**CITY OF LEON VALLEY**
**CITY COUNCIL REGULAR MEETING**
Leon Valley City Council Chambers
6400 El Verde Road, Leon Valley, Texas 78238
Tuesday, April 05, 2016

## AGENDA

1. **7:00 P.M.** Call to order, Determine a Quorum is Present, Pledge of Allegiance.

2. **Citizens to Be Heard and Time for Objections to the Consent Agenda.** "Citizens to be heard" is for the City Council to receive information on issues that may be of concern to the public. The purpose of this provision of the Open Meetings Act is to ensure that the public is always given appropriate notice of the items that will be discussed by the Council. Should a member of the public bring an item to the Council, for which the subject was not posted on the agenda of that meeting, the Council may receive the information but cannot act upon it during the meeting. Council may direct staff to contact the requestor or ask that the issue be placed on a future agenda for discussion by the Council.

**Note:** City Council may not debate any non-agenda issue, nor may any action be taken on any non-agenda issue at this time; however City Council may present any factual response to items brought up by citizens. [Attorney General Opinion – JC 0169]

3. Presentation of 2015 Project of the Year Between $5 - $10 Million from American Subcontractors Association – Mr. Manny Valdez of Bartlett Cocke General Contractors for City of Leon Valley Municipal Office, Police Station & Fire Station.

4. Presentation by the Forest Oaks Community Pool Committee, Assistant Public Works Director David Dimaline. **M&C #2016-04-05-01 (D. Dimaline)**.

5. Presentation of the Leon Valley Neighborhood Renewal Program (NRP) of the Old Mill Subdivision, Assistant Public Works Director David Dimaline. **M&C #2016-04-05-02 (D. Dimaline)**.

## CONSENT AGENDA

6. Approval of City Council Minutes. **(S. Passailaigue)**
   a) March 15, 2016 Regular City Council Meeting

7. Consideration of an ordinance to implement and enforce the Texas State Rule on locally enforced motor vehicle idling limitations and to authorize the City Manager to enter into a memorandum of agreement with the Texas Commission on Environmental Quality to enforce this rule locally. **M&C #2016-04-05-03 (K. Kuenstler)**.

## REGULAR AGENDA

8. Presentation, consider, discuss and possible action on the Citizens Police Advisory Commission. **M&C #2016-04-05-04 (R. Wallace)**.

9. Consider, discuss and possible action on the approval of an ordinance Amending Appendix A, Fee Schedule, Article A11.000 Water and Sewer Fees. **M&C #2016-04-05-05 (M. Moritz)**.

10. Consider, discuss and possible action to accept bids and award contracts for the 2016 Water Well Project; and authorize the City Manager to sign contracts, with change orders up to twenty-five percent (15%) of the bid amount, as allowed by State Law. **M&C #2016-04-05-06 (M. Moritz)**.

11. Consider, discuss and possible action on the approval of a budget adjustment to fund engineering, design, and construction management for the reconstruction of the Evers Road bridge, with attached ordinance; and authorize the City Manager to sign a contract with IDS Engineering Group. Inc., with change orders not to exceed five percent (5%). **M&C #2016-04-05-07 (M. Moritz)**.

12. Consider, discuss and possible action on user alternatives for the Leon Valley Community Pool in the 2016 swim season. **M&C #2016-04-05-08 (M. Moritz)**.

13. Consider, discuss and possible action on the adoption of the San Antonio River Authority's Leon Creek Water Shed Master Plan. **M&C #2016-04-05-09 (E. Carol)**.

14. Consider, discuss and possible action adopting Freeboarding provisions and related ordinance to Chapter 3, "Building Regulations," Article 3.03, "Flood Damage Prevention". **M&C #2016-04-05-10 (E. Carol)**.

15. Consider, discuss and possible action on the adoption of an ordinance to amend the Leon Valley Code of Ordinance, Appendix A "General Provisions" to remove the Contractors Registration fee for Plumbers. **M&C #2016-04-05-11 (E. Carol)**.

16. Consider, discuss and possible action on a sign variance(s) request by Sydney Onuagu and Blessing Maduka, owner of The Precinct Academy and Daycare, to Chapter 3.04.013, "Temporary Signs," to display two (2) temporary banners for six (6) months generally located at 7500 Eckhert Road, Suite 140. **M&C #2016-04-05-12 (E. Carol)**.

17. Consider, discuss and possible action to coordinate with the Office of Representative Joaquin Castro and the United States Post Office to designate 78238 as the only zip code for Leon Valley. **M&C #2016-04-05-13 (K. Kuenstler)**.

18. Consider, discuss and possible action of a resolution supporting the appointment of a Mayor from the Greater Bexar County Council of Cities to the San Antonio Water Systems (SAWS) Board. **M&C #2016-04-05-14 (K. Kuenstler)**.

19. Consider, discuss and possible action on an amendment to 100-5300-530.09 Travel, increasing City Council travel to $2,400 and City Manager to $7,500. **M&C #2016-04-05-15 (K. Kuenstler)**.

20. City Manager's Report:
    a) Approved Minutes from Boards, Commissions and Committees
    b) Future Agenda Items:
        - Sign Ordinance LED
        - Hand Gun Policy
        - Total funding cost of New City Hall Complex and Fire Department
    c) Upcoming Important Events:
        - Volunteer Appreciation Dinner, Wednesday, April 6, 2016 at 6:00 p.m.
        - VIA Vision, a Community Driven Process, Leon Valley Community Center, April 7, 2016 at 6:00 p.m.
        - Coffee with the Mayor and City Council, Saturday, April 23, 2016, 9:00 a.m. to 11:00 a.m. at the Leon Valley Conference Center
        - Annual Pet Parade, Saturday, May 14, 2016, 9:00 a.m. to 11:00 a.m.

21. Citizens to be heard.

22. Announcements by the Mayor and Council Members. At this time, reports about items of community interest, which no action will be taken may be given to the public as per Chapter 551.0415 of the Government Code, such as: expressions of thanks, congratulations or condolence, information regarding holiday schedules, reminders of social, ceremonial, or community events organized or sponsored by the governing body or that was or will be attended by a member of the Leon Valley City Council or a City official.

23. Adjournment.

**Executive Session**. The City Council of the City of Leon Valley reserves the right to adjourn into Executive Session at any time during the course of this meeting to discuss any of the matters listed on the posted agenda, above, as authorized by the Texas Government Code, Sections 551.071 (consultation with attorney), 551.072 (deliberations about real property), 551.073 (deliberations about gifts and donations), 551.074 (personnel matters), 551.076 (deliberations about security devices), and 551.087 (economic development).

**Attendance by Other Elected or Appointed Officials:** It is anticipated that members other City boards, commissions and/or committees may attend the open meeting in numbers that may constitute a quorum. Notice is hereby given that the meeting, to the extent required by law, is also noticed as a meeting of any other boards, commissions and/or committees of the City, whose members may be in attendance in numbers constituting a quorum. These members of other City boards, commissions, and/or committees may not deliberate or take action on items listed on the agenda. [Attorney General Opinion – No. GA-0957 (2012)].

I hereby certify that the above **NOTICE OF PUBLIC MEETING(S) AND AGENDA OF THE LEON VALLEY CITY COUNCIL** was posted at the Leon Valley City Hall, 6400 El Verde Road, Leon Valley, Texas, on March 31, 2016 at 10:00 a.m. and remained posted until after the meeting(s) hereby posted concluded. This notice is posted on the City website at www.leonvalleytexas.gov. This building is wheelchair accessible. Any request for sign interpretive or other services must be made 48 hours in advance of the meeting. To make arrangements, call (210) 684-1391, Extension 216.

Saundra Passailaigue

**SAUNDRA PASSAILAIGUE, TRMC**
City Secretary

CITY OF LEON VALLEY TEXAS

# PROJECT OF THE YEAR BETWEEN $5-$10 MILLION

# MAYOR AND COUNCIL COMMUNICATION

**DATE:** April 5, 2016 **M&C #2016-04-05-01**

**TO:** Mayor and Council

**FROM:** David Dimaline, Public Works Assistant Director

**THROUGH:** Kelly Kuenstler, City Manager

**SUBJECT:** Presentation by the Forest Oaks Community Pool Committee

## Purpose

The following is a briefing from the Forest Oaks Pool Committee. The purpose of the Committee is to determine the feasibility of the City owning, operating and maintaining the Forest Oaks Pool and its other assets. The two main areas of focus are the financial component and the amenities of the Forest Oaks Pool. The Committee consists of eleven members with representatives appointed by the Mayor and City Council, and representation from the Park Commission, Leon Valley EDC, and the Beautification Committee. The Chairman of the Committee is Mr. Larry Proffitt.

The Forest Oaks Pool Committee has met several times since February 29, 2016. The first meeting consisted of a tour of the facilities and this was provided by Mr. and Mrs. Kelley. Also at this meeting the discussion consisted of an overview of operations and finances of both the Forest Oaks Pool and the Community Pool. At our second meeting, Mr. Paul Merritt of San Antonio Pool Management provided the Committee with helpful information regarding the day to day operations of the Community Pool, and responsibilities per the contract that is in place with the City of Leon Valley. Mr. and Mrs. Kelley of the Forest Oaks Pool provided an operational budget, By-laws, operating schedule and fee structure to the Committee. An operating budget, schedule, and attendance breakdown for the Community Pool from the 2015 season was also provided.

At our third meeting, a list of recommended action items was formulated and will be provided at the briefing of the Mayor and City Council on April 5th. The Committee will work to formulate additional recommendations as they relate to financial and the amenities components of the Forest Oaks Pool. These will be brought forth to the Mayor and City Council at a future briefing.

**Fiscal Impact**

There is no fiscal impact associated with this briefing.

**Recommendation**

Recommend the Forest Oaks Pool Committee continue to meet to finalize a plan that will determine the feasibility of the City owning, operating and maintaining the Forest Oaks Pool and its other assets.

**S.E.E Statement**

*Social Equity* – Adds to general quality of life for all citizens.

*Economic* – The pool enhances the amenities offered by the City to its residents, which may encourage relocation.

*Environmental* – Reduces the amount of automobile emissions, as residents within that area would not have to drive to find this type of activity.

APPROVED: _____DISAPPROVED: _____

APPROVED WITH THE FOLLOWING AMENDMENTS:

_____

_____

_____

ATTEST:

_____
**SAUNDRA PASSAILAIGUE, TRMC**
City Secretary

# Forest Oaks Pool Committee

City Council Meeting

April 5, 2016

LEONVALLEY

# Background

- The Committee was formed  to determine the feasibility of the City owning, operating and maintaining the Forest Oaks Pool and its other assets.
- Eleven members – Appointed from the Mayor and City Council, Park Commission, Leon Valley EDC, and Beautification Committee
- Chairman – Mr. Larry Proffitt

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# Background

- The Committee has met several times since February.
- Site Visit/Tour of facilities
- Reviewed Operations and Finances of both the Forest Oaks Pool and Community Pool
  - By-laws
  - Operating Budgets
  - Pool Schedules
  - Attendance

# Background

- Mr. Proffitt will present the Committee's list of recommended action items.
- Additional recommendations related to the financial and amenities components of the Forest Oaks Pool will be presented at our next briefing.

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# S.E.E. Statement

- *Social Equity* – Adds to general quality of life for all citizens.
- *Environmental Stewardship* – Reduces the amount of automobile pollutants, as residents within that area typically walk to the pool.
- *Economic Development* – The pool enhances the amenities offered by the City to its residents, which may encourage relocation.

LEONVALLEY

# Forest Oaks Pool Committee

City Council Meeting

April 5, 2016

# MAYOR AND COUNCIL COMMUNICATION

**DATE:** April 5, 2016 **M&C #2016-04-05-02**

**TO:** Mayor and Council

**FROM:** David Dimaline, Public Works Assistant Director

**THROUGH:** Kelly Kuenstler, City Manager

**SUBJECT:** Leon Valley Neighborhood Renewal Program (NRP) of the Old Mill Subdivision

## Purpose

The City of Leon Valley is implementing a Neighborhood Renewal Program (NRP) modeled after the City of Live Oak's Fix Up Day. The first target area will be within the Old Mill Subdivision between Timberhill, Blacksmith, and Autumn Chase. The area includes 78 residential properties. The neighborhood was assessed on March 23rd by Code Compliance and Public Works staff.

The cleanup date is set for Saturday, May 21, 2016, 7:30 a.m. to Noon. Clean up efforts that day will include painting of two houses by volunteers. A homeowner waiver of liability and disclaimer will be required. On that day, the Fire Department will be available to install or replace smoke detectors, and the Police Department will be on-site promoting their safety programs. In the weeks leading up to the event, the Public Works Department will be working in this neighborhood to address signage, repair of sidewalks, mowing of City right of way, and Stormwater inlet cleanup.

The City's goal is to target two areas per year, which will coincide with the brush and bulky item pickup provided by Waste Management. The next NRP date will occur in September during the fall brush pickup.

## Fiscal Impact

There will be minimal financial impact as these services are provided by volunteers. Public Works will perform activities during regular scheduled work; however, overtime would be required for some staff on Saturday, May 21st.

## Recommendation

Recommend that the City schedules the first NRP – Old Mill Subdivision on May 21, 2016.

**S.E.E Statement**

*Social Equity* – Adds to general quality of life for all citizens by improving neighborhoods.

*Economic* – Improving neighborhoods and service delivery to target areas helps to maintain property values and may encourage relocation to Leon Valley.

*Environmental* – Residents are provided an opportunity to discard brush and debris reducing the amount of waste and ensuring proper delivery to the landfill.

APPROVED: _____DISAPPROVED: _____

APPROVED WITH THE FOLLOWING AMENDMENTS:

_____

_____

_____

ATTEST:

_____
**SAUNDRA PASSAILAIGUE, TRMC**
City Secretary

# Leon Valley Neighborhood Renewal Program (NRP) – Old Mill Subdivision

City Council Meeting

April 5, 2016

# Purpose

- Implementing the Neighborhood Renewal Program (NRP) after the City of Live Oak Fix Up Day
- First target area is the Old Mill Subdivision between Timberhill, Blacksmith and Autumn Chase; 78 residential properties
- Walk-Through conducted on 3/23

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# Background

- Cleanup Date is scheduled for May 21, 2016; 7:30 a.m. to Noon
- Goal of painting two houses by volunteers
- Homeowner waiver of liability and disclaimer required

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# Background

- **<u>Public Works (5/2 – 5/20)</u>**
  - Replace / Straighten Stop Signs
  - Graffiti Abatement (Code Compliance)
  - Repair Sidewalks
  - Clean Drainage Inlets to include painting of rails
  - Mowing of City ROW
  - Assist w/debris Removal on 5/21

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# Background

- **Fire Department (5/21)**
  - Smoke Detector Installation for Homes
  - Safety Information
- **Police Department (5/21)**
  - Safety Information
- **Waste Management (5/21)**
  - Provide 2 Roll Off Dumpsters

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# Background

- **Volunteers (5/21)**
  - Volunteer Outreach Currently Underway
    - Corporate Outreach to groups who expressed an interest during our Annual Basura Bash
  - Painting of Houses
  - Painting of Fire Hydrants and Railings over drainage structures (Boy Scouts)
  - Lifting, Moving and Cleaning Debris

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# Background

- Neighborhood Outreach
  - Letter to Residents to be delivered 4/11
  - Lion's Roar
  - City's Web Site
  - Fire Department will canvass neighborhood before event to determine requests for smoke alarms

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# Fiscal Impact

- Minimal as services are provided by volunteers. City Departments will perform work during regular schedule, however overtime would be required for some staff on Saturday, May 21st.

# Recommendation

- Recommend the City schedules the first NRP in the Old Mill Subdivision on May 21, 2016.
- The goal is to target two areas per year, which will coincide with WM brush pickup.
- The next NRP date will occur in September during the fall brush pickup.

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# S.E.E. Statement

- Social Equity – Adds to general quality of life for all citizens
- Environmental Stewardship – Citizens are provided an additional opportunity to discard brush and debris reducing the amount of waste and ensuring proper delivery to the landfill.
- Economic Development – Improving neighborhoods and service delivery to target areas helps to maintain property values and may encourage relocation to Leon Valley.

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# Leon Valley Neighborhood Renewal Program (NRP) – Old Mill Subdivision

City Council Meeting

April 5, 2016

**CITY OF LEON VALLEY**
**CITY COUNCIL REGULAR MEETING**
Leon Valley City Council Chambers
6400 El Verde Road, Leon Valley, Texas 78238
Tuesday, March 15, 2016

**MINUTES**

The City Council of the City of Leon Valley, Texas met on the 15th day of March, 2016 at the Leon Valley City Hall located at 6400 El Verde Road, Leon Valley, Texas for the purpose of the following business:

**REGULAR CITY COUNCIL MEETING**

Mayor Riley called the Regular City Council Meeting to order at 7:03 p.m. and led the Pledge of Allegiance.

Mayor Riley asked that the minutes reflect that the following members of City Council were present: Council Members David Edwards, Monica Alcocer, Benny Martinez and David Jordan. Council Member Carmen Sanchez was excused.

Also in attendance were:

City Manager Kelly Kuenstler, ACM/HR Director Crystal Caldera, City Attorney Roxann Pais Cotroneo, Public Works Director Melinda Moritz, Community Development Director Elizabeth Carol, Fire Chief Luis Valdez, Police Chief Randall Wallace, and Assistant Police Chief Ray Lacy.

**Citizens to Be Heard and Time for Objections to the Consent Agenda.**

Mayor Riley asked if any of the Council Members wished to pull any item from the Consent Agenda for discussion. No items were pulled.

- Laura Anderson, who is the secretary and attorney for the Arredondo Group, spoke about the City of Leon Valley Code of Ordinances as it relates to the solid waste removal.
    - City Attorney Roxann Pais Cotroneo informed Ms. Anderson that she felt it would be best if they meet attorney to attorney to discuss this issue and see if they could resolve it. Ms. Anderson agreed to do that.

## CONSENT AGENDA

**Approval of City Council Minutes. (S. Passailaigue)**
**a) March 01, 2016 Regular City Council Meeting**

**Resolution Authorizing the Filing of an Application with the Bexar County Community Development Block Grant Program for Fiscal Year 2016. M&C #2016-03-15-01 (M. Moritz).**

**Approval of a budget adjustment and related ordinance in the amount of $10,800 for the Police Forfeiture Fund for weapon repairs and ammunition for additional training. M&C #2016-03-15-02 (R. Wallace).**

**Approval of an amendment to the Lion's Roar Newsletter Contribution and Content Policy Item 10, changing the deadline for the submission of articles from the 4th Monday of each odd month to the 1st Monday of each odd month in an effort to get the Lion's Roar out in a timely manner. M&C #2016-03-15-03 (C. Caldera).**

A motion was made by Council Member Monica Alcocer and seconded by Council Member Benny Martinez, to approve Consent Agenda Item #6 (March 01, 2016 Regular City Council Meeting), Item #7 (Resolution No. 16-009R), Item #8 (Ordinance No. 16-012) and Item #9 (Lion's Roar Policy) as presented. Upon a vote of four (4) for and zero (0) against, with Council Member Sanchez being excused, Mayor Riley announced the motion carried.

**Presentation of an Anti-Idling Ordinance by Brenda Williams, Alamo Area Council of Governments (AACOG).**

Director of Natural Resources, Brenda Williams gave a presentation on the proposed Anti-Idling ordinance. Ms. Williams stated that as speed decreases, all emissions increase; idling produces the maximum levels of emissions for all type vehicles; and in some cases you get four times the emissions produced at normal traveling speeds.

Mayor Riley then moved Item 5 up in front of Item 4.

**Beautification Committee Presentation by Committee Secretary Donna Charles.**

Beautification Committee Secretary Donna Charles gave a presentation on the purpose and projects of the Leon Valley Beautification Committee.

**Mayor Riley's presentation and reading of a Resolution to the City of Leon Valley as presented by State Senator Jose Menendez.**

Mayor Riley read aloud a resolution to the City of Leon Valley as presented by State Senator Jose Menendez in recognition of the Earthwise Living Event. Mayor Riley presented the resolution to Earthwise Living Member Belinda Ealy. Mayor Riley gave

special thanks to Public Works Director Melinda Moritz for all the hard work and dedication she put towards this event.

## REGULAR AGENDA

**Consider, discuss and possibly make a recommendation and/or take action on the purchase and type of an informational sign at City Hall. M&C #2016-03-15-04 (M. Moritz).**

Public Works Director Melinda Moritz presented the item to discuss, and possibly make a recommendation on the type and purchase of an informational sign to be located at City Hall. City Hall had a monochrome electronic LED sign that was 5 foot wide, 9 foot long, and approximately 15 ft. tall. The sign was LED, with monochrome (2 color), with two lines of text and some graphics. This sign was used to announce Council meetings and other events. The sign was removed as a part of the 2012 Municipal Facilities Bond Program and the contractor installed a rock based non-electric sign, as a part of their contract. The purchase of a new electronic sign was not budgeted. However, the fiscal impact of new LED monochrome signs cost approximately $40,000. New LED full color signs cost approximately $50,000. A new Marquee sign would cost approximately $15,000, plus employee labor (45 min. +/- per week). Funds can be taken from General Fund reserve. This presentation was followed by a discussion.

- Lynn Joseph, 6423 Trotter, spoke about the utility box out front and how it obstructs the view.
- Olen Yarnell, 7230 Sulky Ln., asked what "we are trying to accomplish" and where the sign would be placed.

City Manager Kelly Kuenstler stated that staff would bring back information regarding location options, the Helotes article regarding their sign, funding options and information on the TxDOT easement. Council Member Alcocer said "it doesn't have to be rushed but thorough".

**Consider, discuss and possible action on a sign variance(s) request by Sydney Onuagu and Blessing Maduka, owner of The Precinct Academy and Daycare, to Chapter 3.04.013, "Temporary Signs," to display two (2) temporary banners for six (6) months generally located at 7500 Eckhert Road, Suite 140. M&C #2016-03-15-05 (E. Carol).**

Community Development Director Elizabeth Carol presented this item to consider a sign variance(s) which would allow the owner of The Precinct Academy and Daycare to utilize two (2) temporary vinyl banners for six (6) consecutive months to advertise their business. One banner will consist of the business name and the second banner will state Now Enrolling. The previous owner had an unpermitted fence, which included a sign that was painted on the fence. They applied for a fence permit and a temporary banner sign. The business was sold and the new owners are changing the name from New Friends Learning Center to The Precinct Academy and Daycare. Code Compliance has advised them of their sign violation. The applicant has requested a variance, and

noted that they are investing in Leon Valley and have secured a proposal for a new sign from Accurate Marketing in Leon Valley at $8,200. The applicant then noted that they need six months to raise the capital for this expense. Community Development Director Carol said staff recommends that the applicant be granted a three month temporary sign variance to allow the current temporary sign to remain while the applicant applies for their permanent sign. Staff is recommending denial of the second temporary sign that states “now enrolling”. Variances are at the discretion of the City Council, and Staff has noted several alternatives: grant a temporary variance, not to exceed 6 months; or grant a temporary variance, for a different length of time; or deny the sign variance. This presentation was followed by a discussion.

Council Member Monica Alcocer requested a postponement of two weeks until the permit/licensing process has been confirmed.

A motion was made by Council Member Monica Alcocer and seconded by Council Member David Edwards, to postpone Item 11 for Mr. Onuagu and Ms. Maduka for two (2) to four (4) weeks until they can get the information provided to allow them to get the illegal temporary sign to remain temporarily until this can be handled. Upon a vote of four (4) for and zero (0) against, with Council Member Sanchez being excused, Mayor Riley announced the motion carried.

City Attorney Cotroneo advised that she would like to make sure that the current temporary sign is secure. Mayor Riley replied that it is a banner and is secured.

City of Leon Valley Economic Development Corporation (CoLVEDC) President Patti Manea offered the assistance of the CoLVEDC.

**Consider, discuss and possible action to authorize the City Manager to negotiate a contract and enter into an agreement with Dr. Craig Manifold, M.D. and the University of Texas Health Science Center for medical direction for the fire department Emergency Medical Services (EMS) program. M&C #2016-03-15-06 (L. Valdez).**

Fire Chief Luis Valdez presented this item saying the Emergency Medical Services (EMS) Division of the Fire Department is required by state law to retain the services of a physician to provide medical direction and oversight of the EMS program. The current Medical Director is Dr. Donald J. Gordon, M.D., Ph. D. The current three-year contract has expired, and the department is operating within the one year extension clause of the contract. Any proposed new agreement would be for a period of three years. The physician provides a wide range of services, including “on-line” medical direction by telephone on a 24/7 basis, support in continuing education, quality assurance and performance improvement audits of patient care records, written standing orders (protocol) for use in the field until medical control contact is necessary, pharmacology oversight and control. Chief Valdez added that a Request for Qualifications (RFQ) was issued for the service in January, 2016. The deadline to submit proposals was February 2, 2016. Two proposals were received, one from Dr. Gabriel Rodriguez, and the other from Dr. Craig Manifold and the University of Texas Health Science Center (UTHSC-

SA). Based on the conditions of the RFQ, Dr. Manifold and UTHSC-SA was the only qualified submission received. Dr. Gordon has been Leon Valley EMS Medical Director since the inception of the EMS program in 1989.

Chief Valdez concluded the presentation saying that staff recommends that City Council authorize the City Manager to negotiate a contract and enter into an agreement with Dr. Craig Manifold, M.D. and the University of Texas Health Science Center for medical direction for the fire department EMS program, to include a fee for service not to exceed $27,000 annually. This presentation was followed by a discussion.

A motion was made by Council Member Monica Alcocer and seconded by Council Member David Jordan, to authorize the City Manager and Fire Chief negotiate an agreement up to $27,000 to obtain the goals Chief Valdez wants to achieve.

Council Member Benny Martinez motioned to amend the motion to $29,000. Council Member Alcocer said she would like to keep the amount at $27,000. Council Member Martinez withdrew the motion.

Upon a vote of four (4) for and zero (0) against, with Council Member Sanchez being excused, Mayor Riley announced the motion carried.

**Consider, discuss and possible action for the approval of the LVFD Review Board's recommendation to reject the submissions in response to the Request for Proposal (RFP) for EMS Billing and Collection Services; and authorize the publication of an RFP for EMS Billing AND an RFP for EMS Debt Collection Services. M&C #2016-03-15-07 (L. Valdez).**

Fire Chief Luis Valdez presented this item saying the Emergency Medical Services (EMS) Division of the Fire Department uses a Contractor, Intermedix Billing, to perform billing services. The contract with Intermedix has expired but the term has been extended by mutual agreement. Linebarger, Goggan, Blair & Sampson LLP, Attorneys at Law, provide EMS debt collection services. The EMS Division of the Fire Department has experienced an average 30% recovery of EMS fees, and a 3% recovery of debt collection, based on a 5-year analysis. A Requests for Proposal (RFP) for EMS Billing and Debt Collection Services was advertised beginning January 10, 2016, and three vendors responded by the February 2, 2016 deadline. The three submissions were reviewed by the LVFD Review Board and were all rejected based on evaluation scoring criteria identified in the RFP. The LVFD Review Board is requesting authorization to publish an RFP for EMS Billing AND an RFP for EMS Debt Collection Services. Leon Valley has maintained a contract with Intermedix for billing services since 2010, and Linebarger, Goggan, Blair & Sampson has also managed the EMS debt collection services since 2010. The estimated cost to publish both RFP's is $1,000, and will be accounted for from the fire departments FY2016 operating budget. The fiscal impact as a result of any changes to EMS billing or debt collection services are dependent on the amounts and types of emergency calls, and is unknown.

Chief Valdez concluded the presentation saying staff recommend City Council authorize

and approve the EMS Billing and Collection Review Committees recommendation to reject the submissions in response to the Request for Proposal for EMS billing and collection services, and publish separately a Request for Proposal for EMS billing and another for EMS debt collection services. This presentation was followed by a discussion.

A motion was made by Council Member Monica Alcocer and seconded by Council Member David Jordan, to approve of the Fire Chiefs' request to reject the present proposal and to put out new RFPs, one (1) for billing and one (1) for collections. Upon a vote of four (4) for and zero (0) against, with Council Member Sanchez being excused, Mayor Riley announced the motion carried.

**City Manager's Report:**

a) **Approved Minutes from Boards, Commissions and Committees**
b) **Future Agenda Items:**
   - **Sign Ordinance LED**
   - **Hand Gun Policy**
   - **Total funding cost of New City Hall Complex and Fire Department**
c) **Upcoming Important Events:**
   - **Re-dedication of the Leon Valley City Hall and Police Station, April 2, 2016 at 9:00 a.m.**
   - **Volunteer Appreciation Dinner, Wednesday, April 6, 2016 at 6:00 p.m.**
   - **Annual Pet Parade, Saturday, May 14, 2016, 10:00 a.m. – noon.**

City Manager Kuenstler reminded everyone of the upcoming agenda items as well as upcoming City events.

**Citizens to be heard.**

- Olen Yarnell, 7230 Sulky Ln., asked about the Wi-Fi in the new building.
- Wesley Jackson, Assistant Finance Director introduced himself.

**Announcements by the Mayor and Council Members**.

Council Member David Edwards thanked everyone for attending.

Council Member Monica Alcocer also thanked everyone for attending.

Council Member Benny Martinez announced that he was able to log on to the City's Wi-Fi.; and that on March 23, 2016 the Leon Valley Area Chamber of Commerce will hold their meeting at Hacienda Vallarta which will include a silent auction. Everyone was invited.

Council Member David Jordan thanked Council Member Alcocer, Ms. Belinda Ealy, Ms. Irene Baldrige and Ms. Patti Manea for attending the awards ceremony.

Mayor Riley announced that the MPO's Technical Advisory Committee, which City Manager Kuenstler serves on, announced that any Tier II city (which Leon Valley falls into) that submits a project will be getting funded. Mayor Riley also praised CoLVEDC President Patti Manea for the greatly improved communication between the CoLVEDC and the City Council.

**Adjournment.**

Mayor Riley announced the meeting adjourned at 9:35 p.m.

**These minutes approved by the Leon Valley City Council on the 5th of April, 2016.**

APPROVED

**CHRIS RILEY**
MAYOR

ATTEST:

**SAUNDRA PASSAILAIGUE, TRMC**
CITY SECRETARY

**MAYOR AND COUNCIL COMMUNICATION**

**DATE:** April 5, 2016 **M&C #2016-04-05-03**

**TO:** Mayor and City Council

**FROM:** Kelly Kuenstler, Leon Valley City Manager

**SUBJECT:** Consideration of an Ordinance of the City of Leon Valley, Texas, to implement and enforce the Texas State Rule on locally enforced motor vehicle idling limitations and to approve entering into a Memorandum of Agreement with the Texas Commission on Environmental Quality to enforce this rule locally.

## PURPOSE

**1.** For the City of Leon Valley to endorse the TCEQ Idling Limitations Rule as published in the Texas Administration Code, Title 30, Part 1, Chapter 114, Subchapter J, Operational Controls for Motor Vehicles, Division 2, Locally Enforced Motor Vehicle Idling Limitation.

**2.** For the City of Leon Valley to approve the adoption and implementation of the TCEQ Idling Limitation Rule by reference.

**3.** For the City of Leon Valley to authorize the City Manager to execute a Memorandum Of Agreement, attached hereto, with the TCEQ for the purposes of local enforcement of the Idling Limitation Rule in the City of Leon Valley.

**4.** This ordinance shall be in effect immediately upon adoption.

## FISCAL IMPACT

There is no immediate fiscal impact.

## RECOMMENDATION

It is recommended the City Council consider the adoption of the ordinance and the Memorandum of Agreement with the Texas Commission on Environmental Quality so that the rule can be enforced locally.

## S.E.E. IMPACT STATEMENT

Social Equity –

Economic Development – Local enforcement of the idling limitation rule could impact decisions made by developers and/or businesses in choosing their locations.

Environmental Stewardship – This ordinance should assist with emission reductions to control air pollution from motor vehicles and will allow the City of Leon Valley to participate further in the Texas Clean Air Act. It will also assist in the opportunity by all residents to enjoy clean, quality air.

APPROVED: _____ DISAPPROVED: _____

APPROVED WITH THE FOLLOWING AMENDMENTS:

_____

_____

_____

ATTEST:

_____
**SAUNDRA PASSAILAIGUE, TRMC**
City Secretary

**ORDINANCE No. 16-011**

**AN ORDINANCE OF THE CITY OF LEON VALLEY, TEXAS TO IMPLEMENT AND ENFORCE THE TEXAS STATE RULE ON LOCALLY ENFORCED MOTOR VEHICLE IDLING LIMITATIONS AND TO APPROVE ENTERING INTO A MEMORANDUM OF AGREEMENT WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY TO ENFORCE THIS RULE LOCALLY.**

**WHEREAS,** air quality impacts the public and economic health of the entire region; and

**WHEREAS,** the U.S. Environmental Protection Agency ("EPA") and the Texas Commission on Environmental Quality ("TCEQ") jointly have considered emission reductions to control air pollution from motor vehicles, and the Texas Legislature has created the Texas Clean Air Act ("Act"), which addresses that purpose; and

**WHEREAS,** Section 382.113 of the Act provides authority for municipalities to enact and enforce local laws and ordinances for the control and abatement of air pollution; and

**WHEREAS,** the City of Leon Valley desires to actively participate in improving the air quality of the region; and

**WHEREAS,** the City of Leon Valley finds that the adoption of this ordinance serves a public purpose, and protects the health, safety, and welfare of the citizens of the City of Leon Valley, by limiting the pollution created by motor vehicles unnecessarily idling within the City of Leon Valley's jurisdiction;

**NOW, THEREFORE, BE IT HEREBY ORDAINED THAT:**

**Section 1.** The City of Leon Valley endorses the TCEQ Idling Limitations Rule as published in the Texas Administration Code, Title 30, Part 1, Chapter 114, Subchapter J, Operational Controls for Motor Vehicles, Division 2, Locally Enforced Motor Vehicle Idling Limitation.

**Section 2.** The City of Leon Valley approves the adoption and implementation of the TCEQ Idling Limitation Rule by reference.

**Section 3.** The City of Leon Valley authorizes the City Manager to execute a Memorandum Of Agreement, attached hereto, with the TCEQ for the purposes of local enforcement of the Idling Limitation Rule in the City of Leon Valley.

**Section 4.** This ordinance shall be in effect immediately upon adoption.

**PASSED, ADOPTED AND APPROVED** 5th day of April, 2016, at a regular meeting of the Elective City Council of Leon Valley, Texas at which a quorum was present and which was held in accordance with TEXAS GOVERNMENT CODE, TITLE 5, SUBTITLE A, CHAPTER 551.

APPROVED

_____

**CHRIS RILEY**
MAYOR

Attest: _____
**SAUNDRA PASSAILAIGUE, TRMC**
City Secretary

Approved as to Form: _____
**ROXANN PAIS COTRONEO**
City Attorney

MODEL ORDINANCE LANGUAGE

AN ORDINANCE AMENDING CHAPTER 10 MOTOR VEHICLES OF THE CITY CODE.
BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF SAN ANTONIO:

PART 1. Section 10 (Idling Prohibited) of the City Code is amended to read as follows:

(A) No person shall cause, suffer, allow, or permit the primary propulsion engine of a motor vehicle to idle for more than five consecutive minutes when the motor vehicle is not in motion.
(B) No driver using the vehicle's sleeper berth may idle the vehicle;
(i) in a school zone;
(ii) within 1,000 feet of a public school during its hours of operation
(iii) within 1,000 feet of a hospital, or
(iv) in a residential area, as defined in Section 244.002 of the Texas Local Government Code.
The restriction in Section 6-1-51 (Idling Prohibited) does not apply to:
The provisions of §114.512 of this title (relating to Control Requirements for Motor Vehicle Idling) do not apply to:
(1) a motor vehicle that has a gross vehicle weight rating of 14,000 pounds or less;
(2) a motor vehicle that has a gross vehicle weight rating greater than 14,000 pounds and that is equipped with a 2008 or subsequent model year heavy-duty diesel engine or liquefied or compressed natural gas engine that has been certified by the United States Environmental Protection Agency or another state environmental agency to emit no more than 30 grams of nitrogen oxides emissions per hour when idling;
(3) the primary propulsion engine of a motor vehicle being used to provide air conditioning or heating necessary or employee health or safety in an armored vehicle while the employee remains inside the vehicle to guard the contents or while the vehicle is being loaded or unloaded;
(4) a motor vehicle forced to remain motionless because of traffic conditions over which the operator has no control;
(5) a motor vehicle being used by the United States military, national guard, or reserve forces, or as an emergency or law enforcement motor vehicle;
(6) the primary propulsion engine of a motor vehicle providing a power source necessary for mechanical operation, other than propulsion, and/or passenger compartment heating, or air conditioning;
(7) the primary propulsion engine of a motor vehicle being operated for maintenance or diagnostic purposes;
(8) the primary propulsion engine of a motor vehicle being operated solely to defrost a windshield;
(9) the primary propulsion engine of a motor vehicle that is being used to supply heat or air conditioning necessary for passenger comfort and safety in vehicles intended for commercial or public passenger transportation, or passenger transit operations, in which case idling up to a maximum of 30 minutes is allowed;

(10) the primary propulsion engine of a motor vehicle being used to provide air conditioning or heating necessary for employee health or safety while the employee is using the vehicle to perform an essential job function related to roadway construction or maintenance;
(11) the primary propulsion engine of a motor vehicle being used as airport ground support equipment;
(12) the owner of a motor vehicle rented or leased to a person that operates the vehicle and is not employed by the owner; or
(13) a motor vehicle when idling is necessary to power a heater or air conditioner while a driver is using the vehicle's sleeper berth for a government-mandated rest period and is not within two miles of a facility offering external heating and air conditioning connections at a time when those connections are available.

The City of San Antonio authorizes the City Manager or her designee to execute a Memorandum of Agreement, attached hereto, with the TCEQ for the purposes of local enforcement of the Idling Limitation Rule in the City of San Antonio.

This ordinance shall be in effect six months after adoption of this Ordinance.

# MEMORANDUM OF AGREEMENT FOR VEHICLE IDLING LIMITATIONS

## I. PARTIES

This Memorandum of Agreement (MOA) is entered into between the Texas Commission on Environmental Quality (TCEQ) and the local government signing this agreement (Local Government), collectively the "Parties."

1. The Parties represent that they have the authority to enter into this MOA, including the authority granted in the Texas Government Code Chapter 791 Interlocal Cooperation Contracts.
2. The TCEQ has authority under Section 5.229 of the Texas Water Code and Section 382.033 of the Texas Health and Safety Code to enter into this MOA.
3. The Local Government has authority under Section 382.115 of the Texas Health and Safety Code to enter into this MOA.

## II. INTENT AND PURPOSE

The intent of this MOA is to memorialize the agreement between the Parties to implement the following rules aimed at the control of air pollution from motor vehicles: 30 Texas Administrative Code (TAC) Chapter 114, Control of Air Pollution from Motor Vehicles, Subchapter J, Operation Controls for Motor Vehicles, Division 2, Locally Enforced Motor Vehicle Idling Limitations, Sections 114.510 – 114.512 and 114.517.

The parties enter into this MOA for the purpose of delegating rule enforcement from the TCEQ to the Local Government and potentially incorporating the emission reductions resulting from the implementation and enforcement of the above-referenced rules into the State Implementation Plan (SIP).

## III. DEFINITIONS

As used in this MOA the following terms have the meanings given below:

1. EPA shall mean the United States Environmental Protection Agency.
2. TCEQ shall mean the Texas Commission on Environmental Quality.
3. Local Government has the meaning assigned by 30 TAC Section 114.510.
4. SIP shall refer to the Texas State Implementation Plan.

## IV. BACKGROUND

On November 17, 2004, the TCEQ adopted rules concerning locally enforced motor vehicle idling limitations, which are applicable only within the jurisdiction of a Local Government that has signed an MOA with the TCEQ delegating enforcement of the rules. The EPA approved the rules in the April 11, 2005, *Federal Register* (70 FR 18308). The rules became effective December 9, 2004.

## V. Obligations of Parties

(A) The Local Government agrees as follows:

1. In accordance with the terms of this MOA the Local Government agrees to implement the following TCEQ Rule:
    a. 30 TAC Chapter 114, Control of Air Pollution from Motor Vehicles, Subchapter J, Operation Controls for Motor Vehicles, Division 2, Locally Enforced Motor Vehicle Idling Limitations, Sections 114.510 - 114.512 and 114.517. Changes to these TCEQ Rules shall be incorporated into this Agreement without requiring amendment of this Agreement.
2. The Local Government agrees to submit the following information to the TCEQ for the rules listed above not later than forty-five (45) calendar days after the effective date of this MOA:
    a. detailed description of the plan for implementation of these rules;
    b. copies of local ordinances or resolutions adopted by each Local Government to implement these rules; and
    c. copies of agreements entered between any Local Government and other units of Local Government for the purpose of the implementation of these rules.
3. The Local Government agrees to submit copies of any requisite resolutions under Section 7.352 of the Texas Water Code to the TCEQ forty-five (45) calendar days after the effective date of this MOA or within fourteen (14) calendar days after passage by the local governing body, whichever is later.

(B) The TCEQ agrees to consider this MOA for submission to the EPA for inclusion in the Texas SIP.

## VI. Term and Termination

This MOA will become effective upon signature by both Parties and shall expire on December 31, 2018 unless renewed in writing by mutual agreement of the Parties. A Party may withdraw from this MOA at any time upon thirty (30) calendar days written notice to the other Party. This MOA may be terminated at any time by mutual written consent of the Parties.

## VII. Miscellaneous

This MOA represents the entire agreement between the TCEQ and the Local Government and supersedes all other agreements, understandings or commitments, written or oral, relative to the intent of this MOA. This MOA may not be amended or modified except pursuant to a mutual written agreement executed by each of the Parties.

This MOA shall be governed by and interpreted in accordance with the laws of the State of Texas.

In Witness Thereof, Texas Commission on Environmental Quality and the Local Government, by their authorized officers, have made and executed this MOA in multiple copies, each of which is deemed an original.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

By: _____ _____
Name: David Brymer Date
Title: Director, Air Quality Division

LOCAL AREA

By: _____ _____
Name: Kelly Kuenstler Date
Title: City Manager, City of Leon Valley, TX

# Implementation Plan

## Background

Limiting motor vehicle idling is one component of the City of San Antonio's voluntary pollution reduction measures. The locally enforced motor vehicle idling limitation rule (Texas Administrative Code, Title 30, Subsections 114.510- 114.517) has been adopted by the City of San Antonio in an effort to participate in regional programs aimed at reducing harmful emissions and improving air quality. The rule is applicable only within the jurisdiction of local governments that have signed a memorandum of agreement with the Texas Commission on Environmental Quality (TCEQ) which extends the enforcement authority of the TCEQ to that governmental entity. Education will begin January 1, 2016. Enforcement will begin July 1, 2016. Enforcement through warnings and traffic citations, including penalties of up to $500 per offense, is allowable to ensure compliance with this rule and net maximum air quality benefits.

## Implementation

**Public Education & Outreach:**

- Educational brochures, developed by the City of San Antonio will be distributed to area businesses, industry associations, and other targeted sectors identified to be most affected by the rule. These brochures will include information on rule details, anti-idling technologies, potential funding assistance, and other resources.
- Anti-idling signs will be ordered and installed throughout the City of San Antonio to inform citizens and truck drivers of the anti-idling ordinance.
- A link to the City of San Antonio's Idling Reduction Web site will be posted on the City of San Antonio Office of Sustainability Department page as a resource.

**Enforcement:**

- Appropriate personnel will be identified for enforcement activities – Parking Enforcement, SAPD, Park Police and Code Compliance. Activities will include identifying target areas, spotting violators, and issuing citations. Areas suggested for enforcement include locations with significant heavy-duty vehicle traffic, such as existing freight facilities. Apposite personnel may include Health Department Sanitarians and/or other certified peace officers.
- Enforcement procedures used will be consistent with the City of San Antonio's local government ordinance. Recommended penalties sought in civil action will be consistent with Local Government Code Chapter 10 for Motor Vehicles. Each violation is considered a separate offense.
- City of San Antonio enforcement training programs will be updated by Office of Sustainability with information on regulatory requirements and compliance procedures.
- Identified enforcement personnel will establish a relationship with the City of San Antonio Office of Sustainability to share information on area idling. Violations of the rule may be reported: 1) directly to local enforcement division for immediate response; 2) through 3-1-1 Customer Service or 3) to the City of San Antonio Office of

Sustainability website. A courtesy letter will be mailed to the owner of the reported vehicle informing him/her of local idling restrictions in the City of San Antonio and options to help reduce excessive idling.

- Violations and action taken will be tracked on a spreadsheet. This allows both a determination of rule effectiveness and adequate follow-up for noncompliant sources. At the end of each year, a summary of enforcement will be provided to enforcement personnel, City Manager's Office and City Council.

# MAYOR AND COUNCIL COMMUNICATION

**DATE:** April 5, 2016 **M&C #2016-04-05-04**

**TO:** Mayor and Council

**FROM:** Randall Wallace, Chief of Police

**THROUGH:** Kelly Kuenstler, City Manager

**SUBJECT:** Consider an action on an Ordinance establishing the authority and rights, structure and membership, duties and responsibilities, and sunset provision for the Police Department Citizens Advisory Committee

**PURPOSE**

Leon Valley Citizens, during the January 2016 Town Hall Meeting, suggested the development of a Police Department Citizens Advisory Committee. If developed, this committee would serve as an advocate for programs, ideas, and methods to improve the relationship between the police and community and to enhance the quality of life and safety in our community. The Committee will not have independent authority (at least initially), but will work in conjunction with the Police Department. The Committee will provide counsel and input to the Mayor and City Council.

The Committee will be an independent citizens group that meets monthly with the Police Chief. Residents will apply for commission membership and will be appointed by City Council for two (2) year terms. The Committee will be responsible to the Mayor and City Council of Leon Valley and to the general public. The Committee shall have _____ voting members appointed by the Mayor and City Council. The Committee Chair will provide an update to the City Council on a quarterly basis.

The committee shall advise and assist the Police Department in the following ways:

- Create dialog and explore the perceptions of the Police Department, and the community concerning the inter-relationship with each other regarding public safety issues within the community
- Receive information concerning the Police Department programs and operations
- Assist in developing new programs that will increase the public safety activities of the Police Department
- Provide input to the Police Department regarding service needs within the community
- Assist the Police Department in assessing the effectiveness of department operations and programs
- Identify gaps in services and/or communication
- Enhance the community understanding of the capabilities of the Police Department in providing services to the community
- Identify potential Police-Community partnerships to address public safety related issues within the community
- Identify community resources and support for public safety activities; and give input concerning perceived effectiveness

The authority and rights of the Committee will be set forth in the “Police Department Citizens Advisory Charter”.

**FISCAL IMPACT**

N/A

**S.E.E. IMPACT**

**S**ocial – The committee serves as an advocate for programs, ideas, and methods to improve the relationship between the police and community and to enhance the quality of life in our community

**E**conomic – The committee could have an economic impact on the police department”s budget if committee suggestions, programs or poilce methods are implemented and require additional funding.

**E**nvironmental – N/A

**RECOMMENDATION**

Approve the Ordinance as presented.

APPROVED: _____ DISAPPROVED: _____

APPROVED WITH THE FOLLOWING AMENDMENTS:

_____

_____

_____

ATTEST:

_____

**SAUNDRA PASSAILAGUE, TRMC**
City Secretary

**CITY OF LEON VALLEY**
**POLICE DEPARTMENT CITIZENS ADVISORY COMMITTEE CHARTER**

**Committee's Charge**

The committee serves as a liaison between the police department and community. The committee serves as an advocate for programs, ideas, and methods to improve the relationship between the police and community and to enhance the quality of life in our community. The Committee shall not have independent authority, but shall work in conjunction with the Police Department.

**Mission Statement**

The Committee's mission is to work in partnership with the Leon Valley Police Department to assure it maintains the highest standards of integrity. Furthermore, it is to assist in enhancing the quality of life through the delivery of professional, superior, and compassionate police services to the community. Finally, the Committee should apply knowledge, skills, and resources to foster an environment where all people can live safely and without fear.

Our mission is accomplished within the framework of the following set of values:

- Accountability
- Achievement
- Commitment
- Compassion
- Prevention
- Protection

**Objective**

The Committee's objective is to advise and/or assist the Police Department in preserving the peace in a manner consistent with the freedoms secured by the constitution. In doing so, the role of the Police Department is to enforce the law in a fair and impartial manner, recognizing both the statutory and judicial limitations of law enforcement authority and the constitutional rights of all persons.

**Committee Structure and Membership:**

1. The Committee has _____ voting members appointed by the Mayor and City Council. Appointments to the Committee will be for a two year term. Terms may be extended for additional two year terms upon approval by the Mayor and City Council. The Committee will consist of a Chairperson, Vice Chairperson, Secretary, and _____ members.

2. The members of the Committee shall either be permanent residents of the City of Leon Valley, work or maintain a place of business in the City of Leon Valley, or be engaged in the community in a serving capacity.

3. Committee members shall have good reputations for integrity and community service and shall not have been convicted or received a deferred sentence for a felony crime.

4. No appointee to the Committee or any members of the appointee's immediate family shall be currently employed by the City of Leon Valley nor be a former sworn employee of the City of Leon Valley Police Department.

