FINAL ENVIRONMENTAL ASSESSMENT

WEST DIETZ CREEK DRAINAGE IMPROVEMENT PROJECT

CITY OF SCHERTZ, GUADALUPE COUNTY, TEXAS

Prepared for
FEMA Region VI
Federal Regional Center
800 North Loop 288
Denton, TX 76209

September 3, 2002

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89-FEMA4065.00

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CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	carbon monoxide
CAA	Clean Air Act
CWA	Clean Water Act
dB	decibels
DEM	Texas Division of Emergency Management
DNL	Day-Night Average Sound Level
EA	Environmental Assessment
EARDC	Edward Aquifer Research and Data Center
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHBM	Flood Hazard Boundary Map
FIRM	Flood Insurance Rate Map
FM	Farm to Market Road
FPPA	Farmland Protection Policy Act
GVEC	Guadalupe Valley Electric Co-op
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Historical Commission
NCA	Noise Control Act
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NGVD	National Geodetic Vertical Datum
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollution Discharge Elimination System
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
OAQPS	Office of Air Quality Planning and Standards
OSHA	Occupational Safety and Health Administration
O_3	Ozone
Pb	lead
P.L.	Public Law
PM_{10}	particulate matter less than 10 microns
ROW	Right of Way
SHPO	State Historic Preservation Office
SO_2	sulfur dioxide
THC	Texas Historic Commission

TPWD	Texas Parks and Wildlife Department
URS	URS Group, Inc.
USACE	United States Army Corps of Engineers
U.S.C.	United States Code
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
VOCs	Volatile Organic Compounds
WGRFC	West Gulf River Forecast Center

1.1 PROJECT AUTHORITY

Pursuant to Public Law 106-31 (P.L. 106-31), the Emergency Supplemental Appropriations Act for Fiscal Year 1999, the Federal Emergency Management Agency (FEMA) received additional funding to address disaster-related needs not met by Federal disaster relief programs for communities that experienced declared major disasters in Fiscal Years 1998 and 1999. The State of Texas was awarded $42,108,000 for this purpose; the funding was specifically designated for project needs resulting from heavy rains and flooding associated with the disaster, FEMA-1257-DR-TX. As enabled by P.L. 106-31, the City of Schertz has applied for funding from FEMA through the Texas Division of Emergency Management (DEM) to implement specific measures to mitigate potential damages and losses to human health and property that could result from future flooding in the City of Schertz, Texas.

The National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 Code of Federal Regulations [CFR] Parts 1500 through 1508), and FEMA regulations for NEPA compliance (44 CFR Part 10) direct FEMA and other federal agencies to fully understand, and to take into consideration during decision-making, the environmental consequences of proposed federal actions (projects). In compliance with NEPA and its implementing regulations, FEMA has prepared this Environmental Assessment (EA) to analyze potential environmental impacts associated with several alternatives to meet the stated purpose and need.

1.2 PROJECT LOCATION

The City of Schertz (City) is located approximately 20 miles northeast of the City of San Antonio and 1.5 miles north of Cibolo Creek (Figure 1). The City has a population of approximately 18,694 (U.S. Census Bureau, 2000). The existing project site conditions include a combination of existing improved drainage channels and unimproved ditches associated with West Dietz Creek within the City (Figure 2). The area surrounding the proposed project site is mainly residential and agricultural land that contains some areas of less disturbed, shrub land.

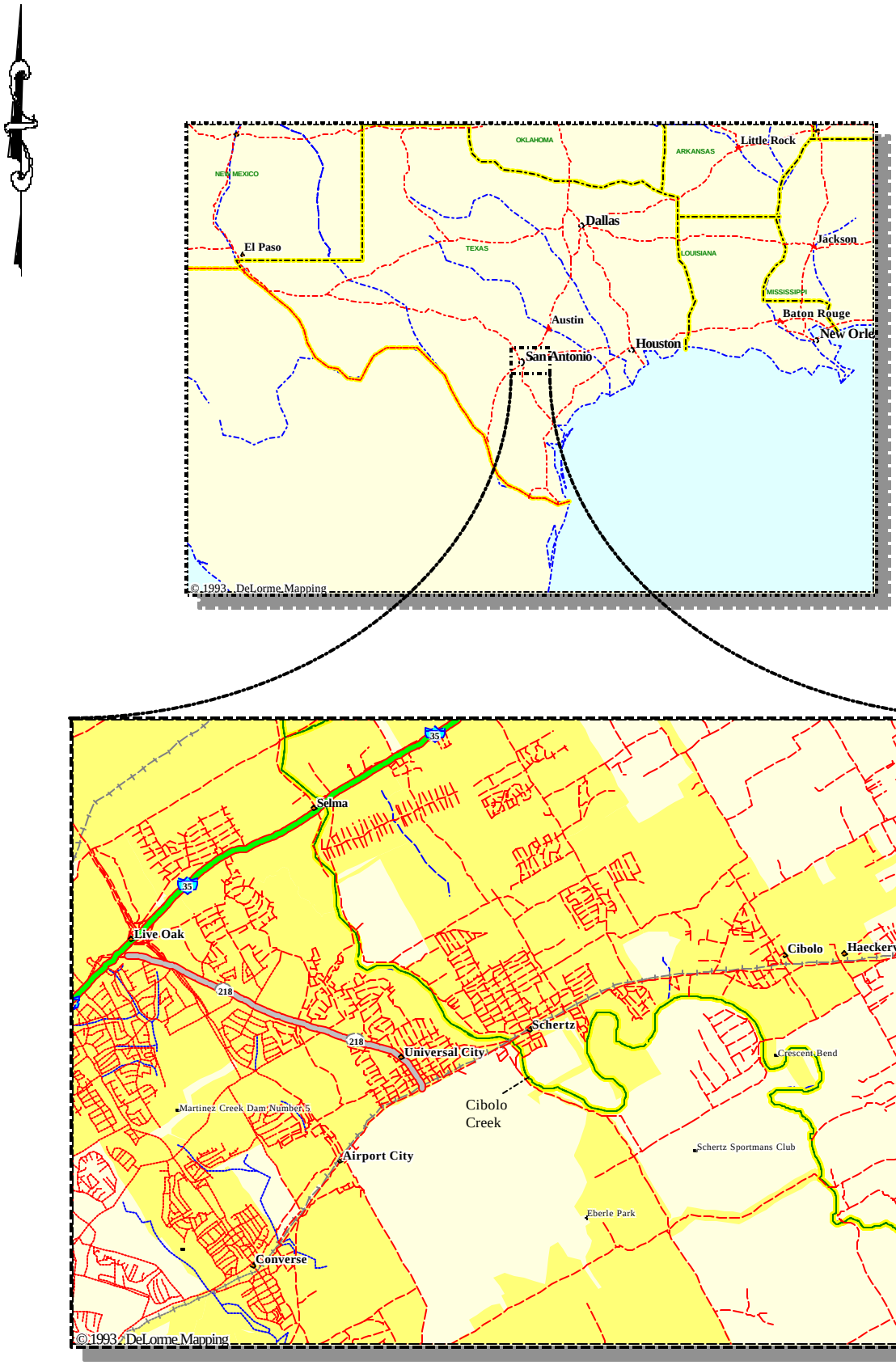
1.3 PURPOSE AND NEED

The State of Texas, Guadalupe County, and the City of Schertz have historically high occurrences of flooding, as documented in the official Texas Significant Flood database maintained by the National Oceanic and Atmospheric Administration (NOAA) through the West Gulf River Forecast Center (WGRFC). On October 17, 1998 West Dietz Creek overtopped its banks, inundating and blocking access to 80 percent of the City. Water levels in the channel of West Dietz Creek crested 4 feet to 6 feet over roadways and drainage structures. All emergency services were completely shut down for six to eight hours.

West Dietz Creek is an intermittent stream that receives storm water from the City, and remains dry except during or immediately following significant rain events. West Dietz Creek has been improved between Farm to Market Road (FM) 3009 and Elbel Road. However, West Dietz Creek only has the capacity to accommodate a 5-year storm event. As recently as August 2001 and October 2001, the City experienced flooding which jeopardized lives and property. At West Dietz Creek's current capacity, a storm greater than a 5-year event would lead to extensive

flooding causing structural damages to buildings in the City and the closure of roadways until the waters either recede or infiltrate into the ground.

In response to the high risk to human health and safety associated with the occurrence of flooding in the City, the implementation of specific measures to decrease the frequency and extent of flooding has been proposed. The purpose and need of the proposed project would be to provide flood protection for the City for storm events up to, and including, a 100-year storm event.



