

**YUMA COUNTY FLOOD CONTROL DISTRICT
2016
ASSESSMENT REPORT**



**Prepared by
Yuma County Flood Control District
Yuma County Department of Development Services
APRIL 2017**

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2016

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Yuma County Flood Control District
2351 W. 26th Street
Yuma, Arizona 85364

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1.0 Introduction

1.1 Purpose

This annual assessment report identifies flooding, drainage and groundwater needs and makes recommendations to address them in Yuma County. An attempt has been made to identify the major flooding problems that cause damage and loss of multiple properties or threaten the health, safety and welfare of people and communities. Local flooding and drainage needs are also identified when multiple structures or people are at risk. This assessment also presents administrative and facility operation and maintenance highlights that affect Yuma County. The assessment is for the 2016 calendar year.

1.2 Scope

The 2016 assessment reviewed Yuma County Flood Control District's goals and objectives, its flood control problems/needs inventory for Yuma County, and proposed courses of action to improve flood control in Yuma County. The problems/needs inventory and recommendations have been updated to reflect new needs and progress that has been made on previously identified needs.

1.3 Statutory Requirements

This report has been prepared as required by A.R.S. §48-3616D.

1.4 Acronym Reference Chart

ACOE	Army Corps of Engineers
ADOT	Arizona Department of Transportation
ADWR	Arizona Department of Water Resources
ARS	Arizona Revised Statutes
AZPDES	Arizona Pollutant Discharge Elimination System
CAV	Community Assistance Visit
DFIRM	Digital Flood Insurance Rate Maps
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Maps
IGA	Intergovernmental Agreement
LOMR	Letter of Map Revision
MCAS	Marine Corps Air Station
MS4	Municipal Separate Storm Sewer System
NFIP	National Flood Insurance Program
NPDES	National Pollutant Discharge Elimination System
SFHA	Special Flood Hazard Area
USBR	United States Bureau of Reclamation
WMID	Wellton Mohawk Irrigation District
YCFCD	Yuma County Flood Control District
YCWUA	Yuma County Water Users' Association
YUHSD	Yuma Union High School District

2.0 Mission Statement, Objectives, and Goals

2.1 Mission Statement

To minimize the impact and to protect life and property from flooding.

2.2 Objectives and Goals

The District objectives and goals are given below.

Project Management Goals:

- A. Objectively identify needs, evaluate recommended solutions, and prioritize projects using standardized criteria.
- B. Estimate project costs and compare to project benefits.
- C. Work with Yuma County, municipalities, state, and federal governments and the public to improve flood control and drainage in Yuma County.
- D. Reduce adverse effects to people, structures, property, and public infrastructure from flooding and drainage problems through regulation, development guidance, and the construction and operation of flood control and drainage facilities and groundwater wells.
- E. Acquire available land within floodways and land needed for basins and other facilities identified by District master plans.
- F. Seek cost sharing opportunities for project development.

Facility Operation Goals:

- A. Operate and maintain flood control facilities as needed to reduce the impacts of flooding.
- B. Maintain compliance with current AZPDES General Permit allowing stormwater to discharge to waters of the United States from existing MS4s by continuing to enforce the Stormwater Management Program.
- C. Operate, maintain, replace, or allow others to do so at their expense, up to six of the eighteen Yuma Valley groundwater wells.
- D. Allow joint and multi-purpose use of facilities, by agreement, of facilities for the benefit of the public.

Administrative Goals:

- A. Maintain flood control and drainage problems/needs inventory and annually prepare a Flood Control Assessment Report.
- B. Maintain compliance with the NFIP by adopting and enforcing floodplain regulations that meet or exceed NFIP criteria and reflect current civil engineering practices.
- C. Administer floodplain development in accordance with NFIP, Arizona Revised Statutes, and Floodplain Regulations for Yuma County.
- D. Review grading plans and floodplain use permit applications and, when compliant, issue permits on new developments/construction.

3.0 Needs Assessment & Recommendations

Assessments are conducted on flooding and drainage needs affecting residential, commercial and industrial development throughout Yuma County. Assessments are done to determine the need for master drainage plans, major storm drainage outfall, and discharge and disposal systems in urbanizing areas of the County. Although the primary emphasis is drainage and flood control, some groundwater issues are addressed. As needs are identified, a preliminary assessment is conducted to recommend a course of action to address the need. The comprehensive list of identified needs, locations, risk, recommended actions, estimated costs, and benefit/cost is given in Appendix A and location maps are in Appendix B. The type of need is indicated by the project number. Needs with project numbers beginning with 11 are river, channel, or wash needs. Needs with project numbers beginning with 12 are drainage needs.

During 2016, the following needs were identified or requested:

Yuma Mesa Localized Flooding - City of Yuma has emphasized the impact of localized flooding associated with previously identified needs 12-15P and 12-20P. District staff has also emphasized drainage impacting Kofa High School originating from the Holly Drive area. The city has requested a restudy of the West Yuma Mesa sub-basins that discharge to Smucker Park.

