

FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 1 OF 3



GUADALUPE COUNTY, TEXAS AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
CIBOLO, CITY OF	480267
GUADALUPE COUNTY, UNINCORPORATED AREAS	480266
LULING, CITY OF	480096
MARION, CITY OF	480268
NEW BERLIN, CITY OF	481625
NEW BRAUNFELS, CITY OF	485493
SAN MARCOS, CITY OF	485505
SANTA CLARA, CITY OF	480013
SCHERTZ, CITY OF	480269
SEGUIN, CITY OF	485508
SELMA, CITY OF	480046
STAPLES, CITY OF	481529



FEMA

PRELIMINARY
10/29/2021

REVISED:

TBD

FLOOD INSURANCE STUDY NUMBER
48187CV001C

Version Number 2.6.5.6

TABLE OF CONTENTS

Volume 1

	<u>Page</u>
SECTION 1.0 – INTRODUCTION	1
1.1 The National Flood Insurance Program	1
1.2 Purpose of this Flood Insurance Study Report	2
1.3 Jurisdictions Included in the Flood Insurance Study Project	2
1.4 Considerations for using this Flood Insurance Study Report	5
SECTION 2.0 – FLOODPLAIN MANAGEMENT APPLICATIONS	15
2.1 Floodplain Boundaries	15
2.2 Floodways	24
2.3 Base Flood Elevations	25
2.4 Non-Encroachment Zones	25
2.5 Coastal Flood Hazard Areas	25
2.5.1 Water Elevations and the Effects of Waves	25
2.5.2 Floodplain Boundaries and BFEs for Coastal Areas	26
2.5.3 Coastal High Hazard Areas	26
2.5.4 Limit of Moderate Wave Action	26
SECTION 3.0 – INSURANCE APPLICATIONS	26
3.1 National Flood Insurance Program Insurance Zones	26
SECTION 4.0 – AREA STUDIED	27
4.1 Basin Description	27
4.2 Principal Flood Problems	28
4.3 Dams and Other Flood Hazard Reduction Measures	29
4.4 Levee Systems	30
SECTION 5.0 – ENGINEERING METHODS	31
5.1 Hydrologic Analyses	31
5.2 Hydraulic Analyses	46
5.3 Coastal Analyses	57
5.3.1 Total Stillwater Elevations	58
5.3.2 Waves	58
5.3.3 Coastal Erosion	58
5.3.4 Wave Hazard Analyses	58
5.4 Alluvial Fan Analyses	59
SECTION 6.0 – MAPPING METHODS	59
6.1 Vertical and Horizontal Control	59
6.2 Base Map	60
6.3 Floodplain and Floodway Delineation	61

Volume 1, Continued

Figures

	<u>Page</u>
Figure 1: FIRM Index	7
Figure 2: FIRM Notes to Users	8
Figure 3: Map Legend for FIRM	11
Figure 4: Floodway Schematic	24
Figure 5: Wave Runup Transect Schematic	26
Figure 6: Coastal Transect Schematic	26
Figure 7: Frequency Discharge-Drainage Area Curves	44
Figure 8: 1% Annual Chance Total Stillwater Elevations for Coastal Areas	58
Figure 9: Transect Location Map	59

Tables

	<u>Page</u>
Table 1: Listing of NFIP Jurisdictions	2
Table 2: Flooding Sources Included in this FIS Report	17
Table 3: Flood Zone Designations by Community	27
Table 4: Basin Characteristics	28
Table 5: Principal Flood Problems	29
Table 6: Historic Flooding Elevations	29
Table 7: Dams and Other Flood Hazard Reduction Measures	30
Table 8: Levee Systems	31
Table 9: Summary of Discharges	33
Table 10: Summary of Non-Coastal Stillwater Elevations	45
Table 11: Stream Gage Information used to Determine Discharges	46
Table 12: Summary of Hydrologic and Hydraulic Analyses	48
Table 13: Roughness Coefficients	57
Table 14: Summary of Coastal Analyses	58
Table 15: Tide Gage Analysis Specifics	58
Table 16: Coastal Transect Parameters	59
Table 17: Summary of Alluvial Fan Analyses	59
Table 18: Results of Alluvial Fan Analyses	59
Table 19: Countywide Vertical Datum Conversion	60
Table 20: Stream-Based Vertical Datum Conversion	60
Table 21: Base Map Sources	60
Table 22: Summary of Topographic Elevation Data used in Mapping	62
Table 23: Floodway Data	64

Volume 2

	<u>Page</u>
SECTION 6.0 – MAPPING METHODS	
6.4 Coastal Flood Hazard Mapping	93
6.5 FIRM Revisions	93
6.5.1 Letters of Map Amendment	93

Volume 2, Continued

SECTION 6.0 – MAPPING METHODS, Continued

6.5	FIRM Revisions, Continued	
6.5.2	Letters of Map Revision Based on Fill	93
6.5.3	Letters of Map Revision	94
6.5.4	Physical Map Revisions	94
6.5.5	Contracted Restudies	95
6.5.6	Community Map History	95

SECTION 7.0 – CONTRACTED STUDIES AND COMMUNITY COORDINATION 98

7.1	Contracted Studies	98
7.2	Community Meetings	103

SECTION 8.0 – ADDITIONAL INFORMATION 107

SECTION 9.0 – BIBLIOGRAPHY AND REFERENCES 109

Tables

	<u>Page</u>
Table 24: Flood Hazard and Non-Encroachment Data for Selected Streams	93
Table 25: Summary of Coastal Transect Mapping Considerations	93
Table 26: Incorporated Letters of Map Change	94
Table 27: Community Map History	96
Table 28: Summary of Contracted Studies Included in this FIS Report	98
Table 29: Community Meetings	104
Table 30: Map Repositories	107
Table 31: Additional Information	108
Table 32: Bibliography and References	110

Exhibits

Flood Profiles	<u>Panel</u>
INTENTIONALLY LEFT OUT	01 P
Alligator Creek	02-05 P
Cibolo Creek	06-22 P
Cibolo-Dietz Creek Diversion	23-24 P
Cibolo Creek Landfill Diversion	25 P
Cibolo Creek Tributary No. 13	26 P
Cottonwood Creek North	27-30 P
Cottonwood Creek South	31-39 P
Dietz Creek	40-44 P

Volume 3

Exhibits

Flood Profiles	<u>Panel</u>
East Branch Cietz Creek	45-48 P
Elm Creek North	49-50 P
Elm Creek South	51-54 P
Geronimo Creek	55-61 P
Guadalupe River	62-73 P
Guadalupe River Tributary 4a	74-75 P
Interstate Highway-10 Diversion	76 P
Long Creek	77-79 P
San Marcos River	80-88 P
Santa Clara Creek	89-95 P
Santa Clara Creek Tributary No. 1	96-97 P
Santa Clara Creek Tributary No. 2	98 P
Town Creek	99-103 P
Town Creek Tributary No. 1	104 P
Walnut Branch	105-106 P
York Creek	107-115 P

Published Separately

Flood Insurance Rate Map (FIRM)

FLOOD INSURANCE STUDY REPORT GUADALUPE COUNTY, TEXAS

SECTION 1.0 – INTRODUCTION

1.1 The National Flood Insurance Program

The National Flood Insurance Program (NFIP) is a voluntary Federal program that enables property owners in participating communities to purchase insurance protection against losses from flooding. This insurance is designed to provide an alternative to disaster assistance to meet the escalating costs of repairing damage to buildings and their contents caused by floods.

For decades, the national response to flood disasters was generally limited to constructing flood-control works such as dams, levees, sea-walls, and the like, and providing disaster relief to flood victims. This approach did not reduce losses nor did it discourage unwise development. In some instances, it may have actually encouraged additional development. To compound the problem, the public generally could not buy flood coverage from insurance companies, and building techniques to reduce flood damage were often overlooked.

In the face of mounting flood losses and escalating costs of disaster relief to the general taxpayers, the U.S. Congress created the NFIP. The intent was to reduce future flood damage through community floodplain management ordinances, and provide protection for property owners against potential losses through an insurance mechanism that requires a premium to be paid for the protection.

The U.S. Congress established the NFIP on August 1, 1968, with the passage of the National Flood Insurance Act of 1968. The NFIP was broadened and modified with the passage of the Flood Disaster Protection Act of 1973 and other legislative measures. It was further modified by the National Flood Insurance Reform Act of 1994 and the Flood Insurance Reform Act of 2004. The NFIP is administered by the Federal Emergency Management Agency (FEMA), which is a component of the Department of Homeland Security (DHS).

Participation in the NFIP is based on an agreement between local communities and the Federal Government. If a community adopts and enforces floodplain management regulations to reduce future flood risks to new construction and substantially improved structures in Special Flood Hazard Areas (SFHAs), the Federal Government will make flood insurance available within the community as a financial protection against flood losses. The community's floodplain management regulations must meet or exceed criteria established in accordance with Title 44 Code of Federal Regulations (CFR) Part 60, *Criteria for Land Management and Use*.

SFHAs are delineated on the community's Flood Insurance Rate Maps (FIRMs). Under the NFIP, buildings that were built before the flood hazard was identified on the community's FIRMs are generally referred to as "Pre-FIRM" buildings. When the NFIP was created, the U.S. Congress recognized that insurance for Pre-FIRM buildings would be prohibitively expensive if the premiums were not subsidized by the Federal

Government. Congress also recognized that most of these floodprone buildings were built by individuals who did not have sufficient knowledge of the flood hazard to make informed decisions. The NFIP requires that full actuarial rates reflecting the complete flood risk be charged on all buildings constructed or substantially improved on or after the effective date of the initial FIRM for the community or after December 31, 1974, whichever is later. These buildings are generally referred to as “Post-FIRM” buildings.

1.2 Purpose of this Flood Insurance Study Report

This Flood Insurance Study (FIS) Report revises and updates information on the existence and severity of flood hazards for the study area. The studies described in this report developed flood hazard data that will be used to establish actuarial flood insurance rates and to assist communities in efforts to implement sound floodplain management.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive than the minimum Federal requirements. Contact your State NFIP Coordinator to ensure that any higher State standards are included in the community’s regulations.

1.3 Jurisdictions Included in the Flood Insurance Study Project

This FIS Report covers the entire geographic area of Guadalupe County, Texas.

The jurisdictions that are included in this project area, along with the Community Identification Number (CID) for each community and the United States Geological Survey (USGS) 8-digit Hydrologic Unit Code (HUC-8) sub-basins affecting each, are shown in Table 1. The FIRM panel numbers that affect each community are listed. If the flood hazard data for the community is not included in this FIS report, the location of that data is identified

The location of flood hazard data for participating communities in multiple jurisdictions is also indicated in the table.

Table 1: Listing of NFIP Jurisdictions

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Cibolo, City of	480267	12100202, 12100304	48187C0090F 48187C0210F 48187C0230F 48187C0235F 48187C0240F 48187C0245F 48187C0265F 48187C0360F	

Table 1: Listing of NFIP Jurisdictions, (continued)

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Guadalupe County, Unincorporated Areas	480266	12100202, 12100203, 12100303, 12100304	48187C0035G 48187C0045F 48187C0055G 48187C0065G 48187C0070G 48187C0095F 48187C0120G 48187C0130F 48187C0135F 48187C0140F 48187C0145F 48187C0155F 48187C0160G 48187C0165F 48187C0170F 48187C0180G 48187C0190G 48187C0195G 48187C0220F 48187C0230F 48187C0235F 48187C0240F 48187C0245F 48187C0255F 48187C0260G 48187C0265F 48187C0270G 48187C0280G 48187C0285F 48187C0290G 48187C0295G 48187C0305F 48187C0310G 48187C0315G 48187C0320G 48187C0330F 48187C0335F 48187C0340G 48187C0355F 48187C0360F 48187C0370F 48187C0380F 48187C0385F	

Table 1: Listing of NFIP Jurisdictions, (continued)

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Guadalupe County, Unincorporated Areas	480266	12100202, 12100203, 12100303, 12100304	48187C0390F 48187C0395F 48187C0405F 48187C0410F 48187C0415F 48187C0420F 48187C0430F 48187C0435F 48187C0440F 48187C0445F 48187C0455G 48187C0480F	
Luling, City of ¹	480096	12100203	48187C0190G 48187C0195G	
Marion, City of	480268	12100304	48187C0235F	
New Berlin, City of ¹	481625	12100304	48187C0245F 48187C0265F 48187C0360F 48187C0370F 48187C0380F 48187C0390F	
New Braunfels, City of ¹	485493	12100202, 12100203, 12100304	48187C0020F ² 48187C0090F 48187C0095F 48187C0105G 48187C0110F 48187C0115G 48187C0120G 48187C0130F 48187C0140F 48187C0235F 48187C0255F 48187C0260G	
San Marcos, City of ¹	485505	12100203	48187C0020F ² 48187C0035G 48187C0040F 48187C0045F 48187C0055G 48187C0065G 48187C0110F 48187C0130F 48187C0135F	

Table 1: Listing of NFIP Jurisdictions, (continued)

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Santa Clara, City of	480013	12100202, 12100304	48187C0095F 48187C0230F 48187C0235F 48187C0255F	
Schertz, City of ¹	480269	12100202, 12100304	48187C0090F 48187C0095F 48187C0210F 48187C0220F 48187C0230F 48187C0235F 48187C0240F	
Seguin, City of	485508	12100202	48187C0135F 48187C0140F 48187C0145F 48187C0155F 48187C0165F 48187C0260G 48187C0270G 48187C0280G 48187C0285F 48187C0290G 48187C0295G 48187C0305F	
Selma, City of ¹	480046	12100304	48187C0210F 48187C0220F	
Staples, City of	481529	12100203	48187C0065G 48187C0155F 48187C0160G	

¹Community is mapped in multiple counties. This FIS only covers the portion within Guadalupe County

²Panel Not Printed

1.4 Considerations for using this Flood Insurance Study Report

The NFIP encourages State and local governments to implement sound floodplain management programs. To assist in this endeavor, each FIS Report provides floodplain data, which may include a combination of the following: 10-, 4-, 2-, 1-, and 0.2-percent annual chance flood elevations (the 1% annual chance flood elevation is also referred to as the Base Flood Elevation (BFE)); delineations of the 1% annual chance and 0.2% annual chance floodplains; and 1% annual chance floodway. This information is presented on the FIRM and/or in many components of the FIS Report, including Flood Profiles, Floodway Data tables, Summary of Non-Coastal Stillwater Elevations tables, and Coastal Transect Parameters tables (not all components may be provided for a specific FIS).

This section presents important considerations for using the information contained in this FIS Report and the FIRM, including changes in format and content. Figures 1, 2, and 3 present information that applies to using the FIRM with the FIS Report.

- Part or all of this FIS Report may be revised and republished at any time. In addition, part of this FIS Report may be revised by a Letter of Map Revision (LOMR), which does not involve republication or redistribution of the FIS Report. Refer to Section 6.5 of this FIS Report for information about the process to revise the FIS Report and/or FIRM.

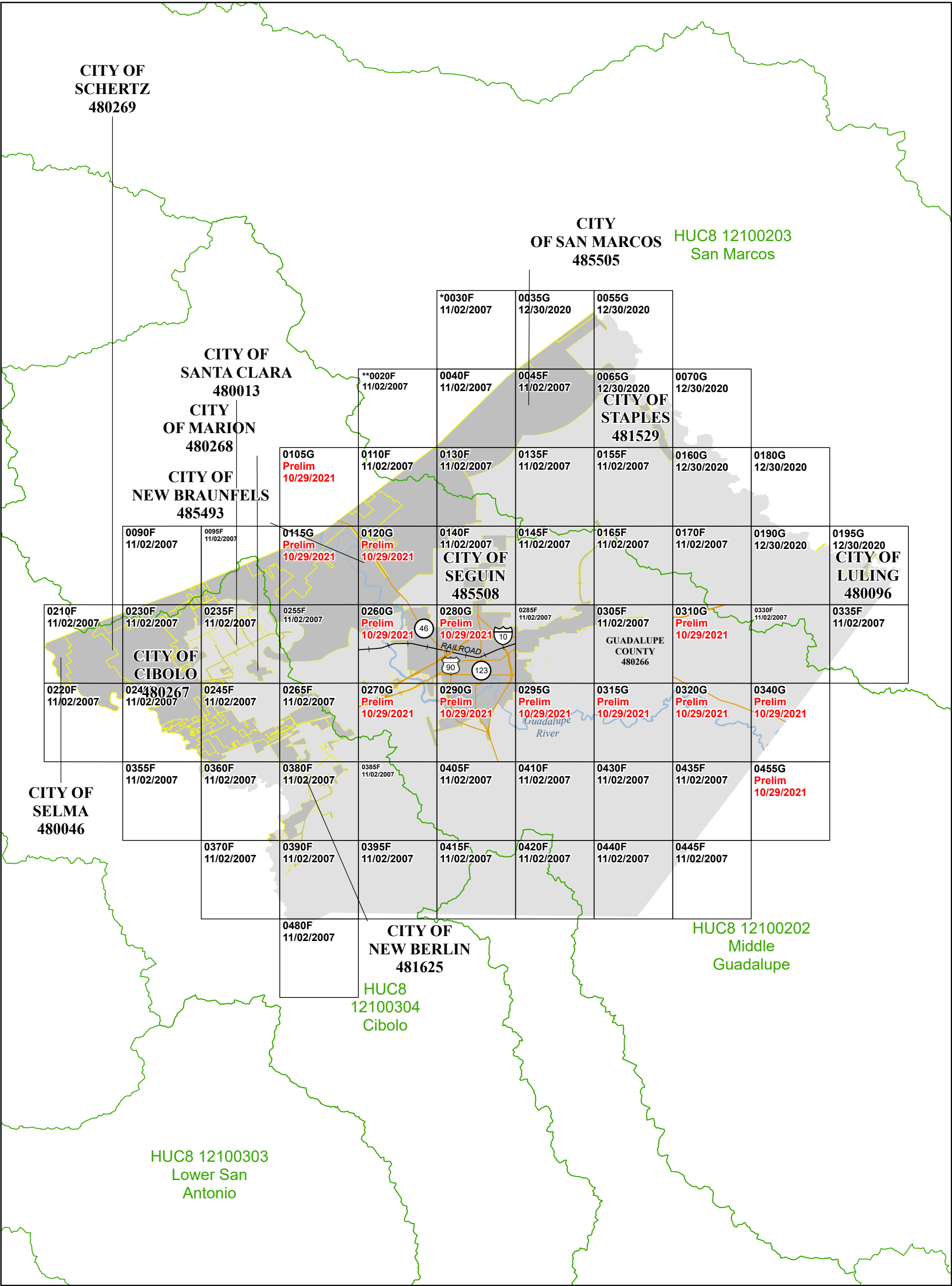
It is, therefore, the responsibility of the user to consult with community officials by contacting the community repository to obtain the most current FIS Report components. Communities participating in the NFIP have established repositories of flood hazard data for floodplain management and flood insurance purposes. Community map repository addresses are provided in Table 30, "Map Repositories," within this FIS Report.

