38.00	188,556.00
5	TRAFFIC CONTROL	LS	1	\$10,000.00	10,000.00
6	SAFETY END TREATMENT WITH INLINE CHECK VALVE	EA	3	\$32,500.00	97,500.00
7	UPGRADE EXISTING OUTFALL S.E.T. WITH INLINE CHECK VALVE	EA	1	\$32,500.00	32,500.00
				SUB-TOTAL=	1,055,781.00

ITEM	DESCRIPTION	UNIT	QUANTITY	PRICE	AMOUNT
33	ESPERANZA (ML02)				
1	NEW DETENTION POND 1 EXCAVATION (CUT)	CY	12,566	\$ 5.50	\$ 69,113.00
2	NEW DETENTION POND 1 EXCAVATION (FILL)	CY	166	\$ 2.50	\$ 415.00
4	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	6,400	\$ 125.00	\$ 800,000.00
5	PIPE UPSIZE 42" RCP CLIII RJ STORM DRAIN PIPE	LF	250	\$ 150.00	\$ 37,500.00
6	PIPE UPSIZE 48" RCP CLIII RJ STORM DRAIN PIPE	LF	3,670	\$ 185.00	\$ 678,950.00
7	PIPE UPSIZE 60" RCP CLIII RJ STORM DRAIN PIPE	LF	980	\$ 270.00	\$ 264,600.00
8	36" RCP CLIII RJ STORM DRAIN PIPE	LF	1,980	\$ 100.00	\$ 198,000.00
9	24" RCP CLIII RJ STORM DRAIN PIPE	LF	5,225	\$ 65.00	\$ 339,625.00
11	4-48" RCP CLIII RJ STORM DRAIN PIPE STREET CROSSING	LF	480	\$ 160.00	\$ 76,800.00
12	48" RCP CLIII RJ STORM DRAIN PIPE MILE 2 CROSSING BY BORE	LF	130	\$ 750.00	\$ 97,500.00
13	TRENCH SAFETY PROTECTION	LF	19,532	\$ 10.00	\$ 195,320.00
14	PAVEMENT REPAIR	LF	19,532	\$ 38.00	\$ 742,216.00
15	DRAINAGE STRUCTURES	EA	98	\$ 6,000.00	\$ 588,000.00
16	TRAFFIC CONTROL	LS	1	\$ 100,000.00	\$ 100,000.00
17	DRAINAGE DITCH CONC. RIP-RAP	EA	5	\$ 7,500.00	\$ 37,500.00
18	SAFETY END TREATMENT	EA	4	\$ 2,500.00	\$ 10,000.00
19	SAFETY END TREATMENT WITH INLINE CHECK VALVE	EA	1	\$32,500.00	32,500.00
				SUB-TOTAL=	\$ 4,235,539.00



M2
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PROJECT:	CITY OF MISSION - MASTER DRAINAGE PLAN	PREPARED DATE:	4/8/20
		PREPARED BY:	EMIGDIO "MILO" SALINAS, PE
ENGINEER:	M2 ENGINEERING, PLLC - FIRM NO. 19545	ENGINEER'S OPINION OF PROBABLE CONST. COST NO DESIGN X PRELIMINARY DESIGN FINAL DESIGN	
	463 W. PALM VISTA, SUITE A, PALMVIEW, TX 78572		
CLIENT:	CITY OF MISSION		
ITEM	DESCRIPTION	AMOUNT	
CIP PACKAGE SCHEDULE 3			
16	MAYBERRY C (ML05e)	\$ 6,648,400	
17	HOLLAND A (ML06a)	\$ 2,940,588	
18	MAYBERRY A (ML06g)	\$ 1,103,732	
19	MELBA CARTER (MI10a)	\$ 1,174,032	
20	MAYBERRY B (ML05h)	\$ 2,203,560	
21	STEWART B (ML05i)	\$ 2,103,420	
22	ELM (MI13b)	\$ 1,330,507	
	PROJECT GRAND TOTAL (EOPCC + SOFT COST)	\$ 17,504,239.91	
	NOTE: THIS IS AN ENGINEER'S OPINION OF PROBABLE COSTS OF CONSTRUCTION AND FEES.		
	RIGHT-OF-WAY AND EASEMENT ACQUISITION FEES ARE NOT PART OF THIS ESTIMATE.		

ITEM	DESCRIPTION	UNIT	QUANTITY	PRICE	AMOUNT
16	MAYBERRY C (ML05e)				
1	PIPE UPSIZE 24" RCP CLIII RJ STORM DRAIN PIPE	LF	900	\$ 90.00	\$ 81,000.00
2	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	7,500	\$ 125.00	\$ 937,500.00
3	PIPE UPSIZE 48" RCP CLIII RJ STORM DRAIN PIPE	LF	7,000	\$ 185.00	\$ 1,295,000.00
4	36" RCP CLIII RJ STORM DRAIN PIPE	LF	3,250	\$ 100.00	\$ 325,000.00
5	24" RCP CLIII RJ STORM DRAIN PIPE	LF	1,750	\$ 65.00	\$ 113,750.00
6	48" RCP CLIII RJ STORM DRAIN PIPE MILE 2 CROSSING BY BORE	LF	130	\$ 750.00	\$ 97,500.00
7	TRENCH SAFETY PROTECTION	LF	20,400	\$ 10.00	\$ 204,000.00
8	PAVEMENT REPAIR	LF	20,400	\$ 38.00	\$ 775,200.00
9	DRAINAGE STRUCTURES	EA	119	\$ 6,000.00	\$ 714,000.00
10	TRAFFIC CONTROL	LS	1	\$ 100,000.00	\$ 100,000.00
11	SAFETY END TREATMENT WITH INLINE CHECK VALVE	EA	8	\$32,500.00	260,000.00
				SUB-TOTAL=	4,902,950.00
17	HOLLAND A (ML06a)				
1	PIPE UPSIZE 24" RCP CLIII RJ STORM DRAIN PIPE	LF	6,350	\$ 90.00	\$ 571,500.00
2	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	1,350	\$ 125.00	\$ 168,750.00
3	PIPE UPSIZE 48" RCP CLIII RJ STORM DRAIN PIPE	LF	1,325	\$ 185.00	\$ 245,125.00
4	48" RCP CLIII RJ STORM DRAIN PIPE FM 495 CROSSING BY BORE	LF	260	\$ 750.00	\$ 195,000.00
5	TRENCH SAFETY PROTECTION	LF	9,025	\$ 10.00	\$ 90,250.00
6	PAVEMENT REPAIR	LF	9,025	\$ 38.00	\$ 342,950.00
7	DRAINAGE STRUCTURES	EA	75	\$ 6,000.00	\$ 450,000.00
8	TRAFFIC CONTROL	LS	1	\$ 100,000.00	\$ 100,000.00
9	SAFETY END TREATMENT	EA	2	\$ 2,500.00	\$ 5,000.00
				SUB-TOTAL=	\$ 2,168,575.00
18	MAYBERRY A (ML06g)				
1	REPLACE EXISTING CULVERT @ Mayberry (7')	LF	140	\$2,000.00	280,000.00
2	PIPE UPSIZE 48" RCP CLIII RJ STORM DRAIN PIPE	LF	880	\$185.00	162,800.00
3	PIPE UPSIZE 24" RCP CLIII RJ STORM DRAIN PIPE	LF	1,330	\$90.00	119,700.00
4	24" RCP CLIII RJ STORM DRAIN PIPE	LF	590	\$65.00	38,350.00
5	TRENCH SAFETY PROTECTION	LF	2,940	\$10.00	29,400.00
6	PAVEMENT REPAIR	LF	1,874	\$38.00	71,212.00
7	SAFETY END TREATMENT WITH INLINE CHECK VALVE	EA	3	\$32,500.00	97,500.00
8	TRAFFIC CONTROL	LS	1	\$15,000.00	15,000.00
				SUB-TOTAL=	813,962.00
19	MELBA CARTER (MI10a)				
1	REWORK DITCH EXCAVATION (CUT) & DRAINAGE DITCH	CY	29,066	\$5.50	159,863.00
2	REWORK DITCH EXCAVATION (FILL) & DRAINAGE DITCH	CY	3,467	\$2.50	8,667.50
3	PIPE UPSIZE 72" RCP CLIII RJ STORM DRAIN PIPE	LF	375	\$365.00	136,875.00
4	PIPE UPSIZE 30" RCP CLIII RJ STORM DRAIN PIPE	LF	1,100	\$110.00	121,000.00
5	60" RCP CLIII RJ STORM DRAIN PIPE	LF	200	\$110.00	22,000.00
6	30" RCP CLIII RJ STORM DRAIN PIPE	LF	1,000	\$85.00	\$85,000.00
7	TRENCH SAFETY PROTECTION	LF	2,675	\$10.00	26,750.00
8	PAVEMENT REPAIR	LF	2,675	\$38.00	101,650.00
9	DRAINAGE STRUCTURES	EA	19	\$6,000.00	114,000.00
10	DRAINAGE DITCH CONC. RIP-RAP	EA	5	\$ 15,000.00	\$ 75,000.00
11	TRAFFIC CONTROL	LS	1	\$15,000.00	15,000.00
				SUB-TOTAL=	865,805.50

ITEM	DESCRIPTION	UNIT	QUANTITY	PRICE	AMOUNT
20	MAYBERRY B (ML05h)				
1	PIPE UPSIZE 24" RCP CLIII RJ STORM DRAIN PIPE	LF	2,020	\$ 90.00	\$ 181,800.00
2	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	2,150	\$ 125.00	\$ 268,750.00
3	PIPE UPSIZE 48" RCP CLIII RJ STORM DRAIN PIPE	LF	990	\$ 185.00	\$ 183,150.00
4	36" RCP CLIII RJ STORM DRAIN PIPE	LF	513	\$ 100.00	\$ 51,300.00
5	48" RCP CLIII RJ STORM DRAIN PIPE MILE 2 CROSSING BY BORE	LF	380	\$ 750.00	\$ 285,000.00
6	TRENCH SAFETY PROTECTION	LF	6,053	\$ 10.00	\$ 60,530.00
7	PAVEMENT REPAIR	LF	6,053	\$ 38.00	\$ 230,014.00
8	DRAINAGE STRUCTURES	EA	42	\$ 6,000.00	\$ 252,000.00
9	TRAFFIC CONTROL	LS	0	\$ 100,000.00	\$ 15,000.00
10	SAFETY END TREATMENT WITH INLINE CHECK VALVE	EA	3	\$32,500.00	97,500.00
				SUB-TOTAL=	\$ 1,625,044.00
21	STEWART B (ML05i)				
1	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	3,215	\$ 125.00	\$ 401,875.00
2	PIPE UPSIZE 48" RCP CLIII RJ STORM DRAIN PIPE	LF	1,340	\$ 185.00	\$ 247,900.00
3	24" RCP CLIII RJ STORM DRAIN PIPE	LF	540	\$ 65.00	\$ 35,100.00
4	36" RCP CLIII RJ STORM DRAIN PIPE	LF	1,120	\$ 100.00	\$ 112,000.00
5	TRENCH SAFETY PROTECTION	LF	6,215	\$ 10.00	\$ 62,150.00
6	PAVEMENT REPAIR	LF	6,215	\$ 38.00	\$ 236,170.00
7	DRAINAGE STRUCTURES	EA	51	\$ 6,000.00	\$ 306,000.00
8	TRAFFIC CONTROL	LS	0	\$ 100,000.00	\$ 20,000.00
9	SAFETY END TREATMENT WITH INLINE CHECK VALVE	EA	4	\$32,500.00	130,000.00
				SUB-TOTAL=	\$ 1,551,195.00
22	ELM (MI13b)				
1	PIPE UPSIZE 48" RCP CLIII RJ STORM DRAIN PIPE	LF	1,270	\$185.00	234,950.00
2	PIPE UPSIZE 42" RCP CLIII RJ STORM DRAIN PIPE	LF	850	\$150.00	127,500.00
3	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	1,350	\$125.00	168,750.00
4	PIPE UPSIZE 30" RCP CLIII RJ STORM DRAIN PIPE	LF	680	\$110.00	74,800.00
5	TRENCH SAFETY PROTECTION	LF	4,150	\$10.00	41,500.00
6	PAVEMENT REPAIR	LF	4,150	\$38.00	157,700.00
7	DRAINAGE STRUCTURES	EA	26	\$6,000.00	156,000.00
8	TRAFFIC CONTROL	LS	1	\$20,000.00	20,000.00
				SUB-TOTAL=	981,200.00



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PROJECT:	CITY OF MISSION - MASTER DRAINAGE PLAN	PREPARED DATE:	4/8/20
		PREPARED BY:	EMIGDIO "MILO" SALINAS, PE
ENGINEER:	M2 ENGINEERING, PLLC - FIRM NO. 19545	ENGINEER'S OPINION OF PROBABLE CONST. COST NO DESIGN X PRELIMINARY DESIGN FINAL DESIGN	
	463 W. PALM VISTA, SUITE A, PALMVIEW, TX 78572		
CLIENT:	CITY OF MISSION		
ITEM	DESCRIPTION		AMOUNT
	CIP PACKAGE SCHEDULE 4		
23	MILLER (ML05f)		\$ 908,181
24	CONWAY A (ML06c)		\$ 497,991
25	CONWAY B (ML06d)		\$ 239,470
26	THORNWOOD (ML06f)		\$ 431,140
27	RAGLAND (MI13c)		\$ 1,537,040
28	AUGUSTA (ML06e)		\$ 557,492
	PROJECT GRAND TOTAL (EOPCC + SOFT COST)		\$ 4,171,314
	NOTE: THIS IS AN ENGINEER'S OPINION OF PROBABLE COSTS OF CONSTRUCTION AND FEES.		
	RIGHT-OF-WAY AND EASEMENT ACQUISITION FEES ARE NOT PART OF THIS ESTIMATE.		

ITEM	DESCRIPTION	UNIT	QUANTITY	PRICE	AMOUNT
23	MILLER (ML05f)				
1	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	1,150	\$ 125.00	\$ 143,750.00
2	PIPE UPSIZE 48" RCP CLIII RJ STORM DRAIN PIPE	LF	1,100	\$ 185.00	\$ 203,500.00
3	TRENCH SAFETY PROTECTION	LF	2,250	\$ 10.00	\$ 22,500.00
4	PAVEMENT REPAIR	LF	2,250	\$ 38.00	\$ 85,500.00
5	DRAINAGE STRUCTURES	EA	22	\$ 6,000.00	\$ 132,000.00
6	TRAFFIC CONTROL	LS	1	\$ 100,000.00	\$ 50,000.00
7	SAFETY END TREATMENT WITH INLINE CHECK VALVE	EA	1	\$32,500.00	32,500.00
				SUB-TOTAL=	669,750.00
24	CONWAY A (ML06c)				
1	PIPE UPSIZE 24" RCP CLIII RJ STORM DRAIN PIPE	LF	1,090	\$ 90.00	\$ 98,100.00
2	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	710	\$ 125.00	\$ 88,750.00
3	TRENCH SAFETY PROTECTION	LF	1,800	\$ 10.00	\$ 18,000.00
4	PAVEMENT REPAIR	LF	1,800	\$ 38.00	\$ 68,400.00
5	DRAINAGE STRUCTURES	EA	14	\$ 6,000.00	\$ 84,000.00
6	TRAFFIC CONTROL	LS	1	\$ 10,000.00	\$ 10,000.00
				SUB-TOTAL=	\$ 367,250.00
25	CONWAY B (ML06d)				
1	PIPE UPSIZE 24" RCP CLIII RJ STORM DRAIN PIPE	LF	450	\$ 90.00	\$ 40,500.00
2	TRENCH SAFETY PROTECTION	LF	450	\$ 10.00	\$ 4,500.00
3	PAVEMENT REPAIR	LF	450	\$ 38.00	\$ 17,100.00
4	DRAINAGE STRUCTURES	EA	12	\$ 6,000.00	\$ 72,000.00
5	TRAFFIC CONTROL	LS	0	\$ 100,000.00	\$ 10,000.00
6	UPGRADE EXISTING OUTFALL S.E.T. WITH INLINE CHECK VALVE	EA	1	\$32,500.00	32,500.00
				SUB-TOTAL=	\$ 176,600.00
26	THORNWOOD (ML06f)				
1	PIPE UPSIZE 24" RCP CLIII RJ STORM DRAIN PIPE	LF	370	\$ 90.00	\$ 33,300.00
2	PIPE UPSIZE 48" RCP CLIII RJ STORM DRAIN PIPE	LF	300	\$ 185.00	\$ 55,500.00
3	24" RCP CLIII RJ STORM DRAIN PIPE	LF	730	\$ 65.00	\$ 47,450.00
4	TRENCH SAFETY PROTECTION	LF	1,400	\$ 10.00	\$ 14,000.00
5	PAVEMENT REPAIR	LF	1,400	\$ 38.00	\$ 53,200.00
6	DRAINAGE STRUCTURES	EA	12	\$ 6,000.00	\$ 72,000.00
7	TRAFFIC CONTROL	LS	0	\$ 100,000.00	\$ 10,000.00
8	SAFETY END TREATMENT WITH INLINE CHECK VALVE	EA	1	\$32,500.00	32,500.00
				SUB-TOTAL=	\$ 317,950.00
27	RAGLAND (M113c)				
1	PIPE UPSIZE 42" RCP CLIII RJ STORM DRAIN PIPE	LF	1,200	\$150.00	180,000.00
2	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	850	\$125.00	106,250.00
3	PIPE UPSIZE 30" RCP CLIII RJ STORM DRAIN PIPE	LF	1,790	\$110.00	196,900.00
4	PIPE UPSIZE 24" RCP CLIII RJ STORM DRAIN PIPE	LF	1,580	\$90.00	142,200.00
5	TRENCH SAFETY PROTECTION	LF	5,420	\$10.00	54,200.00
6	PAVEMENT REPAIR	LF	5,420	\$38.00	205,960.00
7	DRAINAGE STRUCTURES	EA	38	\$6,000.00	228,000.00
8	TRAFFIC CONTROL	LS	1	\$20,000.00	20,000.00
				SUB-TOTAL=	1,133,510.00

ITEM	DESCRIPTION	UNIT	QUANTITY	PRICE	AMOUNT
28	AUGUSTA (ML06e)				
1	PIPE UPSIZE 24" RCP CLIII RJ STORM DRAIN PIPE	LF	940	\$ 90.00	\$ 84,600.00
2	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	320	\$ 125.00	\$ 40,000.00
3	PIPE UPSIZE 48" RCP CLIII RJ STORM DRAIN PIPE	LF	350	\$ 185.00	\$ 64,750.00
4	TRENCH SAFETY PROTECTION	LF	1,610	\$ 10.00	\$ 16,100.00
5	PAVEMENT REPAIR	LF	1,610	\$ 38.00	\$ 61,180.00
6	DRAINAGE STRUCTURES	EA	17	\$ 6,000.00	\$ 102,000.00
7	TRAFFIC CONTROL	LS	0	\$ 100,000.00	\$ 10,000.00
8	SAFETY END TREATMENT WITH INLINE CHECK VALVE	EA	1	\$32,500.00	32,500.00
				SUB-TOTAL=	\$ 411,130.00



M2
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PROJECT:	CITY OF MISSION - MASTER DRAINAGE PLAN	PREPARED DATE:	4/9/20
		PREPARED BY:	EMIGDIO "MILO" SALINAS, PE
ENGINEER:	M2 ENGINEERING, PLLC - FIRM NO. 19545	ENGINEER'S OPINION OF PROBABLE CONST. COST NO DESIGN X PRELIMINARY DESIGN FINAL DESIGN	
	463 W. PALM VISTA, SUITE A, PALMVIEW, TX 78572		
CLIENT:	CITY OF MISSION		
ITEM	DESCRIPTION	AMOUNT	
	CIP PACKAGE SCHEDULE 5		
29	TROSPER (ML05c)	\$ 4,044,941	
30	DRIFTWOOD (ML10d)	\$ 1,709,875	
31	LEANDRO (ML05a)	\$ 1,656,408	
32	WERNECKE (ML11c)	\$ 291,662	
33	TULIPAN (ML03)	\$ 2,245,013	
34	KERALUM (MI10c)	\$ 711,575	
35	LEAL (MI06b)	\$ 1,260,322	
	PROJECT GRAND TOTAL (EOPCC + SOFT COSTS)	\$ 11,919,796.38	
	NOTE: THIS IS AN ENGINEER'S OPINION OF PROBABLE COSTS OF CONSTRUCTION AND FEES.		
	RIGHT-OF-WAY AND EASEMENT ACQUISITION FEES ARE NOT PART OF THIS ESTIMATE.		