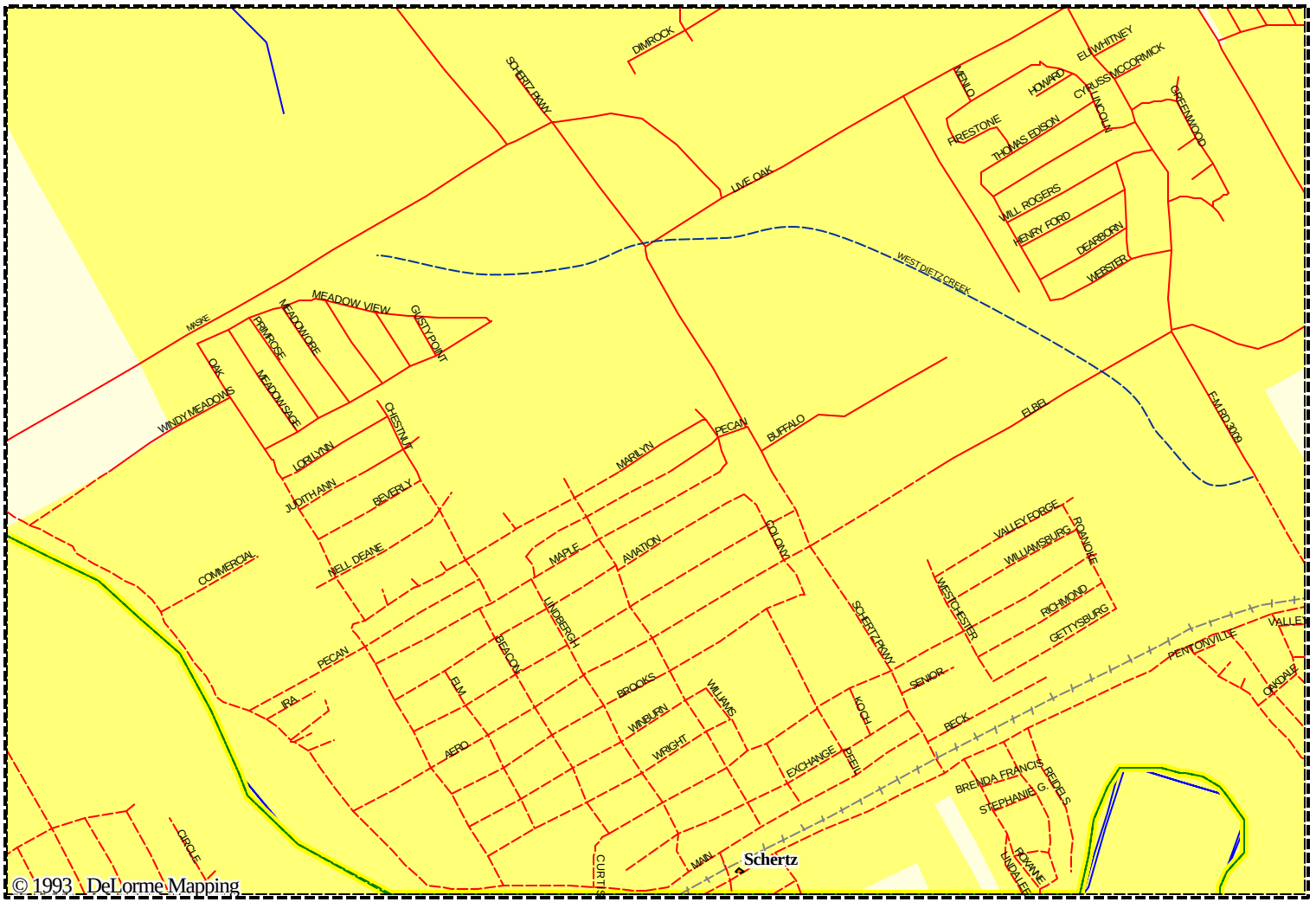
CLIENT	FEMA			
PROJ	West Dietz Creek Drainage Improvements, City of Schertz, TX			
REVISION NO		DES BY		
SCALE	NOT TO SCALE	DR BY	DK	8-28-01
FILE	REGIONAL MAP.PPT	CHK BY	RT	8-28-01

TITLE **REGIONAL MAP**

URS

PROJ NO 89-FEMA4065

FIGURE **1**



CLIENT	FEMA			
PROJ	City of Schertz, TX, West Dietz Creek Drainage			
REVISION NO		DES BY		
SCALE	NOT TO SCALE	DR BY	DK	8-28-01
FILE	VICINITY MAP.PPT	CHK BY	RT	8-28-01

TITLE **VICINITY MAP**

URS

PROJ NO 89-FEMA4065

FIGURE **2**

2.1 ALTERNATIVE 1 – NO ACTION ALTERNATIVE

No action would be taken to modify the capacity of West Dietz Creek; risks to human health and safety associated with flooding events would not be mitigated through this project.

2.2 ALTERNATIVE 2 – IMPROVE WEST DIETZ CREEK – 100-YEAR DESIGN (PROPOSED ACTION)

The proposed channel improvement project parallels the West Dietz Creek natural drainage path starting at FM 3009 and ending at Maske Road in the City, Guadalupe County, Texas (see Figure 2). FM 3009 is a four-lane road that runs north to south immediately adjacent to the eastern perimeter of the proposed project start. From FM 3009 the project heads west following the natural drainage of West Dietz Creek and crosses Elbel Road, a four-lane road that runs east to west across the proposed project. The project area continues in a west to northwesterly fashion, crossing under Schertz Parkway (a north-south highway) and continues west to the project terminus near Maske Road. As stated in Section 1.3, West Dietz Creek is currently an intermittent stream that receives storm water from the City. The creek has been improved between FM 3009 and Elbel Road. However, the creek only has a capacity for a 5-year storm event.

Under the Proposed Action Alternative, the City would excavate West Dietz Creek to bottom widths ranging from approximately 120 feet to 300 feet. As recommended by the Texas Parks and Wildlife Department (TPWD), the improved earthen channel would be grass-lined with side slopes equal to a 3 to 1 ratio and a bottom depth ranging from 4 feet to 8 feet. The seven existing 4 foot by 8 foot multi-box culverts at Elbel Road would be replaced by sixteen multi-box culverts that are10 feet by 8 feet. These sixteen multi-box culverts would require parallel headwalls and concrete riprap aprons. Velocity dissipaters would be installed at intervals along the channel to decrease the water velocity of creek flows, which would in turn decrease the erosion potential. The improvements would be designed to accommodate the storage and movement of stormwater from a 100-year flood event. A preliminary conceptual design provided by the City is shown in Figure 3.

Based on the preliminary design and topography of the project site, it is estimated that the deepest excavation would be to a depth of approximately 8 feet. Approximately 708,303 cubic yards of soil would be removed and 53 acres of land would be converted from its current use to widened and improved channel. This soil would be distributed adjacent to the channel improvement and contoured to allow surface runoff to flow to the channel. Standard construction equipment would be used for project activities. Equipment could include the use of a grader, Caterpillar excavator, backhoe, crane-trucks, concrete mixers, and dump trucks. Equipment staging areas would be located along the existing West Dietz channel in maintained grass fields. Following construction activities, exposed, compacted soils would be aerated and re-vegetated with native flora. It is estimated that completion of the Proposed Action would take one year.

The City has modeled the Proposed Action after a previously constructed grass-lined drainage channel named East Dietz Creek. Both the currently improved East Dietz Creek channel and the improved West Dietz Creek channels would continue to converge east of FM 3009 to form Dietz Creek, which has also been channelized. East Dietz Creek was modified prior to the 1998 flood

to receive waters from a 100-year flood and slowly release the water into Cibolo Creek as waters receded downstream. The Proposed Action would retain floodwaters from city runoff for storm events equal to or less than a 100-year event and accommodate the backwater effect from Cibolo Creek until flood waters recede. Maintenance for the Proposed Action would also be similar to the yearly maintenance procedures for East Dietz Creek. Maintenance would consist of flood debris removal and the yearly removal of sediment build up and grass around the velocity dissipaters. Flood debris, excess sediments, and vegetation would be sent to a Class 4 landfill, which is operated by the City. Since its modification, East Dietz Creek has not needed major repair work. Therefore, it is anticipated that the proposed modifications to West Dietz Creek would be similar regarding future maintenance requirements.

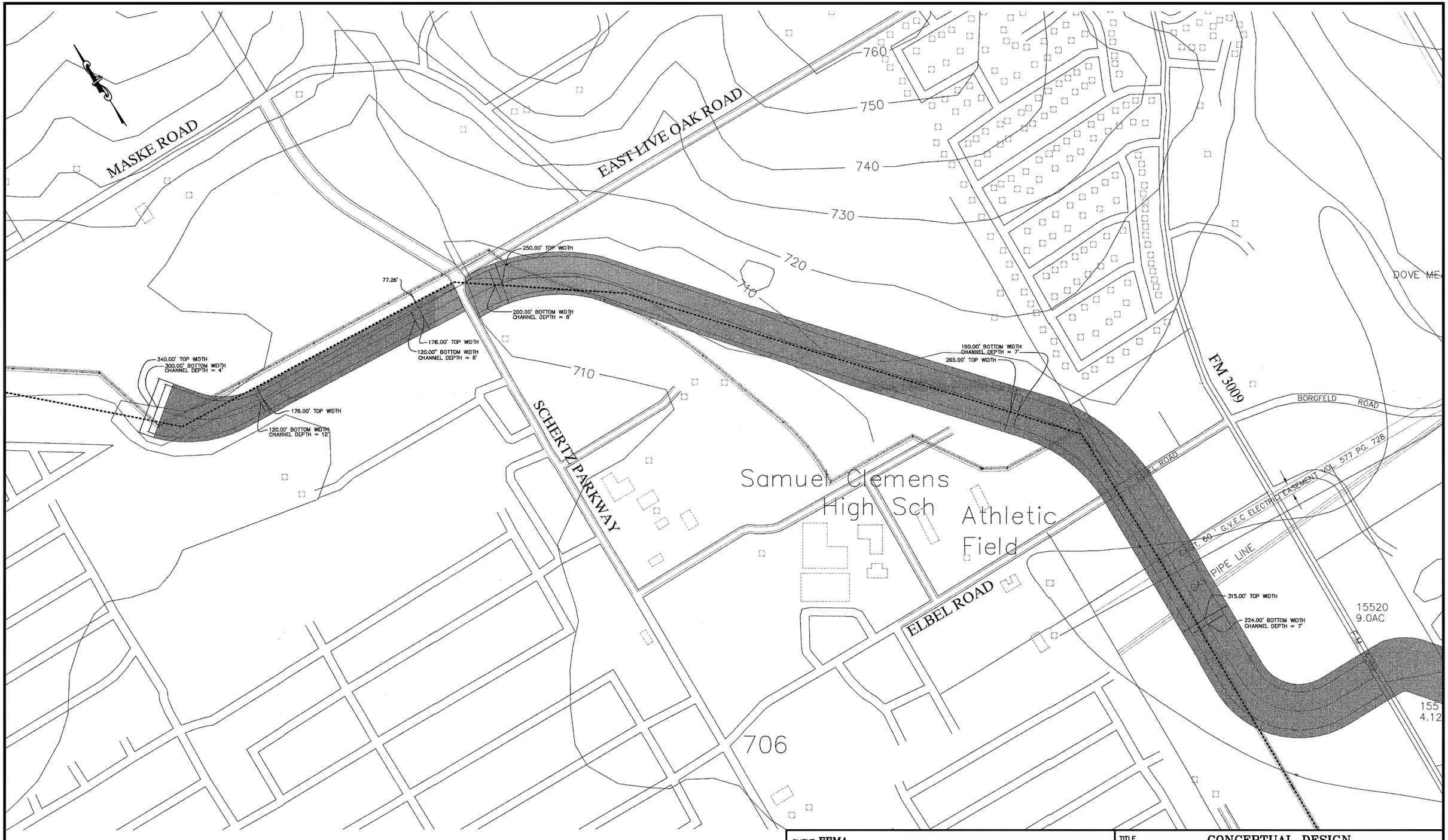
2.3 ALTERNATIVE 3 – IMPROVE WEST DIETZ CREEK – 50-YEAR DESIGN