- New FIS Reports are frequently developed for multiple communities, such as entire counties. A countywide FIS Report incorporates previous FIS Reports for individual communities and the unincorporated area of the county (if not jurisdictional) into a single document and supersedes those documents for the purposes of the NFIP.

The initial Countywide FIS Report for Guadalupe County became effective on November 2, 2007. Refer to Table 27 for information about subsequent revisions to the FIRMs.

- FEMA has developed a *Guide to Flood Maps* (FEMA 258) and online tutorials to assist users in accessing the information contained on the FIRM. These include how to read panels and step-by-step instructions to obtain specific information. To obtain this guide and other assistance in using the FIRM, visit the FEMA Web site at www.fema.gov/online-tutorials.

The FIRM Index in Figure 1 shows the overall FIRM panel layout within Guadalupe County, and also displays the panel number and effective date for each FIRM panel in the county. Other information shown on the FIRM Index includes community boundaries and USGS HUC-8 codes.



1 inch = 27,620 feet

1:331,439

0

10,000

20,000

40,000

60,000

feet

Map Projection:

GCS WGS 1984

Vertical Datum: NAVD88

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT

[HTTPS://MSC.FEMA.GOV](https://MSC.FEMA.GOV)

SEE FLOOD INSURANCE STUDY FOR ADDITIONAL INFORMATION

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP INDEX

GUADALUPE COUNTY, TEXAS And Incorporated Areas

PANELS PRINTED:
0035, 0040, 0045, 0055, 0065, 0070, 0090, 0095, 0105, 0110, 0115, 0120, 0130, 0135, 0140, 0145, 0155, 0160, 0165, 0170, 0180, 0190, 0195, 0210, 0220, 0230, 0235, 0240, 0245, 0255, 0260, 0265, 0270, 0280, 0285, 0290, 0295, 0305, 0310, 0315, 0320, 0330, 0335, 0340, 0355, 0360, 0370, 0380, 0385, 0390, 0395, 0405, 0410, 0415, 0420, 0430, 0435, 0440, 0445, 0455, 0480



MAP NUMBER
48187CIND1G

EFFECTIVE DATE
Prelim Issue Date: 10/29/2021

* PANEL NOT PRINTED - AREA OUTSIDE COUNTY BOUNDARY
**PANEL NOT PRINTED - NO SPECIAL FLOOD HAZARD AREAS

Each FIRM panel may contain specific notes to the user that provide additional information regarding the flood hazard data shown on that map. However, the FIRM panel does not contain enough space to show all the notes that may be relevant in helping to better understand the information on the panel. Figure 2 contains the full list of these notes.

Figure 2: FIRM Notes to Users

<div><h2>NOTES TO USERS</h2><p>For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM including historic versions of this FIRM, how to order products, or the National Flood Insurance Program in general, please call the FEMA Mapping and Insurance eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the FEMA Flood Map Service Center website or by calling the FEMA Mapping and Insurance eXchange.</p><p>Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Flood Map Service Center at the number listed above.</p><p>For community and countywide map dates, refer to Table 27 in this FIS Report.</p><p>To determine if flood insurance is available in the community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.</p><p>PRELIMINARY FIS REPORT: FEMA maintains information about map features, such as street locations and names, in or near designated flood hazard areas. Requests to revise information in or near designated flood hazard areas may be provided to FEMA during the community review period, at the final Consultation Coordination Officer's meeting, or during the statutory 90-day appeal period. Approved requests for changes will be shown on the final printed FIRM.</p></div>
<div><p>The map is for use in administering the NFIP. It may not identify all areas subject to flooding, particularly from local drainage sources of small size. Consult the community map repository to find updated or additional flood hazard information.</p><p>BASE FLOOD ELEVATIONS: For more detailed information in areas where Base Flood Elevations (BFEs) and/or floodways have been determined, consult the Flood Profiles and Floodway Data and/or Summary of Non-Coastal Stillwater Elevations tables within this FIS Report. Use the flood elevation data within the FIS Report in conjunction with the FIRM for construction and/or floodplain management.</p><p>FLOODWAY INFORMATION: Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the FIS Report for this jurisdiction.</p></div>

Figure 2. FIRM Notes to Users

FLOOD CONTROL STRUCTURE INFORMATION: Certain areas not in Special Flood Hazard Areas may be protected by flood control structures. Refer to Section 4.3 "Non-Levee Flood Protection Measures" of this FIS Report for information on flood control structures for this jurisdiction.

PROJECTION INFORMATION: The projection used in the preparation of the map was Texas State Plane south central zone (FIPSZONE 4204). The horizontal datum was the North American Datum of 1983 NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the FIRM.

ELEVATION DATUM: Flood elevations on the FIRM are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

*NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242*

Local vertical monuments may have been used to create the map. To obtain current monument information, please contact the appropriate local community listed in Table 30 of this FIS Report.

BASE MAP INFORMATION: Base map information shown on the FIRM panels with effective date TBD was provided by the Texas Department of Transportation, dated 2020; the City of Cibolo GIS Department, dated 2020; the City of New Braunfels GIS Department, dated 2021; the City of San Marcos GIS Department, dated 2020; the City of Schertz GIS Department dated 2021, the USGS National Map, dated 2020; the USGS NHD, dated 2020; and the U.S. Census Bureau, dated 2015. For effective maps dated 12/30/2020, base map information shown on the FIRM was provided by the U.S. Census Bureau, dated 2015; the USGS NHD dated 2013; TxDOT, dated 2016; and the U.S. Department of Commerce. For information about base maps, refer to Section 6.2 "Base Map" in this FIS Report.

The map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables may reflect stream channel distances that differ from what is shown on the map.

Figure 2. FIRM Notes to Users

Corporate limits shown on the map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after the map was published, map users should contact appropriate community officials to verify current corporate limit locations.

NOTES FOR FIRM INDEX

REVISIONS TO INDEX: As new studies are performed and FIRM panels are updated within Guadalupe County, Texas, corresponding revisions to the FIRM Index will be incorporated within the FIS Report to reflect the effective dates of those panels. Please refer to Table 27 of this FIS Report to determine the most recent FIRM revision date for each community. The most recent FIRM panel effective date will correspond to the most recent index date.

ATTENTION: The corporate limits shown on this FIRM Index are based on the best information available at the time of publication. As such, they may be more current than those shown on FIRM panels issued before TBD.

SPECIAL NOTES FOR SPECIFIC FIRM PANELS

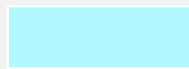
This Notes to Users section was created specifically for Guadalupe County, Texas, effective TBD.

FLOOD RISK REPORT: A Flood Risk Report (FRR) may be available for many of the flooding sources and communities referenced in this FIS Report. The FRR is provided to increase public awareness of flood risk by helping communities identify the areas within their jurisdictions that have the greatest risks. Although non-regulatory, the information provided within the FRR can assist communities in assessing and evaluating mitigation opportunities to reduce these risks. It can also be used by communities developing or updating flood risk mitigation plans. These plans allow communities to identify and evaluate opportunities to reduce potential loss of life and property. However, the FRR is not intended to be the final authoritative source of all flood risk data for a project area; rather, it should be used with other data sources to paint a comprehensive picture of flood risk.

Each FIRM panel contains an abbreviated legend for the features shown on the maps. However, the FIRM panel does not contain enough space to show the legend for all map features. Figure 3 shows the full legend of all map features. Note that not all of these features may appear on the FIRM panels in Guadalupe County.

Figure 3: Map Legend for FIRM

SPECIAL FLOOD HAZARD AREAS: *The 1% annual chance flood, also known as the base flood or 100-year flood, has a 1% chance of happening or being exceeded each year. Special Flood Hazard Areas are subject to flooding by the 1% annual chance flood. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood. The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights. See note for specific types. If the floodway is too narrow to be shown, a note is shown.*



Special Flood Hazard Areas subject to inundation by the 1% annual chance flood (Zones A, AE, AH, AO, AR, A99, V and VE)

- Zone A The flood insurance rate zone that corresponds to the 1% annual chance floodplains. No base (1% annual chance) flood elevations (BFEs) or depths are shown within this zone.
- Zone AE The flood insurance rate zone that corresponds to the 1% annual chance floodplains. Base flood elevations derived from the hydraulic analyses are shown within this zone.
- Zone AH The flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot BFEs derived from the hydraulic analyses are shown at selected intervals within this zone.
- Zone AO The flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot depths derived from the hydraulic analyses are shown within this zone.
- Zone AR The flood insurance rate zone that corresponds to areas that were formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- Zone A99 The flood insurance rate zone that corresponds to areas of the 1% annual chance floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or flood depths are shown within this zone.
- Zone V The flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Base flood elevations are not shown within this zone.
- Zone VE Zone VE is the flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Base flood elevations derived from the coastal analyses are shown within this zone as static whole-foot elevations that apply throughout the zone.

Figure 3: Map Legend for FIRM






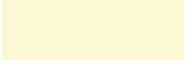

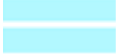






	Regulatory Floodway determined in Zone AE.
OTHER AREAS OF FLOOD HAZARD	
	Shaded Zone X: Areas of 0.2% annual chance flood hazards and areas of 1% annual chance flood hazards with average depths of less than 1 foot or with drainage areas less than 1 square mile.
	Future Conditions 1% Annual Chance Flood Hazard – Zone X: The flood insurance rate zone that corresponds to the 1% annual chance floodplains that are determined based on future-conditions hydrology. No base flood elevations or flood depths are shown within this zone.
	Area with Reduced Flood Risk due to Levee: Areas where an accredited levee, dike, or other flood control structure has reduced the flood risk from the 1% annual chance flood.
	Area with Flood Risk due to Levee: Areas where a non-accredited levee, dike, or other flood control structure is shown as providing protection to less than the 1% annual chance flood.
OTHER AREAS	
	Zone D (Areas of Undetermined Flood Hazard): The flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.
	Unshaded Zone X: Areas of minimal flood hazard.
FLOOD HAZARD AND OTHER BOUNDARY LINES	
  (ortho) (vector)	Flood Zone Boundary (white line on ortho-photography-based mapping; gray line on vector-based mapping)
	Limit of Study
	Jurisdiction Boundary
	Limit of Moderate Wave Action (LiMWA): Indicates the inland limit of the area affected by waves greater than 1.5 feet
GENERAL STRUCTURES	
 <i>Aqueduct</i> <i>Channel</i> <i>Culvert</i> <i>Storm Sewer</i>	Channel, Culvert, Aqueduct, or Storm Sewer
 <i>Dam</i> <i>Jetty</i> <i>Weir</i>	Dam, Jetty, Weir

Figure 3: Map Legend for FIRM


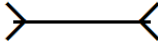

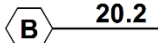

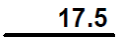














	Levee, Dike, or Floodwall
 <i>Bridge</i>	Bridge
REFERENCE MARKERS	
	River mile Markers
CROSS SECTION & TRANSECT INFORMATION	
	Lettered Cross Section with Regulatory Water Surface Elevation (BFE)
	Numbered Cross Section with Regulatory Water Surface Elevation (BFE)
	Unlettered Cross Section with Regulatory Water Surface Elevation (BFE)
	Coastal Transect
	Profile Baseline: Indicates the modeled flow path of a stream and is shown on FIRM panels for all valid studies with profiles or otherwise established base flood elevation.
	Coastal Transect Baseline: Used in the coastal flood hazard model to represent the 0.0-foot elevation contour and the starting point for the transect and the measuring point for the coastal mapping.
	Base Flood Elevation Line
ZONE AE (EL 16)	Static Base Flood Elevation value (shown under zone label)
ZONE AO (DEPTH 2)	Zone designation with Depth
ZONE AO (DEPTH 2) (VEL 15 FPS)	Zone designation with Depth and Velocity
BASE MAP FEATURES	
	River, Stream or Other Hydrographic Feature
	Interstate Highway
	U.S. Highway
	State Highway

Figure 3: Map Legend for FIRM

	County Highway
	Street, Road, Avenue Name, or Private Drive if shown on Flood Profile
	Railroad
	Horizontal Reference Grid Line
	Horizontal Reference Grid Ticks
	Secondary Grid Crosshairs
Land Grant	Name of Land Grant
7	Section Number
R. 43 W. T. 22 N.	Range, Township Number
⁴² 76 ^{000m} E	Horizontal Reference Grid Coordinates (UTM)
365000 FT	Horizontal Reference Grid Coordinates (State Plane)
80° 16' 52.5"	Corner Coordinates (Latitude, Longitude)

SECTION 2.0 – FLOODPLAIN MANAGEMENT APPLICATIONS

2.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1% annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2% annual chance (500-year) flood is employed to indicate additional areas of flood hazard in the community.

Each flooding source included in the project scope has been studied and mapped using professional engineering and mapping methodologies that were agreed upon by FEMA and Guadalupe County as appropriate to the risk level. Flood risk is evaluated based on factors such as known flood hazards and projected impact on the built environment. Engineering analyses were performed for each studied flooding source to calculate its 1% annual chance flood elevations; elevations corresponding to other floods (e.g. 10-, 4-, 2-, 0.2-percent annual chance, etc.) may have also been computed for certain flooding sources. Engineering models and methods are described in detail in Section 5.0 of this FIS Report. The modeled elevations at cross sections were used to delineate the floodplain boundaries on the FIRM; between cross sections, the boundaries were interpolated using elevation data from various sources. More information on specific mapping methods is provided in Section 6.0 of this FIS Report.

Depending on the accuracy of available topographic data (Table 23), study methodologies employed (Section 5.0), and flood risk, certain flooding sources may be mapped to show both the 1% and 0.2% annual chance floodplain boundaries, regulatory water surface elevations (BFEs), and/or a regulatory floodway. Similarly, other flooding sources may be mapped to show only the 1% annual chance floodplain boundary on the FIRM, without published water surface elevations. In cases where the 1% and 0.2% annual chance floodplain boundaries are close together, only the 1% annual chance floodplain boundary is shown on the FIRM. Table 2, “Map Legend for FIRM”, describes the flood zones that are used on the FIRMs to account for the varying levels of flood risk that exist along flooding sources within the project area. Table 2 and Table 3 indicate the flood zone designations for each flooding source and each community within Guadalupe County, respectively.

Table 2, “Flooding Sources Included in this FIS Report,” lists each flooding source, including its study limits, affected communities, mapped zone on the FIRM, and the completion date of its engineering analysis from which the flood elevations on the FIRM and in the FIS Report were derived. Descriptions and dates for the latest hydrologic and hydraulic analyses of the flooding sources are shown in Table 12. Floodplain boundaries for these flooding sources are shown on the FIRM (published separately) using the symbology described in Figure 3. On the map, the 1% annual chance floodplain corresponds to the SFHAs. The 0.2% annual chance floodplain shows areas that, although out of the regulatory floodplain, are still subject to flood hazards.

Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic

data. The procedures to remove these areas from the SFHA are described in Section 6.5 of this FIS Report.