ITEM	DESCRIPTION	UNIT	QUANTITY	PRICE	AMOUNT
29	TROSPER (ML05c)				
1	PIPE UPSIZE 48" RCP CLIII RJ STORM DRAIN PIPE	LF	345	\$185.00	63,825.00
2	PIPE UPSIZE 42" RCP CLIII RJ STORM DRAIN PIPE	LF	4,115	\$150.00	617,250.00
3	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	590	\$125.00	73,750.00
4	PIPE UPSIZE 30" RCP CLIII RJ STORM DRAIN PIPE	LF	290	\$110.00	31,900.00
5	PIPE UPSIZE 24" RCP CLIII RJ STORM DRAIN PIPE	LF	4,070	\$90.00	366,300.00
6	42" RCP CLIII RJ STORM DRAIN PIPE	LF	2,180	\$125.00	272,500.00
7	24" RCP CLIII RJ STORM DRAIN PIPE	LF	1,890	\$65.00	122,850.00
8	TRENCH SAFETY PROTECTION	LF	13,480	\$10.00	134,800.00
9	PAVEMENT REPAIR	LF	12,390	\$38.00	470,820.00
10	42" BORE MILE 2 ROAD CROSSING	LF	130	\$750.00	97,500.00
11	DRAINAGE STRUCTURES	EA	84	\$6,000.00	504,000.00
12	SAFETY END TREATMENT WITH INLINE CHECK VALVE	EA	2	\$32,500.00	65,000.00
13	UPGRADE EXISTING OUTFALL S.E.T. WITH INLINE CHECK VALVE	EA	3	\$32,500.00	97,500.00
14	TRAFFIC CONTROL	LS	1	\$65,000.00	65,000.00
				SUB-TOTAL=	2,982,995.00
30	DRIFTWOOD (ML10d)				
1	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	3,150	\$125.00	\$393,750.00
2	60" TRUNK LINE (ALONG NORTH TAYLOR ROAD)	LF	2,417	\$270.00	\$652,590.00
3	TRENCH PROTECTION	LF	5,567	\$10.00	\$55,670.00
4	DRAINAGE STRUCTURES	EA	3	\$6,000.00	\$18,000.00
5	PAVEMENT REPAIR	LF	2,920	\$38.00	\$110,960.00
6	TRAFFIC CONTROL	LS	1	\$30,000.00	\$30,000.00
				SUB-TOTAL=	1,260,970.00
31	LEANDRO (ML05a)				
1	54" RCP CLIII RJ STORM DRAIN PIPE	LF	2,680	\$195.00	522,600.00
2	24" RCP CLIII RJ STORM DRAIN PIPE	LF	1,700	\$65.00	\$110,500.00
3	PIPE UPSIZE 42" RCP CLIII RJ STORM DRAIN PIPE	LF	400	\$150.00	\$60,000.00
4	TRENCH SAFETY PROTECTION	LF	4,780	\$10.00	\$47,800.00
5	36" BORE ACROSS MILE 2 ROAD	LF	130	\$500.00	\$65,000.00
6	PAVEMENT REPAIR	LF	280	\$38.00	10,640.00
7	IRRIGATION CROSSING ADJUSTMENTS	EA	1	\$4,000.00	4,000.00
8	DRAINAGE STRUCTURES	EA	21	\$6,000.00	126,000.00
9	SAFETY END TREATMENT WITH INLINE CHECK VALVE	EA	3	\$32,500.00	97,500.00
10	UPGRADE EXISTING OUTFALL S.E.T. WITH INLINE CHECK VALVE	EA	5	\$32,500.00	162,500.00
11	TRAFFIC CONTROL	LS	1	\$15,000.00	15,000.00
				SUB-TOTAL=	1,221,540.00
32	WERNECKE (ML11c)				
1	PIPE UPSIZE 48" RCP CLIII RJ STORM DRAIN PIPE	LF	230	\$185.00	\$42,550.00
2	PIPE UPSIZE 24" RCP CLIII RJ STORM DRAIN PIPE	LF	635	\$90.00	\$57,150.00
3	TRENCH PROTECTION	LF	865	\$10.00	\$8,650.00
4	DRAINAGE STRUCTURES	EA	13	\$6,000.00	\$78,000.00
5	SAFETY END TREATMENT	EA	1	\$2,500.00	\$2,500.00
6	PAVEMENT REPAIR	LF	480	\$38.00	\$18,240.00
7	SAFETY END TREATMENT	EA	2	\$2,500.00	\$5,000.00
8	TRAFFIC CONTROL	LS	1	\$3,000.00	\$3,000.00
				SUB-TOTAL=	215,090.00

ITEM	DESCRIPTION	UNIT	QUANTITY	PRICE	AMOUNT
33	TULIPAN (ML03)				
1	PIPE UPSIZE 24" RCP CLIII RJ STORM DRAIN PIPE	LF	275	\$ 90.00	\$ 24,750.00
2	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	4,685	\$ 125.00	\$ 585,625.00
3	PIPE UPSIZE 48" RCP CLIII RJ STORM DRAIN PIPE	LF	2,020	\$ 185.00	\$ 373,700.00
4	TRENCH SAFETY PROTECTION	LF	6,980	\$ 10.00	\$ 69,800.00
5	PAVEMENT REPAIR	LF	6,980	\$ 38.00	\$ 265,240.00
6	DRAINAGE STRUCTURES	EA	39	\$ 6,000.00	\$ 234,000.00
7	TRAFFIC CONTROL	LS	1	\$ 100,000.00	\$ 100,000.00
8	SAFETY END TREATMENT	EA	1	\$ 2,500.00	\$ 2,500.00
				SUB-TOTAL=	1,655,615.00
34	KERALUM (MI10c)				
1	PIPE UPSIZE 24" RCP CLIII RJ STORM DRAIN PIPE	LF	2,340	\$90.00	210,600.00
2	TRENCH SAFETY PROTECTION	LF	2,420	\$10.00	24,200.00
3	PAVEMENT REPAIR	LF	2,420	\$38.00	91,960.00
4	24" BORE CROSSING @ FM 495	LF	80	\$350.00	28,000.00
5	DRAINAGE STRUCTURES	EA	20	\$6,000.00	120,000.00
6	TRAFFIC CONTROL	LS	1	\$50,000.00	50,000.00
				SUB-TOTAL=	524,760.00
35	LEAL (MI06b)				
1	PIPE UPSIZE 42" RCP CLIII RJ STORM DRAIN PIPE	LF	325	\$150.00	48,750.00
2	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	800	\$125.00	100,000.00
3	PIPE UPSIZE 30" RCP CLIII RJ STORM DRAIN PIPE	LF	380	\$110.00	41,800.00
4	PIPE UPSIZE 24" RCP CLIII RJ STORM DRAIN PIPE	LF	740	\$90.00	66,600.00
5	24" RCP CLIII RJ STORM DRAIN PIPE	LF	2,987	\$65.00	194,155.00
6	TRENCH SAFETY PROTECTION	LF	5,232	\$10.00	52,320.00
7	PAVEMENT REPAIR	LF	5,232	\$38.00	198,816.00
8	DRAINAGE STRUCTURES	EA	37	\$6,000.00	222,000.00
9	TRAFFIC CONTROL	LS	1	\$5,000.00	5,000.00
				SUB-TOTAL=	929,441.00



M2
Engineering, PLLC

PROJECT:	CITY OF MISSION - MASTER DRAINAGE PLAN	PREPARED DATE:	4/8/20
		PREPARED BY:	EMIGDIO "MILO" SALINAS, PE
ENGINEER:	M2 ENGINEERING, PLLC - FIRM NO. 19545	ENGINEER'S OPINION OF PROBABLE CONST. COST NO DESIGN X PRELIMINARY DESIGN FINAL DESIGN	
	463 W. PALM VISTA, SUITE A, PALMVIEW, TX 78572		
CLIENT:	CITY OF MISSION		
ITEM	DESCRIPTION	AMOUNT	
	CIP PACKAGE SCHEDULE 6		
36	EL DORADO (MIO2)	\$	676,861
37	ERMA (MIO06a)	\$	2,409,059
38	PEREZVILLE DRAIN (MI01)	\$	-
39	GRIFFEN (ML10c)	\$	1,592,558
40	NORMA (ML11e)	\$	398,198
41	LOS INDIOS (MI09)	\$	2,563,694
42	BASHAM (ML04)	\$	1,132,664
	PROJECT GRAND TOTAL (EOPCC + SOFT COSTS)	\$	8,773,035
	NOTE: THIS IS AN ENGINEER'S OPINION OF PROBABLE COSTS OF CONSTRUCTION AND FEES.		
	RIGHT-OF-WAY AND EASEMENT ACQUISITION FEES ARE NOT PART OF THIS ESTIMATE.		

ITEM	DESCRIPTION	UNIT	QUANTITY	PRICE	AMOUNT
36	EL DORADO (MIO2)				
1	PIPE UPSIZE 48" RCP CLIII RJ STORM DRAIN PIPE	LF	180	\$185.00	\$33,300.00
2	24" RCP CLIII RJ STORM DRAIN PIPE	LF	1,500	\$65.00	\$97,500.00
3	30" RCP CLIII RJ STORM DRAIN PIPE	LF	840	\$85.00	\$71,400.00
4	DRAINAGE STRUCTURES	EA	18	\$6,000.00	\$108,000.00
5	TRENCH PROTECTION	LF	2,520	\$10.00	\$25,200.00
6	PAVEMENT REPAIR	LF	2,520	\$38.00	\$95,760.00
7	SAFETY END TREATMENT WITH INLINE CHECK VALVE	EA	1	\$32,500.00	\$32,500.00
8	UPGRADE EXISTING OUTFALL S.E.T. WITH INLINE CHECK VALVE	EA	1	\$32,500.00	\$32,500.00
9	TRAFFIC CONTROL	LS	1	\$3,000.00	\$3,000.00
				SUB-TOTAL=	499,160.00
37	ERMA (MIO06a)				
1	REWORK DITCH EXCAVATION (CUT) & DRAINAGE DITCH	CY	10,089	\$5.50	55,489.50
2	REWORK DITCH EXCAVATION (FILL) & DRAINAGE DITCH	CY	2,852	\$2.50	7,130.00
3	PIPE UPSIZE 60" RCP CLIII RJ STORM DRAIN PIPE	LF	400	\$225.00	90,000.00
4	PIPE UPSIZE 48" RCP CLIII RJ STORM DRAIN PIPE	LF	970	\$185.00	179,450.00
5	PIPE UPSIZE 42" RCP CLIII RJ STORM DRAIN PIPE	LF	275	\$150.00	41,250.00
6	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	781	\$125.00	97,625.00
7	PIPE UPSIZE 30" RCP CLIII RJ STORM DRAIN PIPE	LF	1,031	\$110.00	113,410.00
8	PIPE UPSIZE 24" RCP CLIII RJ STORM DRAIN PIPE	LF	3,600	\$90.00	324,000.00
9	24" RCP CLIII RJ STORM DRAIN PIPE	LF	2,354	\$65.00	153,010.00
10	TRENCH SAFETY PROTECTION	LF	9,411	\$10.00	94,110.00
11	PAVEMENT REPAIR	LF	9,411	\$38.00	357,618.00
12	DRAINAGE STRUCTURES	EA	41	\$6,000.00	246,000.00
13	SAFETY END TREATMENT	EA	3	\$2,500.00	7,500.00
14	TRAFFIC CONTROL	LS	1	\$10,000.00	10,000.00
				SUB-TOTAL=	1,776,592.50
38	PEREZVILLE DRAIN (MI01)				
				SUB-TOTAL=	0.00
39	GRIFFEN (ML10c)				
1	PIPE UPSIZE 54" RCP CLIII RJ STORM DRAIN PIPE	LF	1,568	\$220.00	344,960.00
2	PIPE UPSIZE 48" RCP CLIII RJ STORM DRAIN PIPE	LF	1,298	\$185.00	240,130.00
3	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	2,277	\$125.00	284,625.00
4	PIPE UPSIZE 24" RCP CLIII RJ STORM DRAIN PIPE	LF	600	\$90.00	54,000.00
5	TRENCH SAFETY PROTECTION	LF	5,743	\$10.00	57,430.00
6	PAVEMENT REPAIR	LF	4,166	\$38.00	158,308.00
7	TRAFFIC CONTROL	LS	1	\$35,000.00	35,000.00
				SUB-TOTAL=	1,174,453.00
40	NORMA (ML11e)				
1	PIPE UPSIZE 48" RCP CLIII RJ STORM DRAIN PIPE	LF	430	\$185.00	79,550.00
2	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	1,090	\$125.00	136,250.00
3	TRENCH SAFETY PROTECTION	LF	1,522	\$10.00	15,220.00
4	PAVEMENT REPAIR	LF	1,122	\$38.00	42,636.00
5	SAFTEY END TREATMENTS	LS	2	\$2,500.00	5,000.00
6	TRAFFIC CONTROL	LS	1	\$15,000.00	15,000.00
				SUB-TOTAL=	293,656.00

ITEM	DESCRIPTION	UNIT	QUANTITY	PRICE	AMOUNT
41	LOS INDIOS (MI09)				
1	PIPE UPSIZE 48" RCP CLIII RJ STORM DRAIN PIPE	LF	1,660	\$185.00	307,100.00
2	PIPE UPSIZE 42" RCP CLIII RJ STORM DRAIN PIPE	LF	800	\$150.00	120,000.00
3	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	3,685	\$125.00	460,625.00
4	PIPE UPSIZE 30" RCP CLIII RJ STORM DRAIN PIPE	LF	500	\$110.00	55,000.00
5	PIPE UPSIZE 24" RCP CLIII RJ STORM DRAIN PIPE	LF	300	\$90.00	27,000.00
6	24" RCP CLIII RJ STORM DRAIN PIPE	LF	1,465	\$65.00	95,225.00
7	TRENCH SAFETY PROTECTION	LF	8,410	\$10.00	84,100.00
8	PAVEMENT REPAIR	LF	8,410	\$38.00	319,580.00
9	DRAINAGE STRUCTURES	EA	67	\$6,000.00	402,000.00
10	SAFETY END TREATMENT	EA	4	\$2,500.00	10,000.00
11	TRAFFIC CONTROL	LS	1	\$10,000.00	10,000.00
				SUB-TOTAL=	1,890,630.00
42	BASHAM (ML04)				
1	REWORK DITCH EXCAVATION (CUT) & DRAINAGE DITCH	CY	15,869	\$5.50	87,279.50
2	REWORK DITCH EXCAVATION (FILL) & DRAINAGE DITCH	CY	350	\$2.50	875.00
3	WHITE OAK POND LINEAR DETENTION EXCAVATION (CUT)	CY	30,957	\$5.50	170,263.50
4	WHITE OAK POND LINEAR DETENTION EXCAVATION (FILL)	CY	8	\$2.50	20.00
5	PIPE UPSIZE 48" RCP CLIII RJ STORM DRAIN PIPE	LF	160	\$185.00	29,600.00
6	PIPE UPSIZE 42" RCP CLIII RJ STORM DRAIN PIPE	LF	180	\$150.00	27,000.00
7	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	300	\$125.00	37,500.00
8	PIPE UPSIZE 24" RCP CLIII RJ STORM DRAIN PIPE	LF	40	\$90.00	3,600.00
9	48" RCP CLIII RJ STORM DRAIN PIPE	LF	409	\$160.00	65,440.00
10	36" RCP CLIII RJ STORM DRAIN PIPE	LF	800	\$100.00	80,000.00
11	24" RCP CLIII RJ STORM DRAIN PIPE	LF	1,600	\$65.00	104,000.00
12	TRENCH SAFETY PROTECTION	LF	3,489	\$10.00	34,890.00
13	PAVEMENT REPAIR	LF	560	\$38.00	21,280.00
14	DRAINAGE STRUCTURES	EA	19	\$6,000.00	114,000.00
15	SAFETY END TREATMENT	EA	6	\$2,500.00	15,000.00
16	DRAINAGE DITCH CONC. RIP-RAP	EA	3	\$7,500.00	22,500.00
17	ROADSIDE SWALES	LF	2,350	\$3.00	7,050.00
18	TRAFFIC CONTROL	LS	1	\$15,000.00	15,000.00
				SUB-TOTAL=	835,298.00



M2
Engineering, PLLC

PROJECT:	CITY OF MISSION - MASTER DRAINAGE PLAN	PREPARED DATE:	4/9/20
		PREPARED BY:	EMIGDIO "MILO" SALINAS, PE
ENGINEER:	M2 ENGINEERING, PLLC - FIRM NO. 19545	ENGINEER'S OPINION OF PROBABLE CONST. COST NO DESIGN X PRELIMINARY DESIGN FINAL DESIGN	
	463 W. PALM VISTA, SUITE A, PALMVIEW, TX 78572		
CLIENT:	CITY OF MISSION		
ITEM	DESCRIPTION	AMOUNT	
	CIP PACKAGE SCHEDULE 7		
43	MISSION PALMS (MI18b)	\$	361,846
44	TAYLOR (MI17)	\$	1,049,842
45	LOWER ECD (ML06p)	\$	918,332
46	STACIE (ML06b)	\$	255,363
47	GRAPEFRUIT (ML11d)	\$	132,447
48	GREENLAWN (MI05)	\$	1,123,831
49	SOLAR (ML06o)	\$	916,920
	PROJECT GRAND TOTAL (EOPCC + SOFT COSTS)	\$	4,758,582
	NOTE: THIS IS AN ENGINEER'S OPINION OF PROBABLE COSTS OF CONSTRUCTION AND FEES.		
	RIGHT-OF-WAY AND EASEMENT ACQUISITION FEES ARE NOT PART OF THIS ESTIMATE.		