This Alternative would be similar to the Proposed Action except that the design would accommodate the 50-year flood event rather than the 100-year flood design. This Alternative would involve the excavation of West Dietz Creek to bottom widths ranging from 120 feet to 240 feet. The side slopes would be constructed at a ratio of 3 to 1, and the depth would range from 3.2 feet to 6.5 feet. The seven existing 4 foot by 8 foot multi-box culverts at Elbel Road would be replaced with approximately ten multi-box culverts designed to be 10 feet by 8 feet to allow for the conveyance of a 50-year flood event. Velocity dissipaters would be installed at intervals along the channel to reduce creek flow velocities and lessen the potential for erosion. Approximately 500,000 cubic yards of soil would be removed and 38 acres of land would be converted from its current use to an improved channel. Equipment could include the use of a grader, Caterpillar excavator, backhoe, crane-trucks, concrete mixers, and dump trucks. Equipment staging areas would be located along the existing West Dietz channel in maintained grass fields. Following construction activities, exposed, compacted soils would be aerated and re-vegetated with native vegetation as appropriate. Maintenance would consist of flood debris removal and the yearly removal of sediment build up and grass around the velocity dissipaters. Flood debris, excess sediments, and vegetation would be sent to a Class 4 landfill, which is operated by the City.

2.4 OTHER PRELIMINARY ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

2.4.1 Acquisition and Relocation of Structures Outside of 100-year Floodplain

This Alternative would involve the acquisition and relocation of existing structures from their present location to areas outside of the 100-year floodplain including the Samuel Clemens High School, the City Municipal Complex Facilities, the Guadalupe Annex facilities, and approximately 50 to 100 residential structures. This Alternative was dismissed because of the complex planning requirements, logistics, and economic infeasibility of acquiring, demolishing, and rebuilding such a vast number of structures outside of the 100-year floodplain.



CLIENT **FEMA**				TITLE **CONCEPTUAL DESIGN**
PROJ **City of Schertz, West Dietz Creek Drainage Improvements**				
REVISION NO		DES BY		URS
SCALE	AS SHOWN	DR BY	DK	8-29-01
FILE	CONCEPTUAL MAP.dwg	CHK BY	RT	8-29-01

PROJ NO **89-FEMA4065**

FIGURE **3**

3.1 PHYSICAL ENVIRONMENT

3.1.1 Geology, Seismicity, and Soils

The City is located 20 miles east of the City of San Antonio, Texas. Cibolo Creek flows approximately 1.5 miles south of the proposed project area. The elevation of the proposed project site is approximately 700 feet above National Geodetic Vertical Datum (NGVD). Most of this area can be characterized as previously disturbed or urbanized.

The dominant geologic feature in the area is the Balcones Fault Zone, an inactive geologic fault zone several miles wide that consists of several faultings, most of which dip to the east. The Balcones Fault Zone extends in a curved line across Texas from Del Rio to the Red River. The Balcones escarpment is visible eastward from Del Rio, where it is about 1,000 feet high, and northeastward from San Antonio to Austin, where it is about 300 feet high. The escarpment appears from the plains as a range of wooded hills, and separates the Edwards Plateau in the west from the Coastal Plains. The Balcones Fault Zone was formed under conditions of strain during the Tertiary era, when downwarping occurred near the Gulf Coast with a moderate uplift inland.

Executive Order (EO) 12699, Seismic Safety of Federal and Federally Assisted or Regulated New Building Construction requires that new buildings constructed for lease to the Government are designed and constructed in accordance with appropriate seismic design and construction standards. It also requires that each federal agency assisting in the financing through Federal grants or loans, or guaranteeing the financing through loan or mortgage insurance programs of newly constructed buildings initiate a plan to assure appropriated consideration of seismic safety.

The characteristic soils in the project area consist of Houston Black, Barbarosa, Sunev, and Austin soils. Houston Black soils are very deep, moderately well drained, and very slowly permeable soils. Barbarosa soils are deep, well drained, and slowly permeable soils. Sunev soils are very deep, well drained, and moderately permeable soils. Austin soils are moderately deep, well drained, and moderately slowly permeable soils (USDA, 2001).

The Farmland Protection Policy Act (FPPA) (P.L. 97-98, Sec. 1539-1549; 7 U.S.C. 4201, et seq.), which states that federal agencies must "minimize the extent to which federal programs contribute to the unnecessary conversion of farmland to nonagricultural uses…" was considered in this EA. On March 22, 2002, the Natural Resource Conservation Service (NRCS) was contacted to determine the potential impacts to prime farmlands as a result of both the 100-year Design and the 50-year Design. The City and URS Group, Inc. (URS) staff completed an AD-1006 form, which assists NRCS in determining these impacts (Appendix C). As a result of the AD-1006 form, NRCS sent a letter dated March 22, 2002, stating that the proposed project need not be given further consideration for protection, and no additional sites need to be evaluated (Appendix C). Therefore, both the 100-year Design and the 50-year Design are exempt from this Act.

Alternative 1 – No Action Alternative

Under the No Action Alternative, the geology, seismicity, and soils at the site would not be affected because no construction would occur. However, flooding would continue to occur for storm events exceeding 5-year levels, with floodwater runoff potentially causing additional soil

erosion within the channel and overbank areas, resulting in soil deposition into creek and overland flows.

Alternative 2 – Improve West Dietz Creek – 100-year Design (Proposed Action)

The Proposed Action is not anticipated to result in adverse impacts to geology, seismicity and soils. As stated in Section 2.2, approximately 708,303 cubic yards of soil would be excavated and distributed adjacent to the channel improvement and contoured to allow surface water runoff to flow into the channel. Prior to construction activities, the City would conduct a geotechnical investigation to determine the actual extent of soil excavation and to guide project design.

The Proposed Action does not involve the construction or lease of a human occupied building. Therefore, Executive Order (EO) 12699, Seismic Safety of Federal and Federally Assisted or Regulated New Building Construction does not apply.

The use of construction equipment, along with the ground disturbing phases of the project may have the potential to result in temporary soil erosion. If project activities include the stockpiling of soil or fill on-site, the City would cover these soils to help prevent fugitive dust and soil erosion. The City would use temporary erosion and sediment controls, including installation silt fences and/or hay bales, hydro-seeding, and the staging of construction equipment in existing developed or previously disturbed areas, such as paved parking lots. Bare soils would be re-vegetated with native grasses after construction to prevent future soil erosion. In addition, the City plans to use concrete velocity dissipaters at intervals along the channel to reduce water velocities, thereby reducing the potential for sedimentation and soil erosion in the creek channel during floods.

Alternative 3 – Improve West Dietz Creek – 50-year Design

This Alternative is not anticipated to result in adverse impacts to geology, seismicity and soils. As stated in Section 2.3, approximately 500,000 cubic yards of soil would be excavated and distributed adjacent to the channel improvement and contoured to allow surface water runoff to flow into the channel. Prior to construction activities, the City would conduct a geotechnical investigation to determine the actual extent of soil excavation and to guide project design.

This Alternative does not involve the construction or lease of a human occupied building. Therefore, Executive Order (EO) 12699, Seismic Safety of Federal and Federally Assisted or Regulated New Building Construction does not apply.

The use of construction equipment, along with the ground disturbing phases of the project, may have the potential to result in temporary soil erosion. If project activities include the stockpiling of soil or fill on-site, the City would cover these soils to help prevent fugitive dust and soil erosion. The City would use temporary erosion and sediment controls, including installation silt fences and/or hay bales, hydro-seeding, and the staging of construction equipment in existing developed or previously disturbed areas, such as paved parking lots. Bare soils would be re-vegetated with native grasses after construction to prevent future soil erosion. In addition, the City plans to use concrete velocity dissipaters at intervals along the channel to reduce water velocities, thereby reducing the potential for sedimentation and soil erosion in the creek channel during floods. Although soil disturbance would be reduced by 20 percent due to a smaller project area and less required excavation, flooding would continue in the City from storms exceeding the

50-year storm event. This could result in sedimentation and soil erosion of the existing drainage channel and downstream.