Table 2: Flooding Sources Included in this FIS Report

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi ²) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Alligator Creek	New Braunfels, City of	Schwarlose Rd	Comal County	12100202	1.63		Y	AE	1983
Alligator Creek	Guadalupe County, Unincorporated Areas; New Braunfels, City of	Confluence with Geronimo Creek	Schwarlose Rd	12100202	3.44		Y	AE	1979
Cibolo Creek	Cibolo, City of; Guadalupe County, Unincorporated Areas; Schertz, City of; Selma, City of	Interstate Highway 10	Guadalupe County boundary	12100304	17.27		Y	AE	2005
Cibolo Creek	Guadalupe County, Unincorporated Areas; New Berlin, City of;	Guadalupe & Wilson County	Interstate Highway 10	12100304	22.35		Y	AE	1993
Cibolo-Dietz Creek Diversion	Schertz, City of	Confluence with Dietz Creek	Confluence with Cibolo Creek	12100304	1.45		N	AE	2005
Cibolo Creek Landfill Diversion	Schertz, City of	Convergence with Cibolo Creek	Divergence from Cibolo Creek	12100304	0.78		Y	AE	2005
Cibolo Creek Tributary No. 13	Cibolo, City of	Confluence with East Branch Dietz Creek	Approximately 400 feet downstream of Kove Lane	12100304	0.85		N	AE	2005

Table 2: Flooding Sources Included in this FIS Report, (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi ²) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Cottonwood Creek North	Guadalupe County, Unincorporated Areas	Confluence with York Creek	Approximately 800 feet upstream of County Road 245	12100203	9.38		Y	AE	1979
Cottonwood Creek South	Guadalupe County, Unincorporated Areas	Confluence with Guadalupe River	County Road 419	12100202	10.5		Y	AE	1979
Dietz Creek	Selma, City of; Schertz, City of	Confluence with Cibolo Creek	Comal County	12100304	5.5		Y	AE	2005
East Branch Dietz Creek	Cibolo, City of; Schertz, City of	Confluence with Cibolo Creek	Approximately 0.12 miles upstream of Cibolo Valley Road	12100304	4.16		Y	AE	2005
Elm Creek North	Guadalupe County, Unincorporated Areas	Confluence with Cottonwood Creek South	County Road 4118	12100202	2.79		Y	AE	1979
Elm Creek South	Guadalupe County, Unincorporated Areas	Wilson County	County Road 4128	12100304	8.65		Y	AE	1979
Geronimo Creek	Guadalupe County, Unincorporated Areas; New Braunfels, City of; Seguin, City of	Confluence with Guadalupe River	County Road 130	12100202	15.8		Y	AE	1979

Table 2: Flooding Sources Included in this FIS Report, (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi ²) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Guadalupe River	Guadalupe County, Unincorporated Areas; New Braunfels, City of; Seguin, City of	Gonzales-Guadalupe County Boundary	Comal-Guadalupe County Boundary	12100202	50.9		Y	AE	2019
Guadalupe River Tributary 4a	Guadalupe County, Unincorporated Areas	At FM 78	At Rudeloff Rd.	12100202	1.1		N	AE	2019
Guadalupe River Tributary 4a	Guadalupe County, Unincorporated Areas; Seguin, City of	At Rudeloff Rd.	Approximately 1,600 feet East of Coral Sky	12100202	0.4		N	AE	2016
Interstate Highway-10 Diversion	Guadalupe County, Unincorporated Areas	Confluence with Cibolo Creek	Limit of Detailed Study Divergence from Cibolo Creek	12100304	1.52		N	AE	1993
Long Creek	Guadalupe County, Unincorporated Areas	Confluence with York Creek	Approximately 9,850 feet upstream of FM 1979	12100203	6.08		Y	AE	1979
San Marcos River	Guadalupe County, Unincorporated Areas; Luling, City of; San Marcos, City of; Staples, City of	Gonzales County boundary	Hays County boundary	12100203	41.93		Y	AE	2016

Table 2: Flooding Sources Included in this FIS Report, (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi ²) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Santa Clara Creek	Guadalupe County, Unincorporated Areas; Santa Clara, City of	Confluence with Cibolo Creek	County Road 361	12100304	16.94		Y	AE	1979
Santa Clara Creek Tributary No.1	Guadalupe County, Unincorporated Areas; Santa Clara, City of	Confluence with Santa Clara Creek	County Road 367	12100304	6.71		Y	AE	1979
Santa Clara Creek Tributary No.2	Guadalupe County, Unincorporated Areas; Marion, City of; Santa Clara, City of	Confluence with Santa Clara Creek Tributary No.1	County Road 354	12100304	0.72		Y	AE	1979
Town Creek	Cibolo, City of; Guadalupe County, Unincorporated Areas	Approximately 2,000 feet downstream of FM 78	2,126 feet upstream of Dean Road	12100304	4.77		Y	AE	2005
Town Creek Tributary No.1	Cibolo, City of	Confluence with Town Creek	4,114 feet upstream of Confluence with Town Creek	12100304	0.78		Y	AE	2005
Town Creek Tributary No.1	Cibolo, City of; Guadalupe County, Unincorporated Areas	Downstream of FM 1103	Approximately 500 feet upstream of Short Weil Rd	12100304	3.27		N	A	2005

Table 2: Flooding Sources Included in this FIS Report, (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi ²) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Town Creek Tributary No.2	Cibolo, City of; Guadalupe County, Unincorporated Areas; Santa Clara, City of	Confluence with Town Creek	1,016 feet upstream of Short Weyel Road	12100304	5.15		N	A	2005
Town Creek Tributary No.4	Cibolo, City of; Guadalupe County, Unincorporated Areas	Confluence with Town Creek Tributary No. 1	1,340 feet upstream of Wiedner Road	12100304	0.8		N	A	2005
Walnut Branch	Guadalupe County Unincorporated Areas; Seguin, City of	Confluence with Guadalupe River	Approximately 995 feet North of Interstate Highway 10	12100202	3.8		Y	AE	2012
Walnut Branch	Guadalupe County Unincorporated Areas; Seguin, City of		Approximately 1,550 feet North of Interstate Highway 10	12100202			Y	AE	
York Creek	Guadalupe County, Unincorporated Areas	Confluence with San Marcos River	Hays County	12100203	20.74		Y	AE	1979

Table 2: Flooding Sources Included in this FIS Report, (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi ²) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Zone A Streams (Alligator Creek, Bear Hollow Creek, Blue Creek, Brushy Creek, Buzzard Creek, Campbell Branch, Cantau Creek, Cardell Creek, Cibolo Tributary No. 16, Cottonwood Creek North, Darst Creek, Deadman Creek, Deer Creek, Dukes Hollow Creek, Ecletto Creek, Elm Creek South, Fourmile Creek, Highsmith Creek, Konde Branch, Krams Creek, Little Creek, Long Branch, Long Creek (Tributary of the Guadalupe River), Mill Creek, Nash Creek, O'Neil Creek, Red Branch, Rudolph Creek, Sandies Creek, Salt Creek, Santa Clara Creek, Saul Creek, Saw log Creek, Smith Creek, Tidwell Creek, Town Creek, Town Creek Tributary No.1, Town Creek Tributary No.2, Town Creek Tributary No.4, Wolf Creek, and Youngs Creek)	Guadalupe County, Unincorporated Areas; New Berlin, City of; New Braunfels, City of; Santa Clara, City of; Schertz, City of; Seguin, City of; Selma, City of	*	*	12100202, 12100203, 12100303, 12100304	169.32		N	A	2005

Table 2: Flooding Sources Included in this FIS Report, (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi ²) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Zone A Streams (Cantau Creek, Cantau Tributary 3, Cordell Creek, Cordell Tributary 1, Cottonwood Creek South 2, Darst Creek, Darst Tributaries 2, 3, 4, 5, 5B, and 5C, Deadman Creek, Deadman Tributaries 3, 6, 6f, 7, and B, Deer Creek 2, Geronimo Creek, Geronimo Creek Tributaries 4 and 5, Guadalupe River Tributaries 1a, 13, 15, 16 2, 1j, 20, 21, 22, 23 2, 29 2, 3a, and 4a, Krams Creek, Long Branch Tributary 2 2, Long Creek, Long Tributaries 4, 7, 11, 12, and 14, Mill Creek, Nash Creek, Nash Tributaries 1, 2, 5, 5D, and 7, Polecat Creek, Polecat Creek 3, Red Branch 2, Rocky Creek 2, Salt Creek, Saul Creek, Saul Tributary 1, Saw log Creek, Stream 0243, Walnut Branch, Walnut Tributaries 1, 2, and 4, Youngs Creek, Youngs Tributaries 1, 1d, and 2)	Guadalupe County, Unincorporated Areas; New Braunfels, City of; Seguin, City of	*	*	12100202	82.61		N	A	2017

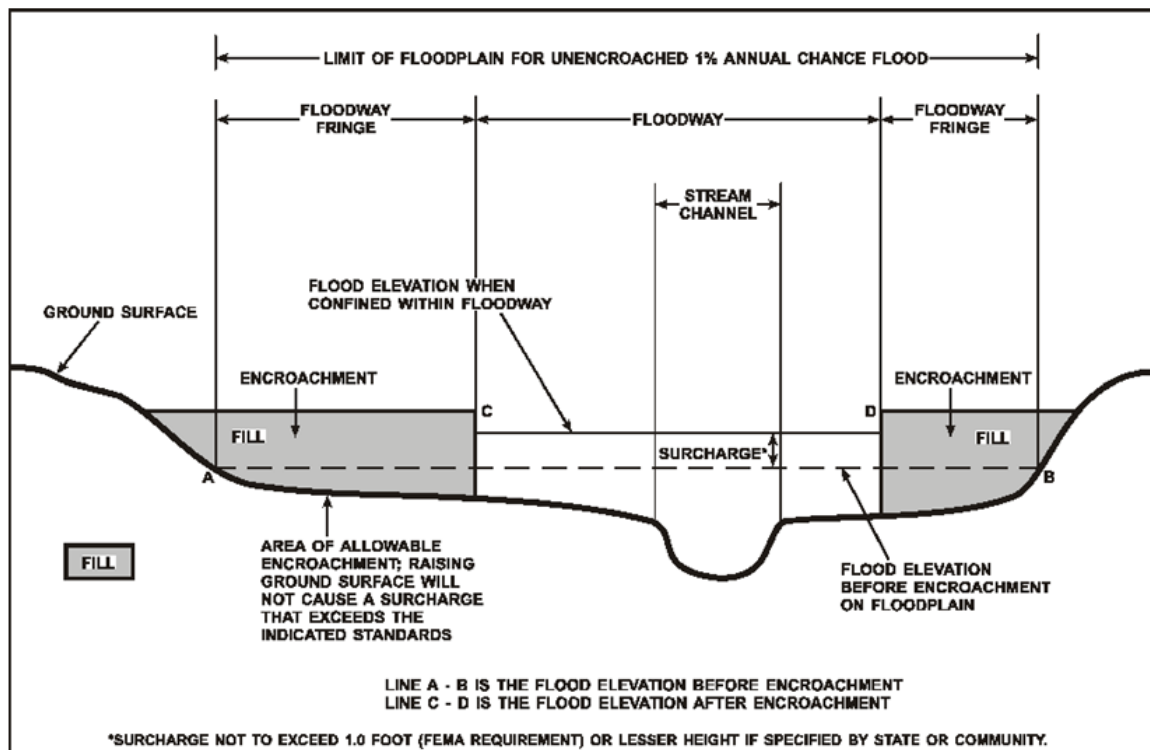
2.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard.

For purposes of the NFIP, a floodway is used as a tool to assist local communities in balancing floodplain development against increasing flood hazard. With this approach, the area of the 1% annual chance floodplain on a river is divided into a floodway and a floodway fringe based on hydraulic modeling. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment in order to carry the 1% annual chance flood. The floodway fringe is the area between the floodway and the 1% annual chance floodplain boundaries where encroachment is permitted. The floodway must be wide enough so that the floodway fringe could be completely obstructed without increasing the water surface elevation of the 1% annual chance flood more than 1 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 4.

To participate in the NFIP, Federal regulations require communities to limit increases caused by encroachment to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this project are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway projects.

Figure 4: Floodway Schematic



Floodway widths presented in this FIS Report and on the FIRM were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. For certain stream segments, floodways were adjusted so that the amount of floodwaters conveyed on each side of the floodplain would be reduced equally. The results of the floodway computations have been tabulated for selected cross sections and are shown in Table 23, "Floodway Data."

All floodways that were developed for this Flood Risk Project are shown on the FIRM using the symbology described in Figure 3. In cases where the floodway and 1% annual chance floodplain boundaries are either close together or collinear, only the floodway boundary has been shown on the FIRM. For information about the delineation of floodways on the FIRM, refer to Section 6.3.

2.3 Base Flood Elevations

The hydraulic characteristics of flooding sources were analyzed to provide estimates of the elevations of floods of the selected recurrence intervals. The Base Flood Elevation (BFE) is the elevation of the 1% annual chance flood. These BFEs are most commonly rounded to the whole foot, as shown on the FIRM, but in certain circumstances or locations they may be rounded to 0.1 foot. Cross section lines shown on the FIRM may also be labeled with the BFE rounded to 0.1 foot. Whole-foot BFEs derived from engineering analyses that apply to coastal areas, areas of ponding, or other static areas with little elevation change may also be shown at selected intervals on the FIRM.

BFEs are primarily intended for flood insurance rating purposes. Cross sections with BFEs shown on the FIRM correspond to the cross sections shown in the Floodway Data table and Flood Profiles in this FIS Report. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS Report in conjunction with the data shown on the FIRM. For example, the user may use the FIRM to determine the stream station of a location of interest and then use the profile to determine the 1-percent annual chance elevation at that location. Because only selected cross sections may be shown on the FIRM for riverine areas, the profile should be used to obtain the flood elevation between mapped cross sections. Additionally, for riverine areas, whole-foot elevations shown on the FIRM may not exactly reflect the elevations derived from the hydraulic analyses; therefore, elevations obtained from the profile may more accurately reflect the results of the hydraulic analysis.

2.4 Non-Encroachment Zones

This section is not applicable to this Flood Risk Project.

2.5 Coastal Flood Hazard Areas

This section is not applicable to this Flood Risk Project.

2.5.1 Water Elevations and the Effects of Waves

This section is not applicable to this Flood Risk Project.

Figure 5: Wave Runup Transect Schematic

[Not Applicable to this Flood Risk Project]

2.5.2 Floodplain Boundaries and BFEs for Coastal Areas

This section is not applicable to this Flood Risk Project.

2.5.3 Coastal High Hazard Areas

This section is not applicable to this Flood Risk Project.

Figure 6: Coastal Transect Schematic

[Not Applicable to this Flood Risk Project]

2.5.4 Limit of Moderate Wave Action

This section is not applicable to this Flood Risk Project.

SECTION 3.0 – INSURANCE APPLICATIONS

3.1 National Flood Insurance Program Insurance Zones

For flood insurance applications, the FIRM designates flood insurance rate zones as described in Figure 3, “Map Legend for FIRM.” Flood insurance zone designations are assigned to flooding sources based on the results of the hydraulic or coastal analyses. Insurance agents use the zones shown on the FIRM and depths and base flood elevations in this FIS Report in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

The 1% annual chance floodplain boundary corresponds to the boundary of the areas of special flood hazards (e.g. Zones A, AE, V, VE, etc.), and the 0.2% annual chance floodplain boundary corresponds to the boundary of areas of additional flood hazards.

Table 3 lists the flood insurance zones in Guadalupe County.

Table 3: Flood Zone Designations by Community

Community	Flood Zone(s)
Cibolo, City of	A, AE, X
Guadalupe County, Unincorporated Areas	A, AE, X
Luling, City of	A, AE, X
Marion, City of	AE, X
New Berlin, City of	A, AE, X
New Braunfels, City of	A, AE, X
Santa Clara, City of	A, AE, X
Schertz, City of	A, AE, AO, X
Seguin, City of	A, AE, X
Selma, City of	A, AE, X
Staples, City of	A, AE, X

SECTION 4.0 – AREA STUDIED

4.1 Basin Description

Table 4 contains a description of the characteristics of the HUC-8 sub-basins within which each community falls. The table includes the main flooding sources within each basin, a brief description of the basin, and its drainage area.

Table 4: Basin Characteristics

HUC-8 Sub-Basin Name	HUC-8 Sub-Basin Number	Primary Flooding Source	Description of Affected Area	Drainage Area (square miles)
Cibolo	12100304	Cibolo Creek	Begins at the upstream limit of Cibolo Creek, extends southeast, affecting portions of Bandera, Bexar, Comal, Guadalupe, Karnes, Kendall and Wilson counties	854
Lower San Antonio	12100303	San Antonio River	Begins at the confluence of the San Antonio River and Calaveras Creek, also meeting the confluences of Cibolo Creek and Ecleto Creek downstream, extending southeast. The watershed covers portions of Bexar, Calhoun, Dewitt, Goliad, Guadalupe, Karnes, Refugio, Victoria and Wilson counties	1,483
Middle Guadalupe	12100202	Guadalupe River	Begins at the upstream limit of the Guadalupe River, extends southeast, affecting one half of the eastern half of Caldwell County, as well as portions of Bastrop, Comal, DeWitt, Fayette, Gonzales, Guadalupe, Karnes and Wilson counties.	2,138
San Marcos	12100203	San Marcos River	Begins at upstream limit of the Blanco River, extends southeast, affecting a majority of Caldwell County, as well as portions of Blanco, Comal, Gonzales, Guadalupe, Hays, Kendall and Travis counties.	1,359

4.2 Principal Flood Problems

Table 5 contains a description of the principal flood problems that have been noted for Guadalupe County by flooding source.

Table 5: Principal Flood Problems

Flooding Source	Description of Flood Problems
San Marcos River	Severity of flooding along the San Marcos River is dictated by the location and intensity of rainfall in the Blanco and Upper San Marcos watersheds. Martindale and Luling have been historically impacted by flooding along the San Marcos River including most recently by the May 2015 flood event. However, the flood of record at the Luling USGS gage is the October 1998 event, which crested about 5 feet higher than the May 2015 event. Although the October 1998 event rainfall depth was lower than the May 2015 event, it was centered over the Upper San Marcos and lower Blanco watersheds, producing a higher flood peak at Luling.
Other Major streams	The valleys of the major streams within Guadalupe County have long suffered from periodic flood problems. Flooding occurs along the streams and tributaries, causing damage to rural and urban developments in the county. Most of the flood-producing storms occur during the spring and fall. Small overflows occur at least annually, causing minor damage. Larger floods, which caused damage to residential property, occur when the county receives 5.7 inches or more of rainfall in 24 hours which occurs approximately once in five years.