5. No appointee may currently be a party nor be a legal representative in litigation against the City of Leon Valley.

6. Each appointee must be prepared and committed to invest the necessary time in enhancing police community relations in a manner that helps reduce crime and enhances relationships between the police and the community.

7. City Council will appoint a Councilmember who will serve as the Committee's Liaisons with the Mayor and City Council. This position will be a voting/non-voting position.

8. The Chairperson, Vice Chairperson and Secretary will be elected by the Committee members and will take place within 30 days of the initial appointment of the Committee by the Mayor and City Council.

9. All members of the Committee shall be considered to be City of Leon Valley volunteers. The Committee shall function in an advisory capacity only and shall have no authority over City of Leon Valley employees.

10. The Committee members receive no direct or indirect compensation from the City of Leon Valley for their services as members of the Committee.

11. The Committee may not include any employee of the City of Leon Valley, or any vendor or contractor of the City of Leon Valley.

12. A Committee member serves at the pleasure of the Mayor and City Council of Leon Valley. If a Committee member resigns, violates the Ethics Policy contained herein, fails to attend two consecutive Committee meetings without reasonable excuse, or otherwise becomes unable to serve on the Committee, the Chairperson may declare the position on the Committee to be vacant and request that the Mayor and City Council appoint another qualified person to the Committee. Future appointments will follow the process as outlined in this Charter.

**Duties and Responsibilities:**

The committee advises and assists the Police Department to;

- Create dialog and explore the perceptions of the Police Department, and the community concerning the inter-relationship with each other regarding public safety issues within the community
- Receive information concerning the Police Department programs and operations
- Assist in developing new programs that will increase the public safety activities of the Police Department
- Provide input to the Police Department regarding service needs within the community
- Assist the Police Department in assessing the effectiveness of department operations / programs
- Identify gaps in services and/or communication
- Enhance the community understanding of the capabilities of the Police Department in providing services to the community
- Identify potential Police-Community partnerships to address public safety related issues within the community
- Identify community resources and support for public safety activities; and give input concerning perceived effectiveness

The committee is also responsible for disseminating information to the community and to the government officials of Leon Valley.

**Committee Meetings:**

a) The Committee shall meet, at the discretion of the Chairperson, to perform the duties as provided herein.

b) All Committee meetings shall be held within the City of Leon Valley geographic boundaries.

c) All information received by the Committee will be available to the public under the terms of the Texas Open Records Act and will be retained pursuant to the rules of the Texas State Archives and Library Commission and the City of Leon Valley.

d) A quorum of the Committee shall consist of fifty percent (50%) of the currently appointed members plus one (1). A quorum must be present to decide on any action items presented to the Committee.

e) Minutes of the previous meeting and agenda of the upcoming meeting should be sent to the Committee members no later than three business days before the upcoming meeting.

Whenever possible, an explanation of agenda items shall accompany the notification. Members who are absent shall receive all materials distributed at missed meetings.

f) A copy of the agenda must be presented to the City Secretary (3) three business days prior to the 72 hours posting requirements pursuant with Texas Local Government Code Section 551.043.

g) A copy of the minutes of the previous meeting must be given to the City Secretary within (10) days of the approval of the minutes by the Committee.

h) The current Rules of Conduct for the Leon Valley City Council shall govern the parliamentary procedures, disciplinary proceedings, and rules for the conduct of meetings, so long as not inconsistent with these Bylaws. No action of the Committee shall be invalidated, or the legality thereof affected, by the failure or omission to observe or follow the Rules of Conduct.

**City of Leon Valley Support:**

a) The City of Leon Valley shall provide to the Committee necessary technical and administrative assistance as follows:

(1) provision of a meeting room, including any necessary audio/visual equipment;

(2) preparation and copies of any documentary meeting materials, such as agendas and reports; and distribution of those materials to the committee in a timely manner.

(3) retention of Committee meeting records, and providing public access to such records on an Internet website maintained by the City of Leon Valley
.

**Committee Termination:**

The City of Leon Valley Police Department Citizens and Advisory Committee will sunset when a majority of the City Council, by way of voting, believes the Committee's existence shall be terminated.

**ORDINANCE No. 16-012**

**AMENDING CHAPTER 1 "GENERAL PROVISIONS, ARTICLE 1.06 "BOARDS, COMMISSIONS AND COMMITTEES" OF THE LEON VALLEY CITY CODE OF ORDINANCES TO ADD SECTION 1.06.05, "CITIZENS ADVISORY COMMITTEE" AND PROVIDING FOR THE COMMITTEE CREATION AND GRANTING THE AUTHORITY AND RIGHTS AS SET FORTH WITHIN THE COMMITTEE'S CHARTER.**

**NOW THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF LEON VALLEY, TEXAS, THAT:**

1. The Leon Valley City Code, Chapter 1, "General Provisions", Article 1.06 "Boards, Commissions, and Committees" is hereby amended to add and hereafter read as follows;

1.06.05 Police Department Citizen Advisory Committee

**Committee's Charge**

The committee serves as a liaison between the police department and community. The committee serves as an advocate for programs, ideas, and methods to improve the relationship between the police and community and to enhance the quality of life in our community. The Committee shall not have independent authority, but shall work in conjunction with the Police Department.

**Mission Statement**

The Committee's mission is to work in partnership with the Leon Valley Police Department to assure it maintains the highest standards of integrity. Furthermore, it will assist in enhancing the quality of life through the delivery of professional, superior, and compassionate Police services to the community. Finally, it is charged with applying knowledge, skills, and resources to foster an environment where all people can live safely and without fear.

Our mission is accomplished within the framework of the following set of values:

- Accountability
- Achievement
- Commitment
- Compassion
- Prevention
- Protection

**Objective**

Our objective is to advise and/or assist the Police Department to preserve the peace in a manner consistent with the freedoms secured by the constitution. In doing so, the role of the Police Department is to enforce the law in a fair and impartial manner, recognizing both the statutory and judicial limitations of law enforcement authority and the constitutional rights of all persons.

**Committee Structure and Membership:**

1. The Committee has _____ voting members appointed by the Mayor and City Council. Appointments to the Committee will be for a two year term. Terms may be extended for additional two year terms upon approval by the Mayor and City Council. The Committee will consist of a Chairperson, Vice Chairperson, Secretary, and _____ members.

2. The members of the Committee shall either be permanent residents of the City of Leon Valley, work or maintain a place of business in the City of Leon Valley, or be engaged in the community in a serving capacity.

3. Committee members shall have good reputations for integrity and community service and shall not have been convicted or received a deferred sentence for a felony crime.

4. No nominee to the Committee or any members of the nominee's immediate family shall be currently employed by the City of Leon Valley nor be a former sworn employee of the City of Leon Valley Police Department.

5. No nominee may currently be a party nor be a legal representative in litigation against the City of Leon Valley.

6. Each nominee must be prepared and committed to invest the necessary time in enhancing police community relations in a manner that helps reduce crime and enhances relationships between the police and the community.

7. City Council will appoint a Councilmember who will serve as the Committee's Liaisons with the Mayor and City Council. This position will be a voting/non-voting position.

8. The Chairperson, Vice Chairperson and Secretary will be elected by the Committee members and will take place within 30 days of the initial appointment of the Committee by the Mayor and City Council.

9. All members of the Committee shall be considered to be City of Leon Valley volunteers. The Committee shall function in an advisory capacity only and shall have no authority over City of Leon Valley employees.

10. The Committee members receive no direct or indirect compensation from the City of Leon Valley for their services as members of the Committee.

11. The Committee may not include any employee of the City of Leon Valley, or any vendor or contractor of the City of Leon Valley.

12. A Committee member serves at the pleasure of the Mayor and City Council of Leon Valley. If a Committee member resigns, violates the Ethics Policy contained herein, fails to attend two consecutive Committee meetings without reasonable excuse, or otherwise becomes unable to serve on the Committee, the Chairperson may declare the position on the Committee to be vacant and request that the Mayor and City Council appoint another qualified person to the Committee. Future appointments will follow the process as outlined in this Charter.

**Duties and Responsibilities:**

The committee advises and assists the Police Department to;

- Create dialog and explore the perceptions of the Police Department, and the community concerning the inter-relationship with each other regarding public safety issues within the community
- Receive information concerning the Police Department programs and operations
- Assist in developing new programs that will increase the public safety activities of the Police Department
- Provide input to the Police Department regarding service needs within the community
- Assist the Police Department in assessing the effectiveness of department operations / programs
- Identify gaps in services and/or communication
- Enhance the community understanding of the capabilities of the Police Department in providing services to the community
- Identify potential Police-Community partnerships to address public safety related issues within the community
- Identify community resources and support for public safety activities; and give input concerning perceived effectiveness

The committee is also responsible for disseminating information to the community and to the government officials of Leon Valley. The Committee Chair will provide an update to the City Council on a quarterly basis.

**Committee Meetings:**

a) The Committee shall meet, at the discretion of the Chairperson, to perform the duties as provided herein.

b) All Committee meetings shall be held within the City of Leon Valley geographic boundaries.

c) All information received the Committee will be available to the public under the terms of the Texas Open Records Act and will be retained pursuant to the rules of the Texas State Archives and Library Commission and the City of Leon Valley.

d) A quorum of the Committee shall consist of fifty percent (50%) of the currently appointed members plus one (1). A quorum must be present to decide on any action items presented to the Committee.

e) Minutes of the previous meeting and agenda of the upcoming meeting should be sent to the Committee members no later than three business days before the upcoming meeting. Whenever possible, an explanation of agenda items shall accompany the notification. Members who are absent shall receive all materials distributed at missed meetings.

f) A copy of the agenda must be presented to the City Secretary (3) three business days prior to the 72 hours posting requirements pursuant with Texas Local Government Code Section 551.043.

g) A copy of the minutes of the previous meeting must be given to the City Secretary within (10) days of the approval of the minutes by the Committee.

h) The current Rules of Conduct for the Leon Valley City Council shall govern the parliamentary procedures, disciplinary proceedings, and rules for the conduct of meetings, so long as not inconsistent with these Bylaws. No action of the Committee shall be invalidated, or the legality thereof affected, by the failure or omission to observe or follow the Rules of Conduct.

**City of Leon Valley Support:**

a) The City of Leon Valley shall provide to the Committee necessary technical and administrative assistance as follows:
   (1) provision of a meeting room, including any necessary audio/visual equipment;

(2) preparation and copying of any documentary meeting materials, such as agendas and reports; and distribution of those materials to the committee in a timely manner.

(3) retention of Committee meeting records, and providing public access to such records on an Internet website maintained by the City of Leon Valley

**Committee Termination:**

The City of Leon Valley will sunset when a majority of the City Council, by way of voting, believes the Committee's existence shall be terminated.

Section 1.06.05 of the Leon Valley City Code of Ordinances shall grant the authority and rights to the Police Department Citizens Advisory Committee and this document will be known as the "Police Department Citizens Advisory Committee Charter".

This ordinance shall take effect immediately upon its approval, passage, and the meeting of all publication requirements under law.

**PASSED** and **APPROVED** this the 5th day of April, 2016

APPROVED

_____

**CHRIS RILEY**
MAYOR

Attest: _____
**SAUNDRA PASSAILAIGUE, TRMC**
City Secretary

Approved as to Form: _____
**ROXANN PAIS COTRONEO**
City Attorney

# City of Leon Valley

# Police Department Citizen Advisory Committee

## Tuesday, April 5, 2016

# Committee Creation

- The Leon Valley City Council desires to have a liaison between the police department and community

# Committee Duties

- The Committee shall serve as an advocate for programs, ideas, and methods to improve the relationship between the police and community and to enhance the quality of life in our community.
  - Reports to Mayor, City Council and Citizens of Leon Valley with Chairman to do quarterly reports to City Council

# Committee Members

- The Committee will have _____ members
  - One (1) Chairperson, one (1) Vice Chairperson and one (1) Secretary – elected by members within 30 days of Committee creation
  - _____ additional members

# City Council Liaison

- City Council will appoint a Councilmember who will serve as the Committee's Liaison with the Mayor and City Council
  - Will this position will be a voting/non-voting position?

# Governance of Committee

- Committee will have a Charter which establishes the following;
  - Charge, Mission Statement, Objectives, Structure and Membership, Duties and Responsibilities, City support and Termination of Committee

# Action Items

- Set number of committee members
- Appoint committee members
- Name Council Liaison

# Next Step

- First task
  - Assisting with the creation of a Citizens Police Academy

# Recommendation

- Approve the policy as presented

# MAYOR AND COUNCIL COMMUNICATION

**DATE:** April 5, 2016 **M&C #2016-04-05-05**

**TO:** Mayor and City Council

**THROUGH:** Kelly Kuenstler, City Manager

**FROM:** Melinda Moritz, Public Works Director

**SUBJECT:** Consider Approval of an Ordinance Amending Leon Valley City Code Appendix A, Fee Schedule, Article A11.000 Water Fees.

## PURPOSE

The purpose of this M&C is to consider approval of an amendment to Leon Valley City Code Appendix A, Fee Schedule, in the water fee sections, to move the date of the first water rate increase from October of 2017 to October of 2016, to correspond with the new debt payment for water capital improvements.

## BACKGROUND

In July of 2015, Staff identified necessary Capital Improvements for the water utility that include new water wells and associated improvements, which was presented to the City Council. At the same time, NH Consulting was hired to conduct a cost of service and rate design study for the water utility and included the cost of these improvements in their model, with the assumption that new debt would be issued in 2016, with the first payment due in 2017. The final study and proposed rate changes were approved by City Council in December of 2015.

The sewer rates were increased due to a 5.3% increase from the San Antonio Water System and are pass-through fees. The new sewer rates went into effect with the billing period of March 2016. A flyer was sent out to all Leon Valley customers at the end of January, as required, to alert them to the new water and sewer rates and their effective dates (see attached flyer).

The new water rates are designed to cover the costs for improvements to the Leon Valley water system and they increase over a three year period of time. While the new water rate section goes into effect in October 2016, the first rate increase won't be effective until October of 2017, which would require the City to make the first payment on the Certificates of Obligation from the Enterprise Reserve Fund, as the additional rate funds wouldn't be available that first year. The proposed change corrects this

situation and makes the funds available. A revised flyer will be sent to the customers in July to inform them of the revised rate change date.

**FISCAL IMPACT**

The amendment to the ordinance assures the first water rate increase becomes effective the first day of the water billing cycle for October 2016. The Certificates of Obligation should be issued in May of this year, with the first payment due in 2017, which would be approximately $114,000 per year for 30 years.

**Recommendation**

Approve the attached Ordinance amending Appendix A, Fee Schedule, Article A11.000 Water and Sewer Fees, to move the date of the first water rate increase from October of 2017 to October of 2016, to correspond with the debt payment for water capital improvements.

**S.E.E Statement**

*Social Equity* – A superior water system adds to general quality of life for all citizens.

*Environmental Stewardship* – The City's Water Conservation and Drought Management Ordinance encourages city-wide management of water rights and enables pumping limitation goals for the Edwards Aquifer.

*Economic Development* – A superior rated water system and adequate water resources encourages new businesses and business retention for the City.

APPROVED: _____DISAPPROVED: _____

APPROVED WITH THE FOLLOWING AMENDMENTS:

_____

_____

_____

ATTEST:

_____
**SAUNDRA PASSAILAIGUE, TRMC**
City Secretary

Att: Rate change flyer

Attachment: Rate Change Flyer

## PUBLIC NOTICE
## CITY OF LEON VALLEY WATER AND SEWER SYSTEM
## DECLARATION OF INTENT TO CHANGE WASTEWATER RATES

At the December 15, 2015 City Council meeting, the Council adopted an Ordinance that increases water and wastewater charges. These new charges will go into effect with the bills sent out March 15, 2016 and October 15, 2016. Those residents of Leon Valley that are provided water service from the San Antonio Water System (SAWS) will see the wastewater component of their bill from SAWS be increased similarly. For more information on these rate changes, call Utility Billing at 684-1391 x224.

### *Effective March 2016*

Sewer Charges:

| | | |
|---|---|---|
| Residential Service | 0-3,000 gallons | $15.08 minimum |
| Residential Service | Over 3,000 gallons | $5.83 per 1,000 gallons |
| Non-Residential Service | 0-1,500 gallons | $15.08 minimum |
| Non-Residential Service | Over 1,500 gallons | $5.83 per 1,000 gallons |

Note: Sewer bills for residential customers (one and two family residences) are computed on the basis of 100% of the winter average. Sewer bills for commercial customers (non-residential) are computed on the basis of 100% of metered water.

- Edwards Aquifer Fee $0.62 per 1,000 gallons
- Water Supply Fee $0.50 per 1,000 gallons
- Texas Commission on Environmental Quality (TCEQ) Public Health Service Fee: $0.20 per City Water Connection
- Connection/Disconnection Fee: $30.00
- Meter plug, removal and re-installment fee: $75.00

### *Effective October 2016*

Water Charges

| Meter Size | Deposit Amount | Residential | Non-Residential |
|---|---|---|---|
| 5/8" | $70.00 | $9.36 | $12.33 |
| 3/4" | $70.00 | $13.39 | $15.08 |
| 1" | $100.00 | $19.06 | $19.06 |
| 1 1/2" | $170.00 | | $30.72 |
| 2" | $500.00 | | $45.28 |
| 3" | $770.00 | | $74.12 |
| 4" | $1010.00 | | $147.26 |
| 6" | $1,520.00 | | $616.73 |
| 10" | $2,420.00 | | $1,165.23 |

Residential: Water Rates per 1,000 gallons

| 0-2,500 | 2,501-5,995 | 5,996-12,717 | 12,718-17,205 | 17,205+ |
|---|---|---|---|---|
| $1.08 | $1.08 | $2.00 | $2.95 | $3.77 |

Nonresidential Water Rates per 1,000 gallons

| 0-748,100 Gallons | 748,100+ Gallons |
|---|---|
| $1.68 | $1.96 |

**ORDINANCE No. 16-013**

**AN ORDINANCE AMENDING THE CITY OF LEON VALLEY CODE OF ORDINANCES APPENDIX A, FEE SCHEDULE, ARTICLE A11.000 WATER AND SEWER FEES SECTION A11.001 (A), PROVIDING AN EFFECTIVE DATE OF THE FIRST DAY OF THE BILLING CYCLE FOR OCTOBER 2016 FOR WATER RATES, AND AN EFFECTIVE DATE OF THE FIRST DAY OF THE WATER BILLING CYCLE FOR MARCH 2016 FOR WASTEWATER RATES WITH PUBLICATION, AS REQUIRED BY LAW, AND PROVIDING A CONFLICTS PROVISION.**

**WHEREAS** the City of Leon Valley provides water and sewer services to its residents; and

**WHEREAS** the water system is in need of several capital improvements in order to continue providing water service to these citizens, and sewer rates paid to the San Antonio Water System have increased, thereby causing the City of Leon Valley to also increase the sewer rates; and

**WHEREAS** increasing the water and sewer rates will assure funding is available to adequately provide the capital improvements and pay for sewer treatment;

**NOW THEREFORE BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF LEON VALLEY, TEXAS:**

1. That Section A11.001 "Generally" be amended as follows:

(a) Monthly water rates and charges, all customers residential or nonresidential. The rates set forth below are hereby established and shall be charged for water provided for monthly billings effective with the October 2016 billing period and thereafter, and after publication as required by law:

(1) Monthly Meter Charge:

| Meter Size | Current | FY 16-17 | FY 17-18 | FY 18-19 |
|---|---|---|---|---|
| Residential 5/8" | $9.36 | $11.20 | $11.48 | $11.76 |
| Commercial 5/8" | $12.30 | $12.30 | $12.30 | $12.30 |
| Residential ¾" | $13.39 | $13.39 | $13.39 | $13.39 |
| Commercial ¾" | $15.08 | $15.08 | $15.08 | $15.08 |
| 1" | $19.06 | $19.06 | $19.06 | $19.06 |
| 1 ½" | $30.72 | $30.72 | $30.72 | $30.72 |
| 2" | $45.28 | $45.28 | $45.28 | $45.28 |
| 3" | $74.42 | $123.25 | $126.29 | $129.41 |
| 4" | $147.26 | $156.86 | $160.73 | $164.71 |
| 8" | $616.73 | $616.73 | $616.73 | $616.73 |

(2) Monthly Volumetric Rate (per thousand gallons):

Commercial

| | Current | FY 16-17 | FY 17-18 | FY 18-19 |
|---|---|---|---|---|
| 0 - 748,100 | $1.68 | $2.35 | $2.42 | $2.50 |
| Above 748,100 | $1.96 | $2.35 | $2.42 | $2.50 |

Residential/Irrigation

| | Current | FY 16-17 | FY 17-18 | FY 18-19 |
|---|---|---|---|---|
| 0 – 2,500 | $1.08 | $3.18 | $3.37 | $3.56 |
| 2,501 – 5,985 | $1.08 | $4.68 | $4.87 | $5.06 |
| 5,986 – 12,717 | $2.00 | $6.18 | $6.37 | $6.56 |
| 12,718 – 17,205 | $2.95 | $7.68 | $7.87 | $8.06 |
| Above 17,205 | $3.77 | $9.18 | $9.37 | $9.56 |

2. All ordinances or parts of ordinances in conflict with this ordinance are hereby repealed to the extent of the conflict. All provisions, sections and sub-sections set forth in Article 13.03 not revised or amended herein shall remain in effect.

3. This ordinance shall become effective upon adoption for the first day of the water billing cycle for October 2016, and with publication as required by law.

**PASSED, ADOPTED AND APPROVED** by the City Council of the City of Leon Valley this the 5th day of April, 2016.

**APPROVED**

_____
**CHRIS RILEY**
MAYOR

Attest: _____
**SAUNDRA PASSAILAIGUE, TRMC**
City Secretary

Approved as to Form: _____
**ROXANN PAIS COTRONEO**
City Attorney

# Consider Ordinance Amending Leon Valley City Code Appendix A, Fee Schedule, Article A11.000 Water Fees

City Council Meeting
April 5, 2016

LEONVALLEY

# Purpose

- To consider approval of an Ordinance amending Leon Valley City Code Appendix A, Fee Schedule – Water Fees Section
- To move the date of the first water rate increase from October of 2017 to October of 2016
- To correspond with first debt payment

LEONVALLEY

# Purpose

- Dec 2015 – City Council approved amendment to water and sewer fees, with new rates
  - Sewer rates took effect March 2016
  - New water rates, increasing over 3 year period, to start in October 2016, but first increase wouldn't start until October 2017
- Water rates need to start increasing October 2016 to pay first payment 2017

LEONVALLEY

# Fiscal Impact

- Revised ordinance assures the first water rate increase becomes effective the first day of the water billing cycle for October 2016
- Certificates of Obligation should be issued in May of this year, with the first payment due in 2017
- Approximately $114,000 per year for 30 years

LEONVALLEY

# Recommendation

- Recommend approval of the Ordinance amending Leon Valley City Code Appendix A, Fee Schedule, Article A11.000 Water Fees
- Makes water rate increase effective the first billing cycle of October 2016
- To correspond with new debt payment

# S.E.E. Statement

- **Social Equity** – A superior water system adds to general quality of life for all citizens.
- **Environmental Stewardship** – The City's Water Conservation and Drought Management Ordinance encourages city-wide management of water rights and enables pumping limitation goals for the Edwards Aquifer.
- **Economic Development** – A superior rated water system and adequate water resources encourages new businesses and business retention for the City.

LEONVALLEY

# Ordinances Amending Appendix A, Fee Schedule, Article A11.000 Water Fees

City Council Meeting
April 5, 2016

LEONVALLEY

## MAYOR AND COUNCIL COMMUNICATION

**DATE:** April 5, 2016 **M&C #2016-04-05-06**

**TO:** Mayor and City Council

**FROM:** Melinda Moritz, Director of Public Works

**THROUGH:** Kelly Kuenstler, City Manager

**SUBJECT:** Request to Accept Bids and Award Contracts for the 2016 Water Well Project; and Authorize the City Manager to Sign Contracts, with change orders up to fifteen percent (15%) of the Bid Amount, as Allowed by State Law.

**PURPOSE**

This agenda item allows the City Council to consider accepting the lowest qualified bidders and award two contracts for the FY 2016 Water Well Project; and to authorize the City Manager to sign the contracts, with change orders up to an additional fifteen percent (15%) of the bid amount, as authorized by state law. The contracts will be reviewed by the City Attorney prior to any signatures being affixed.

The 2016 Water Well project consists of two parts, with the first being the water well drilling portion and the second being the plant portion, which consists of the San Antonio Water System (SAWS) Interconnection, piping, electrical, and the Variable Frequency Drive panels (VFD's). The advertisement for the well drilling portion of the project was very carefully prepared to assure that bidders had successfully drilled large diameter aquifer wells within the past five years. The plant portion of the bid was designed so as to include only SAWS qualified utility contractors.

Bids were received by the deadline date of 2 p.m., March 22, 2015, for both projects. The well drilling bidders and their project costs are:

| Vendor | Bid Amount |
|---|---|
| Alsay Incorporated | $976,400 |
| Bull's Eye Services | $891,782 |
| Davenport Drilling | $804,069 |
| Hydro Resources | $696,800 |
| Layne Christensen Co. | $784,924 |
| McKinley Drilling Co. | $774,164 |
| Weisinger, Inc. | $997,500 |

The bidders and their projected costs for the plant portion of the project are:

| Vendor | Bid Amount |
|---|---|
| J & K Utility Services | $566,147 |
| Black Castle General Contractor | $581,900 |

The lowest qualified bidder for the **well drilling** portion was **Hydro Resources at $696,800**. References and qualifications were reviewed and found to be satisfactory. In addition, both Southwest Engineering and our hydrogeologist have worked with this contractor in drilling several wells in the past and found them to be well qualified.

The lowest qualified bidder for the **plant portion** of the project was **J & K Utility Services at $566,147**. References and qualifications were reviewed and found to be satisfactory.

**FISCAL IMPACT**

The total amount for the project is $1,262,947, which is not currently budgeted. Certificates of Obligation are being sought and will be used for funding. Repayment of the loan will cost approximately $114,000 per year for 30 years, and will be paid for by the increase in water rates.

**SEE LEON VALLEY**

Social Equity - A safe and reliable water supply benefits the health and safety of all citizens.

Economic Development – Maintaining a superior water system provides additional incentive for citizens and businesses to relocate or stay in Leon Valley.

Environmental Stewardship – The City has an active program for educating the public about water conservation.

**RECOMMENDATION**

Accept the lowest qualified bidders and award the contracts for the FY 2016 Water Well Project; and authorize the City Manager to sign the contracts, with change orders up to an additional fifteen percent (15%) of the bid amount, as allowed by state law. Contracts are to be reviewed by the City Attorney prior to signature.

APPROVED: _____ DISAPPROVED: _____

APPROVED WITH THE FOLLOWING AMENDMENTS:

_____

_____

_____

ATTEST:

_____

**SAUNDRA PASSAILAIGUE, TRMC**
City Secretary

**SOUTHWEST ENGINEERS**
Civil | Environmental | Land Development
TBPE NO. F-1909
www.swengineers.com
**307 St. Lawrence Street, Gonzales, TX 78629**
**P: 830.672.7546 F: 830.672.2034**

March 24, 2016

Ms. Melinda Moritz
Public Works Director
City of Leon Valley
6400 El Verde Road
Leon Valley, Texas 78238
m.moritz@leonvalleytexas.gov

RE: 2016-02 - CITY OF LEON VALLEY Municipal Water Well Project
Yard Piping and Electrical for Wells No. 3 and No. 4
SWE Project No. 0617-001-15
Tuesday, March 22, 2016 at 2:00 P.M.

Dear Ms. Moritz:

Bids on the referenced project were received and opened at 2:00 P.M., Tuesday, March 22, 2016. There were a total of two (2) bids received. J & K Utility Services, LLC of Creedmoor, Texas submitted the low base bid of $566,147.00.

We have worked with J & K Utility Services, LLC on numerous projects in the past and we believe that the Contractor can successfully complete this project, and in a timely manner. We, therefore, recommend award of this project to J & K Utility Services, LLC in the amount of $566,147.00.

Respectfully submitted,

Clarence L. Littlefield, P.E.

CLL/mh

ENCL.

cc: David Dimaline – City of Leon Valley d.dimaline@leonvalleytexas.gov

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**2016-02 - City of Leon Valley Municipal Water Well Project**
**Yard Piping and Electrical and San Antonio Water System (SAWS) Interconnection for Wells No. 3 and 4**
SWE Project No. 0617-001-15

Bid Tabulation

Tuesday, March 22, 2016 2:00 P.M.

| Bidder | | Total Base Bid | | Start/Completion |
|---|---|---|---|---|
| J & K Utility Services, LLC | $ | 566,147.00 | | After NTP/180 Days |
| Black Castle General Contractor | $ | 581,900.00 | | May 1, 2016/180 Days |

I, Clarence L. Littlefield, Registered Professional Engineer, do hereby declare that the above Bid Tabulations were taken directly from the Bid Opening on March 22, 2016 at 2:00 P.M.

CLARENCE L. LITTLEFIELD, P.E., TEXAS SERIAL #30994
Registered Professional Engineer of Texas
Southwest Engineers, Inc.
Texas Registered Engineering Firm F-1909


The seal appearing on this document was authorized by Clarence Littlefield, P.E. (Texas Serial #30994) on the date indicated. Alteration of this sealed document without proper notification to the responsible engineer is an offense under the Texas Engineering Practice Act.

**2016-02 - City of Leon Valley Municipal Water Well Project**
**Yard Piping and Electrical and San Antonio Water System (SAWS) Interconnection for Wells No. 3 and No. 4**
SWE Project No. 0617-001-15
BID TABULATION

| | | | | J & K UTILITY SERVICES | | BLACK CASTLE GENERAL CONTRACTOR | |
|---|---|---|---|---|---|---|---|
| | | BASE BID | Unit Price | Total Price | Unit Price | Total Price |
| 1. | 1 L.S. | Grass Hill Well #3 Yard Piping | $ 61,984.00 | $ 61,984.00 | $ 40,300.00 | $ 40,300.00 |
| 2. | 1 L.S. | Grass Hill Well #1 (Remove Well Head) | $ 2,761.00 | $ 2,761.00 | $ 1,700.00 | $ 1,700.00 |
| 3. | 1 L.S. | Grass Hill Plant Electrical | $ 160,035.00 | $ 160,035.00 | $ 210,800.00 | $ 210,800.00 |
| 4. | 1 L.S. | SAWS Interconnection | $ 102,785.00 | $ 102,785.00 | $ 95,100.00 | $ 95,100.00 |
| 5. | 1 L.S. | Huebner Well #4 Well Discharge Piping | $ 54,980.00 | $ 54,980.00 | $ 27,900.00 | $ 27,900.00 |
| 6. | 1 L.S. | Huebner Well Site Ductile Iron Pipe | $ 22,089.00 | $ 22,089.00 | $ 12,800.00 | $ 12,800.00 |
| 7. | 1 L.S. | Huebner Well Site Electrical | $ 161,513.00 | $ 161,513.00 | $ 193,300.00 | $ 193,300.00 |
| | | Total Base Bid (Items 1-7) | | $ 566,147.00 | | $ 581,900.00 |
| | | CONTINGENT BID ITEM | | | | |
| 1C. | L.F. | Trench Safety Protection | $ 500.00 | | $ 1,200.00 | |

I, Clarence L. Littlefield, Registered Professional Engineer, do hereby declare that the above Bid Tabulations were taken directly from the Bid Opening on March 22, 2016 at 2:00 P.M.

CLARENCE L. LITTLEFIELD, P.E., TEXAS SERIAL #101084
REGISTERED PROFESSIONAL ENGINEER OF TEXAS
SOUTHWEST ENGINEERS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-1909


The seal appearing on this document was authorized by Clarence Littlefield, P.E. (Texas Serial #30994) on the date indicated. Alteration of this sealed document without proper notification to the responsible engineer is an offense under the Texas Engineering Practice Act.

**SOUTHWEST ENGINEERS**
Civil | Environmental | Land Development
TBPE NO. F-1909
www.swengineers.com
**307 St. Lawrence Street, Gonzales, TX 78629**
**P: 830.672.7546 F: 830.672.2034**

March 24, 2016

Ms. Melinda Moritz
Public Works Director
City of Leon Valley
6400 El Verde Road
Leon Valley, Texas 78238
m.moritz@leonvalleytexas.gov

RE: 2016-01 – City of Leon Valley Municipal Water Well Project
Water Wells No. 3 and 4
SWE Project No. 0617-001-15
Tuesday, March 22, 2016 at 2:00 P.M.

Dear Ms. Moritz:

Bids on the referenced project were received and opened at 2:00 P.M., Tuesday, March 22, 2016. There were a total of seven (7) bids received. Hydro Resources - Mid Continent, Inc. of Dripping Springs, Texas submitted the low base bid of $696,800.00.

Hydro Resources – Mid Continent, Inc., formerly Whisenant & Lyle Water Services, Inc. has performed work for SWE in the past and present. They have completed numerous public supply wells both for private and public entities.

We believe that the Contractor can successfully complete this project, and in a timey manner. We, therefore, recommend award of this project to Hydro Resources – Mid Continent, Inc. in the amount of $696,800.00.

Respectfully submitted,

Clarence L. Littlefield, P.E.

CLL/mh

ENCL.

cc: David Dimaline – City of Leon Valley d.dimaline@leonvalleytexas.gov

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**2016-01 - City of Leon Valley Municipal Water Well Project**
**Water Wells No. 3 and 4**
SWE Project No. 0617-001-15

Bid Tabulation

Tuesday, March 22, 2016 2:00 P.M.

| Bidder | Total Base Bid | Start/Completion |
|---|---|---|
| Hydro Resources,Inc. | $ 696,800.00 | 5/21/16/79 Days |
| McKinley Drilling Company | $ 774,146.00 | 4-4-16/90 Days |
| Layne Christensen Company | $ 784,924.00 | 5-1-16/180 Days |
| Davenport Drilling | $ 804,069.00 | 7 Days After NTP /50 Days |
| Bull's Eye Services, LLC | $ 891,782.00 | 4-1-16/90 Days |
| Alsay Incorporated | $ 976,400.00 | 5-1-16/150 Days |
| Weisinger Incorporated | $ 997,500.00 | 3-23-16/180 Days |

I, Clarence L. Littlefield, Registered Professional Engineer, do hereby declare that the above Bid Tabulations were taken directly from the Bid Opening on March 22, 2016 at 2:00 P.M.

CLARENCE L. LITTLEFIELD, P.E., TEXAS SERIAL #30994
Registered Professional Engineer of Texas
Southwest Engineers, Inc.
Texas Registered Engineering Firm F-1909


The seal appearing on this document was authorized by Clarence Littlefield, P.E. (Texas Serial #30994) on the date indicated. Alteration of this sealed document without proper notification to the responsible engineer is an offense under the Texas Engineering Practice Act.

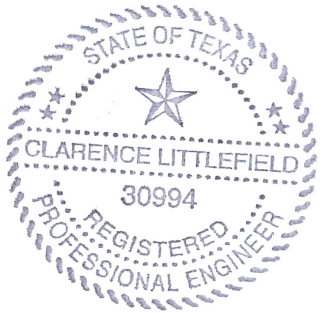
**2016-01 - City of Leon Valley Muncipal Water Well Project - Water Wells No. 3 and 4 - SWE Project No. 0617-001-15**

BID TABULATION

| | | | | HYDRO RESOURCES | | MCKINLEY DRILLING COMPANY | | LAYNE CHRISTENSEN CO. | |
|---|---|---|---|---|---|---|---|---|---|
| | | BASE BID - OPTION 1 | | Unit Price | Total Price | Unit Price | Total Price | Unit Price | Total Price |
| 1. | 1 L.S. | Well #3 - Grass Hill Well #2 | $ | 331,000.00 | $ 331,000.00 | $ 364,823.00 | $ 364,823.00 | $ 361,024.00 | $ 361,024.00 |
| 2. | 1 L.S. | Well #4 - Huebner Well #2 | $ | 329,000.00 | $ 329,000.00 | $ 364,823.00 | $ 364,823.00 | $ 358,724.00 | $ 358,724.00 |
| 3. | 1 L.S. | Plug & Abandon Well #1Grass Hill Well 1 | $ | 17,900.00 | $ 17,900.00 | $ 22,500.00 | $ 22,500.00 | $ 32,588.00 | $ 32,588.00 |
| 4. | 1 L.S. | Plug & Abandon Well #2 Huebner Well 1 | $ | 18,900.00 | $ 18,900.00 | $ 22,000.00 | $ 22,000.00 | $ 32,588.00 | $ 32,588.00 |
| | | Total Base Bid (Items 1-4) | | | $ 696,800.00 | | $ 774,146.00 | | $ 784,924.00 |
| | | ALTERNATE BID ITEMS | | Unit Price | Total Price | Unit Price | Total Price | Unit Price | Total Price |
| 5. | 1 L.S. | Well #3 - Grass Hill Well #2 | $ | 86,500.00 | $ 86,500.00 | $ 62,800.00 | $ 62,800.00 | $ 254,697.00 | $ 254,697.00 |
| 6. | 1 L.S. | Well #4 - Huebner Well #2 | $ | 86,500.00 | $ 86,500.00 | $ 62,800.00 | $ 62,800.00 | $ 251,177.00 | $ 251,177.00 |
| | | ADDITIVE/DEDUCTIVE ITEMS | | Unit Price | | Unit Price | | Unit Price | |
| 8. | L.S. | Removal Cuttings from Grass & Huebner | $ | 25,000.00 | | $ 20,000.00 | | $ 68,936.00 | |
| 9. | L.S. | Cutting from Grass Hill to Huebner site | $ | 2,000.00 | | $ 12,500.00 | | $ 3,141.00 | |
| 10. | L.F. | Reaming or Drilling 8-3/4" Bore Hole | $ | 22.50 | | $ 86.00 | | $ 16.00 | |
| 11. | L.S. | Electric Logs | $ | 4,000.00 | | $ 3,083.00 | | $ 5,188.00 | |
| 12. | L.F. | Enlarging Bore Hole to 20" | $ | 156.00 | | $ 240.00 | | $ 68.00 | |
| 13. | L.F. | Reaming or Drilling 15" Bore Hole | $ | 145.00 | | $ 220.00 | | $ 83.00 | |
| 14. | L.F. | 16" x 0.375" Steel Casing | $ | 95.00 | | $ 38.00 | | $ 52.00 | |
| 15. | L.F. | Pressure Cementing 16" x 0.375" Casing | $ | 28.00 | | $ 28.00 | | $ 25.00 | |
| 16. | L.F. | Pressure Cementing 12" Steel Casing | $ | 20.00 | | $ 24.00 | | $ 18.00 | |
| 17. | HR. | Cleaning & Development | $ | 650.00 | | $ 250.00 | | $ 525.00 | |
| 18. | L.S. | Total Depth Video Survey | $ | 1,800.00 | | $ 1,500.00 | | $ 1,220.00 | |
| 19. | HR. | Pump Test & Recovery Test | $ | 600.00 | | $ 250.00 | | $ 350.00 | |
| 20. | L.S. | Water Sample Analysis | $ | 2,100.00 | | $ 950.00 | | $ 1,300.00 | |
| 21. | L.S. | Production Pump @ 417' TDH | $ | 90,000.00 | | $ 96,457.00 | | $ 91,049.00 | |
| 22. | L.S. | Production Pump @ 433' TDH | $ | 90,000.00 | | $ 96,457.00 | | $ 91,049.00 | |
| 23. | L.F. | 12" x 0.375" Steel Discharge Column | $ | 61.00 | | $ 53.00 | | $ 69.00 | |
| 24. | L.F. | PVC e-line Assembly | $ | 2.00 | | $ 1.00 | | $ 1.00 | |
| 25. | L.S. | Well Head Completion | $ | 10,000.00 | | $ 9,250.00 | | $ 38,669.00 | |
| 26. | C.Y. | Gravel | $ | 32.00 | | $ 20.00 | | $ 3.00 | |
| 27. | SKS | Pressure Cementing Well 1 - Grass Hill | $ | 5,000.00 | | $ 7,500.00 | | $ 19,982.00 | |

I, Clarence L. Littlefield, Registered Professional Engineer, do hereby declare that the above Bid Tabulations were taken directly from the Bid Opening on March 22, 2016 at 2:00 P.M.

CLARENCE L. LITTLEFIELD, P.E., TEXAS SERIAL #101084
REGISTERED PROFESSIONAL ENGINEER OF TEXAS
SOUTHWEST ENGINEERS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-1909




The seal appearing on this document was authorized by Clarence Littlefield, P.E. (Texas Serial #30994) on the date indicated. Alteration of this sealed document without proper notification to the responsible engineer is an offense under the Texas Engineering Practice Act.

**2016-01 - City of Leon Valley Muncipal Water Well Project**
**Water Wells No. 3 and 4**
SWE Project No. 0617-001-15
BID TABULATION

| | | | | DAVENPORT DRILLING | | BULL'S EYE SERVICES | | ALSAY INCORPORATED | |
|---|---|---|---|---|---|---|---|---|---|
| | BASE BID - OPTION 1 | | | Unit Price | Total Price | Unit Price | Total Price | Unit Price | Total Price |
| 1. | 1 | L.S. | Well #3 - Grass Hill Well #2 | $ 389,048.00 | $ 389,048.00 | $ 411,041.00 | $ 411,041.00 | $ 469,200.00 | $ 469,200.00 |
| 2. | 1 | L.S. | Well #4 - Huebner Well #2 | $ 388,621.00 | $ 388,621.00 | $ 411,041.00 | $ 411,041.00 | $ 454,200.00 | $ 454,200.00 |
| 3. | 1 | L.S. | Plug & Abandon Well #1 Grass Hill Well 1 | $ 13,400.00 | $ 13,400.00 | $ 34,850.00 | $ 34,850.00 | $ 26,750.00 | $ 26,750.00 |
| 4. | 1 | L.S. | Plug & Abandon Well #2 Huebner Well 1 | $ 13,000.00 | $ 13,000.00 | $ 34,850.00 | $ 34,850.00 | $ 26,250.00 | $ 26,250.00 |
| | | | Total Base Bid (Items 1-4) | | $ 804,069.00 | | $ 891,782.00 | | $ 976,400.00 |
| | ALTERNATE BID ITEMS | | | Unit Price | Total Price | Unit Price | Total Price | Unit Price | Total Price |
| 5. | 1 | L.S. | Well #3 - Grass Hill Well #2 | $ 324,048.00 | $ 324,048.00 | $ 107,000.00 | $ 107,000.00 | $ 45,000.00 | $ 45,000.00 |
| 6. | 1 | L.S. | Well #4 - Huebner Well #2 | $ 323,621.00 | $ 323,621.00 | $ 107,000.00 | $ 107,000.00 | $ 45,000.00 | $ 45,000.00 |
| 7. | | | | | | | | | |
| | ADDITIVE/DEDUCTIVE ITEMS | | | Unit Price | | Unit Price | | Unit Price | |
| 8. | | L.S. | Removal Cuttings from Grass & Huebner | $ 36,487.00 | | $ 39,000.00 | | $ 10,000.00 | |
| 9. | | L.S. | Cutting from Grass Hill to Huebner site | $ 5,500.00 | | $ 2,500.00 | | $ 20,000.00 | |
| 10. | | L.F. | Reaming or Drilling 8-3/4" Bore Hole | $ 85.00 | | $ 85.00 | | $ 50.00 | |
| 11. | | L.S. | Electric Logs | $ 3,200.00 | | $ 16,917.00 | | $ 5,000.00 | |
| 12. | | L.F. | Enlarging Bore Hole to 20" | $ 275.00 | | $ 83.00 | | $ 100.00 | |
| 13. | | L.F. | Reaming or Drilling 15" Bore Hole | $ 325.00 | | $ 220.50 | | $ 75.00 | |
| 14. | | L.F. | 16" x 0.375" Steel Casing | $ 28.75 | | $ 83.00 | | $ 30.00 | |
| 15. | | L.F. | Pressure Cementing 16" x 0.375" Casing | $ 50.00 | | $ 33.05 | | $ 30.00 | |
| 16. | | L.F. | Pressure Cementing 12" Steel Casing | $ 36.00 | | $ 20.20 | | $ 25.00 | |
| 17. | | HR. | Cleaning & Development | $ 400.00 | | $ 200.00 | | $ 300.00 | |
| 18. | | L.S. | Total Depth Video Survey | $ 2,700.00 | | $ 1,407.50 | | $ 1,500.00 | |
| 19. | | HR. | Pump Test & Recovery Test | $ 700.00 | | $ 200.00 | | $ 300.00 | |
| 20. | | L.S. | Water Sample Analysis | $ 2,400.00 | | $ 2,500.00 | | $ 1,200.00 | |
| 21. | | L.S. | Production Pump @ 417' TDH | $ 87,400.00 | | $ 74,912.00 | | $ 60,000.00 | |
| 22. | | L.S. | Production Pump @ 433' TDH | $ 87,400.00 | | $ 74,912.00 | | $ 61,000.00 | |
| 23. | | L.F. | 12" x 0.375" Steel Discharge Column | $ 219.00 | | $ 94.50 | | $ 100.00 | |
| 24. | | L.F. | PVC e-line Assembly | $ 1.00 | | $ 1.55 | | $ 1.00 | |
| 25. | | L.S. | Well Head Completion | $ 3,800.00 | | $ 4,540.00 | | $ 11,000.00 | |
| 26. | | C.Y. | Gravel | $ 25.00 | | $ 6.72 | | $ 10.00 | |
| 27. | | SKS | Pressure Cementing Well 1 - Grass Hill | $ 18,000.00 | | $ 15,000.00 | | $ 7,500.00 | |

**2016-01 - City of Leon Valley Muncipal Water Well Project**
**Water Wells No. 3 and 4**
SWE Project No. 0617-001-15
BID TABULATION

**WEISINGER INCORPORATED**

| | | | BASE BID - OPTION 1 | | Unit Price | | Total Price |
|---|---|---|---|---|---|---|---|
| 1. | 1 | L.S. | Well #3 - Grass Hill Well #2 | $ | 483,000.00 | $ | 483,000.00 |
| 2. | 1 | L.S. | Well #4 - Huebner Well #2 | $ | 450,000.00 | $ | 450,000.00 |
| 3. | 1 | L.S. | Plug & Abandon Well #1 Grass Hill Well 1 | $ | 35,500.00 | $ | 35,500.00 |
| 4. | 1 | L.S. | Plug & Abandon Well #2 Huebner Well 1 | $ | 29,000.00 | $ | 29,000.00 |
| | | | Total Base Bid (Items 1-4) | | | $ | 997,500.00 |

| | | | ALTERNATE BID ITEMS | | Unit Price | | Total Price |
|---|---|---|---|---|---|---|---|
| 5. | 1 | L.S. | Well #3 - Grass Hill Well #2 | $ | 43,500.00 | $ | 43,500.00 |
| 6. | 1 | L.S. | Well #4 - Huebner Well #2 | $ | 40,000.00 | $ | 40,000.00 |

| | | **ADDITIVE/DEDUCTIVE ITEMS** | | Unit Price |
|---|---|---|---|---|
| 8. | L.S. | Removal Cuttings from Grass & Huebner | $ | 5,000.00 |
| 9. | L.S. | Cutting from Grass Hill to Huebner site | $ | 20,000.00 |
| 10. | L.F. | Reaming or Drilling 8-3/4" Bore Hole | $ | 50.00 |
| 11. | L.S. | Electric Logs | $ | 3,500.00 |
| 12. | L.F. | Enlarging Bore Hole to 20" | $ | 75.00 |
| 13. | L.F. | Reaming or Drilling 15" Bore Hole | $ | 65.00 |
| 14. | L.F. | 16" x 0.375" Steel Casing | $ | 40.00 |
| 15. | L.F. | Pressure Cementing 16" x 0.375" Casing | $ | 20.00 |
| 16. | L.F. | Pressure Cementing 12" Steel Casing | $ | 15.00 |
| 17. | HR. | Cleaning & Development | $ | 350.00 |
| 18. | L.S. | Total Depth Video Survey | $ | 2,000.00 |
| 19. | HR. | Pump Test & Recovery Test | $ | 200.00 |
| 20. | L.S. | Water Sample Analysis | $ | 5,000.00 |
| 21. | L.S. | Production Pump @ 417' TDH | $ | 72,500.00 |
| 22. | L.S. | Production Pump @ 433' TDH | $ | 75,000.00 |
| 23. | L.F. | 12" x 0.375" Steel Discharge Column | $ | 100.00 |
| 24. | L.F. | PVC e-line Assembly | $ | 1.00 |
| 25. | L.S. | Well Head Completion | $ | 2,500.00 |
| 26. | C.Y. | Gravel | $ | 20.00 |
| 27. | SKS | Pressure Cementing Well 1 - Grass Hill | $ | 5,000.00 |

# Request to Accept Bids, Award Contracts, and Sign Contracts for the 2016 Water Well Project

City Council Meeting
April 5, 2016

LEONVALLEY

# Purpose

- Request to accept bids and award contracts for the 2015 Water Well Project; and
- Authorize the City Manager to sign the contracts, with change orders up to 15% of Bid amount, as allowed by state law
- Contracts to be reviewed by City Attorney prior to signature

LEONVALLEY

# Purpose

- Water Well project consists of two parts:
  - Water well drilling portion
    - Grass Hill & Huebner, plug and drill
  - Plant portion
    - San Antonio Water System (SAWS) Interconnection & piping
    - Electrical, with Variable Frequency Drive panels (VFD's).
- Bid for well drilling portion designed to assure bidders had successfully drilled large diameter aquifer wells within the past 5 years
- Bid for plant portion designed to include only SAWS qualified utility contractors
- Bids received & opened on 3/22/15 for both projects

LEONVALLEY

# Water Well Drilling Bids

| Vendor | Bid Amount |
|---|---|
| Alsay Incorporated | $976,400 |
| Bull's Eye Services | $891,782 |
| Davenport Drilling | $804,069 |
| Hydro Resources | $696,800 |
| Layne Christensen Co. | $784,924 |
| McKinley Drilling Co. | $774,164 |
| Weisinger, Inc. | $997,500 |

LEONVALLEY

# Plant Bids

| Vendor | Bid Amount |
|---|---|
| J & K Utility Services | $566,147 |
| Black Castle General Contractor | $581,900 |

# Purpose

- Lowest qualified bidder for well drilling is Hydro Resources at $696,800
- References and qualifications were reviewed and found to be satisfactory
- In addition, both Southwest Engineering & hydrogeologist have worked with this contractor in drilling several wells in the past & found them to be well qualified

LEONVALLEY

# Purpose

- Lowest qualified bidder for the plant portion of the project is J & K Utility Services at $566,147
- References & qualifications were reviewed and found to be satisfactory

LEONVALLEY

# Fiscal Impact

- The total for both portions of the project is **$1,262,947**
- The project is not currently budgeted; however Certificates of Obligation are being sought & will be used to fund the project
- Repayment of the loan will cost approximately **$114,000 per year** for 30 years, and will be paid for by the increase in water rates

LEONVALLEY

# Recommendation

- Accept the lowest qualified bidders and award the contracts for the FY 2016 Water Well Project
- Authorize the City Manager to sign the contracts, with change orders up to an additional fifteen percent (15%) of the bid amount, as allowed by state law

LEONVALLEY

# S.E.E. Statement

- **Social Equity** – Adds to general quality of life for all citizens.
- **Environmental Stewardship** – The City's Water Conservation and Drought Management Ordinance encourages city-wide management of water rights and enables pumping limitation goals for the Edwards Aquifer.
- **Economic Development** – A superior rated water system and adequate water resources encourages new businesses and business retention for the City.