3.1.2 Water Resources and Water Quality

During a site reconnaissance conducted by URS staff on August 6, 2001, no surface water sources were encountered along the proposed project route. West Dietz Creek is an intermittent creek and only contains water periodically, either during or immediately following a storm event. Runoff from storm events generally drains south as sheet-flow. West Dietz Creek drains south and joins East Dietz Creek east of FM 3009 to form Dietz Creek. Dietz Creek then flows south approximately three quarters of a mile into the Cibolo Creek. A backwater effect from Cibolo Creek does not allow stormwater in Schertz to drain effectively to Cibolo Creek. The improvement of West Dietz Creek would effectively store and gradually convey water from a 100-year storm to Cibolo Creek without putting the City or downstream communities at risk from flooding. The hydraulic analysis reports may be obtained for review by contacting Ryan Thompson, URS Group, Inc., 200 Orchard Ridge Drive, Suite 101, Gaithersburg, Maryland 20878, (310) 670-3387.

The City's drinking water is pumped and transported from the Edwards Aquifer, which is located approximately 10 miles to the northwest of Schertz. According to the Edwards Aquifer Research and Data Center (EARDC), the Edwards Aquifer extends beneath the major part of five counties: namely, Uvalde, Medina, Bexar, Comal, and Hays Counties (EARDC, 2001). The Aquifer is a unique, world-renowned karst aquifer consisting of porous, permeable limestone that supplies water to 1.5 million people in the San Antonio area and neighboring cities (EARDC, 2001). Springs from the Edwards Aquifer feed the Comal and San Marcos Rivers, which provide base flow into the Guadalupe River system. The proposed project is not within the Edwards Aquifer recharge zone. Therefore, neither the 100-year Design nor the 50-year Design would affect the Edwards Aquifer recharge zone or any other part of the aquifer system, and no aquifer water quality permits are required (Mauser, Pers. Comm., 2001).

Water quality for West Dietz Creek and the surrounding watershed was not available from the Environmental Protection Agency (EPA) or Texas Natural Resource Conservation Commission (TNRCC). Water quality data is available for the watersheds west and east of the project area. According to the EPA, the Upper San Antonio watershed to the west is considered to have "less serious water quality problems and a low vulnerability to stressors" and the Lower San Antonio watershed to the east is considered to have "better water quality and a low vulnerability to stressors." It has been inferred that the water quality in the project area is similar to the surrounding watersheds.

Alternative 1 – No Action Alternative

Implementation of the No Action Alternative would not have an effect on surface or ground water resources. However, flooding would continue to occur that could cause additional soil erosion and sedimentation in the existing drainage channels.

Alternative 2 – Improve West Dietz Creek – 100-year Design (Proposed Action)

Construction of the improved drainage channel is not anticipated to impact or affect water quality, surface water, or ground water. Sedimentation and associated pollutants may enter the stormwater discharge pathway as soils are disturbed during the construction process. However, implementation of soil erosion mitigation measures identified in Section 3.1.1 would reduce the potential for sediments and pollutants associated with construction to enter stormwater flow. The improved channel would store and gradually convey water associated with a 100-year storm event to Cibolo Creek as floodwaters in Cibolo Creek gradually recede to achieve the primary goal of reducing flooding in Schertz.

The backwater effect from Cibolo Creek does not allow stormwater in the City to drain effectively, and the improvement of West Dietz Creek would functionally store and gradually convey water from a 100-year storm to Cibolo Creek. The backwater effects and the flooding that can occur along Cibolo Creek during a storm event would dwarf any water quality effects the Proposed Action would have on East Dietz Creek, Dietz Creek or Cibolo Creek. Overall, the water velocity in Cibolo Creek would increase by eight feet per second. Mitigation measures such as velocity dissipaters and grass lining would reduce erosion and sedimentation throughout the project area and downstream. Therefore, it is anticipated that there would be no impact to water quality.

In compliance with the Clean Water Act (CWA) (33 U.S.C. 1251 et seq.) and the Texas Clean Water Code, a National Pollution Discharge Elimination System (NPDES) permit is required for construction activities disturbing more than 5 acres. A NPDES permit would be required for this project because project activities would disturb approximately 53 acres of land. The applicant would obtain the NPDES permit from the Environmental Protection Agency (EPA) Region 6 prior to construction.

In compliance with Section 404 of the CWA, the United States Army Corps of Engineers (USACE) was consulted in a letter dated August 20, 2001. In a response letter dated February 22, 2002, USACE states that no permits are needed for the proposed project (Appendix C).

Alternative 3 – Improve West Dietz Creek – 50-year Design

Construction of this Alternative is not anticipated to affect water quality, surface water, or ground water. Sedimentation and associated pollutants may enter the stormwater discharge pathway as soils are disturbed during the construction process. However, implementation of soil erosion mitigation measures identified in Section 3.1.1 would reduce the potential for sediments and pollutants associated with construction to enter stormwater flow. The improved channel would store and gradually convey water associated with a 50-year storm event to Cibolo Creek as floodwaters gradually recede to achieve the primary goal of reducing flooding in Schertz.

The backwater effect from Cibolo Creek does not allow stormwater in the City to drain effectively, and the improvement of West Dietz Creek would functionally store and gradually convey water from a 50-year storm to Cibolo Creek. The backwater effects and the flooding that can occur along Cibolo Creek during a storm event would dwarf any water quality effects this Alternative would have on East Dietz Creek, Dietz Creek or Cibolo Creek. Mitigation measures such as velocity dissipaters and grass lining would reduce erosion and sedimentation throughout

the project area and downstream. Therefore, it is anticipated that there would be no impact to water quality.

In compliance with the CWA and the Texas Clean Water Code, a NPDES permit is required for construction activities disturbing more than 5 acres. A NPDES permit would be required for this project because project activities would disturb approximately 38 acres of land. The NPDES permit would be obtained from the EPA Region 6 before construction begins.

In compliance with Section 404 of the CWA, the USACE was consulted in a letter dated August 20, 2001. In a response letter dated February 22, 2002, USACE states that no permits are needed for the proposed project (Appendix C).

However, under this Alternative, flooding would continue in the City for flood events resulting from storms greater than the 50-year storm, potentially resulting in continued sedimentation and erosion of existing drainage channels and downstream.

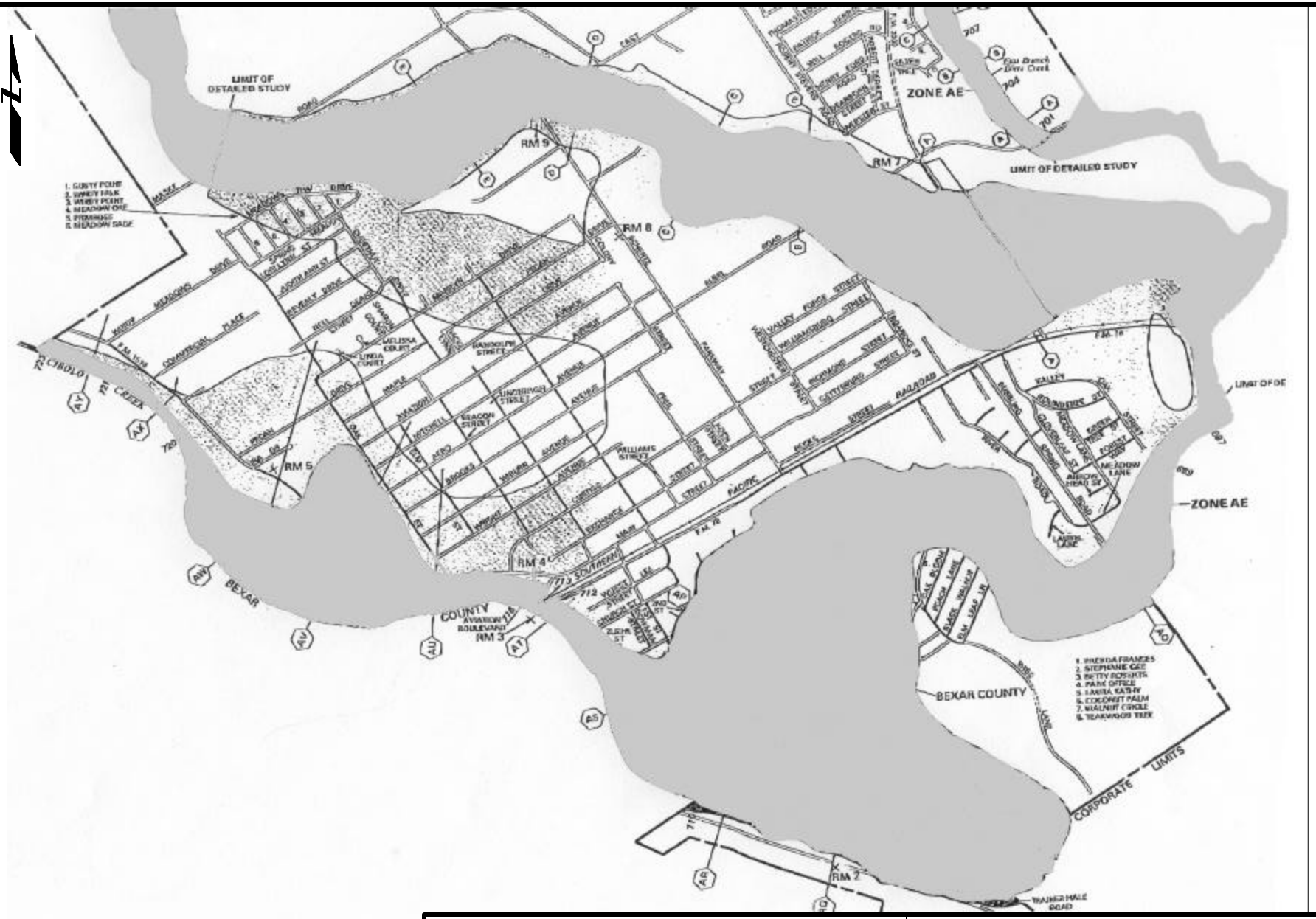
3.1.3 Floodplain Management (Executive Order 11988)

Floodplains generally refer to 100-year floodplains as determined by FEMA. They are shown on Flood Insurance Rate Maps (FIRMs) or Flood Hazard Boundary Maps (FHBMs) for all communities that are members of the National Flood Insurance Program (NFIP).