Table 6 contains information about historic flood elevations in the communities within Guadalupe County.

Table 6: Historic Flooding Elevations

Flooding Source	Location	Historic Peak (Feet NAVD88)	Event Date	Approximate Recurrence Interval (years)	Source of Data
San Marcos River	FM 1977 Crystal Clear WSC Staples Well	481.85	May 2015	100	Guadalupe Blanco River Authority High Water Marks

4.3 Dams and Other Flood Hazard Reduction Measures

Table 7 contains information about non-levee flood protection measures within Guadalupe County such as dams, jetties, and or dikes. Levees are addressed in Section 4.4 of this FIS Report.

Table 7: Dams and Other Flood Hazard Reduction Measures

Flooding Source	Structure Name	Type of Measure	Location	Description of Measure
Guadalupe River	Dunlap Dam	Dam	Downstream of Lake Dunlap	
Guadalupe River	Lake Placid Dam	Dam	Downstream of Lake Placid	
Guadalupe River	McQueeney Dam	Dam	Downstream of Lake McQueeney	
Guadalupe River	Lake Nolte Dam	Dam	Upstream of Meadow Lake	
Guadalupe River	Stacke Dam	Dam	Approximately 500 ft of Highway 123	
Long Branch	York Creek SCS Dam No. 10	Dam	Approximately 2,600 feet upstream of Dreibrodt Road	
San Marcos River	N/A	Dam	At station 190,714 along San Marcos River	
York Tributary 33	York Creek SCS Dam No. 12	Dam	Downstream of SCS Site 12 Reservoir	
York Tributary 37	York Creek SCS Dam No. 11	Dam	Downstream of SCS Site 11 Reservoir	
York Tributary 51	York Creek SCS Dam No. 9	Dam	Downstream of SCS Site 9 Reservoir	
York Tributary 55	York Creek SCS Dam No. 8	Dam	Downstream of SCS Site 8 Reservoir	
York Tributary 61	York Creek SCS Dam No. 7	Dam	Downstream of SCS Site 7 Reservoir	
York Tributary 67	York Creek SCS Dam No. 6	Dam	Downstream of SCS Site 6 Reservoir	

4.4 Levee Systems

This section is not applicable to this Flood Risk Project.

Table 8: Levee Systems

[Not Applicable to this Flood Risk Project]

SECTION 5.0 – ENGINEERING METHODS

For the flooding sources in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude that are expected to be equaled or exceeded at least once on the average during any 10-, 25-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 25-, 50-, 100-, and 500-year floods, have a 10-, 4-, 2-, 1-, and 0.2% annual chance, respectively, of being equaled or exceeded during any year.

Although the recurrence interval represents the long-term, average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 100-year flood (1-percent chance of annual exceedance) during the term of a 30-year mortgage is approximately 26 percent (about 3 in 10); for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

In addition to these flood events, the “1-percent-plus”, or “1%+”, annual chance flood elevation has been modeled and included on the flood profile for certain flooding sources in this FIS Report. While not used for regulatory or insurance purposes, this flood event has been calculated to help illustrate the variability range that exists between the regulatory 1% annual chance flood elevation and a 1% annual chance elevation that has taken into account an additional amount of uncertainty in the flood discharges (thus, the 1% “plus”). For flooding sources whose discharges were estimated using regression equations, the 1%+ flood elevations are derived by taking the 1% annual chance flood discharges and increasing the modeled discharges by a percentage equal to the average predictive error for the regression equation. For flooding sources with gage- or rainfall-runoff-based discharge estimates, the upper 84-percent confidence limit of the discharges is used to compute the 1%+ flood elevations.

The engineering analyses described here incorporate the results of previously issued Letters of Map Change (LOMCs) listed in Table 26, “Incorporated Letters of Map Change”, which include Letters of Map Revision (LOMRs). For more information about LOMRs, refer to Section 6.5, “FIRM Revisions.”

5.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak elevation-frequency relationships for floods of the selected recurrence intervals for each flooding source

studied. Hydrologic analyses are typically performed at the watershed level. Depending on factors such as watershed size and shape, land use and urbanization, and natural or man-made storage, various models or methodologies may be applied. A summary of the hydrologic methods applied to develop the discharges used in the hydraulic analyses for each stream is provided in Table 12. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation.

A summary of the discharges is provided in Table 9. Frequency Discharge-Drainage Area Curves used to develop the hydrologic models may also be shown in Figure 7 for selected flooding sources. A summary of stillwater elevations developed for non-coastal flooding sources is provided in Table 12. Stream gage information is provided in Table 11.

Table 9: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Alligator Creek	County Road at Cross Section A	22.8	8,344	*	12,199	14,353	20,779
Alligator Creek	At FM 758	19.4	7,745	*	11,323	13,322	19,286
Alligator Creek	County Road at Cross Section G	17.8	7,376	*	10,784	12,688	18,368
Alligator Creek	At New Braunfels downstream Corporate Limits	16.3	2,119	*	7,668	9,047	12,249
Alligator Creek	At New Braunfels upstream Corporate Limit	14.3	4,987	*	7,490	8,838	11,963
Cibolo Creek	Downstream of Dry Hollow Creek	540.1	29,380 ¹	*	46,300 ¹	55,680 ¹	78,340 ¹
Cibolo Creek	Approximately 3,000 feet downstream of County Road 417	480.4	29,760 ¹	*	47,210 ¹	56,370 ¹	78,240 ¹
Cibolo Creek	Downstream of Martinez Creek	473.7	37,610	*	59,020	67,490	89,940
Cibolo Creek	Upstream of Martinez Creek	386.3	27,810 ¹	*	50,730 ¹	56,960 ¹	80,360 ¹
Cibolo Creek	Downstream of Santa Clara Creek	379.8	28,930	*	51,450	58,300	84,520
Cibolo Creek	Upstream of Santa Clara Creek	317.0	28,740 ¹	*	51,060 ¹	58,020 ¹	84,040 ¹

Table 9: Summary of Discharges, (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Cibolo Creek	Downstream of Interstate Highway 10	307.4	33,550 ¹	*	61,640 ¹	70,970 ¹	107,340 ¹
Cibolo Creek	180 feet E-NE of end of Schmidt-Craft Lane	305.44	33,797	*	81,444	99,565	140,967
Cibolo Creek	3,500 feet downstream of Weir Road	303.31	33,941	*	81,763	99,891	141,170
Cibolo Creek	Below Stream CC-27	302.17	33,977	*	81,893	100,009	141,326
Cibolo Creek	Above Stream CC-27	300.01	33,977	*	81,881	99,986	141,297
Cibolo Creek	246 feet downstream of confluence with Dietz Creek	297.34	33,980	*	81,850	99,926	141,228
Cibolo Creek	235 feet upstream Pecan Grove Drive	*	34,253	*	74,816	83,554	99,095
Cibolo Creek	1,200 feet downstream of FM 78	*	34,253	*	69,696	74,844 ²	81,545
Cibolo Creek	Aviation Boulevard	*	34,253	*	74,816	83,554 ³	99,095
Cibolo Creek	448 feet S-SE of intersection of FM 1518 and Commercial Place	282.55	34,253	*	81,826	99,724	140,985
Cibolo Creek	981 feet SE of end of Laguna Hills	280.66	34,393	*	82,047	99,903	141,087
Cibolo Creek	166 feet upstream of IH 35 N Access Road	272.54	34,329	*	81,637	99,423	140,562

Table 9: Summary of Discharges, (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Cibolo Creek	731 feet upstream of Guadalupe County Boundary	271.61	34,404	*	81,696	99,469	140,722
Cibolo Creek Landfill Diversion		*	*	*	*	8,700	*
Cibolo Creek Tributary No. 13	600 feet downstream of Deer Creek Boulevard	0.627	1,106	*	1,728	2,041	2,753
Cibolo Creek Tributary No. 13	Green Valley Road	0.083	185	*	280	329	446
Cibolo-Dietz Creek Diversion		*	*	*	*	16,600	*
Cottonwood Creek North	At FM 1339	25.0	4,835	*	8,882	11,143	17,888
Cottonwood Creek North	County Road at Cross Section G	21.9	4,398	*	8,274	10,440	16,901
Cottonwood Creek North	At FM 1979	14.8	2,994	*	6,147	7,908	13,162
Cottonwood Creek North	At FM 1978	12.7	2,173	*	5,070	6,688	11,516
Cottonwood Creek South	At State Route 123	27.4	8,800	*	13,000	15,360	22,400
Cottonwood Creek South	County Road at Cross Section D	26.1	8,536	*	12,610	14,899	21,128
Cottonwood Creek South	County Road at Cross Section E	6.0	4,114	*	6,078	7,181	10,472

Table 9: Summary of Discharges, (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Cottonwood Creek South	County Road at Cross Section G	3.1	2,913	*	4,303	5,084	7,414
Dietz Creek	Confluence with Cibolo Creek	12.12	8,423	*	14,458	17,589	25,541
Dietz Creek	300 feet upstream of FM 78	11.93	8,231	*	14,169	17,225	25,127
Dietz Creek	Confluence of East Branch Dietz Creek	11.18	7,817	*	13,223	16,046	23,851
Dietz Creek	2,300 feet downstream of SH 3009	7.49	5,582	*	9,428	11,361	16,371
Dietz Creek	Elbel Road	6.94	5,221	*	8,826	10,664	15,246
Dietz Creek	Live Oak Road	6.05	4,563	*	7,671	9,287	13,314
Dietz Creek	Schertz Parkway	5.48	4,396	*	7,321	8,856	12,559
Dietz Creek	Maske Road	5.06	4,137	*	6,806	8,228	11,638
Dietz Creek	2,850 feet downstream of Wiederstein Road	3.83	3,433	*	5,383	6,437	8,918
Dietz Creek	Confluence of Cibolo Tributary 16	2.51	2,647	*	4,058	4,736	6,373
Dietz Creek	1,000 feet upstream of IH-35	2.10	2,242	*	3,441	4,044	5,479
Dietz Creek	Lookout Road	1.59	1,747	*	2,660	3,122	4,201
East Branch Dietz Creek	Confluence with Dietz Creek	3.69	5,160	*	8,187	9,724	13,145

Table 9: Summary of Discharges, (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
East Branch Dietz Creek	260 feet downstream of Deer Creek Boulevard	3.03	4,385	*	6,929	8,250	11,241
East Branch Dietz Creek	Deer Creek Boulevard	2.4	3,499	*	5,527	6,583	9,024
East Branch Dietz Creek	1,100 feet downstream of Green Valley Road	1.62	2,546	*	3,983	4,711	6,493
East Branch Dietz Creek	850 feet upstream of Crest Oak Road	0.86	1,595	*	2,500	2,958	4,060
Elm Creek North	At FM 467	3.2	3,089	*	4,516	5,313	7,692
Elm Creek North	County Road at Cross Section C	1.9	2,406	*	3,518	4,139	5,993
Elm Creek South	County Road at Cross Section A	53.9	12,100	*	17,875	21,120	30,800
Elm Creek South	County Road at Cross Section B	42.8	10,912	*	16,120	19,046	27,776
Elm Creek South	At FM 467	20.6	7,568	*	11,180	13,210	19,624
Elm Creek South	County Road at Cross Section F	9.2	5,060	*	7,475	8,832	12,880
Geronimo Creek	At US Route 90	61.2	13,738	*	20,085	23,631	34,210
Geronimo Creek	At FM 20	55.7	13,000	*	19,007	22,363	32,374
Geronimo Creek	County Road at Cross Section H	39.5	11,064	*	16,176	19,032	27,552
Geronimo Creek	At State Route 123	30.9	9,681	*	14,154	16,653	24,108

Table 9: Summary of Discharges, (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Geronimo Creek	County Road at Cross Section N	4.1	3,527	*	5,156	6,066	8,782
Geronimo Creek	County Road at Cross Section P	3.2	3,089	*	4,523	5,313	7,692
Guadalupe River	Above Nash Creek	533.7	54,900	86,500	115,200	150,800	255,500
Guadalupe River	Below Mill Ck	521.2	58,200	89,000	116,400	150,500	251,400
Guadalupe River	Above Mill Ck	481.8	55,300	83,900	109,400	141,300	235,200
Guadalupe River	At FM 1117 near Seguin (USGS Gage)	450.1	59,300	85,700	109,600	140,900	231,400
Guadalupe River	Above Cantau Creek	443.5	59,000	85,400	109,300	140,300	230,100
Guadalupe River	Below Geronimo Ck	439.2	60,200	86,200	109,700	141,100	231,700
Guadalupe River	Above Geronimo Ck	369.5	49,600	72,000	93,900	121,600	197,600
Guadalupe River	Below Cottonwood Ck	368.3	50,000	72,200	94,400	122,800	199,200
Guadalupe River	Above Cottonwood Ck	327.2	44,200	66,200	86,500	111,000	179,700
Guadalupe River	Below Deadman Ck	304.9	45,700	69,900	90,500	114,600	183,800
Guadalupe River	Above Deadman Ck	296.4	45,400	69,600	90,000	113,600	182,000
Guadalupe River	Below Little Mill Ck	295.0	45,800	70,200	90,600	114,300	182,400
Guadalupe River	Above Little Mill Ck	286.3	45,200	69,300	89,400	112,600	179,600
Guadalupe River	Below the smaller Cottonwood Ck	285.7	45,500	69,700	89,800	113,400	180,400
Guadalupe River	Above the smaller Cottonwood Ck	279.7	45,300	69,200	89,100	112,400	178,800
Guadalupe River	Below Youngs Creek	279.4	45,300	69,200	89,100	112,400	178,900

Table 9: Summary of Discharges, (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Guadalupe River	Above Youngs Creek	264.7	44,600	68,000	87,400	109,700	174,600
Guadalupe River	At Lake McQueeney	264.0	44,600	68,100	87,500	109,900	175,000
Guadalupe River	Below Tributary 20	260.4	46,700	72,600	94,400	116,500	182,900
Guadalupe River	Below Long Creek	251.1	46,000	71,500	93,200	115,100	179,300
Guadalupe River	Above Long Creek	239.6	43,900	68,200	88,900	109,600	171,100
Guadalupe River	Below Tributary 22	238.6	45,000	69,800	90,500	111,200	173,000
Guadalupe River	Above Tributary 22	234.1	44,500	69,100	89,500	109,900	171,000
Guadalupe River	At Lake Dunlap	233.4	44,600	69,200	89,500	110,000	170,900
Guadalupe River Tributary 4a	At Rudeloff Road	3.82	2,276	*	3,136	3,945	5,067
Guadalupe River Tributary 4a	At FM 78 Road	5.17	1,885	*	2,642	3,142	4,452
Interstate Highway-10 Diversion		*	0	*	2,308	6,142	29,050
Long Creek	At Dam No. 10	6.6	628	*	2,705	3,865	7,326
Long Creek	At FM 1979	5.5	4,103	*	5,999	7,058	10,217
San Marcos River	At the Luling gage	838.9	47,410	*	103,870	142,430	253,130
San Marcos River	Just downstream of confluence with York Creek	756.6	48,960	*	105,510	144,110	257,130

Table 9: Summary of Discharges, (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
San Marcos River	Parallel to Martindale Diversion	N/A	42,850	*	77,230	95,220	124,430
San Marcos River	Just downstream of Purgatory Creek	86.9	7,400	*	10,980	15,420	45,460
Santa Clara Creek	County Road at Cross Section A	62.1	13,830	*	20,220	23,790	34,440
Santa Clara Creek	County Road at Cross Section C	53.9	12,816	*	18,737	22,045	31,914
Santa Clara Creek	County Road at Cross Section E	23.1	8,482	*	12,402	14,591	21,123
Santa Clara Creek	At FM 465	17.4	7,330	*	10,717	12,609	18,253
Santa Clara Creek	At FM 78	14.9	6,731	*	9,840	11,578	16,761
Santa Clara Creek	County Road at Cross Section K	12.0	6,085	*	8,897	10,468	15,154
Santa Clara Creek	County Road at Cross Section M	2.7	2,858	*	4,179	4,917	7,118
Santa Clara Creek Tributary No. 1	At FM 78	4.1	3,527	*	5,156	6,066	8,782
Santa Clara Creek Tributary No. 1	County Road at Cross Section D	2.8	2,968	*	4,327	5,091	7,370

Table 9: Summary of Discharges, (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Santa Clara Creek Tributary No. 2	County Road at Cross Section A	1.9	2,397	*	3,505	4,124	5,970
Town Creek	Downstream of Schaefer Road	8.39	6,200	*	11,659	14,147	21,992
Town Creek	Downstream of FM 78	8.14	6,203	*	11,700	14,096	21,975
Town Creek	Confluence of Town Creek Tributary No. 1	7.44	7,185	*	12,386	15,079	21,511
Town Creek	2,500 feet upstream of SH Spur 539	4.04	3,669	*	6,333	7,731	11,117
Town Creek	Downstream of FM 1103	3.65	3,632	*	6,177	7,497	10,598
Town Creek	Downstream of Borgfeld Road	3.45	3,629	*	6,123	7,417	10,396
Town Creek	1,860 feet upstream of Wiedner Road	2.54	3,078	*	5,039	6,031	8,332
Town Creek	775 feet upstream of Green Valley Road	1.62	2,257	*	3,612	4,323	5,983
Town Creek	750 feet upstream of Dean Road	0.42	762	*	1,189	1,405	1,905
Town Creek Tributary No. 1	Confluence with Town Creek	3.39	3,844	*	6,725	8,144	11,460
Town Creek Tributary No. 1	Weil Road	3.16	3,883	*	6,592	7,965	11,105