ITEM	DESCRIPTION	UNIT	QUANTITY	PRICE	AMOUNT
43	MISSION PALMS (MI18b)				
1	PIPE UPSIZE 24" RCP CLIII RJ STORM DRAIN PIPE	LF	1,296	\$90.00	116,640.00
2	TRENCH SAFETY PROTECTION	LF	1,296	\$10.00	12,960.00
3	PAVEMENT REPAIR	LF	1,296	\$38.00	49,248.00
4	DRAINAGE STRUCTURES	EA	13	\$6,000.00	78,000.00
5	TRAFFIC CONTROL	LS	1	\$10,000.00	10,000.00
				SUB-TOTAL=	266,848.00
44	TAYLOR (MI17)				
1	PIPE UPSIZE 30" RCP CLIII RJ STORM DRAIN PIPE	LF	1,715	\$110.00	188,650.00
2	PIPE UPSIZE 24" RCP CLIII RJ STORM DRAIN PIPE	LF	2,375	\$90.00	213,750.00
3	TRENCH SAFETY PROTECTION	LF	4,090	\$10.00	40,900.00
4	PAVEMENT REPAIR	LF	4,090	\$38.00	155,420.00
5	DRAINAGE STRUCTURES	EA	28	\$6,000.00	168,000.00
6	SAFETY END TREATMENT	EA	1	\$2,500.00	2,500.00
7	TRAFFIC CONTROL	LS	1	\$5,000.00	5,000.00
				SUB-TOTAL=	774,220.00
45	LOWER ECD (ML06p)				
1	NEW DETENTION POND EXCAVATION (CUT)(6 ACRES ~ 12' DEEP)	CY	71,925	\$5.50	\$395,587.50
2	REWORK DITCH EXCAVATION (CUT) & DRAINAGE DITCH	CY	36,855	\$5.50	\$202,702.50
3	REWORK DITCH EXCAVATION (FILL) & DRAINAGE DITCH	CY	5,528	\$2.50	\$13,820.63
4	18" RCP CLIII RJ STORM DRAIN PIPE	LF	325	\$75.00	\$24,375.00
5	TRENCH PROTECTION	LF	325	\$10.00	\$3,250.00
6	SAFETY END TREATMENT	EA	1	\$2,500.00	\$5,000.00
7	SAFETY END TREATMENT WITH INLINE CHECK VALVE	EA	1	\$32,500.00	32,500.00
				SUB-TOTAL=	677,235.63
46	STACIE (ML06b)				
1	REWORK DITCH EXCAVATION (CUT) & DRAINAGE DITCH	CY	16,212	\$5.50	\$ 89,166.00
2	REWORK DITCH EXCAVATION (FILL) & DRAINAGE DITCH	CY	2	\$2.50	\$ 5.00
3	TRENCH SAFETY PROTECTION	LF	2,415	\$10.00	\$ 24,150.00
4	TRAFFIC CONTROL	LS	1	\$10,000.00	\$ 10,000.00
5	UPGRADE EXISTING OUTFALL S.E.T. WITH INLINE CHECK VALVE	EA	2	\$32,500.00	\$ 65,000.00
				SUB-TOTAL=	\$ 188,321.00
47	GRAPEFRUIT (ML11d)				
1	PIPE UPSIZE 48" RCP CLIII RJ STORM DRAIN PIPE	LF	225	\$185.00	41,625.00
2	PIPE UPSIZE 30" RCP CLIII RJ STORM DRAIN PIPE	LF	225	\$110.00	24,750.00
3	TRENCH SAFETY PROTECTION	LF	550	\$10.00	5,500.00
4	PAVEMENT REPAIR	LF	350	\$38.00	13,300.00
5	TRAFFIC CONTROL	LS	1	\$10,000.00	10,000.00
6	SAFETY END TREATMENTS	LS	1	\$2,500.00	2,500.00
				SUB-TOTAL=	97,675.00
48	GREENLAWN (MI05)				
1	30" RCP CLIII RJ STORM DRAIN PIPE	LF	3,768	\$85.00	\$320,280.00
2	48" BORE ACROSS U.S. 83 BUSINESS	LF	180	\$750.00	\$135,000.00
3	DRAINAGE STRUCTURES	EA	29	\$6,000.00	\$174,000.00
4	SAFETY END TREATMENT	EA	2	\$2,500.00	\$5,000.00
5	TRENCH PROTECTION	LF	3,948	\$10.00	\$39,480.00
6	PAVEMENT REPAIR	LF	3,948	\$38.00	\$150,024.00
7	TRAFFIC CONTROL	LS	1	\$5,000.00	\$5,000.00
				SUB-TOTAL=	828,784.00

ITEM	DESCRIPTION	UNIT	QUANTITY	PRICE	AMOUNT
49	SOLAR (ML06o)				
1	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	2,243	\$125.00	\$280,375.00
2	PIPE UPSIZE 24" RCP CLIII RJ STORM DRAIN PIPE	LF	300	\$90.00	\$27,000.00
3	TRENCH PROTECTION	LF	2,543	\$10.00	\$25,430.00
4	DRAINAGE STRUCTURES	EA	21	\$6,000.00	\$126,000.00
5	SAFETY END TREATMENT	EA	4	\$2,500.00	\$10,000.00
6	PAVEMENT REPAIR	LF	1,905	\$38.00	\$72,390.00
7	SAFETY END TREATMENT WITH INLINE CHECK VALVE	EA	4	\$32,500.00	130,000.00
8	TRAFFIC CONTROL	LS	1	\$5,000.00	\$5,000.00
				SUB-TOTAL=	676,195.00



M2
Engineering, PLLC

PROJECT:	CITY OF MISSION - MASTER DRAINAGE PLAN	PREPARED DATE:	4/9/20
		PREPARED BY:	EMIGDIO "MILO" SALINAS, PE
ENGINEER:	M2 ENGINEERING, PLLC - FIRM NO. 19545	ENGINEER'S OPINION OF PROBABLE CONST. COST NO DESIGN X PRELIMINARY DESIGN FINAL DESIGN	
	463 W. PALM VISTA, SUITE A, PALMVIEW, TX 78572		
CLIENT:	CITY OF MISSION		
ITEM	DESCRIPTION	AMOUNT	
	CIP PACKAGE SCHEDULE 8		
50	MISSION LATERAL UPPER (ML01)	\$ -	
51	ALYSSA (ML05g)	\$ 336,668	
52	ORANGE (ML06j)	\$ 198,139	
53	WOODLAND (ML06h)	\$ 689,370	
54	5-F (MI11)	\$ 145,649	
55	PERKINS (MI07c)	\$ 1,378,333	
56	HOLLAND B (ML05d)	\$ 1,593,537	
	PROJECT GRAND TOTAL (EOPCC + SOFT COSTS)	\$ 4,341,696	
	NOTE: THIS IS AN ENGINEER'S OPINION OF PROBABLE COSTS OF CONSTRUCTION AND FEES.		
	RIGHT-OF-WAY AND EASEMENT ACQUISITION FEES ARE NOT PART OF THIS ESTIMATE.		

ITEM	DESCRIPTION	UNIT	QUANTITY	PRICE	AMOUNT
50	MISSION LATERAL UPPER (ML01)				
				SUB-TOTAL=	0.00
51	ALYSSA (ML05g)				
1	PIPE UPSIZE 24" RCP CLIII RJ STORM DRAIN PIPE	LF	580	\$ 90.00	\$ 52,200.00
2	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	380	\$ 125.00	\$ 47,500.00
3	TRENCH SAFETY PROTECTION	LF	960	\$ 10.00	\$ 9,600.00
4	PAVEMENT REPAIR	LF	960	\$ 38.00	\$ 36,480.00
5	DRAINAGE STRUCTURES	EA	10	\$ 6,000.00	\$ 60,000.00
6	TRAFFIC CONTROL	LS	0	\$ 100,000.00	\$ 10,000.00
7	SAFETY END TREATMENT WITH INLINE CHECK VALVE	EA	1	\$32,500.00	32,500.00
				SUB-TOTAL=	248,280.00
52	ORANGE (ML06j)				
1	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	526	\$125.00	\$65,750.00
2	TRENCH PROTECTION	LF	526	\$10.00	\$5,260.00
3	DRAINAGE STRUCTURES	EA	4	\$6,000.00	\$24,000.00
4	SAFETY END TREATMENT	EA	1	\$2,500.00	\$2,500.00
5	PAVEMENT REPAIR	LF	345	\$38.00	\$13,110.00
6	SAFETY END TREATMENT WITH INLINE CHECK VALVE	EA	1	\$32,500.00	32,500.00
7	TRAFFIC CONTROL	LS	1	\$3,000.00	\$3,000.00
				SUB-TOTAL=	146,120.00
53	WOODLAND (ML06h)				
1	PIPE UPSIZE 48" RCP CLIII RJ STORM DRAIN PIPE	LF	840	\$185.00	\$155,400.00
2	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	875	\$125.00	\$109,375.00
3	TRENCH PROTECTION	LF	1,715	\$10.00	\$17,150.00
4	DRAINAGE STRUCTURES	EA	12	\$6,000.00	\$72,000.00
5	SAFETY END TREATMENT	EA	3	\$2,500.00	\$7,500.00
6	PAVEMENT REPAIR	LF	1,170	\$38.00	\$44,460.00
7	SAFETY END TREATMENT WITH INLINE CHECK VALVE	EA	3	\$32,500.00	97,500.00
8	TRAFFIC CONTROL	LS	1	\$5,000.00	\$5,000.00
				SUB-TOTAL=	508,385.00
54	5-F (MI11)				
1	REWORK DITCH EXCAVATION (CUT) & DRAINAGE DITCH	CY	4,552	\$5.50	25,036.00
2	REWORK DITCH EXCAVATION (FILL) & DRAINAGE DITCH	CY	989	\$2.50	2,472.50
3	60" RCP CLIII RJ STORM DRAIN PIPE	LF	90	\$350.00	31,500.00
4	TRENCH SAFETY PROTECTION	LF	90	\$ 10.00	\$ 900.00
5	TRAFFIC CONTROL	LS	1	\$ 10,000.00	\$ 10,000.00
6	DRAINAGE DITCH CONC. RIP-RAP	EA	2	\$15,000.00	30,000.00
7	SAFETY END TREATMENT	EA	1	\$7,500.00	\$7,500.00
				SUB-TOTAL=	\$ 107,408.50
55	PERKINS (MI07c)				
1	PIPE UPSIZE 42" RCP CLIII RJ STORM DRAIN PIPE	LF	550	\$150.00	82,500.00
2	PIPE UPSIZE 24" RCP CLIII RJ STORM DRAIN PIPE	LF	4,069	\$90.00	366,210.00
3	US 83 (9TH STREET) CROSSING	LF	120	\$750.00	90,000.00
4	TRENCH SAFETY PROTECTION	LF	4,739	\$10.00	47,390.00
5	PAVEMENT REPAIR	LF	5,615	\$38.00	213,370.00
6	DRAINAGE STRUCTURES	EA	32	\$6,000.00	192,000.00
7	TRAFFIC CONTROL	LS	1	\$25,000.00	25,000.00
				SUB-TOTAL=	1,016,470.00

ITEM	DESCRIPTION	UNIT	QUANTITY	PRICE	AMOUNT
56	HOLLAND B (ML05d)				
1	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	3,280	\$ 125.00	\$ 410,000.00
2	36" RCP CLIII RJ STORM DRAIN PIPE	LF	900	\$ 100.00	\$ 90,000.00
3	24" RCP CLIII RJ STORM DRAIN PIPE	LF	1,695	\$ 65.00	\$ 110,175.00
4	TRENCH SAFETY PROTECTION	LF	5,875	\$ 10.00	\$ 58,750.00
5	PAVEMENT REPAIR	LF	5,875	\$ 38.00	\$ 223,250.00
6	DRAINAGE STRUCTURES	EA	28	\$ 6,000.00	\$ 168,000.00
7	TRAFFIC CONTROL	LS	1	\$ 100,000.00	\$ 50,000.00
8	SAFETY END TREATMENT WITH INLINE CHECK VALVE	EA	2	\$32,500.00	65,000.00
				SUB-TOTAL=	1,175,175.00



M2
Engineering, PLLC

PROJECT:	CITY OF MISSION - MASTER DRAINAGE PLAN	PREPARED DATE: 4/9/20	
		PREPARED BY:	EMIGDIO "MILO" SALINAS, PE
ENGINEER:	M2 ENGINEERING, PLLC - FIRM NO. 19545	ENGINEER'S OPINION OF PROBABLE CONST. COST	
	463 W. PALM VISTA, SUITE A, PALMVIEW, TX 78572		NO DESIGN
CLIENT:	CITY OF MISSION	X	PRELIMINARY DESIGN
			FINAL DESIGN
ITEM	DESCRIPTION	AMOUNT	
	CIP PACKAGE SCHEDULE 9		
57	FRIO (MI18a)	\$	1,621,613
58	SHARYLAND PLANTATION B (MI20)	\$	-
59	SABINE (MI19a)	\$	1,327,063
60	FARIAS (MI07a)	\$	1,946,185
61	HUMMINGBIRD (MI03)	\$	-
62	HOME DEPOT (MI19b)	\$	-
63	HIKE & BIKE TRAIL (MI08)	\$	-
64	BUS PARK (MI12)	\$	-
	PROJECT GRAND TOTAL (EOPCC + SOFT COSTS)	\$	4,894,862
	NOTE: THIS IS AN ENGINEER'S OPINION OF PROBABLE COSTS OF CONSTRUCTION AND FEES.		
	RIGHT-OF-WAY AND EASEMENT ACQUISITION FEES ARE NOT PART OF THIS ESTIMATE.		

ITEM	DESCRIPTION	UNIT	QUANTITY	PRICE	AMOUNT
57	FRIO (MI18a)				
1	PIPE UPSIZE 24" RCP CLIII RJ STORM DRAIN PIPE	LF	6,260	\$90.00	563,400.00
2	TRENCH SAFETY PROTECTION	LF	6,260	\$10.00	62,600.00
3	PAVEMENT REPAIR	LF	6,260	\$38.00	237,880.00
4	DRAINAGE STRUCTURES	EA	52	\$6,000.00	312,000.00
5	SAFETY END TREATMENT	EA	4	\$2,500.00	10,000.00
6	TRAFFIC CONTROL	LS	1	\$10,000.00	10,000.00
				SUB-TOTAL=	1,195,880.00
58	SHARYLAND PLANTATION B (MI20)				
				SUB-TOTAL=	0.00
59	SABINE (MI19a)				
1	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	4,420	\$125.00	552,500.00
2	TRENCH SAFETY PROTECTION	LF	4,420	\$10.00	44,200.00
3	PAVEMENT REPAIR	LF	4,420	\$38.00	167,960.00
4	DRAINAGE STRUCTURES	EA	34	\$6,000.00	204,000.00
5	TRAFFIC CONTROL	LS	1	\$10,000.00	10,000.00
				SUB-TOTAL=	978,660.00
60	FARIAS (MI07a)				
1	PIPE UPSIZE 60" RCP CLIII RJ STORM DRAIN PIPE	LF	4,171	\$270.00	\$1,126,170.00
2	TRENCH PROTECTION	LF	4,171	\$10.00	\$41,710.00
3	DRAINAGE STRUCTURES	EA	20	\$6,000.00	\$120,000.00
4	PAVEMENT REPAIR	LF	3,220	\$38.00	\$122,360.00
5	TRAFFIC CONTROL	LS	1	\$25,000.00	\$25,000.00
				SUB-TOTAL=	1,435,240.00
61	HUMMINGBIRD (MI03)				
				SUB-TOTAL=	0.00
62	HOME DEPOT (MI19b)				
				SUB-TOTAL=	0.00
63	BUS PARK (MI12)				
				SUB-TOTAL=	0.00



M2
Engineering, PLLC

PROJECT:	CITY OF MISSION - MASTER DRAINAGE PLAN	PREPARED DATE:	4/9/20
		PREPARED BY:	EMIGDIO "MILO" SALINAS, PE
ENGINEER:	M2 ENGINEERING, PLLC - FIRM NO. 19545	ENGINEER'S OPINION OF PROBABLE CONST. COST NO DESIGN X PRELIMINARY DESIGN FINAL DESIGN	
	463 W. PALM VISTA, SUITE A, PALMVIEW, TX 78572		
CLIENT:	CITY OF MISSION		
ITEM	DESCRIPTION	AMOUNT	
CIP PACKAGE SCHEDULE 10			
65 66	MISSION MEDICAL CENTER/TRAVIS (MI14a &MI14b)	\$	371,543
67	ROSALINDA (MI16)	\$	690,604
68	BRENTWOOD (ML09g)	\$	-
69	COUNTRY CLUB (ML10a)	\$	336,095
70	SHARYLAND PLANTATION A (MI15)	\$	-
71	LAKEVIEW (MI04)	\$	-
72	ENCANTADO (ML07)	\$	-
	PROJECT GRAND TOTAL (EOPCC + SOFT COSTS)	\$	1,398,242
	NOTE: THIS IS AN ENGINEER'S OPINION OF PROBABLE COSTS OF CONSTRUCTION AND FEES.		
	RIGHT-OF-WAY AND EASEMENT ACQUISITION FEES ARE NOT PART OF THIS ESTIMATE.		

ITEM	DESCRIPTION	UNIT	QUANTITY	PRICE	AMOUNT
65 66	MISSION MEDICAL CENTER/TRAVIS (MI14a & MI14b)				
1	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	1,263	\$125.00	157,875.00
2	TRENCH SAFETY PROTECTION	LF	1,263	\$10.00	12,630.00
3	PAVEMENT REPAIR	LF	1,263	\$38.00	47,994.00
4	DRAINAGE STRUCTURES	EA	8	\$6,000.00	48,000.00
5	SAFETY END TREATMENT	EA	1	\$2,500.00	\$2,500.00
9	TRAFFIC CONTROL	LS	1	\$5,000.00	5,000.00
				SUB-TOTAL=	273,999.00
67	ROSALINDA (MI16)				
1	PIPE UPSIZE 48" RCP CLIII RJ STORM DRAIN PIPE	LF	205	\$185.00	37,925.00
2	PIPE UPSIZE 42" RCP CLIII RJ STORM DRAIN PIPE	LF	820	\$150.00	123,000.00
3	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	830	\$125.00	103,750.00
4	PIPE UPSIZE 30" RCP CLIII RJ STORM DRAIN PIPE	LF	260	\$110.00	28,600.00
5	TRENCH SAFETY PROTECTION	LF	2,115	\$10.00	21,150.00
6	PAVEMENT REPAIR	LF	2,115	\$38.00	80,370.00
7	DRAINAGE STRUCTURES	EA	17	\$6,000.00	102,000.00
8	SAFETY END TREATMENT	EA	1	\$2,500.00	2,500.00
9	TRAFFIC CONTROL	LS	1	\$10,000.00	10,000.00
				SUB-TOTAL=	509,295.00
68	BRENTWOOD (ML09g)				
				SUB-TOTAL=	0.00
69	COUNTRY CLUB (ML10a)				
1	PIPE UPSIZE 36" RCP CLIII RJ STORM DRAIN PIPE	LF	1,070	\$125.00	133,750.00
2	PIPE UPSIZE 24" RCP CLIII RJ STORM DRAIN PIPE	LF	346	\$90.00	31,140.00
3	TRENCH SAFETY PROTECTION	LF	1,416	\$10.00	14,160.00
4	PAVEMENT REPAIR	LF	1,416	\$38.00	53,808.00
5	TRAFFIC CONTROL	LS	1	\$15,000.00	15,000.00
				SUB-TOTAL=	247,858.00
70	SHARYLAND PLANTATION A (MI15)				
71	LAKEVIEW (MI04)				
				SUB-TOTAL=	0.00
72	ENCANTADO (ML07)				
				SUB-TOTAL=	0.00

RESOLUTION No. _____

**A RESOLUTION AUTHORIZING THE CITY OF PHARR TO ADOPT THE HIDALGO
COUNTY, TEXAS MULTI-JURISDICTION HAZARD MITIGATION ACTION PLAN
UPDATE 2021**

STATE OF TEXAS	§
COUNTY OF HIDALGO	§
CITY OF PHARR	§

WHEREAS, natural hazards in the City of Pharr area historically have caused significant disasters with losses of life and property and natural resources damage; and

WHEREAS, the Federal Disaster Mitigation Act of 2000 and Federal Emergency Management Agency (FEMA) require communities to adopt a hazard mitigation action plan to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, FEMA requires that communities update hazard mitigation action plans every five years in order to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, the City of Pharr has assessed the community's potential risks and hazards and is committed to planning for a sustainable community and reducing the long-term consequences of natural and man-caused hazards; and

WHEREAS, the Hidalgo County Hazard Mitigation Action Plan Update outlines a mitigation vision, goals and objectives; assesses risk from a range of hazards; and identifies risk reduction strategies and actions for hazards that threaten the community.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF COMMISSIONERS OF THE CITY OF PHARR, TEXAS THAT:

1. The Hidalgo County Hazard Mitigation Action Plan Update is approved in its entirety;
2. The City of Pharr will pursue available funding opportunities for implementation of the proposals designated therein, and will, upon receipt of such funding or other necessary resources, seek to implement the actions contained in the mitigation strategies;
3. The City of Pharr vests with the Mayor the responsibility, authority, and means to inform all parties of this action; assure that the Hazard Mitigation Action Plan Update will be reviewed at least annually; and that any needed adjustments will be presented to the City Council for consideration; and
4. The City of Pharr to take such other action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Action Plan Update and report on progress as required by FEMA and the Texas Division of Emergency Management (TDEM).