LEONVALLEY

# Request to Accept Bids, Award Contracts, and Sign Contracts 2016 Water Well Project

City Council Meeting
April 5, 2016

LEONVALLEY

**MAYOR AND COUNCIL COMMUNICATION**

**DATE:** April 5, 2016 **M&C #2016-04-05-07**

**TO:** Mayor and City Council

**FROM:** Melinda Moritz, Director of Public Works

**THROUGH:** Kelly Kuenstler, City Manager

**SUBJECT:** Consider Approval of a Budget Adjustment to Fund Engineering, Design, and Construction Management for the Reconstruction of the Evers Road Bridge; and Authorize the City Manager to Sign a Contract with IDS Engineering Group. Inc., with Change Orders Not to Exceed Five Percent (5%)

## PURPOSE

To request approval of a budget adjustment for the engineering, design, and construction management of the reconstruction of the Evers Road bridge, and authorize the City Manager to sign a contract with IDS Engineering, Inc., with change orders up to five percent (5%).

In September of 2015, the City Council approved the initial study of the Evers Road bridge reconstruction and directed IDS Engineering, Inc. and staff to develop options for the reconstruction. In November of 2015, the City Council approved a bridge design. On December 1, 2015, the design and application for funding was submitted to the Alamo Area Metropolitan Planning Organization (MPO) for their consideration. The project was approved for funding by the MPO on April 1, 2016, and the engineering and design portion of the project may now begin. The expected timeline for this project is as follows:

- April to Sept 2016 - Engineering and design, TxDOT & utility review and coordination
- October to November 2016 - Final design, TxDOT approval, Bid advertisement
- December 2016 - Council approval of bidder, start construction
- Construction completed in June of 2017 with road closed, or November if road is to remain open

## FISCAL IMPACT

| | |
|---|---|
| Engineering, design, and construction management | $458,410 |
| Total Estimated Construction cost | $1,716,000 |
| City Portion 20% | $343,200 |
| MPO portion 80% | $1,372,800 |

Note: Stormwater Fund balance is at $606,000. If approved, this action leaves a balance of $147,590.

**RECOMMENDATION**

It is recommended the City Council approve a budget adjustment in the amount of $458,410, for the engineering, design, and construction management of the reconstruction of the Evers Road bridge, and authorize the City Manager to sign a contract with IDS Engineering, Inc., with change orders up to five percent (5%).

**S.E.E. IMPACT STATEMENT**

Social Equity – The redesigned bridge will allow for safer travel on Evers Road for all citizens.

Economic Development – Removing flood barriers provides additional incentive for citizens and businesses to relocate or stay in Leon Valley.

Environmental Stewardship – The redesign of the bridge further promotes the best Stormwater Management practices for the creek.

APPROVED: _____ DISAPPROVED: _____

APPROVED WITH THE FOLLOWING AMENDMENTS:

_____

_____

_____

ATTEST:

_____
**SAUNDRA PASSAILAGUE, TRMC**
City Secretary

**ORDINANCE No. 16-014**

**AN ORDINANCE APPROVING AMENDMENTS TO THE ENTERPRISE FUNDS OF THE CITY OF LEON VALLEY, TEXAS MUNICIPAL BUDGET FOR FISCAL YEAR OF 2015-2016.**

**Whereas** on September 15, 2015 the City Council of the City of Leon Valley adopted the 2015-2016 fiscal year budget: and

**Whereas** Texas Local Government Code Section 102.010 provides that a municipality is not prohibited from making changes to a budget for municipal purposes: and

**Whereas** the Leon Valley City Council hereby finds and determines that the amendments adopted under this ordinance are for a municipal purpose.

**NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF LEON VALLEY, TEXAS, THAT:**

**SECTION I**

That the City Council of the City of Leon Valley hereby amends the fiscal year 2014-2015 budget as provided for in the attached Exhibit "A", said Exhibit to be incorporated herein as if fully set forth herein.

**SECTION II**
**SEVERABILITY**

It is hereby declared to be the intention of the City Council that the phrases, clauses, sentences, paragraphs, and sections of this ordinance are severable, and if any phrase, clause sentence, paragraph or section of this ordinance shall be declared unconstitutional by the valid judgment or decree of any court of competent jurisdiction, such unconstitutionality shall not affect any of the remaining phrases, clauses, sentences, paragraphs and sections of this ordinance, since the same would have been enacted by the City Council without the incorporation in this ordinance of any such unconstitutional phrase, clause, sentence, paragraph or section.

**SECTION III**
**REPEALER CLAUSE**

Any provisions of any prior ordinance of the City which are in conflict with any provision of the Ordinance, are hereby repealed to the extent of the conflict, but all other provisions of the ordinances of the City which are not in conflict with the provisions of this Ordinance, shall remain in full force and effect.

**SECTION IV**
**EFFECTIVE DATE**

This Ordinance shall become effective and shall be in full force and effect on and after its passage and publication as required by state law.

**SECTION V**
**PROPER NOTICE AND MEETING**

It is hereby officially found and determined that the meeting at which this Ordinance was passed was open to the public and that public notice of the time, place and purpose of said meeting was given as required by the Open Meetings Act, Chapter 551, of the Texas Government Code. Notice was also provided as required by Chapter 52 of the Texas Local Government Code.

**PASSED, ADOPTED AND APPROVED** by the City Council of the City of Leon Valley this the 5th day of April, 2016.

**APPROVED**

_____
**CHRIS RILEY**
MAYOR

Attest: _____
**SAUNDRA PASSAILAIGUE, TRMC**
City Secretary

Approved as to Form: _____
**ROXANN PAIS COTRONEO**
City Attorney

*Exhibit "A"*
*Ordinance No. 16-014*

# CITY OF LEON VALLEY, TEXAS
# BUDGET ADJUSTMENT
# FISCAL YEAR 2015-2016

Request Submitted By: _____ Date: _____
Department Head

Approved By: _____ Date: _____
Finance Director

Approved By: _____ Date: _____
City Manager

**TYPE OF TRANSFER:** **DEPARTMENT:**

_____ Inter-Departmental Transfer
___X__ Intra-Departmental Transfer — Stormwater Fund Balance
___X__ Supplemental Appropriation — Enterprise Fund

**FROM:**

| FUND | ACCOUNT NO. | DESCRIPTION | AMOUNT |
|---|---|---|---|
| **Stormwater** | **200** | **Stormwater Fund Balance** | **$458,410** |
| | | | |
| | | | |
| | | | |
| | | | |

**TO:**

| FUND | ACCOUNT NO. | DESCRIPTION | AMOUNT |
|---|---|---|---|
| **Stormwater** | **200-5336-530.01** | **Evers Road Bridge Study** | **$458,410** |
| | | | |
| | | | |

# Budget Adjustment for Engineering, Design, and Construction Management Evers Road Bridge

City Council Meeting

April 5, 2016

LEONVALLEY

# Purpose

- To consider approval of a budget adjustment for the engineering, design, and construction management for the reconstruction of the Evers Road bridge
- To authorize the City Manager to sign a contract with IDS Engineering for these services, with up to 5% change orders

LEONVALLEY

# Background

- September 2015 - City Council approved initial study of the Evers Road bridge reconstruction and directed IDS Engineering and staff to develop options for the reconstruction
- November 2015 - City Council approved a bridge design
- December 2015 - design & application for funding submitted to the Alamo Area Metropolitan Planning Organization (MPO) for their consideration
- April 2016 - project approved for funding
- Engineering and design portion of the project may now begin

LEONVALLEY

# Timeline

- Estimated timeline for this project is as follows:

- April to Sept 2016 - Engineering and design, TxDOT & utility review and coordination
- October to November 2016 - Final design, TxDOT approval, Bid advertisement
- December 2016 - Council approval of bidder, start construction
- Construction completed in June of 2017 with road closed, or November if road is to remain open

LEONVALLEY

# Fiscal Impact

- Engineering, design, construction management $458,410

- Total Construction cost $1,716,000
- City Portion $343,200
- MPO portion $1,372,800
  - Construction costs to be included in the FY 2017 budget process

# Recommendation

- Approve a budget adjustment in the amount of $458,410, from the Stormwater Fund Balance
- Authorize City Manager to sign a contract with IDS Engineering for these services
  - Note: Fund balance is at $606,000
  - If approved, leaves a balance of $147,590

LEONVALLEY

# Strategic Goals Statement

- Item 2 – Continue Work on Capital and Planning Projects
  - Drainage improvements help address stormwater runoff.

# S.E.E. Statement

- Social Equity – The redesigned bridge will allow for safer travel on Evers Road for all citizens.
- Economic Development – Removing flood barriers provides additional incentive for citizens and businesses to relocate or stay in Leon Valley.
- Environmental Stewardship – A study of Huebner Creek needs to be performed in order to determine the best Stormwater Management practices for the creek.

LEONVALLEY

# Budget Adjustment for Engineering, Design, and Construction Management Evers Road Bridge

City Council Meeting

April 5, 2016

LEONVALLEY

**MAYOR AND COUNCIL COMMUNICATION**

**DATE:** April 5, 2016 **M&C #2016-04-05-08**

**TO:** Mayor and Council

**FROM:** Melinda Moritz, Public Works Director

**THROUGH:** Kelly Kuenstler, City Manager

**SUBJECT:** Consider And Take Action On User Alternatives For Leon Valley Community Pool.

## PURPOSE

To consider and take action on user alternatives for the Leon Valley Community Pool in the 2016 swim season. The City owns and operates a community swimming pool at 6600 Strawflower Drive. The pool is open to the public free of charge, from Memorial Day to Labor Day and is not restricted to Leon Valley residents.

During last year's swim season, the Public Works Department received a few complaints regarding large group users such as daycares, soccer clubs, and karate clubs. Also received were reports of some overcrowding on weekends early in the season, but not during the week, nor at end of the summer.

The Forest Oaks Community Association reported that membership at their pool decreased 16% in 2015 and there were concerns expressed about further decreases in 2016, and that this may be due to the City's current "no fee" policy at the Community Pool.

At the December 15th City Council meeting, some suggestions were given about users at the pool, but no action has been taken. Some options for the pool are:

- Leave as is – offer free to all for this season
- Limit to "residents only" by use of wristbands – would cause some Staff time at cashier window to give out and accept application, check residency, and issue the wristbands
- Charge for entry by the use of a "membership" – suggest $40 Individual, and $75 Family

## FISCAL IMPACT

Funding for the pool was approved by City Council in the FY 2015-2016 budget at $60,052.

## RECOMMENDATION

Staff recommends leaving the policy as is for this swim season and consider changing it next year, when a decision is made about the Forest Oaks Pool. Options include:

- Offer free to all for this season and re-evaluate next season
- Limit to "residents only" by use of armbands

- Charge for entry by memberships ($40.00 / Individual and $75.00 / Family)
- Other

**S.E.E Statement**

*Social Equity* – Adds to general quality of life for all citizens, by providing additional recreational opportunities.

*Environmental Stewardship* – Reduces the amount of automobile pollutants, as residents within the area do not have to drive to find this type of activity.

*Economic Development* – The pool enhances the amenities offered by the City to its residents, which may encourage relocation.

APPROVED: _____DISAPPROVED: _____

APPROVED WITH THE FOLLOWING AMENDMENTS:

_____

_____

_____

ATTEST:

_____
**SAUNDRA PASSAILAIGUE, TRMC**
City Secretary

# Leon Valley Community Pool
# Consider User Alternatives

City Council Meeting

April 5, 2016

# Purpose

- To consider and take action on a user alternative for the Leon Valley Community Pool in the 2016 swim season

# Background

- City owns and operates community swimming pool at 6600 Strawflower Drive
- Pool is open to the public free of charge Memorial Day to Labor Day
- Use of the pool is not restricted to Leon Valley residents

LEONVALLEY

# Background

- Received a few complaints regarding large group users such as daycares, soccer clubs, karate clubs
- Some overcrowding reported on weekends during mid-summer, but not during the week or at end of summer
- Forest Oaks Community Association reported that membership decreased 16% in 2015
  - Concerned about further decreases in 2016, and that this may be due to the City's current "no fee" policy

LEONVALLEY

# Options

- Leave as is – offer free to all for this season
- Limit to “residents only” by use of wristbands
  - Staff time at cashier window to give out and accept application, check residency, issue wristbands
- Charge for entry by memberships
  - $40 Individual
  - $75 Family

LEONVALLEY

# Fiscal Impact

- Pool operations funding approved by City Council in the 2015-2016 budget
  - $60,052

| Pool Expenditures | Cost |
|---|---|
| Repairs | $2,000 |
| Insurance | $250 |
| Mgt. Contract (SA Pool Mgt.) | $46,302 |
| Operational (Utilities, Supplies) | $11,500 |
| | $60,052 |

LEONVALLEY

# Recommendation

- Staff recommends leaving as is until next year
- Options
  I. Offer free to all for this season and re-evaluate next season
  II. Limit to “residents only” by use of armbands
  III. Charge for entry by memberships
  ($40.00 / Individual)
  ($75.00 / Family)

LEONVALLEY

# S.E.E. Statement

- Social Equity – Adds to general quality of life for all citizens, by providing additional recreational activities
- Environmental Stewardship – Reduces vehicle pollutants, as residents within that area would not have to drive to find this type of activity
- Economic Development – The pool enhances the amenities offered by the City to its residents, which may encourage relocation

LEONVALLEY

# Leon Valley Community Swimming Pool
# Consider User Alternatives

City Council Meeting

April 5, 2016

LEONVALLEY

**MAYOR AND COUNCIL COMMUNICATION**

**DATE:** April 5, 2016 **M&C # 2016-04-05-09**

**TO:** Mayor and Council

**FROM:** Elizabeth Carol, Director of Development

**THROUGH:** Kelly Kuenstler, City Manager

**SUBJECT:** Consider adoption of the San Antonio River Authority's Leon Creek Water Shed Master Plan.

## PURPOSE

The San Antonio River Authority (SARA) has adopted a regional approach to addressing flooding concerns in the area. They have created the Leon Creek Water Shed Master Plan, which identifies areas within the Leon Valley Huebner Creek water shed that are at risk of flooding and provides a regional solution. More specifically, the plan identifies:

1. Regional Storm Water Facilities (RSWF)
2. Enhanced channel design
3. Selective cleaning along heavily vegetated channels
4. Bridge and culvert upgrades
5. Flood protection barriers and bypass structures, and
6. Property acquisition and flood proofing.

The plan identifies 26 areas of concentration within the Leon Creek Water Shed and the overall plan is projected to reduce the estimated annual flood damages by 40%. The regional list of projects in the Leon Creek Water Shed Master Plan can be found on page ES4 of their Plan. The following projects will have a direct impact on the City of Leon Valley and their ranking:

1. Huebner Creek at Prue Road (LC-15) # 3.
2. Huebner Creek at Eckhert #6
3. Huebner Creek at Evers Road # 10
4. Huebner Creek at Bandera Road (LC-17) #4

The adoption of the Leon Creek Water Shed Master Plan will assist the City in providing a regional solution to local flooding concerns. In addition, the Leon Creek Water Shed Master Plan will improve the City of Leon Valley's position in preparation for earning a rating through the Community Rating System (CRS) as part of the National Flood Insurance Program (NFIP) survey, which will provide a discounted percentage of flood insurance premiums to property owners of Leon Valley.

**S.E.E. LEON VALLEY**

Social Equity – Adopting the Plan provides a consistent Water Shed Master Plan for all Property Owners.

Economic Development – Adopting the Plan will assist with lowering insurance premiums for business property owners.

Environmental Stewardship – Provides solutions to downstream pollution from water shed runoff, which reduces toxins to the environment

**FISCAL IMPACT**

None

**RECOMMENDATION**

Adopt the San Antonio River Authority's Leon Creek Water Shed Master Plan.

APPROVED: _____ DISAPPROVED: _____

APPROVED WITH THE FOLLOWING AMENDMENTS:

_____

_____

_____

_____

ATTEST:

_____
**SAUNDRA PASSAILAIGUE, TRMC**
City Secretary

AECOM Water

Prepared for:
San Antonio River Authority
San Antonio, TX

Prepared by:
AECOM Technical Services, Inc.
TBPE Reg. No. F-3580
San Antonio, TX
60156508
January 31, 2011

# Leon Creek Watershed Master Plan

AECOM Water

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# Leon Creek Watershed Master Plan


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# List of Acronyms

| | |
|---|---|
| ADR | Annual Damage Reduction |
| ADT | Average Daily Traffic (Count) |
| BCAD | Bexar County Appraisal District |
| BMP | Best Management Practices |
| BRWM | Bexar Regional Watershed Management |
| CIP | Capital Improvement Projects |
| CoSA | City of San Antonio |
| CZP | Contributing Zone Plan |
| DC | Damage Center |
| DEM | Digital Elevation Model |
| DFIRM | Digital Flood Insurance Rate Map |
| EARZ | Edwards Aquifer Recharge Zone |
| EPA | Environmental Protection Agency |
| ESA | Environmental Site Assessment |
| FEMA | Federal Emergency Management Agency |
| FPB | Flood Protection Barrier |
| FRR | Flood Reduction Ratio |
| GCP | General Construction Permit |
| GIS | Geographic Information System |
| HEC-HMS | Hydrologic Engineering Center Hydrologic Modeling System |
| HEC-RAS | Hydrologic Engineering Center River Analysis System |
| IP | Individual Permit |
| JD | Jurisdictional Determination |
| LC-# | Bexar County Flood Control Project |
| LCWMP | Leon Creek Watershed Master Plan |
| LEED | Leadership in Energy and Environmental Design |
| LID | Low Impact Development |
| LOFP | Level of Flood Protection |
| LOMR | Letter of Map Revision |
| NRCS | National Resources Conservation Service |
| NWWC | Natural Waterway Conveyance |
| NWP | Nationwide Permit |
| OHWM | Ordinary High Water Mark |
| PCN | Pre-Construction Notification |
| RSWF | Regional Storm Water Facility |
| SARA | San Antonio River Authority |
| SAWS | San Antonio Water System |
| TAC | Texas Administrative Code |
| TCEQ | Texas Commission on Environmental Quality |
| THC | Texas Historical Commission |
| TIN | Triangulated Irregular Network |
| TMDL | Total Maximum Daily Load |
| TPDES | Texas Pollutant Discharge Elimination System |
| TPWD | Texas Parks and Wildlife Department |

| | |
|---|---|
| TXDOT | Texas Department of Transportation |
| UDC | Unified Development Code |
| USACE | U.S. Army Corps of Engineers |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | U.S. Geological Survey |
| WPAP | Water Pollution Abatement Plan |
| WSEL | Water Surface Elevation |

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# Executive Summary

The San Antonio River Authority (SARA) authorized AECOM to develop the Leon Creek Watershed Master Plan (LCWMP), a multi-phase study for developing and comparing flood mitigation alternatives, prioritizing capital projects, and evaluating water quality enhancements across the Leon Creek Watershed in Bexar County, Texas. The Leon Creek Watershed is under increased developmental pressures as growth occurs in the City of San Antonio (CoSA) and unincorporated Bexar County. As recently as 1998 and 2002, Leon Creek experienced significant flooding during high rainfall and runoff conditions, which inundated major highways and flooded many structures within the watershed. To reduce the risk of future flood-related damages, the public and stakeholders sought a long-term planning approach that would address the full downstream impacts of potential projects in the watershed, address water quality concerns, and anticipate future land use trends.

This report documents the Leon Creek Watershed Master Plan, which includes:

- The identification of major flooding reaches within the Leon Creek main channel and major tributary channel areas,
- The selection of damage centers based on areas with a high density of at-risk buildings within the watershed,
- The analysis of flooding risks and damage potential along bridges, culvert crossings, and other vital transportation corridors,
- The review of Digital Flood Insurance Rate Map (DFIRM) models to assess potential areas of scour and the evaluation of water quality to identify issues in order to develop potential multi-use mitigation strategies,
- The preliminary assessment of potential alternatives that reduce the risk of future flood losses in each of the damage centers using the following strategies:
    - Regional Storm Water Facilities (RSWF),
    - Enhanced channel design,
    - Selective clearing along heavily vegetated channels,
    - Bridge and culvert upgrades,
    - Flood protection barriers and bypass structures, and
    - Property acquisition and floodproofing.
- The refinement of project alternatives selected by workshop participants and inclusion of selected planned projects from the Bexar County Flood Control Capital Improvement Projects (CIP) Program and CoSA.
- The final development of project alternatives along with planning-level opinions of probable construction cost,
- The preliminary assessment of environmental regulatory requirements and multi-use opportunities for each alternative,
- The development of recommended project combinations to achieve increased optimization along with recommended project construction phasing,
- The preparation of a prioritization matrix for compiling and ranking projects, and

- The evaluation of alternative development methods, such as Best Management Practices (BMPs), to mitigate flooding and address water quality issues associated with storm water runoff.

As an initial activity within this study, floodplain analysis models from the Federal Emergency Management Agency (FEMA) were used to determine the existing Levels of Flood Protection (LOFP) for private property and public infrastructure, which indicate a structure's likelihood of being damaged or rendered ineffective in a flood. Cost estimates were created for expected damages to buildings and residential structures based on the predicted flood frequency models and U.S. Army Corps of Engineers (USACE) depth damage curves. Statistically, the estimated annual damages for the entire watershed were approximately $2,844,000.

Additionally, a classification of roadway crossings in the watershed as "safe" or "unsafe" was developed using approved CoSA criteria and based on the depth of flooding approximations and predicted velocities of flows over the roadways. Also, an analysis was performed to identify the risk and damage potential along vital transportation corridors using DFIRM flood frequency data and average daily traffic counts obtained from Bexar County, CoSA, and the Texas Department of Transportation. This risk and damage potential was expressed in terms of LOFP. A number of stream crossings and several high-risk transportation corridors were identified as representing critical facilities, including:

- Scenic Loop Road at Menchaca Road (Helotes Creek),
- Babcock Road at Camp Bullis Road (Maverick Creek),
- Bandera Road at Ranch Parkway (Los Reyes Creek),
- Culebra Road at Loop 1604 (Culebra Creek),
- Culebra Road at Westover Hills Boulevard (Culebra Creek),
- Grissom Road at Timber Path (Culebra Creek),
- Old Grissom Road at Grissom Road (Culebra Creek),
- Timber Path at Culebra Road (Culebra Creek),
- Galm Road at Culebra Road (Government Canyon Creek), and
- FM 1560 at Braun Road (Culebra Tributary C).

Based on this comprehensive flood level analysis for the entire watershed, twenty-four concentrated areas of major flooding which created clusters of affected buildings and structures were identified as "damage centers" (shown in *Exhibit E1*) for planning and prioritization purposes. Areas at risk for erosion and scour and areas with water quality concerns were also identified in order to develop the multi-use objective potential of projects. The majority of damage centers exhibited potential for scour issues, and lower Leon Creek had water quality concerns in a number of sampling sites.

Through preliminary project assessments and the consensus developed during the 1st and 3rd workshops with study participants (SARA, CoSA, and Bexar County), nineteen damage centers were selected for more detailed project development.

The nineteen selected damage centers identified for additional analysis included the following flood mitigation strategies – RSWFs, selective clearing, enhanced channel design, flood protection barriers, and buyouts. Other previously identified flood mitigation projects, including several from

the Bexar County Flood Control CIP Program, were included in this evaluation as determined by the study participants during workshop discussions:

- Culebra Creek RSWF,
- Government Canyon Creek RSWF,
- Quarry at the Rim RSWF,
- LC-8: Ingram Road Low Water Crossing #58,
- LC-9: Hausman Road Drainage Phase I Project,
- LC-10: Hausman Road Drainage Phase II Project,
- LC-15: Huebner Creek Regional Storm Water Facility,
- LC-17: Huebner Creek Enhanced Conveyance NWWC, and
- LC-19: Whisper Creek Flood Protection Barrier.

Hydrologic and hydraulic analyses were performed for each potential project to determine flood damage reduction estimates, and planning-level construction cost estimates were developed for each project alternative. Additionally, an assessment was made for each project alternative to consider potential multi-use objectives (parks, recreation, open space, wildlife habitat or other public purposes) and to identify potential environmental permitting requirements. The results from these analyses were consolidated into a qualitative evaluation matrix based on the Bexar Regional Watershed Management (BRWM) project prioritization ranking factors. Using the BRWM weighted criteria, rankings were developed according to the total score over the total number of criteria evaluated for each project. Table E.1 summarizes the ranked flood mitigation projects evaluated as part of this study.

**Table E.1: Summary of Qualitative Project Rankings**

| Rank | Project Name | Primary Damage Center |
|---|---|---|
| 1 | Government Canyon Creek RSWF (Culebra Creek) | 16 |
| 2 | Helotes Creek RSWF | 12 |
| 3 | Huebner Creek RSWF at Prue Road (LC-15) | 13 |
| 4 | Huebner Creek at Bandera Road NWWC (LC-17) and Ingram Road Bridge Improvements (LC-8) | 14 |
| 5 | Culebra Creek NWWC with Culebra Road Bridge Improvements | 4 |
| 6 | Huebner Creek at Eckhert Road NWWC | 13 |
| 7 | Leon Creek NWWC with Ingram Road Bridge Improvements (LC-8) and Huebner Creek Flood Protection Barrier (LC-17) | 3 |
| 8 | Leon Creek at Grissom Road Enhanced Conveyance | 15 |
| 9 | Culebra Creek at FM 1560 Earthen Flood Protection Barrier | 16 |
| 10 | Huebner Creek at Evers Road NWWC | 2 |
| 11 | Maverick Creek NWWC with W. Hausman Road Bridge Improvements (LC-10) | 7B |
| 12 | Culebra Creek Tributary A at Tezel Road Enhanced Conveyance | 17 |

**Table E.1 (Continued): Summary of Qualitative Project Rankings**

| Rank | Project Name | Primary Damage Center |
|---|---|---|
| 13 | Easterling RSWF (Culebra Creek) | 4 |
| 14 | Leon Creek at IH-10 NWWC | 1 |
| 15 | Galm RSWF (Culebra Creek) | 16 |
| 16 | French Creek at Guilbeau Road NWWC | 6A&B |
| 17 | Helotes Creek at Braun Road NWWC | 12 |
| 18 | Hausman Road Drainage Project Phase I (LC-9) | 7A |
| 19 | UTSA RSWF (Maverick Creek) | 7B |
| 20 | Braun RSWF (Helotes Creek) | 11 |
| 21 | Mainland RSWF (Leon Creek) | 15 |
| 22 | Eckhert RSWF (Huebner Creek) | 2 |
| 23 | French Creek RSWF | 6A&B |
| 24 | Quarry at the Rim RSWF (Leon Creek) | 6C |
| 25 | Havenbrook RSWF (Slick Ranch Creek) | 5A |
| 26 | Helotes Creek at Bandera Road Enhanced Conveyance | 18B |

In addition to quantifying the selected individual projects, project combinations along each major tributary were developed to assess the collective impact of projects across a wider scope inside the watershed and identify project optimization opportunities. Single tributary combinations generally included all the individual projects selected for that particular tributary. Additional combinations were developed to analyze the effects of multiple individual projects across multiple tributaries. Table E.2 explains the developed project combinations in further detail and lists their individual project components.

**Table E.2: Overview of Project Combinations**

| Project Combination | Individual Project Components | Description |
|---|---|---|
| French Combination | 1. French Creek RSWF<br>2. French Creek at Guilbeau Road NWWC | Combination included all individual projects along French Creek. |
| Maverick Combination | 1. UTSA RSWF<br>2. Maverick Creek NWWC with W. Hausman Road Bridge Improvements (LC-10) | Combination included all individual projects along Maverick Creek. |
| Huebner Combination | 1. Huebner Creek at Prue Road (LC-15)<br>2. Huebner Creek at Evers Road NWWC<br>3. Huebner Creek at Eckhert Road NWWC<br>4. Huebner Creek at Bandera Road NWWC(LC-17) and Ingram Road Bridge Improvements (LC-8) | Combination developed to reduce annual flooding damages along Huebner Creek within Damage Centers 2, 13, and 14, without causing any negative downstream impacts. Construction phasing was also examined. |
| Helotes Combination | 1. Helotes Creek RSWF<br>2. Helotes Creek at Braun Road NWWC | Combination included only projects along Helotes Creek that provided beneficial flood reduction impacts when analyzed individually |

**Table E.2 (Continued): Overview of Project Combinations**

| Project Combination | Individual Project Components | Description |
|---|---|---|
| Culebra Combination A | 1. Government Canyon Creek RSWF<br>2. Culebra Creek NWWC with Culebra Road Bridge Improvements | Combination developed to achieve additional flood reduction along with the implementation of Government Canyon Creek RSWF. |
| Culebra Combination B | 1. Easterling RSWF<br>2. Culebra Creek at FM 1560 Earthen Flood Protection Barrier<br>3. Culebra Creek NWWC with Culebra Road Bridge Improvements | Combination developed to reduce annual flooding damages along Culebra Creek within Damage Centers 4 and 16 without causing any negative downstream impacts. Additional combination studied as an alternative to Government Canyon Creek RSWF. |
| Helotes/Culebra Combination A | 1. Helotes Creek RSWF<br>2. Culebra Creek NWWC with Culebra Road Bridge Improvements | Combination developed to achieve additional flood reduction along with the implementation of Helotes Creek RSWF. |
| Helotes/Culebra Combination B | 1. Helotes Creek RSWF<br>2. Government Canyon Creek RSWF<br>3. Culebra Creek NWWC with Culebra Road Bridge Improvements | Combination developed to achieve additional flood reduction along with the implementation of both Helotes Creek RSWF and Government Canyon Creek RSWF. |
| Leon Combination | 1. Quarry at the Rim RSWF<br>2. Leon Creek at Grissom Road Enhanced Conveyance<br>3. Leon Creek NWWC with Ingram Road Bridge Improvements (LC-8) and Huebner Creek Flood Protection Barrier (LC-17) | Combination developed to evaluate impacts on main stem Leon Creek independently of selected projects on contributing creeks. |
| Helotes/Culebra/Leon Combination A | 1. Helotes Creek RSWF<br>2. Culebra Creek NWWC with Culebra Road Bridge Improvements<br>3. Leon Creek NWWC with Ingram Road Bridge Improvements (LC-8) and Huebner Creek Flood Protection Barrier (LC-17) | Combination developed as a continuation of Helotes/Culebra Combination A to identify the necessary flood mitigation projects on Lower Leon Creek downstream of the Culebra Creek confluence. |
| Helotes/Culebra/Leon Combination B | 1. Helotes Creek RSWF<br>2. Government Canyon Creek RSWF<br>3. Culebra Creek NWWC with Culebra Road Bridge Improvements<br>4. Leon Creek NWWC with Ingram Road Bridge Improvements (LC-8) and Huebner Creek Flood Protection Barrier (LC-17) | Combination developed as a continuation of Helotes/Culebra Combination B to identify the necessary flood mitigation projects on Lower Leon Creek downstream of the Culebra Creek confluence. |

The analysis of combined projects was also used to determine recommendations for project phasing. In general, the order of recommended project implementation would begin with RSWFs followed by channel projects from the most downstream project and moving upstream.

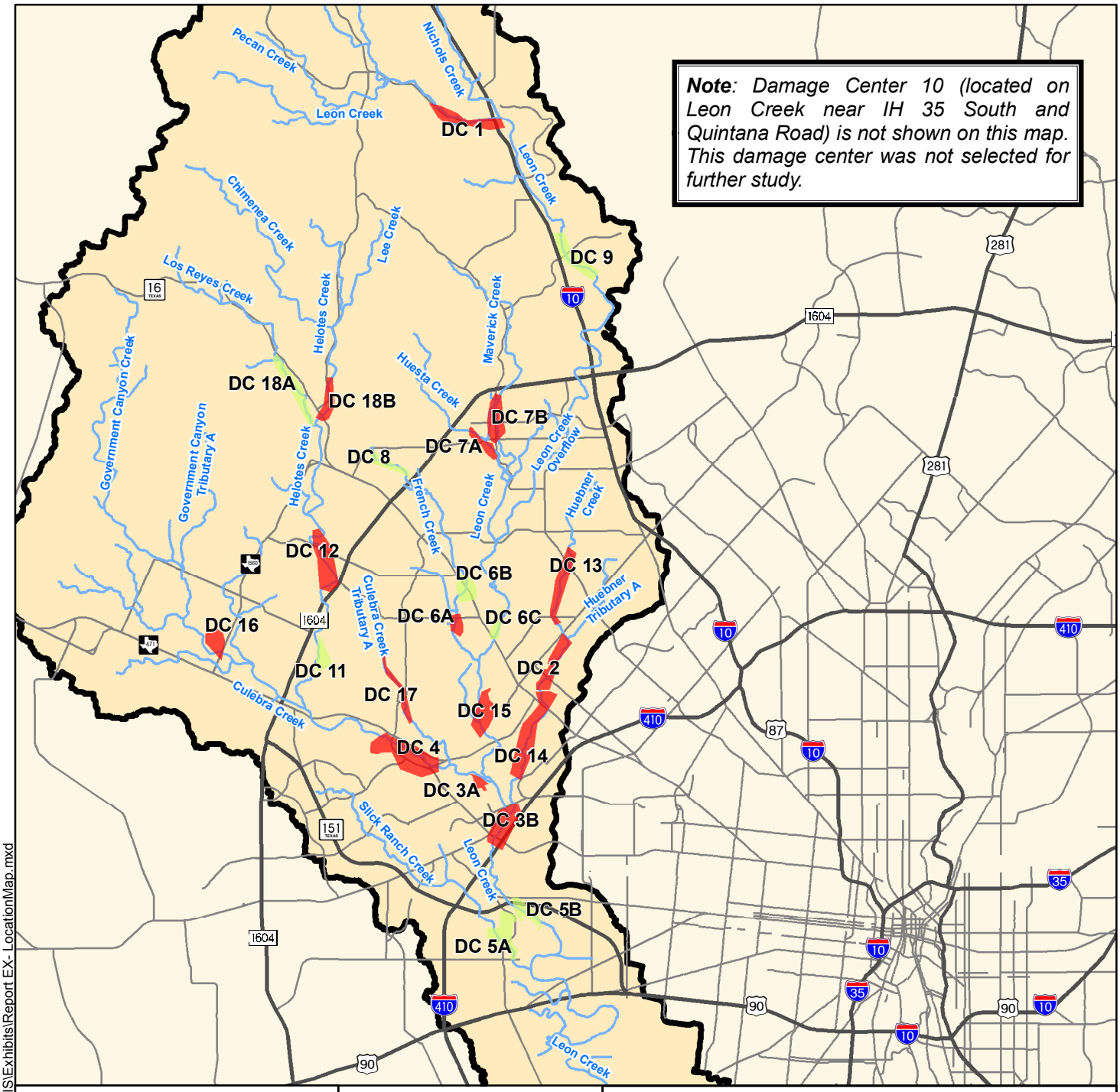
After evaluating each project combination, the most promising individual projects from each major tributary were evaluated together to determine the flood risk reduction potential of all recommended projects combined. The thirteen recommended projects include:

| | |
|---|---|
| Phasing Required | • Government Canyon Creek RSWF (Damage Center 16)<br>• Helotes Creek RSWF (Damage Center 12)<br>• Culebra Creek at Timber Path Optimized Selective Clearing Program (Damage Center 4)[1]<br>• Leon Creek Optimized Selective Clearing Program with Ingram Road Bridge Improvements (LC-8) and Huebner Creek Flood Protection Barrier (LC-17) (Damage Center 3) |
| Phasing Required but Independent of Mainstem Leon Creek | • Huebner Creek RSWF at Prue Road (LC-15) (Damage Center 13)<br>• Huebner Creek at Bandera Road NWWC (LC-17) and Ingram Road Bridge Improvements (LC-8) (Damage Center 14)<br>• Huebner Creek at Evers Road NWWC (Damage Center 2)<br>• Huebner Creek at Eckhert Road Optimized NWWC (Damage Center 13) |
| No Phasing Required | • Culebra Creek Tributary A at Tezel Road Enhanced Conveyance (Damage Center 17)<br>• French Creek at Guilbeau Road NWWC (Damage Center 6 A&B)<br>• Hausman Road Drainage Project Phase I LC-9 (Damage Center 7A)<br>• Leon Creek at Grissom Road Enhanced Conveyance (Damage Center 15)<br>• Maverick Creek NWWC with W. Hausman Road Bridge Improvements (LC-10) (Damage Center 7B) |

Together, the recommended projects reduced estimated annual flood damages by $1,165,300 (approximately 40 percent).

Alternative development methods were also assessed as a potential flood mitigation strategy. The results from representative areas of the Leon Creek watershed indicated that the use of low impact development, conservation development, and other alternative development methods would reduce future increases in flood risk due to new development compared to traditional development methods. They could also be used in redevelopment projects as an alternative to upgrading storm water infrastructure. In order to increase the rate of use of these methods, agencies should create incentives, facilitate the permitting and review process, and incorporate BMPs in public projects.

[1] This is an optimized version of Culebra Creek NWWC with Culebra Road Bridge Improvements.


Note: Damage Center 10 (located on Leon Creek near IH 35 South and Quintana Road) is not shown on this map. This damage center was not selected for further study.
Pecan Creek
Nichols Creek
Leon Creek
DC 1
Chimenea Creek
Lee Creek
DC 9
Los Reyes Creek
Helotes Creek
Maverick Creek
Government Canyon Creek
Government Canyon Tributary A
Huesta Creek
DC 18A
DC 18B
DC 7B
DC 7A
DC 8
Leon Creek Overflow
French Creek
Huebner Creek
DC 12
DC 13
DC 6B
Culebra Creek Tributary A
Huebner Tributary A
DC 16
DC 6A
DC 6C
DC 11
DC 2
DC 17
DC 15
Culebra Creek
DC 4
DC 14
DC 3A
DC 3B
Slick Ranch Creek
DC 5B
DC 5A
16
281
1604
10
410
87
35
90
151
471
Bexar County
Legend
Streams
Highways
Major Roads
Damage Centers
Studied in Preliminary Analysis Only
Studied in Detail
Leon Creek Watershed
N
W
E
S
0
1.5
3
6
Miles
SAN ANTONIO RIVER AUTHORITY
Water Brings Us Together
Leon Creek Watershed Master Plan
Damage Center Location Map
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TBPE Reg. No. F-3580
Date January 2011
Job No. 60156508
Exhibit E.1
W:\1WRS\60156508 LCWMP Phase III\400 TechInfo\424 GIS\Exhibits\Report EX- LocationMap.mxd

# 1.0 Introduction

## 1.1 Purpose

In 2008, the San Antonio River Authority (SARA) authorized AECOM to develop the Leon Creek Watershed Master Plan (LCWMP), a multi-phase study for identifying areas of high flood risk, comparing flood mitigation alternatives, and prioritizing capital projects across the Leon Creek Watershed in Bexar County, Texas. The Leon Creek Watershed is under increased developmental pressures as growth occurs in the City of San Antonio (CoSA) and unincorporated Bexar County. As recently as 1998 and 2002, Leon Creek experienced significant flooding during high rainfall and runoff conditions, which inundated major highways and flooded many structures within the watershed. To reduce the risk of future flood related damages, the public and stakeholders (SARA, CoSA, and Bexar County) sought a long-term planning approach that would address the full downstream impacts of potential projects in the watershed, address multiple-use objectives where possible, and anticipate future land use trends.

This report documents the process used in the development of the Leon Creek Watershed Master Plan, which included:

- The identification of major flooding reaches within the Leon Creek main channel and major tributary channel areas,
- The selection of damage centers based on areas with a high density of at-risk structures within the watershed,
- The analysis of flooding risks and damage potential along bridges, culvert crossings, and other vital transportation corridors,
- The review of Digital Flood Insurance Rate Map (DFIRM) models to assess potential areas of scour and the evaluation of water quality to identify issues in order to develop potential multi-use mitigation strategies,
- The preliminary assessment of potential alternatives that reduce the risk of future flood losses in each of the damage centers using the following strategies:
    - Regional Storm Water Facilities (RSWF),
    - Enhanced channel design,
    - Selective clearing along heavily vegetated channels,
    - Bridge and culvert upgrades,
    - Flood protection barriers and bypass structures, and
    - Property acquisition and floodproofing.
- The refinement of project alternatives selected by workshop participants and inclusion of selected planned projects from the Bexar County Flood Control Capital Improvement Projects (CIP) Program and CoSA.
- The final development of project alternatives along with planning-level opinions of probable construction cost,

- The preliminary assessment of environmental regulatory requirements and multi-use opportunities for each alternative,
- The development of recommended project combinations to achieve increased optimization along with recommended project construction phasing,
- The preparation of a prioritization matrix for compiling and ranking projects, and
- The evaluation of alternative development methods, such as Best Management Practices (BMPs), to mitigate flooding and address water quality issues associated with storm water runoff.

## 1.2 Study Area

The Leon Creek Watershed is located in the western portion of Bexar County, Texas. It spans nearly the length of the county from north to south and includes approximately 237 square miles of contributing drainage area. The watershed drains to the Medina River and into the San Antonio River, which then ultimately drains into the Gulf of Mexico. Current land use in the steeply sloped upper reaches tends to be undeveloped and/or rangeland. Progressing southward, topography becomes less steep, and land use in the watershed transitions to suburban residential and highly urbanized to the west of downtown. Towards the southern portion of the watershed, land use becomes progressively less developed, and topography becomes comparatively flatter (Appendix A.1).

Portions of the watershed lie within the Edwards Aquifer Recharge and Contributing Zones, as defined in Title 30 Texas Administrative Code (TAC) § 213.3 and 30 TAC § 213.22. This region is illustrated in Appendix A.2.

## 1.3 Project Phases

The LCWMP was organized into three phases. In Phase 1, the study identified twenty-four areas of major flood risk ("Damage Centers") and evaluated both on- and off-channel Regional Storm Water Facility (RSWF) detention alternatives to minimize flooding impacts. Phase 1 was documented in an earlier report (Leon Creek Watershed Master Plan Phase 1 – Final Report, October 2008). In Phase 2, the study analyzed other traditional flood mitigation strategies, including channel design enhancement alternatives, flood protection barriers and bypass structures, selective clearing techniques, property acquisition, and floodproofing measures. Phase 2 was also documented in an earlier report (Leon Creek Watershed Master Plan Phase 2 – Final Report, April 2010). Both previous Phase 1 and Phase 2 reports may be referenced in the DVD data package accompanying the Leon Creek Watershed Master Plan final report.

In addition to refining the analyses performed in Phases 1 and 2, the master plan study conducted during Phase 3 considered non-traditional flood mitigation strategies, including low-impact development, and water quality enhancement opportunities.[2] Furthermore, the study compiled an overview of the most promising projects and project combinations for reducing flood risks and

[2] In order to maintain consistency between phases and to account for recent site developments, work performed during the first two phases was also updated during Phase 3. For a description of these updates, refer to Appendix A.5.

improving overall quality of life within the Leon Creek Watershed. This report summarizes findings developed during all three phases.

Between May 2008 and October 2010, five workshops were held with the stakeholders, the U.S. Army Corps of Engineers (USACE) Fort Worth District, and AECOM. The workshops were utilized by stakeholders and planners as a way to present preliminary methodologies and results throughout the master planning process and to discuss and prioritize various project alternatives. For a detailed description of each workshop, along with a complete set of formal meeting minutes, refer to Appendix A.3.

# 2.0 Data Collection

## 2.1 Geographic Data Sources

A variety of spatial data was collected to identify planned projects, existing and planned development, historic flooding, known water quality and erosion concerns, environmental constraints and wildlife habitats, other regulatory constraints, existing parks, and utilities. All collected data was acquired in formats compatible with analysis using geographic information system (GIS) software. A complete list of these data sets and their sources is included in Appendix B.

## 2.2 Site Reconnaissance

When possible, limited individual site reconnaissance was conducted to collect data pertaining to floor slab elevations and the environmental regulatory analysis, jurisdictional waters of the United States, archaeological resources, and other permitting requirements as described in Section 4.6 (Regulatory Analysis).

## 2.3 Modeling Sources and Updates

During the study, SARA provided the hydrologic and hydraulic models and all associated data and spreadsheets used to develop the Federal Emergency Management Agency (FEMA) Digital Flood Insurance Rate Maps (DFIRMs) for the Leon Creek Watershed. In both Phase 1 and Phase 2, the study incorporated preliminary DFIRM models, as issued by FEMA on September 28, 2007. Final DFIRM models, which reflect floodplain appeals and protests received between May 9 and August 6 of 2008, were issued by FEMA on March 29, 2010, and modified for use in the final phase of the master plan study.[3]

The final DFIRM models were modified to incorporate Letter of Map Revision (LOMR) updates, plat information, and construction as-builts for recent flood control and development projects, including those completed since 2005 as well as several currently in development (for a list of these modifications, refer to Appendix B). These corrected DFIRM models were used as the basis for all analyses performed in the LCWMP.

[3] The final DFIRM models became effective on September 29, 2010.

# 3.0 Assessment of Current Conditions

The primary purpose of the LCWMP is to develop projects to reduce the risk of flood-related damages. Before proceeding with project development, the areas of highest risk for incurring flood-related damages were identified. Water quality and scour issues were also assessed in order to identify multi-purpose design opportunities.

## 3.1 Level of Flood Protection

In order to identify areas at risk of major flooding within the Leon Creek Watershed, it was necessary to calculate existing levels of flood protection for private property and public infrastructure. The level of flood protection (LOFP) for each structure is defined by the maximum storm event frequency at which the structure incurs damages or becomes a public safety hazard. In general, the analysis required the following steps:

1. Identifying which buildings and roadways are inside the mapped DFIRM floodplain,

2. Determining the depth of flooding for each of these structures during the 10-, 50-, 100-, and 500-year storm events under existing conditions as well as during the 100-year storm event under future conditions, and lastly,

3. Estimating the value of damages to each building and classifying each roadway according to its safety hazard risk.

GIS analysis was used to identify areas with high densities of affected structures, which were then designated as damage centers. This designation facilitated the prioritization of the highest risk areas for project planning.

### 3.1.1 Building Structures

Damages to buildings (residential and commercial structures) were evaluated by first identifying buildings located within the floodplain, and then by calculating the depth of flooding at each building and estimating potential flood damages.

Buildings within the floodplain were identified using the preliminary DFIRM floodplain and 2008 aerial photos. Structures that appeared to be sheds, garages, or similar outbuildings were not included. The ground surface elevations for each point were extracted from the 30-meter 2005 Digital Elevation Model (DEM). Building finished floor elevations were estimated from site reconnaissance and ranged from 0.5 feet to 2 feet above natural ground. Final building elevations were estimated by adding the estimated finished floor elevations to the extracted ground surface elevations.

Water surface elevations were calculated using the Corrected DFIRM HEC-RAS models for each creek and tributary. Using the HEC-GeoRAS tool, each creek's hydraulic model results were imported into GIS to create a set of five Triangulated Irregular Networks (TINs) representing water surface elevations for each of the five studied storm events. The five water surface elevation TINs

were then converted to rasters and used to extract specific water surface elevations at each building point for each frequency storm event.