Table 9: Summary of Discharges, (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Town Creek Tributary No. 1	Confluence of Town Tributary 4	2.48	3,727	*	6,087	7,287	10,091
Town Creek Tributary No. 1	2,225 feet downstream of Brite Road	1.15	1,683	*	2,801	3,391	4,715
Town Creek Tributary No. 1	1,850 feet upstream of Brite Road	0.79	1,653	*	2,566	3,028	4,134
Walnut Branch	Confluence with Guadalupe River	6.8	1,091	*	1,634	1,944	3,658
Walnut Branch	At Klein Street	6.7	1,079	*	1,614	1,918	3,644
Walnut Branch	At Guadalupe Street	6.3	1,018	*	1,507	1,776	3,580
Walnut Branch	At Saunders Street	5.9	944	*	1,371	1,603	3,447
Walnut Branch	910 feet downstream of Vaughan Avenue	5.7	912	*	1,329	1,551	3,439
Walnut Branch	At Kingsbury Street	5.4	846	*	1,185	1,370	3,353
Walnut Branch	At New Braunfels Street (FM 78)	5.0	761	*	1,019	1,145	3,381
Walnut Branch	At Interstate Highway 10	4.0	719 ⁴	*	965 ⁴	1,088 ⁴	3,309
Walnut Branch	3,050 feet upstream of Interstate Highway 10 Westbound	2.9	885	*	1,386	1,687	2,577
York Creek	At FM 20	126.0	10,455	*	19,614	24,731	39,996

Table 9: Summary of Discharges, (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
York Creek	At FM 1339	77.5	7,281	*	14,416	18,402	30,295
York Creek	At State Route 123	63.3	6,300	*	12,690	16,020	26,910

¹Decrease in discharge due to the effects of Muskingum-Cunge routing and/or channel losses

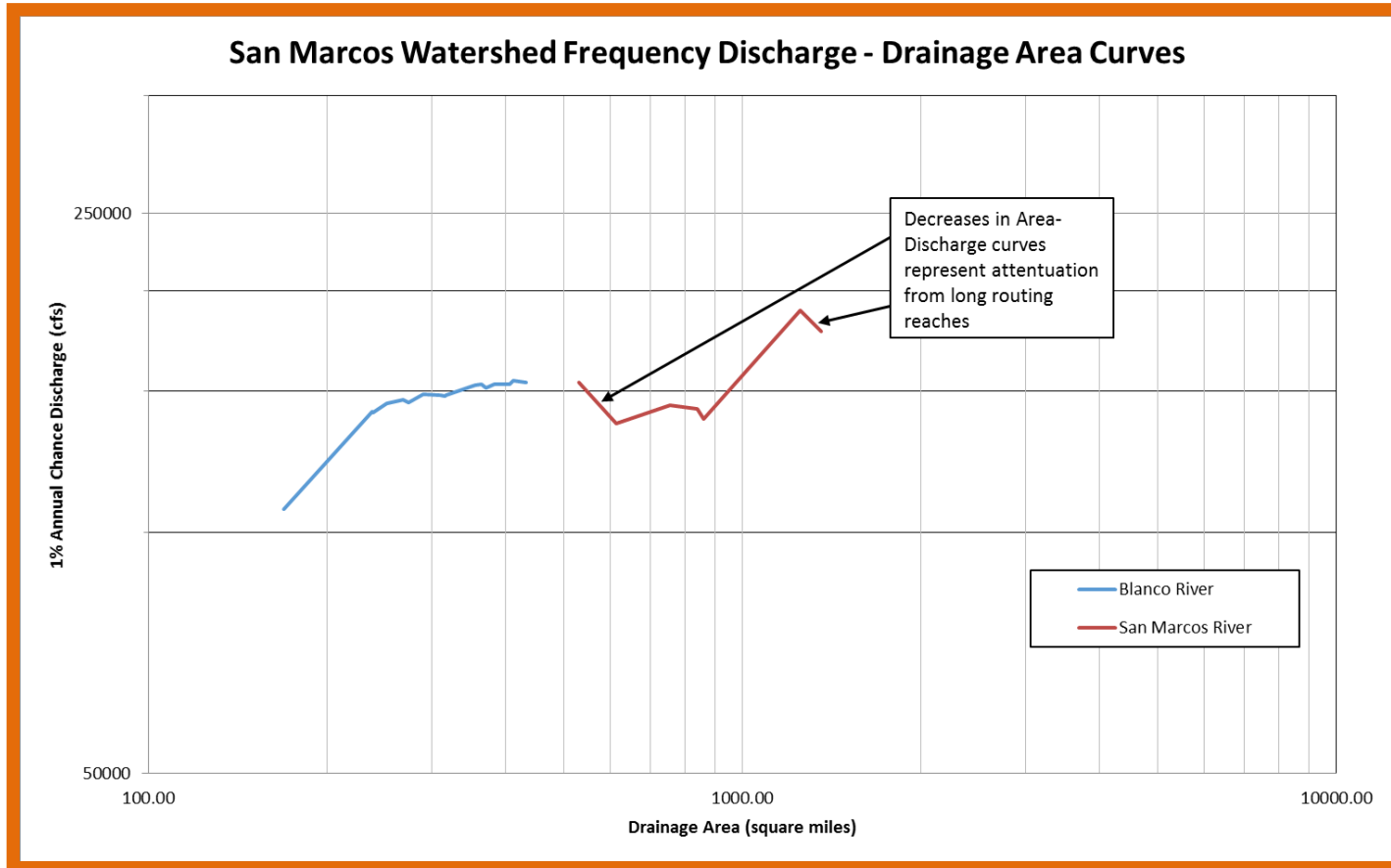
²8,700 cfs diversion between UP Railroad and landfill

³16,000 cfs Cibolo-Dietz diversion upstream UP Railroad

⁴Discharges decreases due to storage routing effects

*Not calculated for this Flood Risk Project

Figure 7: Frequency Discharge-Drainage Area Curves



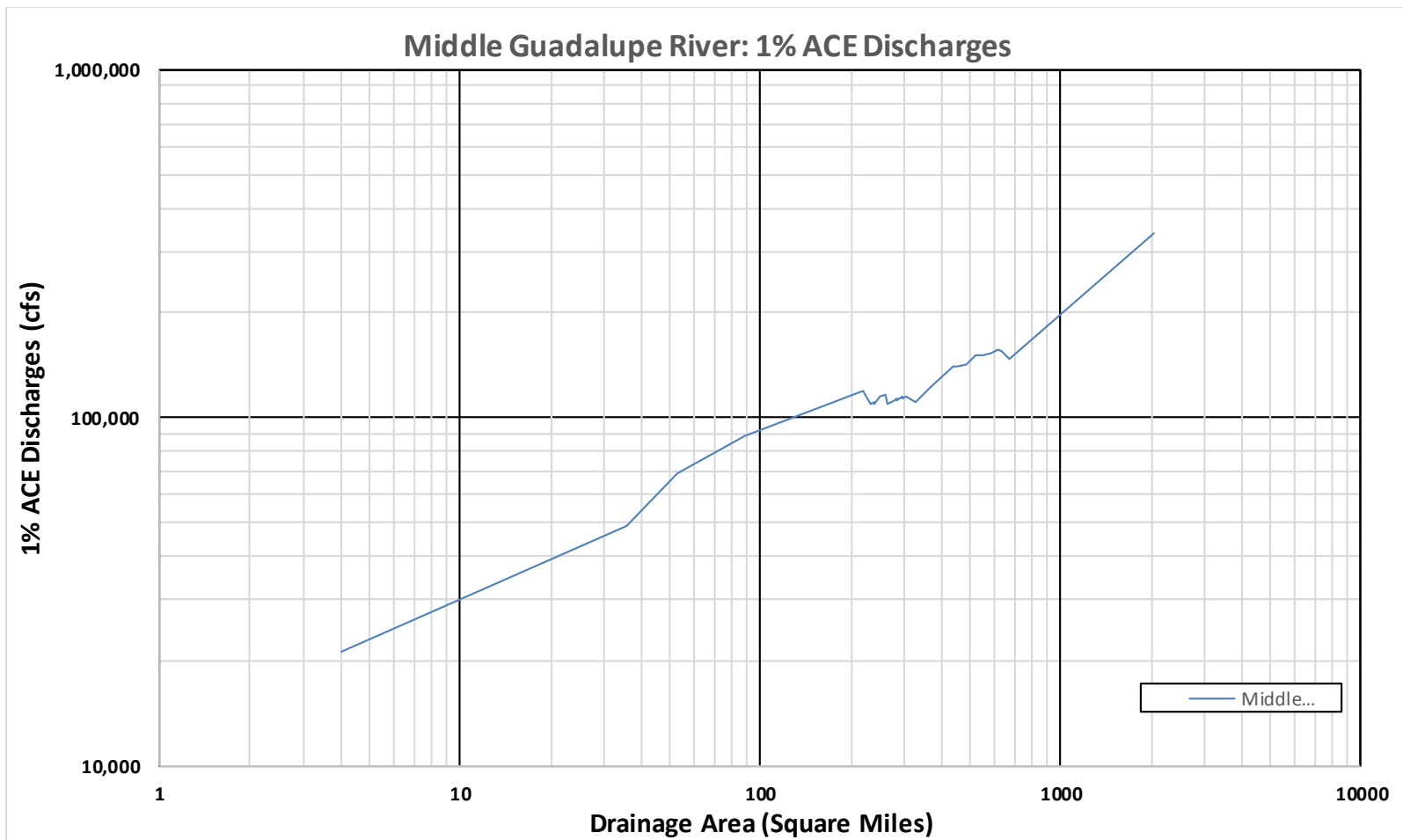


Table 10: Summary of Non-Coastal Stillwater Elevations
[Not Applicable to this Flood Risk Project]

Table 11: Stream Gage Information used to Determine Discharges

Flooding Source	Gage Identifier	Agency that Maintains Gage	Site Name	Drainage Area (Square Miles)	Period of Record	
					From	To
Cibolo Creek	08185000	USGS	Cibolo Creek at Selma, TX	274	04/01/1946	*
Comal River	08169000	USGS	Comal River at New Braunfels, TX	130	12/19/1927	*
Guadalupe River	08168500	USGS	Guadalupe River above Comal River at New Braunfels, TX	1,518	12/19/1927	*
Guadalupe River	08169500	USGS	Guadalupe River at New Braunfels, TX	1,652	01/27/1915	*
San Marcos	08172000	USGS	San Marcos River at Luling, TX	838	04/18/1939	*

*Gage is currently active at time of FIS creation

5.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals. Base flood elevations on the FIRM represent the elevations shown on the Flood Profiles and in the Floodway Data tables in the FIS Report. Rounded whole-foot elevations may be shown on the FIRM in coastal areas, areas of ponding, and other areas with static base flood elevations. These whole-foot elevations may not exactly reflect the elevations derived from the hydraulic analyses. Flood elevations shown on the FIRM are primarily intended for flood insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS Report in conjunction with the data shown on the FIRM. The hydraulic analyses for this FIS were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

For streams for which hydraulic analyses were based on cross sections, locations of selected cross sections are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway was computed (Section 6.3), selected cross sections are also listed in Table 23, "Floodway Data."

A summary of the methods used in hydraulic analyses performed for this project is provided in Table 12. Roughness coefficients are provided in Table 13. Roughness coefficients are values representing the frictional resistance water experiences when

passing overland or through a channel. They are used in the calculations to determine water surface elevations. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation.

Table 12: Summary of Hydrologic and Hydraulic Analyses

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Alligator Creek	Schwarslose Rd	Comal County	Log-Pearson Type III Frequency Analysis	HEC-2	August 1983	AE w/ Floodway	
Alligator Creek	Confluence with Geronimo Creek	Schwarslose Rd	Peak Discharge values were determined using the modified discharge per inch of runoff curves	SCS-WSP-2	03/01/1979	AE w/ Floodway	Curves from the NRCS "Work Plan for Watershed Protection and Flood Prevention, York Creek Watershed"
Cibolo Creek	Upstream of Interstate Highway 10	Guadalupe County boundary	HEC-HMS 2.2.2	HEC-RAS 3.1.2	September 2005	AE w/ Floodway	Based on preliminary models prepared by the USACE Fort Worth District, in support of an ongoing Planning Study for the San Antonio River Authority, the Guadalupe Blanco River Authority and the San Antonio Water System. The USACE study was not complete at the time of the the 2007 FIS report preparation and the hydrology modeling is subject to revision. The USACE modeling represents the best available data for this reach at this time.
Cibolo Creek	Wilson County	Interstate Highway 10	HEC-1	HEC-2	January 1993	AE w/ Floodway	
Cibolo-Dietz Creek Diversion	Confluence with Deitz Creek	Confluence with Cibolo Creek	HEC-HMS 2.2.2	HEC-RAS 3.1.2	September 2005	AE	

Table 12: Summary of Hydrologic and Hydraulic Analyses, (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Cibolo Creek Landfill Diversion	Convergence with Cibolo Creek	Divergence from Cibolo Creek	HEC-HMS 2.2.2	HEC-RAS 3.1.2	September 2005	AE w/ Floodway	
Cibolo Creek Tributary No.13	Confluence with East Branch Dietz Creek	Approximately 400 feet downstream of Kove Lane	HEC-HMS 2.2.2	HEC-RAS 3.1.2	September 2005	AE w/ Floodway	
Cottonwood Creek North	Confluence with York Creek	Approximately 800 feet upstream of County Road 245	Peak Discharge values were determined using the modified discharge per inch of runoff curves	SCS-WSP-2	03/01/1979	AE w/ Floodway	Curves from the NRCS " <i>Work Plan for Watershed Protection and Flood Prevention, York Creek Watershed</i> "
Cottonwood Creek South	Confluence with Guadalupe River	County Road 419	Peak Discharge values were determined using the modified discharge per inch of runoff curves	SCS-WSP-2	03/01/1979	AE w/ Floodway	Curves from the NRCS " <i>Work Plan for Watershed Protection and Flood Prevention, York Creek Watershed</i> "
Dietz Creek	Confluence with Cibolo Creek	Comal County	HEC-HMS 2.2.2	HEC-RAS 3.1.2	September 2005	AE w/ Floodway	
East Branch Dietz Creek	Confluence with Cibolo Creek	Approximately 0.12 miles upstream of Cibolo Valley Road	HEC-HMS 2.2.2	HEC-RAS 3.1.2	September 2005	AE w/ Floodway	

Table 12: Summary of Hydrologic and Hydraulic Analyses, (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Elm Creek North	Confluence with Cottonwood Creek South	County Road 4118	Peak Discharge values were determined using the modified discharge per inch of runoff curves	SCS-WSP-2	03/01/1979	AE w/ Floodway	Curves from the NRCS " <i>Work Plan for Watershed Protection and Flood Prevention, York Creek Watershed</i> "
Elm Creek South	Wilson County	County Road 4128	Peak Discharge values were determined using the modified discharge per inch of runoff curves	SCS-WSP-2	03/01/1979	AE w/ Floodway	Curves from the NRCS " <i>Work Plan for Watershed Protection and Flood Prevention, York Creek Watershed</i> "
Geronimo Creek	Confluence with Guadalupe River	County Road 130	Peak Discharge values were determined using the modified discharge per inch of runoff curves	SCS-WSP-2	03/01/1979	AE w/ Floodway	Curves from the NRCS " <i>Work Plan for Watershed Protection and Flood Prevention, York Creek Watershed</i> "
Guadalupe River	Gonzales- Guadalupe County Boundary	Comal- Guadalupe County Boundary	HEC-HMS v. 4.2.1	HEC-RAS v. 5.0.3	9/27/2019	Zone AE w/ Floodway	

Table 12: Summary of Hydrologic and Hydraulic Analyses, (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Guadalupe River Tributary 4a	At FM 78	At Rudeloff Rd.	HEC-HMS v. 4.2.1	HEC-RAS v. 5.0.3	12/11/2019	AE	
Guadalupe River Tributary 4a	At Rudeloff Rd.	Approximately 1,600 feet East of Coral Sky.	HEC-HMS v. 4.2.1	HEC-RAS v. 5.0.3	7/8/2016	AE	
Interstate Highway-10 Diversion	Confluence with Cibolo Creek	Limit of Detailed Study Divergence from Cibolo Creek	Peak Discharge values were determined using the modified discharge per inch of runoff curves	HEC-2	January 1993	AE	
Long Creek	Confluence with York Creek	Approximately 9,850 feet upstream of FM 1979	Peak Discharge values were determined using the modified discharge per inch of runoff curves	SCS-WSP-2	03/01/1979	AE w/ Floodway	Curves from the NRCS “ <i>Work Plan for Watershed Protection and Flood Prevention, York Creek Watershed</i> ”
San Marcos River	Gonzales County boundary	Hays County boundary	HEC-HMS 4.1	HEC-RAS 4.1	8/31/2016	AE w/ Floodway	

Table 12: Summary of Hydrologic and Hydraulic Analyses, (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Santa Clara Creek	Confluence with Cibolo Creek	County Road 361	Peak Discharge values were determined using the modified discharge per inch of runoff curves	SCS-WSP-2	03/01/1979	AE w/ Floodway	Curves from the NRCS "Work Plan for Watershed Protection and Flood Prevention, York Creek Watershed"
Santa Clara Creek Tributary No. 1	Confluence with Santa Clara Creek	County Road 367	Peak Discharge values were determined using the modified discharge per inch of runoff curves	SCS-WSP-2	03/01/1979	AE w/ Floodway	Curves from the NRCS "Work Plan for Watershed Protection and Flood Prevention, York Creek Watershed"
Santa Clara Creek Tributary No. 2	Confluence with Santa Clara Creek Tributary No.1	County Road 354	Log-Pearson Type III Frequency Analysis	SCS-WSP-2	03/01/1979	AE w/ Floodway	
Town Creek	Approximately 2,000 feet downstream of FM 78	2,126 feet upstream of Dean Road	HEC-HMS 2.2.2	HEC-RAS 3.1.2	September 2005	AE w/ Floodway	
Town Creek	Approximately 4.2 miles upstream of confluence with Santa Clara Creek	Approximately 2,000 feet downstream of FM 78	HEC-HMS 2.2.2	HEC-RAS 3.1.2	September 2005	A	Culvert and bridge survey data was generated by combining a top of road survey point with field sketches and structures measurements.