The 100-year floodplain designates the area inundated during a storm as having a 1 percent chance of occurring in any given year. FEMA also identifies the 500-year floodplain, which designates the area inundated during a storm as having a 0.2 percent chance of occurring in any given year.

EO 11988 (Floodplain Management) requires federal agencies to minimize occupancy and modification to the floodplain. Specifically, EO 11988 prohibits federal agencies from funding construction in the 100-year floodplain unless there are no practicable alternatives. FEMA's regulations for complying with EO 11988 are promulgated in 44 CFR Part 9. FEMA applies the Eight-Step Decision-Making Process as required by regulation to meet the requirements of EO 11988. A step-by-step analysis of the Eight-Step Decision-Making Process, as applied to this EA, is included in Appendix B.

According to FIRM, Community Panel Number 480269 0015 D, effective July 17 1995, the project is located within the regulated 100-year floodplain (Figure 4). Approximately 367.31 acres are within the floodplain, 53 acres of which are within the project area. However, activities associated with the No Action, Proposed Action, and 50-year Design Alternatives are not expected to increase downstream flooding or otherwise affect the regulated floodplain. The Proposed Action would reduce the 100-year floodplain and effectively remove approximately 100 structures from the floodplain, which would have a beneficial effect. The 50-year Design would remove very few, if any, structures from the 100-year floodplain. In a letter dated April 28, 2001, the TNRCC stated that the proposed construction within the floodplain must be in compliance with the City's Flood Damage Prevention Ordinance. The City must be in compliance with its ordinance.



CLIENT	FEMA	TITLE	CITY OF SCHERTZ FIRM
PROJ	City of Schertz EA		
REVISION NO		DES BY	
SCALE	NOT TO SCALE	DR BY	BR
FILE	I:/89-FENA4065.00/Reports/drawings/schertz/Shertz EA.PPT	CHK BY	TH
	URS	PROJ NO	89-FEMA4065
		FIGURE	4

Given the purpose and need of the project as described in Section 2.0, it is essential that West Dietz Creek undergo modification to control local flooding. Although the 100-year Design and 50-year Design are located in the 100-year floodplain, this location is essential to meet the purpose and need. In this light, proposing project locations outside of the 100-year floodplain would be impracticable and ineffective. Therefore, the 100-year Design and the 50-year Design comply with EO 11988.

3.1.4 Air Quality

The Clean Air Act (CAA), as amended, requires the EPA to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. The CAA established two types of national air quality standards. Primary standards set limits to protect public health, including the health of "sensitive" populations, such as asthmatics, children, and the elderly; and secondary standards that set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, or buildings.

The EPA Office of Air Quality Planning and Standards (OAQPS) has set NAAQS for six principal pollutants. These are called "criteria" pollutants and include: carbon monoxide (CO), nitrogen dioxide (NO_2), Ozone (O_3), lead (Pb), particulate matter less than 10 microns (PM_{10}), and sulfur dioxide (SO_2). The City is in attainment for all six of these criteria pollutants (EPA, 2001).

Alternative 1 – No Action Alternative

The No Action Alternative would not affect air quality because no construction activities would occur under this alternative.

Alternative 2 – Improve West Dietz Creek – 100-year Design (Proposed Action)

Construction activities, as would occur under the Proposed Action, are a potential source of fugitive dust emissions and may have temporary impacts to local air quality. Emissions during construction would be associated with ground excavation and earth moving activities. Dust emissions can vary greatly from day to day, depending on the level of activity. To reduce temporary impacts to air quality, the City would be required to water down construction areas when necessary. Emissions from fuel-burning internal combustion engines (e.g., heavy equipment and earthmoving machinery) could temporarily increase the levels of some of the criteria pollutants, including CO, NO_2, O_3, PM_{10}, and non-criteria pollutants such as Volatile Organic Compounds (VOCs). To reduce the emission of criteria pollutants, fuel-burning equipment running times would be kept to a minimum and engines would be properly maintained. No long-term effects to air quality are anticipated as a result of the Proposed Action.

Alternative 3 – Improve West Dietz Creek – 50-year Design

Construction activities, as would occur under this Alternative, are a potential source of fugitive dust emissions and may have temporary impacts to local air quality. Emissions during construction would be associated with ground excavation and earth moving activities. Dust emissions can vary greatly from day to day, depending on the level of activity. To reduce

temporary impacts to air quality, the City would be required to water down construction areas when necessary. Emissions from fuel-burning internal combustion engines (e.g., heavy equipment and earthmoving machinery) could temporarily increase the levels of some of the criteria pollutants, including CO, NO_2, O_3, PM_{10}, and non-criteria pollutants such as VOCs. To reduce the emission of criteria pollutants, fuel-burning equipment running times would be kept to a minimum and engines would be properly maintained. No long-term effects to air quality are anticipated as a result of this Alternative.

3.2 BIOLOGICAL ENVIRONMENT

3.2.1 Terrestrial and Aquatic Environment

The project area is contained within the city limits of Schertz (see Figure 2). The majority of the proposed project area is surrounded by residential development. Agricultural use is more prevalent at the northern end of the project area. The proposed project would be located in the existing West Dietz Creek drainage system. The southern portion of this drainage system is currently an improved channel with an approximate bottom width of 40 feet, 3 to 1 side slopes, and vegetation consisting primarily of a native grass, Johnson Grass (*Sorghum halepense*) and Bermuda Grass (*Cynodon dactylon*). Along the existing channel, two 90-degree turns are partially lined with concrete. Trees and shrubs are abundant along the improved channel and include: mesquite trees (*Prosopis pubescens*), hackberry (*Celtis occidentalis*), white oak (*Quercus alba*), pecan (*Carya illinoensis*), giant ragweed (*Ambrosia trifida*), and sandbur (*Cenchrus tribuloides*). Northward, the existing channel consists of a natural drainage way and small agricultural ditches that are vegetated with the same native grasses, weeds, trees, and shrubs.

URS staff did not observe any wildlife during its August 6, 2001 site visit. Transient wildlife from the undeveloped areas surrounding the proposed project area may occur in the project area. Wildlife may include small mammals, songbirds, and reptiles consistent with urban and rural habitats. The Migratory Bird Treaty Act (MBTA) prohibits the taking of migratory birds, nests, and eggs, except as permitted. The U.S. Fish and Wildlife (USFWS) did not comment on migratory birds or the MBTA. In addition, in a letter dated October 30, 2001, TPWD stated that since "the areas have already been cleared, impacts to fish and wildlife habitat will be minimal" and therefore effects to wildlife or migratory birds will not be discussed further in this EA (See Appendix C).

As stated in Section 1.3, West Dietz Creek is an intermittent stream that receives storm water from the City, and remains dry except during or immediately following significant rain events. Conditions in West Dietz Creek do not sustain any permanent aquatic species such as macroinvertebrates or fishes. Although URS staff did not observe standing water during the site visit, substantial rainfalls could produce temporary aquatic environments in natural depressions throughout the project area. However, any establishment of aquatic life would naturally experience defaunation as the pools dried. Temporary aquatic life may repopulate the depressions each time substantial rains occurred but these species would not consist of sensitive species or species of concern (see Section 3.2.3, Threatened and Endangered Species). Therefore, the proposed project would not impact this natural life cycle of the aquatic environment.

Alternative 1 - No Action Alternative

This Alternative would not result in any alteration to the existing resources. As such, no impacts to terrestrial resources would occur.

Alternative 2 – Improve West Dietz Creek – 100-year Design (Proposed Action)

Vegetation would be removed during the construction of the drainage channel. Most of the trees removed would be hackberry and mesquite trees. Where feasible, the City proposes to relocate any elm or white oak trees within the proposed project right-of-way (ROW). The City has a successful white oak and elm tree relocation program. Native grasses would be removed during construction activities. However, reseeding with native vegetation would take place after construction was completed. To minimize the impact to trees outside the project ROW, the City would place temporary fences around tree drip lines to prevent the encroachment of construction personnel and equipment on tree root systems. No trees would be removed outside the ROW as a result of project activities. While terrestrial resources would be affected under this Alternative, proposed mitigation actions such as tree relocations and protective actions would prevent substantial impacts to terrestrial habitats.

Alternative 3 – Improve West Dietz Creek – 50-year Design

Under this Alternative a smaller amount of vegetation would be removed during the construction of the drainage channel compared to the Proposed Action. Like the Proposed Action, most of the trees removed would be hackberry and mesquite trees. Where feasible, the City proposes to relocate any elm or white oak trees within the proposed project ROW. The City has a successful white oak and elm tree relocation program. Native grasses would be removed during construction activities. However, reseeding with native vegetation would take place after construction was completed. To minimize the impact to trees outside the project ROW, the City would place temporary fences around tree drip lines to prevent the encroachment of construction personnel and equipment on tree root systems. No trees would be removed outside the ROW as a result of project activities. While terrestrial resources would be affected under this alternative, proposed mitigation actions such as tree relocations and protective actions would prevent substantial impacts to terrestrial habitats.