At the confluences of streams, the Base Flood Elevation data from the DFIRM study was checked against the water surface elevation rasters for both streams to identify the source of flooding. Because water surface elevations could not be determined where hydraulic models were not available, buildings in approximate zones were not included in the LOFP analysis.

After determining the building elevations and water surface elevations at each building point, the depth of flooding was calculated for each storm event by simple subtraction. A LOFP classification was then assigned to each building based on the highest frequency storm event under existing conditions that would cause flooding at that location. This classification system is further explained in Table 3.1a. Under future conditions, a separate LOFP classification was assigned for each building flooded by the 100-year storm event. For visual purposes, exhibits used unique symbols to distinguish between buildings flooded by the 100-year future and 500-year existing storm events.

**Table 3.1a: Classification of LOFP**

| Statistical Frequency of Flooding (Under Existing Conditions) | Building LOFP Classification |
|---|---|
| 10 years (10% Annual Chance) | <10 |
| 50 years (2% Annual Chance) | 10-50 |
| 100 years (1% Annual Chance) | 50-100 |
| 500 years (0.2% Annual Chance) | 100-500 |
| More than 500 years (Less than 0.2% Annual Chance) | >500 |
| 100 years, Future Conditions (1% Annual Chance under future conditions) | 100 Future |

The depth-of-flooding calculations were then used to estimate the value of damages for each storm event. Depth-damage relationships were taken from *Depth-Damage Relationships for Structures, Contents, and Vehicles and Content-to-Structure Value Ratios (CSVR) in Support of the Donaldsonville to the Gulf, Louisiana, Feasibility Study* (USACE Report)[4]. Damage estimates were calculated only for the structure and contents for each parcel; vehicle damage estimates were not included in this study. The depth-damage relationships for both structures and contents as defined in the USACE publication were based on structure values. The 2008 Bexar County Appraisal District (BCAD) parcel improvement values were used as an estimate of the total value of the structures on each property. If a parcel contained more than one building, one was selected at random to provide a representative flood depth value for all other buildings within the parcel. This step was necessary

[4] USACE New Orleans District, 2006. The study area is within the Ft. Worth District; however, at the time of this study, depth-damage curves from the Ft. Worth District were not available for use. Therefore, the New Orleans District curves were the best available.

to prevent overestimating damages, since BCAD parcel improvement values represent the value of all structures within the parcel.

Annual damages were estimated by taking the sum of the damages multiplied by the storm's probability for the 10-, 50-, 100- and 500-year storm events, as shown in the following equation:

$$AD = (0.1 \times D_{10}) + (0.02 \times D_{50}) + (0.01 \times D_{100}) + (0.002 \times D_{500})$$

Where:

$AD$ = the estimated amount of total annual damages, and
$D_x$ = the amount of damages calculated for the "x"-year storm event.

This LOFP analysis is largely dependent on accurate parcel data from the BCAD dataset and will systematically neglect any buildings listed without appraisal values. For example, because mobile home values are not included in the BCAD parcel dataset, the above method was unable to estimate flooding damages to mobile homes. During the analysis, a high concentration of mobile homes was observed along Leon Creek near Quintana Road and New Laredo Highway. In order to estimate the damage value for these buildings, the USACE depth-damage relationship was applied using an assumed structure value of $20,000 for each mobile home. This assumed value fell in the mid-range of a random selection of other mobile home values from the BCAD website.

The results of the Building Structure analysis are summarized in Table 3.1b. Estimated annual damages for the entire watershed total $2,884,000.

**Table 3.1b: Building Structure Analysis Summary (Entire Watershed)***

| Storm Event | 10-year | 50-year | 100-year | 500-year | 100-year Future |
|---|---|---|---|---|---|
| No. of Buildings in the Floodplain | 284 | 857 | 1,480 | 3,359 | 2,040 |
| Est. Damages from Flooding | $7,756,000 | $41,765,000 | $82,394,000 | $224,478,000 | $122,147,000 |

*Based on Corrected DFIRM floodplain

### 3.1.2 Damage Centers

In order to prioritize study areas and assess the local impacts of developed project alternatives, buildings inside the DFIRM floodplain were then grouped into damage centers (DC), each representing an area of high building density.[5] These damage centers were established by performing a spatial density analysis in GIS with all residential and commercial buildings identified during the level of flood protection analysis (i.e., those flooded by the 500-year storm event). Eighteen areas with high densities of affected buildings were identified within Leon Creek watershed; each was assigned a unique number identification. Where these areas fell across multiple streams, they were subdivided and assigned a letter identifier in addition to their numbers.

[5] A preliminary DFIRM floodplain (received in 2007) was used to identify damage center locations.

In total, 24 damage centers were identified, as summarized in Table 3.1c. A map illustrating these 24 damage centers and their damage densities is shown in Appendix C.

**Table 3.1c: Damage Center Summary**

| Damage Center ID | Creek Name | Location |
|---|---|---|
| 1* | Leon Creek | West of IH-10 in Leon Springs, Texas |
| 2* | Huebner Creek | Between Evers Road and Apple Green Road |
| 3A* | Leon Creek | North of Ingram Road |
| 3B* | Leon Creek | South of Ingram Road |
| 4* | Culebra Creek | South of Grissom Road |
| 5A* | Slick Ranch Creek | South of State Highway 151 west of W Military Drive |
| 5B | Leon Creek | South of State Highway 151 at Pinn Road |
| 6A* | French Creek | South of Guilbeau Road |
| 6B* | French Creek | Near Bandera Road at Mystic Park |
| 6C* | Leon Creek | North of Bandera Road |
| 7A* | Huesta Creek | Between W Loop 1604 and Babcock Road |
| 7B* | Maverick Creek | Between UTSA Boulevard and Hausman Road |
| 8 | French Creek | Northwest of Bandera Road intersection at W Loop 1604 |
| 9 | Leon Creek | East of IH-10 at Camp Bullis Road |
| 10 | Leon Creek | Near Quintana Road and New Laredo Highway |
| 11* | Helotes Creek | East of W Loop 1604 near Burke Elementary School |
| 12* | Helotes Creek | Near Braun Road |
| 13* | Huebner Creek | Between Eckhert Road and Strathaven Road |
| 14* | Huebner Creek | North of Ingram Road |
| 15* | Leon Creek | North of Grissom Road |
| 16* | Culebra Creek | Northwest of Galm Road intersection at Culebra Road |
| 17* | Culebra Creek Tributary A | West of Tezel Road |
| 18A | Los Reyes Creek | West of Bandera Road in Helotes, Texas |
| 18B* | Helotes Creek | Near Scenic Loop Road in Helotes, Texas |

*Damage center selected for detailed project development

While not fully inclusive of all buildings in the Leon Creek watershed, these damage centers provided a method for prioritizing project development to address the most at-risk areas. Damage Centers were also used in preliminary analyses of projects to evaluate flood risk reduction benefits. However, isolated buildings were excluded from the damage centers. Table 3.1d shows the percentage of at-risk building accounted for within damage centers by tributary. Overall, 90 percent of at-risk buildings were located within the 24 damage centers.

**Table 3.1d: Percent of At-Risk Buildings Contained in Damage Centers***

| Creek Name | Buildings in Damage Centers | Total Buildings | Difference | % Contained in Damage Centers |
|---|---|---|---|---|
| Culebra Creek | 607 | 672 | 65 | 90.3% |
| Culebra Creek Tributary A | 114 | 124 | 10 | 91.9% |
| French Creek | 150 | 190 | 40 | 78.9% |
| Helotes Creek | 230 | 280 | 50 | 82.1% |
| Huebner Creek | 447 | 460 | 13 | 97.2% |
| Huesta Creek | 66 | 81 | 15 | 81.5% |
| Leon Creek (Mainstem) | 1003 | 1145 | 142 | 87.6% |
| Maverick Creek | 69 | 75 | 6 | 92.0% |
| Slick Ranch Creek | 548 | 565 | 17 | 97.0% |
| Leon Creek watershed | 3234 | 3592 | 358 | 90.1% |

*Note: The damage centers were developed using a preliminary DFIRM floodplain (received in 2007). In Damage Center 12 (Helotes Creek) and Damage Center 15 (Leon Creek), the effective DFIRM floodplain overlaps approximately 40 additional buildings, which were not included in the initial damage center study or in subsequent impact analyses.

### 3.1.3 Roadways

Roadway hazards were evaluated by calculating the depth of flooding and the velocity of flow over each roadway in the floodplain and by classifying each roadway according to its safety hazard potential using CoSA's *Unified Development Code*. Due to modeling constraints, two separate methodologies were developed in order to analyze both roadway crossings (perpendicular to the stream centerline) and roadway corridors (parallel to the stream centerline).

**Roadway Crossings (Perpendicular)**

The roadway crossing analysis was performed for all crossings modeled as bridges or culvert crossings in the DFIRM HEC-RAS models. The analysis did not include low water crossings.

For reference purposes, water surface elevations were calculated at each roadway crossing by adding the depth of overtopping to the baseline elevation. To establish a baseline elevation, the minimum weir flow elevation from the HEC-RAS model was used.[6]

In general, the depth of overtopping data was extracted from the HEC-RAS output variable "Weir Max Depth."[7] However, there were a few cases when these depths were manually set to zero.

[6] Typically, this elevation is the lowest point in the roadway deck above the stream/creek crossing. However, the HEC-RAS model also uses a lower ground point elevation if one exists in the overbanks of the bridge cross-section. In these cases, it is assumed that the roadway deck follows the grade of the ground in the overbanks. The minimum weir flow elevation is also impacted by the presence of ineffective flow areas in the overbanks of the structure cross-section, so it may be different for lower design storm flows than for larger design storm flows. Due to the complexity and variability of the minimum weir flow elevation reported by HEC-RAS, the baseline elevation may not necessarily be equal to the "Min El Weir Flow" elevation reported by the HEC-RAS model.

This was done when the overtopping depth occurred in an overbank area that was modeled as an "effective flow area" (i.e., to eliminate crossing of profiles in the DFIRM multiple profile runs), even though it would typically be considered as ineffective. Depths were also manually set to zero when the energy grade line elevation was calculated to be above the baseline elevation, even though the water surface elevation was calculated to be below the bridge low chord elevation. In these cases, it was assumed that there was no blockage of flow under the bridge which could cause the water surface to rise to the energy grade elevation and, therefore, that no overtopping of the roadway would occur.

The velocity of flow overtopping the roadway structure was calculated by dividing the flow rate over the weir (as calculated by HEC-RAS) by the HEC-RAS calculated weir flow area. In the event that a roadway structure was highly-overtopped (i.e., when the ratio of the depth of water over the minimum weir elevation to the height of the energy grade line over the minimum weir elevation exceeded 0.95), the velocity was reported using HEC-RAS velocity calculations for the upstream internal bridge cross-section.

Using the calculated depth of overtopping and the flow velocity, each crossing was classified according to its safety hazard risk based on Figure 504-2 from CoSA's *Unified Development Code*. LOFP values were defined by the highest frequency storm event that could potentially cause a "dangerous" road hazard at each location. The CoSA road hazard curve and its defining equations have been reprinted in Appendix D.1.

The results of the Roadway Crossings analysis for all tributaries in Leon Creek watershed are summarized in Table 3.1e.

**Table 3.1e: Roadway Structure Analysis Results Summary**

| Storm Event | 10-year | 50-year | 100-year | 500-year | 100-year Future |
|---|---|---|---|---|---|
| No. Unsafe Roadway Crossings | 105 | 154 | 173 | 209 | 189 |

### Roadway Corridors (Parallel)

The roadway corridors analysis was also performed for all roadways excluded from the roadway crossings analysis (i.e., those near existing floodplains and parallel to channels).

Within the Leon Creek watershed, nearly 1,000 roadway segments were identified as being located parallel and in close proximity to an existing floodplain. The selection of roadways for detailed analysis was narrowed down to the most critical corridors connecting neighborhoods with major highways using a "travelshed" analysis of access routes during flood conditions. In the analysis, all roadways that intersect the floodplain were identified on a map of the watershed. Where primary

[7] The "Weir Max Depth" variable in HEC-RAS describes the distance from the energy grade line elevation at the structure to the baseline elevation. The energy grade line elevation is the water surface elevation plus the velocity head and describes the water surface elevation that would result if an obstruction was placed in the flow path of the water overtopping the roadway; therefore, it was deemed appropriate for this analysis.

routes to major highways were blocked by a floodplain, alternative routes were identified. The remaining twenty roadways represent the corridors that could potentially provide the only point of evacuation for residents or access by emergency vehicles.

The identified corridors are mapped in Appendix D and include:

1. Babcock Road near Camp Bullis Road
2. Babcock Road near UTSA Boulevard
3. Babcock Road near W Hausman Road
4. Bandera Road near Ranch Parkway
5. Boerne Stage Road near IH-10
6. Culebra Road (FM 471) near W Loop 1604
7. Culebra Road near Westover Hills Boulevard
8. FM 1560 near Braun Road
9. Galm Road near Culebra Road (FM 471)
10. Grissom Road near Timber Path
11. Military Drive SW near Old Pearsall Road
12. Military Drive W-SW near SH 151
13. Old Grissom Road near Grissom Road
14. Potranco Road near Culebra Road
15. Quintana Road near Plumnear Road
16. Scenic Loop Road near Menchaca Road
17. Scenic Loop Road near Bandera Road
18. Somerset Road near IH-35 S
19. Tezel Road near Timber Ranch
20. Timber Path near Culebra Road

Because the HEC-RAS software cannot be easily used to characterize these roadways, an alternate method was developed to determine the level of flood protection (LOFP) for a length of roadway that adjoins but does not intersect a neighboring channel. For each roadway contained within the identified areas, points were created in GIS at the intersection of the roadway and each cross section. Elevations were assigned to the points based on 2005 aerial topography, and water surface elevations and velocities were extracted from the HEC-RAS output data for the corresponding cross section. The depth of overtopping was calculated for each point by subtracting the roadway elevation from the water surface elevation. The depth of overtopping and the velocity data were then used to assign danger classifications according to CoSA's (CoSA, 2006), as previously discussed in the roadway crossings analysis.

To determine the overall impact of flooding within each roadway area, the twenty roadways were ranked according to average daily traffic (ADT) counts obtained from Bexar County, the City of San Antonio, and TXDOT websites. Traffic count estimates included traffic coming from both directions (multiple lanes). ADT counts used in this study are reported in Appendix D.1 and summarized in Table 3.1f.

Two roadways do not have public traffic count data. The information was estimated as follows:

1. **Somerset Road South of IH-35 South**: ADT count was estimated as roughly equivalent to ADT count north of IH-35 on Quintana Road, while rounding up conservatively.
2. **Timber Path South of Grissom Road**: ADT count was estimated as roughly equivalent to ADT count for north-bound/south-bound traffic on adjacent connecting street, Old Grissom Road.

Each roadway was ranked according to an overall impact rating, as determined by the roadway's peak flooding point (lowest LOFP) and its assumed ADT count at that location according to the following equation:

$$Overall\ Impact\ Rating\ = k_n \times LOFP \times ADT$$

Where:

$k_n$ = a constant used to normalize all results to a 0-1 scale,
LOFP = the annual percent chance of flooding as determined by the roadway's Level of Flood Protection, and
$ADT$ = the roadway's average daily traffic count.

A high overall impact rating indicates a roadway frequently at risk for dangerous road conditions in combination with high traffic volumes.

Table 3.1f summarizes the results of analysis based on the overall impact rating for each segment of roadway. The final data are presented in Appendix D on a per-cross-section basis and are expressed both in terms of LOFP (by symbol color) and ADT (by symbol size). Many of the impacted transportation corridors were located within one of the previously identified damage centers. The following additional high flood-risk areas were identified and assigned to new damage centers:

- Babcock Road at Camp Bullis Road (Maverick Creek), assigned to Damage Center T-1
- Bandera Road at Ranch Parkway (Los Reyes Creek), assigned to Damage Center T-2
- Culebra Road at Loop 1604 (Culebra Creek), assigned to Damage Center T-3
- FM 1560 at Braun Road (Culebra Tributary C), assigned to Damage Center T-4
- Galm Road at Culebra Road (Government Canyon Creek), assigned to Damage Center T-5
- Military Drive SW near Old Pearsall Road (Leon Creek), assigned to Damage Center T-6
- Scenic Loop Road at Menchaca Road (Helotes Creek), assigned to Damage Center T-7

**Table 3.1f: Flooding Impact on Transportation Corridors**

| Roadway | Damage Center | Peak Flooding Location (occurs in between) | LOFP | Approximate ADT Count at this Location | Overall Impact Rating* |
|---|---|---|---|---|---|
| Babcock Road near Camp Bullis Road | *T-1* | Camp Bullis Road & Chase Hill Boulevard | <10 | 0-5,000 | 0.39 |
| Babcock Road near Camp Bullis Road | *T-1* | Heuermann Road & Camp Bullis Road | <10 | 0-5,000 | 0.32 |
| Babcock Road near UTSA Boulevard | 7B | W Loop 1604 N & UTSA Boulevard | 10-50 | 10,001-20,000 | 0.34 |
| Babcock Road near W Hausman Road | 7B | UTSA Boulevard & W Hausman Road | 10-50 | 10,001-20,000 | 0.37 |
| Bandera Road near Ranch Parkway | *T-2* | Chimney Creek Road & Frank Madla Road | 50-100 | 10,001-20,000 | 0.19 |
| Bandera Road near Ranch Parkway | *T-2* | Ranch Parkway & Reyes Canyons | 10-50 | 10,001-20,000 | 0.38 |
| Boerne Stage Road near IH-10 | 1 | IH-10 W & Baywater Stage | <10 | 0-5,000 | 0.69 |
| Boerne Stage Road near IH-10 | 1 | Scenic Loop Road & Breeze Oak Lane | <10 | 0-5,000 | 0.69 |
| Culebra Road (FM 471) near W Loop 1604 N | *T-3* | W Loop 1604 N & Mountain View Drive | 10-50 | 30,001-40,000 | 1.00 |
| Culebra Road (FM 471) near W Loop 1604 N | *T-3* | Lone Star Parkway & W Loop 1604 N | 50-100 | 10,000-20,000 | 0.30 |
| Culebra Road near Westover Hills Boulevard | 4 | Tezel Road & Timber Path | 10-50 | 30,001-40,000 | 0.98 |
| FM 1560 near Braun Road | *T-4* | Doheny Road & Galm Road | 10-50 | 5,000-10,000 | 0.23 |
| Galm Road near Culebra Road (FM 471) | *T-5* | Remuda Ranch & Mill Park | <10 | 0-5,000 | 0.16 |
| Grissom Road near Timber Path | 4 | Harvest Meadow & French Meadow | 10-50 | 10,001-20,000 | 0.53 |
| Grissom Road near Timber Path | 4 | Northwest Trails & Timber Path | 100-500 | 10,001-20,000 | 0.05 |
| Grissom Road near Timber Path | 15 | Heath Road & Timberhill Drive | 50-100 | 20,001-30,000 | 0.41 |
| Military Drive SW near Old Pearsall Road** | *T-6* | Old Pearsall Road & Quintana Road | 10-50 | 20,001-30,000 | 0.70 |
| Military Drive W-SW near SH 151 | 5B | Brownleaf Drive & SW Loop 410 | 100-500 | 20,001-30,000 | 0.06 |
| Old Grissom Road near Grissom Road | 4 | Grissom Road & Timber Path | 10-50 | 5,001-10,000 | 0.25 |
| Potranco Road near Culebra Road | 3B | Culebra Road & Ingram Road | 10-50 | 5,001-10,000 | 0.26 |
| Quintana Road near Plumnear Road | 10 | Military Drive SW & Cassin Road | <10 | 0-5,000 | 0.05 |
| Scenic Loop Road near Menchaca Road | *T-7* | Grey Forest Drive & Grey Forest Drive (Loop) | <10 | 0-5,000 | 0.25 |
| Scenic Loop Road near Menchaca Road | *T-7* | Menchaca Road & Low Road | <10 | 0-5,000 | 0.44 |
| Scenic Loop Road near Bandera Road | 18B | Tower View Road & Old Scenic Loop Road | <10 | 0-5,000 | 0.44 |
| Somerset Road near IH-35 S | 10 | IH-35 S & SW Loop 410 | <10 | 0-5,000*** | 0.08 |
| Tezel Road near Timber Ranch | 17 | Ridge Run & Timber Ranch | 10-50 | 10,001-20,000 | 0.53 |
| Timber Path near Culebra Road | 4 | Grissom Road & Culebra Road | 50-100 | 5,001-10,000*** | 0.13 |

* The product of the ADT and the probability of the overtopping storm event, normalized to a 0-1 scale.
** Port of San Antonio Test Cell Area
*** Estimated Values

## 3.2 Stream Bank Erosion

A scour analysis was performed as described in Appendix E using depth and velocity assumptions from Texas Secondary Evaluation and Analysis for Scour (TXDOT, 1993) and soil data from Natural Resources Conservation Service's Soil Survey Geographic database for Bexar County (NRCS, 2006).

Approximate locations of potential scour within identified damage centers were identified. The majority of damage centers exhibited potential scour problems, with the exception of Damage Centers 4 and 16. Helotes Creek, Huebner Creek, and Leon Creek are extremely vulnerable and have scour issues throughout their entire reach. Due to high flow rates and velocities, lower Leon Creek (downstream of the Culebra Creek confluence) revealed potential scour issues correlated to flow depths of greater than 9.8 feet for the majority of the overbanks. Field investigations of selected damage centers revealed that previous streambed scour has developed bedrock exposure in Damage Centers 1, 3, 7B, 15, and 18.

Many utility service lines were located within potential scour areas throughout the Leon Creek watershed. Most often, utility service lines intersect or cross stream reaches perpendicularly, causing a single point of conflict. However, many San Antonio Water System (SAWS) sanitary sewers and recycled water mains are generally located parallel to and along streambeds within several of the analyzed reaches. Conflicting utility service line locations are included in exhibits found in Appendix E. Available utility information did not include necessary elevation data to determine the risk of exposure that would result from the determined scour potential. However, the field investigations of selected damage centers did reveal existing scour issues. Manholes observed in Damage Center 1 just downstream of IH-10 Frontage Road have become exposed due to degraded trench backfill.

## 3.3 Water Quality

An analysis was performed to characterize known water quality issues in the Leon Creek watershed. Using environmental regulations and screening criteria as used by the Texas Commission of Environmental Quality (TCEQ) and preliminary water quality sampling data provided by SARA, 33 parameters were evaluated for Leon Creek.[8] These parameters included elemental non-metals, inorganic compounds, metals (in water column and sediment), organic compounds, stream properties, and pathogens. Appendix F describes the process used to evaluate concerns and impairments at major sampling stations throughout the watershed and provides more detailed results of the analysis.

In general, areas of higher concern were identified in lower Leon Creek. They did not reflect any clear overall trends as part of the greater Leon Creek watershed but instead seemed to reflect the influence of riparian conditions and adjacent land use. Based on this trend, it is unlikely that regional flood mitigation projects located far upstream of pollutant sources could address any of the identified water quality concerns. Water quality benefits of individual projects would be local and would potentially include reducing the risk of stream degradation nearby and improving local stream health to support riparian species. These potential benefits were evaluated in Section 4.9.1 for the criteria "Water quality

[8] The 2009 CoSA Discharge Monitoring Report was also provided by SARA; however it was not received in time to be incorporated into this report.

enhancement," "Environmental or habitat enhancement," "Channel instability," and "Natural channel design suitability."

# 4.0 Project Selection and Development

As a broad-based study, the LCWMP considered a wide range of criteria to develop and prioritize flood mitigation projects for selected damage centers. A preliminary analysis was used initially to evaluate the general feasibility and effectiveness of different flood mitigation strategies and to provide the study participants a foundation for defining the master plan focus. Upon selecting a final set of damage centers, flood mitigation projects were then developed for detailed analysis, assessment, and ranking.

Project rankings were developed using a comprehensive prioritization matrix, which evaluated various aspects of individual project performance, including hydrologic and hydraulic impacts, potential reductions of damages and safety hazards, project costs, regulatory requirements, and opportunities for incorporating multi-use objectives. In addition, projects were evaluated in combination to identify opportunities to reduce project sizing and construction costs, to eliminate any negative downstream impacts caused by individual projects, and to determine required project phasing. Upon evaluating projects individually and in combination, final recommended projects were selected for future implementation.

## 4.1 Preliminary Analysis

During the preliminary analysis, several flood mitigation strategies were evaluated for each of the 24 damage centers to determine the feasibility and effectiveness of each. The preliminary assessment included evaluation of the following:

- Regional Storm Water Facilities (RSWF),
- Enhanced channel design,
- Selective clearing along heavily vegetated channels,
- Bridge and culvert upgrades,
- Flood protection barriers and bypass structures, and
- Property acquisition and floodproofing.

Potential sites for projects were selected using an environmental constraints map and existing and planned development. The methodology and results for the preliminary assessment were presented in the Phase 1 and Phase 2 Final Reports. Based on this preliminary assessment and the consensus developed during the 1st and 3rd workshops with study participants (SARA, CoSA, and Bexar County), some damage centers were omitted from the detailed project development stage.[9] These damage centers included:

[9] Further information about the project selection process is provided in *Appendix A.3* Workshop Summaries.

- **Damage Center 5B** (Leon Creek): Damages were not significant enough to continue project development or evaluation.
- **Damage Center 8** (French Creek): A pending LOMR potentially removes the majority of buildings in lower portion of damage center from the floodplain, greatly reducing the amount of flood damages if the LOMR is approved. The upper portion of the damage center is a top priority for the City of Helotes. Channel improvements would include extending the channel to FM 1560 at W Hausman Road.
- **Damage Center 9** (Leon Creek): Not selected for further evaluation because a buyout plan is currently in place to mitigate potential flooding damages.
- **Damage Center 10** (Leon Creek): Flood mitigation solutions are impractical due to high flow rates and low elevation structures in this area. The U.S. Army Corps of Engineers is evaluating the prospect of property buyouts in this area. Additionally, there is potential to upgrade IH-35 to improve the roadway level of service.
- **Damage Center 18A** (Los Reyes Creek): A selective clearing program was determined to provide sufficient flood mitigation; therefore, no further evaluation is necessary.

In total, nineteen damage centers were selected for more detailed project development.

## 4.2 Project Development Methodology

The project designs for the selected damage centers incorporated the following project types:

- On- and off-channel Regional Storm Water Facilities (RSWF),
- Enhanced channel design,
- Selective clearing along heavily vegetated channels,
- Bridge and culvert upgrades,
- Flood protection barriers, and
- Property acquisition[10].

Two project types, bypass structures and floodproofing, which were evaluated during the preliminary analysis were not incorporated in the detailed project development. Bypass structure opportunities were limited, and floodproofing was found not to be a feasible option for the number of at-risk structures in most damage centers.

Project designs were developed with the purposes of:

1. Reducing the risk of flood-related damages to local property and improving the safety of nearby roadway crossings, and
2. Avoiding negative downstream impacts, such as increased risk of flood-related damages or worsened safety ratings for roadway crossings (unless appropriate bridge upgrades are also planned and funded).

[10] Property acquisition was considered in conjunction with other project types in order to provide sufficient ROW. A buyout program was not evaluated as a flood mitigation alternative. A voluntary buyout program would need to be in place in order to request FEMA grant money for buyouts in the aftermath of a flood.

Furthermore, RSWFs were developed to reduce peak flow rates along entire tributaries, improving both local and downstream flood protection.

The following sections present the design methodologies for each type of project in further detail.

### 4.2.1 Regional Storm Water Facility (RSWF)

Using available 2005 aerial contour data, storage areas for each RSWF were delineated in AutoCad. Volume calculations were based on site topography or by assuming excavation with 3:1 side slopes. Generally, the pond bottom was assumed to have a 0.5 percent cross grade with a 0.5 percent bottom slope to maximize the pond volume. Outlet structures included broad-crested weirs, staged weirs or pipe and weir combination and were optimized for the 100-year existing storm event.

### 4.2.2 Enhanced Channel Design

Enhanced channel designs were developed for each damage center to remove channel constrictions, increase flow area, and reduce local risk of flood-related damages. The location and size of enhanced channel designs were determined by identifying the cause of flooding in the area during the preliminary analysis.

Enhanced channel designs were developed in accordance with the memorandum “Leon Creek Watershed Master Plan Phase II-A, Natural Waterway Conveyance Methodology, Revised,” dated May 26, 2009. The memorandum was produced during Phase 2 of the LCWMP and accepted by the BRWM partners. It is included in Appendix A.

In summary, enhanced channel designs were developed as a basic trapezoidal channel with 3:1 side slopes, which minimizes channel space requirements and allows for increased channel capacity within confined areas, especially in those reaches where the available right-of-way is insufficient for naturalized waterways. Additionally, benchback sections were considered during the preliminary analysis as described in the Leon Creek Watershed Master Plan Phase 2 Report. The results of the analysis determined that natural channel design techniques could be incorporated in most of the proposed channel cross sections with limited impacts to the flood-risk reduction benefits. The channel improvements used a Manning’s “n” value of 0.04 for the main channel representing a grass lined channel. The Manning’s “n” values for overbank areas were unmodified.

In cases where right-of-way acquisition was limited or channel velocities exceeded 14 feet per second, concrete enhanced conveyance options were developed to reduce WSELs and provide channel erosion protection. These areas were designed as a basic trapezoidal concrete lined channel with 1.5:1 slide slopes, represented by a Manning’s “n” value of 0.015.

Certain constraints, such as the locations of existing structures and major utility lines, were noted during this master planning process. These and other constraints will need to be addressed in further detail during subsequent study and design phases.

### 4.2.3 Selective Clearing

When optimizing structural channel improvements using selective clearing, a Manning’s “n” roughness coefficient of 0.04 was assumed for the optimized channel. This value corresponds to grass-lined channels with regular maintenance or gravel channels with limited vegetation.

### 4.2.4 Bridge and Culvert Upgrades

Bridge and culvert upgrades were used to enhance the effect of other flood mitigation strategies or to improve safety along a particular roadway downstream of proposed channel improvements. Bridge structures were modified to provide one foot of freeboard above the 100-year future water surface elevation. Culvert structures were modified by adjusting flow line elevations, culvert sizes, and/or deck elevations to pass the 100-year existing storm event without overtopping the roadway.

### 4.2.5 Flood Protection Barriers

Flood protection barriers which consisted of levees and floodwalls were designed to meet the levee design criteria from US Army Corps of Engineers Engineering Manual No. 1110-2-1913 "Design and Construction of Levees" (2000). Without project site field investigations, the two guidelines applied were for minimum side slopes of 3:1 and minimum top width of 10 feet. The required height was determined in GIS using 2005 aerial topography and the 100-year future Water Surface Elevation surface, assuming three feet of freeboard.

### 4.2.6 Property Acquisition

Property acquisition was considered for enhanced conveyance and RSWF projects that required additional right-of-way to be implemented or for projects which could not remove buildings located near the drainage channels from the potential inundation area. Appropriate properties were identified and the estimate cost was included in the corresponding project cost estimate. Cost estimates were based on 2008 Bexar County Appraisal District (BCAD) data for property and building values. Building damages for properties selected for acquisition were not included in the estimated damage calculations.

## 4.3 Selected Project Descriptions

For each of the nineteen selected damage centers, detailed project alternatives were developed and incorporated into the Corrected DFIRM models. Where current proposed projects were included in the analysis, the corresponding models were updated with project information. The following list provides a brief summary of each selected project alternative.[11] Additional information is included in Appendix G.

- Damage Center 1 – Located along Leon Creek near Boerne Stage Road in between Baywater Stage Road (near Cross Mountain Trail) and IH-10 West in Leon Springs, Texas. One project alternative was developed to reduce flooding near Old Fredericksburg Road, Two Creeks Subdivision, and Walnut Pass at Boerne Stage Subdivision. Model updates incorporated two new LOMRs, one consisting of a bridge and fill related to the Two Creeks Subdivision (Case No. 07-06-0331P, effective 03/23/2007), and the other consisting of a bridge from Stage Run Subdivision (Case No. 07-06-0434P, effective 10/11/2007). New fill information was also obtained for Walnut Pass at Boerne Stage Subdivision (Plat No. 040517) and the Valero at Cross Mountain Trail.
    - **Leon Creek at IH-10 NWWC** – Located downstream of Boerne Stage Road and IH-10 West, this area was selected to reduce water surface elevations upstream of IH-10 West. Per guidance from Workshop 3, a project was developed to widen the

[11] In Phase 2, multiple NWWC alternatives were developed for each damage center. The higher ranking alternative of each damage center was incorporated as part of the final selected projects.

channel. The existing left channel bank was maintained, and the right bank was widened to Old Fredericksburg Road.

- Damage Center 2 – Located along Huebner Creek between Apple Green Road and Evers Road west of Bandera Road in Leon Valley, Texas. Two project alternatives were developed to reduce flooding in adjacent residential neighborhoods and improve the LOFP for Evers Road and Apple Green Road.
    - **Eckhert RSWF** – Designed as an on-channel detention pond and located just upstream of the confluence of Huebner Creek and Huebner Creek Tributary A. The RSWF required a maximum storage capacity of approximately 100 acre-feet with minimum and maximum elevations at 844.3 feet and 856 feet, respectively. The existing culvert system at Eckhert Road was utilized as the outfall structure with flow restricted by closing one of the roadway's twelve existing 10-foot by 6-foot concrete box culverts.
    - **Huebner Creek at Evers Road NWWC** – Designed as a grass-lined channel with minimized upgrades at Evers Road. In order to meet flood mitigation objectives, the channel was widened past existing right-of-way, requiring property acquisition. The project also includes bridge upgrades for Apple Green Road, improving the LOFP at the roadway crossing to handle at least the 100-year storm event. The bridge upgrades developed for Evers Road were designed to improve the LOFP of buildings in the neighborhood just upstream of the crossing. Improving the LOFP of the crossing itself would require roadway improvements which would extend well beyond the limits of the bridge.

- Damage Center 3 – Located along Leon Creek upstream of Ingram Road at the confluence of Leon Creek and Culebra Creek. One project alternative was developed to reduce flooding in adjacent residential neighborhoods located within Damage Centers 3A and 3B.
    - **Leon Creek NWWC with Ingram Road Bridge Improvements (LC-8) and Huebner Creek Flood Protection Barrier (LC-17)** – Designed to widen the channel and remove the channel constriction just downstream of Damage Center 3A. The project was combined with proposed Bexar County Flood Control Projects LC-17 (June 2009) and LC-8 (May 2009), including a flood protection barrier along Huebner Creek and bridge upgrades to Ingram Road Low Water Crossing #58 located within Damage Center 3B.

- Damage Center 4 – Located along Culebra Creek between Culebra Road and Old Grissom Road. Two project alternatives were developed to reduce flooding in adjacent residential neighborhoods.
    - **Easterling RSWF** – Designed as an on-channel detention pond and located just downstream of the Culebra Creek RSWF. The RSWF required a maximum storage capacity of approximately 1,140 acre-feet with minimum and maximum elevations at 808 feet and 836 feet, respectively. It has a staged weir outfall structure with two weir openings: the lower opening, spanning 150 feet, was placed from grade level (808 feet) to a height of 25 feet; the upper opening, spanning 1,000 feet, was placed from a height of 25 to 30 feet.
    - **Culebra Creek NWWC with Culebra Road Bridge Improvements** – Designed to maintain existing banks while lowering the flow line throughout the full length of the damage center (Culebra Road to Old Grissom Road). Additionally, bridge upgrades were developed for Culebra Road and involved raising the bridge low chord above the existing 100-year storm water surface elevation to reduce the constriction caused by the bridge opening and improve the bridge LOFP.

- Damage Center 5A – Located along Slick Ranch Creek between Texas State Highway 151 and Marbach Road. One project alternative was developed to reduce flooding in adjacent residential neighborhoods.[12] In addition, an existing channel project was completed in 2008 by CoSA near West Military Drive to reduce flooding.
    - **Havenbrook RSWF** – Designed as an on-channel detention pond and located southeast of Texas State Highway 151 and Loop 410 West. The RSWF required a maximum storage capacity of approximately 210 acre-feet with minimum and maximum elevations at 732 feet and 743 feet, respectively. It had a staged weir outfall structure with two weir openings: the lower opening, spanning 125 feet, was placed from grade level (732 feet) to a height of 9 feet; the upper opening, spanning 400 feet, was placed from a height of 9 to 11 feet.

- Damage Center 6A&B – Located along French Creek near Bandera Road and Guilbeau Road. Two project alternatives were developed to reduce flooding in adjacent residential neighborhoods located within Damage Centers 6A and 6B.
    - **French Creek RSWF** – Designed as an on-channel detention pond and located just upstream of Loop 1604 North. The RSWF required a maximum storage capacity of approximately 150 acre-feet with minimum and maximum elevations at 924.36 feet and 936 feet, respectively. The existing culvert system at Loop 1604 West was utilized as the outfall structure, consisting of fifteen 8-foot by 5-foot concrete box culverts at an elevation of 932 feet.
    - **French Creek at Guilbeau Road NWWC** – Designed to widen the channel and remove the channel constriction downstream of Guilbeau Road. Existing banks were maintained along the left overbank adjacent to residential developments. Land acquisition was required due to the increased channel widths along the right overbank.

- Damage Center 6C – Located along Leon Creek upstream of Bandera Road. One project alternative was developed to reduce flooding in nearby residential and commercial areas.
    - **Quarry at the Rim RSWF** – Previously identified by the City of San Antonio as an off-channel detention pond located northeast of Loop 1604 North and IH-10 West. The potential site is currently part of a long-term operational quarry. The RSWF required a maximum storage capacity of approximately 6,350 acre-feet. Since minimal data was available, a 300-foot-long weir was incorporated to limit spills into the quarry to the maximum capacity as provided by the City of San Antonio.

- Damage Center 7A – Located along Huesta Creek between Hausman Road and Babcock Road. One existing project (developed by the Bexar County Flood Control CIP) was analyzed in order to determine its impacts on the surrounding neighborhood and further downstream.
    - **Hausman Road Drainage Project Phase 1 (LC-9)** – Bexar County Flood Control Project LC-9 project consisted of NWWC immediately upstream and downstream of Hausman Road, in combination with bridge upgrades to Hausman Road, the removal

[12] Damage estimate for the selected RSWF project was developed with the draft DFIRM hydraulic model. The final DFIRM model removed a significant portion of the damage center from the floodplain (buildings along left overbank). Additionally, this portion of the damage center was mapped as an approximate zone with no official model. Therefore, damage estimates were not calculated for the RSWF project. Instead, because there was an insignificant reduction in peak flow rates, it was concluded that the project had no impact to existing conditions.

of Danvers Road, and property acquisition. Bridge upgrades included converting Hausman Road from multiple culverts to a single span bridge.

- Damage Center 7B – Located along Maverick Creek near UTSA Boulevard in between North Loop 1604 and Hausman Road. Two project alternatives were developed to reduce flooding within residential areas and across Babcock Road as well as other roads within the damage center. Model updates incorporated one new LOMR, consisting of a culvert and fill from the Royal Apartments development (Case No. 08-06-1354P, effective 03/19/2009), and one re-plat with fill data pertaining to The Place at Babcock-Hausman subdivision (Plat No. 080022, effective 04/28/2008). The re-plat also included new fill information for the Walgreens at LOT 1 Block 13.
    - **UTSA RSWF** – Designed as an off-channel detention pond and located southeast of Babcock Road and Loop 1604N. The RSWF had a maximum storage capacity of approximately 200 acre-feet with minimum and maximum elevations at 960 feet and 975 feet, respectively. It had a 480-foot long inflow weir with an average height of 11 feet and an outfall structure consisting of a 24-inch pipe.
    - **Maverick Creek NWWC with W. Hausman Road Bridge Improvements (LC-10)** – Designed to lower the channel invert and widen the channel along Babcock Road. In addition, this alternative included bridge upgrades to UTSA Boulevard in order to reduce or eliminate overflow between Maverick Creek and Huesta Creek Tributary A and to improve the LOFP of roadway crossings within the damage center. Bridge upgrades to UTSA Boulevard retain the existing roadway profile and lower the existing culvert invert elevation, resulting in a larger culvert structure. The project was combined with proposed Bexar County Flood Control Project LC-10, replacing the W Hausman Road crossing at Maverick Creek.

- Damage Center 11 – Located along Helotes Creek in between W Loop 1604 N and the confluence of Helotes Creek and Culebra Creek. One project alternative was developed to reduce flooding in adjacent residential areas.
    - **Braun RSWF** – Designed as an off-channel detention pond and located west of Braun Road and Loop 1604W. The RSWF had a maximum storage capacity of approximately 200 acre-feet with minimum and maximum elevations at 922.5 feet and 940 feet, respectively. It had a 925-foot long inflow weir with an average height of 17.5 feet and an outfall structure consisting of a 24-inch pipe.

- Damage Center 12 – Located along Helotes Creek downstream of Braun Road. Two project alternatives were developed to reduce flooding in nearby residential and commercial areas. No model updates were required because it was confirmed that recent bridge upgrades to Braun Road were already incorporated into the preliminary DFIRM hydraulic model.
    - **Helotes Creek RSWF** – Designed as an off-channel detention pond and located west of Texas Highway 16 and Loop 1604 North. The potential site, a 48.5 acre pit, is part of a currently operational quarry but is no longer in use. The RSWF had a maximum storage capacity of approximately 3,330 acre-feet with minimum and maximum elevations at 890 feet and 968 feet, respectively. A 300-foot north-facing side flow weir at an elevation of 980 feet diverted high flows into the RSWF. The outfall structure consisted of a 100-foot weir at an elevation of 968 feet.[13]

[13] It should also be noted that without a drainage structure located at the flow line, pumping would be required to drain the RSWF after a flood event has occurred.

- **Helotes Creek at Braun Road NWWC** – Designed to remove the channel constriction downstream of Braun Road by widening the channel while minimizing disruption to the existing channel.

- Damage Center 13 – Located along Huebner Creek between Babcock Road and Eckhert Road. Two project alternatives were developed to reduce flooding in nearby residential areas.
  - **Huebner Creek RSWF at Prue Road (LC-15)** – Previously identified by the Bexar County Flood Control Program as an on-channel detention pond, located upstream of Prue Road. Project data was supplied by Bexar County from a July 2009 report entitled "The Reconstruction of Prue Road from Jade Heights to Woodwater Way."
  - **Huebner Creek at Eckhert Road NWWC** – Designed to widen the channel between Whitby Road and Eckhert Road.

- Damage Center 14 – Located along Huebner Creek between Bandera Road and Timberhill Drive. Two existing projects (developed by the Bexar County Flood Control CIP) were analyzed in order to determine their impacts on the surrounding neighborhood and further downstream. Model updates incorporated bridge upgrades to Timber Hill Road.
  - **Huebner Creek at Bandera Road NWWC (LC-17) and Ingram Road Bridge Improvements (LC-8)** – Bexar County Flood Control Project LC-17 project consisted of a NWWC between Bandera Road and Ingram Road. The proposed naturalized channel contains an earthen pilot channel. Property acquisition was required to implement the enhanced conveyance portion of the project. Additionally, the project included a flood protection barrier, located below Ingram Road at the confluence with Leon Creek (Damage Center 3B), to remove buildings along Loop 410 from the floodplain. The project was combined with proposed Bexar County Flood Control Project LC-8, including bridge upgrades to Ingram Road Low Water Crossing #58.

- Damage Center 15 – Located along Leon Creek upstream of Grissom Road. Two project alternatives were developed to reduce flooding in adjacent residential areas, with consideration for the nearby solid waste disposal site, located at the confluence of Leon Creek and Lower French Creek.
  - **Mainland RSWF** – Designed as an off-channel detention pond, located north of Bandera Road and Ebert Road. The RSWF required a maximum storage capacity of approximately 110 acre-feet with minimum and maximum elevations at 818 feet and 831 feet, respectively. It had a 1310-foot long inflow weir with an average height of 13 feet and an outfall structure consisting of a 24-inch pipe.
  - **Leon Creek at Grissom Road Enhanced Conveyance** – Designed to avoid disturbing the nearby solid waste disposal site. The enhanced conveyance project was designed to widen the channel, reduce the channel constriction, and implement a selective clearing program upstream. Concrete lining was required immediately upstream and downstream of the improved constriction area to prevent erosion.

- Damage Center 16 – Located along Culebra Creek upstream of FM 1560. Three project alternatives were developed to reduce flooding in the nearby Silver Oaks Subdivision. Model updates incorporated one LOMR, consisting of a bridge and fill related to Stillwater Ranch (Case No. 08-06-2311P, effective on 07/30/2009) west of Damage Center 16.
  - **Galm RSWF** – Designed as an on-channel detention pond, located east of Galm Road. The RSWF required a maximum storage capacity of approximately 725 acre-feet with minimum and maximum elevations at 923.75 feet and 939 feet, respectively. It had a staged weir outfall structure with two weir openings: the lower

opening, spanning 150 feet, was placed from grade level (923.75 feet) to a height of 12.75 feet; the upper opening, spanning 1,500 feet, was placed from a height of 12.75 to 15.25 feet.

- **Government Canyon Creek RSWF** – Designed as an on-channel detention pond along Government Canyon Creek and located within the Government Canyon State Natural Area. Data for this RSWF project, including stage-storage-discharge data, was obtained from a preliminary study by the City of San Antonio (CoSA).
- **Culebra Creek at FM 1560 Earthen Flood Protection Barrier** – Consisted of an earthen flood protection barrier located along the southwest side of the Silver Oaks Subdivision, parallel to the road Briarton Wells. The barrier was designed to prevent Culebra Creek flood waters from backing up in to the subdivision through its drainage depression and to meet FEMA design criteria for accredited levees. Runoff drainage from the subdivision was rerouted to an earthen ditch located between the flood barrier and the residential properties along Briarton Wells. If implemented, this alternative would require the development of an operation and maintenance plan in order to receive FEMA certification.

- Damage Center 17 – Located along Culebra Creek Tributary A in between Dover Ridge and Tezel Road. One project alternative was developed to reduce flooding in adjacent residential neighborhoods. Model updates incorporated upgrades and the realignment to Tezel Road according to the TXDOT Improvement Project CSJ 0915-12-299 & 300.
  - **Culebra Creek Tributary A at Tezel Road Enhanced Conveyance** – Increased flow area by widening the channel and increasing its side slope. Segments of the existing channel are concrete-lined and would remain concrete-lined. Additional concrete channel lining was used in combination with bridge upgrades and property acquisition to improve the LOFP for all bridge crossings within Damage Center 17. Bridge upgrades to Dover Ridge, Ridge Path and Timber Ranch included widening and lowering inverts of the culvert structures. Due to the required bridge widening, the project included property acquisition just upstream and downstream of the bridge crossings.

- Damage Center 18B – Located along Helotes Creek between Scenic Loop Road and the confluence of Los Reyes Creek and Helotes Creek. One project alternative was developed to reduce flooding of nearby residential and commercial structures.
  - **Helotes Creek at Bandera Road Enhanced Conveyance** – Increased conveyance by widening the channel and increasing its side slope. Channel excavation near Scenic Loop Road was minimized, while adding a segment of concrete lining between Bandera Road and Old Bandera Road to further improve the LOFP for nearby buildings.

## 4.4 Analysis of Impacts from Selected Individual Projects

To evaluate individual project impacts, each project was incorporated into the Corrected DFIRM hydrology model to determine its impact on peak flow rates downstream of the project area. The new peak flow rates were then applied to the Corrected DFIRM hydraulics model to calculate changes in water surface elevation, and the resulting floodplain was mapped in GIS in order to repeat the level of flood protection analysis as discussed in Section 3.0 of this report. Each project was assessed to determine its impact on buildings, roadway crossings, and roadway corridors, both locally and throughout the entire watershed. The following section discusses each step of the impact analysis in further detail.

### 4.4.1 Analysis of Hydrologic and Hydraulic Impacts

The hydrologic and hydraulic analyses were performed differently for each individual project depending on the project type. In most cases, it was necessary to modify the Corrected DFIRM hydrology model to incorporate the project's effects on peak flow rates.

For RSWF sites located at the upstream or downstream end of a sub-basin, a reservoir element was added to the hydrology model along an existing reach without affecting sub-basin elements. However, for RSWF sites located in the middle of sub-basins, it was necessary to divide the sub-basin elements in the model and recalculate the basin areas and times of concentration. Loss parameters (i.e., initial abstraction, runoff curve number, and percent impervious cover) were copied directly from the parent sub-basins. In addition, reach elements were divided, and the new storage-discharge values were calculated as a percentage of the parent reach storage-discharge data based on the relative length of each sub-reach.

Once appropriately positioned in the basin model, each RSWF was assigned stage-storage-discharge properties based on the design described in the previous section. This procedure varied according to whether the RSWF was on-channel or off-channel:

- **On-channel RSWFs:** The on-channel RSWFs were assigned stage-storage and storage-discharge tables based on the geometry of the proposed pond design. Additionally, on-channel reservoir elements in HEC-HMS were configured to receive flow directly from upstream reach or junction elements. For the Huebner Creek RSWF at Prue Road (LC-15), the hydrology model was modified using the stage-storage-discharge information from the LC-15 Updated Evaluation Report.