Table 12: Summary of Hydrologic and Hydraulic Analyses, (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Town Creek Tributary No. 1	Confluence with Town Creek	4,114 feet upstream of Confluence with Town Creek	HEC-HMS 2.2.2	HEC-RAS 3.1.2	September 2005	AE w/ Floodway	
Town Creek Tributary No. 1	Downstream of FM 1103	Approximately 500 feet upstream of Short Weil Rd	HEC-HMS 2.2.2	HEC-RAS 3.1.2	September 2005	A	Culvert and bridge survey data was generated by combining a top of road survey point with field sketches and structures measurements.
Town Creek Tributary No. 2	Confluence with Town Creek	1,016 feet upstream of Short Weyel Road	HEC-HMS 2.2.2	HEC-RAS 3.1.2	September 2005	A	Culvert and bridge survey data was generated by combining a top of road survey point with field sketches and structures measurements.
Town Creek Tributary No. 4	Confluence with Town Creek Tributary No. 1	1,340 feet upstream of Wiedner Road	HEC-HMS 2.2.2	HEC-RAS 3.1.2	September 2005	A	Culvert and bridge survey data was generated by combining a top of road survey point with field sketches and structures measurements.
Walnut Branch	Confluence with Guadalupe River	Approximately 995 feet North of Interstate Highway 10	HEC-HMS 3.0	HEC-RAS 3.1.2	August 2012	AE w/ Floodway	
Walnut Branch	Approximately 995 feet North of Interstate Highway 10	Approximately 1,550 feet North of Interstate Highway 10	HEC-HMS 3.0	HEC-RAS 3.1.2	April 2012	AE w/ Floodway	

Table 12: Summary of Hydrologic and Hydraulic Analyses, (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
York Creek	Confluence with San Marcos River	Hays County	Peak Discharge values were determined using the modified discharge per inch of runoff curves	SCS-WSP-2	03/01/1979	AE w/ Floodway	Curves from the NRCS " <i>Work Plan for Watershed Protection and Flood Prevention, York Creek Watershed</i> "

Table 12: Summary of Hydrologic and Hydraulic Analyses, (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Zone A Streams (Alligator Creek, Bear Hollow Creek, Blue Creek, Brushy Creek, Buzzard Creek, Campbell Branch, Cantau Creek, Cardell Creek, Cibolo Tributary No. 16, Cottonwood Creek North, Darst Creek, Deadman Creek, Deer Creek, Dukes Hollow Creek, Ecletto Creek, Elm Creek South, Fourmile Creek, Highsmith Creek, Konde Branch, Krams Creek, Little Creek, Long Branch, Long Creek (Tributary of the Guadalupe River), Mill Creek, Nash Creek, O'Neil Creek, Red Branch, Rudolph Creek, Sandies Creek, Salt Creek, Santa Clara Creek, Saul Creek, Saw log Creek, Smith Creek, Tidwell Creek, Town Creek, Wolf Creek, and Youngs Creek)	*	*	*	Regression Equations with Geo- RAS generated cross- sections, boundary conditions created by slope/area method	September 2005	A	

Table 12: Summary of Hydrologic and Hydraulic Analyses, (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Zone A Streams (Cantau Creek, Cantau Tributary 3, Cordell Creek, Cordell Tributary 1, Cottonwood Creek South 2, Darst Creek, Darst Tributaries 2, 3, 4, 5, 5B, and 5C, Deadman Creek, Deadman Tributaries 3, 6, 6f, 7, and B, Deer Creek 2, Geronimo Creek, Geronimo Creek Tributaries 4 and 5, Guadalupe River Tributaries 1a, 13, 15, 16 2, 1j, 20, 21, 22, 23 2, 29 2, 3a, and 4A, Krams Creek, Long Branch Tributary 2 2, Long Creek, Long Tributaries 4, 7, 11, 12, and 14, Mill Creek, Nash Creek, Nash Tributaries 1, 2, 5, 5D, and 7, Polecat Creek, Polecat Creek 3, Red Branch 2, Rocky Creek 2, Salt Creek, Saul Creek, Saul Tributary 1, Sawlog Creek, Stream 0243, Walnut Branch, Walnut Tributaries 1, 2, and 4, Youngs Creek, Youngs Tributaries 1, 1d, and 2)	*	*	HEC-HMS 3.0 and up (Dec 2005)	HEC-RAS 3.1.1 and up	August 2017	A	1D BLE Study

Table 13: Roughness Coefficients

Flooding Source	Channel “n”	Overbank “n”
Alligator Creek downstream of Schwarslose Rd	0.025-0.065	0.060-0.110
Alligator Creek at Municipal Airport	0.035-0.040	0.060-0.070
Cibolo Creek, I-10 and downstream	0.045-0.050	0.090-0.110
Cibolo Creek upstream of I-10	0.040-0.065	0.055-0.085
Cibolo Creek Tributary No. 13	0.035-0.045	0.040-0.090
Cottonwood Creek North	0.075-0.085	0.080-0.100
Cottonwood Creek South	0.040-0.060	0.075-0.110
Dietz Creek	0.038-0.085	0.045-0.085
East Branch Dietz Creek	0.040-0.085	0.040-0.100
Elm Creek North	0.050	0.110
Elm Creek South	0.050-0.060	0.090-0.130
Geronimo Creek	0.030-0.050	0.050-0.110
Guadalupe River	0.012 – 0.09	0.013 – 0.14
Interstate Highway 10 Diversion	0.040-0.075	0.040-0.080
Long Creek	0.035-0.050	0.050-0.110
San Marcos River	0.045-0.065	0.060-0.120
Santa Clara Creek	0.035-0.065	0.060-0.110
Santa Clara Creek Tributary No. 1	0.040-0.045	0.075-0.090
Santa Clara Creek Tributary No. 2	0.040	0.090
Town Creek	0.060-0.070	0.065-0.090
Town Creek Tributary No. 1	0.055	0.065-0.075
Walnut Branch	0.015-0.110	0.015-0.110
York Creek	0.045-0.090	0.065-0.095

¹Data Not Available

5.3 Coastal Analyses

This section is not applicable to this Flood Risk Project.

Table 14: Summary of Coastal Analyses

[Not Applicable to this Flood Risk Project]

5.3.1 Total Stillwater Elevations

This section is not applicable to this Flood Risk Project.

Figure 8: 1% Annual Chance Total Stillwater Elevations for Coastal Areas

[Not Applicable to this Flood Risk Project]

Table 15: Tide Gage Analysis Specifics

[Not Applicable to this Flood Risk Project]

5.3.2 Waves

This section is not applicable to this Flood Risk Project.

5.3.3 Coastal Erosion

This section is not applicable to this Flood Risk Project.

5.3.4 Wave Hazard Analyses

This section is not applicable to this Flood Risk Project.

Table 16: Coastal Transect Parameters
[Not Applicable to this Flood Risk Project]

Figure 9: Transect Location Map
[Not Applicable to this Flood Risk Project]

5.4 Alluvial Fan Analyses

This section is not applicable to this Flood Risk Project.

Table 17: Summary of Alluvial Fan Analyses
[Not Applicable to this Flood Risk Project]

Table 18: Results of Alluvial Fan Analyses
[Not Applicable to this Flood Risk Project]

SECTION 6.0 – MAPPING METHODS

6.1 Vertical and Horizontal Control

All FIS Reports and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum used for newly created or revised FIS Reports and FIRMs was the National Geodetic Vertical Datum of 1929 (NGVD29). With the completion of the North American Vertical Datum of 1988 (NAVD88), many FIS Reports and FIRMs are now prepared using NAVD88 as the referenced vertical datum.

Flood elevations shown in this FIS Report and on the FIRMs are referenced to NAVD88. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between NGVD29 and NAVD88 or other datum conversion, visit the National Geodetic Survey website at www.ngs.noaa.gov.

Temporary vertical monuments are often established during the preparation of a flood hazard analysis for the purpose of establishing local vertical control. Although these monuments are not shown on the FIRM, they may be found in the archived project documentation associated with the FIS Report and the FIRMs for this community. Interested individuals may contact FEMA to access these data.

To obtain current elevation, description, and/or location information for benchmarks in the area, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their website at www.ngs.noaa.gov.

The countywide conversion factor of 0.8 feet was calculated for Guadalupe County.

Table 19: Countywide Vertical Datum Conversion

[Not Applicable to this Flood Risk Project]

Table 20: Stream-Based Vertical Datum Conversion

[Not Applicable to this Flood Risk Project]

6.2 Base Map

The FIRMs and FIS Report for this project have been produced in a digital format. The flood hazard information was converted to a Geographic Information System (GIS) format that meets FEMA's FIRM Database specifications and geographic information standards. This information is provided in a digital format so that it can be incorporated into a local GIS and be accessed more easily by the community. The FIRM Database includes most of the tabular information contained in the FIS Report in such a way that the data can be associated with pertinent spatial features. For example, the information contained in the Floodway Data table and Flood Profiles can be linked to the cross sections that are shown on the FIRMs. Additional information about the FIRM Database and its contents can be found in FEMA's *Guidelines and Standards for Flood Risk Analysis and Mapping*, www.fema.gov/guidelines-and-standards-flood-risk-analysis-and-mapping.

Base map information shown on the FIRM was derived from the sources described in Table 21.

Table 21: Base Map Sources

Data Type	Data Provider	Data Date	Data Scale	Data Description
National Hydrography Dataset	USGS	2020 2013	1:12,000	Lakes and subbasins
Orthoimagery	USGS	2020	1:12,000	DFIRM background orthoimagery
Political Boundaries	TxDOT	2021	1:12,000	Guadalupe County Unincorporated Area municipal boundaries
Political Boundaries	City of Cibolo GIS Department	2020	1:12,000	City of Cibolo municipal boundaries

Data Type	Data Provider	Data Date	Data Scale	Data Description
Political Boundaries	City of New Braunfels GIS Department	2021	1:12,000	City of New Braunfels municipal boundaries
Political Boundaries	City of San Marcos GIS Department	2020	1:12,000	City of San Marcos municipal boundaries
Political Boundaries	City of Schertz GIS Department	2021	1:12,000	City of Schertz municipal boundaries
Road & Railroad Centerlines	U.S. Census Bureau	2020 2015	1:12,000	Guadalupe County roads and railroads
Road & Railroad Centerlines	U.S. Census Bureau	2020 2015	1:12,000	Guadalupe County roads and railroads

6.3 Floodplain and Floodway Delineation

The FIRM shows tints, screens, and symbols to indicate floodplains and floodways as well as the locations of selected cross sections used in the hydraulic analyses and floodway computations.

For riverine flooding sources, the mapped floodplain boundaries shown on the FIRM have been delineated using the flood elevations determined at each cross section; between cross sections, the boundaries were interpolated using the topographic elevation data described in Table 22.

In cases where the 1% and 0.2% annual chance floodplain boundaries are close together, only the 1% annual chance floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

The floodway widths presented in this FIS Report and on the FIRM were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. Table 2 indicates the flooding sources for which floodways have been determined. The results of the floodway computations for those flooding sources have been tabulated for selected cross sections and are shown in Table 23, "Floodway Data."

Table 22: Summary of Topographic Elevation Data used in Mapping

Community	Flooding Source	Source for Topographic Elevation Data					
		Description	Scale	Contour Interval	RMSE _z	Accuracy _z	Citation
Guadalupe County, Unincorporated Areas; New Braunfels, City of; Seguin, City of	Guadalupe River	Light Detection and Ranging data (LiDAR)	N/A	2 ft	18.5 cm	N/A	TNRIS/CAPCOG 2017/2018
Guadalupe County, Unincorporated Areas; New Braunfels, City of; Seguin, City of	Guadalupe River; Walnut Branch	Light Detection and Ranging data (LiDAR)	N/A	2 ft	N/A	N/A	SPECTRUM 2004
Guadalupe County, Unincorporated Areas; Luling, City of; Staples, City of	San Marcos River	Light Detection and Ranging data (LiDAR)	N/A	NA	18.59 cm	170 cm	COA 2003
Seguin, City of	Walnut Branch	Surveyed Channel (digital)	1:3,600	1 ft	N/A	N/A	USACE 2003
New Braunfels, City of	Guadalupe River including ETJ area	Topographic map	1:6,000	2 ft	N/A	N/A	LANDATA 2001
New Braunfels, City of	Alligator Creek	Topographic map	1:4,800	4 ft	N/A	N/A	TOBIN 1982
Cibolo, City of; Marion, City of; Guadalupe County, Unincorporated Areas; Santa Clara, City of; Schertz, City of	Cibolo Creek	Topographic maps (TIN)	N/A	2 ft / 5 ft	N/A	N/A	N/A
Cibolo, City of; New Berlin, City of; Santa Clara, City of; Schertz, City of; Seguin, City of	All other streams	7.5-Minute Quads – 30 Meter DEM's	1:24,000	10 ft / 20 ft	N/A	N/A	USGS TOPO

BFEs shown at cross sections on the FIRM represent the 1% annual chance water surface elevations shown on the Flood Profiles and in the Floodway Data tables in the FIS Report.

Table 23: Floodway Data

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	2,050 ¹	365	1,927	7.5	591.7	591.7	592.7	1.0
B	2,150 ¹	479	2,485	5.8	592.1	592.1	593.1	1.0
C	10,300 ¹	190	1,148	11.7	605.3	605.3	606.3	1.0
D	10,400 ¹	192	1,238	10.9	605.7	605.7	606.7	1.0
E	13,800 ¹	732	4,532	2.9	613.2	613.2	614.2	1.0
F	13,900 ¹	749	5,053	2.6	613.8	613.8	614.8	1.0
G	17,750 ¹	325	1,905	6.7	619.1	619.1	620.1	1.0
H	17,850 ¹	492	2,895	4.4	619.8	619.8	620.8	1.0
I	3,930 ²	339/90 ³	2,125	4.3	631.4	631.4	632.4	1.0

¹Stream distance in feet above confluence with Geronimo Creek

²Stream distance in feet above downstream corporate limits (extended)

³Total width/Width Within Corporate Limits

TABLE 23	FEDERAL EMERGENCY MANAGEMENT AGENCY		FLOODWAY DATA	
	GUADALUPE COUNTY, TEXAS		FLOODING SOURCE: ALLIGATOR CREEK	
	AND INCORPORATED AREAS			

Table 23: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH ² (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	265,730	1,609/1,550	11,419	4.9	482.9	482.9	483.8	0.9
B	270,200	501/346	8,189	6.8	489.4	489.4	490.1	0.7
C	278,900	1,788/1,600	10,822	5.2	500.1	500.1	500.9	0.8
D	285,120	1,899/1,650	16,218	3.5	507.2	507.2	508.1	0.9
E	290,850	2,536/900	19,045	3.5	512.8	512.8	513.8	1.0
F	294,180	1,822/1,500	15,653	4.3	517.4	517.4	518.4	1.0
G	298,600	1,673/500	18,441	3.7	522.4	522.4	523.4	1.0
H	304,100	1,135/235	13,096	4.3	530.1	530.1	531.1	1.0
I	310,600	780/575	9,119	6.2	537.4	537.4	538.3	0.9
J	315,980	1,986/186	19,718	2.9	545.7	545.7	546.7	1.0
K	319,180	1,553/1,343	15,994	3.6	548.8	548.8	549.7	0.9
L	322,560	1,720/1,620	27,465	2.1	551.2	551.2	552.2	1.0
M	325,830	844/294	10,042	5.8	554.9	554.9	555.8	0.9
N	330,900	1,272/1,012	11,841	4.9	562.1	562.1	562.9	0.8
O	337,600	2,054/1,064	24,408	2.4	567.3	567.3	568.2	0.9
P	341,650	2,130/1,995	17,746	3.3	570.0	570.0	570.7	0.7
Q	348,300	2,942/2,742	15,710	4.5	578.8	578.8	579.6	0.8
R	353,500	3,359/3,259	22,892	3.1	586.2	586.2	587.2	1.0

¹Stream distance in feet above confluence with San Antonio River

²Width/Width Within County

TABLE 23	FEDERAL EMERGENCY MANAGEMENT AGENCY		FLOODWAY DATA	
	GUADALUPE COUNTY, TEXAS AND INCORPORATED AREAS		FLOODING SOURCE: CIBOLO CREEK	