3.2.2 Wetlands (Executive Order 11990)

EO 11990, Protection of Wetlands, requires federal agencies to take action to minimize the loss of wetlands. The NEPA compliance process requires federal agencies to consider direct and indirect impacts to wetlands, which may result from federally funded actions. No wetland areas were observed during a URS reconnaissance site visit of the project area on August 6, 2001. Additionally, no wetlands in the project area are identified on a map of water resources from the USFWS National Wetlands Inventory for Guadalupe County. Therefore, the No Action Alternative, Proposed Action Alternative, and 50-year Design Alternative would not have an impact on wetlands.

3.2.3 Threatened and Endangered Species

The Endangered Species Act (ESA) of 1973 requires federal agencies to determine the effects of their actions on threatened and endangered species of fish, wildlife, and plants, and their habitats, and to take steps to conserve and protect these species. On August 20, 2001, the Texas Ecological Services Field Office of USFWS was contacted to obtain a list of species classified as endangered or threatened, proposed for listing as endangered or threatened, or considered to be candidates for listing by the ESA. In a letter dated October 2, 2001, USFWS stated that their information does not indicate the presence of any federally listed species occurring in Guadalupe County (Appendix C). However, the mountain plover (*Charadrius montanus*), a species proposed for listing, has been documented to occur in Guadalupe County. USFWS states that suitable habitat for the mountain plover does not exist in the project area and therefore project activities would not likely impact this species. According to USFWS, other species with the potential to occur in Guadalupe County include the Big Red Sage (*Salvia penstemonoides*), a species of concern, and Cagle's map turtle (*Graptemys caglei*), which is listed as candidate species.

Given that the project area is in proximity to urban, transportation, and agricultural uses, the project area does not contain suitable foraging, nesting, or resting habitat because of the urban nature of the surrounding environment. During a site visit conducted by URS staff on August 6, 2001 no Big Red Sage was observed. In addition, the Cagle's Map turtle is an aquatic species that requires water to survive. West Dietz Creek is dry except for during rain events. Therefore, this project would not impact that species.

In accordance with the ESA and the Fish and Wildlife Coordination Act, the Texas Ecological Field Services Office of USFWS and TPWD were consulted in letters dated August 20, 2001. These letters are included in Appendix C.

Alternative 1 - No Action Alternative

The No Action Alternative would not disturb natural areas in the City; therefore, it would not impact threatened or endangered species.

Alternative 2 – Improve West Dietz Creek – 100-year Design (Proposed Action)

The Proposed Action would not affect threatened and endangered species because the project area does not contain suitable habitat for federally listed special status species, nor are they anticipated to occur in the project area. In a letter dated October 2, 2001, USFWS stated that the proposed actions would not effect threatened or endangered species (Appendix C). In a letter dated October 30, 2001, TPWD did not comment on threatened and endangered species because of the lack of valuable habitat in the project area (Appendix C).

Alternative 3 – Improve West Dietz Creek – 50-year Design

This Alternative would not affect threatened and endangered species because the project area does not contain suitable habitat for federally listed special status species, nor are they anticipated to occur in the project area. In a letter dated October 2, 2001, USFWS stated that the proposed actions would not effect threatened or endangered species (Appendix C). In a letter

dated October 30, 2001, TPWD did not comment on threatened and endangered species because of the lack of valuable habitat in the project area (Appendix C).

3.3 HAZARDOUS MATERIALS

URS staff conducted preliminary reconnaissance for recognized environmental conditions at the proposed project area and in the project vicinity on August 6, 2001. There were no indications that hazardous materials were located in the project area. On December 14, 2001 a comprehensive VISTA search from Environmental Data Resources, Inc. was conducted for small and large quantity generators, underground storage tanks, and Superfund sites in the vicinity of the project area. Two small quantity hazardous material generators where reported to be located within 1 mile of the proposed channel improvement.

Alternative 1 - No Action Alternative

No impacts resulting from hazardous materials are anticipated under this Alternative.

Alternative 2 – Improve West Dietz Creek – 100-year Design (Proposed Action)

Under the Proposed Action, no impacts to hazardous materials or wastes are anticipated. Although a visual survey and VISTA database search was completed for the Proposed Action and no recognizable hazardous wastes exist, no specific conclusions can be drawn regarding hazardous wastes and materials that could be encountered as excavation is conducted during construction phase of this Alternative. Although subsurface hazardous materials are not anticipated to be present, excavation activities could expose or otherwise affect subsurface hazardous wastes or materials. Any hazardous materials discovered, generated, or used during implementation of the proposed project will be disposed of and handled by the City in accordance with applicable local, State, and federal regulations. The two small quantity hazardous waste generators are far enough away from the proposed improved channel to not be a potential hazard.

Alternative 3 – Improve West Dietz Creek – 50-year Design

Under this Alternative, no impacts to hazardous materials or wastes are anticipated. Although a visual survey and VISTA database search was completed for this Alternative and no recognizable hazardous wastes exist, no specific conclusions can be drawn regarding hazardous wastes and materials that could be encountered as excavation is conducted during construction phase of this Alternative. Although subsurface hazardous materials are not anticipated to be present, excavation activities could expose or otherwise affect subsurface hazardous wastes or materials. Any hazardous materials discovered, generated, or used during implementation of the proposed project will be disposed of and handled by the City in accordance with applicable local, State, and federal regulations. The two small quantity hazardous waste generators are far enough away from the proposed improved channel to not be a potential hazard.

3.4 SOCIOECONOMICS

3.4.1 Zoning and Land Use

The proposed project would be located entirely within the city limits of Schertz on property owned by the City or land owned by residents of Schertz (See Figure 3). The project area is zoned for residential, commercial, and agricultural uses. Adjacent to the proposed project area are several structures including the Samuel Clemens High School, the City municipal complex and several homes. The affected farmland is within the City limits of Schertz. The FPPA, which states that federal agencies must "minimize the extent to which federal programs contribute to the unnecessary conversion of farmland to nonagricultural uses", is discussed in Section 3.1.1, Geology, Seismicity, and Soils.

Alternative 1 – No Action Alternative

Under the No Action Alternative, the City would not increase the capacity of West Dietz Creek. No direct impact to zoning or land use patterns would occur. However, future flooding would occur, and land use and zoning patterns may change over time as residents and business owners choose to relocate to alternate locations outside the flood prone areas. This impact is indirect and would likely be of minor consequence since land use and zoning patterns would evolve based on the City's comprehensive plan, which represents planned growth.

Alternative 2 – Improve West Dietz Creek – 100-year Design (Proposed Action)

The Proposed Action is not anticipated to result in any adverse effects to zoning or land use in the City. The project location currently consists of empty lots or agricultural space and no existing structures would be relocated or demolished. Approximately 53 acres would be converted from current land uses to a designated drainage channel. The City would obtain all necessary land easements from landowners whose property would be affected by the Proposed Action before project work begins. Several local farmers and landholders would provide easements to the City for the proposed project. A Guadalupe Valley Electric Co-op (GVEC) easement has already been obtained for one of the electrical lines that will be reburied as a result of the proposed project. There would not be any negative effects to current land use trends nor would the required 53 acres take away needed space in the City since the proposed project is within the 100-year floodplain and any new facility construction within the floodplain is already prohibited.

Alternative 3 – Improve West Dietz Creek – 50-year Design

This Alternative is not anticipated to result in any adverse alterations to zoning or land use in the City. The project location currently consists of empty lots or agricultural space and no existing structures would be relocated or demolished. Approximately 38 acres would be converted from current land uses to a designated drainage channel. The City would obtain all necessary land easements from landowners who would be affected by this Alternative before project work begins. Several local farmers and landholders would provide easements to the City for the proposed project. A Guadalupe Valley Electric Co-op (GVEC) easement has already been obtained for one of the electrical lines that will be reburied as a result of the proposed project.

There would not be any negative effects to current land use trends nor would the 38 acres tie up needed space in the City since this Alternative is within the 100-year floodplain and any new facility construction within that area is prohibited. Under this Alternative, flooding would continue in the City during flood events greater than the 50-year storm. Therefore, future flooding would occur, and land use and zoning patterns may change over time as residents and business owners choose to relocate to alternate locations outside the flood prone areas. This impact is indirect and would likely be of minor consequence since land use and zoning patterns would evolve based on the City's comprehensive plan, which represents planned growth.

3.4.2 Visual Resources

Visual resources refer to the landscape character (i.e., what is seen), visual sensitivity (i.e., human preferences and values regarding what is seen), scenic integrity (i.e., degree of intactness and wholeness in landscape character), and landscape visibility (i.e., relative distances of seen areas) of a geographically defined viewshed.

The proposed project is 1.5 miles long, with a maximum bottom width of 300 feet and a maximum depth of 8 feet. The landscape character of the subject area is generally a transition from the urban, developed areas of Schertz, to the more rural, suburban areas to the north. The project area possesses a high degree of visual fragmentation due to an extensive road network, and its location between urban development and wooded areas. The primary constituents in the viewshed of the proposed project are the residents along West Dietz Creek, the attendees at Samuel Clemens High School, local residents, and travelers along FM 3009, Elbel Road, East Live Oak Road, Schertz Parkway, and Maske Road. Photographs have been provided in Appendix G.

Alternative 1 – No Action Alternative

The No Action Alternative would not effect visual resources in the project area.