4.0 Operations & Maintenance

YCFCD has an on-going maintenance program to identify needs and repair flood control facilities. This year, system discharges are being evaluated for compliance with USBR requested standards. Repairs were also made to groundwater well and pump station control panels, fencing, and sites.

5.0 National Flood Insurance Program and Floodplain Regulations

5.1 Floodplain Regulations

The latest Yuma County Floodplain Regulations were effective December 31, 2012. No modifications were made in 2015.

5.2 Flood Insurance Rate Maps

The latest FIRM revisions were effective January 16, 2014. No modifications were made in 2015.

5.3 Community NFIP Participation

At this time, Yuma County, City of Yuma, City of Somerton and Town of Wellton are National Flood Insurance Program participating communities. San Luis does not participate. City of Yuma manages its floodplains. City of Somerton and the Town of Wellton depend upon the District for floodplain management. City of Somerton does not contain any SFHA. The District performs all floodplain permitting, inspection, and approval for dependent communities.

6.0 Flood Control District Funding

The Flood Control District is funded by a secondary property tax. The current tax levy is 0.2794 percent of assessed property value. The annual revenues are approximately \$2.45 million. The estimated revenues for fiscal year 2015, including carryover from previous years, was \$19.9 million and funds are carried over to fund large projects that exceed annual revenues. Figure 6.1 Flood Control Revenues shows tax levy rates and inflation adjusted annual revenue since 1996.

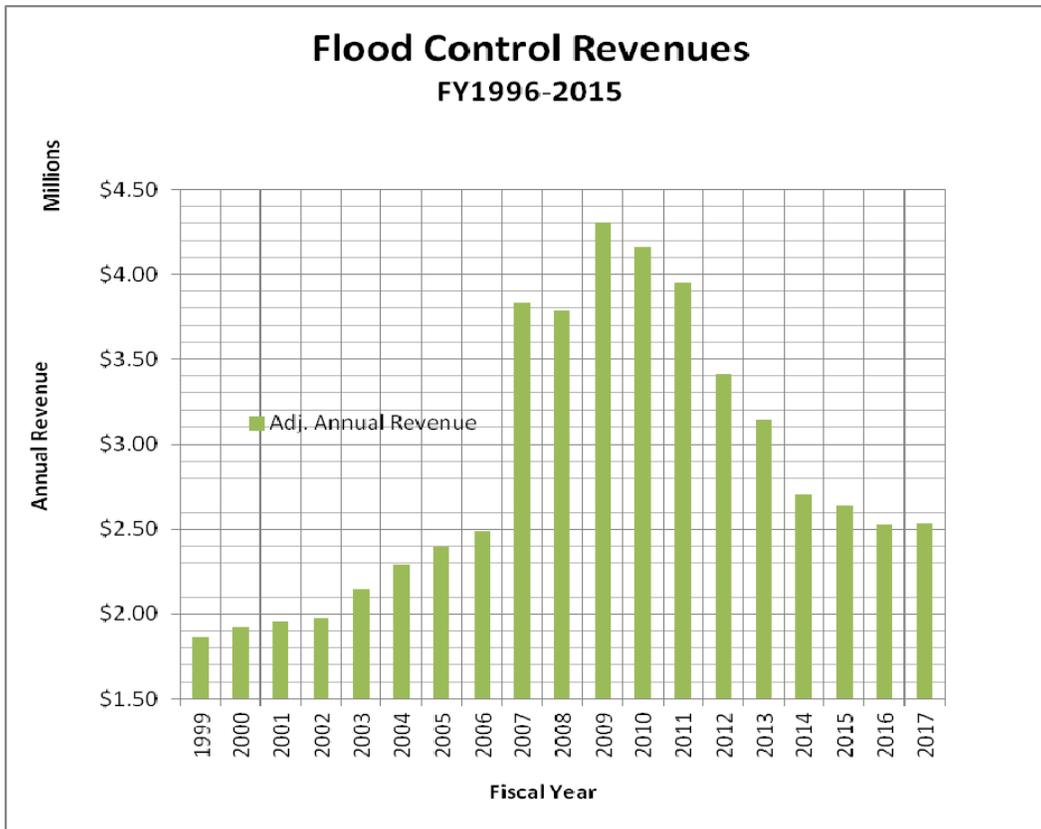


Figure 6.1 Flood Control Revenues

Table 6.1 gives a summary of projected costs to address the known flood control and drainage needs. The projected cost of all known needs exceeds \$64 million and \$200,000 of annual recurring costs. The Yuma County, Arizona Five-Year Capital Improvement Plan gives specific information regarding project funding for the next five years.