Table 23: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH ² (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
S	357,080	466/341	9,436	7.5	591.4	591.4	591.7	0.3
T	362,150	1,574/300	24,191	2.9	596.8	596.8	597.6	0.8
U	372,840	2,072/2,022	17,484	4.1	607.9	607.9	608.4	0.5
V	376,880	840/780	11,222	6.3	613.5	613.5	614.3	0.8
W	379,700	1,012/387	8,406	8.4	618.8	618.8	619.7	0.9
X	382,522	1,851/1,617	17,764	9.0	626.6	626.6	627.4	0.8
Y	383,811	909/424	14,376	8.0	629.5	629.5	630.2	0.7
Z	386,042	1,445/1,061	21,327	5.6	633.7	633.7	634.6	0.9
AA	387,329	1,886/1,762	22,015	6.3	635.8	635.8	636.3	0.5
AB	394,251	370/84	9,235	11.0	640.4	640.4	641.1	0.7
AC	396,117	785/530	12,572	10.4	648.2	648.2	649.0	0.8
AD	399,722	1,670/1,623	21,840	6.5	654.0	654.0	654.8	0.8
AE	401,658	714/492	19,720	5.1	656.8	656.8	657.6	0.8
AF	403,073	571/182	14,874	6.7	657.8	657.8	658.6	0.8
AG	405,800	548/31	18,222	5.5	661.0	661.0	661.9	0.9
AH	407,323	306/223	8,521	11.7	662.3	662.3	663.1	0.8
AI	408,038	628/592	20,866	4.8	665.8	665.8	666.7	0.9
AJ	413,959	2,831/29	37,392	2.7	668.4	668.4	669.3	0.9

¹Stream distance in feet above confluence with San Antonio River

²Width/Width Within County

TABLE 23	FEDERAL EMERGENCY MANAGEMENT AGENCY GUADALUPE COUNTY, TEXAS AND INCORPORATED AREAS	FLOODWAY DATA
		FLOODING SOURCE: CIBOLO CREEK

Table 23: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH ² (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
AK	418,516	1,906/190	19,543	5.1	672.9	672.9	673.6	0.7
AL	419,470	2,490/113	16,568	6.0	677.3	677.3	677.8	0.5
AM	423,625	693/52	11,662	8.6	686.1	686.1	687.0	0.9
AN	427,183	592/521	14,018	6.2	695.1	695.1	696.1	1.0
AO	432,987	800/631	15,893	5.5	699.9	699.9	700.7	0.8
AP	435,043	422/205	11,558	6.5	702.9	702.9	703.8	0.9
AQ	437,996	1,608/1,545	31,640	2.4	705.6	705.6	706.5	0.9
AR	440,762	243/89	6,029	12.4	706.2	706.2	707.1	0.9
AS	442,214	456/144	8,375	8.9	710.5	710.5	711.4	0.9
AT	445,235	602/267	13,377	5.6	716.5	716.5	717.3	0.8
AU	446,577	435/199	11,130	7.5	720.1	720.1	720.3	0.2
AV	448,507	1,025/862	23,287	4.3	725.4	725.4	725.4	0.0
AW	453,783	661/169	10,812	9.2	727.2	727.2	727.3	0.1
AX	456,713	446/310	11,277	8.9	734.4	734.4	734.9	0.5
AY	457,901	412/113	9,648	10.4	736.2	736.2	736.6	0.4
AZ	459,264	457/268	12,019	8.3	741.1	741.1	741.4	0.3
BA	460,345	499/223	11,748	8.5	743.4	743.4	743.7	0.3
BB	466,729	408/139	11,482	8.7	755.6	755.6	756.4	0.8
BC	471,196	1,496/824	29,405	3.4	763.0	763.0	763.8	0.8

¹Stream distance in feet above confluence with San Antonio River

²Width/Width Within County

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

GUADALUPE COUNTY, TEXAS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: CIBOLO CREEK

Table 23: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	4,400	1,106	5,952	2.0	455.5	455.5	456.5	1.0
B	6,350	953	4,010	2.8	460.7	460.7	461.7	1.0
C	11,900	237	1,727	6.5	471.7	471.7	472.7	1.0
D	12,000	319	2,776	4.0	473.5	473.5	474.5	1.0
E	14,300	747	4,422	2.5	479.3	479.3	480.3	1.0
F	16,500	1,055	4,029	2.6	484.6	484.6	485.6	1.0
G	20,900	1,007	4,347	2.3	493.2	493.2	494.2	1.0
H	21,800	564	4,349	2.2	499.1	499.1	500.1	1.0
I	24,800	370	2,962	3.4	505.5	505.5	506.5	1.0
J	27,900	679	3,774	2.6	512.4	512.4	513.4	1.0
K	32,100	208	1,480	5.3	521.3	521.3	522.3	1.0
L	32,200	264	2,026	3.9	522.6	522.6	523.6	1.0
M	35,800	671	3,028	2.5	530.3	530.3	531.3	1.0
N	42,450	194	1,674	4.2	548.1	548.1	549.1	1.0
O	42,550	194	1,674	4.2	549.1	549.1	550.1	1.0
P	42,900	262	1,640	4.3	550.3	550.3	551.3	1.0
Q	44,200	227	1,477	4.5	552.8	552.8	553.8	1.0
R	44,300	239	1,621	4.1	553.8	553.8	554.8	1.0

¹Stream distance in feet above mouth

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

GUADALUPE COUNTY, TEXAS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: COTTONWOOD CREEK NORTH

Table 23: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
S	46,100	701	3,036	1.9	557.5	557.5	558.5	1.0
T	46,200	609	2,613	2.3	557.8	557.8	558.8	1.0
U	46,950	410	1,617	3.6	561.0	561.0	562.0	1.0
V	47,050	377	1,661	3.5	561.6	561.6	562.6	1.0

¹Stream distance in feet above mouth

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

GUADALUPE COUNTY, TEXAS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: COTTONWOOD CREEK NORTH

Table 23: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	800	246	6,723	2.5	470.9	468.0 ³	469.0	1.0
B	15,150	803	5,649	2.7	475.1	475.1	476.1	1.0
C	15,250	449	3,300	4.7	476.6	475.6	476.6	1.0
D	25,000	773	5,650	2.6	489.6	489.6	490.6	1.0
E	36,650	420	2,643	2.7	512.3	512.3	513.3	1.0
F	36,750	439	3,001	2.4	512.8	512.8	513.8	1.0
G	42,900	264	1,339	3.8	527.3	527.3	528.3	1.0
H	54,000	100 ²	404	5.9	580.9	580.9	581.9	1.0

¹Stream distance in feet above mouth

²Discharge Contained Within the Channel

³Elevation Computed Without Consideration of Backwater Effects from Guadalupe River

TABLE 23	FEDERAL EMERGENCY MANAGEMENT AGENCY GUADALUPE COUNTY, TEXAS AND INCORPORATED AREAS	FLOODWAY DATA
		FLOODING SOURCE: COTTONWOOD CREEK SOUTH

Table 23: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	1,571	182	1,547	12.9	685.6	685.6	686.6	1.0
B	1,643	470	5,527	3.1	692.7	692.7	693.6	0.9
C	4,076	220	2,164	5.3	693.0	693.0	693.9	0.9
D	5,147	311	2,501	5.7	696.5	696.5	696.7	0.2
E	7,476	249	2,271	6.0	697.9	697.9	698.0	0.1
F	7,657	224	1,359	7.9	699.0	699.0	699.2	0.0
G	9,059	237	1,336	7.0	702.6	702.6	702.6	0.0
H	11,790	182	1,220	7.5	708.9	708.9	708.9	0.0
I	11,886	211	1,441	6.8	709.8	709.8	709.8	0.0
J	12,597	157	859	10.3	711.3	711.3	711.3	0.0
K	12,797	152	718	12.3	713.1	713.1	713.1	0.0
L	13,118	169	1,173	7.6	716.5	716.5	716.5	0.0
M	15,612	203	1,470	5.6	722.2	722.2	722.2	0.0
N	15,753	420	3,056	2.7	727.8	727.8	728.7	0.9
O	16,445	242	1,816	4.5	727.9	727.9	728.8	0.9
P	17,084	180	1,675	3.8	728.4	728.4	729.2	0.8
Q	17,696	445	1,563	4.1	731.7	731.7	732.1	0.4
R	19,073	490	2,012	3.2	735.7	735.7	736.7	1.0

¹Stream distance in feet above confluence with Cibolo Creek

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

GUADALUPE COUNTY, TEXAS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: DIETZ CREEK

Table 23: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
S	19,857	420	1,725	3.7	739.6	739.6	740.1	0.5
T	21,187	255	1,370	4.7	744.3	744.3	744.8	0.5
U	21,836	380	1,851	3.5	744.6	744.6	745.5	0.9
V	22,743	340	1,330	4.8	746.8	746.8	747.7	0.9
W	23,069	320	1,517	4.2	749.0	749.0	749.4	0.4
X	23,672	235	1,240	3.8	750.2	750.2	751.1	0.9
Y	25,100	345	1,593	3.0	751.4	751.4	752.2	0.8
Z	25,970	272	546	11.8	754.0	754.0	754.0	0.0
AA	26,248	138	896	6.1	757.5	757.5	757.6	0.1
AB	26,483	236	1,135	4.2	758.3	758.3	758.4	0.1
AC	28,629	128	468	6.7	761.7	761.7	761.7	0.0
AD	29,255	350	896	3.5	765.2	765.2	765.3	0.1

¹Stream distance in feet above confluence with Cibolo Creek

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

GUADALUPE COUNTY, TEXAS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: DIETZ CREEK

Table 23: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	1,537	161	1,812	5.4	693.3	693.3	693.5	0.2
B	1,768	186	1,972	4.9	693.4	693.4	693.8	0.4
C	2,289	222	1,789	5.4	698.2	698.2	698.2	0.0
D	2,411	174	1,270	7.7	698.2	698.2	698.2	0.0
E	2,479	227	1,987	4.9	700.0	700.0	700.6	0.6
F	2,892	191	1,454	6.7	700.5	700.5	701.0	0.5
G	4,534	151	994	9.8	706.5	706.5	706.5	0.0
H	6,351	132	929	10.5	717.3	717.3	717.3	0.0
I	6,410	136	1,188	8.2	719.5	719.5	719.7	0.2
J	7,351	180	1,112	7.4	725.4	725.4	725.5	0.1
K	7,657	172	797	10.4	726.4	726.4	726.4	0.0
L	8,386	260	1,716	3.8	732.3	732.3	733.1	0.8
M	8,523	310	1,829	3.6	732.5	732.5	733.2	0.7
N	9,991	200	1,375	4.8	739.5	739.5	740.5	1.0
O	10,087	180	1,350	4.9	740.6	740.6	741.3	0.7
P	11,816	145	1,010	4.7	748.7	748.7	749.3	0.6
Q	11,907	145	1,328	3.6	751.6	751.6	752.2	0.6
R	12,922	140	791	7.7	755.7	755.7	756.5	0.8

¹Stream distance in feet above confluence with Dietz Creek

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

GUADALUPE COUNTY, TEXAS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: EAST BRANCH DIETZ CREEK

Table 23: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
S	13,014	158	947	5.0	757.9	757.9	758.2	0.3
T	13,958	197	877	5.7	763.6	763.6	764.2	0.6
U	14,016	192	1,094	4.3	765.3	765.3	766.2	0.9
V	14,941	122	527	5.6	772.0	772.0	772.0	0.0
W	14,996	156	654	4.5	772.4	772.4	773.3	0.9
X	15,777	125	468	6.3	777.0	777.0	777.3	0.3
Y	17,793	137	307	0.8	790.3	790.3	791.3	1.0
Z	18,321	72	48	4.9	794.6	794.6	794.6	0.0
AA	19,014	54	44	5.2	802.5	802.5	802.5	0.0
AB	19,644	111	104	2.2	810.8	810.8	810.8	0.0
AC	20,340	33	38	6.1	819.6	819.6	819.6	0.0
AD	21,105	19	32	7.4	830.9	830.9	830.9	0.0
AE	21,202	100	232	2.7	834.0	834.0	834.0	0.0
AF	21,829	64	72	3.3	844.7	844.7	844.7	0.0

¹Stream distance in feet above confluence with Dietz Creek

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

GUADALUPE COUNTY, TEXAS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: EAST BRANCH DIETZ CREEK

Table 23: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	11,000	405	2,159	1.6	515.4	515.4	516.4	1.0
B	11,100	459	2,444	7.0	515.9	515.9	516.9	1.0
C	14,400	537	1,866	6.1	525.9	525.9	526.9	1.0

¹Stream distance in feet above mouth

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

GUADALUPE COUNTY, TEXAS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: ELM CREEK NORTH

Table 23: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	18,500	801	6,790	3.1	465.2	463.4 ²	464.4	1.0
B	26,800	1,231	8,311	2.3	471.0	471.0	472.0	1.0
C	39,250	1,284	7,031	1.9	485.6	485.6	486.6	1.0
D	39,350	1,264	6,994	1.9	485.9	485.9	486.9	1.0
E	49,900	516	3,838	2.8	504.5	504.5	505.5	1.0
F	56,250	643	3,553	2.5	516.5	516.5	517.5	1.0

¹Stream distance in feet above mouth

²Elevation Computed Without Consideration of Backwater Effects

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

GUADALUPE COUNTY, TEXAS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: ELM CREEK SOUTH

Table 23: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	2,700	206	4,053	7.7	461.7	457.6 ³	458.6	1.0
B	14,150	432	2,660	9.2	471.0	471.0	472.0	1.0
C	14,250	407	3,231	7.6	472.5	472.5	473.5	1.0
D	23,150	449	2,411	9.8	487.8	487.8	488.8	1.0
E	23,250	401	2,977	7.9	490.7	490.7	491.7	1.0
F	36,550	172	1,727	13.0	514.3	514.3	515.3	1.0
G	36,650	165	1,817	12.3	515.0	515.0	516.0	1.0
H	56,250	196	2,897	6.6	559.1	559.1	560.1	1.0
I	56,350	416	4,601	4.1	560.0	560.0	561.0	1.0
J	63,350	407	3,873	4.3	572.1	572.1	573.1	1.0
K	65,100	196	1,705	9.8	573.4	573.4	574.4	1.0
L	65,200	316 ²	2,735	6.1	574.4	574.4	575.4	1.0
M	73,800	333	1,868	8.6	588.7	588.7	589.7	1.0
N	79,500	211	1,151	5.3	603.5	603.5	604.5	1.0
O	79,600	259	1,267	4.8	604.1	604.1	605.1	1.0
P	83,400	200	996	5.3	611.5	611.5	612.5	1.0
Q	83,500	450	2,013	2.6	612.3	612.3	613.3	1.0

¹Stream distance in feet above mouth

²Discharge Contained Within the Channel

³Elevation Computed Without Consideration of Backwater Effects

TABLE 23	FEDERAL EMERGENCY MANAGEMENT AGENCY GUADALUPE COUNTY, TEXAS AND INCORPORATED AREAS	FLOODWAY DATA
		FLOODING SOURCE: GERONIMO CREEK

Table 23: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION ¹	DISTANCE ²	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
I	439,313	5,267	75,250	2.00	385.7	385.7	385.6	0.9
J	449,139	2,589	41,161	3.66	389.5	389.5	390.2	0.7
K	455,507	801	13,972	10.77	397.7	397.7	397.9	0.2
L	467,091	2,600	52,033	2.89	412.9	412.9	413.8	0.9
M	486,247	1,757	39,096	3.85	420.5	420.5	421.1	0.6
N	499,315	1,461	34,693	4.07	426.6	426.6	427.1	0.5
O	516,195	1,745	34,403	4.10	435.0	435.0	435.8	0.8
P	528,666	2,239	41,650	3.38	444.0	444.0	445.0	1.0
Q	544,247	663	14,344	9.84	454.6	454.6	455.2	0.6
R	553,725	1,270	26,335	4.62	461.9	461.9	462.2	0.3
S	557,305	1,398	20,568	5.91	465.4	465.4	465.6	0.2
T	559,570	2,463	35,286	3.62	468.0	468.0	468.2	0.2
U	565,637	1,495	27,281	5.07	471.8	471.8	471.8	0.0
V	566,371	1,630	24,197	7.64	472.7	472.7	472.7	0.0
W	569,090	1,453	20,037	5.54	474.7	474.7	474.7	0.0
X	573,166	2,061	20,026	5.54	476.8	476.8	476.9	0.1
Y	575,188	990	16,997	6.53	480.5	480.5	480.6	0.1
Z	577,786	1,020	15,393	7.21	482.8	482.8	482.8	0.0

¹Cross sections A through H are located within Gonzales County

²Stream distance in feet above the Gonzales/DeWitt County Line

TABLE 23	FEDERAL EMERGENCY MANAGEMENT AGENCY GUADALUPE COUNTY, TEXAS AND INCORPORATED AREAS	FLOODWAY DATA
		FLOODING SOURCE: GUADALUPE RIVER

Table 23: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
AA	582,850	2,344	24,536	4.91	488.9	488.9	488.9	0.0
AB	586,736	2,276	36,326	3.17	490.9	490.9	490.9	0.0
AC	590,384	2,227	31,212	3.67	492.1	492.1	492.2	0.1
AD	593,652	2,377	25,238	4.54	493.6	493.6	493.7	0.1
AE	598,938	3,083	26,211	4.37	498.3	498.3	498.7	0.4
AF	602,417	3,406	38,070	3.01	503.3	503.3	503.8	0.5
AG	605,543	1,282	29,133	3.93	515.2	515.2	515.9	0.7
AH	610,939	3,444	44,786	2.54	516.2	516.2	516.9	0.7
AI	615,052	1,007	21,228	5.38	518.3	518.3	519.0	0.7
AJ	618,949	2,503	27,079	5.56	520.6	520.6	521.2	0.6
AK	622,402	770	25,361	4.47	523.3	523.3	523.8	0.5
AL	628,786	525	14,035	7.82	528.3	528.3	528.8	0.5
AM	632,286	835	13,186	8.33	531.2	531.2	531.8	0.6
AN	633,421	811	20,852	7.23	543.4	543.4	543.9	0.5
AO	638,422	4,691	75,752	1.54	545.2	545.2	545.6	0.4
AP	643,501	901	17,194	6.78	547.3	547.3	547.7	0.4
AQ	644,488	780	17,420	6.69	548.0	548.0	548.8	0.8
AR	648,850	2,864	28,270	4.12	551.4	551.4	552.4	1.0