**ADOPTED BY VOTE OF THE CITY COMMISSION OF THE CITY OF PHARR,
TEXAS** at a regular meeting held on the _____ day of November 2021.

CITY OF PHARR

AMBROSIO HERNANDEZ, MAYOR

ATTEST:

DIANNA VALDEZ, CITY CLERK



AGENDA MEMORANDUM



BOARD: City Commission

AGENDA ITEM #: 7.D.

DATE SUBMITTED: September 15, 2021

MEETING DATE: November 1, 2021

FROM: Iris Mata, Secretary

DEPARTMENT: Development Services

DIRECTOR: Roland Gomez

Agenda Item: Consideration and action, if any, on Resolution appointing two (2) alternate members to the Planning and Zoning Commission.

Classification: Regular

(* If closed session, City Attorney must review and approve.)

Issue: Consideration and action, if any, on Resolution appointing two (2) alternate members to the Planning and Zoning Commission.

Fiscal Consideration: n/a

Staff Recommendation: Staff recommends appointment of two (2) new alternates, Guadalupe Cano and Joel Ordaz.

Alternatives: n/a

Exclude Material from Public Packet? No

Reason: n/a

ROUTING:

Iris Mata
Roland Gomez
Patricia Rigney
City Management Office

Created/Initiated - 9/15/2021
Approved - 9/15/2021
Approved - 9/16/2021
Final Approval - 10/29/2021

STATE OF TEXAS

§
§
§

RESOLUTION NO. R-2021-____

CITY OF PHARR

WHEREAS, there is hereby a City Planning and Zoning Commission which shall function by making plans and acting as a Zoning Commission being composed of seven (7) members and four (4) alternates to be appointed by the Board of Commissioners, and

WHEREAS, the terms of Porfirio Rodriguez, alternate member; and Ray Sanchez, alternate member expired September 15, 2021; and

WHEREAS, appointment of two (2) alternate members need to be made at this time in accordance with City Ordinance No. O-2007-48 whereby a person, either citizen/resident or Pharr business owner, shall not serve as an officer or member on more than two (2) Pharr board or committee concurrently.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF COMMISSIONERS OF THE CITY OF PHARR, TEXAS, THAT:

The following residents of the City of Pharr are hereby appointed as alternate members of the Planning and Zoning Commission.

NAME:

LENGTH OF TERM

1. _____

2-year term (expiring November 1, 2023)

2. _____

2-year term (expiring November 1, 2023)

PASSED, APPROVED AND MADE EFFECTIVE BY THE BOARD OF COMMISSIONERS OF THE CITY OF PHARR, TEXAS, on this the 1st day of November, 2021.

CITY OF PHARR

AMBROSIO HERNANDEZ, MAYOR

ATTEST:

IMELDA BARRERA, ASSISTANT CITY CLERK



AGENDA MEMORANDUM



BOARD: City Commission

AGENDA ITEM #: 7.E.

DATE SUBMITTED: October 28, 2021

MEETING DATE: November 1, 2021

FROM: Elva Guajardo, Administrative Assistant

DEPARTMENT: Parks

DIRECTOR: Sergio Alanis

Agenda Item: Consideration and action, if any, on Resolution appointing/reappointing of board member to the Parks and Recreation Advisory Board.

Classification: Regular

(* If closed session, City Attorney must review and approve.)

Issue: Board member Juan Garcia wishes to step down as a board member for the Parks and Recreation Advisory Board.

Fiscal Consideration: N/A

Staff Recommendation: Staff recommends Hernan Figueroa.

Alternatives: N/A

Exclude Material from Public Packet? No

Reason: N/A

ROUTING:

Elva Guajardo
Sergio Alanis
City Management Office

Created/Initiated - 10/28/2021
Approved - 10/29/2021
Final Approval - 10/29/2021

STATE OF TEXAS { }

COUNTY OF HIDALGO { }

CITY OF PHARR { }

R E S O L U T I O N
NO: R-2021-

WHEREAS, in accordance with city ordinance, Chapter 90, Article II, Section 90-32, has created and appointed a Parks and Recreation Committee composed of nine members who shall be residents of the City of Pharr and serve a term of three years. Any member of the Committee may be reappointed by the City Commission upon completion of a full term.

WHEREAS, a vacancy has occurred as a result of a resignation of Board Member Juan Garcia; and

WHEREAS, appointment/re-appointment of one (1) member need to be made at this time; and such Board member shall perform his duties as may be prescribed by ordinance or state law.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF COMMISSIONERS OF THE CITY OF PHARR, TEXAS, THAT:

The following person is hereby appointed as member of the Parks and Recreation Committee of the City of Pharr

NAME:

LENGTH OF TERM

1.

3-Year Term (unexpired term 6/5/23)

PASSED AND APPROVED BY THE BOARD OF CITY COMMISSIONERS OF THE CITY OF PHARR on this the 1st day of November, 2021.

CITY OF PHARR

AMBROSIO HERNANDEZ, MAYOR

ATTEST:

IMELDA BARERRA, ASSISTANT CITY CLERK



AGENDA MEMORANDUM



BOARD: City Commission

AGENDA ITEM #: 8.A.

DATE SUBMITTED: October 28, 2021

MEETING DATE: November 1, 2021

FROM: Edward Wylie, City Manager

DEPARTMENT: Administration

DIRECTOR: Edward Wylie

Agenda Item: Consideration and action, if any, on counter-offer for land.

Classification: Closed Session

(* If closed session, City Attorney must review and approve.)

Issue: counter-offer

Fiscal Consideration: N/A

Staff Recommendation: Approval

Alternatives: deny

Exclude Material from Public Packet? No

Reason: land sales and competition

ROUTING:

Edward Wylie
Karla Saavedra
Patricia Rigney
City Management Office

Created/Initiated - 10/28/2021
Approved - 10/29/2021
Approved - 10/29/2021
Final Approval - 10/29/2021



804 S. Main Street McAllen, TX 78501

October 29, 2021

Mr. Ignacio Amezcua MBA, CTCD, CTCM
Purchasing Director
City of Pharr
Office: 956.402.4231 ext. 1199
Cell: 956.530.7186
Ignacio.amezcua@pharr-tx.gov
www.pharr-tx.gov

Re: Pharr Aquatic Facility
Furniture Proposal
Letter of Recommendation

Dear Mr. Amezcua,

As requested, we received and evaluated the three proposals from furniture vendors approved by the City of Pharr. The following companies were invited to participate:

1. Texas Wilson
2. Indeco
3. Lone Star Furnishing
4. DC Interiors

We have received proposals from Indeco and DC Interiors. Lone Star Furnishing and Texas Wilson did not submit a proposal.

After careful review, we found that the lowest qualifying bid was submitted by DC Interiors. They have also sent a proposal to install the longest lead item (Scranton lockers with 18-weeks lead time) separately from the furniture to ensure there will be no hold up in furnishing the building.

Their proposals appear to be in order, fair and reasonable.

Therefore, we recommend the award of a contract for furnishing the Pharr Aquatic Facility Project to DC Interiors in the base bid amount of \$136, 979.66, in addition with their separate locker install proposal of \$5,600.00.

Please feel free to call us if we can be of any further assistance.

Best Regards,

A handwritten signature in blue ink, appearing to read "Laura Nassri Warren", is written over a horizontal line.

Laura Nassri Warren, AIA
President

CC: Carlos Del Angel, Brownstone
Nicole Reyman, TWG
File

DC Interiors
6860 Alamo Downs Parkway
San Antonio TX 78238
Ph: 210-521-9900

Bill of Materials



Cage Code: 3YCV2

Prepared For:	Project #:	TX21432	10/22/2021
City of Pharr	Sales Rep:	Delilah Espinoza/jv	
Pharr TX	Notes:	See Line 1 for Contracts Quoted	

Aquatic Facility | Interior Furniture

** PRELIMINARY / PLEASE FINALIZE FINISHES / SEE ACCOMPANYING DESIGNS **

Line #	Tag	Qty	Part Number	Part Description	Sell Price	Extended
Contracts						
1		1	Contracts	Contracts Quoted	\$0.00	\$0.00
			Artopex:	NCPA #07-19		
			Global:	Vizient #CE3374		
				** NOTE: GLOBAL PRICING VALID		
				UNTIL 11/18/21 - PRICES INCREASE		
				AFTER THIS DATE **		
			KI:	OMNIA #R180402		
			Scranton Products:	Open Market		
					Subtotal:	\$0.00

Recept/Admin/Timing

	2	A	15	BZ-MWE	Blitz - Medium Back - 5-Prong Base - Wood Seat + 3D Mesh Back	\$482.85	\$7,242.75
				ZN	ZN Base		
				61SL	61S Mechanism + Lombard Support		
				AN	AN Arms		
				S	Soft Wheel Casters for Hard Surfaces		
				(GR2)	Grade 2		
				ITA2	Complementary Fabric GR2		
				MS06	MESH - Black		
					Subtotal:		\$7,242.75

Lobby

	3	A	10	AC-FJD	Ganging Bracket for Seating	\$25.20	\$252.00
	4	A	4	DW-CLO182430	Rectangular Seating 18 x 24 3/8 x 30 3/8 - Offset Corner Backrest	\$984.15	\$3,936.60
				(GR2)	Grade 2		
				ITAA	Complementary Fabric GRA		
				ITAA	Complementary Fabric GRA		
				~	No Multi-outlet Module Selected		

Prepared For:
City of Pharr
Pharr

TX

Project #: TX21432
Sales Rep: Delilah Espinoza/jv
Notes: See Line 1 for Contracts Quoted

10/22/2021

Aquatic Facility | Interior Furniture

** PRELIMINARY / PLEASE FINALIZE FINISHES / SEE ACCOMPANYING DESIGNS **

	Line #	Tag	Qty	Part Number	Part Description	Sell Price	Extended
	5	A	4	DW-STO182424	Square Seating 18 x 24 3/8 x 24 3/8 - Offset Backrest	\$626.40	\$2,505.60
				(GR2)	Grade 2		
				ITAA	Complementary Fabric GRA		
				ITAA	Complementary Fabric GRA		
				~	No Multi-outlet Module Selected		
	6	A	2	DW-STO182448	Rectangular Seating 18 x 24 3/8 x 48 3/8 - Offset Backrest	\$1,095.75	\$2,191.50
				(GR2)	Grade 2		
				ITAA	Complementary Fabric GRA		
				ITAA	Complementary Fabric GRA		
				~	No Multi-outlet Module Selected		
	7	A	2	DW-TLS172454-S2	Rectangular Upholstered Table 16 3/4 x 24 3/8 x 54 3/8 with 2" Laminated Top	\$1,359.00	\$2,718.00
				CB	Carbon Surface Finish		
				(GR2)	Grade 2		
				ITA2	Complementary Fabric GR2		
				M6C	Multi-outlet, Centered		
	8	B	4	EN-PS161818	Element Pouf - Square 16x18x18	\$277.20	\$1,108.80
				G	Glides		
				(GR3)	Grade 3		
				ITA3	Complementary Fabric GR3		
				(NON)	No Stitching		
	9	C	4	TZ-TMARD242417-S1	Round Occasional Table 24x24x17 / Metal Tubular Leg with Round Base Plate	\$372.60	\$1,490.40
				CB	Carbon		
				CB	Carbon		
				3090	Silver		
						Subtotal:	\$14,202.90

Coach/Head Coaches

	D	4	45-41-036-3333	4-Drawer Lateral File 18x36x53 3/8 (3333 Configuration)	\$752.40	\$3,009.60
			(STD)	Standard Metal Finish		
			3064	Charcoal		
			(NON)	No Roll-Out Posting Shelf		
			1CW	Counterweight Option		

Prepared For:
City of Pharr
Pharr

TX

Project #: TX21432
Sales Rep: Delilah Espinoza/jv
Notes: See Line 1 for Contracts Quoted

10/22/2021

Aquatic Facility | Interior Furniture

** PRELIMINARY / PLEASE FINALIZE FINISHES / SEE ACCOMPANYING DESIGNS **

Line #	Tag	Qty	Part Number	Part Description	Sell Price	Extended
	11	A	10	LT1	NOKI Lock - Top-Height	
				BZ-MWE	Blitz - Medium Back - 5-Prong Base - Wood Seat + 3D Mesh Back	\$482.85
						\$4,828.50
				ZN	ZN Base	
				61SL	61S Mechanism + Lombard Support	
				AN	AN Arms	
				S	Soft Wheel Casters for Hard Surfaces	
				(GR2)	Grade 2	
	12	C	20	ITA2	Complementary Fabric GR2	
				MS06	MESH - Black	
				KB-SUU-04	Kub - Square Back - 4-Leg Base - Arms - Upholstered Seat + Upholstered Back (1 Fabric)	\$236.25
						\$4,725.00
				FX	FX Arms	
				G	Glides	
				N	Black	
				(GR2)	Grade 2	
	13	A	10	ITA2	Complementary Fabric GR2	
				PN1972LWH	16"d x 72"w x 19"h, Wall Mounted Large Overhead w/ Sliding Laminate Doors, PRINCETON	\$456.23
						\$4,562.30
				~PRNCTOP	Princeton Top Finishes	
				ASN	1-Asian Night	
				~PBODY	Princeton Storage Body Laminates	
				ASN	2-Asian Night	
				~DOOR	Door / Drawer Front Finishes	
	14	A	5	ASN	M-Asian Night	
				PN2766CRL	24"d x 66"w x 27"h, Credenza w/ Open/Box/File (LT), Fixed Shelf and Adjustable 6 Position Shelf (RT), Locking, Use w/ Overlapping Returns, Overlanning Bridges and Overlanning Conference (STD) Thermally Fused Laminate, High Performance (1" Thick)	\$619.63
						\$3,098.15
				~		
				~PRNCTOP	Princeton Top Finishes	
				ASN	1-Asian Night	
				~PBODY	Princeton Storage Body Laminates	
				ASN	2-Asian Night	
	15	A	5	~DOOR	Door / Drawer Front Finishes	
				ASN	M-Asian Night	
				K-STD	C-Key Random (STD)	
				~	No Change - (STD) Left Position	
				PN2766CRR	24"d x 66"w x 27"h, Credenza w/ Open/Box/File (RT), Fixed Shelf and Adjustable 6 Position Shelf (LT), Locking, Use w/ Overlapping Returns, Overlanning Bridges and Overlanning Conference	\$619.63
						\$3,098.15

Prepared For:
City of Pharr
Pharr

TX

Project #: TX21432
Sales Rep: Delilah Espinoza/jv
Notes: See Line 1 for Contracts Quoted

10/22/2021

Aquatic Facility | Interior Furniture

** PRELIMINARY / PLEASE FINALIZE FINISHES / SEE ACCOMPANYING DESIGNS **

Line #	Tag	Qty	Part Number	Part Description	Sell Price	Extended
			~	(STD) Thermally Fused Laminate, High Performance (1" Thick)		
			~PRNCTOP	Princeton Top Finishes		
			ASN	1-Asian Night		
			~PBODY	Princeton Storage Body Laminates		
			ASN	2-Asian Night		
			~DOOR	Door / Drawer Front Finishes		
			ASN	M-Asian Night		
			K-STD	C-Key Random (STD)		
			~	No Change - (STD) Right Position		
16	A	5	PN3072FBL	30"d x 72"w x 29"h, Left, Flush Return w/ 12"d Bookcase (LT), Std w/ Support Channel, 1 Adjustable Shelf, Use w/ F/S Desk w/ Metal Open Frame Leg or Laminate End Gable F/S 29"h (STD) Thermally Fused Laminate, High Performance (1" Thick)	\$381.41	\$1,907.05
			~	(STD) Thermally Fused Laminate, High Performance (1" Thick)		
			~PRNCTOP	Princeton Top Finishes		
			ASN	1-Asian Night		
			~PCHAS	Princeton Chassis Finishes		
			ASN	2-Asian Night		
			~	Grommet Cut-Out Not Required - Left Position		
			~	Grommet Cut-Out - (STD) Center Position		
			~	Grommet Cut-Out Not Required - Right Position		
			~	Grommet Not Required - Custom Grommet Location		
17	A	5	PN3072FBR	30"d x 72"w x 29"h, Right, Flush Return w/ 12"d Bookcase (RT), Std w/ Support Channel, 1 Adjustable Shelf, Use w/ F/S Desk w/ Metal Open Frame Leg or Laminate End Gable F/S 29"h (STD) Thermally Fused Laminate, High Performance (1" Thick)	\$381.41	\$1,907.05
			~	(STD) Thermally Fused Laminate, High Performance (1" Thick)		
			~PRNCTOP	Princeton Top Finishes		
			ASN	1-Asian Night		
			~PCHAS	Princeton Chassis Finishes		
			ASN	2-Asian Night		
			~	Grommet Cut-Out Not Required - Left Position		
			~	Grommet Cut-Out - (STD) Center Position		
			~	Grommet Cut-Out Not Required - Right Position		
			~	Grommet Not Required - Custom Grommet Location		
					Subtotal:	\$27,135.80

Conf Rooms

18	B	16	SE2-MWF	Sentinel - Medium Back - 5-Prong Base - Wood Seat + Flex Back - Standard Seat	\$570.60	\$9,129.60
			ZN	ZN Base		
			21	21 Mechanism		
			AZ	AZ Arms		
			S	Soft Wheel Casters for Hard Surfaces		

Prepared For:
City of Pharr
Pharr

TX

Project #: TX21432
Sales Rep: Delilah Espinoza/jv
Notes: See Line 1 for Contracts Quoted

10/22/2021

Aquatic Facility | Interior Furniture

** PRELIMINARY / PLEASE FINALIZE FINISHES / SEE ACCOMPANYING DESIGNS **

Line #	Tag	Qty	Part Number	Part Description	Sell Price	Extended	
	19	C	2	(GR3)	Grade 3		
				ITA3	Complementary Fabric GR3		
				TL-CZ2B4D247235	Credenza 24x72x35 - 4 Doors + 2 Utility Drawers on top	\$1,007.10	\$2,014.20
				(HPL)	H.P. Laminate Top Surface		
				SCB	Carbon		
				(0)	Regular Edge		
				0CB	Carbon		
				CB	Carbon		
				CB	Carbon		
				TN	Techno Nickel		
	20	A	2	(NOKI)	NOKI Lock		
				XPTZ-CTSR5428429-S1	Rectangular Conference Table 42x84x29 / Rectangular Architectural Bases (Laminate Bases with 90° Metal Corners)	\$1,302.30	\$2,604.60
				CB	Carbon		
				CB	Carbon		
				N	Black		
				3090	Silver		
				(NON)	No Multi-Outlet		
				(NON)	No Removable Door		
				NOTE:	NO POWER SPECIFIED FOR TABLE PER CLARIFICATION WITH DESIGNER BY REP.		
Life Guard Brk Rm							
	21	A	6	B35F-74P	Barron Fixed Leg, Rect, T Base, 74P Edge, 36x60"	\$968.94	\$5,813.64
				/EWG	Warm Grey edge		
				Standard	KI Laminates		
				/LDG	DOVE GREY D92-60		
				/CH	Chrome		
				-NCST	No casters		
				-NW	No wireway		
				-NG	No grommets		
				-NO	Standard height (29")		
					22	B	24
/CH	Chrome						
/NFR	No Fire Retardant						
/PND	Nordic						

Prepared For:
City of Pharr
Pharr

TX

Project #: TX21432
Sales Rep: Delilah Espinoza/jv
Notes: See Line 1 for Contracts Quoted