- **Off-channel RSWFs:** The off-channel RSWFs were assigned stage-storage and storage-discharge tables based on the geometry of the proposed pond design. Additionally, the off-channel reservoirs were each simulated in HEC-RAS using the unsteady state simulation option to determine the reservoir's specific side flow weir diversion function (i.e., relating channel flow rate to side flow weir flow rate).[14] Off-channel reservoir elements in HEC-HMS were configured to receive flow from separate diversion elements, based on the side flow weir design and diversion function.

For non-detention projects, an initial hydraulic analysis was required prior to incorporating storage-discharge tables in the hydrologic model. Upon developing new channel configurations in the Corrected DFIRM HEC-RAS models, routing storage functions were recalculated and assigned to the corresponding HEC-HMS reach element.

Each project was simulated in the modified Corrected HEC-HMS model to generate peak flow rates for the 10-, 50-, 100-, and 500-year existing storm events as well as for the 100-year future storm event. Simulations were also performed using the various rainfall distribution assumptions built into the DFIRM hydrology model. Flow rate results were generated without areal reduction factors as well as with areal reduction factors for storm areas of 10-, 25-, 50-, 100-, 175-, and 300-square miles. By interpolating between the resulting data points, specific areal reductions were then

[14] In order to increase model stability, the Corrected DFIRM HEC-RAS models were truncated to contain only cross sections between the HEC-HMS junctions immediately upstream and downstream of the reservoir. Additional cross sections were interpolated between these points within the HEC-RAS model using a maximum spacing of 150 feet.

applied to flows at each HEC-HMS junction based on the drainage areas at corresponding flow change locations.

Upon determining each project's peak flow rates, the new flows were then evaluated using one-dimensional hydraulic analysis in HEC-RAS.[15,16] For detention projects, hydraulic model flows were adjusted without making any changes to the model geometry. Non-detention projects were analyzed using modified flows in addition to the previously-developed geometry configurations.

Finally, after running the hydraulic analysis in HEC-RAS for each storm event, results were exported to GIS to map the new floodplain and assess building damages and roadway safety using the level of flood protection analysis as discussed in Section 3.0 of this report.

### 4.4.2 Analysis of Building Damages and Roadway Safety

Using GIS, new water surface elevation raster files were created from the HEC-RAS results, in order to estimate damages for each damage center based on the level of flood protection analysis. Damages were estimated for the primary damage center and all buildings located downstream. A summary of project impacts within primary damage centers for the 100-year existing storm event is shown in Table 4.4a. The table also includes estimated annual damages for the primary damage centers which are based on the estimated damages for each simulated storm event weighted by the probability of its occurrence. Detailed impact analysis summaries are presented in Appendix G.

Additionally, roadway crossings and corridors were re-evaluated using the transportation crossing and corridor analysis methods previously described in order to identify any potential effects from the proposed flood mitigation projects. As measured by LOFP values, impacts associated with roadway crossings and previously defined transportation corridor locations found within the primary damage center are also shown in Table 4.4a.

[15] Due to complex stream bank overflows at Babcock Road (Damage Center 7B) between Maverick Creek and Huesta Creek Tributary A, a two-dimensional hydraulic analysis may be beneficial to produce more accurate project impact results. For the purpose of this study, however, a one-dimensional analysis was used to manually balance overflow between Maverick Creek and Huesta Creek Tributary A. After calculating the direction and magnitude of the overflow, peak flow rates for each stream were manually adjusted to account for contributing spills.

[16] Detailed hydraulic analysis was not performed for Slick Ranch Creek because the majority of the floodplain within Damage Center 5A has been mapped as an approximate zone. Local impacts due to Havenbrook RSWF were assessed using a hydrologic analysis to broadly determine the RSWF's effects on lateral spill from Slick Ranch Creek into the adjacent subdivision.

**Table 4.4a: Summary of Local Impacts for 100-Year Existing Storm Event**

| Project Name | Primary Damage Center | No. Buildings in Floodplain | | No. Unsafe Roadway Crossings | | No. Unsafe Roadway Corridors | | Estimated Damages | | | | Estimated Annual Damages | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Existing | W. Alt. | Existing | W. Alt. | Existing | W. Alt. | Existing | W. Alt. | Reduction | % Reduction | Existing | W. Alt. | Reduction | % Reduction |
| Leon Creek at IH-10 NWWC | DC 1 | 38 | 36 | 5 | 5 | 1 | 1 | $2,402,000 | $2,284,000 | -$118,000 | -4.9% | $73,500 | $70,500 | -$3,000 | -4.1% |
| Huebner Creek at Evers Road NWWC* | DC 2 | 108 | 26 | 5 | 4 | 0 | 0 | $4,983,000 | $1,083,000 | -$3,900,000 | -78.3% | $178,100 | $61,800 | -$116,300 | -65.3% |
| Eckhert RSWF (Huebner Creek) | | 108 | 102 | 5 | 5 | 0 | 0 | $4,983,000 | $4,735,000 | -$248,000 | -5.0% | $178,100 | $173,400 | -$4,700 | -2.6% |
| Leon Creek NWWC with Ingram Road Bridge Improvements (LC-8) and Huebner Creek Flood Protection Barrier (LC-17) | DC 3 | 126 | 6 | 2 | 1 | 1 | 1 | $11,443,000 | $2,536,000 | -$8,907,000 | -77.8% | $237,000 | $75,800 | -$161,200 | -68.0% |
| Culebra Creek NWWC with Culebra Road Bridge Improvements | DC 4 | 186 | 12 | 3 | 3 | 5 | 4 | $10,649,000 | $637,000 | -$10,012,000 | -94.0% | $233,300 | $37,700 | -$195,600 | -83.8% |
| Easterling RSWF (Culebra Creek) | | 186 | 154 | 3 | 3 | 5 | 5 | $10,649,000 | $9,354,000 | -$1,295,000 | -12.2% | $233,300 | $208,900 | -$24,400 | -10.5% |
| French Creek at Guilbeau Road NWWC | DC 6A&B | 26 | 13 | 2 | 2 | 0 | 0 | $1,880,000 | $1,076,000 | -$804,000 | -42.8% | $45,400 | $26,100 | -$19,300 | -42.5% |
| French Creek RSWF | | 26 | 16 | 2 | 2 | 0 | 0 | $1,880,000 | $1,394,000 | -$486,000 | -25.9% | $45,400 | $34,700 | -$10,700 | -23.6% |
| Quarry at the Rim RSWF (Leon Creek) | DC 6C | 28 | 27 | 1 | 1 | 0 | 0 | $2,790,000 | $2,705,000 | -$85,000 | -3.0% | $60,400 | $58,900 | -$1,500 | -2.5% |
| Hausman Road Drainage Project Phase 1 (LC-9)* | DC 7A | 35 | 13 | 2 | 0 | 0 | 0 | $690,000 | $444,000 | -$246,000 | -35.7% | $33,500 | $19,000 | -$14,500 | -43.3% |
| Maverick Creek NWWC with W. Hausman Road Bridge Improvements (LC-10) | DC 7B | 17 | 6 | 2 | 0 | 1 | 0 | $897,000 | $0 | -$897,000 | -100.0% | $22,600 | $100 | -$22,500 | -99.6% |
| UTSA RSWF (Maverick Creek) | | 17 | 11 | 2 | 2 | 1 | 1 | $897,000 | $481,000 | -$416,000 | -46.4% | $22,600 | $14,100 | -$8,500 | -37.6% |
| Braun RSWF (Helotes Creek)** | DC 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $0 | 0.0% | $9,600 | $9,600 | $0 | 0.0% |
| Helotes Creek at Braun Road NWWC | DC 12 | 28 | 24 | 1 | 1 | 0 | 0 | $448,000 | $218,000 | -$230,000 | -51.3% | $19,200 | $13,000 | -$6,200 | -32.3% |
| Helotes Creek RSWF | | 28 | 9 | 1 | 0 | 0 | 0 | $448,000 | $6,000 | -$442,000 | -98.7% | $19,200 | $400 | -$18,800 | -97.9% |
| Huebner Creek at Eckhert Road NWWC | DC 13 | 38 | 12 | 2 | 1 | 0 | 0 | $2,408,000 | $1,398,000 | -$1,010,000 | -41.9% | $98,600 | $64,800 | -$33,800 | -34.3% |
| Huebner Creek RSWF at Prue Road (LC-15) | | 38 | 19 | 2 | 1 | 0 | 0 | $2,408,000 | $1,511,000 | -$897,000 | -37.3% | $98,600 | $57,300 | -$41,300 | -41.9% |
| Huebner Creek at Bandera Road NWWC (LC-17) and Ingram Road Bridge Improvements (LC-8)* | DC 14 | 99 | 15 | 1 | 1 | 0 | 0 | $4,145,000 | $198,000 | -$3,947,000 | -95.2% | $221,500 | $5,600 | -$215,900 | -97.5% |
| Leon Creek at Grissom Road Enhanced Conveyance | DC 15 | 87 | 0 | 0 | 0 | 1 | 1 | $4,190,000 | $0 | -$4,190,000 | -100.0% | $103,300 | $5,000 | -$98,300 | -95.2% |
| Mainland RSWF (Leon Creek) | | 87 | 84 | 0 | 0 | 1 | 0 | $4,190,000 | $3,849,000 | -$341,000 | -8.1% | $103,300 | $100,100 | -$3,200 | -3.1% |
| Culebra Creek at FM 1560 Earthen Flood Protection Barrier | DC 16 | 41 | 2 | 1 | 1 | 0 | 0 | $3,114,000 | $162,000 | -$2,952,000 | -94.8% | $108,300 | $17,000 | -$91,300 | -84.3% |
| Galm RSWF (Culebra Creek) | | 41 | 38 | 1 | 1 | 0 | 0 | $3,114,000 | $2,904,000 | -$210,000 | -6.7% | $108,300 | $103,300 | -$5,000 | -4.6% |
| Government Canyon Creek RSWF (Culebra Creek) | | 41 | 0 | 1 | 1 | 0 | 0 | $6,806,000 | $2,598,000 | -$4,208,000 | -61.8% | $108,300 | $5,200 | -$103,100 | -95.2% |
| Culebra Creek Tributary A at Tezel Road Enhanced Conveyance* | DC 17 | 17 | 5 | 3 | 0 | 1 | 0 | $1,430,000 | $641,000 | -$789,000 | -55.2% | $38,100 | $19,400 | -$18,700 | -49.1% |
| Helotes Creek at Bandera Road Enhanced Conveyance | DC 18B | 24 | 16 | 4 | 3 | 1 | 1 | $1,077,000 | $928,000 | -$149,000 | -13.8% | $43,100 | $29,600 | -$13,500 | -31.3% |

Note: Havenbrook RSWF was evaluated for downstream impacts only (detailed local impacts not calculated).

*Results account for proposed property acquisition

**Results do not account for flooding associated with 500-year existing and 100-year future storm events.

## 4.5 Opinion of Probable Construction Costs for Selected Projects

Planning-level opinion of probable construction costs were developed for all flood mitigation projects evaluated in this study. Estimates included detailed construction costs associated with all project types, general construction costs, and property and land acquisition costs. In this study, potential utility relocation costs were not included due to insufficient detailed information. The development of project opinion of probable construction costs is described in Appendix H.

Cost estimate totals are shown in Table 4.5a, and cost summaries are included on typical section exhibits in Appendix G.

The Flood Reduction Ratio (FRR) was calculated by estimating a project's present value of benefits over a 50-year project life, assuming an interest rate equal to the current federal interest rate (2 percent). The FRR is defined by the project's estimate annual damage reductions over the annual payment of the opinion of probable construction costs over the specified project life. The FRR refers to a project's ability to provide future savings in the form of flood damage reductions throughout the entire watershed. The FRR calculation does not ascribe any value to averting the loss of life, vehicle damage, infrastructure damage, or rescue operations, nor does it account for the value of potential environmental benefits, multi-use opportunities, or for the savings generated by improving conditions at existing bridges or roadways.

**Table 4.5a: Project Cost Estimates**

| Damage Center | Project Name | Estimated Cost | Flood Reduction Ratio |
|---|---|---|---|
| 1 | Leon Creek at IH-10 NWWC | $30,527,000 | 0.03 |
| 2 | Eckhert RSWF | $19,402,000 | 0.01 |
| 2 | Huebner Creek at Evers Road NWWC | $18,119,000 | 0.18 |
| 3 | Leon Creek NWWC with Ingram Road Bridge Improvements (LC-8) and Huebner Creek Flood Protection Barrier (LC-17) | $27,685,000 | 0.19 |
| 4 | Easterling RSWF | $60,645,000 | 0.04 |
| 4 | Culebra Creek NWWC with Culebra Road Bridge Improvements | $23,660,000 | 0.22 |
| 5A | Havenbrook RSWF | $34,694,000 | n/a[a] |
| 6A&B | French Creek RSWF | $16,955,000 | 0.09 |
| 6A&B | French Creek at Guilbeau Road NWWC | $6,865,000 | 0.12 |
| 6C | Quarry at the Rim RSWF | $2,800,000[b] | 0.14 |
| 7A | Hausman Road Drainage Project Phase I (LC-9) | $6,143,000[c] | 0.09 |
| 7B | UTSA RSWF | $29,348,000 | 0.01 |
| 7B | Maverick Creek at W Hausman Road NWWC with W Hausman Road Bridge Improvements (LC-10) | $11,389,000 | 0.07 |
| 11 | Braun RSWF | $23,199,000 | 0.02 |
| 12 | Helotes Creek RSWF | $4,707,000 | 1.71 |
| 12 | Helotes Creek at Braun Road NWWC | $429,000 | 1.49 |
| 13 | Huebner Creek at Eckhert Road NWWC | $2,436,000 | 0.30 |
| 13 | Huebner Creek RSWF at Prue Road (LC-15) | $1,216,000[d] | 2.81 |
| 14 | Huebner Creek at Bandera Road NWWC (LC-17) and Ingram Road Bridge Improvements (LC-8) | $39,160,000[e] | 0.21 |
| 15 | Mainland RSWF | $17,271,000 | 0.01 |
| 15 | Leon Creek at Grissom Road Enhanced Conveyance | $20,215,000 | 0.17 |
| 16 | Galm RSWF | $25,644,000 | 0.07 |
| 16 | Government Canyon Creek RSWF | $19,559,000 | 0.53 |
| 16 | Culebra Creek at FM 1560 Earthen Flood Protection Barrier | $312,000 | 9.60 |
| 17 | Culebra Creek Tributary A at Tezel Road Enhanced Conveyance | $6,790,000 | 0.10 |
| 18B | Helotes Creek at Bandera Road Enhanced Conveyance | $2,158,000 | -0.46 |

[a]Damage reductions not calculated for Havenbrook RSWF (detailed local impacts not evaluated).
[b]Based on limited information received from the City of San Antonio (June 2006)
[c]Source: Bexar County Flood Control – Huebner Creek NWWC LC-9 (June 2009)
[d]Source: Bexar County Flood Control – Huebner Creek RSWF at Prue Road LC-15 (July 27, 2009)
[e]Source: Bexar County Flood Control – Huebner Creek NWWC LC-17 (June 5, 2009) and Leon Creek Bridge Improvements LC-8 LWC #58 (May 1, 2009)

## 4.6 Regulatory Analysis

This section provides a preliminary scoping-level assessment of potential environmental regulatory requirements for the individual projects. More information is provided in Appendix I. Regulatory requirements may change with time as more detailed project designs are produced or as regulations change. During project design phases, environmental planners should be involved to ensure that appropriate regulatory requirements are addressed for each project site.

### 4.6.1 Regulatory Analysis Methodology

Investigations were completed for each project in order to document existing environmental conditions and applicable regulatory requirements. Field staff conducted a desktop analysis including using GIS software, 2008 aerial photography and the environmental constraints data collected for LCWMP Phase 1 and Phase 2 including:

- U.S. Fish and Wildlife Service (USFWS) karst zone map,
- USFWS National Wetland Inventory maps,
- U.S. Geological Survey (USGS) topographic maps,
- Texas Commission on Environmental Quality (TCEQ) Edwards Aquifer recharge and contributing zone maps,
- Texas Parks and Wildlife Department (TPWD) Natural Diversity Database (NDD), and
- USFWS critical habitat areas.

Upon completion of the desktop analysis, windshield surveys and site visits were conducted for 22 of the 26 projects. Windshield surveys were not performed for Government Canyon Creek RSWF or the Quarry at the Rim RSWF due to site access limitations. Windshield surveys were not performed for Hausman Road Drainage Project Phase 1 (LC-9) or Huebner Creek at Bandera Road NWWC (LC-17) because the information was available in the project data.

Windshield surveys entailed accessing the project sites on foot where possible and estimating the Ordinary High Water Mark (OHWM) using a non-survey grade GPS unit. Photographs with GPS locations were documented for each project along with various reconnaissance data. For each damage center, information was collected regarding site vegetation, adjacent land uses, habitat potential for Golden-cheeked Warblers and Black-capped Vireos, the presence of heritage trees, or the presence of hazardous materials, as related to a Phase 1 Environmental Site Assessment (ESA). Appendix I includes all data sheets and photographs for each damage center and a narrative of each site and its vegetation.

### 4.6.2 Regulatory Analysis Requirements

Results from the desktop analysis and field investigations were assessed to determine the regulatory requirements needed to implement the selected projects. Table 4.6a presents the applicable regulatory requirements and the agency that authorizes them. Appendix I presents detailed descriptions of the regulatory requirements. Table 4.6b summarizes the results for the selected projects.

**Table 4.6a: Regulatory Requirements and Authorizing Agencies**

| Regulatory Requirements | Comment | Agency |
|---|---|---|
| Waters of the US | Jurisdictional Determination (JD) is required to identify Waters of the US. | U.S. Army Corps of Engineers |
| Section 404 of the Clean Water Act | Depending on the nature of the activity, a project might qualify for a Nationwide Permit (NWP) which would require Pre-Construction Notification (PCN). Otherwise an Individual Permit (IP) is required. | U.S. Army Corps of Engineers |
| Section 401 of the Clean Water Act | Tier I or Tier II Certification is required depending on the nature of the activity/disturbance. | Texas Commission on Environmental Quality |
| Endangered Bird Habitat | Threatened and Endangered Species Assessment would be required if potential habitat is observed in the project area. | U.S. Fish and Wildlife Service |
| Karst Terrain Features Survey | A survey would be required if the project is located within Karst Zone 1, 2, 3, or 4. | U.S. Fish and Wildlife Service |
| Texas Pollutant Discharge Elimination System | General Construction Permit (GCP) is required for construction activities. | Texas Commission on Environmental Quality |
| Section 303(d) of the Clean Water Act | List identifies waters for which associated pollutants are suitable for measurement by maximum daily load. This information is typically presented in other regulatory requirements (Section 401 Certification). | Texas Commission on Environmental Quality |
| Section 106 of the National Historic Preservation Act | Cultural Resources Assessment | U.S. Army Corps of Engineers and Texas Historical Commission |
| The Antiquities Code of Texas | Archaeology and/or Standing Structures Assessment | Texas Historical Commission |
| Water Pollution Abatement Plan(WPAP)/Contributing Zone Plan (CZP) | WPAP if located within Edwards Aquifer Recharge Zone/CZP if located within Edwards Aquifer Contributing Zone | Texas Commission on Environmental Quality |
| Tree Ordinance | Tree Survey | City of San Antonio |
| Phase 1 Environmental Site Assessment (ESA) | A Phase I ESA includes record search for potential spills, underground storage tanks, hazardous waste sites, and other potential contamination items. | Not applicable – Due Diligence |

**Table 4.6b: Potential Environmental Regulatory Requirements**

| Damage Center | Project Location | Waters of the U.S. | Section 404 of CWA | Section 401 Certification, Tier I or II | Endangered Bird Habitat | Karst Terrain Features Survey (Zones 1,2,3 and 4) | TPDES GCP | 303(d) Listed Waters | Coordination with THC for Historic Evaluation | Coordination with THC for Archaeological Compliance | WPAP/CZP | CoSA Tree Ordinance | Phase 1 ESA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DC 1 | Leon Creek at IH-10 NWWC | JD | IP | Yes – Tier II | Low Potential | Yes – Zone 3 | Yes | No | Yes | Yes | CZP | Tree Survey | Yes |
| DC 2 | Huebner Creek at Evers Road NWWC | JD | Potential NWP 27 (IP Required) | Yes – Tier II | Not Likely | Yes – Zone 3 | Yes | No | Yes | Yes | No | Tree Survey | Yes |
| | Eckhert RSWF | JD | NWP 43 (PCN Required) | Yes – Tier II | Not Likely | Yes – Zone 3 | Yes | Segment 1906 Lower Leon Creek | No | Yes | No | Tree Survey | Yes |
| DC 3 | Leon Creek NWWC with Ingram Road Bridge Improvements (LC-8) and Huebner Creek Flood Protection Barrier (LC-17) | JD | IP | Yes – Tier II | Not Likely | Yes – Zone 3 | Yes | No | Yes | Yes | No | Tree Survey | Yes |
| DC 4 | Culebra Creek NWWC with Culebra Road Bridge Improvements | JD | IP | Yes – Tier II | Not Likely | Yes – Zone 3 | Yes | No | Yes | Yes | No | Tree Survey | Yes |
| | Easterling RSWF | JD | NWP 43 (PCN Required) | Yes – Tier II | Not Likely | Yes – Zone 3 | Yes | No | No | Yes | No | Tree Survey | Yes |
| DC 5A | Havenbrook RSWF | JD* | NWP 43 (PCN Required) | Yes – Tier II | Not Likely | No – Zone 5 | Yes | Segment 1906 Lower Leon Creek | No | Yes | No | Tree Survey | Yes |
| DC 6A&B | French Creek RSWF | JD | NWP 43 (PCN Required) | Yes – Tier II | Not Likely | Yes – Zone 2 | Yes | No | No | Yes | WPAP | Tree Survey | Yes |
| | French Creek at Guilbeau Road NWWC | JD | Potential NWP 27 (IP Required) | Yes – Tier II | Not Likely | Yes – Zone 3 | Yes | No | Yes | Yes | No | Tree Survey | Yes |
| DC 6C | Quarry at the Rim RSWF** | JD | NWP 43 (PCN Required) | Yes – Tier II | Not Likely | Yes – Zone 2 | Yes | No | No | Yes | WPAP | Tree Survey | Yes |
| DC 7A | Hausman Road Drainage Project Phase 1 (LC-9)** | JD | Potential NWP 27 (IP Required) | Yes – Tier II | Not Likely | Yes – Zone 2 | Yes | No | No | Yes | WPAP | Tree Survey | Yes |
| DC 7B | Maverick Creek NWWC with W. Hausman Road Bridge Improvements (LC-10) | JD* | IP | Yes – Tier I | Not Likely | Yes – Zone 2 | Yes | No | Yes | Yes | WPAP | Tree Survey | Yes |
| | UTSA RSWF | JD | NWP 43 (PCN Required) | Yes – Tier II | Not Likely | Yes – Zone 2 | Yes | No | No | Yes | WPAP | Tree Survey | Yes |
| DC 11 | Braun RSWF | JD | NWP 43 (PCN Required) | Yes – Tier II | Not Likely | Yes – Zone 3 | Yes | No | No | Yes | No | Tree Survey | Yes |
| DC 12 | Helotes Creek at Braun Road NWWC | JD | IP | Yes – Tier I | Low Potential | Yes – Zone 3 | Yes | No | Yes | Yes | No | Tree Survey | Yes |
| | Helotes Creek RSWF | JD | NWP 43 (PCN Required) | Yes – Tier II | Not Likely | Yes – Zone 3 | Yes | No | No | Yes | WPAP | Tree Survey | Yes |
| DC 13 | Huebner Creek at Eckhert Road NWWC | JD | IP | Yes – Tier I | Not Likely | Yes – Zone 3 | Yes | No | Yes | Yes | No | Tree Survey | Yes |
| | Huebner Creek RSWF at Prue Road (LC-15) | JD | NWP 43 (PCN Required) | Yes – Tier II | Not Likely | Potential – Zone 3 | Yes | No | No | Yes | No | Tree Survey | No |
| DC 14 | Huebner Creek at Bandera Road NWWC (LC-17) and Ingram Road Bridge Improvements (LC-8)** | JD | IP | Yes – Tier II | Not Likely | Yes – Zone 3 | Yes | Segment 1906 Lower Leon Creek | No | Yes | No | Tree Survey | Yes |
| DC 15 | Leon Creek at Grissom Road Enhanced Conveyance | JD | IP | Yes – Tier II | Not Likely | Yes – Zone 3 | Yes | Segment 1906 Lower Leon Creek | Yes | Yes | No | Tree Survey | Yes |
| | Mainland RSWF | JD | NWP 43 (PCN Required) | Yes – Tier II | Not Likely | Yes – Zone 3 | Yes | Segment 1906 Lower Leon Creek | No | Yes | No | Tree Survey | Yes |
| DC 16 | Culebra Creek at FM 1560 Earthen Flood Protection Barrier | JD | IP | Yes – Tier II | Not Likely | Yes – Zone 3 | Yes | No | Yes | Yes | No | Tree Survey | Yes |
| | Galm RSWF | JD | NWP 43 (PCN Required) | Yes – Tier II | Potential | Yes – Zone 3 | Yes | No | No | Yes | No | Tree Survey | Yes |
| | Government Canyon Creek RSWF** | JD | NWP 43 (PCN Required) | Yes – Tier II | Potential | Yes – Zone 1 & 2 | Yes | No | No | Yes | WPAP | Tree Survey | No |
| DC 17 | Culebra Creek Tributary A at Tezel Road Enhanced Conveyance | JD | Potential NWP 27 (IP Required) | Yes – Tier II | Not Likely | Yes – Zone 3 | Yes | No | Yes | Yes | No | Tree Survey | Yes |
| DC 18B | Helotes Creek at Bandera Road Enhanced Conveyance | JD | IP | Yes – Tier I | High Potential | Yes – Zone 3 | Yes | No | Yes | Yes | CZP | Tree Survey | Yes |

*Potential wetlands area
**These were previously identified projects. The information shown is based on a desktop analysis and existing project information; no site visit was performed.

## 4.7 Multi-use Objective Analysis

Potential multi-use objectives were identified by coordinating with environmental planners and reviewing example projects, including projects by the Harris County Flood Control District which in the past has actively pursued multi-use projects in highly urbanized watersheds. Based on this coordination, a list of multi-use objectives was created along with qualitative metrics used to evaluate the multi-use potential of each project. The LCWMP examined the applicability of the following multi-uses:

- Mountain Bike and Walking Trails
- Equestrian Trails
- Riparian and Wetland Enhancements
- Outdoor Learning and Interpretive Sites
- Sports Fields
- Picnic Areas
- Nature Preserves
- Fishing Ponds
- Wet Bottom Water Quality Ponds
- Dog Parks
- Temporary Parking

In most cases, a project's suitability for multi-use opportunities depends on its compatibility with the surrounding land use (e.g., a park accessible to nearby residential communities is more suitable than a park surrounded by industrial activity). These spatial factors were assessed using a desktop analysis with GIS. Additionally, multi-use potential is frequently determined based on nearby tree canopy cover and native vegetation; these criteria were assessed by biologists during site reconnaissance.

Multi-use opportunities for each project are summarized in the Individual Project Summaries included in Appendix G. Furthermore, detailed multi-use data sheets in Appendix I present a preliminary suitability evaluation for each project site.

An assessment of the selected projects concluded the majority had some potential for multi-uses such as trails, picnic areas, outdoor learning and interpretive sites, fishing ponds, and dog parks. However, the following projects provided high potential for more than one of the multi-uses evaluated:

- French Creek at Guilbeau Road NWWC
    - Highly suitable for sports fields and could provide connectivity between Nani Falcone Park and a future city park between Guilbeau Road and Mainland Drive.
- Huebner Creek at Bandera Road NWWC(LC-17) and Ingram Road Bridge Improvements (LC-8)
    - Highly suitable for the majority of multi-uses evaluated in this study.

- Leon Creek at Grissom Road Enhanced Conveyance
    - Highly suitable for linear connectivity for Leon Creek Greenway North Park, riparian and wetland enhancement, and natural preserves.
- Maverick Creek NWWC with W. Hausman Road Bridge Improvements (LC-10)
    - Highly suitable for linear connectivity between the University of Texas San Antonio (UTSA) and nearby parks.
- UTSA RSWF
    - Highly suitable for the majority of multi-uses evaluated in this study.

## 4.8 Project Combinations, Optimization, and Phasing

In many cases, one individual project did not produce the necessary flood reduction or caused adverse impacts downstream; therefore, several project combinations were developed to effectively reduce flood risk in all damage centers while eliminating adverse impacts downstream. Additionally, project optimization and phasing were evaluated in order to maximize benefits throughout the Leon Creek watershed.

### 4.8.1 Methodology

Project combinations were developed to create opportunities to reduce project sizing and construction costs and to eliminate any negative downstream impacts caused by individual projects. From the selected projects described in previous sections, at least one combination was developed for each major tributary within Leon Creek Watershed. In some cases, several combinations were assessed for certain tributaries as well as combinations over multiple tributaries.

Project optimization was determined based on the impact to water surface elevations and downstream peak flow rates of each combination when compared to the impacts of each individual project included in the combination. As a general rule of thumb, if the combined projects resulted in an additional water surface elevation reduction of greater than one foot with no measurable additional flood risk reduction when compared with the individual project impacts, optimization opportunities were evaluated. All projects included in the combination were considered for downsizing to achieve similar LOFP results as the individual projects themselves (i.e., an optimized NWWC project downstream of the RSWF created a similar flood protection as the NWWC project alone). In general, it was more cost effective to optimize NWWC projects than selected RSWF projects.

Construction phasing was also considered during the project combination evaluation. Peak flow rates for each individual project within the combinations, as well as downstream of the combination itself were compared to the corrected DFIRM condition (base condition). Documented changes in peak flow rates at key locations within Leon Creek watershed were used to develop recommended phasing for each major tributary.

### 4.8.2 Project Combination Descriptions

Table 4.8a provides a description about each developed project combination and its individual project components. These combinations were analyzed to determine Level of Flood Protection (LOFP), annual damage reductions (ADR), cost reductions, and flood reduction ratios (FRR). Results are presented in Table 4.8b, and exhibits can be found in Appendix G.

**Table 4.8a: Overview of Project Combinations**

| Project Combination | Individual Project Components | Description |
|---|---|---|
| French Combination | 1. French Creek RSWF<br>2. French Creek at Guilbeau Road NWWC | Combination included all individual projects along French Creek. |
| Maverick Combination | 1. UTSA RSWF<br>2. Maverick Creek NWWC with W. Hausman Road Bridge Improvements (LC-10) | Combination included all individual projects along Maverick Creek. |
| Huebner Combination | 1. Huebner Creek at Prue Road (LC-15)<br>2. Huebner Creek at Evers Road NWWC<br>3. Huebner Creek at Eckhert Road NWWC<br>4. Huebner Creek at Bandera Road NWWC(LC-17) and Ingram Road Bridge Improvements (LC-8) | Combination developed to reduce annual flood damages along Huebner Creek within Damage Centers 2, 13, and 14, eliminating negative downstream impacts caused by projects individually. Construction phasing was also examined. |
| Helotes Combination | 1. Helotes Creek RSWF<br>2. Helotes Creek at Braun Road NWWC | Combination included only projects along Helotes Creek that provided beneficial flood risk reduction impacts when analyzed individually. |
| Culebra Combination A | 1. Government Canyon Creek RSWF<br>2. Culebra Creek NWWC with Culebra Road Bridge Improvements | Combination included two most beneficial projects to provide flood risk reduction and eliminate negative downstream impacts caused by the NWWC project. |
| Culebra Combination B | 1. Easterling RSWF<br>2. Culebra Creek at FM 1560 Earthen Flood Protection Barrier<br>3. Culebra Creek NWWC with Culebra Road Bridge Improvements | Combination developed to reduce annual flood damages along Culebra Creek within Damage Centers 4 and 16 and eliminate negative downstream impacts caused by the NWWC project as an alternative to implementing Government Canyon Creek RSWF. |
| Helotes/Culebra Combination A | 1. Helotes Creek RSWF<br>2. Culebra Creek NWWC with Culebra Road Bridge Improvements | Combination included most beneficial projects on Helotes and Culebra Creeks, excluding Government Canyon Creek RSWF to provide flood risk reduction and eliminate negative downstream impacts caused by the NWWC project. |
| Helotes/Culebra Combination B | 1. Helotes Creek RSWF<br>2. Government Canyon Creek RSWF<br>3. Culebra Creek NWWC with Culebra Road Bridge Improvements | Combination included most beneficial projects on Helotes and Culebra Creeks to provide flood risk reduction and eliminate negative downstream impacts caused by the NWWC project. |
| Leon Combination | 1. Quarry at the Rim RSWF<br>2. Leon Creek at Grissom Road Enhanced Conveyance<br>3. Leon Creek NWWC with Ingram Road Bridge Improvements (LC-8) and Huebner Creek Flood Protection Barrier (LC-17) | Combination developed to evaluate impacts on main stem Leon Creek independently of selected projects on contributing creeks. |
| Helotes/Culebra/Leon Combination A | 1. Helotes Creek RSWF<br>2. Culebra Creek NWWC with Culebra Road Bridge Improvements<br>3. Leon Creek NWWC with Ingram Road Bridge Improvements (LC-8) and Huebner Creek Flood Protection Barrier (LC-17) | Combination developed as a continuation of Helotes/Culebra Combination A to identify the necessary flood mitigation projects on Lower Leon Creek downstream of the Culebra Creek confluence. |
| Helotes/Culebra/Leon Combination B | 1. Helotes Creek RSWF<br>2. Government Canyon Creek RSWF<br>3. Culebra Creek NWWC with Culebra Road Bridge Improvements<br>4. Leon Creek NWWC with Ingram Road Bridge Improvements (LC-8) and Huebner Creek Flood Protection Barrier (LC-17) | Combination developed as a continuation of Helotes/Culebra Combination B to identify the necessary flood mitigation projects on Lower Leon Creek downstream of the Culebra Creek confluence. |
| **Leon Watershed Combination** | All Recommended Projects | Combination developed to determine impacts of implementing all recommended projects and aid in developing the recommended construction phasing. |

**Table 4.8b: Detailed Summary of Project Combinations**

| Project Combination | Primary and Downstream DCs | Individual Project Components | Individual Project Costs | Individual Project ADR* | Individual FRR | Total Cost | Combination ADR* | Combination FRR | Reasons for Project Optimization/Removal, Results/Recommendations |
|---|---|---|---|---|---|---|---|---|---|
| **French Combination** | French(6A&B,8)<br>Leon(15,3,5B,10) | French RSWF<br>French Creek at Guilbeau Road NWWC | $17.0 mil<br>$6.9 mil | -$48,500<br>-$26,600 | 0.09<br>0.12 | $23.9 mil | -$67,300 | 0.09 | Combining French RSWF with the NWWC at Guilbeau Road provided additional local benefits. However, the NWWC alone provides the necessary protection through DC 6A and does not have negative downstream impacts. |
| **Maverick Combination** | Maverick(7B)<br>Leon(6C,15,3,5B,10) | UTSA RSWF<br>Maverick Creek NWWC with W. Hausman Road Bridge Improvements (LC-10) | $29.3 mil<br>$11.4 mil | -$9,700<br>-$26,100 | 0.01<br>0.07 | $40.7 mil | -$27,100 | 0.02 | Combining UTSA RSWF with Maverick Creek NWWC with W. Hausman Road Bridge Improvements (LC-10) provided minimal additional benefits through DC 6C and DC 15. However, the NWWC project alone provides the necessary protection and does not have negative downstream impacts. |
| **Huebner Combination** | Huebner(13,2,14)<br>Leon(3,5B,10) | Huebner Creek RSWF at Prue Road (LC-15)<br>Huebner Creek at Evers Road NWWC<br>*Huebner Creek at Eckhert Road NWWC (Optimized)*<br>Huebner Creek at Bandera Road NWWC (LC-17) and Ingram Road Bridge Improvements (LC-8) | $1.2 mil<br>$18.1 mil<br>*$2.4 mil*<br>$39.2 mil | -$108,800<br>-$106,000<br>*-$23,200*<br>-$258,100 | 2.81<br>0.18<br>*0.30*<br>0.21 | $60.9 mil<br>– $0.3 mil<br>$60.6 mil | -$445,300 | 0.23 | When considered individually, Huebner Creek at Evers Road NWWC, Huebner Creek at Eckhert Road NWWC and Huebner Creek at Bandera Road NWWC (LC-17) and Ingram Road Bridge Improvements (LC-8) each cause negative downstream impacts on Huebner Creek but have no impacts on Leon Creek. Moreover, combining these individual projects with either Eckhert RSWF or Huebner Creek RSWF (LC-15) did not provide adequate reduction to eliminate peak flow increases on Huebner Creek. Negative downstream impacts may be mitigated instead by combining the NWWC projects and implementing them in the correct project phasing order. Additionally, while the combination did not require an RSWF project for mitigating impacts, the addition of Huebner Creek RSWF at Prue Road (LC-15) did allow Huebner Creek at Eckhert Road NWWC to be downsized. The optimized combination enabled the bottom width of Huebner Creek at Eckhert Road NWWC to be shortened from 250 feet to 175 feet between Whitby Road and 300 feet downstream of the crossing. This modification reduced the required excavation volume by nearly 12,000 cubic yards and resulted in a cost reduction of $0.3 million. |
| **Helotes Combination** | Helotes(12, 11)<br>Culebra(4)<br>Leon(3,5B,10) | Helotes Creek RSWF<br>*Helotes Creek at Braun Road NWWC (Eliminated)* | $4.7 mil<br>*$0.4 mil* | -$256,200<br>*-$20,400* | 1.71<br>*1.49* | $5.1 mil<br>– $0.4 mil<br>$4.7 mil | -$256,200 | 1.71 | When implementing both Helotes Creek RSWF and Helotes Creek at Braun Road NWWC in combination, the RSWF must be designed to reduce peak flow rates by at least 400 cfs to eliminate negative downstream impacts. However, Helotes Creek RSWF by itself provided an additional 4.5 feet in WSEL reductions at DC 12, eliminating the need for the NWWC project in combination. In fact, Helotes Creek RSWF also has a significant influence on areas downstream, and limiting the design to satisfy localized issues would not be cost effective. |
| **Culebra Combination A** | Culebra(4,16)<br>Leon(3,5B,10) | Government Canyon Creek RSWF<br>*Culebra Creek NWWC with Culebra Road Bridge Improvements (Optimized)* | $19.6 mil<br>*$23.7 mil* | -$330,400<br>*$169,000* | 0.53<br>*0.22* | $43.3 mil<br>– $10.0 mil<br>$33.3 mil | -$401,800 | 0.38 | Government Canyon Creek RSWF provided an additional 4 feet in WSEL reductions at DC 4, allowing Culebra Creek NWWC with Culebra Road Bridge Improvements to be downsized. The optimized combination eliminated the need for bridge improvements at Culebra Road and for channelization upstream of Culebra Road. These modifications together reduced the channel's required excavation volume by nearly 116,000 cubic yards and resulted in a combined cost reduction of approximately $10.0 million. In addition, Government Canyon Creek RSWF sufficiently reduced the negative downstream impacts produced by Culebra Creek Optimized NWWC. In the event that Culebra Creek NWWC with Culebra Road Bridge Improvements is implemented before Government Canyon Creek RSWF, the RSWF also reduces negative downstream impacts of the non-optimized NWWC. Alternatively, optimizing Government Canyon Creek RSWF to achieve similar cost reductions to Culebra Creek Optimized NWWC would require the removal of a significant amount of concrete spillway and would be less cost effective than optimizing the NWWC. |
| **Culebra Combination B** | Culebra(4,16)<br>Leon(3,5B,10) | Culebra Creek at FM 1560 Earthen FPB<br>Easterling RSWF<br>Culebra Creek NWWC with Culebra Road Bridge Improvements | $0.3 mil<br>$60.6 mil<br>$23.7 mil | -$95,200<br>-$85,400<br>-$169,000 | 9.60<br>0.04<br>0.22 | $84.6 mil | -$333,600 | 0.12 | When considered individually, neither Easterling RSWF nor Galm RSWF provides the necessary level of flood protection along Culebra Creek. However, combining Easterling RSWF with Culebra Creek at FM 1560 Earthen FPB and Culebra Creek NWWC with Culebra Road Bridge Improvements provides the necessary reduction in peak flows to eliminate any negative downstream impacts (except for the 500-year event). Galm RSWF was considered as an alternative to Easterling RSWF in combination, but it did not have sufficient peak flow reductions to mitigate downstream impacts along Culebra Creek for any storm event. |
| **Helotes/Culebra Combination A** | Helotes(12, 11)<br>Culebra(4)<br>Leon(3,5B,10) | Helotes Creek RSWF<br>*Culebra Creek NWWC with Culebra Road Bridge Improvements (Optimized)* | $4.7 mil<br>*$23.7 mil* | -$256,200<br>*-$169,000* | 1.71<br>*0.22* | $28.4 mil<br>– $10.0 mil<br>$18.4 mil | -$328,300 | 0.57 | Helotes Creek RSWF provided an additional 4 feet in WSEL reductions at DC 4, allowing Culebra Creek NWWC with Culebra Road Bridge Improvements to be downsized. The optimized combination eliminated the need for bridge improvements at Culebra Road and for channelization upstream of Culebra Road. These modifications together reduced the channel's required excavation volume by nearly 116,000 cubic yards and resulted in a combined cost reduction of approximately $10.0 million. In addition, Helotes Creek RSWF sufficiently reduced the negative downstream impacts produced by Culebra Creek Optimized NWWC. In the event that Culebra Creek NWWC with Culebra Road Bridge Improvements is implemented before Helotes Creek RSWF, the RSWF also reduces negative downstream impacts of the non-optimized NWWC. Furthermore, because the cost savings of Culebra Creek Optimized NWWC exceed the total cost of Helotes Creek RSWF, it is impossible to produce similar cost reductions by optimizing the RSWF project alone. |
| **Helotes/Culebra Combination B** | Helotes(12, 11)<br>Culebra(4,16)<br>Leon(3,5B,10) | Government Canyon Creek RSWF<br>Helotes Creek RSWF<br>*Culebra Creek NWWC with Culebra Road Bridge Improvements (Replaced with Selective Clearing)* | $19.6 mil<br>$4.7 mil<br>*$23.7 mil* | -$330,400<br>-$256,200<br>*-$169,000* | 0.53<br>1.71<br>*0.22* | $48.0 mil<br>– $23.6 mil<br>$24.4 mil | -$523,300 | 0.67 | Combining Government Canyon Creek RSWF and Helotes Creek RSWF provided WSEL reductions similar to the effects of implementing Culebra Creek NWWC with Culebra Road Bridge Improvements individually. Utilizing both RSWFs eliminated the need for Culebra Creek NWWC with Culebra Road Bridge Improvements, which was replaced instead with Culebra Creek at Timber Path Optimized Selective Clearing Program. This modification resulted in a cost reduction of $23.6 million. |

**Table 4.8b (Continued): Detailed Summary of Project Combinations**

| Project Combination | Primary and Downstream DCs | Individual Project Components | Individual Project Costs | Individual Project ADR* | Individual FRR | Total Cost | Combination ADR* | Combination FRR | Reasons for Project Optimization/Removal, Results/Recommendations |
|---|---|---|---|---|---|---|---|---|---|
| **Leon Combination** | Leon(6C,15,3,5B,10) | Quarry at the Rim RSWF | $2.8 mil | -$12,000 | 0.14 | $50.7 mil | -$267,900 | 0.17 | The Quarry at the Rim RSWF causes an increase in peak flow rates at the confluence with French Creek and provides insufficient peak flow rate reductions at the confluence with Culebra Creek to eliminate increases caused by implementing Leon Creek NWWC with Ingram Road Bridge Improvements (LC-8) and Huebner Creek FPB (LC-17). Therefore, the Quarry at the Rim RSWF provides no benefit in combination, and implementing Leon Creek NWWC with Ingram Road Bridge Improvements (LC-8) and Huebner Creek FPB (LC-17) will require additional projects in combination to eliminate negative downstream impacts. |
| | | Leon Creek at Grissom Road Enhanced Conveyance | $20.2 mil | -$107,500 | 0.17 | | | | |
| | | Leon Creek NWWC with Ingram Road Bridge Improvements (LC-8) and Huebner Creek FPB (LC-17) | $27.7 mil | -$164,200 | 0.19 | | | | |
| **Helotes/Culebra/ Leon Combination A** | Helotes(12, 11) Culebra(4) Leon(3,5B,10) | Helotes Creek RSWF | $4.7 mil | -$256,200 | 1.71 | $56.1 mil – $10.0 mil $46.1 mil | -$440,200 | 0.30 | Helotes Creek RSWF provided an additional 4 feet in WSEL reductions at DC 4, allowing Culebra Creek NWWC with Culebra Road Bridge Improvements to be downsized. The optimized combination eliminated the need for bridge improvements at Culebra Road and for channelization upstream of Culebra Road. These modifications together reduced the channel's required excavation volume by nearly 116,000 cubic yards and resulted in a combined cost reduction of approximately $10.0 million. In addition, Helotes Creek RSWF sufficiently reduced the negative downstream impacts produced by Culebra Creek Optimized NWWC as well as Leon Creek NWWC with Ingram Road Bridge Improvements (LC-8) and Huebner Creek FPB (LC-17), although the impacts of the RSWF were insufficient to allow for LC-8 or LC-17 to be optimized. Furthermore, because the cost savings of Culebra Creek Optimized NWWC exceed the total cost of Helotes Creek RSWF, it is impossible to produce similar cost reductions by optimizing the RSWF project alone. |
| | | *Culebra Creek NWWC with Culebra Road Bridge Improvements (Optimized)* | *$23.7 mil* | *-$169,000* | *0.22* | | | | |
| | | Leon Creek NWWC with Ingram Road Bridge Improvements (LC-8) and Huebner Creek FPB (LC-17) | $27.7 mil | -$164,200 | 0.19 | | | | |
| **Helotes/Culebra/ Leon Combination B** | Helotes(12, 11) Culebra(4,16) Leon(3,5B,10) | Government Canyon Creek RSWF | $19.6 mil | -$330,400 | 0.53 | $75.7 mil – $38.2 mil $37.5 mil | -$576,500 | 0.48 | Combining Government Canyon Creek RSWF and Helotes Creek RSWF provided WSEL reductions similar to the effects of implementing Culebra Creek NWWC with Culebra Road Bridge Improvements individually, along with Leon Creek NWWC with Ingram Road Bridge Improvements (LC-8) and Huebner Creek FPB (LC-17). Utilizing both RSWFs eliminated the need for Culebra Creek NWWC with Culebra Road Bridge Improvements, which was replaced instead with Culebra Creek at Timber Path Optimized Selective Clearing Program. This modification resulted in a cost reduction of $23.6 million. In addition, the combination eliminated the need for Leon Creek NWWC with Ingram Road Bridge Improvements (LC-8) and Huebner Creek FPB (LC-17), which was replaced instead with Leon Creek Optimized Selective Clearing Program with Ingram Road Bridge Improvements (LC-8) and Huebner Creek FPB (LC-17). This modification resulted in a cost reduction of $14.6 million (for a total cost reduction of $38.2 million). |
| | | Helotes Creek RSWF | $4.7 mil | -$249,600 | 1.71 | | | | |
| | | *Culebra Creek NWWC with Culebra Road Bridge Improvements (Replaced with Selective Clearing)* | *$23.7 mil* | *-$169,000* | *0.22* | | | | |
| | | *Leon Creek NWWC with Ingram Road Bridge Improvements (LC-8) and Huebner Creek FPB (LC-17) (Replaced with Selective Clearing)* | *$27.7 mil* | *-$164,200* | *0.19* | | | | |
| **Leon Watershed Combination** | All Damage Centers | Various** | - | - | - | $140 mil | -$1,165,300 | 0.26 | All recommended individual projects were combined to be included in the Leon Creek Watershed Master Plan. Recommended projects will be discussed further in Section 4.9 (Recommended Project Configurations). See Leon Creek Watershed Summary Sheet in Appendix G for additional information. |

*Italicized Projects: Project optimized, replaced, or eliminated during the project combination analysis.*

*NOTE: Existing Total Annual Damages estimated at **$2,884,000**

**Projects included in Leon Creek watershed:

- Culebra Creek at Timber Path Optimized Selective Clearing Program
- Culebra Creek Tributary A at Tezel Road Enhanced Conveyance
- French Creek at Guilbeau Road NWWC
- Government Canyon Creek RSWF
- Hausman Road Drainage Project Phase I LC-9
- Helotes Creek RSWF
- Huebner Creek at Bandera Road NWWC (LC-17) and Ingram Road Bridge Improvements (LC-8)
- Huebner Creek at Eckhert Road Optimized NWWC
- Huebner Creek at Evers Road NWWC
- Huebner Creek at Prue Road RSWF LC-15
- Leon Creek at Grissom Road Enhanced Conveyance
- Leon Creek at Optimized Selective Clearing Program with Ingram Road Bridge Improvements (LC-8) and Huebner Creek Flood Protection Barrier (LC-17)
- Maverick Creek NWWC with W. Hausman Road Bridge Improvements (LC-10)

**Table 4.8b Abbreviation Key**:
ADR: Annual Damage Reductions
DC: Damage Center
FPB: Flood Protection Barrier
NWWC: Natural Waterway Conveyance
RSWF: Regional Storm Water Facility
LC-#: Bexar County Flood Control Project
WSEL: Water Surface Elevations

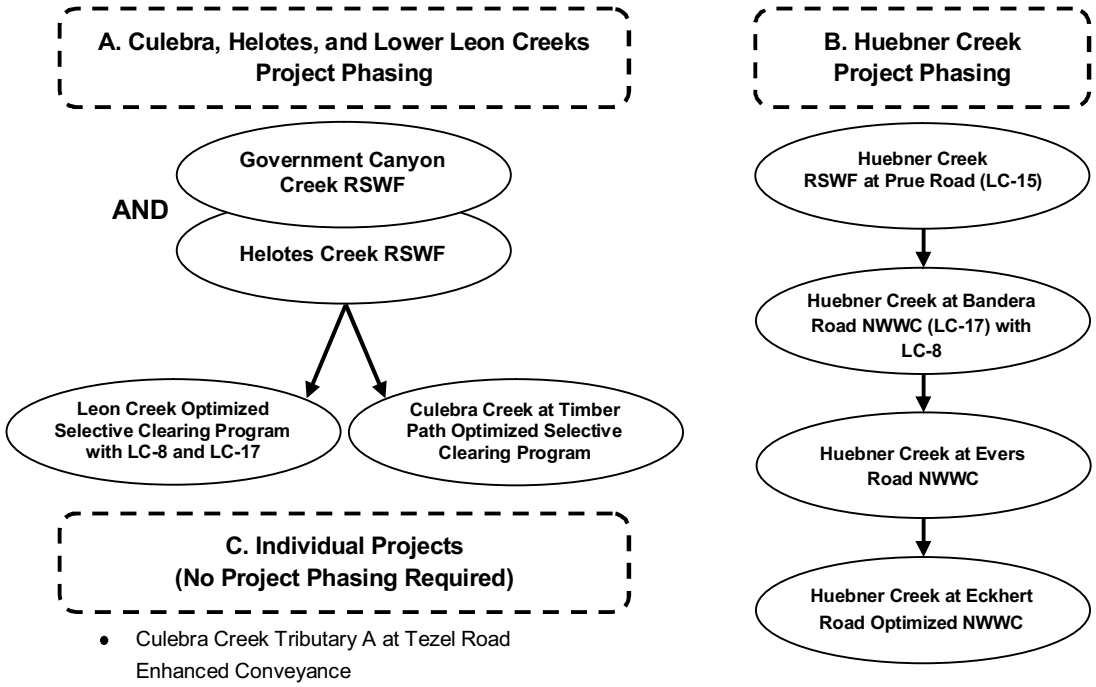
### 4.8.3 Project Phasing

Select projects required a specific construction phasing order to be used effectively. In order to mitigate negative downstream impacts due to Culebra Creek NWWC with Culebra Road Bridge Improvements, one of three detention projects – Government Canyon Creek RSWF, Helotes Creek RSWF, or Easterling RSWF if Government Canyon Creek RSWF and Helotes Creek RSWF are not selected – must first be implemented. Alternatively, both Government Canyon Creek RSWF and Helotes Creek RSWF are requisite both to optimize Culebra Creek NWWC at Culebra Road or Leon Creek NWWC at Ingram Road using selective clearing and to minimize downstream project impacts (Figure 4.8a).