¹Stream distance in feet above the Gonzales/DeWitt County Line

TABLE 23	FEDERAL EMERGENCY MANAGEMENT AGENCY GUADALUPE COUNTY, TEXAS AND INCORPORATED AREAS	FLOODWAY DATA
		FLOODING SOURCE: GUADALUPE RIVER

Table 23: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
AS	654,003	2,338	27,902	4.13	556.3	556.3	556.9	0.6
AT	659,964	831	14,207	7.83	559.4	559.4	559.8	0.4
AU	666,844	451	12,628	8.81	565.6	565.6	565.9	0.3
AV	670,339	465	13,319	8.25	569.7	569.7	570.2	0.5
AW	674,574	1,554	28,293	3.89	589.6	589.6	590.5	0.9
AX	679,653	944	25,769	4.27	590.7	590.7	591.5	0.8
AY	687,573	923	21,002	5.24	592.8	592.8	593.7	0.9
AZ	694,849	890	18,404	6.47	596.1	596.1	596.9	0.8
BA	698,941	495	11,631	10.23	597.4	597.4	598.2	0.8
BB	700,604	571	15,844	7.51	599.9	599.9	600.8	0.9

¹Stream distance in feet above the Gonzales/DeWitt County Line

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY
GUADALUPE COUNTY, TEXAS
AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: GUADALUPE RIVER

Table 23: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	21,300	479	6,022	1.2	562.4	562.4	563.4	1.0
B	21,400	427	5,045	1.4	562.7	562.7	563.7	1.0
C	31,200	156	1,098	5.3	597.0	597.0	598.0	1.0

¹Stream distance in feet above mouth

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

GUADALUPE COUNTY, TEXAS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: LONG CREEK

Table 23: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION ¹	DISTANCE ²	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Q	168,643	4,283 / 3,231 ³	40,014	2.4	350.8	350.8	351.4	0.6
R	175,976	3,706 / 1,953 ³	40,239	3.5	354.5	354.5	355.1	0.6
S	190,366	3,575 / 3,427 ³	36,934	5.7	361.8	361.8	362.6	0.8
T	194,426	4,017 / 2,680 ³	51,954	2.7	364.9	364.9	365.6	0.7
U	196,464	3,071 / 2,740 ³	35,913	4	365.7	365.7	366.5	0.8
V	200,764	3,673 / 1,666 ³	39,861	3.6	368.4	368.4	369.2	0.8
W	203,261	4,506 / 93 ³	48,255	3	369.5	369.5	370.4	0.9
X	217,139	4,126 / 3,428 ³	50,208	2.8	377.2	377.2	377.9	0.7
Y	223,385	3,234 / 1,932 ³	45,036	3.2	381.8	381.8	382.1	0.3
Z	226,868	4,296 / 2,723 ³	51,973	2.7	383.5	383.5	384	0.5
AA	232,057	5,140 / 3,999 ³	43,193	3.3	385.1	385.1	385.6	0.5
AB	241,866	4,265 / 0 ³	33,886	4.3	392.6	392.6	393.3	0.7
AC	244,962	5,293 / 180 ³	40,913	4.6	399.8	399.8	400.3	0.5
AD	249,714	5,180 / 107 ³	52,820	2.8	403.7	403.7	404.1	0.4
AE	255,688	2,017	25,689	5.6	407.6	407.6	408.5	0.9
AF	264,915	3,201 / 2,869 ³	29,945	4.8	414.1	414.1	415	0.9
AG	268,724	1,902 / 58 ³	31,547	4.6	418.5	418.5	419	0.5
AH	277,233	1,851 / 683 ³	22,383	6.1	424.4	424.4	424.9	0.5

¹Cross sections A through P are located within Gonzales County

²Stream distance in feet above confluence with Guadalupe River

³Width/Width within Guadalupe County

TABLE 23	FEDERAL EMERGENCY MANAGEMENT AGENCY GUADALUPE COUNTY, TEXAS AND INCORPORATED AREAS	FLOODWAY DATA	
		FLOODING SOURCE: SAN MARCOS RIVER	

Table 23: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
AI	278,326	2,151 / 670 ^c	25,608	5.3	426.1	426.1	426.8	0.7
AJ	282,667	2,358 / 707 ^c	32,199	4.2	432.3	432.3	432.6	0.3
AK	287,283	2,512 / 452 ^c	30,373	4.5	435.9	435.9	436.2	0.3
AL	289,796	1,739 / 1,301 ^c	19,199	7.1	439.0	439.0	439.3	0.3
AM	297,868	4,267 / 4,114 ^c	40,827	3.3	446.0	446.0	446.8	0.8
AN	307,716	1,366 / 343 ^c	23,099	5.9	454.4	454.4	455.2	0.8
AO	316,807	2,319 / 183 ^c	25,229	5.4	468.3	468.3	469.0	0.7
AP	330,631	2,586 / 1,268 ^c	30,268	4.5	477.3	477.3	477.7	0.4
AQ	344,181	4,832 / 242 ^c	32,545	4.2	482.7	482.7	483.1	0.4
AR	349,090	1,878 / 1,649 ^c	22,812	6.0	488.2	488.2	489.0	0.8
AS	356,498	1,353 / 130 ^c	13,705	5.9	498.5	498.5	499.2	0.7
AT	361,669	1,174 / 722 ^c	17,281	5.4	504.9	504.9	505.7	0.8
AU	368,709	697 / 578 ^c	12,624	7.6	516.4	516.4	516.5	0.1
AV	371,789	1,895 / 236 ^c	31,726	4.8	521.3	521.3	521.8	0.5
AW	374,773	3,063 / 2,804 ^c	18,919	10.3	524.9	524.9	525.3	0.4
AX	380,955	4,856 / 4,535 ^c	24,688	6.2	535.6	535.6	536.0	0.4
AY	384,394	5,460 / 5,258 ^c	35,829	4.3	541.7	541.7	542.0	0.3
AZ	387,804	4,298 / 2,564 ^c	29,992	5.1	545.0	545.0	545.2	0.2

¹Stream distance in feet above confluence with Guadalupe River

²Width/Width within Guadalupe County

TABLE 23	FEDERAL EMERGENCY MANAGEMENT AGENCY GUADALUPE COUNTY, TEXAS AND INCORPORATED AREAS	FLOODWAY DATA	
		FLOODING SOURCE: SAN MARCOS RIVER	

Table 23: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	6,500	945	14,519	1.6	559.2	559.2	560.2	1.0
B	6,600	1,027	16,011	1.5	559.4	559.4	560.4	1.0
C	17,500	828	8,992	2.5	566.5	566.5	567.5	1.0
D	17,650	769	9,954	2.2	567.0	567.0	568.0	1.0
E	38,050	463	4,621	3.2	593.6	593.6	594.6	1.0
F	43,750	452	3,581	3.5	604.5	604.5	605.5	1.0
G	43,850	434	3,768	3.4	605.0	605.0	606.0	1.0
H	57,650	604	3,450	3.4	630.3	630.3	631.3	1.0
I	57,750	925	5,986	1.9	632.5	632.5	633.5	1.0
J	57,850	707	5,573	2.1	633.4	633.4	634.4	1.0
K	71,200	596	3,061	3.4	657.8	657.8	658.8	1.0
L	79,400	191	1,235	5.1	679.9	679.9	680.9	1.0
M	89,950	179	919	5.4	716.7	716.7	717.7	1.0
N	90,050	263	1,236	4.0	717.8	717.8	718.8	1.0

¹Stream distance in feet above mouth

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY
GUADALUPE COUNTY, TEXAS
AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: SANTA CLARA CREEK

Table 23: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	13,150	392	1,946	3.1	629.7	629.7	630.7	1.0
B	13,250	562	3,911	1.6	632.4	632.4	633.4	1.0
C	13,350	934	1,222	0.8	634.3	634.3	635.3	1.0
D	17,650	411	2,087	2.4	643.2	643.2	644.2	1.0
E	22,700	100 ²	367	4.5	670.6	670.6	671.6	1.0

¹Stream distance in feet above mouth

²Discharge Contained Within the Channel

TABLE 23	FEDERAL EMERGENCY MANAGEMENT AGENCY GUADALUPE COUNTY, TEXAS AND INCORPORATED AREAS	FLOODWAY DATA
		FLOODING SOURCE: SANTA CLARA CREEK TRIBUTARY NO.1

Table 23: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	4,000	157	812	5.1	665.6	665.6	666.6	1.0

¹Stream distance in feet above mouth

TABLE 23	FEDERAL EMERGENCY MANAGEMENT AGENCY GUADALUPE COUNTY, TEXAS AND INCORPORATED AREAS	FLOODWAY DATA
		FLOODING SOURCE: SANTA CLARA CREEK TRIBUTARY NO.2

Table 23: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	24,865	860	6,017	2.5	681.7	681.7	682.7	1.0
B	25,795	850	4,925	3.1	685.4	685.4	686.2	0.8
C	26,703	701	3,571	4.2	686.9	686.9	687.9	1.0
D	27,017	935	8,570	1.8	693.0	693.0	694.0	1.0
E	27,927	1,040	9,066	1.7	693.7	693.7	694.6	0.9
F	28,050	1,110	10,238	1.5	695.5	695.5	696.5	1.0
G	28,530	1,700	12,147	1.2	695.7	695.7	696.6	0.9
H	29,542	575	3,937	3.8	697.0	697.0	697.6	0.6
I	31,287	1,004	3,620	4.2	701.0	701.0	701.8	0.8
J	32,192	1,037	3,635	4.2	706.4	706.4	706.7	0.3
K	32,883	385	1,804	5.4	708.8	708.8	709.3	0.5
L	32,939	345	2,336	5.3	710.5	710.5	710.9	0.4
M	33,981	500	1,904	3.9	714.6	714.6	715.1	0.5
N	34,887	615	1,734	4.3	720.1	720.1	720.1	0.0
O	35,846	670	2,140	3.5	725.2	725.2	726.1	0.9
P	37,273	505	1,153	7.1	734.0	734.0	734.1	0.1
Q	37,588	450	2,051	2.9	735.9	735.9	736.5	0.6
R	38,952	505	2,105	2.9	739.3	739.3	740.2	0.9

¹Stream distance in feet above mouth

TABLE 23	FEDERAL EMERGENCY MANAGEMENT AGENCY		FLOODWAY DATA	
	GUADALUPE COUNTY, TEXAS		FLOODING SOURCE: TOWN CREEK	
	AND INCORPORATED AREAS			

Table 23: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
S	40,607	480	1,863	3.2	745.6	745.6	746.3	0.7
T	41,848	550	2,007	3.0	752.3	752.3	752.6	0.3
U	42,697	480	1,439	3.0	756.1	756.1	756.5	0.4
V	42,925	320	1,231	3.5	757.6	757.6	757.8	0.2
W	44,024	235	950	4.6	762.9	762.9	763.4	0.5
X	44,956	335	1,286	3.4	766.1	766.1	766.8	0.7
Y	45,646	270	969	4.5	770.2	770.2	770.5	0.3
Z	46,447	130	426	3.3	774.9	774.9	775.3	0.4
AA	46,874	115	323	4.4	776.9	776.9	777.4	0.5
AB	47,497	145	316	4.4	781.2	781.2	781.9	0.7
AC	47,884	130	266	5.3	786.8	786.8	786.8	0.0
AD	47,937	205	562	2.5	790.3	790.3	790.4	0.1
AE	48,216	165	232	6.1	791.9	791.9	792.8	0.9
AF	50,024	48	143	9.8	814.1	814.1	814.1	0.0

¹Stream distance in feet above mouth

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY
GUADALUPE COUNTY, TEXAS
AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: TOWN CREEK

Table 23: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	3,475	338	1,936	4.1	709.5	709.5	710.4	0.9
B	3,884	311	1,249	6.4	710.6	710.6	711.5	0.9
C	4,114	313	1,239	6.4	712.5	712.5	713.0	0.5

¹Stream distance in feet above confluence with Town Creek

TABLE 23	FEDERAL EMERGENCY MANAGEMENT AGENCY GUADALUPE COUNTY, TEXAS AND INCORPORATED AREAS	FLOODWAY DATA
		FLOODING SOURCE: TOWN CREEK TRIBUTARY NO.1

Table 23: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	989	189	1,249	4.6	491.2	473.0 ²	473.3	0.3
B	2,025	87	763	7.5	491.2	480.1 ²	480.1	0.0
C	2,680	78	733	7.8	491.2	483.5 ²	483.6	0.1
D	3,895	80	365	5.3	491.2	484.7 ²	484.7	0.0
E	5,014	35	264	7.3	493.7	493.7	493.7	0.0
F	6,059	91	392	4.9	504.4	504.4	504.4	0.0
G	7,191	70	425	4.2	509.6	509.6	509.6	0.0
H	8,857	74	253	6.3	516.6	516.6	516.6	0.0
I	10,191	122	355	4.6	522.7	522.7	522.7	0.0
J	11,549	108	442	3.5	526.2	526.2	526.2	0.0
K	13,214	292	402	3.9	532.3	532.3	532.3	0.0
L	14,195	164	446	3.1	533.3	533.3	533.3	0.0
M	15,262	384	529	3.4	535.1	535.1	535.2	0.1
N	16,536	67	216	6.4	538.9	538.9	538.9	0.0
O	17,929	257	546	2.1	542.2	542.2	542.2	0.0
P	19,419	1,283	13,055	0.2	549.7	549.7	549.7	0.0
Q	20,389	1,332	10,848	0.2	549.7	549.7	549.7	0.0

¹Stream distance in feet above confluence with Guadalupe River

²Elevation Computed Without Consideration of Backwater Effects from Guadalupe River

TABLE 23	FEDERAL EMERGENCY MANAGEMENT AGENCY		FLOODWAY DATA	
	GUADALUPE COUNTY, TEXAS AND INCORPORATED AREAS		FLOODING SOURCE: WALNUT BRANCH	

Table 23: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	6,200	1,093	16,891	1.7	*	418.3	419.3	1.0
B	12,700	1,929	14,875	1.9	420.5	420.5	421.5	1.0
C	16,750	756	8,638	3.0	423.0	423.0	424.0	1.0
D	16,950	1,201	12,445	2.1	424.1	424.1	425.1	1.0
E	20,200	1,397	11,778	2.2	425.6	425.6	426.6	1.0
F	24,350	1,579	13,059	2.0	427.6	427.6	428.6	1.0
G	27,550	2,844	15,653	1.6	429.4	429.4	430.4	1.0
H	31,350	1,329	10,630	2.4	432.3	432.3	433.3	1.0
I	35,550	1,407	10,521	2.4	436.1	436.1	437.1	1.0
J	35,700	1,239	11,426	2.2	436.6	436.6	437.6	1.0
K	38,000	1,414	10,583	2.3	438.4	438.4	439.4	1.0
L	43,200	1,368	9,962	2.4	443.9	443.9	444.9	1.0
M	47,600	1,006	8,839	2.7	449.5	449.5	450.5	1.0
N	51,800	432	5,103	4.0	456.5	456.5	457.5	1.0
O	52,850	633	6,181	3.2	457.1	457.1	458.1	1.0
P	52,950	610	5,884	3.4	457.8	457.8	458.8	1.0
Q	55,900	565	5,639	3.5	462.8	462.8	463.8	1.0
R	56,250	1,093	8,933	2.2	463.0	463.0	464.0	1.0

¹Stream distance in feet above mouth

*Data Not Available

TABLE 23	FEDERAL EMERGENCY MANAGEMENT AGENCY GUADALUPE COUNTY, TEXAS AND INCORPORATED AREAS	FLOODWAY DATA
		FLOODING SOURCE: YORK CREEK

Table 23: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
S	56,350	1,075	8,417	2.3	463.7	463.7	464.7	1.0
T	58,800	902	6,957	2.8	467.0	467.0	468.0	1.0
U	63,750	1,503	7,544	2.5	473.5	473.5	474.5	1.0
V	70,100	752	5,845	1.8	482.1	482.1	483.1	1.0
W	70,200	809	6,588	2.5	482.7	482.7	483.7	1.0
X	76,400	1,011	7,234	2.4	490.8	490.8	491.8	1.0
Y	84,000	523	4,319	3.8	500.9	500.9	501.9	1.0
Z	85,350	717	5,823	2.8	502.2	502.2	503.2	1.0
AA	85,550	712	5,139	3.1	502.3	502.3	503.3	1.0
AB	91,500	1,144	5,894	2.7	512.4	512.4	513.4	1.0
AC	99,900	808	5,084	2.8	526.6	526.6	527.6	1.0
AD	100,550	1,019	6,457	2.2	527.4	527.4	528.4	1.0
AE	100,650	980	5,706	2.4	527.9	527.9	528.9	1.0
AF	103,650	1,070	5,662	2.4	533.4	533.4	534.4	1.0
AG	106,300	898	4,174	2.6	538.6	538.6	539.6	1.0
AH	108,500	429	3,279	3.7	544.5	544.5	545.5	1.0

¹Stream distance in feet above mouth

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY
GUADALUPE COUNTY, TEXAS
AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: YORK CREEK