10/22/2021

Aquatic Facility | Interior Furniture

** PRELIMINARY / PLEASE FINALIZE FINISHES / SEE ACCOMPANYING DESIGNS **

Line #	Tag	Qty	Part Number	Part Description	Sell Price	Extended
			/P	Plastic glides		
					Subtotal:	\$9,079.56
Lockers						
23		1	Lockers	Scranton Lockers & Benches.	\$46,911.13	\$46,911.13
				Pricing for benches and lockers in Coaches Offices and Locker Rooms per Specifications. NOTE: PADLOCK HASP INCLUDED. PADLOCK TO BE PROVIDED BY CLIENT. Includes Estimated Freight Charge *** OPEN MARKET ***		
					Subtotal:	\$46,911.13
Surcharges						
24		1	Surcharge	Artopex Surcharge	\$955.14	\$955.14
25		1	Surcharge	KI Materials and Commodity Surcharge	\$453.98	\$453.98
					Subtotal:	\$1,409.12
Services						
26		1	INSTALL	RECEIVE, DELIVER, INSTALL FURNITURE AND REMOVE TRASH DURING NORMAL BUSINESS HOURS, MONDAY-FRIDAY. FREIGHT/PASSENGER ELEVATOR WILL BE USED. NO STAIR CARRY. INCLUDES PROJECT MANAGEMENT.	\$17,250.00	\$17,250.00
					Subtotal:	\$17,250.00
					Grand Total:	\$136,979.66

**NOTE: DC INTERIORS WILL PROVIDE UP TO 30 DAYS OF FREE STORAGE AFTER RECEIPT OF ORDER.
AFTER 30 DAYS CUSTOMER WILL BE CHARGED FOR STORAGE.**

DC Interiors
6860 Alamo Downs Parkway
San Antonio TX 78238
Ph: 210-521-9900

Bill of Materials



Cage Code: 3YCV2

Prepared For:	Project #:	TX21432B	10/28/2021
City of Pharr	Sales Rep:	Delilah Espinoza/jv	
Pharr TX	Notes:	Open Market Services	

Aquatic Facility | Locker Install

** PRELIMINARY **

Line #	Tag	Qty	Part Number	Part Description	Sell Price	Extended
Services						
1	Services	1	INSTALL	RECEIVE, DELIVER, INSTALL FURNITURE AND REMOVE TRASH DURING NORMAL BUSINESS HOURS, MONDAY-FRIDAY. FREIGHT/PASSENGER ELEVATOR WILL BE USED. NO STAIR CARRY. INCLUDES PROJECT MANAGEMENT. SCOPE: CHARGE FOR SEPARATE TRIP TO INSTALL LOCKERS QUOTED ON TX21432 FURNITURE QUOTE.	\$5,600.00	\$5,600.00
					Subtotal:	\$5,600.00
					Grand Total:	\$5,600.00

**NOTE: DC INTERIORS WILL PROVIDE UP TO 30 DAYS OF FREE STORAGE AFTER RECEIPT OF ORDER.
AFTER 30 DAYS CUSTOMER WILL BE CHARGED FOR STORAGE.**



Proposal

Indeco - San Antonio
805 E. 4th Avenue
Belton, TX 76513
Phone: 1-800-692-4256

Order Number	3475
Date	10/22/2021
Customer PO No	
Customer Name	City of Pharr
Salesperson	Martin Pena
Project Number	
Terms	NET 30
Page	1 of 4

T City of Pharr
O 118 S. Cage Blvd.
Pharr, TX 78577

ATTN: I Cavazos

S City of Pharr
H 118 S. Cage Blvd.
I Pharr, TX 78577
P

T ATTN: I Cavazos
O

Prepared for : Martin Pena

Line	Quantity	Description	Unit Price	Extended Amount
1	15.00 Each	KI KIDE82C Diem Weight-Activated Task Chair, 4D Arms. Base Finish Aluminum base /A Backrest Color Black /BLBR Upholstery Grade/Color Compliance to TB 117-2013 /NFR Upholstery Grade/Color Pallas Fabric Group P1 GRPP1 P1 Pallas :Fabric To Be Determined Cadet, Spacer, Black Base. Lead Time: 4 - 6 Weeks Tag: Tag 1: RECEPTION/ADMIN	498.71	7,480.65
2	2.00 Each	KI MP18C/CGL/NC MyPlace 18" Cube, Concealed Glides, Fabric Grade F: Tradition or Marathon. Lead Time: 9 - 11 Weeks Tag: LOBBY	380.65	761.30
3	2.00 Each	KI MP18C/CGL/NC MyPlace 18" Cube, Concealed Glides, Fabric Grade F: Tradition or Marathon. Lead Time: 9 - 11 Weeks Tag: LOBBY	380.65	761.30
4	4.00 Each	KI AH3R3029C-74P Athens Round Table,3"Column,22" Base,Chrome Finish,29"H,30"Dia,74P Edge. Edge Color Flannel edge /EFN Surface Finish KI Laminates Standard KI Laminates STERLING ASH 7995-38 /LAZ Column Finish Chrome /CH Lead Time: 6 - 8 Weeks Tag: LOBBY	501.88	2,007.52
5	2.00 Each	KI MPCRN/LF/CGL/FC MyPlace Corner w/Back,Left-Face Uph Dir,Concealed Glides,Contrast, Grade F: Back in Sky, Seat in Gunmetal Lead Time : 9-11 Weeks. Tag: LOBBY	855.53	1,711.06
6	2.00	KI	855.53	1,711.06



Proposal

Indeco - San Antonio
805 E. 4th Avenue
Belton, TX 76513
Phone: 1-800-692-4256

Order Number	3475
Date	10/22/2021
Customer PO No	
Customer Name	City of Pharr
Salesperson	Martin Pena
Project Number	
Terms	NET 30
Page	2 of 4

	Each	MPCRN/RF/CGL/FC MyPlace Corner w/Back,Right-Face Uph Dir,Concealed Glides,Contrast, Grade F: Back in Sky, Seat in Gunmetal Lead Time : 9-11 Weeks. Tag: LOBBY		
7	4.00 Each	KI MPRB/CGL/FC MyPlace Rectangle w/Back,Concealed Glides, Grade F: Back in Sky, Seat in Gunmetal Lead Time : 9-11 Weeks. Tag: LOBBY	894.18	3,576.72
8	2.00 Each	KI MPRCT/CGL/NC MyPlace Rectangle,Concealed Glides,Non-Contrast, Grade F: Seat in Gunmetal. Lead Time : 9-11 Weeks. Tag: LOBBY	668.65	1,337.30
9	10.00 Each	KI LI663072SH-HPL Desk Shell w/Laminate Recessed Front,72"Wx30"Dx30"H,HPL Laminate in Asian Night Lead Time : 8-10 Weeks. Tag: COACH OFFICES	832.76	8,327.60
10	10.00 Each	KI LI662472L21OBFHPL Likha Credenza,21" Low-Box/File (left) Open (right),72"Wx24"Dx21-3/4"H,HPL Worksurface Laminate Color Asian Night /LAN Base Laminate Color Asian Night Lead Time : 8-10 Weeks. Tag: COACH OFFICES	1,209.71	12,097.10
11	10.00 Each	KI LI661572WD Likha Hutch,Wall Mount,Four Laminate Doors,72"Wx15"Dx17-3/16'H Laminate: Asian Night Lead Time : 8-10 Weeks. Tag: COACH OFFICES	787.76	7,877.60
12	10.00 Each	KI KIDE82C Diem Weight-Activated Task Chair, 4D Arms: Base Finish Aluminum base. Mesh Backrest Color Black /BLBR. Pallas Fabric Group P1 GRPP1 in Cadet Lead Time : 4-6 Weeks. Tag: COACH OFFICES	498.71	4,987.10
13	20.00 Each	KI SLLAPC Strive Four-Leg Loop Arm Chair w/Casters,Poly	178.41	3,568.20



Proposal

Indeco - San Antonio
805 E. 4th Avenue
Belton, TX 76513
Phone: 1-800-692-4256

Order Number	3475
Date	10/22/2021
Customer PO No	
Customer Name	City of Pharr
Salesperson	Martin Pena
Project Number	
Terms	NET 30
Page	3 of 4

		Frame Color Black /BL Poly Seat & Back Color Warm Grey Caster Option Carpet casters (black only) Lead Time : 10-12 Weeks. Tag: COACH OFFICES		
14	4.00 Each	KI S7L/364804D 700 Series Files Lat File,4H-36Wx18Dx51-1/2"H Color: Charcoal Lead Time : 12-14 Weeks. Tag: COACH OFFICES	959.82	3,839.28
15	10.00 Each	INDECO SALES LOCKER Scranton Lockers: 15"x 18"x72"H Wide Single Tier Plastic Lockers Color: TBD Tag: COACH OFFICES	597.18	5,971.80
16	2.00 Each	KI SER4896PL Serenade Rectangular Table,Panel Leg,Laminate,48x96" Single vault power module. With access panel. Laminate: TBD Lead Time : 8-10 Weeks. Tag: CONFERENCE ROOM	4,334.29	8,668.58
17	16.00 Each	KI ALTUAA Altus Fabric Chair,Adjustable Arms,Upholstered: Base Black plastic base /P Casters Carpet casters /C Fabric Upholstery Sapphire Lead Time : 6-8 Weeks. Tag: CONFERENCE ROOM	559.06	8,944.96
18	2.00 Each	KI SE3D5429CL Serenade 3 Door Conference Height Credenza,Laminate,22Dx54Wx29"H Laminate: TBD Lead Time : 8-10 Weeks. Tag: CONFERENCE ROOM	2,723.29	5,446.58
19	6.00 Each	KI B35F-74P Barron Fixed Leg,Rect,T Base,74P Edge,36x60" Edge Color Warm Grey edge /EWG Surface Finish KI Laminates Standard KI Laminates DOVE GREY D92-60 /LDG Base Finish Chrome /CH Caster/Glides No casters -NCST No grommets -NG 29" Standard height (29") Lead Time : 6-8 Weeks. Tag: LIFE GUARD ROOM	814.24	4,885.44



Proposal

Indeco - San Antonio
805 E. 4th Avenue
Belton, TX 76513
Phone: 1-800-692-4256

Order Number	3475
Date	10/22/2021
Customer PO No	
Customer Name	City of Pharr
Salesperson	Martin Pena
Project Number	
Terms	NET 30
Page	4 of 4

20	24.00 Each	KI SLNAP Strive Four-Leg Armless Chair,Poly Frame: Chrome Poly Seat & Back Color Nordic . Glide Option Plastic glides /P Lead Time : 10-12 Weeks. Tag: LIFE GUARD ROOM	114.35	2,744.40
21	56.00 Each	INDECO SALES PLASTIC LOCKERS Scranton Lockers:15"Wx18"DX72"H Color of Paint TBD Lead Time : 4-6 Weeks. QTY: 168-Key Controlled Combination Locker Lock (#1925) QTY: 5- Locker Master Key For "ZE" Locks Tag: Locker Area	579.22	32,436.32
22	4.00 Each	INDECO SALES PLASTIC BENCH Scranton Bench: Finish: TBD. Supported by black anodized aluminum pedestals. Tag: Locker Area	580.01	2,320.04
23	1.00 Each	INDECO SALES FREIGHT Freight cost to deliver all items. Manufactures Lead time to ship all complete items is between 12-14 weeks.	8,117.65	8,117.65
24	1.00 Each	INDECO SALES INSTALL Deliver, install and clean up pertaining to this order at Pharr Aquatic .	8,941.18	8,941.18
Order Sub-Total :				\$148,520.74
TOTAL ORDER :				\$148,520.74

Please review the quotation and notify us if any changes are needed. Pricing is valid for 30 days from date above.
Thank you for the opportunity to be of service!



Pharr

Purchasing



PROJECT NAME: AQUATIC FACILITY FURNITURE

PROJECT NO.: 2122-01-510-P003-004

PARTICIPATING VENDORS:					DC INTERIORS SAN ANTONIO, TX	INDECO ANTONIO, TX	Texas Wilson ANTONIO, TX	LONE STAR CARROLLTON, TX
NO.	TYPE	DESCRIPTION	UOM	QTY	TOTAL PRICE	TOTAL PRICE	TOTAL PRICE	TOTAL PRICE
1	BASE	FURNITURE ITEMS (ATTACHED)	EA	1	\$125,329.66	\$131,461.91	NO BID	NO BID
2	BASE	FURNITURE DELIVERY AND INSTALLATION	EA	1	\$17,250.00	\$17,058.83	NO BID	NO BID
GRAND TOTAL OF ITEMS TO BE AWARDED:					\$142,579.66	\$148,520.74	NO BID	NO BID
ESTIMATED LEAD TIMES					7 - 10 WEEKS	8 - 11 WEEKS	NO BID	NO BID



AGENDA MEMORANDUM



BOARD: City Commission

AGENDA ITEM #: 9.A.

DATE SUBMITTED: October 26, 2021

MEETING DATE: November 1, 2021

FROM: Moises Beas, Civil Engineer In Training

DEPARTMENT: Engineering

DIRECTOR: Omar Anzaldua

Agenda Item: Consideration and action, if any, on Change Order No. 1 in the amount of \$3,938.57 and final acceptance of the Pharr City Hall First Floor Renovations (Project No. 1920-40-510-C008-755) with NM Contracting LLC, and release of final payment and retainage of \$117,657.08.

Classification: Regular

(* If closed session, City Attorney must review and approve.)

Issue: N&M Contracting, LLC has completed the Pharr City Hall First Floor Renovations Project according to plans and specifications. Change Order 1 is for final reconciliation of quantities for the Architectural Design Contingency Allowance, increasing the original contract amount to \$2,353,141.57.

Fiscal Consideration: Change Order No. 1 increases the contract amount by \$3,938.57 from \$2,349,203.00 to \$2,353,141.57. Final payment and release of retainage is in the amount of \$117,657.08.

Staff Recommendation: Staff recommends approval for Change Order No. 1 in the amount of \$3,938.57 increasing the contract amount from \$2,349,203.00 to a revised contract amount of \$2,353,141.57 and final Payment and release of retainage is in the amount of \$117,657.08.

Alternatives: N/A

Exclude Material from Public Packet? No

Reason: N/A

ROUTING:

Moises Beas
Omar Anzaldua
Karla Saavedra
Patricia Rigney
City Management Office

Created/Initiated - 10/26/2021
Approved - 10/27/2021
Approved - 10/27/2021
Approved - 10/27/2021
Final Approval - 10/29/2021

Payment Request No. Retainage
 Period: 03/31/2021 to 08/31/2021

Owner: City of Pharr
118 S. Cage Blvd.
Pharr, TX 78577

Contractor: NM Contracting, LLC
2022 Orchid Avenue
McAllen, TX 78504

Project: Pharr City Hall First Floor Renovations
Bid No.1920-40-510-C008-755
PO# 1920-40-510-C008-755

Original Contract Amount: \$2,349,203.00
 Change Orders: \$3,938.57
 Contract Amount to Date: \$2,353,141.57
 Total to Date: \$2,353,141.57
 Total Stored to Date: _____
 Total to Date: \$2,353,141.57
 Retainage: \$0.00
 Total Due Less Retainage: \$2,353,141.57
 Less Previous Payments: \$2,235,484.49
 Current Payment Due: \$117,657.08

Percent Completed: 100.00%

Original Contract Time (Days): 207

Change Orders (days): _____

Notice to Proceed 7/23/2020

Substantial Completion Date 6/2/2021

Contract Time Used _____

Change Order Summary				
No.	Contract Amount		Contract Time	
	Addition	Deduction	Addition	Deduction
1	\$ 3,938.57			
Total	\$ 3,938.57			

* Provide Documentation

Attachment "B"



Contractor:

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Progress Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Progress Payment were issued and payments received from the Owner, and that current payment shown herein is now due:

Signature: _____

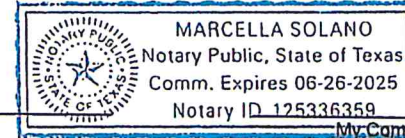
Date: 10-4-21

Subscribed and sworn before me this 4th day of October, 2021

The above person appeared before me, the undersigned notary public and provided satisfactory evidence of identification to be the person signed this document in my presence and swore or affirmed to me that the contents of this document are truthful and accurate to the best of his/her knowledge and belief.

Attachment "A"

Notary Public: _____



My Commission Expires: 6/26/25

Construction Manager or Engineer of Record

In accordance with the Contract Documents, based on on-site observation and the data comprising this progress payment, the Construction Manager certifies to the Owner that to the best of the Engineer's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents and the Contractor is entitled to progress payment.

Signature: _____

Date: 10/5/2021

Approved:

Omar Anzaldúa Jr., PE

City Engineer

Signature: Omar Anzaldúa Jr.

Date: 10/8/21

Ignacio Amezcua

Purchasing Director

Signature: _____

Date: _____

Deputy City Manager

Signature: _____

Date: _____

Edward Wylie

Interim City Manager

Signature: _____

Date: _____

Karla Saavedra

Finance Director

Signature: _____

Date: _____

APPLICATION AND CERTIFICATE FOR PAYMENT

TO OWNER:

City of Pharr
118 S Cage
Pharr, TX 78577

PROJECT:

Pharr City Hall 1st Floor Renovation
118 S Cage
Pharr, TX 78577

APPLICATION #:

PERIOD TO:

Retainage

08/31/21

PROJECT NO:

2089

Distribution to:

☐ Owner
☐ Const. Mgr
☐ Architect
☐ Contractor

FROM CONTRACTOR:

NM Contracting, LLC
2022 Orchid Ave
McAllen, Texas 78504

VIA ARCHITECT:

GOERO International, LLC
300 S. 8th Street
McAllen, TX 78501

CONTRACT DATE: 07/13/20

ARCHITECT'S PROJECT NO:

CONTRACT FOR: Pharr City Hall 1st Floor Renovation

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract.
Continuation Sheet is attached.

1. ORIGINAL CONTRACT SUM-----	\$	2,349,203.00
2. Net change by Change Orders-----	\$	3,938.57
3. CONTRACT SUM TO DATE (Line 1 +/- 2)	\$	2,353,141.57
4. TOTAL COMPLETED & STORED TO DATE-\$ (Column G on Continuation Sheet)		2,353,141.57
5. RETAINAGE:		
a. 5.0% of Completed Work (Columns D+E on Continuation Sheet)	\$	0.00
b. 5.0% of Stored Material (Column F on Continuation Sheet)	\$	0.00
Total Retainage (Line 5a + 5b or Total in Column 1 of Continuation Sheet-----	\$	117,657.08
6. TOTAL EARNED LESS RETAINAGE----- (Line 4 less Line 5 Total)	\$	2,235,484.49
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)-----		
	\$	2,235,484.49
8. CURRENT PAYMENT DUE-----	\$	117,657.08
9. BALANCE TO FINISH, INCLUDING RETAINAGE (Line 3 less Line 6)	\$ \$	0.00

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	\$3,938.57	
Total approved this Month		
TOTALS	\$3,938.57	
NET CHANGES by Change Order	\$3,938.57	

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown therein is now due.

CONTRACTOR:

By:

Date: 8-19-21

State of: Texas

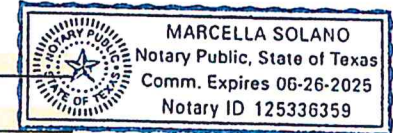
County of: Hidalgo

Subscribed and sworn to before

me this 19 day of August 2021

Notary Public:

My Commission expires: 06/26/21



CERTIFICATE FOR PAYMENT

In accordance with Contract Documents, based on on-site observations and the data comprising application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED \$ 117,657.08

(Attach explanation if amount certified differs from the amount applied for. Initial all figures on this application and on the Continuation Sheet that are changed to conform to the amount certified.)

ARCHITECT: ERO Architects

By:

Date: 08/19/2021

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner of Contractor under this Contract.