Huebner Creek has negligible impacts on lower Leon Creek but is driven by local impacts and not adjacent tributaries. Projects implemented on Huebner Creek should be phased for construction to avoid any local negative impacts, starting with Huebner Creek RSWF at Prue Road (LC-15) and then the project furthest downstream, working gradually upstream (Figure 4.8b).

Several projects have no impact on Lower Leon Creek below the confluence of Culebra and Leon Creeks and may be implemented independently of all other projects. These projects include French Creek at Guilbeau Road NWWC, Hausman Road Drainage Project Phase I (LC-9) on Huesta Creek, Maverick Creek NWWC with W. Hausman Road Bridge Improvements (LC-10), Leon Creek at Grissom Road Enhanced Conveyance and Culebra Creek Tributary A at Tezel Road Enhanced Conveyance (Figure 4.8c).

**Figure 4.8a-4.8c: Recommended Project Phasing**



## 4.9 Recommended Project Configurations

### 4.9.1 Evaluation of Projects

The final evaluation of the project alternatives followed the Bexar Regional Watershed Management (BRWM) standardized priority ranking matrix (shown in Table 4.9a) to consolidate and rank all analysis results. Individual projects were scored qualitatively as "High," "Medium," or "Low" according to the following criteria:

- Hydraulic significance or impact – Determined both by the number of buildings removed from the 100-year floodplain and the reduction in annual damages across the entire Leon Creek Watershed.[17]
    - Low – Removed fewer than 25 buildings from the 100-year floodplain. Estimated Annual Damage reductions less than 0.65 percent (25$^{th}$ percentile) also ranked "Low".
    - Medium – Removed 25 to 50 buildings from the 100-year floodplain. Estimated Annual Damage reductions between 0.65 percent (25$^{th}$ percentile) and 3.70 percent (75$^{th}$ percentile) also ranked "Medium".
    - High – Removed more than 50 buildings from the 100-year floodplain. Estimated Annual Damage reductions greater 3.70 percent (75$^{th}$ percentile) also ranked "High".
- Public safety – Determined by the overall extent to which a project improved the safety classification of roadway crossings and parallel roadway sections. Roads were classified according to Figure 35-504 of the CoSA *Unified Development Code* for all storm events. Any safety classifications that worsened as a result of the project were used to offset the number of improvements.
    - Low – No roadway crossings or parallel roadway sections improved classification as a result of the project alternative.
    - Medium – One or two roadway crossings or parallel roadway sections improved classification as a result of the project alternative.
    - High – More than two roadway crossings or parallel roadway sections improved classification as a result of the project alternative.
- Benefit/cost ratio – Determined by a project's Flood Reduction Ratio.[18] For Flood Reduction Ratios less than 0.05, projects were ranked "Low." For Flood Reduction Ratios between 0.05 and 0.3, projects were ranked "Medium," and for Flood Reduction Ratios greater than 0.3, projects were ranked "High."
- Element of a comprehensive watershed plan – Determined by the coverage of a project's benefits. The projects were ranked "Low" if they provided only local benefits and provided no additional benefits when in combination, "Medium" if they provided benefits along the primary stream reach or could be used in combination to resolve downstream impact problems, and "High" if they provided benefits along multiple stream reaches or created opportunities for downstream project optimization when used in combination.
- Dependency on other projects – Determined by a project's individual effectiveness. The projects were ranked "Low" if they depended on two or more additional projects to make the base project effective or to mitigate downstream impacts, "Medium" if they depended on one additional project to make the base project effective or to mitigate downstream impacts, and "High" if they depended on no additional projects.

[17] For all BRWM matrix criteria that depend on flooding severity, the 100-year storm event was used to evaluate criteria scores.
[18] The Flood Reduction Ratio is discussed in further detail in Section 4.5.

- Mobility or effects on transportation system – Determined by the length of time roadways may be rendered unusable due to flooding (not evaluated as part of this study).
- Sustainability or low operations and maintenance cost – Determined by a project's required operations and maintenance cost. "High" ranked projects, such as concrete-lined channels, would have negligible maintenance requirements. "Medium" ranked projects would require some routine maintenance (e.g., mowing grass-lined enhanced conveyance channels, structure clean-out for off-line detention ponds). "Low" ranked projects would require substantial operation and maintenance costs (e.g. on-line detention ponds).
- Level of protection provided – Determined by a project's ability to protect nearby buildings from flooding. A project was ranked "Low" if few buildings in the primary damage center improved LOFP and ranked "Medium" if most buildings in the primary damage center improved LOFP by one level. A project was ranked "High" if most buildings in the primary damage center improved LOFP by two or more levels.
- Funding sources – Not evaluated as part of this study.
- Promote orderly development or improve economic development/redevelopment potential – Determined by the size of development impacted by a project. The projects were ranked according to the areas removed from the 100-year floodplain and whether the areas classify as developed or undeveloped land.
    - Low – Removed the majority of developed area from the 100-year floodplain.
    - Medium – Removed the majority of developed area and additional undeveloped area with the potential for development from the 100-year floodplain.
    - High – Removed the majority of developed area and additional undeveloped area with a high potential for development from the 100-year floodplain.
- Beneficial neighborhood impacts – Determined by a project's construction impacts or appeal to neighboring residences/businesses.
    - Low – Adjacent to neighborhoods on more than one side ***and*** provided no beneficial enhancements.
    - Medium – Adjacent to a neighborhood on one side ***or*** adjacent to neighborhoods on more than one side and would provide beautification or a connection to a park/trail.
    - High – Not located near a neighborhood (and would not cause disruptions during construction) ***or*** adjacent to a neighborhood on one side and would provide beautification or a connection to a park/trail.
- Water quality enhancement – Determined by a project's proximity to 303(d) impaired water bodies and its suitability for water quality enhancement techniques using vegetation, wet bottom water quality ponds, or other BMPs. A project was ranked "Low" if conditions were highly constrained and would make these techniques difficult (e.g., no upstream flow to help support a wet bottom pond and/or vegetation). "Medium" represented average suitability (with minor constraints) and "High" represented exceptional suitability (no constraints).
- Time to implement or construct – Not evaluated as part of this study.
- Permitting resistance or difficulty – Determined by a project's ease of permitting. Projects were ranked "Low" if they required more permits or more time to permit than average. If a project appeared to be less difficult or time-consuming to permit than average, it received a higher score.
- Environmental or habitat enhancement – Determined by a project's potential for habitat enhancement and connectivity to existing habitats. Projects were ranked "Low" if they were highly constrained and unsuitable as potential habitats due to existing development. Projects ranked "Medium" would be partially suitable as a habitat or a connecting habitat (e.g., not enough available land to establish riparian buffers but still suitable for native grasses), and

projects ranked "High" would be ideally suited for habitat enhancement and connectivity (e.g., suitable to establish riparian buffers and wildlife corridors with connectivity to existing habitats).

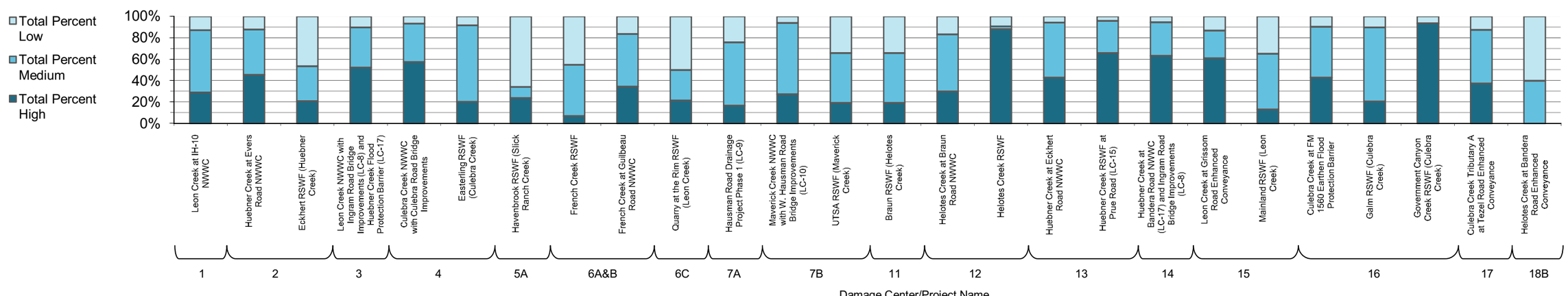
- Potential for recreation/open space/connectivity for linear parks – Determined by a project's potential for developing or connecting to recreational park space. Projects were ranked "Low" if they were unsuitable for parks, trails, or paths, or if they were located far from any residential areas, schools, public spaces, roadways, or other parks. Projects were ranked "Medium" if they partially met the criteria (e.g., located near existing parks but far from residential areas or roadways). Projects were ranked "High" if they were centrally located and would easily connect to adjacent parks, green space, or active neighborhoods.
- Channel Instability – Determined by a project's susceptibility to disequilibrium in sediment transport, incision and bank erosion. For this study, criteria evaluation and ranking were provided by SARA.
- Natural Channel Design Suitability – Determined by a project's Rosgen Priority Rating which included suitability for restoration of natural channel function in terms of balanced sediment transport, bed form diversity, bank stabilization, floodplain connectivity, water quality and aquatic habitat while remaining within the project constraints. Projects were ranked "Low" if only Priority 4 restoration (stabilizing the channel in place) was applicable. Projects were ranked "Medium" if constraints limited restoration to Priority 3, consisting of stream type alterations and the use of in-stream habitat enhancement. Projects that allowed for floodplain re-establishment including meandering bends and habitat enhancement were labeled at Priority 1 or 2 and ranked "High".

Upon completing the matrix, each project was scored and ranked using criteria weights developed by the BRWM. Two criteria were evaluated for channel projects only (i.e., Channel Instability and Natural Channel Design Suitability)[19]. In order to make the BRWM prioritization assessment uniform for all project types, each project's total weighted score was divided by the total possible score for its project type to produce a normalized score for ranking purposes.

[19] Criteria evaluations were provided by SARA.

## Table 4.9a: Prioritization Matrix

| Project Name and Primary Damage Center | Leon Creek at IH-10 NWWC | Huebner Creek at Evers Road NWWC | Eckhert RSWF (Huebner Creek) | Leon Creek NWWC with Ingram Road Bridge Improvements (LC-8) and Huebner Creek Flood Protection Barrier (LC-17) | Culebra Creek NWWC with Culebra Road Bridge Improvements | Easterling RSWF (Culebra Creek) | Havenbrook RSWF (Slick Ranch Creek) | French Creek RSWF | French Creek at Guilbeau Road NWWC | Quarry at the Rim RSWF (Leon Creek) | Hausman Road Drainage Project Phase 1 (LC-9) | Maverick Creek NWWC with W. Hausman Road Bridge Improvements (LC-10) | UTSA RSWF (Maverick Creek) | Braun RSWF (Helotes Creek) | Helotes Creek at Braun Road NWWC | Helotes Creek RSWF | Huebner Creek at Eckhert Road NWWC | Huebner Creek RSWF at Prue Road (LC-15) | Huebner Creek at Bandera Road NWWC (LC-17) and Ingram Road Bridge Improvements (LC-8) | Leon Creek at Grissom Road Enhanced Conveyance | Mainland RSWF (Leon Creek) | Culebra Creek at FM 1560 Earthen Flood Protection Barrier | Galm RSWF (Culebra Creek) | Government Canyon Creek RSWF (Culebra Creek) | Culebra Creek Tributary A at Tezel Road Enhanced Conveyance | Helotes Creek at Bandera Road Enhanced Conveyance |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Matrix Criteria** | **1** | **2** | | **3** | **4** | | **5A** | **6A&B** | | **6C** | **7A** | **7B** | | **11** | **12** | | **13** | | **14** | **15** | | **16** | | | **17** | **18B** |
| **Hydraulic significance or impact** | M | H | L | H | H | M | L | M | M | L | L | M | L | L | M | H | M | H | H | H | L | M | M | H | M | L |
| **Public Safety** | M | M | L | M | H | M | L | L | L | L | M | M | M | M | L | H | M | H | M | L | M | M | M | H | H | L |
| **Benefit/Cost Ratio** | L | M | M | M | M | M | L | L | M | M | M | M | L | L | H | H | H | H | H | M | L | H | M | H | M | L |
| **Element of comprehensive watershed plan** | H | L | M | L | L | H | L | L | L | L | L | L | L | L | M | H | L | M | L | L | L | L | H | H | L | L |
| **Dependency on other projects** | H | H | H | L | M | H | H | L | H | H | H | M | H | H | H | H | H | M | H | H | H | H | H | H | H | L |
| **Mobility or effects on transportation system** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Sustainability or low operations & maintenance cost** | M | M | L | L | M | L | L | M | M | M | L | M | M | M | M | L | M | M | M | M | M | L | L | L | M | M |
| **Level of protection provided** | L | H | L | H | H | L | L | L | H | L | M | H | M | L | M | H | H | M | H | H | L | H | L | H | M | M |
| **Funding sources** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Promote orderly development or improve economic development/redevelopment potential** | H | L | L | M | L | L | L | L | L | L | L | H | L | L | L | L | H | L | H | H | L | L | L | H | L | L |
| **Beneficial neighborhood impacts** | M | L | L | H | L | M | M | M | L | H | M | M | M | M | M | M | L | L | L | M | M | M | M | H | L | M |
| **Water quality enhancement** | H | L | L | H | M | M | L | L | H | L | M | H | L | L | M | L | L | L | M | H | L | L | M | L | L | L |
| **Time to implement or construct** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Permitting resistance or difficulty** | L | M | M | M | M | M | M | L | M | L | L | L | L | M | L | L | M | M | M | M | M | H | L | L | M | L |
| **Environmental or habitat enhancement** | M | L | L | H | M | M | L | M | H | L | H | H | L | M | M | L | M | M | M | H | M | M | M | L | L | M |
| **Potential for Recreation/Open Space/Connectivity for linear parks** | M | L | H | H | M | M | H | H | H | L | M | H | H | H | L | L | H | M | H | H | M | M | M | H | L | M |
| **Channel Instability** | L | L | - | L | L | - | - | - | M | - | L | L | - | - | M | - | M | - | L | L | - | - | - | - | L | L |
| **Natural Channel Design Suitability** | M | M | - | M | M | - | - | - | M | - | M | M | - | - | L | - | M | - | M | M | - | - | - | - | M | M |
| **Normalized Total Weighted Score** | 0.646 | 0.688 | 0.478 | 0.719 | 0.760 | 0.656 | 0.422 | 0.467 | 0.635 | 0.467 | 0.563 | 0.688 | 0.522 | 0.589 | 0.625 | 0.833 | 0.729 | 0.811 | 0.792 | 0.719 | 0.511 | 0.700 | 0.644 | 0.889 | 0.667 | 0.417 |
| **RANK** | 14 | 10 | 22 | 7 | 5 | 13 | 25 | 23 | 16 | 24 | 18 | 11 | 19 | 20 | 17 | 2 | 6 | 3 | 4 | 8 | 21 | 9 | 15 | 1 | 12 | 26 |




January 2011

### 4.9.2 Discussion of Results

Based on the results of the prioritization matrix, individual projects and project combinations were assessed by stream. A summary of the priority rankings is presented in Table 4.9b.

**Table 4.9b: Prioritization Matrix Rankings for Individual Projects**

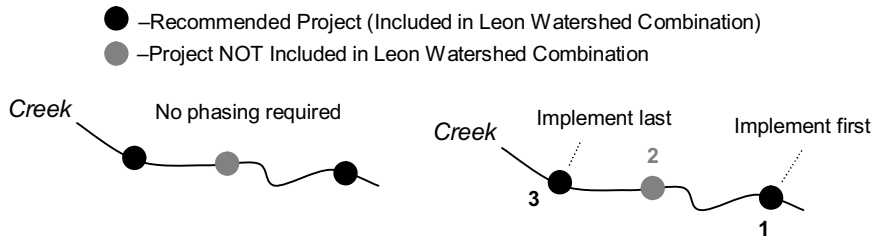
| Rank | Project Name | *Primary Damage Center* |
|---|---|---|
| **1** | **Government Canyon Creek RSWF (Culebra Creek)** | **16** |
| **2** | **Helotes Creek RSWF** | **12** |
| **3** | **Huebner Creek RSWF at Prue Road (LC-15)** | **13** |
| **4** | **Huebner Creek at Bandera Road NWWC (LC-17) and Ingram Road Bridge Improvements (LC-8)** | **14** |
| **5** | **Culebra Creek NWWC with Culebra Road Bridge Improvements** | **4** |
| **6** | **Huebner Creek at Eckhert Road NWWC** | **13** |
| **7** | **Leon Creek NWWC with Ingram Road Bridge Improvements (LC-8) and Huebner Creek Flood Protection Barrier (LC-17)** | **3** |
| **8** | **Leon Creek at Grissom Road Enhanced Conveyance** | **15** |
| 9 | Culebra Creek at FM 1560 Earthen Flood Protection Barrier | 16 |
| **10** | **Huebner Creek at Evers Road NWWC** | **2** |
| **11** | **Maverick Creek NWWC with W. Hausman Road Bridge Improvements (LC-10)** | **7B** |
| **12** | **Culebra Creek Tributary A at Tezel Road Enhanced Conveyance** | **17** |
| 13 | Easterling RSWF (Culebra Creek) | 4 |
| *14* | *Leon Creek at IH-10 NWWC* | *1* |
| *15* | *Galm RSWF (Culebra Creek)* | *16* |
| **16** | **French Creek at Guilbeau Road NWWC** | **6A&B** |
| 17 | Helotes Creek at Braun Road NWWC | 12 |
| **18** | **Hausman Road Drainage Project Phase I (LC-9)** | **7A** |
| 19 | UTSA RSWF (Maverick Creek) | 7B |
| *20* | *Braun RSWF (Helotes Creek)* | *11* |
| *21* | *Mainland RSWF (Leon Creek)* | *15* |
| *22* | *Eckhert RSWF (Huebner Creek)* | *2* |
| 23 | French Creek RSWF | 6A&B |
| 24 | Quarry at the Rim RSWF (Leon Creek) | 6C |
| *25* | *Havenbrook RSWF (Slick Ranch Creek)* | *5A* |
| *26* | *Helotes Creek at Bandera Road Enhanced Conveyance* | *18B* |

**Bold: Recommended project**

*Italicized: Project not analyzed in combinations*

The following section provides a detailed summary of individual project rankings, as determined by project assessments, along with the results of combining projects. The results are presented by stream. Project combination diagrams are provided to illustrate general project locations, project phasing requirements (projects are drawn in numerical order, where applicable), and recommended projects (projects drawn in gray are not included in the final recommended Leon Watershed Combination). An example project phasing diagram is shown in Figure 4.9a.

**Figure 4.9a: Example Project Phasing Diagram**




**Slick Ranch Creek**
*(Damage Center 5A)*

| | |
|---|---|
| Havenbrook RSWF *(Individual Rank: 25th)* | This project had a high potential for recreational uses and habitat enhancement, although the remaining criteria ranked below average. Although detailed local impacts were not calculated, a hydrologic analysis determined that Havenbrook RSWF had minimal effects on reducing lateral spill from Slick Ranch Creek into the adjacent neighborhood.[20] Existing channel modifications recently completed at Slick Ranch Creek near West Military Drive may contribute to flood mitigation. |

**Culebra Creek Tributary A**
*(Damage Center 17)*

| | |
|---|---|
| Culebra Creek Tributary A at Tezel Road Enhanced Conveyance *(Individual Rank: 12th)* | This project had average local flood mitigation effects. Due to the surrounding area's dense urbanization, it had poor potential for multi-use objectives. This project provided the necessary bridge upgrades (at the cost of property acquisition) to remove several roadways from the 100-year floodplain, which earned it a "High" score in the "Public Safety" category. It also improved the transportation corridor along Tezel Road between Ridge Run and Timber Ranch, increasing its LOFP above the 100-year storm event. |

[20] Refer to Havenbrook RSWF Information Sheet (Appendix G) for more detailed information regarding the results of this hydrologic analysis.

**Huesta Creek**
*(Damage Center 7A)*

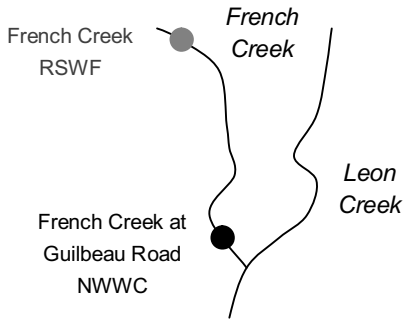
| | |
|---|---|
| Hausman Road Drainage Project Phase I LC-9 *(Individual Rank: 18th)* | This Bexar County Flood Control Project was moderately suitable for riparian and wetland enhancements and recreational uses such as mountain bike, walking, and equestrian trails. It had average localized flood mitigation benefits but would require extensive property acquisition.[21] Areas removed from the floodplain had low potential for future development or redevelopment. |

**French Creek**
*(Damage Centers 6A&B and 8)*

| | |
|---|---|
| French Creek at Guilbeau Road NWWC *(Individual Rank: 16th)* | This project had a high potential for recreational uses, but its flood mitigation benefits were slightly below average. The LOFP improved significantly for nearby buildings within Damage Center 6A (nearly all were removed from the 500-year floodplain), although buildings in Damage Center 6B remained unaffected. |
| French Creek RSWF *(Individual Rank: 23rd)* | This project had a high potential for recreational uses, but its flood mitigation benefits were extremely low. Additionally, this project provided no additional benefit when implemented in combination with the NWWC described above. |

The French Combination – including French Creek at Guilbeau Road NWWC and French Creek RSWF – did not create any optimization opportunities. However, the combination did reduce estimated annual damages and eliminate the negative downstream impacts of the RSWF. In order to achieve these benefits, the combination required both projects to be implemented at maximum capacity. As a result, the combination was unable to provide any initial cost savings. By itself, the NWWC project provided sufficient flood protection in Damage Centers 6A&B.

**French Combination**




**Maverick Creek**
*(Damage Center 7B)*

| | |
|---|---|
| Maverick Creek NWWC with W. Hausman Road Bridge Improvements (LC-10) *(Individual Rank: 11th)* | This project received medium to high scores overall. It eliminated overflow between Maverick Creek and Huesta Creek Tributary A, and because it included the Bexar County Flood Control Project LC-10, this project also improved the Hausman Road LOFP. It also removed areas from the floodplain that would have high-potential as future development |

[21] This project is currently underway. The property acquisition component has occurred.

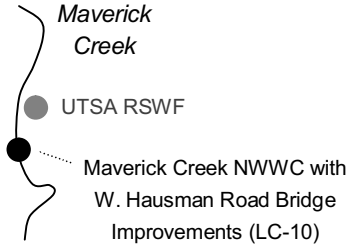
or redevelopment. Finally, this project could incorporate riparian and wetland enhancements and could be used to connect the University of Texas at San Antonio campus to the linear parks along Leon Creek with hike and bike trails.

UTSA RSWF
*(Individual Rank: 19th)*

This project had a high potential for recreational uses, but its flood mitigation benefits were below average. Additionally, this project provided no additional benefit when implemented in combination with the NWWC described above. These limited benefits would be at the expense of encroaching on the UTSA campus.

The Maverick Combination – including Maverick Creek NWWC with W. Hausman Road Bridge Improvements (LC-10) and UTSA RSWF – did not create any optimization opportunities or provide any additional local benefits over the individual projects. UTSA RSWF provided some benefit in downstream damage centers along Leon Creek, although the benefit was significantly less than benefits derived from other recommended projects on Leon Creek. The NWWC project alone provided sufficient flood protection in Damage Center 7B.

**Maverick Combination**




**Huebner Creek**
*(Damage Centers 2, 13, and 14)*

Huebner Creek RSWF at Prue Road LC-15
*(Individual Rank: 3rd)*

This project was the third highest-ranking project analyzed. The project had high flood mitigation benefits and relatively low project costs, which contributed to its high flood reduction ratio of 2.81. Due to the presence of neighborhoods adjacent to both sides of the project area, it received a "Low" score in the "Beneficial Neighborhood Impacts" category. Multi-use opportunities may exist for habitat connectivity and recreational uses, such as fishing ponds, picnic areas, and a dog park.

Huebner Creek at Bandera Road NWWC (LC-17) and Ingram Road Bridge Improvements (LC-8)
*(Individual Rank: 4th)*

This project was the fourth highest-ranking project analyzed. The project had high flood mitigation benefits and received high scores overall. It received a "Low" score for "Beneficial Neighborhood Impacts" based on the assumption that construction activities in the neighborhood would encounter firm resistance from residents. However, this score might be higher if the neighborhood residents support the project. The multi-use analysis of this project site indicated high potential for future development or redevelopment and recreation/open space opportunities. In the hydrologic and hydraulic analysis, this project caused an increase in peak flow rates along Huebner Creek; however, the increased peak flow rates did not translate into increased flood risk.

Huebner Creek at Eckhert Road NWWC
*(Individual Rank: 6th)*

This project ranked well for multi-use potential and had average flood mitigation benefits. It reduced flooding and improved safety along Eckhert Road, while completely eliminating flooding at Whitby Road. Despite causing some negative impacts downstream on Huebner Creek, the relatively low project costs contributed to a higher-than-average flood

reduction ratio of 0.30. Due to the presence of neighborhoods adjacent to both sides of the project area, it received a "Low" score in the "Beneficial Neighborhood Impacts" category. Multi-use opportunities may exist for riparian and wetland enhancement and recreational uses, such as mountain bike and walking trails. In the hydrologic and hydraulic analysis, this project caused an increase in peak flow rates along Huebner Creek but decreased the peak flow rate on Leon Creek downstream of the Huebner Creek confluence.

Huebner Creek at Evers Road NWWC *(Individual Rank: 10th)*

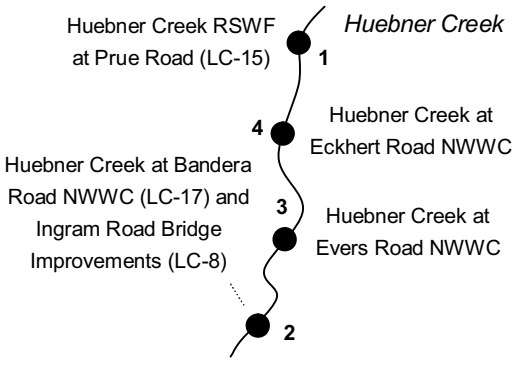
This project had high flood mitigation benefits locally and might be suitable for riparian and wetland enhancements. The proposed channel expansion and property acquisition pose a significant challenge to this project but provide an alternative to major bridge upgrades to Evers Road and a concrete-lined channel. Although the project had a modest flood reduction ratio of 0.18, it may create negative downstream impacts along Huebner Creek. In the hydrologic and hydraulic analysis, this project caused an increase in peak flow rates along Huebner Creek but decreased the peak flow rate on Leon Creek downstream of the Huebner Creek confluence.

Eckhert RSWF *(Individual Rank: 22nd)*

This project had a high potential for recreational uses, but its flood mitigation benefits were below average. This project provided no additional benefit when implemented in combination with other projects analyzed for Huebner Creek.

The Huebner Combination – including Huebner Creek RSWF at Prue Road (LC-15), Huebner Creek at Eckhert Road NWWC, Huebner Creek at Evers Road NWWC, and Huebner Creek at Bandera Road NWWC (LC-17) and Ingram Road Bridge Improvements (LC-8) – provided the necessary flood reductions within Damage Centers 2, 13, and 14. Although individually the NWWC projects produced negative downstream impacts on Huebner Creek, the negative impacts may be prevented with correct project phasing. Additionally, while the combination did not require an RSWF project for mitigating impacts, the addition of Huebner Creek RSWF at Prue Road LC-15 did allow Huebner Creek at Eckhert Road NWWC to be downsized.

**Huebner Combination**




## Helotes Creek

*(Damage Centers 11, 12, and 18B)*

Helotes Creek RSWF *(Individual Rank: 2nd)*

This project was the second highest-ranking project analyzed. It ranked 'high' for the majority of the criteria with low potential for habitat enhancement or recreational uses. This project removed all but 2 buildings from the 500-year floodplain within Damage Center 12. It also provided significant benefits downstream on Helotes Creek, Culebra Creek, and Leon Creek and reduced peak flow rates at the confluence of Helotes Creek and Culebra Creek by 11,000 cfs for the 100-year storm

event. From a regional standpoint, this project has high potential to reduce flood risk along three streams and create opportunities for cost savings when implemented in combination with other projects.

Braun RSWF
*(Individual Rank: 20th)*

This project had a high potential for recreational uses, but its flood mitigation benefits were below average.

Helotes Creek at Braun Road NWWC
*(Individual Rank: 17th)*

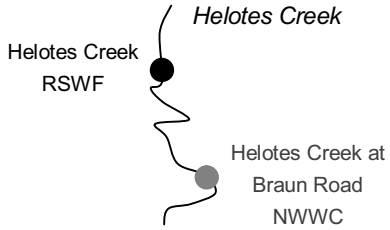
This project ranked "medium" for most criteria. It removed all buildings but two buildings from the 100-year floodplain and had a high flood reduction ratio of 1.49. From a local benefit standpoint, this project is adequate for meeting flood mitigation objectives through Damage Center 12. However, this project provided no additional benefit downstream on Helotes, Culebra, or Leon Creeks.

Helotes Creek at Bandera Road Enhanced Conveyance
*(Individual Rank: 26th)*

While it reduced flood risk in the immediate area, this project increased peak flow rates downstream on Helotes Creek and further downstream on Culebra Creek and Leon Creek, resulting in negative impacts on the LOFP of buildings downstream, primarily on Helotes Creek. It received a "Low" score for "Permitting Resistance or Difficulty" because of the high potential for endangered bird habitats nearby and the site's position within the Edwards Aquifer Contributing Zone (which necessitates a TCEQ Contributing Zone Plan).

The Helotes Combination – including Helotes Creek RSWF and Helotes Creek at Braun Road NWWC – did not create any optimization opportunities. Although the NWWC project provided local benefits at Damage Center 12, Helotes Creek RSWF reduced flood risk at Damage Center 12 and all downstream damage centers.

**Helotes Combination**




**<u>Culebra Creek</u>**
*(Damage Centers 4 and 16)*

Government Canyon Creek RSWF
*(Individual Rank: 1st)*

This project was the highest-ranking project analyzed. It ranked high for all criteria with the exception of two. It had a low rating for "Environmental and Habitat Enhancement" due to the existing high quality environmental/habitat characteristics of surrounding area and "Permitting Resistance or Difficulty" due to its proximity to Edwards Aquifer Recharge Zone and the Endangered Bird Habitat potential. This project significantly reduced flood risk along Culebra Creek and reduced peak flow rates at the confluence of Culebra Creek and Leon Creek by 8,100 cfs for the 100-year storm event. This project had high potential to reduce flood risk along two tributaries and create opportunities for cost savings when implemented in combination with other projects.

Culebra Creek NWWC with Culebra Road Bridge Improvements
*(Individual Rank: 5th)*

This project was the fifth highest-ranking project analyzed. It provided high flood mitigation benefits and demonstrated potential for riparian and wetland enhancements. The project included bridge improvements to Culebra Bridge and increased the crossing's LOFP to greater than the 100-year future storm event. For all other criteria, its results were

average, with low beneficial neighborhood impacts and low potential for future development. This project had only localized benefits with some measurable negative impacts downstream. It also improved the transportation corridor along Grissom Road between Northwest Trails and Timber Path, increasing its LOFP above the 100-year future storm event and along Culebra Road from Grissom Road to Timber Path, increasing its LOFP above the 100-year storm event. In combination with Government Canyon Creek RSWF or Helotes Creek RSWF, the cost savings for the optimized project changed its ranking to fourth. In combination with both Government Canyon Creek RSWF and Helotes Creek RSWF, the project is reduced to selective clearing and ranked third.

Culebra Creek at FM 1560 Earthen Flood Protection Barrier
*(Individual Rank: 9th)*

This project was designed solely for local flood risk reduction and has medium multi-use potential. Using the prioritization matrix, it was ranked as an average project, although it has an exceptionally low cost and a high flood reduction ratio of 9.60. It should be noted that levee certification and maintenance costs as required by FEMA were not included in the cost estimate and flood reduction ratio. Levee certification would be required in order to remove the property protected by the project from the floodplain.

Easterling RSWF Improvements
*(Individual Rank: 13th)*

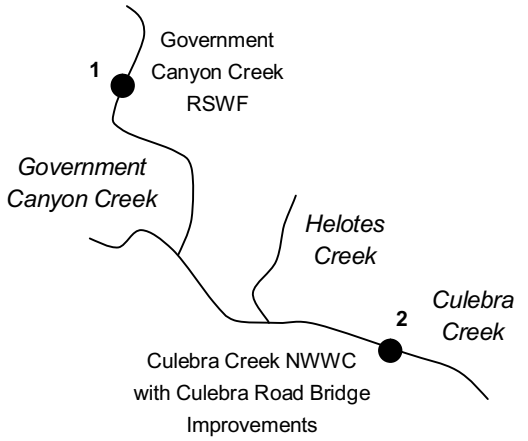
This project ranked medium with low potential for creating future development opportunities. It was suitable for recreational uses and had some potential for riparian enhancement and natural channel design techniques. Although the RSWF project provided only average local flood risk reduction potential, peak flow rates on Leon Creek were moderately reduced except for the 500-year storm event, making it suitable for combining with NWWC projects along Culebra Creek to mitigate their negative downstream impacts on Leon Creek.

Galm RSWF
*(Individual Rank: 15th)*

This project ranked medium for the majority of the criteria with the possibility of permitting difficulties due to potential endangered bird habitat.

The Culebra Combination A – including Culebra Creek NWWC with Culebra Road Bridge Improvements and Government Canyon Creek RSWF – created opportunities for downsizing Culebra Creek NWWC and eliminated the need for Culebra Road Bridge Improvements and the Culebra Creek at FM 1560 Earthen Flood Protection Barrier. In addition, combining the NWWC with Government Canyon Creek RSWF resulted in a higher FRR than combining the NWWC with either Galm RSWF or Easterling RSWF.

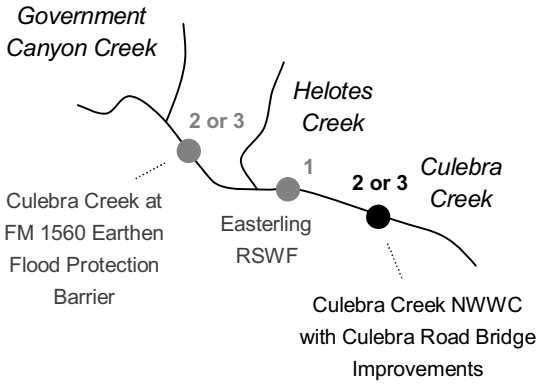
**Culebra Combination A**




January 2011

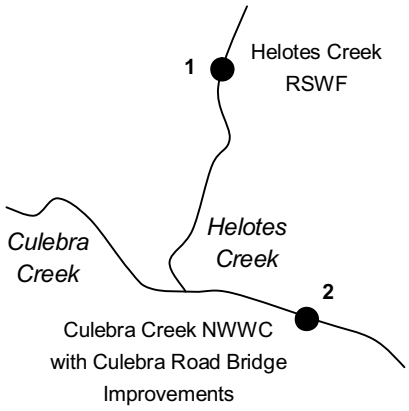
The Culebra Combination B – including Culebra Creek NWWC with Culebra Road Bridge Improvements, Culebra Creek at FM 1560 Earthen Flood Protection Barrier, and Easterling RSWF – did not create any opportunities for optimization but sufficiently reduced the overall flood risk along Culebra Creek and provided adequate peak flow rate reductions to eliminate negative downstream impacts on Leon Creek except for the 500-year storm event. Galm RSWF was also evaluated in place of Easterling RSWF, but it did not provide sufficient reductions in peak flow rates to be implemented in combination.

**Culebra Combination B**



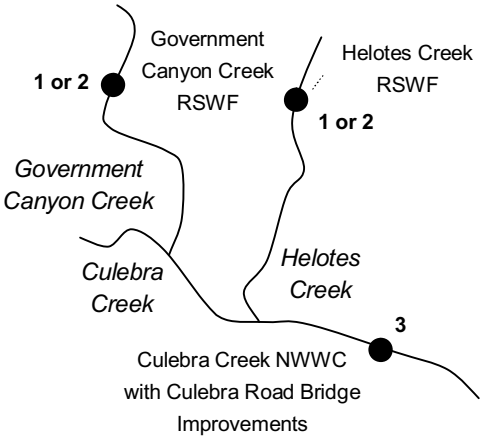

The Helotes/Culebra Combination A – including Culebra Creek NWWC with Culebra Road Bridge Improvements and Helotes Creek RSWF – created opportunities for downsizing Culebra Creek NWWC, thereby reducing its cost of implementation. The optimized combination produced results similar to Culebra Combination A, making either combination a valid solution to reduce flood risk at Damage Center 4 and to mitigate the negative downstream impacts of the NWWC project.

**Helotes/Culebra Combination A**




The Helotes/Culebra Combination B – including Culebra Creek NWWC with Culebra Road Bridge Improvements, Government Canyon Creek RSWF, and Helotes Creek RSWF – created opportunities to eliminate the need for channel modifications and bridge upgrades within Damage Center 4. The Culebra Creek NWWC with Culebra Road Bridge Improvements project was replaced with a Selective Clearing program along the downstream portion of Damage Center 4, significantly reducing construction costs. When in combination, the two RSWF projects nearly eliminated the need for any additional projects along Culebra and Helotes Creek. The combination also reduced downstream peak flow rates on Leon Creek by 18,100 cfs for the 100-year storm event.

**Helotes/Culebra Combination B**



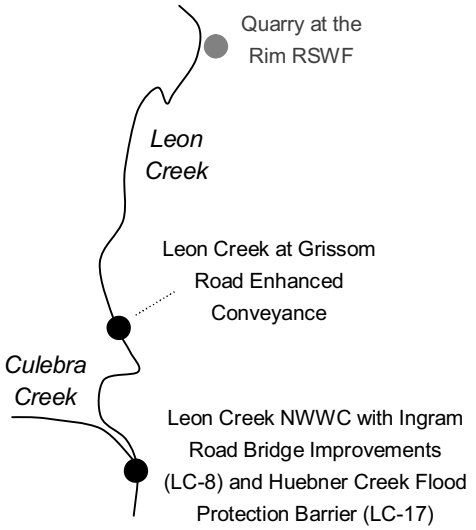
**Leon Creek**

*(Damage Centers 1, 3, 5B, 6C, 9, 10, and 15)*

| | |
|---|---|
| Leon Creek NWWC with Ingram Road Bridge Improvements (LC-8) and Huebner Creek Flood Protection Barrier (LC-17) *(Individual Rank: 7th)* | This project had high flood risk reduction effects with a moderate flood reduction ratio and high potential for riparian and wetland enhancements. In addition, because the proposed project would be built away from existing neighborhoods, it would cause minimal disturbance to neighborhoods. The project removes both developed and undeveloped land from the 100-year floodplain, including land that has a high potential for future development. |
| Leon Creek at Grissom Road Enhanced Conveyance *(Individual Rank: 8th)* | This project ranked well with high flood risk reduction benefits and high potential for riparian and wetland enhancement and recreational uses, such as mountain bike trails. It also removed areas from the floodplain that would have high potential as future development or redevelopment sites. |
| Leon Creek at IH-10 NWWC *(Individual Rank: 14th)* | This project had an average ranking with beneficial impacts downstream despite negligible impacts within the primary damage center. The site also had moderate potential for recreational uses, including mountain bike and walking trails. However, the project required a large excavation volume, and it received a "Low" score for "Permitting Resistance or Difficulty" because of the site's position within the Edwards Aquifer Contributing Zone (which necessitates a TCEQ Contributing Zone Plan). |
| Mainland RSWF *(Individual Rank: 21st)* | This project had a high potential for recreational uses and habitat enhancement, although the remaining criteria ranked below average. |
| Quarry at the Rim RSWF *(Individual Rank: 24th)* | This project had mostly below average rankings but would be built away from existing neighborhoods. |

The Leon Combination – including Leon Creek NWWC with Ingram Road Bridge Improvements (LC-8) and Huebner Creek Flood Protection Barrier (LC-17), Leon Creek at Grissom Road Enhanced Conveyance, and the Quarry at the Rim RSWF – did not create any opportunities for optimization or provide any additional local benefits over the individual projects. The NWWC projects provided the necessary local flood risk reductions at their respective damage centers and were selected for combination due to high individual performance. Leon Creek NWWC with Ingram Road Bridge Improvements (LC-8) and Huebner Creek Flood Protection Barrier (LC-17) required at least one RSWF project in combination to mitigate negative downstream impacts. However, the Quarry at the Rim RSWF provided negligible benefits downstream at Damage Centers 3 and 15 due to its distance

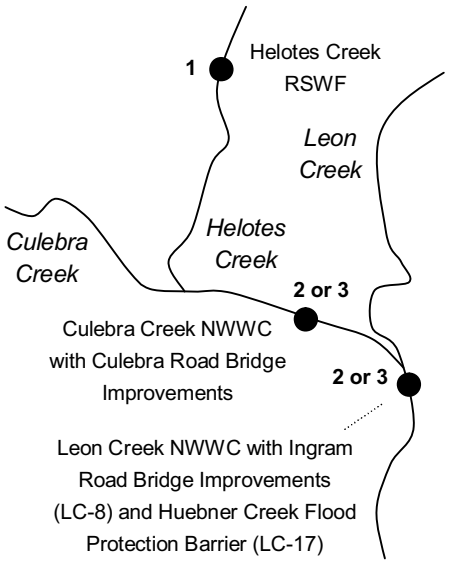
**Leon Combination**



upstream and intervening peak flows along Leon Creek.

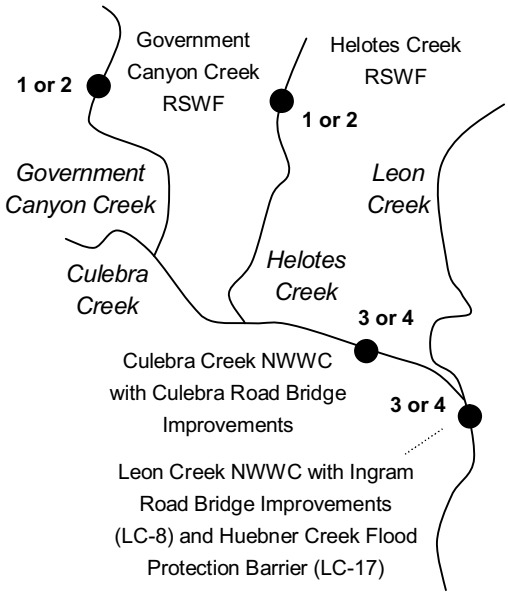
The Helotes/Culebra/Leon Combination A – including the projects in Helotes/Culebra Combination A as well as Leon Creek NWWC with Ingram Road Bridge Improvements (LC-8) and Huebner Creek Flood Protection Barrier (LC-17) – created opportunities for downsizing Culebra Creek NWWC, thereby reducing its cost of implementation (the same effect, however, may also be produced with Helotes/Culebra Combination A by itself). Although Helotes Creek RSWF reduced peak flow rates on Leon Creek and mitigated negative downstream impacts caused by both NWWC projects, its impact was insufficient to allow for the downsizing of Leon Creek NWWC with Ingram Road Bridge Improvements (LC-8) and Huebner Creek Flood Protection Barrier (LC-17).

**Helotes/Culebra/Leon Combination A**




The Helotes/Culebra/Leon Combination B – including the projects in Helotes/Culebra Combination B and Leon Creek NWWC with Ingram Road Bridge Improvements (LC-8) and Huebner Creek Flood Protection Barrier (LC-17) – created opportunities to eliminate the need for channel modifications and bridge upgrades within Damage Centers 3 and 4. The combination of Government Canyon Creek RSWF and Helotes Creek RSWF sufficiently mitigated the negative downstream impacts of both NWWC projects, reducing peak flow rates on Leon Creek by 18,100 cfs for the 100-year storm event. The Culebra Creek NWWC with Culebra Road Bridge Improvements project was replaced with a Selective Clearing program along the downstream portion of Damage Center 4, significantly reducing construction costs (the same effect, however, may also be produced with Helotes/Culebra Combination B by itself). Additionally, the Leon Creek NWWC at Ingram Road was also replaced with a Selective Clearing program.

**Helotes/Culebra/Leon Combination B**




### 4.9.3 Recommended Projects

Among the projects evaluated for mitigating flood damages within the Leon Creek watershed, thirteen projects are recommended for implementation. Together, these thirteen projects address

flooding concerns along each major tributary with the exception of Slick Ranch Creek and comprise the Leon Watershed Combination, as summarized in Table 4.9c.