Alternative 2 – Improve West Dietz Creek – 100-year Design (Proposed Action)

The Proposed Action is not anticipated to have an effect on visual resources. This Alternative is an improvement project and the landscape would not be altered extensively. Although the larger improved drainage channel would be added to the viewshed, the existing channel and ditches that make up West Dietz Creek are already prevalent in the landscape. In addition, the City would not remove trees outside of the ROW and a natural buffer around the improved channel would remain. Additionally, future plans for the improved channel include a walking/running/bike trail and small parks located on the banks, which would enhance the City's visual resources.

Alternative 3 – Improve West Dietz Creek – 50-year Design

This Alternative is not anticipated to have an effect on visual resources. This Alternative is an improvement project and the landscape would not be altered extensively. Although the larger improved drainage channel would be added to the viewshed, the existing channel and ditches that make up West Dietz Creek are already prevalent in the landscape. Changes to West Dietz Creek would not significantly alter the visual character of the City or the project area. However,

under this Alternative, flooding would continue in the City for flood events resulting from storms greater than the 50-year storm. There would also be no visual benefits such as parks or trails added to this part of town under this Alternative because the risk of flooding would continue.

3.4.3 Noise

Sound is most commonly measured in decibels (dB) on the A-weighted scale, which is the scale most similar to the range of sounds that the human ear can hear. The Day-Night Average Sound Level (DNL) is an average measure of sound. The DNL descriptor is accepted by federal agencies as a standard for estimating sound impacts and establishing guidelines for compatible land uses.

Noise, defined herein as undesirable sound, is federally regulated by the Noise Control Act of 1972 (NCA). Although the NCA gives the EPA authority to prepare guidelines for acceptable ambient noise levels, it only charges those federal agencies that operate noise-producing facilities or equipment to implement noise standards. EPA guidelines, and those of many other federal agencies, state that outdoor sound levels in excess of 55 dB DNL are "normally unacceptable" for noise-sensitive land uses such as residences, schools, or hospitals.

The City does not have a citywide noise ordinance. The State of Texas regulates noise under Section 42.01(a)(5) and (c)(2) of its Penal Code, and the City can use the State noise law at its discretion.

Alternative 1 – No Action Alternative

The No Action Alternative would not effect noise levels in the project area.

Alternative 2 – Improve West Dietz Creek – 100-year Design (Proposed Action)

Under the Proposed Action, noise levels would be consistent with common construction practices. Construction would take place during normal business hours and noise impacts would be temporary. To mitigate the potential for adverse effects on a sensitive receptor (Samuel Clemens High School), it is recommended that the City coordinate with the school board for the construction of portions of the Proposed Action closest to the high school so that classes are not disturbed during the construction phase.

Alternative 3 – Improve West Dietz Creek – 50-year Design

Under this Alternative, noise levels would be consistent with common construction practices. Construction would take place during normal business hours and noise impacts would be temporary. To mitigate the potential for adverse effects on a sensitive receptor (Samuel Clemens High School), it is recommended that the City coordinate with the school board for the construction of portions of this Alternative closest to the high school so that classes are not disturbed during the construction phase.

3.4.4 Public Services and Utilities

The City is located in the County of Guadalupe. GVEC provides electricity to the City while Reliant Energy Entex provides natural gas. Drinking water is provided by City wells located in Comal County that is piped in daily. The City maintains its own sewer system; however, storm and sewer water are collected by the Cibolo Creek Municipal Authority and discharged after treatment into Cibolo Creek. The City provides police, fire, and ambulance services. Basic utility and emergency services in the City are susceptible to disruption during flood events. During the 1998 flood, 80 percent of the City was inaccessible and emergency services were completely shut down.

Alternative 1 – No Action Alternative

No impacts to public services and utilities are anticipated under the No Action Alternative. However, the risk of flooding would remain in the City of Schertz, and flood events could cause utilities to fail and public services, such as police and fire crew, to become overburdened during flood events. Emergency services may be unable to serve large portions of the City during a flood event, as has occurred in past flood events.

Alternative 2 – Improve West Dietz Creek – 100-year Design (Proposed Action)

Impacts to public services and utilities are not anticipated as a result of the Proposed Action. The Proposed Action would involve some utility relocations and/or reburials. The City anticipates that a sewer pipe and a GVEC line that crosses the creek would be moved slightly and reburied underground. It is not anticipated that service would be interrupted for customers. The only easement required for public utilities would be for the GVEC line, which has been obtained (Simonson, Pers. Comm., 2001). During the heavy machinery deployment stage, school buses, police, fire vehicles, and ambulances could experience delays, but these delays are expected to be temporary. Elbel Road would be closed temporarily and traffic would be rerouted until construction of the new bridge and culvert was complete. Overall, this Alternative would improve the integrity of public services and utilities by reducing the risk of future flood events, which often tax these services.

Alternative 3 – Improve West Dietz Creek – 50-year Design

The impact of construction associated with this Alternative would be similar to those described under the Proposed Action. However, under this Alternative, flooding would continue in the City for flood events resulting from storms greater than the 50-year storm. Continual flooding would result in temporary disruptions in utility service, as it has in the past. During the 1998 flood, 80 percent of the City was inaccessible and emergency services were disrupted. It can be assumed that this would be repeated for flood events resulting from storms exceeding the 50-year storm.

3.4.5 Traffic and Circulation

The City and the Guadalupe County Road and Bridge Authority maintain the streets in the vicinity of the project area. The project involves the replacement of a culvert at Elbel Road, which is a main connector road between FM 3009 and Schertz Parkway.

Alternative 1 – No Action Alternative

No impact to traffic or public transportation is anticipated under this Alternative since no construction would take place. However, continued flooding would close City roads temporarily and disrupt traffic patterns.

Alternative 2 – Improve West Dietz Creek – 100-year Design (Proposed Action)

The Proposed Action may temporarily affect traffic during site preparation and construction. Access to the project area would be reached from Maske Road, East Live Oak Road, and Elbel Road, as well as the drainage channel itself. The effect to traffic would be limited to increased volume and trucks entering and exiting the site from Maske Road and East Live Oak Road. However, it is not anticipated that these two streets would be blocked off at any time during construction. Elbel Road would be closed temporarily to put in the new culvert and repave the bridge, but its closure is not anticipated to be more than a month. The City would coordinate with the Samuel Clemens High School to reroute buses that use Elbel Road to reach the school safely and efficiently. The City would also coordinate with the City Public Works Department and the Texas Department of Transportation to provide proper notification to motorists about closures and potential delays. Traffic signs would be in compliance with the Texas Uniform Manual Traffic Control measures.

Alternative 3 – Improve West Dietz Creek – 50-year Design

This Alternative may temporarily affect traffic during site preparation and construction. Access to the project area would be reached from Maske Road, East Live Oak Road, and Elbel Road, as well as the drainage channel itself. The effect to traffic would be limited to increased volume and trucks entering and exiting the site from Maske Road and East Live Oak Road. However, it is not anticipated that these two streets would be blocked off at any time during construction. Elbel Road would be closed temporarily to put in the new culvert and repave the bridge, but its closure is not anticipated to be more than a month. The City would coordinate with the Samuel Clemens High School to reroute buses that use Elbel Road to reach the school safely and efficiently. The City would also coordinate with the City Public Works Department and the Texas Department of Transportation to provide proper notification to motorists about closures and potential delays. Traffic signs would be in compliance with the Texas Uniform Manual Traffic Control measures. Under this Alternative, flooding would continue in the City of Schertz for flood events resulting from storms greater than the 50-year storm. Traffic would be disrupted every time a storm greater than the 50-year storm occurred.

3.4.6 Environmental Justice (Executive Order 12898)

On February 11, 1994, President Clinton signed EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. The EO directs federal agencies "to make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low income populations in the United States…." In compliance with FEMA's policy on implementing EO

12898, Environmental Justice, the socioeconomic conditions and potential effects related to the No Action, Proposed Action, and 50-year Design have been reviewed.

The City of Schertz's population is 82 percent white; 6.6 percent African American; 0.5 percent American Indian or Alaska Native; 1.8 percent Asian; 3.4 percent of two or more races; 5.5 percent of some other race; and 19.5 percent of the total population is of Hispanic or Latino origin (U.S. Census Bureau, 2000). In comparison, Guadalupe County's population of 89,023 is 77.6 percent white; 5.0 percent African American; 0.5 percent American Indian or Alaska Native; 0.9 percent Asian; 12.8 percent of other races; 3.1 percent of two or more races; and 33.2 percent of the total population is of Hispanic or Latino origin (U.S. Census Bureau, 2000).

The City has a median income of $31,768 per year, and 11.4 percent of its population is below the poverty level. In comparison, Guadalupe County's median income is $34,874 per year, and 15.3 percent of its population is below the poverty threshold (U.S. Census Bureau, 1990). Based on U.S. Census Bureau data, the City does not possess a disproportionately high population of individuals below the poverty threshold in comparison to the county-level figures.

Alternative 1 – No Action Alternative

Under this Alternative, no improvements would be made to West Dietz Creek. Therefore, there would be no impact to minority or low-income populations from a federal program, policy, or activity.

Alternative 2 – Improve West Dietz Creek – 100-year Design (Proposed Action)

The Proposed Action would be located in a low population density area, with the nearest business or housing development being approximately 100 feet away from the proposed construction site. The threat of flooding in the entire western part of the city would be greatly reduced, which would benefit the entire community. Therefore, there would be no anticipated disproportionately high or adverse impacts on minority or low-income populations. Under the definition of EO 12898, there would be no adverse environmental justice impacts.

Alternative 3 – Improve West Dietz Creek – 50-year Design

This Alternative would be located in a low population density area, with the nearest business or housing development being approximately 100 feet away from the proposed construction site. Under this Alternative, flooding would continue in the City as events greater than the 50-year storm occurred. This flooding would likely affect a broad cross-section of the community, and therefore, disproportionately high and adverse effects to low-income and minority populations are not anticipated.