ATTACHMENT TO PAY APPLICATION

Pharr City Hall 1st Floor Renovation
118 S Cage
Pharr, TX 78577

APPLICATION DATE: 08/31/21

PERIOD TO: 08/31/21

ARCHITECT'S PROJECT NO:

A	B	C	D	E	F	G		H	I
Item No.	Description of Work	Scheduled Value	Work Completed		Materials Presently Stored (Not In D or E)	Total Completed And Stored To Date (D + E + F)	% (G/C)	Balance To Finish (C - G)	Retainage
			From Previous Application (D + E)	This Period					
1	General Conditions	\$81,320.00	81,320.00						
2	Overhead & Profit	\$118,194.00	118,194.00			81,320.00	100%	0.00	4,066.00
3	Building Permit	\$1,000.00	1,000.00			118,194.00	100%	0.00	5,909.70
4	Bonds	\$45,986.00	45,986.00			1,000.00	100%	0.00	50.00
5	Mobilization	\$35,000.00	35,000.00			45,986.00	100%	0.00	2,299.30
6	Supervision	\$50,000.00	50,000.00			35,000.00	100%	0.00	1,750.00
7	ALLOWANCES					50,000.00	100%	0.00	2,500.00
8	Design Contingency	\$96,606.00	96,606.00						
9	Contingency Allowance	\$96,606.00	96,606.00			96,606.00	100%	0.00	4,830.30
10						96,606.00	100%	0.00	4,830.30
11	Div. 2 SITE WORK								
12	Site Demo Sidewalk and Planter	\$2,500.00	2,500.00						
13						2,500.00	100%	0.00	125.00
14	Div. 3 - CONCRETE								
15	Sawcut and repour concrete	\$21,000.00	21,000.00						
16	Demo and repour concrete	\$20,000.00	20,000.00			21,000.00	100%	0.00	1,050.00
17	Concrete Pump	\$1,000.00	1,000.00			20,000.00	100%	0.00	1,000.00
18						1,000.00	100%	0.00	50.00
19	Div. 4 - MASONRY								
20	Masonry Material	\$7,800.00	7,800.00						
21	Masonry Labor	\$5,200.00	5,200.00			7,800.00	100%	0.00	390.00
22						5,200.00	100%	0.00	260.00
23	Div. 5 - STRUCTURAL STEEL								
24	Engineering/Detail	\$3,214.00	3,214.00						
25	Structural Steel	\$14,867.00	14,867.00			3,214.00	100%	0.00	160.70
26	Joist & Deck	\$8,589.00	8,589.00			14,867.00	100%	0.00	743.35
27	Stairs and Landings	\$7,510.00	7,510.00			8,589.00	100%	0.00	429.45
28	Erection - Structural Steel	\$20,071.00	20,071.00			7,510.00	100%	0.00	375.50
29	Erection - Joist	\$4,705.00	4,705.00			20,071.00	100%	0.00	1,003.55
30	Erection - Decking	\$1,728.00	1,728.00			4,705.00	100%	0.00	235.25
31	Erection - Stairs and Landings	\$4,316.00	4,316.00			1,728.00	100%	0.00	86.40
32						4,316.00	100%	0.00	215.80

CONTINUATION SHEET

ATTACHMENT TO PAY APPLICATION

PROJECT:

 Pharr City Hall 1st Floor Renovation
 118 S Cage
 Pharr, TX 78577

APPLICATION NUMBER: Retainage

APPLICATION DATE: 08/31/21

PERIOD TO: 08/31/21

ARCHITECT'S PROJECT NO:

A	B	C	D	E	F	G		H	I
Item No.	Description of Work	Scheduled Value	Work Completed		Materials Presently Stored (Not In D or E)	Total Completed And Stored To Date (D + E + F)	% (G/C)	Balance To Finish (C - G)	Retainage
			From Previous Application (D + E)	This Period					
33	Div. 6 - CARPENTRY								
34	Base Cabinets Material	\$560.00	560.00			560.00	100%	0.00	28.00
35	Base Cabinets Labor	\$840.00	840.00			840.00	100%	0.00	42.00
36	Upper Cabinets Material	\$1,800.00	1,800.00			1,800.00	100%	0.00	90.00
37	Upper Cabinets Labor	\$2,700.00	2,700.00			2,700.00	100%	0.00	135.00
38	Quartz Tops Material	\$19,200.00	19,200.00			19,200.00	100%	0.00	960.00
39	Quartz Top Labor	\$12,800.00	12,800.00			12,800.00	100%	0.00	640.00
40	3 Form Light Box	\$42,000.00	42,000.00			42,000.00	100%	0.00	2,100.00
41	Installation Cabinets Quartz ans Light Box	\$9,300.00	9,300.00			9,300.00	100%	0.00	465.00
42	Celing Wood Modular Panels	\$15,000.00	15,000.00			15,000.00	100%	0.00	750.00
43	Wall Vinal Wood Panels	\$2,000.00	2,000.00			2,000.00	100%	0.00	100.00
44									
45	Div. 7 - MOISTURE PROTECTION								
46	Roofing Mobilization	\$3,000.00	3,000.00			3,000.00	100%	0.00	150.00
47	Roofing Material	\$22,581.00	22,581.00			22,581.00	100%	0.00	1,129.05
48	Roofing Labor	\$8,500.00	8,500.00			8,500.00	100%	0.00	425.00
49	Moisture Protection	\$2,500.00	2,500.00			2,500.00	100%	0.00	125.00
50									
51	Div. 8 - DOORS & WINDOWS								
52	Steel Doors & Frames	\$78,000.00	78,000.00			78,000.00	100%	0.00	3,900.00
53	Side Folding Grilles	\$9,000.00	9,000.00			9,000.00	100%	0.00	450.00
54	Glass Railing Material	\$62,846.00	62,846.00			62,846.00	100%	0.00	3,142.30
55	Glass Railing Labor	\$20,000.00	20,000.00			20,000.00	100%	0.00	1,000.00
56	Glass and Glazing	\$39,000.00	39,000.00			39,000.00	100%	0.00	1,950.00
57									
58	Div. 9 - FINISHES								
59	Metal Stud Material	\$28,501.00	28,501.00			28,501.00	100%	0.00	1,425.05
60	Metal Stud Labor	\$15,817.00	15,817.00			15,817.00	100%	0.00	790.85
61	Drywall Material	\$35,267.00	35,267.00			35,267.00	100%	0.00	1,763.35
62	Drywall Labor	\$15,651.00	15,651.00			15,651.00	100%	0.00	782.55
63	Insulation Material	\$8,465.00	8,465.00			8,465.00	100%	0.00	423.25
64	Insulation Labor	\$3,279.00	3,279.00			3,279.00	100%	0.00	163.95
65	Dens Glass Material	\$450.00	450.00			450.00	100%	0.00	22.50
66	Dens Glass Labor	\$253.00	253.00			253.00	100%	0.00	12.65

CONTINUATION SHEET

ATTACHMENT TO PAY APPLICATION

PROJECT:

 Pharr City Hall 1st Floor Renovation
 118 S Cage
 Pharr, TX 78577

APPLICATION NUMBER: Retainage

APPLICATION DATE: 08/31/21

PERIOD TO: 08/31/21

ARCHITECT'S PROJECT NO:

A Item No.	B Description of Work	C Scheduled Value	D Work Completed		F Materials Presently Stored (Not In D or E)	G		H Balance To Finish (C - G)	I Retainage
			From Previous Application (D + E)	This Period		Total Completed And Stored To Date (D + E + F)	% (G/C)		
67	Gyp Board Ceilings Material	\$4,300.00	4,300.00			4,300.00	100%	0.00	215.00
68	Gyp Board Ceilings Labor	\$1,580.00	1,580.00			1,580.00	100%	0.00	79.00
69	Acoustical Ceilings Material	\$42,123.00	42,123.00			42,123.00	100%	0.00	2,106.15
70	Acoustical Ceilings Labor	\$7,911.00	7,911.00			7,911.00	100%	0.00	395.55
71	Special Ceilings Material	\$18,336.00	18,336.00			18,336.00	100%	0.00	916.80
72	Special Ceilings Labor	\$2,732.00	2,732.00			2,732.00	100%	0.00	136.60
73	Hollow Metal Frames Labor	\$335.00	335.00			335.00	100%	0.00	16.75
74	Painting Material	\$52,000.00	52,000.00			52,000.00	100%	0.00	2,600.00
75	Painting Labor	\$78,000.00	78,000.00			78,000.00	100%	0.00	3,900.00
76	Carpet Material	\$39,500.00	39,500.00			39,500.00	100%	0.00	1,975.00
77	Carpet Labor	\$5,100.00	5,100.00			5,100.00	100%	0.00	255.00
78	Ceramic Tile Material	\$22,700.00	22,700.00			22,700.00	100%	0.00	1,135.00
79	Ceramic Tile Labor	\$9,600.00	9,600.00			9,600.00	100%	0.00	480.00
80	LVT Material	\$49,899.00	49,899.00			49,899.00	100%	0.00	2,494.95
81	LVT Labor	\$8,201.00	8,201.00			8,201.00	100%	0.00	410.05
82									
83	Div. 10 - SPECIALTIES								
84	Signage Material	\$1,430.00	1,430.00			1,430.00	100%	0.00	71.50
85	Signage Labor	\$2,000.00	2,000.00			2,000.00	100%	0.00	100.00
86	Toilet Accessories	\$7,270.00	7,270.00			7,270.00	100%	0.00	363.50
87	Toilet Parts	\$5,400.00	5,400.00			5,400.00	100%	0.00	270.00
88	Mini Blinds	\$3,000.00	3,000.00			3,000.00	100%	0.00	150.00
89	Fire Extinguishers	\$900.00	900.00			900.00	100%	0.00	45.00
90	City Logo	\$1,000.00	1,000.00			1,000.00	100%	0.00	50.00
91									
92	Div. 11 - SPECIAL EQUIPMENT								
93	Layout, Field, Factory Engineering	\$5,173.00	5,173.00			5,173.00	100%	0.00	258.65
94	Platform Lift Material	\$13,464.00	13,464.00			13,464.00	100%	0.00	673.20
95	Platform Lift Labor	\$7,227.00	7,227.00			7,227.00	100%	0.00	361.35
96									
97	Div. 12 - FURNISHINGS								
98	Refrigerator and Microwave	\$1,200.00	1,200.00			1,200.00	100%	0.00	60.00
99	Refrigerator and Microwave Labor	\$1,300.00	1,300.00			1,300.00	100%	0.00	65.00

CONTINUATION SHEET

ATTACHMENT TO PAY APPLICATION

PROJECT:

 Pharr City Hall 1st Floor Renovation
 118 S Cage
 Pharr, TX 78577

APPLICATION NUMBER: Retainage

APPLICATION DATE: 08/31/21

PERIOD TO: 08/31/21

ARCHITECT'S PROJECT NO:

A Item No.	B Description of Work	C Scheduled Value	D Work Completed		F Materials Presently Stored (Not In D or E)	G		H Balance To Finish (C - G)	I Retainage
			From Previous Application (D + E)	This Period		Total Completed And Stored To Date (D + E + F)	% (G/C)		
100	Div. 22 - PLUMBING								
101	Plumbing Mobilization	\$3,000.00	3,000.00			3,000.00	100%	0.00	150.00
102	Rough in Underground Labor	\$5,000.00	5,000.00			5,000.00	100%	0.00	250.00
103	Rough in Underground Material	\$9,000.00	9,000.00			9,000.00	100%	0.00	450.00
104	Top Out Water Lines Labor	\$8,000.00	8,000.00			8,000.00	100%	0.00	400.00
105	Top Out Water Lines Material	\$10,000.00	10,000.00			10,000.00	100%	0.00	500.00
106	Storm Drain Labor	\$1,500.00	1,500.00			1,500.00	100%	0.00	75.00
107	Storm Drain Material	\$2,500.00	2,500.00			2,500.00	100%	0.00	125.00
108	Insulation Labor	\$2,500.00	2,500.00			2,500.00	100%	0.00	125.00
109	Insulation Material	\$3,000.00	3,000.00			3,000.00	100%	0.00	150.00
110	Plumbing Fixtures Labor	\$41,500.00	41,500.00			41,500.00	100%	0.00	2,075.00
111	Plumbing Fixtures Material	\$6,000.00	6,000.00			6,000.00	100%	0.00	300.00
112									
113	Div. 23 - HVAC								
114	HVAC Mobilization	\$7,743.00	7,743.00			7,743.00	100%	0.00	387.15
115	Mechanical Demolition	\$2,760.00	2,760.00			2,760.00	100%	0.00	138.00
116	Coordination Drawings	\$7,114.00	7,114.00			7,114.00	100%	0.00	355.70
117	Duct Fabrication Material	\$27,342.00	27,342.00			27,342.00	100%	0.00	1,367.10
118	Duct Fabrication Labor	\$11,466.00	11,466.00			11,466.00	100%	0.00	573.30
119	Duct Installation Material	\$24,784.00	24,784.00			24,784.00	100%	0.00	1,239.20
120	Duct Installation Labor	\$11,038.00	11,038.00			11,038.00	100%	0.00	551.90
121	Duct Insulation Material	\$2,208.00	2,208.00			2,208.00	100%	0.00	110.40
122	Duct Insulation Labor	\$6,999.00	6,999.00			6,999.00	100%	0.00	349.95
123	Hydronic Piping Material	\$63,289.00	63,289.00			63,289.00	100%	0.00	3,164.45
124	Hydronic Piping Labor	\$51,682.00	51,682.00			51,682.00	100%	0.00	2,584.10
125	Pipe Insulation Material	\$8,460.00	8,460.00			8,460.00	100%	0.00	423.00
126	Pipe Insulation Labor	\$11,428.00	11,428.00			11,428.00	100%	0.00	571.40
127	Air Handling Units Material	\$27,335.00	27,335.00			27,335.00	100%	0.00	1,366.75
128	Air Handling Units Labor	\$1,603.00	1,603.00			1,603.00	100%	0.00	80.15
129	VAV Materials	\$4,750.00	4,750.00			4,750.00	100%	0.00	237.50
130	VAV Labor	\$3,978.00	3,978.00			3,978.00	100%	0.00	198.90
131	Vibration Isolation Material	\$649.00	649.00			649.00	100%	0.00	32.45
132	Vibration Isolation Labor	\$252.00	252.00			252.00	100%	0.00	12.60

CONTINUATION SHEET

ATTACHMENT TO PAY APPLICATION

PROJECT:

Pharr City Hall 1st Floor Renovation
118 S Cage
Pharr, TX 78577

APPLICATION NUMBER: Retainage

APPLICATION DATE: 08/31/21

PERIOD TO: 08/31/21

ARCHITECT'S PROJECT NO:

A Item No.	B Description of Work	C Scheduled Value	D Work Completed		F Materials Presently Stored (Not In D or E)	G		H Balance To Finish (C - G)	I Retainage
			From Previous Application (D + E)	This Period		Total Completed And Stored To Date (D + E + F)	% (G/C)		
133	Buffer Tank Material	\$9,827.00	9,827.00			9,827.00	100%	0.00	491.35
134	Buffer Tank Labor	\$128.00	128.00			128.00	100%	0.00	6.40
135	Mechanical ID Materials	\$501.00	501.00			501.00	100%	0.00	25.05
136	Mechanical ID Labor	\$464.00	464.00			464.00	100%	0.00	23.20
137	Controls	\$102,208.00	102,208.00			102,208.00	100%	0.00	5,110.40
138	Duct Pressure Test	\$534.00	534.00			534.00	100%	0.00	26.70
139	Start-up Verification	\$1,458.00	1,458.00			1,458.00	100%	0.00	72.90
140									
141	Div. 26 - ELECTRICAL								
142	Electrical Mobilization	\$5,000.00	5,000.00			5,000.00	100%	0.00	250.00
143	Rough In Material	\$22,651.00	22,651.00			22,651.00	100%	0.00	1,132.55
144	Rough In Labor	\$56,135.00	56,135.00			56,135.00	100%	0.00	2,806.75
145	Wire Material	\$11,200.00	11,200.00			11,200.00	100%	0.00	560.00
146	Wire Labor	\$9,205.00	9,205.00			9,205.00	100%	0.00	460.25
147	Gear/Misc Material	\$33,000.00	33,000.00			33,000.00	100%	0.00	1,650.00
148	Gear/Misc Labor	\$4,001.00	4,001.00			4,001.00	100%	0.00	200.05
149	Fixtures Material	\$170,000.00	170,000.00			170,000.00	100%	0.00	8,500.00
150	Fixtures Labor	\$21,191.00	21,191.00			21,191.00	100%	0.00	1,059.55
151	Equipment	\$5,000.00	5,000.00			5,000.00	100%	0.00	250.00
152	Trim Material	\$1,175.00	1,175.00			1,175.00	100%	0.00	58.75
153	Trim Labor	\$1,442.00	1,442.00			1,442.00	100%	0.00	72.10
154									
155	Div. 28 - ELECTRONIC, SAFETY & SECURITY								
156	Design & Submittals	\$3,480.00	3,480.00			3,480.00	100%	0.00	174.00
157	Material & Delivery	\$12,470.00	12,470.00			12,470.00	100%	0.00	623.50
158	Installation	\$10,150.00	10,150.00			10,150.00	100%	0.00	507.50
159	Testing	\$2,900.00	2,900.00			2,900.00	100%	0.00	145.00
160	Change Orders								
161	Arch Design Contingency Expenditures	\$3,938.57	3,938.57			3,938.57	100%	0.00	196.93
162	GRAND TOTAL PAGE 6	\$2,353,141.57	\$2,353,141.57	\$0.00	\$0.00	\$2,353,141.57	100%	0.00	117,657.08

CONTINUATION SHEET

ATTACHMENT TO PAY APPLICATION

PROJECT:

Pharr City Hall 1st Floor Renovation

118 S Cage

Pharr, TX 78577

APPLICATION NUMBER: Retainage

APPLICATION DATE: 08/31/21

PERIOD TO: 08/31/21

Item No.	Description of Work	Scheduled Value	Work Completed		Materials Presently Stored (Not In D or E)	Total Completed And Stored To Date (D + E + F)	% (G/G)	Balance To Finish (C - G)	Retainage
			From Previous Application (D + E)	This Period					
86	Owners Contingency Allowance Expenditure								
87	AEA 001								
88	CPR 002: Mechanical Room Demolition	\$2,756.73	2,756.73			2,756.73	100%	0.00	137.84
89	CPR 003: Demo/Repair Furout Walls	\$4,100.00	4,100.00			4,100.00	100%	0.00	205.00
90	CPR 004: Drain Existing Standpipe	\$935.60	835.60			835.60	100%	0.00	41.78
91									
95	AEA 002								
96	CPR 011: Relocate Compressor and Install New	\$22,415.06	22,415.06			22,415.06	100%	0.00	1,120.75
97	AEA 003R								
98	CPR 006R: IT Drops as Requested	\$5,256.00	5,256.00						
99	AEA 004								
100	CPR 018: Terracon Lightweight Concrete Testing	\$560.00	560.00			560.00	100%	0.00	28.00
101	CPR 020: Power to Data Drops	\$1,748.00	1,748.00			1,748.00	100%	0.00	87.40
102	AEA 005								
103	CPR 013: Steel Inspections Performed	\$1,200.00	1,200.00			1,200.00	100%	0.00	60.00
104	CPR 016: A119 Corridor Stairs	\$1,472.40	1,472.40			1,472.40	100%	0.00	73.62
105	CPR 017: Reseal Windows In Construction Area	\$36,000.00	36,000.00			36,000.00	100%	0.00	1,800.00
106	AEA 007								
107	CPR 025: Install Access panels, in piping blue blocked area	\$8,967.00	8,967.00			8,967.00	100%	0.00	448.35
108	AEA 009								
109	CPR 029: Add two roof hatches, additional conduit and furreout	\$5,649.00	5,649.00			5,649.00	100%	0.00	282.45
110	CPR 030: Ice maker piping	\$705.00	705.00			705.00	100%	0.00	35.25
111	AEA 010								
112	CPR 032: Install Three temporary aluminum doors	\$4,941.21	4,941.21			4,941.21	100%	0.00	247.06
113	Architects Contingency Allowance Expenditure								
114	AEA 002								
115	CPR 005: Unforeseen Conditions	\$3,542.78	3,542.78			3,542.78	100%	0.00	177.14
116	CPR 008: Additional Quartz Tile to Wrap Inside Desk	\$3,702.02	3,702.02			3,702.02	100%	0.00	185.10
117	CPR 009: RFI 031 Unforeseen Conditions	\$8,337.00	8,337.00			8,337.00	100%	0.00	416.05
THIS PAGE IS FOR REFERENCE PURPOSES ONLY. IT DOES NOT AFFECT TOTAL VALUES.									
104	AEA 004								
105	CPR 019: 114A Storage Lighting	\$978.00	978.00			978.00	100%	0.00	48.90
106	CPR 021: Stainless Steel Railing North Side	\$4,710.00	4,710.00			4,710.00	100%	0.00	235.50
107	CPR 022: ASI Retrofit Connection for Unforeseen Conditions	\$3,691.39	3,691.39			3,691.39	100%	0.00	184.57
108	CPR 023: Metal Stud Support Modular Panels	\$1,200.00	1,200.00			1,200.00	100%	0.00	60.00
109	AEA 006								
110	CPR 010R: Ceramic Tile Room A101 Flooring	\$5,523.80	5,523.80			5,523.80	100%	0.00	270.19
111	CPR 012: Additional Angle Glass Railing	\$6,473.23	6,473.23			6,473.23	100%	0.00	323.66
112	CPR 105: Urinal Screen in Mens Restroom A108	\$350.00	350.00			350.00	100%	0.00	17.50
113	AEA 006R								
114	FF&E: Additional Furniture and Lockers as Indicated from Texas Wilson	\$8,547.84	8,547.84			8,547.84	100%	0.00	427.39
115	AEA 008R								
116	CPR 024: RFI 045 DE to 1 type R light fixture	\$590.00	590.00			590.00	100%	0.00	29.50
117	CPR-027 Credit for Metal angles	\$0.00	0.00			0.00	0%	0.00	0.00
118	AEA 010								
119	CPR 032: Install Three temporary aluminum doors	\$1,258.79	1,258.79			1,258.79	100%	0.00	62.94
120	AEA 011								
121	CPR 031: Move Copper Line and Install Louver at the Suggested 7'-0"	\$1,544.48	1,544.48			1,544.48	100%	0.00	77.22
122	CPR 033 R: Provide LVT in SE Vestibules to match LVT Tile in Lobby	\$1,908.80	1,908.80			1,908.80	100%	0.00	95.44
123	CPR 035: Provide 8 Pairs of doors, bronze in color to match	\$35,480.00	35,480.00			35,480.00	100%	0.00	1,774.00
124	AEA 012								
125	CPR 036: Add 4 existing signs per fire marshall request	\$1,050.00	1,050.00			1,050.00	100%	0.00	52.50
126	AEA 013								
127	CPR 037: Provide Installation of necessary power and sleeve for all access controls	\$10,656.44	10,656.44			10,656.44	100%	0.00	532.82
128	CPR 038: RFI 054 Relocate Pipes	\$1,000.00	1,000.00			1,000.00	100%	0.00	50.00
129	GRAND TOTAL PAGE 5	\$197,150.57	\$197,150.57	\$0.00	\$0.00	\$197,150.57	100%	0.00	9,857.53

**CITY OF PHARR**

118 S. Cage Blvd.
PO Box 1729
Pharr, TX 78577

PURCHASE ORDER**PO Number: 177809****Date:** 08/24/2020**Requisition #: 177809****Vendor #:** 0188764

ISSUED TO: NM CONTRACTING, LLC
2022 ORCHID AVENUE
MCALLEN, TX 78504-

SHIP TO: ENGINEERING
Attn: OMAR ANZALDUA
118 S. CAGE BLVD. 4TH FLOOR
Pharr, TX 78577

ITEM	COMM CODE	DESCRIPTION	GL ACCT #	UNITS	PRICE	AMOUNT
1	Service 906-38	CITY HALL 1ST FLOOR RENOVATION	40-51000-8803-002	0	0.00	2,349,203.00
PROJECT NO 1920-40-510-C008-755 PHARR CITY HALL 1ST FLOOR RENOVATIONS CC APPROVED 7/6/20 ITEM 9F DEPT IS TO PROCEED						
C/A 10/8/21 Final Pay App Retainage Amount Due: \$117,657.00						

Requested by: Rita Galvan

Authorized by

Purchasing Director:

SHIPPING	0.00
TOTAL	2,349,203.00

1. Purchase Order numbers must appear on all shipping containers, packing slips, and invoices. Failure to comply with the above request may delay payment.
2. All goods are to be shipped F.O.B. Destination unless otherwise stated.
3. The City is exempt from all federal excise and state tax - ID# 74-6001875.

Audit Clause: The City of Pharr reserves the right to audit the vendor's books and records relating to the performance of this contract. The City of Pharr, at its own expense, shall have the right at all reasonable times during normal business hours and upon at least twenty-four (24) hours' advance notice to audit, to examine, and to make copies of or extracts from the books of account and records maintained by the vendor(s) with respect to awarded Contract. If such audit shall disclose overpayment by City to vendor, written notice of such overpayment shall be provided to the vendor and the amount of overpayment shall be promptly reimbursed by vendor to the City. In the event any such overpayment is not paid within ten (10) business days after receipt of such notice, the unpaid amount of such overpayment shall bear interest at the rate of one percent (1%) per month from the date of such notice until paid.

Accounts Payable Department (956) 402-4150 Purchasing Dept (956) 402-4231



AIA Document 0 - 20

Change Order

PROJECT: <i>(Name and address)</i> Pharr City Hall 118 S. Cage Blvd. Pharr, Texas 78577	CONTRACT INFORMATION: Contract For: General Construction Date: July 13, 2020	CHANGE ORDER INFORMATION: Change Order Number: 002 Rev Date: August 18, 2021
OWNER: <i>(Name and address)</i> City of Pharr 118 S. Cage Blvd. Pharr, Texas 78577	ARCHITECT: <i>(Name and address)</i> ERO Architects 300 S. 8th Street McAllen, Texas 78501	CONTRACTOR: <i>(Name and address)</i> NM Contracting, LLC 2022 Orchid Ave. McAllen, Texas 78504

THE CONTRACT IS CHANGED AS FOLLOWS:

(Insert a detailed description of the change and, if applicable, attach or reference specific exhibits. Also include agreed upon adjustments attributable to executed Construction Change Directives.)

Change Order 002 issued for the remaining balance of \$3,938.57 as indicated in AEA 013 Rev.

CPR 037 Rev: Installation of the necessary power and sleeve for all access control at the locations indicated in CCD 001.
\$10,656.44

CPR 038: Relocate existing 1 1/2" vent line and 1/2" domestic water line for installation of new louver at water department offices. \$1,000.00

Original Architectural Design Contingency Allowance Sum	\$96,606.00
Allowance Expenditures Prior to this Authorization	\$88,888.13
Allowance Balance Prior to this Authorization	\$7,717.87
Allowance Sum will be decreased by this Authorization	\$11,656.44
New Architectural Design Contingency Allowance Balance	(\$3,938.57)

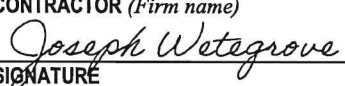
The original Contract Sum was	\$ 2,349,203.00
The net change by previously authorized Change Orders	\$ 0.00
The Contract Sum prior to this Change Order was	\$ 2,349,203.00
The Contract Sum will be increased by this Change Order in the amount of	\$ 3,938.57
The new Contract Sum including this Change Order will be	\$ 2,353,141.57

The Contract Time will be unchanged by Zero (0) days.

The new date of Substantial Completion will be February 27, 2021

NOTE: This Change Order does not include adjustments to the Contract Sum or Guaranteed Maximum Price, or the Contract Time, that have been authorized by Construction Change Directive until the cost and time have been agreed upon by both the Owner and Contractor, in which case a Change Order is executed to supersede the Construction Change Directive.

NOT VALID UNTIL SIGNED BY THE ARCHITECT, CONTRACTOR AND OWNER.

<u>ERO Architects</u> ARCHITECT <i>(Firm name)</i>	<u>NM Contracting, LLC</u> CONTRACTOR <i>(Firm name)</i>	<u>City of Pharr</u> OWNER <i>(Firm name)</i>
 SIGNATURE	 SIGNATURE	 SIGNATURE
Gerardo "Jerry" Garcia, Principal / CFO PRINTED NAME AND TITLE	Joseph Wetegrove/ Accountant PRINTED NAME AND TITLE	Ed Wylie PRINTED NAME AND TITLE
August 18, 2021 DATE	August 19, 2021 DATE	9-30-21 DATE



AGENDA MEMORANDUM



BOARD: City Commission

AGENDA ITEM #: 9.B.

DATE SUBMITTED: October 26, 2021

MEETING DATE: November 1, 2021

FROM: Vanessa Guzman, Administrative Assistant

DEPARTMENT: Bridge

DIRECTOR: Luis Bazan

Agenda Item: Consideration and action, if any, on a Memorandum of Understanding (MOU) between the City of Pharr and the Consejo Mexicano de Comercio Exterior del Noreste, A.C. (COMCE NORESTE). (BRIDGE).

Classification: Regular

(* If closed session, City Attorney must review and approve.)

Issue: On October 20, 2021, the Bridge Board approved the Memorandum of Understanding (MOU) between the City of Pharr and the Consejo Mexicano de Comercio Exterior del Noreste, A.C.(COMCE NORESTE).

Fiscal Consideration: N/A

Staff Recommendation: Approval to enter in to a Memorandum of Understanding (MOU) with the Consejo Mexicano de Comercio Exterior del Noreste, A.C.(COMCE NORESTE).

Alternatives: N/A

Exclude Material from Public Packet? No

Reason: N/A

ROUTING:

Vanessa Guzman

Luis Bazan

Patricia Rigney

Karla Saavedra

City Management Office

Created/Initiated - 10/26/2021

Approved - 10/27/2021

Approved - 10/27/2021

Approved - 10/29/2021

Final Approval - 10/29/2021

MEMORANDUM OF UNDERSTANDING (MOU)
BETWEEN
BETWEEN THE CITY OF PHARR, TEXAS
AND THE
CONSEJO MEXICANO DE COMERCIO EXTERIOR DEL NORESTE, A.C.
(COMCE NORESTE)

The City of Pharr, TX represented by its Mayor, Ambrosio "Amos" Hernandez, and the Consejo Mexicano de Comercio Exterior del Noreste, A.C. (COMCE Noreste) represented by Mr. Héctor Villarreal Muraira, herein recognized as the Parties, have decided to establish an "Alliance between the City of Pharr and COMCE Noreste." That alliance is memorialized in this MOU.

ARTICLE 1
OBJECTIVE

The objective of the Parties is to formalize a bilateral relationship to promote the growth of economic opportunities in both institutions through foreign trade, exchange, innovation and knowledge transfer. The Parties will conduct initiatives to increase business opportunities and strengthen economic ties between them.

ARTICLE 2
AREAS OF COOPERATION

Both Parties agree to work in the following areas of interest:

1. Achieve greater operational efficiencies by finding mechanisms to facilitate the crossing of goods between Mexico and the United States. This includes land transportation with the purpose of generating time and cost savings.
2. Promote "Cadena Segura del Comercio Exterior Mexicano" (CASCEM), or Secure Chain of Mexican Foreign Trade program of COMCE Noreste. The development of this program should have the purpose of facilitating both Mexican and U.S. companies to become certified in OEA (Authorized Economic Operator) from SAT in Mexico and in C-TPAT (Customs Trade Partnership Against Terrorism) from CBP in the USA.

There will also be a focus on promoting secure transit areas, including the Monterrey to Reynosa highway (both toll and free) and the roads leading to the Pharr International Bridge.

3. Negotiate infrastructure projects that improve the transit of goods between Mexico and the United States, with a direct connection to the Pharr International Bridge. This includes roads, check points and government facilities.

I. RESPONSIBILITIES OF THE CITY OF PHARR

1. Promote International Trade among the companies of the States of Nuevo Leon, Tamaulipas, Coahuila, Durango and Chihuahua through COMCE Noreste.
2. Support COMCE Noreste Members with economic incentives via discounts on crossing fees through the PHARR International Bridge Automatic Vehicle Identification (AVI) program. Customers that open an AVI account get their toll fees automatically withdrawn from their banks and we offer a \$2.00 discount per crossing.
3. Promote the CASCEM Certification of COMCE Noreste among Pharr International Bridge customers that develop foreign trade activities.
4. Lobbying with Local, State and Federal authorities of those projects that improve the infrastructure and operational efficiency of the Pharr International Bridge for the benefit of COMCE Noreste's membership.
5. Support COMCE Noreste in the recommendation to Pharr International Bridge customers about the benefits of being part of its membership base, in such a way that the objectives of this Memorandum of Understanding are achieved.

II. RESPONSIBILITIES OF COMCE NORESTE.

1. Promote the use of the Pharr International Bridge among its members and in the Mexican States covered by its region.

2. Promote the security of the logistic chain in any Foreign Trade Forum.
3. Lobbying with Local, State and Federal Authorities for projects that improve the infrastructure and operational efficiency of the Pharr International Bridge.
4. Support business from the northeast region of Mexico for the commercial expansion and exports through the Pharr International Bridge.
5. Cooperate and assist the City of Pharr, TX in all matters related to the promotion of foreign trade via the Pharr International Bridge.

ARTICLE 3

ECONOMIC DEVELOPMENT

Promote business and agreements to strengthen foreign trade in strategic sectors, and foster economic development through COMCE Noreste and the Pharr International Bridge.

The strategic sectors are:

Goods Industry: Agriculture, Autoparts, Automotive, Infrastructure, Food Processing, Manufacturing, Machinery/Heavy Equipment, and Renewable Energy.

Services Industry: Innovation, Software and Technology, Freight and Logistics, Warehousing and Distribution,, Professional & Technical Services, and Sports and Entertainment.

ARTICLE 4

IMPLEMENTATION

The Parties agree to deepen their relationship through the following actions:

Both Parties will appoint a representative from their management team to be in charge of the mutual relationship and any projects to be developed thereafter. COMCE Noreste will designate Hector Villarreal Muraira, Executive Director, as the contact person and Pharr International Bridge will designate Luis Bazán, Bridge Director.

The Parties will develop an “Annual Operating Program” within 30 days to achieve the commitments of this MOU, including precise objectives and activities to be executed such as:

- (a) Specific technical characteristics of the collaboration and joint initiatives.
- (b) A timeline with specific situations and tasks, and those responsible for each area.
- (c) When required, the allocation of personnel and financial resources, generally for specific initiatives.
- (d) Performance indicators and metrics.

In addition to any future bilateral commissions, the Parties agree to designate within the next 30 days, two (2) representatives in the following commissions:

Infrastructure Development Bilateral Commission and Best Practices Bilateral Commission. These commissions will gather at least once every three (3) months and will present to COMCE Noreste Board and the Pharr International Bridge Board a working program within a 30 day period after their designation as committee members. The “Annual Operating Program” should include at least two (2) binational meetings.

COMCE Noreste and the Pharr International Bridge agree to alternate meetings every six (6) months in order to review the Bilateral Commission work schedule.

ARTICLE 5

TERM

This Memorandum of Understanding enters into force since the first day it was signed and for a period of two (2) years. It will automatically be renewed for a similar period without requiring any action of any of the Parties.

ARTICLE 6

MODIFICATION AND TERMINATION

Both Parties will be able to amend the current Memorandum of Understanding upon written amendment or agreement by both parties.

This MOU may be terminated by either Party with or without cause or reason by written notice given to the other Party 30 days prior to such termination, without prejudice to any ongoing collaborations that may have been established while the agreement was in effect.

This MOU does not create a legally binding relationship or an enforceable agreement and does not entitle the Parties to any legal remedy against each other. Neither Party shall have authority over the other nor shall either Party be entitled to act for or against the other.

This agreement is signed and duplicated in the City of Pharr, TX on _____, 2021.

Honorable

Honorable

Dr. Ambrosio “Amos” Hernández

C.P. Jesús Sáenz González

Mayor of the City of Pharr, TX

President of COMCE Noreste
Monterrey, N.L. Mexico

WITNESSES

Honorables

Edgar Delgadillo

President
International Bridge of Pharr, TX

Héctor Villarreal Muraira

Executive Director
COMCE Noreste



Monterrey, N.L. Mexico



AGENDA MEMORANDUM



BOARD: City Commission

AGENDA ITEM #: 9.C.

DATE SUBMITTED: October 28, 2021

MEETING DATE: November 1, 2021

FROM: Maria Rangel, Engineer in Training

DEPARTMENT: Engineering

DIRECTOR: Omar Anzaldua

Agenda Item: Consideration and action, if any, on Change Order No. 2 in the amount of \$48,928.00 for the Various Parking Lot Improvements Project.

Classification: Regular

(* If closed session, City Attorney must review and approve.)

Issue: Change Order No. 2 is for construction of sidewalk around the Witten Park baseball fields to serve the proposed handicap ("accessible") parking lanes.

The city's elected officials have requested that all parking spots surrounding Witten Park be dedicated to the handicap. The Americans with Disabilities Act (ADA) requires that accessible parking spots be connected to the facility entrance they serve by at least one accessible route (Section 206.2.1 Site Arrival Points). The existing accessible routes at Witten Park serve six of the eight accessible parking spots. These routes must be improved and extended to reach the additional 33 spots.

An exhibit of the proposed improvements is attached for reference.

Fiscal Consideration:

Original Contract: \$616,151.50

CO #1: \$130,259.50

CO #2: \$48,928

Revised Contract: \$795,338.50

Staff Recommendation: Staff recommends approval of Change Order No. 2 in the amount of \$48,928.00 for the Various Parking Lot Improvements Project

Alternatives: Make no change to the existing parking spots.

Exclude Material from Public Packet? No

Reason: No exclusion

ROUTING:

Maria Rangel
Omar Anzaldua
Karla Saavedra
Patricia Rigney

Created/Initiated - 10/28/2021
Approved - 10/29/2021
Approved - 10/29/2021
Approved - 10/29/2021

City Management Office

Final Approval - 10/29/2021



No change here (31 feet)

E JONES AVE

All spaces (parking and access) to be 9 feet wide except for two (2) parking space that will be 8 feet wide (red dot). Total spaces is 15. An accessible route must connect spaces to accessible entrance.

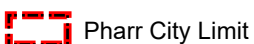
All spaces (parking and access) to be 9 feet wide except for one (1) parking space that will be 8 feet wide. Total spots is 10. An accessible route must connect spaces to accessible entrance.

S IRONWOOD ST

All spaces (parking and access) to be 9 feet wide. Total spots is 16. An accessible route must connect spaces to accessible entrance.

All information displayed on this map is subject to verification by field survey or by the agency responsible for maintaining the information. This map is intended for general information only.

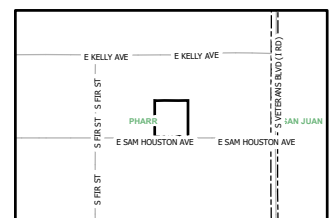
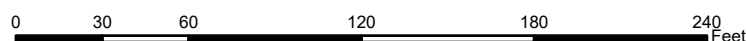
- Access Aisle (9 FT)
- Accessible Spot (9 FT)
- Accessible Route
- Accessible Spot (8 FT)



City of Pharr, Texas
Engineering Department
956.402.4242

Date: 6/22/2021

Scale: 1 inch = 67 feet



Comments:



AGENDA MEMORANDUM



BOARD: City Commission

AGENDA ITEM #: 9.D.