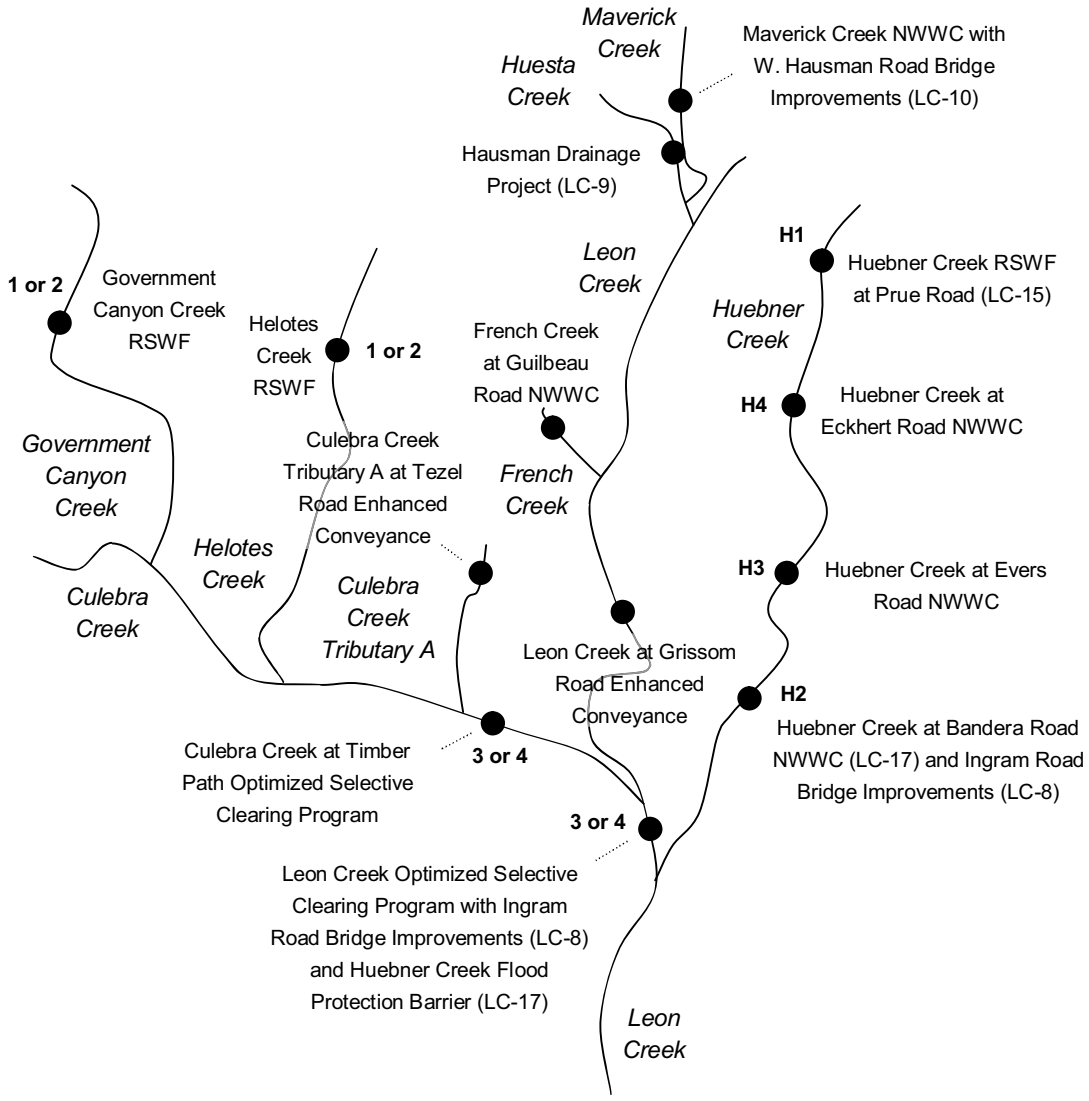
**Table 4.9c: Leon Watershed Combination (Recommended Projects)**

| Primary Tributary | Project Name | Primary Damage Center |
|---|---|---|
| Culebra Creek | Culebra Creek at Timber Path Optimized Selective Clearing Program[1] | 4 |
| | Government Canyon Creek RSWF | 16 |
| | Culebra Creek Tributary A at Tezel Road Enhanced Conveyance | 17 |
| French Creek | French Creek at Guilbeau Road NWWC | 6A&B |
| Helotes Creek | Helotes Creek RSWF | 12 |
| Huebner Creek | Huebner Creek at Bandera Road NWWC (LC-17) and Ingram Road Bridge Improvements (LC-8) | 14 |
| | Huebner Creek at Eckhert Road Optimized NWWC | 13 |
| | Huebner Creek at Evers Road NWWC | 2 |
| | Huebner Creek RSWF at Prue Road (LC-15) | 13 |
| Huesta Creek | Hausman Road Drainage Project Phase I LC-9 | 7A |
| Leon Creek | Leon Creek at Grissom Road Enhanced Conveyance | 15 |
| | Leon Creek Optimized Selective Clearing Program with Ingram Road Bridge Improvements (LC-8) and Huebner Creek Flood Protection Barrier (LC-17)[2] | 3 |
| Maverick Creek | Maverick Creek NWWC with W. Hausman Road Bridge Improvements (LC-10) | 7B |

[1]This it an optimized version of Culebra Creek NWWC with Culebra Road Bridge Improvements.
[2]This is an optimized version of Leon Creek NWWC with Ingram Road Bridge Improvements (LC-8) and Huebner Creek Flood Protection Barrier (LC-17)

Implementing the recommended projects together reduced annual flood damages within the watershed by a total of $1,165,300 with an overall Flood Reduction Ratio of 0.26. The Leon Watershed Combination includes three optimized projects.

***Leon Watershed Combination***



# 5.0 Alternative Development Methods as a Flood Mitigation Strategy

## 5.1 Purpose

Although the LCWMP study focused primarily on traditional structural methods for reducing flood risk including enhanced conveyance and RSWF projects, the study also examined the use of alternative development methods. Traditional land development with its related changes to the drainage characteristics of the watershed is generally considered a contributing factor to the increased frequency of flooding. Various alternative land development practices are capable of achieving the storm water and pollutant attenuation characteristics of undeveloped land, thereby reducing the need for large structural storm water control projects as mitigation for the effects of future development.

A qualitative assessment of some of these non-traditional land development techniques was conducted based on a literature review. This assessment indicated that these management practices, although originally developed for water quality enhancement, could also potentially have storm water quantity management benefits. The management practices in the assessment included the creation of conservation areas, stream restoration, low-impact development (LID) design, conservation development and other land-use planning options, including Leadership in Energy and Environmental Design (LEED). The assessment was earlier presented in a report "Alternative Development Techniques: Potential in Leon Creek Watershed" (April 2010). A quantitative assessment of the potential benefits of these techniques in the Leon Creek watershed was desired as part of the LCWMP.

## 5.2 Study Areas and Methodology

Six subbasins were selected to represent a variety of development and soil characteristics within the Leon Creek watershed (see Figure 5.2). Models were developed in EPA-SWMM 5.0 for each subbasin for three conditions: 1) current conditions, 2) the implementation of best management practices (BMPs) as shown in Table 5.2a, and 3) an ultimate development case assuming traditional development in cases where the current conditions of the subbasin were primarily undeveloped. Each model was simulated using the 100-year, 24-hour design storm hyetograph from the DFIRM hydrology.

Parameters for the current conditions models were developed using NRCS soil survey, 2005 aerial topography, and 2008 aerial photography.

BMPs were selected for each subbasin based on its development type (residential, commercial or mixed), hydrologic soil group classifications, and potential for containing karst features. They were modeled implicitly by accounting for the additional storage, increased infiltration capacity, and decreased impervious cover anticipated with 100 percent uptake of the proposed BMPs. The BMPs used in the analysis are listed below with a description of the assumptions used for modeling.

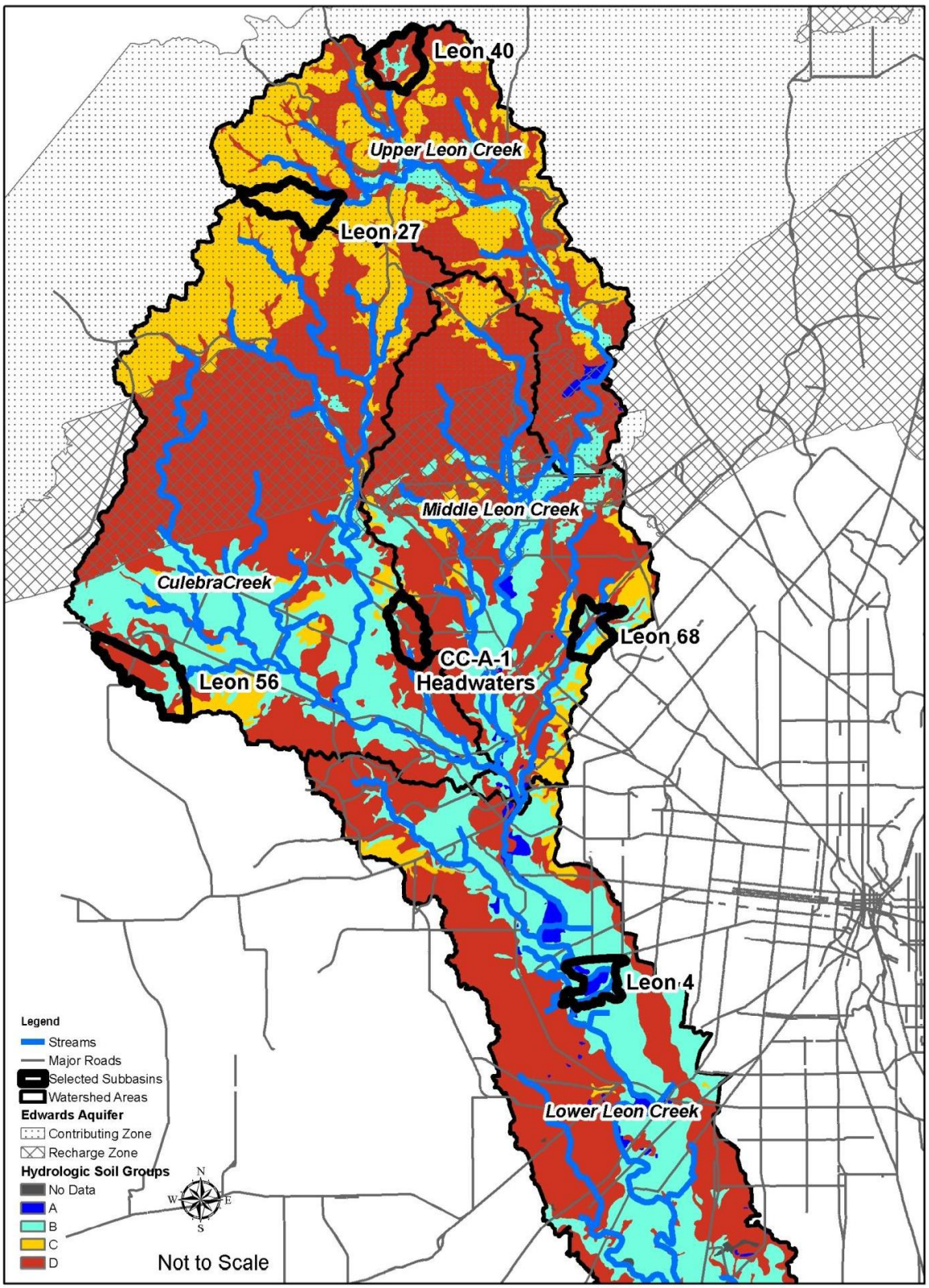



**Figure 5.2: Alternative Development AnalysisSelected Subbasins**

- Low Impact Development BMPs – These BMPs are frequently associated with LID design. They can also be used toward LEED credits for Sustainable Sites for Storm Water Design Quantity Control, Storm Water Design Quality Control, and Heat Island Effect.
    - **Rain barrels** (used in urban/small lot residential areas) – It was assumed that a 60 gallon rain barrel would be located at each of four downspouts on each residential lot. The total volume for the lot was divided by the average lot size to determine the additional depression storage due to rain barrels.
    - **Cisterns** (used in rural/large lot residential areas) – The additional depression storage for cisterns was estimated using the same methodology as rain barrels, substituting a 1500-gallon cistern per lot instead of four 60-gallon rain barrels.
    - **Rain gardens** (used in residential areas) – Rain gardens were assumed to have an average depth of 3 feet and an average surface area of 200 square feet. The storage volume was divided by the average lot size to determine the additional depression storage if each lot contained one rain garden.
    - **Bioretention** (used in commercial, industrial, and multi-family residential areas) – The methodology for estimating the additional depression storage for bioretention was similar to the methodology used for rain gardens. A bioretention pond with a surface area of 200 square feet and a depth of 3 feet was assumed for every 4,000 square feet of impervious cover. In practice, this would reflect a typical parking lot with the islands and other landscaping areas designed to serve as bioretention.
    - **Green roofs** (used in commercial and industrial buildings) – Reduced impervious cover assuming 50 percent of commercial lot impervious cover is the roof, and that 80 percent of the roof is green (40 percent of the total impervious area).
    - **Pervious pavement** (used in commercial, industrial, and multi-family residential areas) – In *Low Impact Development (LID) and Other Green Design Strategies* (EPA, 2008), pervious pavements of various types were reported to retain 25 percent to 100 percent of inflow for 2- to 10-year recurrence interval events. For this study, it was assumed that the pavement would retain 25 percent of the 10-year event. Additionally, 50 percent of the impervious area for commercial lots and apartment complexes was assumed to be rooftop, and 20 percent was assumed to be high/heavy traffic pavement. Therefore, only 30 percent of the impervious area would be pervious pavement.
- Land Use Planning BMPs – For the areas selected, these conservation development techniques were used. These BMPs can also be used toward LEED credits for Sustainable Sites for Site Selection and Site Development.
    - **Floodplain buffer/riparian corridor** – Primary conservation areas were delineated to provide buffers around creeks and major drainage pathways as well as to protect areas with slopes greater than 20 percent. Protecting a riparian buffer preserves the benefits of a natural stream corridor including storm water runoff attenuation, potential for recharge, erosion protection, and water quality enhancement.
    - **Minimize impervious cover** – The remaining area was divided between developable area and secondary conservation area so that the conservation area (primary and secondary) made up 50 percent of the total area. Roadway widths were limited to 15 feet, and it was assumed that development would include management practices that would limit the effective impervious cover to 20 percent.

For subbasins with minimal development under current conditions, a second case was evaluated using assumptions reflecting traditional development to provide a basis for comparison. In these cases, only highly constrained areas were set aside for conservation, and typical impervious cover values were assigned to developable areas based on the assumed future land use.

Appendix J includes subbasin exhibits and more information about site specific assumptions.

**Table 5.2a: Subbasin Characteristics and Selected BMPs**

| Subbasin | Characteristics | Selected BMPs |
|---|---|---|
| CC-A-1 Headwaters | • 95% medium to high density residential development<br>• Outside of the recharge and contributing zones<br>• Hydrologic Soil Group: 74% D, 22% B and 4% C<br>• Average slope: <5% | Rain barrels and rain gardens for urban residential development. |
| Leon 4 | • 80% undeveloped with the remaining area commercial/industrial. Riparian area is wooded.<br>• Outside of the recharge and contributing zones<br>• Hydrologic Soil Group: 69% B and 28% A<br>• Average slope: 5% | Bioretention, green roofs, and pervious pavement for commercial/industrial development. |
| Leon 27 | • Undeveloped<br>• In the contributing zone<br>• Hydrologic Soil Group: 94% C and 6% D<br>• Average slope: 10-15% | Conservation development using non-infiltration BMPs.* |
| Leon 40 | • Large lot residential with some commercial<br>• In the contributing zone<br>• Hydrologic Soil Group: 68% D, 18% B, and 14% C.<br>• Average slope: 5-10% | Cisterns for rural residential development and green roofs for commercial development. |
| Leon 56 | • 97% undeveloped<br>• Outside of the recharge and contributing zones<br>• Hydrologic Soil Group: 64% D, 30% B, and 6% C.<br>• Average slope: <5% | Conservation development using infiltration BMPs. |
| Leon 68 | • Mixed commercial and residential<br>• Outside of the recharge and contributing zones<br>• Hydrologic Soil Group: 48% B, 26% C, and 26% D<br>• Average slope: <5% | Pervious pavements and bioretention for commercial developments and multi-family residential. |

*Non-infiltration BMPs are necessary in karst regions. Recommended BMPs include rain barrels, cisterns, downspout disconnections, reduced road widths, curb and gutter elimination, and green roofs. Infiltration BMPs would include bioretention, rain gardens, swales, and pervious pavement. Infiltration BMPs can be implemented in karst regions if they are constructed with lining and underdrains.

## 5.3 Analysis Results

The peak flow rates and runoff volumes from each simulation are shown in Table 5.3a and 5.3b, respectively. For all six subbasins, development with BMPs produced lower 100-year peak flow rates than traditional development. The retrofitted BMPs did not perform as well as the BMPs used in new development, and the BMPs implemented over soils with lower infiltration capacities did not perform as well as those implemented in areas with higher infiltration capacities. These results reinforce the importance of understanding the hydrologic benefits of the existing landscape and planning development around key features.

**Table 5.3a: Peak Flow Rate[22] Summary for Varied Development Methodology**

| Subbasin | | Current Conditions | Case 1 (BMP) | | Case 2 (Traditional) | |
|---|---|---|---|---|---|---|
| Name | Area (ac) | Peak Flow (cfs) | Peak Flow (cfs) | Change | Peak Flow (cfs) | Change |
| CC-A-1 Headwaters | 691 | 3,629 | 3,476 | -4% | N/A | N/A |
| Leon 4 | 687 | 397 | 878 | +121% | 1,540 | +288% |
| Leon 27 | 942 | 1,310 | 1,889 | +44% | 3,118 | +138% |
| Leon 40 | 838 | 2,149 | 2,084 | -3% | 3,141 | +46% |
| Leon 56 | 1,146 | 1,014 | 1,009 | 0% | 2,380 | +135% |
| Leon 68 | 637 | 2,778 | 2,466 | -11% | N/A | N/A |

**Table 5.3b: Runoff Volume Summary for Varied Development Methodology**

| Subbasin | | Current Conditions | Case 1 (BMP) | | Case 2 (Traditional) | |
|---|---|---|---|---|---|---|
| Name | Area (ac) | Volume (ac-ft) | Volume (ac-ft) | Change | Volume (ac-ft) | Change |
| CC-A-1 Headwaters | 691 | 511 | 464 | -9% | N/A | N/A |
| Leon 4 | 687 | 256 | 272 | +6% | 430 | +68% |
| Leon 27 | 942 | 519 | 558 | +8% | 619 | +19% |
| Leon 40 | 838 | 521 | 516 | -1% | 556 | +7% |
| Leon 56 | 1,146 | 603 | 616 | +2% | 729 | +21% |
| Leon 68 | 637 | 420 | 378 | -10% | N/A | N/A |

## 5.4 Cost Considerations

While a more thorough design would be necessary in order to produce detailed cost comparisons between LID, traditional development, and large structural flood control projects, there are case studies and project-derived rules of thumb to aid decision makers. Table 5.4a shows cost estimates for the selected BMPs used in this study from LID Urban Design Tools, a web-based resource run by the Low Impact Development Center (2007).

[22] Assumed condition with 100-year frequency storm event.

**Table 5.4a: Selected BMP Cost Guidelines (Low Impact Development Center, 2007)**

| BMP | Cost |
|---|---|
| Rain Barrels | $216 per barrel including accessories |
| Cisterns | $1,100 for pre-manufactured polyethylene |
| Rain Gardens | $3,790 per unit for a subdivision-wide installation project* |
| Bioretention | $12,355 per commercial property for retrofit project |
| Green Roofs | $20 per square foot |
| Pervious Pavement | $5 per square foot |

*An individual homeowner undertaking the installation of a rain garden as a landscaping project could expect costs to run closer to $1,000. The higher cost shown for a subdivision project include professional costs, plan approval, permits, etc.

Urban Design Tools also gives examples from case studies of implemented projects. For new development, bioretention and rain gardens have been shown to result in a net savings when considering the reduction in storm drain pipe requirements and detention ponds. Pervious pavement is considered to have similar benefits in new construction.

For retrofitting situations, the cost would need to be weighed against the cost of upgrading the existing infrastructure. In this study three subbasins were retrofitted with BMPs. The unit costs shown in Table 5.4a were used to estimate the total cost for each subbasin to implement the selected BMPs. To outfit the approximately 3,760 existing residences in Subbasin CC-A-1 Headwaters with rain barrels and rain gardens would cost approximately $17.5 million. In Subbasin Leon 40, installing cisterns for the 455 residences and green roofs for the 15 commercial buildings would cost approximately $0.5 million and $10.5 million, respectively. In Subbasin Leon 68, installing pervious pavement and bioretention for 62 commercial properties would cost approximately $14.9 million and $0.8 million, respectively.

## 5.5 Integrating Alternative Development into the Leon Creek Watershed Master Plan

The results of the analysis indicate alternative development would be an effective method to mitigate future increases in flood risk due to new development. These alternative development BMPs could also be used in redevelopment projects as an alternative to upgrading storm water infrastructure. Alternative development BMPs have the added benefit of reducing the pollutant load in runoff. In addition to implementing these BMPs in public projects, local government agencies can encourage their use in private projects by providing a system of incentives and by facilitating their use in the permitting and review process.

Where alternative development BMPs were analyzed as part of new development, the new development increased runoff by a minimal amount compared with traditional development, and the alternative development methods are expected to result in a net savings when compared with traditional storm water controls.

As an option for addressing existing flood hazard for the most at-risk areas in the watershed, significant peak flow rate and runoff volume reductions would require wide-scale retrofitting of residential, commercial, and industrial properties as well as public right-of-way. Even with wide-scale retrofitting, the layout of current development and infrastructure was not necessarily planned

around environmental features, so the retrofitted elements would not perform to their fullest capacities. In the analysis of retrofitted projects, the anticipated costs were high with only local benefits. Retrofitting existing development with BMPs is not expected to be cost effective as a regional approach for reducing existing flood risk, but BMPs are recommended for redevelopment as an alternative to upgrading storm water infrastructure.

BMPs would have the additional benefit of water quality enhancement. The water quality assessment of Leon Creek (Appendix F) indicated that water quality concerns were specific to local areas rather than following watershed- or stream-level trends. The BMPs evaluated in this study were developed to improve the water quality of general runoff. As with flood hazard, the implementation of BMPs in new development and redevelopment projects would not necessarily reduce the current level of contamination, but it would reduce the potential for further degradation. The water quality concerns identified in the Leon Creek watershed during the water quality assessment included *Escherichia coli*, heavy metals, ammonia, total dissolved solids, sulfate, chloride, phosphorus, and nitrate. As presented in the April 2010 report, bioretention, rain gardens, and riparian buffer zones have high removal rates for these pollutants. Though not included in the flood mitigation assessment, bioswales also have high pollutant removal rates. Pollutant removal in these BMPs occurs through runoff volume reduction, filtration, and vegetative uptake.

As stated in Section 3.3, the water quality concerns in Leon Creek reflected the influence of riparian corridors and adjacent land use. Potential BMPs that could address the specific areas of concern shown in Exhibit F.1 in Appendix F are listed in Table 5.5. The BMP recommendations are based on assuming the contamination source is general runoff. Further investigation should be performed using first flush monitoring or other techniques.

This analysis assumed 100 percent uptake (or utilization rate) by owners and developers; however, 25 percent uptake is more common in practice. The rate of uptake can be increased by providing incentives for implementation and maintenance of BMPs. One common approach is to award credits towards the storm water utility fee which are renewed periodically with proof of maintenance. Another approach used where there is a maximum lot density is an allowance for higher density lots in combination with conservation areas to encourage conservation development.

The participation of government agencies is necessary for increasing the rate of uptake in two additional ways. The public right-of-way is included in the 100 percent uptake assumption, so capital improvement projects would need to include BMPs such as bioswales and riparian buffer zones. Also, acceptable modeling standards for BMPs would need to be developed in order to facilitate the review process and to produce reliable estimates of flood risk. In the development of the modeling standards, the possibility of back-to-back events should be considered since the infiltration rates and storage capacities of the BMPs will be affected by the length between storm periods. With modeling standards in place, the BMPs could be used to meet no adverse impact requirements while enhancing the water quality of runoff and reducing development infrastructure costs.

**Table 5.5 Recommended Alternative Development BMPs for Water Quality Concerns**

| Contaminant | Location | Adjacent Land Use | Potential BMP | Comments |
|---|---|---|---|---|
| *Escherichia coli* | **Station 12836** (Leon Creek at State Highway 16 S. near Applewhite Road) | Range, cultivated, and undeveloped land | Bioretention, riparian buffer zones, filter strips | The source of contamination needs to be identified. If it is of human origin, it could signal a leaking, cracked, or malfunctioning wastewater collection system. If it is of animal origin, potential BMPs to address water quality issues could include the following:<br>• Storm drain outfall – bioretention could be implemented on the inflow side of the storm drain systems.<br>• Agricultural runoff – filter strips and riparian buffer zones could be used between the fields and the stream.<br>• Wildlife in undeveloped areas or under bridges – other solutions should be explored. |
| | **Station 12840** (Leon Creek at Quintana Road) | Industrial, commercial, residential, cultivated, and undeveloped land | | |
| | **Station 12846** (Leon Creek upstream of State Highway 151 at W. Commerce Street) | Industrial, cultivated, and undeveloped land | | |
| Low concentrations of dissolved oxygen | **Station 12842** (Leon Creek downstream of W. Military Drive near Citrus Road) | Industrial , range, and undeveloped land | | The cause of low dissolved oxygen concentrations should be determined. If it is a result of high levels of bacteria or nutrients, the recommendations for *Escherichia coli* and/or Nitrates would apply. |
| Lead, cadmium, and arsenic | **Station 12838** (Leon Creek at IH-35 S. near Cassin Road) | Industrial, commercial, residential,range, and undeveloped land | Bioretention or filter strips | These contaminants could be attributed to current or past land use.<br>Because these contaminants adsorb to soils, bioretention ponds are recommended rather than filter strips or buffer zones. Bioretention ponds can be designed for particular contaminants by selecting the appropriate filter media and vegetation. The design could allow for easier containment and removal of contaminants if uptake by vegetation does not occur.<br>Redevelopment or clean up in these areas could incorporate specially selected vegetation in bioretention or filter strips to promote uptake or degradation of contaminants. |
| | **Station 12841** (Leon Creek downstream of W. Military Drive near Quintana Road) | Industrial, range, and undeveloped land | | |
| Ammonia | **Station 12845** (Leon Creek at U.S. Highway 90) | Industrial, commercial, and residential with some undeveloped land | Bioretention, buffer zones, filter strips | Due to the diversity of land use in this area, the source of contamination should be identified. |
| Chloride, phosphorus and nitrates | **Station 14195** (Leon Creek at confluence with Comanche Creek near Mauermann Road) | Range, cultivated, and undeveloped land | Riparian buffer, filter strips | Riparian buffers and filter strips are better suited for application along agricultural fields than bioretention ponds. However, in this case, the riparian corridor has been preserved, yet the contamination persists. It could be related to an upstream break in the riparian buffer or underdrain systems bypassing the buffer zone. |
| Total dissolved solids and sulfates | **Station 14198** (Leon Creek downstream of Applewhite Road near Mauermann Road) | Industrial (WWTP), and undeveloped land | Bioretention, buffer zones, filter strips | Capturing, filtering, and/or infiltration solids before they reach the stream system would contribute to reducing the concentration of dissolved solids. |

# 6.0 Conclusions and Recommendations

The LCWMP provides an overview of various flood mitigation options across the Leon Creek watershed.

The LCWMP identified twenty-four "Damage Centers," each representing an area of dense development within the floodplain. Buildings located within damage centers are considered to be at high risk for incurring significant flood-related damages. Overall, 90 percent of at-risk buildings within the Leon Creek watershed were located within the twenty-four damage centers. The study characterized the Level of Flood Protection (LOFP) for buildings and roadways within each damage center, based on the smallest storm event to cause property damage or create dangerous roadway conditions. Additional high-risk roadway corridors were also identified outside the damage centers at the following locations:

- Babcock Road at Camp Bullis Road (Maverick Creek)
- Bandera Road at Ranch Parkway (Los Reyes Creek)
- Culebra Road at Loop 1604 (Culebra Creek)
- FM 1560 at Braun Road (Culebra Tributary C)
- Galm Road at Culebra Road (Government Canyon Creek)
- Military Drive SW near Old Pearsall Road (Leon Creek)
- Scenic Loop Road at Menchaca Road (Helotes Creek)

The LCWMP study also included an analysis of scour risks based on existing conditions within the full watershed area. Due to soil types, high flow rates, and velocities, most of the watershed is at high risk of scour, so scour mitigation and erosion protection techniques should be considered for all potential flood mitigation projects.

An assessment of available water quality data did not indicate any watershed-wide concerns that could be addressed in combination with flood control. Environmental enhancement, the preservation of riparian corridors, natural channel design potential, and water quality enhancement were considered as multi-use objective opportunities for the flood mitigation projects which could reduce the threat of future stream quality degradation.

Through a series of workshop discussions, the Study Participants (SARA, CoSA, and Bexar County) selected nineteen damage centers, for which potential flood mitigation projects were then developed. Flood mitigation strategies included regional storm water facilities (RSWF), enhanced channel design, selective clearing, flood protection barriers and property acquisition. All flood mitigation projects included recent developments and approved LOMRs not incorporated in the Bexar County DFIRM Remapping Study (See Appendix B).

These projects, in addition to five current planned projects from the Bexar County Flood Control Capital Improvement Program (CIP) and the City of San Antonio (CoSA), were evaluated in terms of flood mitigation effectiveness, local and downstream impacts, environmental considerations, permitting requirements, construction costs, and multi-use objective opportunities. The study evaluated these projects individually and in combination and ranked them according to a qualitative

prioritization matrix developed by the Bexar Regional Watershed Management (BRWM) partners. Based on the qualitative matrix, the projects identified with the most benefits were, in ranking order:

- Government Canyon Creek RSWF (Culebra Creek) – *FRR = 0.53*,
- Helotes Creek RSWF – *FRR = 1.71*,
- Huebner Creek RSWF at Prue Road (LC-15) – *FRR = 2.81*,
- Huebner Creek at Bandera Road NWWC (LC-17) and Ingram Road Bridge Improvements (LC-8) – *FRR = 0.21*,
- Culebra Creek NWWC with Culebra Road Bridge Improvements – *FRR = 0.22*,
- Huebner Creek at Eckhert Road NWWC – *FRR = 0.30*,
- Leon Creek NWWC with Ingram Road Bridge Improvements (LC-8) and Huebner Creek Flood Protection Barrier (LC-17) – *FRR = 0.19*,
- Leon Creek at Grissom Road Enhanced Conveyance – *FRR = 0.17,*
- Culebra Creek at FM 1560 Earthen Flood Protection Barrier – *FRR = 9.60*, and
- Huebner Creek at Evers Road NWWC – *FRR = 0.18*.

While these projects ranked high individually, they would provide duplicate coverage if combined while leaving some high-risk areas unaddressed. Among all the individual projects evaluated for mitigating flood damages within the Leon Creek Watershed, thirteen projects are recommended for implementation based on ranking and location. These thirteen projects were evaluated together to determine potential flood damage reductions and the required order of construction phasing. Implementing the recommended projects together reduced annual flood damages within the watershed by a total of $1,165,300 with an overall Flood Reduction Ratio of 0.26.

Of all the recommended projects, the following two projects have the most significant, wide-ranging flood reduction impacts and should be considered highest priority:

- Helotes Creek RSWF
- Government Creek RSWF

The four recommended projects along Huebner Creek have significant local impacts and should be constructed with phasing in mind, starting with the RSWF followed by the most downstream project and working upstream. Phasing for the Huebner Creek projects is independent of the other recommended projects. The recommended order is:

- Huebner Creek RSWF at Prue Road (LC-15)
- Huebner Creek at Bandera Road NWWC (LC-17) and Ingram Road Bridge Improvements (LC-8)
- Huebner Creek at Evers Road NWWC
- Huebner Creek at Eckhert Road Optimized NWWC

Next, the following optimized projects may be implemented at a relatively low cost with minimal downstream impacts after the completion of both Helotes Creek RSWF and Government Canyon Creek RSWF:

- Culebra Creek at Timber Path Optimized Selective Clearing Program
- Leon Creek Optimized Selective Clearing Program with Ingram Road Bridge Improvements (LC-8) and Huebner Creek Flood Protection Barrier (LC-17)

Alternatively, Culebra Creek NWWC with Culebra Road Bridge Improvements may be implemented with minimal downstream impacts after the completion of at least one of three upstream detention projects – Government Canyon Creek RSWF, Helotes Creek RSWF, or Easterling RSWF if Government Canyon Creek RSWF and Helotes Creek RSWF are not selected.

Finally, the following projects have localized impacts and may be implemented independently or simultaneously with other projects:

- Culebra Creek Tributary A at Tezel Road Enhanced Conveyance
- Maverick Creek NWWC with W. Hausman Road Bridge Improvements (LC-10)
- French Creek at Guilbeau Road NWWC
- Leon Creek at Grissom Road Enhanced Conveyance
- Hausman Road Drainage Project Phase I (LC-9)

Alternative development methods were also assessed as a potential flood mitigation strategy. The results from representative areas of the Leon Creek watershed indicated that the use of low impact development, conservation development, and other alternative development methods would reduce future increases in flood risk due to new development compared to traditional development methods. They could also be used in redevelopment projects as an alternative to upgrading storm water infrastructure. Based on a qualitative assessment of performance in reported studies, riparian buffer zones, bioretention, and filter strips would be appropriate BMPs for the kinds of water quality concerns identified in the Leon Creek watershed, assuming the sources of contamination are related to current land use. In order to increase the rate of use of alternative development methods, agencies should create incentives, facilitate the permitting and review process, and incorporate BMPs into public projects. With agency facilitation, the BMPs could be used in future projects to meet no adverse impact requirements while enhancing the water quality of runoff and reducing development infrastructure costs.

# 7.0 Works Cited

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# City of Leon Valley
# City Council

Leon Creek Water Shed Master Plan

M&C#2016-4-5-09

April 5, 2016

# Purpose

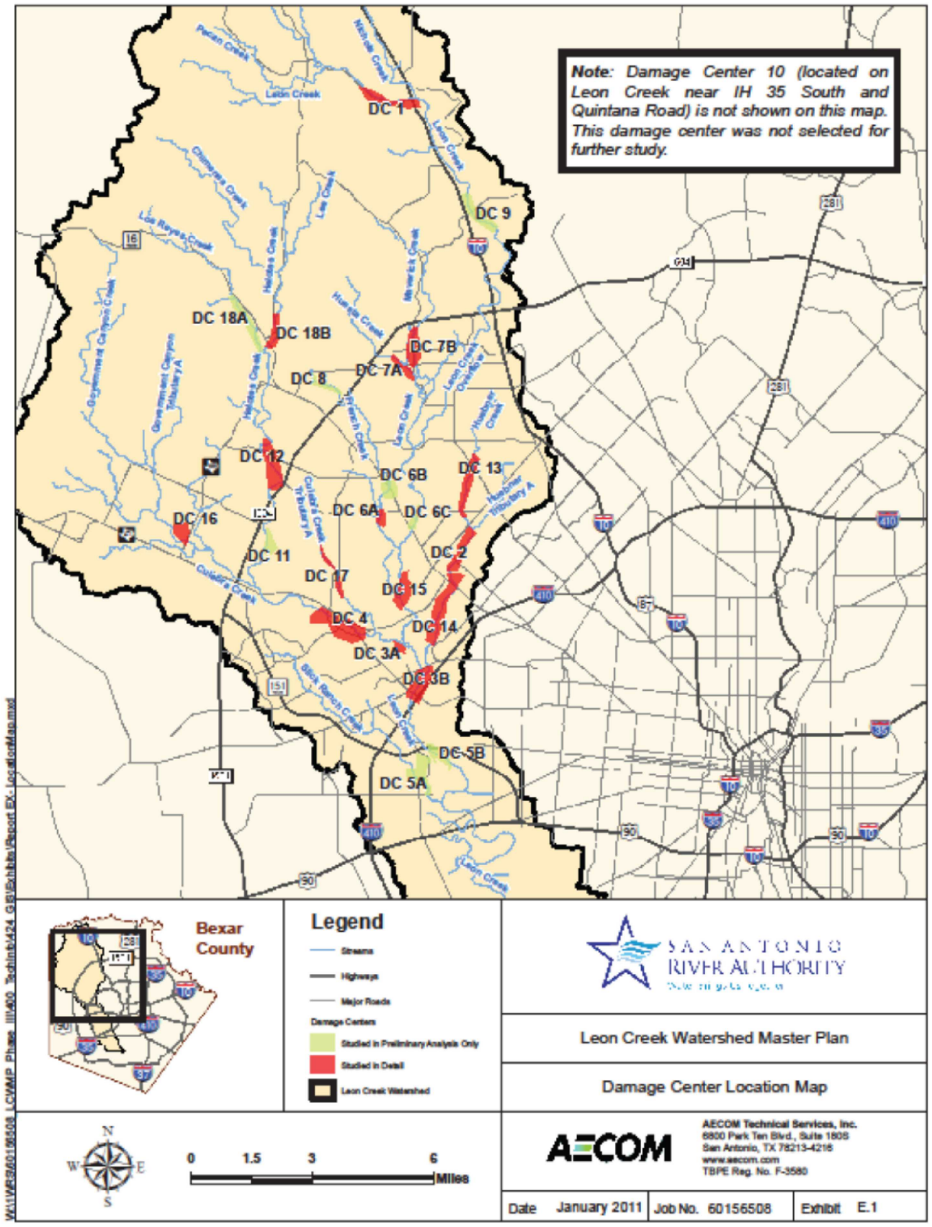
- SARA adopted Leon Creek Water Shed Master Plan.
- Provides a regional drainage solution to drainage in the watershed.
- Comprehensive approach that identifies multiple strategies:
  - Regional Storm Water Facilities (RSWF)
  - Enhanced channel design
  - Selective cleaning along heavily vegetated channels
  - Bridge and culvert upgrades
  - Flood protection barriers and bypass structures, and
  - Property acquisition and flood proofing.

LEONVALLEY

# Purpose

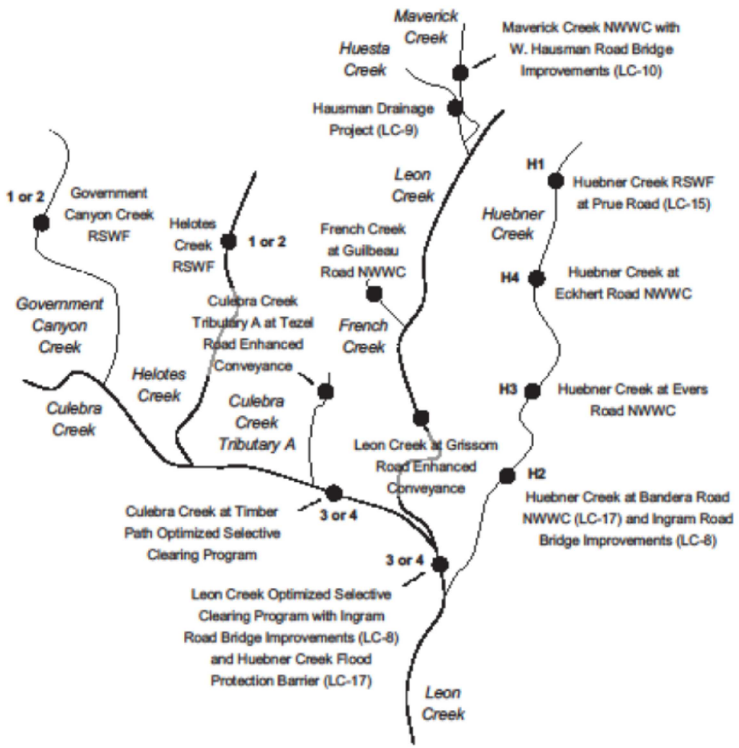
- Plan identifies 26 areas of concentration.
- 40% estimated reduction in annual flood damages.
- Projects within Leon Valley's area:
  - Huebner Creek at Prue Road (LC-15) # 3.
  - Huebner Creek at Eckhert #6
  - Huebner Creek at Evers Road # 10
  - Huebner Creek at Bandera Road (LC-17) #4

LEONVALLEY


Note: Damage Center 10 (located on Leon Creek near IH 35 South and Quintana Road) is not shown on this map. This damage center was not selected for further study.
DC 1
DC 9
DC 18A
DC 18B
DC 7B
DC 7A
DC 8
DC 12
DC 13
DC 6B
DC 6A
DC 6C
DC 16
DC 11
DC 2
DC 17
DC 15
DC 4
DC 14
DC 3A
DC 3B
DC 5B
DC 5A
Bexar County
Legend
Streams
Highways
Major Roads
Damage Centers
Studied in Preliminary Analysis Only
Studied in Detail
Leon Creek Watershed
SAN ANTONIO RIVER AUTHORITY
Leon Creek Watershed Master Plan
Damage Center Location Map
AECOM
AECOM Technical Services, Inc.
6800 Park Ten Blvd., Suite 180S
San Antonio, TX 78213-4216
www.aecom.com
TBPE Reg. No. F-3580
0 1.5 3 6
Miles
Date January 2011
Job No. 60156508
Exhibit E.1

LEONVALLEY

***Leon Watershed Combination***




January 2011

# Purpose

- Adoption identifies Leon Valley support of the Leon Creek Water Shed Master Plan

- Will improve the City of Leon Valley's position rating through the Community Rating System (CRS)
- Provides for lower flood insurance premium costs to floodprone properties

# S.E.E. Impact

- Social Equity – Adopting the Plan provides a consistent Water Shed Master Plan for all Property Owners
- Economic Development – Adopting the plan will assist with lowering insurance premiums for business property owners.
- Environmental Stewardship – Provides solutions to downstream pollution from water shed runoff, which reduces toxins to the environment.

LEONVALLEY

# Fiscal Impact

- None.

# Recommendation

To adopt the San Antonio River Authority's Leon Creek Water Shed Master Plan

**Questions?**

# City of Leon Valley
# City Council

Leon Creek Water Shed Master Plan

M&C#2016-4-5-09

April 5, 2016

**MAYOR AND COUNCIL COMMUNICATION**

**DATE:** April 5, 2016 **M&C # 2016-04-05-10**

**TO:** Mayor and Council

**FROM:** Elizabeth Carol, Director of Development

**THROUGH:** Kelly Kuenstler, City Manager

**SUBJECT:** Consider and possible discussion adopting Freeboarding provisions to Chapter 3, "Building Regulations," Article 3.03, "Flood Damage Prevention".

The City of Leon Valley's current Flood Damage Prevention Article was reviewed and compared to the best practice standards provided by the Federal Emergency Management Agency (FEMA) Community Rating Systems Coordinator's manual. Freeboarding provides additional protection for property owners by requiring all finish floor elevation to be one foot above the Base Flood Elevation and eight inches above adjacent grade.

This update works to improve the City of Leon Valley's position in preparation for earning a higher rating through the National Flood Insurance Program survey, which will provide a discounted percentage of flood insurance premiums to Property Owners of Leon Valley.

## S.E.E. LEON VALLEY

Social Equity – Adopting this update provides a consistent flood damage prevention set of codes for all Property Owners.

Economic Development – Adopting this update will work to lower insurance premiums for Property Owners.

Environmental Stewardship – Maintains good management of the city's floodplain

## FISCAL IMPACT

None

## RECOMMENDATION

Amend Chapter 3, "Building Regulations," Article 3.03, "Flood Damage Prevention" to include Freeboarding.

APPROVED: _____ DISAPPROVED: _____

APPROVED WITH THE FOLLOWING AMENDMENTS:

_____

_____

_____

_____

ATTEST:

_____
**SAUNDRA PASSAILAIGUE, TRMC**
City Secretary

## “ARTICLE 3.03 FLOOD DAMAGE PREVENTION*

### Sec. 3.03.006 Provisions for flood hazard reduction

a) General standards. In all areas of special flood hazards, the following provisions are required for all new construction and substantial improvements:

(1) All new construction or substantial improvements shall be designed (or modified) and adequately anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy;

(2) All new construction or substantial improvements shall be constructed by methods and practices that minimize flood damage;

(3) All new construction or substantial improvements shall be constructed with materials that resist flood damage;

(4) All new construction or substantial improvements shall be constructed with electrical, heating, ventilation, plumbing, and air-conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding;

(5) All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system;

(6) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the systems and discharge from the systems into floodwaters; and

(7) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

(8) All new construction or addition shall have a finished floor elevation of minimum one (1) foot above base flood elevation and minimum of eight (8) inches above adjacent grade.

**ORDINANCE NO. 16-015**

**AN ORDINANCE AMENDING THE CITY OF LEON VALLEY CODE OF ORDINANCES AMENDING CHAPTER 3, "BUILDING REGULATIONS," ARTICLE 3.03, "FLOOD DAMAGE PREVENTION 3.03.006, PROVISIONS FOR FLOOD HAZARD REDUCTION.**

**WHEREAS**, the City of Leon Valley is authorized to adopt ordinances for the purpose of good government, peace, or order of the municipality pursuant to Chapter 51 of the Local Government Code; and

**WHEREAS,** the City of Leon Valley has determined it is necessary to update the existing Flood Plain Development regulations for the good government of the city, to assist in obtaining certifications with various agencies and to conform to best practices.

**NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF LEON VALLEY, TEXAS THAT:**

1. Chapter 3, "Building Regulations," Article 3.03.006, "Flood Damage Prevention," Provision for Flood Hazard Reduction is hereby amended to read as follows:

**"ARTICLE 3.03 FLOOD DAMAGE PREVENTION***

**Sec. 3.03.006 Provisions for flood hazard reduction**

a) General standards. In all areas of special flood hazards, the following provisions are required for all new construction and substantial improvements:

(1) All new construction or substantial improvements shall be designed (or modified) and adequately anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy;

(2) All new construction or substantial improvements shall be constructed by methods and practices that minimize flood damage;

(3) All new construction or substantial improvements shall be constructed with materials that resist flood damage;

(4) All new construction or substantial improvements shall be constructed with electrical, heating, ventilation, plumbing, and air-conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding;

(5) All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system;

(6) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the systems and discharge from the systems into floodwaters; and

(7) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

(8) All new construction or addition shall have a finished floor elevation of minimum one (1) foot above base flood elevation and minimum of eight (8) inches above adjacent grade.

This ordinance shall become effective on and after its passage, approval and publication, as prescribed by law.

**PASSED, ADOPTED AND APPROVED** by the City Council of the City of Leon Valley this the 5th day of April, 2016.

**APPROVED**

_____
**CHRIS RILEY**
MAYOR

Attest: _____
**SAUNDRA PASSAILAIGUE, TRMC**
City Secretary

Approved as to Form: _____
**ROXANN PAIS COTRONEO**
City Attorney

# City of Leon Valley
# City Council

Flood Damage Prevention Ordinance

M&C#2016-4-5-10

April 5, 2016

# Subject

- The current Flood Damage Prevention article was reviewed and compared to the best practice by the Federal Emergency Management Agency (FEMA)

- Community Rating Systems Coordinators Manual.

LEONVALLEY

# Purpose

- Provides Free boarding Provision
  - Finished floor one foot above Base Flood Elevation
  - Finished floor eight inches above adjacent grade
- National Flood Insurance Program survey
- Discounted percentage of flood insurance premiums to Property Owners of Leon Valley.

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# S.E.E Impact

- Social Equity – Adopting this update provides a consistent flood damage prevention set of codes for all Property Owners.
- Economic Development – Adopting this update will work to lower insurance premiums for Property Owners.
- Environmental Stewardship – Maintains good management of the city's floodplain

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# Fiscal Impact

- None.

# Recommendation

Adding Freeboard provision to Chapter 3, “Building Regulations,” Article 3.03, “Flood Damage Prevention” Ordinance.

**Questions?**

# City of Leon Valley
# City Council

Flood Damage Prevention Ordinance

M&C#2016-4-5-10

April 5, 2016

## MAYOR AND COUNCIL COMMUNICATION

**DATE:** April 5, 2016 **M&C # 2016-04-05-11**

**TO:** Mayor and Council

**FROM:** Elizabeth Carol, Director of Development

**THROUGH:** Kelly Kuenstler, City Manager

**SUBJECT:** Consider and adoption of an ordinance to amend the Leon Valley Code of Ordinance, Appendix A "General Provisions" to remove the Contractors Registration fee for Plumbers.

The City of Leon Valley requires all contractors to register and pay an annual registration fee. Texas Legislature recently made changes to the Occupation Code, Title 8. "Regulation of Environmental and Industrial Trades, Chapter 1301.551 Plumbers". This revision prohibits municipalities from assessing a plumbing registration fee or administrative fee.

The City of Leon Valley will continue to require that all contractors, including plumbers, register with the City of Leon Valley.

**S.E.E. LEON VALLEY**

Social Equity – Adopting this will ensure that plumbers continue to maintain their Contractors Registrations with the City of Leon Valley.
Economic Development – Not applicable
Environmental Stewardship – Not applicable

**FISCAL IMPACT**

In 2015 there were 35 Plumber Contractors who registered with the City of Leon Valley; which would reflect a decrease in $3,500.00 in revenue.

**RECOMMENDATION**

Amend the Leon Valley Code of Ordinances to remove the registration fee for plumbers.

APPROVED: _____ DISAPPROVED: _____

APPROVED WITH THE FOLLOWING AMENDMENTS:

_____

_____

_____

ATTEST:

_____
**SAUNDRA PASSAILAIGUE, TRMC**
City Secretary

**OCCUPATIONS CODE**
**TITLE 8. REGULATION OF ENVIRONMENTAL AND INDUSTRIAL TRADES**
**CHAPTER 1301. PLUMBERS**
**"THE PLUMBING LICENSE LAW"**

## SUBCHAPTER K. REGULATION BY CERTAIN POLITICAL SUBDIVISIONS

### Sec. 1301.551. MUNICIPAL PLUMBING ORDINANCES AND PERMITS.

(a) A municipality with more than 5,000 inhabitants shall regulate by ordinance or bylaw the material, construction, alteration, and inspection of any pipe, faucet, tank, valve, water heater, or other fixture by or through which a supply of water, gas, or sewage is used or carried.