3.4.7 Safety and Security

Safety and security issues considered in this EA include the health and safety of the area residents and the public at-large, and the protection of personnel involved in activities related to the implementation of the proposed construction of the improved drainage channel.

EO 13045, Protection of Children, requires federal agencies to make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children.

Since the Samuel Clemens High School property is located less than one quarter of a mile from portions of the proposed project, potential impacts to children as a result of the alternatives are evaluated in this EA.

Alternative 1 – No Action Alternative

The No Action Alternative would not affect the safety of the population of the study area since no construction would occur. However, flooding conditions would continue during some rain events, which could endanger individuals in the City. The No Action Alternative would not involve the construction of the improved channel; therefore, there is no requirement to evaluate this Alternative relative to EO 13045.

Alternative 2 – Improve West Dietz Creek – 100-year Design (Proposed Action)

Under the Proposed Action, construction activities could present safety risks to those performing the activities. To minimize risks to safety and human health, all construction activities would be performed using qualified personnel trained in the proper use of the appropriate equipment, including all appropriate safety precautions. Additionally, all activities would be conducted in a safe manner in accordance with the standards specified in Occupational Safety and Health Administration (OSHA) regulations.

Safety measures to mitigate potential impacts to children in accordance with EO 13045 include the scheduling of construction activities during the summer months when school is not in session, employing appropriate signage and fencing, and ensuring that the City of Schertz School Board is notified of construction activities. The appropriate signage and barriers should be in place prior to construction activities to alert pedestrians and motorists of project activities and changes in traffic patterns. With the use of these mitigation measures there would be little risk to the public's safety from the Proposed Action.

The construction of an improved drainage channel in the City would decrease the risk to human health and safety associated with flood events.

Alternative 3 – Improve West Dietz Creek – 50-year Design

Under this Alternative, construction activities could present safety risks to those performing the activities. To minimize risks to safety and human health, all construction activities would be performed using qualified personnel trained in the proper use of the appropriate equipment, including all appropriate safety precautions. Additionally, all activities would be conducted in a safe manner in accordance with the standards specified in OSHA regulations.

Safety measures to mitigate potential impacts to children in accordance with EO 13045 include the scheduling of construction activities during the summer months when school is not in session, employing appropriate signage and fencing, and ensuring that the City of Schertz School Board is notified of construction activities. The appropriate signage and barriers should be in place prior to construction activities to alert pedestrians and motorists of project activities and changes in traffic patterns. With the use of these mitigation measures there would be little risk to the public's safety from this Alternative.

Under this Alternative, flooding would continue in the City for flood events resulting from storms greater than the 50-year storm. Health and safety issues would continue to exist for the City during floods with this Alternative.

3.5 CULTURAL RESOURCES

Consideration of impacts to cultural resources is mandated under Section 106 of the National Historic Preservation Act (NHPA), as amended, and implemented by 36 CFR Part 800. Requirements include the identification of significant historic properties that may be affected by a Proposed Action. Historic properties are defined as archaeological sites, standing structures, or other historic resources listed in or eligible for listing in the National Register of Historic Places (NRHP) (36 CFR 60.4).

A review of archaeological and historic architecture site files at the Texas Historical Commission (THC) State Historic Preservation Office (SHPO) in Austin revealed that no historic properties listed, or eligible for listing, in the NRHP have been identified within the project area. Previous archaeological investigations sponsored by the Lower Colorado River Authority and the Texas Water Development board for sanitary sewer and water lines did not discover any archaeological sites. These investigations were conducted in an area adjacent to the proposed project. Correspondence dated April 5, 1999 from the THC requested an archaeological survey of portions of the project area considered likely to contain archaeological sites (Appendix C). Based upon this correspondence, an archaeological survey of the proposed alignment was completed in accordance with the *Archaeological Survey Standards for Texas* (THC, n.d.). The survey was completed between October 6-10, 2001 by an archaeologist qualified under 36 CFR Part 61 (Secretary of Interior's Professional Qualification Standards). Field methods for the archaeological survey included pedestrian survey and shovel tests within the proposed floodwater channel alignment. Twenty-one (21) shovel tests were excavated. No artifacts or archaeological sites were found during pedestrian survey or in shovel tests.

A draft Phase I archaeological survey report was prepared and submitted to the THC for review and concurrence, recommending no further archaeological testing. On December 12, 2001, the THC concurred with the report findings, thereby concluding Section 106 review of the proposed project (See Appendix C). A copy of the Phase I archaeological survey report can obtained for review by contacting Ryan Thompson, URS Group, Inc., 200 Orchard Ridge Drive, Suite 101, Gaithersburg, Maryland 20878, (310) 670-3387.

Based on the Phase I archaeological survey report and SHPO coordination it is FEMA's determination that the proposed project would not affect historic properties. Should any potentially historic or archeological significant materials be discovered during project construction or staging of equipment, all activities on the site shall be halted immediately and the city shall consult with FEMA, TDEM, and the SHPO or other appropriate agency for further guidance.

Cumulative impacts are those effects on the environment that result from the incremental effect of the action when added to past, present and reasonably foreseeable future actions, regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.

It is not anticipated that the proposed project would cumulatively affect the human environment. The lining of West Dietz Creek, East Dietz Creek, and Dietz Creek with native grasses and the installation of velocity dissipaters will greatly reduce erosion and water velocities in the channels. As with any large flood there will be a large amount of sediments in the surface water from local runoff and this sedimentation will be present regardless of the Proposed Action. Smaller storms would yield the same results but for a more localized areas. Since there is a backwater effect from Cibolo Creek, the Proposed Action would effectively store and convey water out of the City as floodwaters recede in Cibolo Creek and it is anticipated that water quality would not be effected.

The only other project occurring in the area is the widening of Schertz Highway, which crosses the proposed project near White Oak Road. This project involves widening Schertz Highway from two lanes to four lanes and the replacement of the culvert that crosses the proposed project. The City and the Texas State Highway Department are working together to bring that culvert up to a 100-year storm event design.

It is not anticipated that development in surrounding cities would counter act the proposed project by delivering more water into the watershed, thereby reducing the proposed project's ability to hold a 100-year flood event. Cities should be aware that Cibolo Creek could currently be at capacity for receiving floodwaters, resulting in the backwater effect in many cities in the region. It is not likely that Cibolo Creek will ever be modified due to the quality of its habitat and rare species it supports.

FEMA is the lead Federal agency for conducting the NEPA compliance process for the West Dietz Creek Improvement Project in the City of Schertz, Texas. The lead agency's goal is to expedite the preparation and review of NEPA documents to be responsive to the needs of the community and the applicant, while meeting the intent of NEPA and complying with all NEPA provisions including NHPA, EO 11988, and EO 11990.

A draft Environmental Assessment of the West Dietz Creek Improvement Project in the City of Schertz, Texas has been made available for public review in the Schertz Public Library from August 5, 2002 to August 25, 2002. A Public Notice advertising the availability of the Draft EA has been placed in the Seguin Gazette.

No public comments were received during the review period.

The following mitigation measures would be required for the implementation of the Proposed Action, the construction of an improved channel:

1. Prior to construction activities, the City would conduct a geotechnical investigation to determine the actual extent of soil excavation and to guide project design.
2. If project activities include the stockpiling of soil or fill on-site, the City would cover these soils to help prevent fugitive dust and increased soil erosion. The City would employ the use of temporary installation silt fences and/or hay bales. Bare soils would be vegetated with native vegetation after construction to prevent future soil erosion. Construction equipment would be staged in existing developed or previously disturbed areas and, if feasible, existing parking lots.
3. Prior to construction, the City would obtain an NPDES permit from EPA Region 6 for construction activities disturbing more than 5 acres.
4. The City must be in compliance with its Flood Damage Prevention Ordinance.
5. The City would be required to water down construction areas to reduce dust when necessary.
6. Running time of fuel-burning equipment would be minimized and engines would be properly maintained to reduce the emission of criteria pollutants.
7. The City would relocate elm and white oak trees when feasible.
8. The City would employ temporary fences around trees outside of the ROW to prevent encroachment of personnel and construction equipment on tree root systems. Trees outside of the project ROW would not be removed.
9. Any hazardous materials discovered, generated, or used during implementation of the proposed project would be disposed of and handled by the City in accordance with applicable local, State, and federal regulations.
10. The City would obtain all easements from property owners and utilities.
11. Construction activities would occur during normal business hours.
12. The City would coordinate with the School Board for portions of the project closest to Samuel Clemens High School so that classes are not disturbed.
13. The City would notify Samuel Clemens High School and the City School Board of construction activities and to reroute buses that use Elbel Road to reach the school. The City would also coordinate with the City Public Works Department and the Texas Department of Transportation to provide proper notification to motorists about closures and potential delays.
14. All construction activities would be conducted by trained personnel in compliance with OSHA standards and regulations to protect worker safety.
15. Appropriate signage and fencing would be employed to alert pedestrian, motorists, and school students and staff of project activities, as well as any changes in traffic patterns. Traffic signs would be in compliance with the Texas Uniform Manual Traffic Control measures.
16. Should any potentially historic or archeological significant materials be discovered during project construction or staging of equipment, all activities on the site shall be halted

immediately and the city shall consult with FEMA, TDEM, and the SHPO or other appropriate agencies for further guidance.

17. In accordance with 44 CFR Part 9.12, the applicant is required to publish a Final Public Notice 15 days prior to initiating action.
18. The City of Schertz shall obtain and comply with all local, state, and federal permits, laws and Executive Orders.

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