DATE SUBMITTED: October 28, 2021

MEETING DATE: November 1, 2021

FROM: Maritza Magallan, Purchasing
Administrative Assistant

DEPARTMENT: Purchasing

DIRECTOR: Ignacio Amezcua

Agenda Item: Consideration and action, if any, authorizing City Manager to extend the Service Contract with Denali Water Solutions, LLC from Russellville, AR for Sludge Management Services.

Classification: Consent

(* If closed session, City Attorney must review and approve.)

Issue: Service Contract extension with Denali Water Solutions, LLC. for Sludge Management Services (Year 2 of 3) (PROJECT# 1718-60-582-S026-197)

Fiscal Consideration: N/A

Staff Recommendation: Staff recommends approval to extend the Service Contract for one (1) additional year.

Alternatives: N/A

Exclude Material from Public Packet? No

Reason: N/A

ROUTING:

Maritza Magallan
Ignacio Amezcua
Patricia Rigney
Karla Saavedra
Anali Alanis
City Management Office

Created/Initiated - 10/28/2021
Approved - 10/28/2021
Approved - 10/28/2021
Approved - 10/29/2021
Approved - 10/29/2021
Final Approval - 10/29/2021

**EXTENSION OF AGREEMENT
SLUDGE MANAGEMENT SERVICES
PROJECT# 1718-60-582-S026-197**

THIS EXTENSION OF AGREEMENT FOR SLUDGE MANAGEMENT SERVICES, made and entered into the _____ day _____, 20__ by and between the **City of Pharr** hereinafter referred to as "CITY" and having its principal place of business at 118 S. Cage, P.O. Box 1729, Pharr TX 78577 AND **Denali Water Solutions, LLC.**, hereinafter referred to as "CONTRACTOR" and having its principal place of business at 3308 Bernice Ave., Russellville, AR 72802.

WITNESSETH:

WHEREAS, CITY and CONTRACTOR entered into an Agreement for the Sludge Management Services dated, November 8, 2018 by which CONTRACTOR serves as the primary vendor to provide all transportation, treatment and disposal or beneficial use of solids or bio solids for Sludge Management Services to the CITY on an as-needed basis pursuant to Request for Proposals numbered; **Project #1718-60-582-S026-197** and

WHEREAS, the current term expires on November 8, 2021; and

WHEREAS, the City reserves the right to extend said contract for three (3) additional years, in one (1) year increments if the Contractor's performance is satisfactory; and

NOW, THEREFORE, IN CONSIDERATION OF THE FOREGOING AND THE MUTUAL COVENANTS CONTAINED HEREIN, IT IS AGREED AS FOLLOWS:

1. Term of the Agreement is hereby modified so as to extend the term thereof until day of November 8, 2022. The CITY reserves the right to extend for one (1) additional year.

IN WITNESS WHEREOF this extension of Agreement for Sludge Management Services has been signed and sealed, in duplicate, by the respective parties hereto.

DATED this _____ day of _____, 20__ by the **CITY** of Pharr.

CITY OF PHARR

By: _____
Ed Wylie, Interim City Manager

Approved As to Form:

By: _____
Patricia Rigney, City Attorney

DATED this ____ day of _____, 20____ by **Denali Water Solutions, LLC.**

Denali Water Solutions, LLC.

By: _____

Title

Witness

Print Name



AGENDA MEMORANDUM



BOARD: City Commission

AGENDA ITEM #: 9.E.

DATE SUBMITTED: October 28, 2021

MEETING DATE: November 1, 2021

FROM: Maritza Magallan, Purchasing
Administrative Assistant

DEPARTMENT: Purchasing

DIRECTOR: Ignacio Amezcua

Agenda Item: Consideration and action, if any, authorizing City Manager to extend the Service Contract with Pro-Tech Exterminating Services from McAllen, Tx for City Wide Pest Control Services.

Classification: Consent

(* If closed session, City Attorney must review and approve.)

Issue: Service Contract extension with Pro-Tech Exterminating Services for City Wide Pest control services. (Year 2 of 3) (PROJECT# 1920-01-513-IPQ105-109)

Fiscal Consideration: N/A

Staff Recommendation: Staff recommends approval to extend the Service Contract for Pest Control Services for one (1) additional year.

Alternatives: N/A

Exclude Material from Public Packet? No

Reason: N/A

ROUTING:

Maritza Magallan
Ignacio Amezcua
Patricia Rigney
Karla Saavedra
Anali Alanis
City Management Office

Created/Initiated - 10/28/2021
Approved - 10/28/2021
Approved - 10/28/2021
Approved - 10/29/2021
Approved - 10/29/2021
Final Approval - 10/29/2021

**EXTENSION OF AGREEMENT
SERVICE CONTRACT FOR CITY WIDE PEST CONTROL SERVICES
PROJECT# 1920-01-513-IPQ105-109**

THIS EXTENSION OF AGREEMENT FOR CITY PEST CONTROL SERVICES, made and entered into the ____ day of _____, 20__ by and between the **City of Pharr** hereinafter referred to as "CITY" and having its principal place of business at 118 S. Cage, P.O. Box 1729, Pharr TX 78577 AND **Pro-Tech Exterminating Services.**, hereinafter referred to as "CONTRACTOR" and having its principal place of business at P.O. Box 4254 McAllen, TX 78502.

WITNESSETH:

WHEREAS, CITY and CONTRACTOR entered into an Agreement for the City Wide HVAC On-Call and Maintenance Service dated, November 17, 2020 by which CONTRACTOR serves to the CITY on an as-needed basis pursuant to Request for Proposals numbered; **Project # 1920-01-513-IPQ105-109** and

WHEREAS, the current term expires on November 17, 2021; and

WHEREAS, the City reserves the right to extend said contract for two (2) additional years, in one (1) year increments if the Contractor's performance is satisfactory; and

NOW, THEREFORE, IN CONSIDERATION OF THE FOREGOING AND THE MUTUAL COVENANTS CONTAINED HEREIN, IT IS AGREED AS FOLLOWS:

1. Term of the Agreement is hereby modified so as to extend the term thereof until day of November 17, 2022. The CITY reserves the right to extend for one (1) additional year.

IN WITNESS WHEREOF this extension of Agreement for the City Wide Pest Control Services has been signed and sealed, in duplicate, by the respective parties hereto.

DATED this _____ day of _____, 20__ by the **CITY of Pharr**.

CITY OF PHARR

By: _____
Ed Wylie, Interim City Manager

Approved As to Form:

By: _____
Patricia Rigney, City Attorney

DATED this ____ day of _____, 20____ by **Pro-Tech Exterminating Services**

Pro-Tech Exterminating Services

By: _____

Title

Witness

Print Name



AGENDA MEMORANDUM



BOARD: City Commission

AGENDA ITEM #: 9.F.

DATE SUBMITTED: October 28, 2021

MEETING DATE: November 1, 2021

FROM: Maritza Magallan, Purchasing
Administrative Assistant

DEPARTMENT: Purchasing

DIRECTOR: Ignacio Amezcua

Agenda Item: Consideration and action, if any, authorizing City Manager to extend the Service Contract with INSULNATION, LLC. from Mission, Tx for City Wide HVAC On-Call and Maintenance Services.

Classification: Consent

(* If closed session, City Attorney must review and approve.)

Issue: Service Contract extension with INSULNATION, LLC. for City Wide HVAC On-Call and Maintenance Services (Year 2 of 3) (PROJECT# 1920-01-528-S042-001)

Fiscal Consideration: N/A

Staff Recommendation: Staff recommends approval to extend the Service Contract for one (1) additional year for City Wide HVAC On-Call and Maintenance Services.

Alternatives: N/A

Exclude Material from Public Packet? No

Reason: N/A

ROUTING:

Maritza Magallan
Ignacio Amezcua
Patricia Rigney
Karla Saavedra
Anali Alanis
City Management Office

Created/Initiated - 10/28/2021
Approved - 10/28/2021
Approved - 10/28/2021
Approved - 10/29/2021
Approved - 10/29/2021
Final Approval - 10/29/2021

**EXTENSION OF AGREEMENT
SERVICE CONTRACT FOR CITY WIDE HVAC ON-CALL AND MAINTENANCE SERVICE
PROJECT# 1920-01-528-S042-001**

THIS EXTENSION OF AGREEMENT FOR CITY WIDE HVAC ON-CALL AND MAINTENANCE SERVICE, made and entered into the ____ day of _____, 20__ by and between the **City of Pharr** hereinafter referred to as "CITY" and having its principal place of business at 118 S. Cage, P.O. Box 1729, Pharr TX 78577 AND **Insulation, LLC.**, hereinafter referred to as "CONTRACTOR" and having its principal place of business at P.O. Box 2020 Mission, TX 78572.

WITNESSETH:

WHEREAS, CITY and CONTRACTOR entered into an Agreement for the City Wide HVAC On-Call and Maintenance Service dated, December 3, 2020 by which CONTRACTOR serves to the CITY on an as-needed basis pursuant to Request for Proposals numbered; **Project # 1920-01-528-S042-001** and

WHEREAS, the current term expires on December 3, 2021; and

WHEREAS, the City reserves the right to extend said contract for two (2) additional years, in one (1) year increments if the Contractor's performance is satisfactory; and

NOW, THEREFORE, IN CONSIDERATION OF THE FOREGOING AND THE MUTUAL COVENANTS CONTAINED HEREIN, IT IS AGREED AS FOLLOWS:

1. Term of the Agreement is hereby modified so as to extend the term thereof until day of December 3, 2022. The CITY reserves the right to extend for one (1) additional year.

IN WITNESS WHEREOF this extension of Agreement for the City Wide HVAC On-Call and Maintenance Service has been signed and sealed, in duplicate, by the respective parties hereto.

DATED this _____ day of _____, 20__ by the **CITY of Pharr**.

CITY OF PHARR

By: _____
Ed Wylie, Interim City Manager

Approved As to Form:

By: _____
Patricia Rigney, City Attorney

DATED this ____ day of _____, 20____ by **INSULNATION, LLC.**

INSULNATION, LLC

By: _____

Title

Witness

Print Name



AGENDA MEMORANDUM



BOARD: City Commission

AGENDA ITEM #: 9.G.

DATE SUBMITTED: October 28, 2021

MEETING DATE: November 1, 2021

FROM: Maritza Magallan, Purchasing
Administrative Assistant

DEPARTMENT: Purchasing

DIRECTOR: Ignacio Amezcua

Agenda Item: Consideration and action, if any, authorizing City Manager to extend the Service Contract with Purpose Driven Polygraph Investigative Consultants, LLC. from Weslaco, Tx for Polygraph Services.

Classification: Consent

(* If closed session, City Attorney must review and approve.)

Issue: Service Contract extension with Purpose Driven Polygraph Investigative Consultants, LLC. for Polygraph Services (Year 3 of 3) (PROJECT# 1920-01-512-S008-001)

Fiscal Consideration: N/A

Staff Recommendation: Staff recommends approval to extend the Service Contract for one (1) additional year for Polygraph Services.

Alternatives: N/A

Exclude Material from Public Packet? No

Reason: N/A

ROUTING:

Maritza Magallan
Ignacio Amezcua
Patricia Rigney
Karla Saavedra
Anali Alanis
City Management Office

Created/Initiated - 10/28/2021
Approved - 10/28/2021
Approved - 10/28/2021
Approved - 10/29/2021
Approved - 10/29/2021
Final Approval - 10/29/2021

**FINAL EXTENSION OF AGREEMENT
POLYGRAPH SERVICES
PROJECT# 1920-01-512-S008-001**

THIS FINAL EXTENSION OF AGREEMENT FOR POLYGRAPH SERVICES, made and entered into the _____ day of _____, 20____ by and between the **City of Pharr** hereinafter referred to as "CITY" and having its principal place of business at 118 S. Cage, P.O. Box 1729, Pharr TX 78577 AND **Purpose Driven Polygraph Investigative Consultants, LLC.**, hereinafter referred to as "CONTRACTOR" and having its principal place of business at 624 N. Tio Suite B., Weslaco, TX 78596

WITNESSETH:

WHEREAS, CITY and CONTRACTOR entered into an Agreement for Polygraph Services dated, November 26, 2019, by which CONTRACTOR serves as the primary vendor to provide Polygraph Services to the CITY on an as-needed basis; **Project #: 1920-01-512-S008-001** and

WHEREAS, the current term expires on September 30, 2021; and

WHEREAS, the City reserved the right to extend said contract for two (2) additional years, in one (1) year increments if the Contractor's performance is satisfactory; and

WHEREAS, the City has extended the term once before and hereby desires to extend the Contract for one additional year.

NOW, THEREFORE, IN CONSIDERATION OF THE FOREGOING AND THE MUTUAL COVENANTS CONTAINED HEREIN, IT IS AGREED AS FOLLOWS:

1. Term of the Agreement is hereby modified so as to extend the term thereof until September 30, 2022. This will be the final extension available on this agreement.

IN WITNESS WHEREOF this extension of Agreement for Polygraph Services has been signed and sealed, in duplicate, by the respective parties hereto.

DATED this _____ day of _____, 20____ by the **CITY** of Pharr.

CITY OF PHARR

By: _____
Ed Wylie, Interim City Manager

Approved As to Form:

By: _____
Patricia Rigney, City Attorney

DATED this ____ day of _____, 20____ by **Purpose Driven Polygraph Investigative Consultants, LLC**

Purpose Driven Polygraph Investigative Consultants, LLC

By: _____

Title

Witness

Print Name



AGENDA MEMORANDUM



BOARD: City Commission

AGENDA ITEM #: 9.H.

DATE SUBMITTED: October 29, 2021

MEETING DATE: November 1, 2021

FROM: Ruben Rosales, Public Utilities
Director

DEPARTMENT: Public Utilities

DIRECTOR: Ruben Rosales

Agenda Item: Consideration and action, if any, authorizing the City Manager to enter into a Contractual Agreement with La Feria Irrigation District Cameron County No.3 for the Purchasing of (1,000 acre feet) of Water Rights in the amount of \$3,000,000.00.

Classification: Regular

(* If closed session, City Attorney must review and approve.)

Issue: The need to purchase more Water Rights for the city growth.

Fiscal Consideration: N/A

Staff Recommendation: The purchase of Water Rights

Alternatives: N/A

Exclude Material from Public Packet? Yes

Reason: Due to Competitive purchase of water rights

ROUTING:

Ruben Rosales

Created/Initiated - 10/29/2021

Ruben Rosales

Approved - 10/29/2021

Annie Reeves

Approved - 10/29/2021

Ignacio Amezcua

Approved - 10/29/2021

Patricia Rigney

Approved - 10/29/2021

Karla Saavedra

Approved - 10/29/2021

City Management Office

Final Approval - 10/29/2021

WATER RIGHTS SALES CONTRACT

WHEREAS, the La Feria Irrigation District Cameron County No. 3, hereinafter referred to as GRANTOR, is an irrigation district and political subdivision of the State of Texas, organized and operating under Chapters 49 and 58 of the Texas Water Code; and,

WHEREAS, GRANTOR has the right to divert and use water from the Rio Grande River for domestic, municipal, and agricultural use within GRANTOR's boundaries as further evidenced by Certificate of Adjudication No. 803-000 issued by the Texas Water Rights Commission and records of the Texas Commission of Environmental Quality (successor to the Texas Water Rights Commission) to which reference is hereby made for all purposes; and

WHEREAS, land within the District has been subdivided as defined by Texas Water Code Chapter 49, Subchapter O, and municipal water suppliers serving the subdivided land within GRANTOR's territorial limits have not filed petitions under Subchapter O to convert the proportionate irrigation water right to the Rio Grande from irrigation use to municipal use with municipal priority of allocation within two years of the date of subdivision; and,

WHEREAS, GRANTOR has retained the water rights not subject to a Subchapter O petition for use by GRANTOR and desires to declare the water as excess and contract for the sale or use of the water; and,

WHEREAS, pursuant to Texas Water Code section 49.2261, GRANTOR may sell, transfer, or otherwise exchange water or water rights under an agreement between GRANTOR and a person or entity that contains terms that are considered advantageous to GRANTOR; and,

WHEREAS, GRANTOR has agreed to sell, convey, transfer, and assign to the City of Pharr, located in a county described by Texas Water Code sec. 49.502, hereinafter referred to as "GRANTEE", a portion of said water rights amounting to the right to divert and use a maximum of up to ONE THOUSAND (1,000) acre feet of municipal use water with a municipal priority of allocation from the Rio Grande per year, measured at the Rio Grande, out of the said Certificate of Adjudication No. 803-000 and specifically subsequent Amendments to Certificate No. 803-000 and subject to the conditions as herein provided; and

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS: in consideration of the sum of THREE MILLION DOLLARS (\$3,000,000), and other good and valuable consideration, to it in hand paid by GRANTEE as described below, GRANTOR does hereby SELL, ASSIGN, TRANSFER AND CONVEY to GRANTEE ONE THOUSAND (1,000) acre feet of Rio Grande water per annum, measured at the point of diversion at the Rio Grande, for municipal purposes out of those water rights evidenced by Certificate

of Adjudication No. 803-000, as amended, as above referred to and described, (herein referred to as the "Water Rights").

GRANTEE agrees to pay the sum of ONE MILLION FIVE HUNDRED THOUSAND DOLLARS (\$1,500,000) upon execution of this Contract, and an additional ONE MILLION FIVE HUNDRED THOUSAND DOLLARS (\$1,500,000) on or before December 31, 2022.

GRANTEE agrees to pay the sum of \$21,000 to GRANTOR for attorney fees and administrative costs associated with the sale and the process for amending its Certificate of Adjudication.

The parties agree that all suits, actions, claims and causes of action relating to the construction, validity, performance and enforcement of this Contract shall be in the courts of Cameron County, Texas.

GRANTOR does hereby expressly sever the Water Rights herein conveyed, from the remaining water rights held by the GRANTOR and no other rights of GRANTOR are hereby conveyed relating to said Certificate of Adjudication No. 803-000, as amended except the Water Rights herein conveyed, or any other properties of GRANTOR.

GRANTOR does hereby expressly authorize the Texas Commission on Environmental Quality, or such agency or governmental body or authority having jurisdiction over the subject matter hereof, to make such changes in the records as are necessary to accomplish the conveyance and transfer of the Water Rights hereby conveyed; and GRANTOR hereby agrees to execute such other instruments as shall be necessary and required by the Texas Commission on Environmental Quality or other applicable authority in regard hereto.

TO HAVE AND TO HOLD the Water Rights together with all and singular the rights and appurtenances thereto, and subject to the terms hereof, in anywise belonging unto GRANTOR, its successors and assigns, to warrant and forever defend all and singular the said Water Rights unto the said GRANTEE, and its successors and assigns, against every person whomsoever lawfully claiming the Water Rights by, through, or under GRANTOR.

GRANTOR and GRANTEE, through their duly appointed agents, have executed this agreement in duplicate originals.

GRANTOR:
La FERIA IRRIGATION
DISTRICT CAMERON COUNTY #3

GRANTEE:
CITY OF PHARR, TEXAS

By: _____
Al Martinez
General Manager

By: _____
Edward Wylie,
Interim City Manager

Date: _____

Date: _____

THE STATE OF TEXAS §
COUNTY OF CAMERON §

Acknowledgment

The foregoing WATER RIGHTS SALES CONTRACT was acknowledged before me on the _____ day of _____, 2021, by Al Martinez, General Manager of La Feria Irrigation District Cameron County #3, La Feria, Cameron, Texas, for the purposes and consideration therein expressed and in the capacity therein stated.

Notary Public in and for
THE STATE OF TEXAS

THE STATE OF TEXAS §
COUNTY OF CAMERON §

Acknowledgment

The foregoing WATER RIGHTS SALES CONTRACT was acknowledged before me on the _____ day of _____, 2021, by [Name of authorized signatory], [Title] of the City of Pharr, Hidalgo County, Texas.

Notary Public in and for
THE STATE OF TEXAS