(b) Any other municipality may regulate by ordinance or bylaw the matters described by Subsection (a).

(c) A municipality that adopts an ordinance or bylaw under this section shall provide by ordinance or bylaw that a person must obtain a permit before the person performs plumbing, other than the repairing of leaks, the replacement of lavatory or kitchen faucets, the replacement of ballcocks or water control valves, the replacement of garbage disposals, or the replacement of water closets. The municipality may prescribe the terms on which the permit is issued.

(d) A plumbing inspection in a municipality that adopts an ordinance or bylaw under this section must be performed by a plumbing inspector.

(e) A municipality or other political subdivision in this state that requires a plumbing contractor to obtain a permit before the person performs plumbing shall by telephone, fax, or e-mail:

(1) accept permit applications;
(2) collect required fees; and
(3) issue the required permits.

(f) If drawings of proposed plumbing work are required by the municipality or other political subdivision, the municipality or political subdivision shall specify how permit drawings are to be submitted.

(g) A responsible master plumber, plumbing contractor, or other person who is required to obtain a permit under this section is not required to pay a plumbing registration fee or administrative fee in a municipality or any other political subdivision.

(h) A plumbing contractor must register, electronically or in person, with a municipality or other political subdivision that requires registration before performing plumbing regulated by the municipality or other political subdivision.

(i) Notwithstanding any other provision of state law, after January 1, 2009, a municipality may not enact an ordinance, bylaw, order, building code, or rule requiring the installation of a multipurpose residential fire protection sprinkler system or any other fire sprinkler protection system in a new or existing one- or two-family dwelling. A municipality may adopt an ordinance, bylaw, order, or rule allowing a multipurpose residential fire protection sprinkler specialist or other contractor to offer, for a fee, the installation of a fire sprinkler protection system in a new one- or two-family dwelling.

(j) A multipurpose residential fire protection sprinkler specialist may install a multipurpose residential fire protection sprinkler system in a new or existing one- or two-family dwelling in a municipality described by Subsection (a) or (b).

*Added by Acts 2001, 77th Leg., ch. 1421, Sec. 3, eff. June 1, 2003. Amended by Acts 2003, 78th Leg., ch. 1276, Sec. 14A.315(b), eff. Sept. 1, 2003. Amended by: Acts 2009, 81st Leg., R.S., Ch. 804 (S.B. 1410), Sec. 12, eff. September 1, 2009. Acts 2009, 81st Leg., R.S., Ch. 1380 (S.B. 1354), Sec. 7, eff. September 1, 2009. Acts 2011, 82nd Leg., R.S., Ch. 91 (S.B. 1303), Sec. 27.001(46), eff. September 1, 2011. Acts 2013, 83rd Leg., R.S., Ch. 981 (H.B. 2062), Sec. 7, eff. September 1, 2013.*

**Sec. 1301.552. CERTIFICATE OF INSURANCE FOR PLUMBING PERMIT IN POLITICAL SUBDIVISION.** A political subdivision that requires a responsible master plumber or an agent of a responsible master plumber to obtain a permit before performing plumbing in the political subdivision shall verify through the board's Internet website, or by contacting the board by telephone, that the responsible master plumber has on file with the board a certificate of insurance.

The certificate of insurance must:

(1) be written by an insurer authorized to engage in the business of insurance in this state or an eligible surplus lines insurer, as defined by Section 981.002, Insurance Code;

(2) provide for commercial general liability insurance for the responsible master plumber for a claim for property damage or bodily injury, regardless of whether the claim arises from negligence or on a contract; and

(2) provide coverage of not less than $300,000 for all claims arising in a one-year period.

*Added by Acts 2001, 77th Leg., ch. 1421, Sec. 3, eff. June 1, 2003. Amended by: Acts 2009, 81st Leg., R.S., Ch. 1380 (S.B. 1354), Sec. 8, eff. September 1, 2009. Added by Acts 2011, 82nd Leg., R.S., Ch. 526 (H.B. 2376), Sec. 5, eff. September 1, 2011.*

**Sec. 1301.553. PLUMBING INSPECTIONS IN MUNICIPALITY THAT OVERLAPS ANOTHER POLITICAL SUBDIVISION.** If the boundaries of a municipality and another political subdivision overlap, only the affected municipality may perform a plumbing inspection and collect a permit fee.

*Added by Acts 2003, 78th Leg., ch. 1276, Sec. 14A.315(c), eff. Sept. 1, 2003. Amended by: Acts 2009, 81st Leg., R.S., Ch. 1380 (S.B. 1354), Sec. 8, eff. September 1, 2009.*

Sec. A8.022 Contractor registration fees

(a) All contractors, both general and subcontracted, which are providing professional services to addresses located within the city limits both residential or and/or commercial are subject to an annual contractor registration fee of $100.00. This includes but is not limited to general building contractors, heating and air conditioning (mechanical), bulk water, electrical, ~~plumbing~~, irrigation, gas, sewer trench, swimming pools, sidewalks/driveways/curbcuts, fences, foundations, roof, water well, sign and any non-franchise utility construction contractors.

(b) See section A8.021 for tree trimming contactor registration fees.

(Ordinance 12-028 adopted 9/18/12)

**ORDINANCE No. 16-016**

**AN ORDINANCE AMENDING THE CITY OF LEON VALLEY CODE OF ORDINANCES APPENDIX A, FEE SCHEDULE, "GENERAL PROVISIONS," ARTICLE A1.000 BY REPEALING CONTRACTOR REGESTRATION FEE FOR LICENCED PLUMBERS, ARTICLE A8.022.**

**WHEREAS**, the City of Leon Valley, Texas requires payment of various fees, charges and expenses; and

**WHEREAS**, the City of Leon Valley, Texas is responsible for establishing said various fees, charges and expenses; and

**WHEREAS,** the City of Leon Valley has previously adopted a fee schedule for the City; and

**WHEREAS,** the Texas Occupation Code 1301. states under this section, a person who is required to obtain a permit is not required to pay a plumbing registration fee or administrative fee in a municipality.

**NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF LEON VALLEY, TEXAS THAT:**

1. Appendix A, "General Provisions," Article A8.022, "Contractor Registration Fee," is hereby amended to read as follows:

**"ARTICLE A1.000 GENERAL PROVISIONS"**

**Sec. A8.022 Contractor registration fees**

(a) All contractors, both general and subcontracted, which are providing professional services to addresses located within the city limits both residential or and/or commercial are subject to an annual contractor registration fee of $100.00. This includes but is not limited to general building contractors, heating and air conditioning (mechanical), bulk water, electrical, ~~plumbing,~~ irrigation, gas, sewer trench, swimming pools, sidewalks/driveways/curbcuts, fences, foundations, roof, water well, sign and any non-franchise utility construction contractors.

This ordinance shall become effective on and after its passage, approval and publication, as prescribed by law.

**PASSED, ADOPTED AND APPROVED** by the City Council of the City of Leon Valley this the 5th day of April, 2016.

**APPROVED**

_____
**CHRIS RILEY**
MAYOR

Attest: _____
**SAUNDRA PASSAILAIGUE, TRMC**
City Secretary

Approved as to Form: _____
**ROXANN PAIS COTRONEO**
City Attorney

# City of Leon Valley
# City Council

Plumber Registration Fee

M&C#2016-4-5-11

April 5, 2016

# Subject

- The City of Leon Valley requires all contractors operating within the City to register and pay an annual registration fee.
- The State of Texas no longer allows municipalities to assess this fee.
- The registration process will process will continue, however we will not collect the fee.

LEONVALLEY

# S.E.E Impact

- Social Equity – Adopting this will ensure that plumbers continue to maintain their Contractors Registration with the City of Leon Valley.
- Economic Development – N/A
- Environmental Stewardship – N/A

# Fiscal Impact

- 35 Plumbers Registered with Leon Valley in 2015.
- Fee total was $3,500.

# Recommendation

Amend the Leon Valley Code of Ordinances to remove the Contractor's Registration fee for Plumbers.

**Questions?**

LEONVALLEY

# City of Leon Valley
# City Council

Plumber Registration Fee

M&C#2016-4-5-11

April 5, 2016

**MAYOR AND COUNCIL COMMUNICATION**

**DATE:** April 5, 2016 **M&C # 2016-04-5-12**

**TO:** Mayor and Council

**FROM:** Elizabeth Carol, Community Development Director

**THROUGH:** Kelly Kuenstler, City Manager

**SUBJECT:** Consideration, discuss and possible action on a sign variance(s) request by Sydney Onuagu and Blessing Maduka, owner of The Precinct Academy and Daycare, to Chapter 3.04.013, "Temporary Signs," to display two (2) temporary banners for six (6) months generally located at 7500 Eckhert Road, Suite 140.

## PURPOSE

To consider a sign variance(s) which would allow the owner of The Precinct Academy and Daycare to utilize two (2) temporary vinyl banners for six (6) consecutive months to advertise their business. One banner will consist of the business name and the second banner will state Now Enrolling.

Chapter 3.04.013 of the Leon Valley Code of Ordinances allows one (1) banner for a period of thirty (30) days, once every six (6) months. This is a limit of two (2) banners total per year. The Sign Code allows consideration of variances for seasonal signs up to 120 days/4months

The previous owner had an unpermitted fence, on which included a painted unpermitted sign. The applicant appealed to the City Council, which approved the fence height variance; however they would have to remove the sign from the fence and apply for a new sign. They applied for a fence permit and a temporary banner sign. The applicant subsequently applied for the Façade and Signage Grant to the Leon Valley Economic Development Corporation (LVEDC), which was denied. The owners did not remove the sign after the thirty day period, and staff did not follow-up on their expired sign. Community Development Department has worked with Code Compliance to develop a system to better track these temporary sign permits and monitor their expiration.

The business was sold and the new owners are changing the name of the daycare from New Friends Learning Center to The Precinct Academy and Daycare and are in the process of securing their license from the Department of Family Protective Services (DFPS), which is anticipated to be issued in April. Code Compliance has advised them of their sign violation, and the applicant has requested a variance, and noted that they are investing in Leon Valley and have secured a proposal for a new sign from Accurate Marketing in Leon Valley at $8,200. The applicant then noted that they need six months to raise the capital for this expense.

**S.E.E. LEON VALLEY**

Social – It is equitable for the City to assist the applicant in resolving this matter.

Economic – Provides a consistent and dependable, public hearing process

Environmental –The signs will not have an adverse impact on the environment.

**FISCAL IMPACT**

The applicant paid $100 for consideration of their variance requests. If the request is approved the applicant will pay $75.00 for their sign permit(s).

**RECOMMENDATION**

Staff recommends that the applicant be granted a three month temporary sign variance to allow the current temporary sign to remain while the applicant applies for their permanent sign. Staff is recommending denial of the second temporary sign that states "now enrolling". Variances are at the discretion of the City Council, and Staff has noted several alternatives:

1. Grant a temporary variance, not to exceed 6 months; or
2. Grant a temporary variance, for a different length of time; or
3. Deny the sign variance.

To grant variances to the sign ordinance, the City Council must find that strict enforcement of these requirements of this article, due to special conditions wherein a literal enforcement of this article would result in unnecessary hardship, and so that the spirit of this article is observed and substantial justice is done.

APPROVED: _____ DISAPPROVED: _____

APPROVED WITH THE FOLLOWING AMENDMENTS:

_____

_____

_____

ATTEST:

_____

**SAUNDRA PASSAILAIGUE, TRMC**
City Secretary

New Friends Learning Center and Daycare

7500 Eckhert Road Suite 140

Leon Valley, TX 78240

24th February, 2016.

The Mayor and City Council,

City of Leon Valley,

6400 El Verde Road Leon Valley, Texas 78238.

An Appeal for an extension of our temporary Banner

This is an appeal from the new proprietors of the New Friends Learning Center and Daycare located here in Leon Valley, TX for an extension of the time period during which we can have our temporary banner located at the center up.

We had acquired the business for a little less than a month ago and we were just informed that the current banner in the premises was only meant to be temporary and as such needed to be taken down. We are a law-abiding business and fully intend to abide by all city laws and ordinances but it is financially beyond our means at this point in time to replace the banner with a permanent one due to all the financial commitments we just made towards acquiring the business.

The current business was on the verge of going under when we acquired it and have already committed a lot of resources to keep it going that at this point we do not have the resources to have it changed.

We are hereby appealing for an extension for up to 6 months to enable us raise the capital required to get a permanent sign and also allow us have another temporary "Now Enrolling" sign up at the center while we put up the permanent one.

Attached is a quote we obtained from a local sign post artist here in Leon Valley to indicate to you our seriousness and commitment to get the banner replaced with a permanent one. Any assistance the city might render towards getting a permanent sign will also be greatly appreciated.

We look forward to getting a favorable response to our earnest appeal.

Thank you for the anticipated support and long live the city of Leon Valley.

Yours Sincerely,

New Friends Learning Center and Daycare

## ARTICLE 3.04 SIGNS

### Sec. 3.04.008 Variances and appeals

(a) Persons wishing to erect signs not in conformance with this article or any person aggrieved by any decision of the city in the administration of this article may appeal such decision to the city council. The city council shall only hear and decide the following:

(1) An appeal that alleges error in an order, requirement, decision, or determination made by an administrative official in the enforcement of this article; or

(2) A request for variance(s) from the strict enforcement of the requirements of this article due to special conditions wherein a literal enforcement of this article would result in unnecessary hardship, and so that the spirit of this article is observed and substantial justice is done.

(b) The application must be accompanied by a drawing or other artistic representation to accurate scale showing the exact sign proposed, its size and message (textural or pictorial), color, shape, whether lighted or unlighted, location on said property or business, materials of which it is to be made, how it is to be made and how it is to be fastened. Granting of the variance requires approval from the designated city official(s), who shall determine whether the proposed sign is acceptable under the conditions established in this article and applicable building codes. Upon approval from the designated city official(s), the variance request will be heard by the city council.

(c) The city manager or designee is authorized to approve a variance to three specific types of regulations in this article: sign area, sign height, and distance between signs. This authorization shall be restricted to variance of one (1) of type of regulation not to exceed 10% of the specified dimension for one (1) existing nonconforming sign per platted property. This staff variance provision does not apply to any of the properties required to file a master sign plan.

(Ordinance 06-034, sec. 1 (5.13), adopted 9/5/06)

### Sec. 3.04.013 Temporary signs

(a) Permits are required for temporary signs.

(b) Each business may be allowed a total of one (1) temporary sign per 6-month period for a time period of up to thirty (30) days. A permit is required and must be obtained each time a sign is displayed. A seasonal business may apply for a variance to display temporary signs for up to 120 days in lieu of thirty (30) days per quarter.

(c) A deposit is required for each temporary sign permit issued. The deposit will be returned at the expiration of the permit time period provided that the temporary sign has been moved within 24 hours of permit expiration.

(d) Special event temporary signs may be allowed within the flyover area and Loop 410 without a permit for a planned group of temporary signs to advertise special events on a business property. Special event temporary signs shall be installed no earlier than Friday at 6:00 p.m. and shall be removed on Sunday by 8:00 p.m. If a federal holiday falls on either the Friday or Monday of that weekend, the signs may be installed and removed to include the holiday.

(e) Maximum size for temporary sign banners is fifty (50) square feet for banner signs placed on the property and one hundred (100) square feet for banner signs attached to the building.

(f) The following temporary signs are allowed:

(1) Banners. Banners must be wall mounted or attached with temporary stakes in the ground on the property. Banners must be kept in good condition and stakes firmly anchored so as to prevent dilapidation.

(2) Airborne signs. Hot or cold air balloons may be either attached to the building or placed behind the property line. There are no size restrictions for hot or cold air balloons. Balloons shall be allowed only as a part of a special event temporary sign event and as specified. Balloons must be kept in good condition and firmly anchored so as to prevent dilapidation or from being astray.

(3) Grand opening signs. Grand opening signs shall be allowed under this section, except that such permit shall be valid for thirty (30) consecutive days and shall not be renewable. One permit will be issued for each building occupant per certificate of occupancy.

(4) Street banners. Nonprofit organizations may erect street banners across collector and arterial roadways. The dimensions of the banner will not exceed 4' x 36' (144 square feet).

(5) Temporary weekend signs.

(A) Time period. Temporary weekend signs are permitted from Friday at 6:00 p.m. to Sunday at 8:00 p.m. Temporary signs including banners, airborne/balloon signs, grand opening signs and street banners shall not be displayed simultaneously with temporary weekend signs.

(i) If a federally recognized holiday falls on a Friday, then the signs are permitted from the preceding Thursday to the following Monday.

(ii) If a federally recognized holiday falls on a Monday, then the signs are permitted from Friday until the following Tuesday.

(B) Size. Signs shall not exceed 24" by 32" in size. Irregular shaped signs shall fit in a 24" by 32" rectangle; the total height shall not exceed 36" in height from ground level. Signs may be two-dimensional only and shall be of a nonreflective surface.

(C) Spacing between signs. A minimum of five-foot (5') spacing must be maintained between each temporary weekend sign of different advertisers. The signs of each advertiser must be spaced so that no two (2) signs advertising the same good, service, product, business, political campaign, or particular piece of real property (for sale or lease) are closer than one hundred feet (100') from each other measured in a straight line.

(D) Location. Signs must be self-supporting and placed into the ground by a single stake.

(i) No temporary weekend sign shall be permitted on a utility pole, streetlight pole, sign pole, fence, tree or other manmade natural feature, wooden-frame or portable frame.

(ii) No sign may be placed closer than twenty-five feet (25') from a street intersection or median opening. Any temporary weekend sign determined to be in a location that causes an immediate hazard to public safety will be immediately removed by the city.

(iii) Signs shall be no closer than three feet (3') from the edge of the sign to the street curb or, if no curb is present, to the edge of the pavement. Signs shall not encroach on either sidewalks or streets.

(iv) No signs shall be placed in island medians or esplanades.

(v) Except for political signs, no signs shall be placed further than three (3) miles from the location of the sale of the good, product, service, business or piece of real property being advertised.

(E) Permit.

(i) An annual permit fee, as stated in the schedule of fees in appendix A of this code, must be paid by the advertiser. Where an advertiser wishes to advertise multiple locations, a permit must be obtained for each location, subdivision location, or service location to be advertised by temporary weekend signs.

(ii) A temporary weekend sign shall not be placed on the right-of-way of a road or highway unless an annual temporary sign permit has been first obtained.

(F) Map of locations; placement on state roads prohibited. In addition to the payment of the appropriate fees, the advertiser shall provide an area map, drawn to scale, and listing the street and block number where the signs shall be placed. No temporary weekend sign shall be placed along the side of any road or highway belonging to the state department of transportation.

# City of Leon Valley
# City Council

The Precinct Academy and Day Care
Sign Variance Requests

M&C#2016-4-5-12

April 5, 2016

# Leon Valley Code of Ordinances

- 3.04.013 Temporary Sign Ordinance
  - One (1) banner for thirty (30) days every six 6 months = 2x/yr.
  - Considerations of variances for seasonal signs for 120 days/4months
- Variance Process
  - Applicant must demonstrate a hardship
  - Written Request must be submitted
  - City Council review

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# Applicant's Request:

- Applicant/Owner: Sydney Onuagu and Blessing Maduka
- Location:  7500 Eckhert Road, Suite 140
- Temporarily allow two (2) Banner Signs:
  - "New Friends Learning Center"
  - "Now Enrolling"

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# Applicant's Request:

- Hardship: New ownership and capital

- Applicant has indicated that:
  - Investing in Leon Valley
  - Secured a bid for a new sign at $8,200 from Accurate Marketing in Leon Valley
  - Need six months to raise capital for the expense

# Project History

- Previous owners had an unpermitted fence which included an unpermitted painted sign.
- Applied for a variances and City Council approved their fence height request, but they had to apply for a new sign.
- Secured permits for the fence and the installation of the temporary banner.
- Application  for Façade and Signage Grant was submitted to the LVEDC, and was denied.

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# Project History

- Community Development staff should have coordinated with Code Compliance.
- Business process has be updated
- New owners acquired existing business
- Code Compliance advised applicant of the sign violation.
- Applicant submitted their variance requests
- Project was presented to City Council, which requested additional information

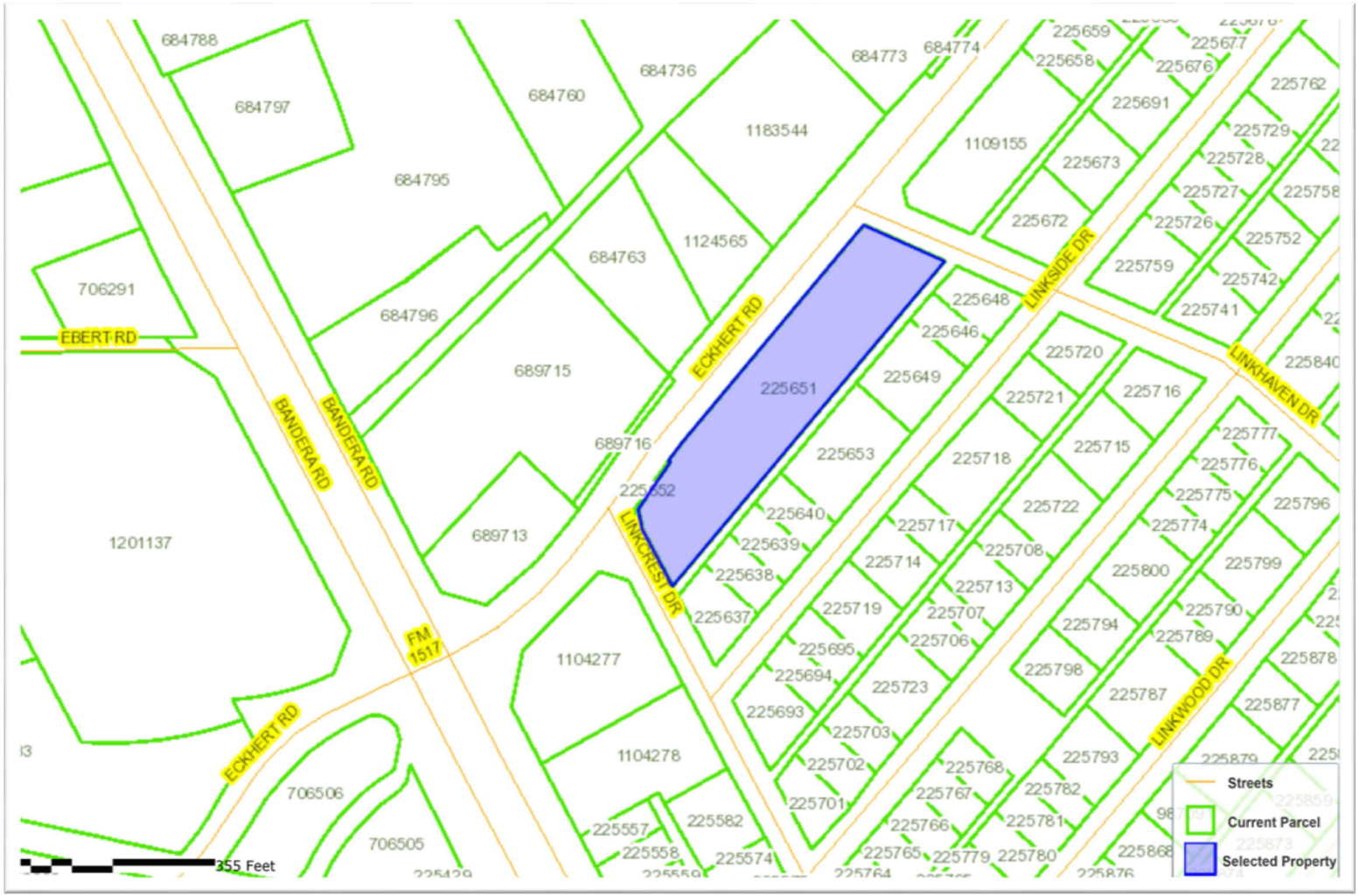
LEONVALLEY

# Project Update

- New owners have submitted an application for a Façade and Signage Grant with the LVEDC.
- The Department of Family Protective Services (DFPS), is processing their applicant and conducting inspections.
- The DFPS has no objection to the installation of their new “The Precinct Academy and Day Care” sign.
- DFPS can not provide a timeline, however they indicated that the permit could be issued in April.

LEONVALLEY

# Property Location

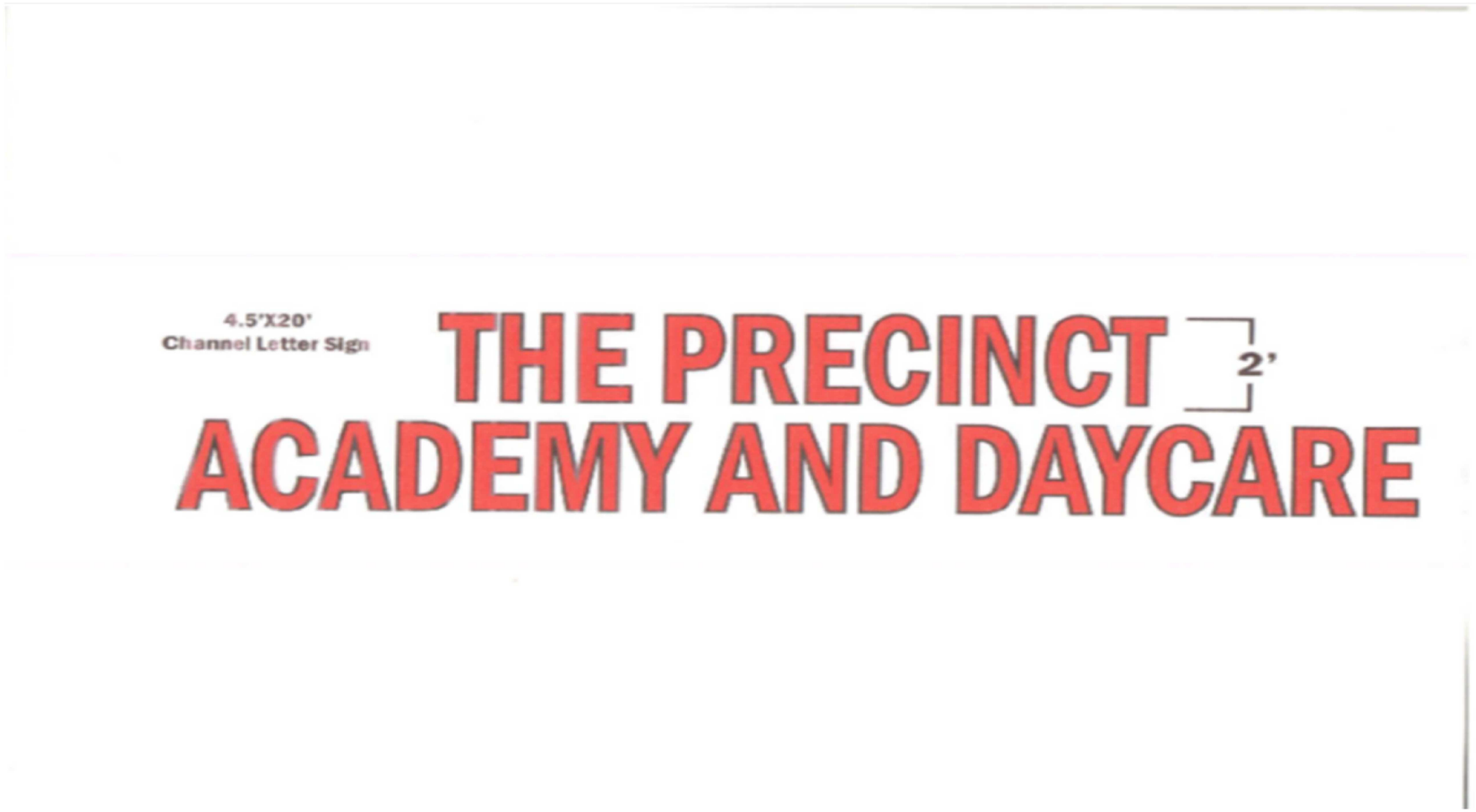



LEONVALLEY

# Existing Conditions


LEONVALLEY

# Proposed Signs



# Fiscal Impact

- Sign Variance
  - $100 variance consideration
  - $75 per sign permit; if variance is approved

# Recommendation

- Staff recommends:
  - A three (3) month variance to allow the current temporary sign to remain, while the applicant applies for their sign permit.
  - Denial of the request for the “Now Enrolling” sign
- Other options:
  - Grant a six (6) month variance to allow the sign permit(s)
  - Grant a temporary variance for a different time period
  - Deny the variance(s)
- Sign variances are at the discretion of City Council.

LEONVALLEY

# S.E.E. Statement

- **Social Equity** – It is equitable for the City to assist applicants in resolving their concerns
- **Economic Development** – Provides a consistent and dependable, public hearing process
- **Environmental Stewardship** – The signs will not have an adverse impact on the environment

LEONVALLEY

# Questions

- Staff
- Applicant: Sydney Onuagu and Blessing Maduka

# City of Leon Valley
# City Council

The Precinct Academy and Day Care
Sign Variance Requests

M&C#2016-4-5-12

April 5, 2016

**MAYOR AND COUNCIL COMMUNICATION**

**DATE:** April 5, 2016 **M&C #2016-04-05-13**

**TO:** Mayor and Council

**FROM:** Kelly Kuenstler, City Manager

**SUBJECT:** Consider, discuss and possible action to coordinate with the Office of Representative Joaquin Castro and the United States Post Office to designate 78238 as the only zip code for Leon Valley.

## PURPOSE

The purpose of this item is to discuss and consider moving forward with a process to designate 78238 as the only zip code in Leon Valley. There have been ongoing issues for the residents of Leon Valley that have a 78240 Zip code, dealing with mail not being delivered, mail not being delivered timely and driving to IH10 to DeZavala to retrieve packages.

The US Postal Service outlined the process in a letter dated March 14, 2016 (See Attached). The process is as follows:

1. Submit a request in writing with any rationale and justification to the Rio Grande District Manager
2. After the request is received the following will occur:
    a. An operational review will be conducted to determine if the request is feasible (no cost and/or operationally prohibitive).
    b. If the operational review deems the request to be feasible, a customer survey will be conducted for those customers, both residential and business, that would be impacted by the proposed change.
    c. If the customer survey is positive (a simple majority of the responses received in favor of the request), the request would be implemented as soon as operationally feasible.
    d. If the customer survey is negative (a simple majority of the responses received opposed to the change), the request would be denied and the City of Leon Valley would be prohibited from requesting a review for 10 years.

## S.E.E. STATEMENT

Social Equity – Changing the Zip code from 78240 to 78238 will allow all residents the same timely delivery service and the ability to pick up their packages locally.

Economic Development – Changing the Zip code will assist in promoting the City of Leon Valley community identity.

Environmental Stewardship - With residents being able to pick up their packages locally this will assist in lower fuel emissions, preserving natural resources and promoting earth friendly practices.

**FISCAL IMPACT**

None indicated in the letter. It does not seem that the City would have to contribute monetarily to the cost of the survey.

**RECOMMENDATION**

The recommendation is to submit a request for the Post Office to amend the zip code of the Leon Valley residents that have a 78240 Zip Code to 78238.

APPROVED: _____ DISAPPROVED: _____

APPROVED WITH THE FOLLOWING AMENDMENTS:

_____

_____

_____

ATTEST:

_____
**SAUNDRA PASSAILAIGUE, TRMC**
City Secretary

MANAGER, CONSUMER AND INDUSTRY CONTACT
RIO GRANDE DISTRICT

MAR 1 5 2016

UNITED STATES POSTAL SERVICE

March 14, 2016

The Honorable Joaquin Castro
Member of Congress
Attn: Toni Hernandez-Serna
727 E Cesar E Chavez Blvd Rm B-128
San Antonio, TX 78206-1217

Dear Congressman Castro:

This is in response to your most recent inquiry on behalf of Mr. Benny Martinez, a City of Leon Valley Councilman in San Antonio, TX 78238, concerning his request for their own ZIP Code.

I apologize for the inconvenience Mr. Martinez has experienced and have forwarded his correspondence with the District Address Management Systems Manager Larry Lindsey.

Mr. Lindsey has informed us that per the USPS Postal Operations Manual, section 439.21 *Delivery ZIP Code,* the Postal Service will not assign ZIP Codes solely to provide community identity.

Mr. Lindsey stated that currently, the municipal limits cross the following two ZIP Codes: 78238 (Leon Valley Branch) and 78240 (Cedar Elm Station). Should the municipality of Leon Valley wish to request an adjustment to a postal ZIP Code boundary, documented endorsement of the request by the local government is strongly recommended to ensure that the non-postal interests of all customers are represented fairly and are in concert with long-term municipal planning.

Requests to amend postal ZIP Code boundaries must receive careful, thorough and balanced evaluations. The unique situations pertinent to each ZIP Code boundary must be considered.

All specific changes desired, must be submitted in writing with any rationale and justification to the Rio Grande District Manager and addressed to:

Mary Sullivan
District Manager
USPS Rio Grande District
1 Post Office Dr
San Antonio TX 78284-9998

Enclosed is the outline policy detailing the process and requirements. Upon receipt of the request the following will occur:

1. An operational review will be conducted to determine if the request is feasible (no cost and/or operationally prohibitive).

2. If the operational review deems the request to be feasible, a customer survey will be conducted for those customers, both residential and business, that would be impacted by the proposed change.

3. If the customer survey is positive (a simple majority of the responses received in favor of the request), the request would be implemented as soon as operationally feasible.

1 POST OFFICE DR
SAN ANTONIO, TX 78284-8401
210-368-8498
FAX: 210-368-8313

4. If the customer survey is negative (a simple majority of the responses received opposed to the change), the request would be denied and the City of Leon Valley would be prohibited from requesting a review for 10 years.

However, as a courtesy to the citizens of Leon Valley and only if this municipal request is strictly about community identity, Mr. Lindsey has informed us that every reasonable effort will be made to accommodate the request which would assign a last line city name of "Leon Valley" to all streets / block ranges which are within the municipal limits of Leon Valley in both ZIP Codes 78240 and 78238. Once approved, this would allow customers to use Leon Valley TX 78238 or Leon Valley TX 78240 on their mail.

Once again, I apologize for the difficulties Mr. Martinez has encountered and thank you for the opportunity to address your constituent's concern.

Sincerely,

Cathy Carmona

Cathy Carmona

Re: LA CA127563842

# DESIGNATION OF 78238 AS THE ONLY ZIP CODE FOR LEON VALLEY

Regular City Council Meeting

April 5 ,2016

# Purpose

- To discuss and consider moving forward with a process to designate 78238 as the only zip code in Leon Valley
- There has been ongoing issues for the residents that have a 78240 Zip code
  - dealing with mail not being delivered
  - mail not being delivered timely
  - driving to IH10 to DeZavala to retrieve packages.

LEONVALLEY

# Process to Change the Zip Code

- Submit a request in writing with any rationale and justification to the Rio Grande District Manager
- After the request is received the following will occur:
  - An operational review will be conducted to determine if the request is feasible (no cost and/or operationally prohibitive).
  - If the operational review deems the request to be feasible, a customer survey will be conducted for those customers, both residential and business, that would be impacted by the proposed change.
  - If the customer survey is positive (a simple majority of the responses received in favor of the request), the request would be implemented as soon as operationally feasible.
  - If the customer survey is negative (a simple majority of the responses received opposed to the change), the request would be denied and the City of Leon Valley would be prohibited from requesting a review for 10 years.

LEONVALLEY

# S.E.E. Statement

- Social Equity – Changing the Zip code from 78240 to 78238 will allow all residents the same timely delivery service and the ability to pick up their packages locally.
- Economic Development – Changing the Zip code will assist in promoting the City of Leon Valley community identity.
- Environmental Stewardship - With residents being able to pick up their packages locally this will assist in lower fuel emissions, preserving natural resources and promoting earth friendly practices.

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# Fiscal Impact

- None indicated in the letter. It does not seem that the City would have to contribute monetarily to the cost of the survey.

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# Recommendations

- The recommendation is to submit a request for the Post Office to amend the zip code of the Leon Valley residents that have a 78240 Zip Code to 78238.

# DESIGNATION OF 78238 AS THE ONLY ZIP CODE FOR LEON VALLEY

Regular City Council Meeting

April 5 ,2016

# MAYOR AND COUNCIL COMMUNICATION

**DATE:** April 5, 2016 **M&C #2016-04-05-14**

**TO:** Mayor and City Council

**FROM:** Kelly Kuenstler, Leon Valley City Manager

**SUBJECT:** Consideration of a Resolution Supporting the Appointment of a Mayor from the Greater Bexar County Council of Cities to the San Antonio Water Systems (SAWS) Board

## PURPOSE

1. Request that the San Antonio Water System Board of Trustees allow the suburban cities to nominate the north and south Board of Trustees members as members of the 26 Greater Bexar County Council of Cities for the area in which they are served.
2. Request that a Mayor from the Greater Bexar County Council of Cities be nominated by and selected by the Coalition.
3. The selected Mayor be afforded all rights and responsibilities as other San Antonio Water System Board of Trustee members

## FISCAL IMPACT

There is no immediate fiscal impact; however, there could be a future fiscal impact for customers of SAWS with representation by a suburban city mayor.

## RECOMMENDATION

It is recommended the City Council consider the resolution supporting the appointment of a Mayor from the Greater Bexar County Council of Cities to the SAWS Board as an attempt to ensure suburban city residents' interests are represented.

## S.E.E. IMPACT STATEMENT

Social Equity – To ensure SAWS users in Leon Valley (and other suburban cities) have equal representation as SAWS serves (in some capacity) all 27 cities in the incorporated area of Bexar County.

Economic Development – Decisions made by the proposed new members of the Board regarding the provision of water service in suburban cities could impact decisions made by the entire Board and by developers in choosing their locations.

Environmental Stewardship – Allows all SAWS customers to be represented in future water resource decision making processes.

APPROVED: _____ DISAPPROVED: _____

APPROVED WITH THE FOLLOWING AMENDMENTS:

_____

_____

_____

ATTEST:

_____
**SAUNDRA PASSAILAIGUE, TRMC**
City Secretary

**STATE OF TEXAS §**

**COUNTY OF BEXAR §**

# R E S O L U T I O N

WHEREAS, over the past 30 years, the demographics' of San Antonio and Bexar County has doubled since 1970. Furthermore, since 1970, the population has more than doubled. With over 1,300 square miles in Bexar County, it also has 27 incorporated cities; and

WHEREAS, San Antonio Water System serves more than 1.6 million customers including San Antonio, Bexar County and its Suburban Cities; and

WHEREAS, San Antonio Water System is governed by the San Antonio Water System Board of Trustees, which consist of the Mayor of San Antonio and six members appointed by the San Antonio City Council. Further, these trustees currently must reside either within the area served by the San Antonio Water System or within the corporate limits of the city and each member is appointed for a four-year term with no member serving more than two terms; and

WHEREAS, the San Antonio Water System serves, in some capacity, all 27 of the incorporated cities in Bexar County; and

WHEREAS, the 26 cities excluding the city of San Antonio, do not have representation on the San Antonio Water System Board of Trustees;

NOW THEREFORE, BE IT RESOLVED, Greater Bexar County Council of Cities Coalition;

1. Request that the San Antonio Water System Board of Trustees allow the suburban cities to nominate the north and south Board of Trustees members as members of the 26 Greater Bexar County Council of Cities for the area in which they are served.
2. Request that a Mayor from the Greater Bexar County Council of Cities be nominated by and selected by the Coalition

3. The selected Mayor be afforded all rights and responsibilities as other San Antonio Water System Board of Trustee members

The customers of the San Antonio Water System, who live in Bexar County but are not in the City of San Antonio, deserve to have representation on the Board of Trustees of the San Antonio Water System.

**PASSED AND APPROVED** by the Greater Bexar County Council of Cities in _____, Texas, on this the _____ day of 2016 in Bexar County, Texas.

_____

**Mayor**

_____ _____

_____ _____

ITEM 19

**MAYOR AND COUNCIL COMMUNICATION**

**DATE:** April 5, 2016 **M&C # 2016-04-05-15**

**TO:** Mayor and Council

**FROM:** Kelly Kuenstler, City Manager

**SUBJECT:** Discussion and Consideration of Amending the City of Leon Valley Travel Limits Policy for City Councilors and City Manager

**PURPOSE:** Increase 100-5300-530.09 Travel limits from $1,200 to $2,400 per City Councilor and from $5,000 to $7,500 for the City Manager

## FISCAL IMPACT

Potential Fiscal Impact includes: $7,200 potential annual increase for City Councilors. $2,500 potential annual increase for City Manager (which includes City Manager, City Secretary, HR Director and Executive Secretary).

## STRATEGIC GOALS

This request is consistent with the City of Leon Valley's Strategic Plan which outlines goals and objectives. These goals and objectives are reached, partially, through interdepartmental and council efforts. A well trained council and staff are essential in addressing a strategic plan and moving a city forward.

## SEE LEON VALLEY

Social – Provides an opportunity for management staff and Council to take courses relating to social equity offered by the Texas Municipal League and other affiliated course providers.

Economic – Provides an opportunity for management staff and Council to take economic development courses offered by the Texas Municipal League and other affiliated course providers.

Environmental – Provides an opportunity for management staff and Council to take environmental stewardship classes offered by the Texas Municipal League and other affiliated course providers.

## RECOMMENDATION

Authorize a policy amendment to the Council and City Manager Travel Policy, increasing Council limits to $2,500 and the City Manager budget to $7,500.

**RECOMMENDATION**

APPROVED: _____ DISAPPROVED: _____

APPROVED WITH THE FOLLOWING AMENDMENTS:

_____

_____

_____

ATTEST:

_____
**SAUNDRA PASSAILAIGUE, TRMC**
City Secretary

# City Council and City Manager Travel Limit Change

City Council Meeting

April 5, 2016

LEONVALLEY

# Current Annual Training and Conference Budget

- City Council
  - $1,200 per Council member
- City Manager
  - $5,000

# Proposed Annual Training and Conference Budget

- City Council
  - $2,400 per Council member
    - $7,200 annual increase
- City Manager
  - $7,500
    - $2,500 annual increase

# City Council and City Manager Travel Limit Change

City Council Meeting
April 5, 2016

LEONVALLEY

The Earthwise Living Committee of the City of Leon Valley, Texas met on the 2nd day of March, 2016 at 5:30 p.m. at the Leon Valley Public Service Center, at 6427 Evers Road, Leon Valley, Texas, for the purpose of the following business, to-wit:

**REGULAR MEETING OF THE CITY OF LEON VALLEY**

**EARTHWISE LIVING COMMITTEE, 5:30 P.M.**

1. **Call the City of Leon Valley Regular Earthwise Living Committee Meeting to Order and Determine a Quorum is Present.**
   The meeting was called to order at 5:40pm. Present were Committee members Burnside, Ealy, Gomez, Hendricks, Key and Mayor Riley. Also present was Staff member Acuna.
2. **Review and Consider Approval of the February 24, 2016 Regular Meeting Minutes.**
   Member Burnside made a motion to approve the minutes. The motion was seconded by member Ealy, and the motion passed unanimously.
3. **Discussion Regarding the March 5, 2016 Earthwise Living Day Event**
   Reports:
   Staff member Acuna: Taco's from Lisa's Taco Hut will be ready for pick up at 7:15AM. Member Hendricks will pick them up. Public Works will be on site at 6AM. VIP parking spaces will be coned off. Handicap parking is available at the Library. EWL Committee members will park behind the Community Center. The list of items (coffee, cream etc) to be purchased was reviewed. The taxi service will need to provide an invoice to enable the City to pay them. It will be provided after the event. The VIA bus location will be moved to the parking lot with the Blood Bank. Bandera Bowl will be located on the lawn and will operate from 9-11:30AM. Roger Taylor from SW Research has offered to bring a 2004 car and the committee agreed to his participation. PW staff has placed door prizes in envelopes. Organic Chix will not need a table and was moved to a corner. Also on event map, City of SA and Green Energy have been moved. Ad was placed in the Express News for $275. It will appear in the weekender. Vendors will need to charge sales tax. An event site map has been emailed to vendors located in the Conference Center.
   Member Ealy stated that LV Café had not paid yet and Vegeria may not attend. Great NW recycling will be at the event all day. Volunteers will need to help with recycling. Some members will bring recycling bins from home for cork and clothing recycling.
   Member Chris Riley reported that Intertek had provided 2 $50 gift cards. We need to continue to look for the Recycle/Reuse banner. It was discussed to pay Sherrie from the Library out of the budget for making our posters. The Echo ran our flyer in the paper. She will bring $40 petty cash for the t shirt booth. She will bring a coffee pot.
   Member Burnside will give Goodwill a bill for reimbursement for the models. She suggested that an email be sent to all vendors, sponsors etc to remind them of the event. It was decided that committee members could contact vendors .
   Member Hendricks will bring items needed for the kitchen and a coffee pot. Volunteers from the Girl Scouts will help with taco and fruit distribution. It was agreed to purchase 50 bacon and egg tacos on flour tortilla. She will also pick up donation of coffee from Shipley's on Saturday morning. She will make 9 more "Do not remove " plant signs.

Further discussion: Gift for teachers will be a plant from the Garden Center. 16-18 plants from Rainbow Gardens will be ready to pick up on Friday after 1PM. Public Works will begin set up on Thursday and complete set up on Friday. Members Burnside and Hendricks will help starting at 12 noon on Friday. Member Ealy will be on site 3-7PM. Member Mayor Riley will arrive 3PM for set up. General discussion focused on which member would announce the speakers and how the door prizes would be announced by Member Key. The duties for the volunteers were reviewed and included acting as a runner between the door prizes table and the Conference Center, along with helping with VIP parking, recycling, tacos, trash stations and assisting vendors locate their table on Saturday morning. Signs were discussed and the map for street signs was provided. Member Burnside suggested that the City sign by the Library focus on the EWL event. Tarps have been purchased for food booths. Podium locations were discussed.

4. **Adjourn**

Member Key moved to adjourn the meeting and the motion was seconded by member mayor Riley. The meeting was adjourned without objection at 8:04 p.m. The date of the next meeting was not discussed.

Belinda Ealy
Co-Chair

March 23, 2016
Date

LEON VALLEY
DEEP ROOTS. BIG IDEAS.

6400 El Verde Road, Leon Valley, TX 78238

# MINUTES OF THE MEETING OF THE LEON VALLEY TREE ADVISORY BOARD

Meeting of the Leon Valley Tree Advisory Board (TAB) at 6:00 PM, on Monday, January 25, 2016, in the Leon Valley Conference Center, at 6421 Evers Road, Leon Valley, Texas.

**I. Poll for Attendance and Determination of a Quorum.**
- Staff Liaison: Elizabeth Carol (Present)
- TAB Forester: Mark Kroeze, Alamo Region Urban Forester (Present)
- Members Present: Irene Baldridge, Thomas Benavides, Denise Berger, Mary Key, Diana Sarfin
- Members Absent: Melinda Dawson and Rich Sarfin
- Guests: Monica Alcocer (Leon Valley City Councilmember) and Luis Valdez (Fire Chief, Leon Valley Fire Department)

**II. Approval of Minutes - December 17, 2015.**
- Minutes were approved as written.

**III. Leon Valley Wildfire Protection Plan.**
- Ms. Carol provided TAB members with a hard copy of the City of Leon Valley Community Wildfire Protection Plan.
- Chief Valdez reviewed the plan which lists 10 of the most vulnerable sites to fire in the city. Annotated for each site includes its description, defensible space, and applicable mitigation and maintenance plans.
  -- The plan is scheduled to be updated in September 2016.
  -- TAB members will review the plan and provide updates via e-mail to Ms. Carol who will then forward them to the Fire Department for evaluation.

**IV. Discussion on Tree City USA and Tree City Growth Award Application.**
- Ms. Carol reported that the City of Leon Valley earned both the "Tree City USA" and "Tree City Growth" awards for 2015.

**V. Develop plans to plant trees in Leon Valley Park system.**
- TAB members reviewed notes for a "Tree Planting Plan Outline".
  -- Plan will continue to be developed.
- Initial areas looked at to plant trees at Raymond Rimkus Park include around the fence of the ball park and along the walking path.
- Some of the areas adjacent to the walking path will support a 30' X 100' area for a "dense group planting" of trees with diverse species such as found along Loop 410.

**VI. Discuss on opportunities to work with Leon Valley Elementary school on Project A.C.O.R.N.**
- This topic will be discussed at the next meeting.

**VII. Discussion and Planning Earth Wise Living.**
- Earth Wise Living Day will be held on Saturday, March 5, 2016 from 9:00AM to 2:00PM.
- CPS Energy will provide 250 trees for the tree adoption.
- Ms. Carol will e-mail tree adoption details to TAB members as required.

**VIII. Future Agenda Items.**
- **How to improve tree focus.**
  -- To be discussed at the next TAB meeting.
- **Website updates.**
  -- To be discussed at the next TAB meeting.

- **Neighborwood program.**
  -- This topic will be revisited in 2016.
- **Strategic Tree planting goals.**
  -- To be discussed at the next TAB meeting.
- **Other Topics.**
  - N/A

**IX. Adjourn.**

- Meeting adjourned at 7:15 PM.
- The next meeting of the TAB is tentatively scheduled for Monday, March 7, 2016, at 6:00 PM, at the Leon Valley City Hall.

Denise A Berger

Chairperson