Table 6.1 Projected Costs of Known Needs

Project No.	Project	Estimated Cost
11-22P	Gila River Obstruction Removal	\$ 2,000,000
11-23P	Groundwater Drainage Well Maintenance (Reoccurring)	
11-25P	East Main Canal Floodplain Delineation	\$ 350,000
11-32P	Fortuna Wash and Tributaries Bank Stabilization	\$ 5,000,000
12-01P	Tierra Kino & Del Oro Drainage Improvements	\$ 600,000
12-09P	28 th Avenue – La Jolla Subdivision Drainage	\$ 650,000
12-15P	28 th Street & Westridge Drive Trunk lines	\$13,000,000
12-16P	Kofa High School Retention	\$ 5,000,000
12-20P	1 st Avenue/24 th Street Area Drainage Improvements	\$ 1,500,000
12-22P	Engler Avenue Retention Basin	\$ 400,000
12-45P	Giss Parkway Street Flooding	\$ 100,000
12-48P	Flood Control Mapping (Reoccurring)	
12-49P	Master Drainage Plans (Reoccurring)	
12-51P	12 th Avenue & Arena Drive Stormdrain	\$ 650,000
12-56P	W. Yuma Mesa Storm Drain, 4th-32 th Street	\$ 1,500,000
12-63P	Smucker Park Basin	\$ 8,700,000
12-66P	County 14th Street Sheet Flow - Wellton	\$ 200,000
12-70P	Business 8 Flooding	\$ 75,000
12-72P	South Frontage Road Retention Basin	\$ 450,000
12-73P	South Gila Canal Underdrains	\$ 100,000
12-75P	Avenue 10E & Co. 10½ Street (Avenida Compadres Area)	\$ 250,000
12-76P	Avenue 7E Drainage Improvements	\$ 150,000
12-77P	Araby Road Drainage Improvements	\$ 150,000
12-78P	Gila Ridge Road Drainage Improvements	\$ 100,000
12-79P	Arizona Western College Drainage Improvements	\$ 100,000
12-80P	San Luis Area Drainage Improvements	\$ 3,000,000
12-81P	Yuma Mesa Conduit Vaults	\$ 300,000
12-82P	Mitigation Fund (Reoccurring)	
12-84P	Basin Lands and Improvements (Reoccurring)	
12-85P	48 th Street & Foothills Blvd. Drainage Improvements	\$ 200,000
12-86P	Gadsden Area Drainage Improvements & Outfall	\$ 7,000,000
12-88P	Yuma Valley Master Plan Update	\$ 450,000
12-90P	Atlantic Avenue Area Drainage Study	\$ 5,000,000
12-91P	Yuma East Flooding	\$ 385,000
12-92P	Desert Air Estates, Unit 1 & 2 and Country Life Mobile Estates Flooding	\$ 1,000,000
12-93P	Calle Maria/Avenida Primavera Ponding	\$ 250,000
12-94P	South Somerton Drainage Improvements (study)	\$ 100,000
12-95P	Bonnie Avenue Storm Drain	\$ 3,500,000
12-97P	North Frontage Road Retention Basins	\$ 200,000
12-98P	County 14th St. Mesa Dunes (study)	\$ 75,000
12-99P	Hettima Street Ponding (study)	\$ 50,000
12-100P	San Luis Basin Discharge	\$ 250,000
12-101P	Yuma 44th Drive Basin Discharge	\$ 150,000
12-102P	Coyote Wash Channelization (study)	\$ 75,000
12-103P	Wellton Drainage Improvements (study)	\$ 80,000
12-104P	San Luis Mesa Erosion	\$ 150,000
12-105P	Citrus Park Unit 4 Drainage Improvements (study)	\$ 100,000
12-106P	East Main Canal Outfall (study)	\$ 100,000
12-107P	Airport Loop Road Drainage Improvements	\$ 600,000
12-108P	Somerton Avenue F Pump Station	\$ 250,000
	Total Projected Costs	\$64,290,000

7.0 Summary

This assessment of flood control problems and needs in Yuma County shows progress in safety and living conditions in the County. The assessment summarizes the identified flood control problems and recommended solutions for each. The Capital Improvement Plan is used to prioritize and fund these programs over a number of years. Funding is not available to resolve all needs immediately. The estimated cost to address all of the known needs is approximately \$64.5 million with annual revenues of approximately \$2.45 million.

The assessment identified problems ranging from small local issues that involve few people and limited property to large and extensive problems that affect large areas and many people. Identified needs include the acquisition of land for future flood control and drainage facilities, continued aerial mapping and area drainage plan updates throughout the County.

The assessments also identified the need for continued maintenance of existing facilities to improve performance.

Long-term steady progress has been made and continues to be made on addressing the area's flooding and drainage problems. Substantial progress was made on several projects in 2015 as shown in Table 7.1. The status of all projects is provided in Appendix A. Project Location Maps are provided in Appendix B.

Table 7.1 Projects with Significant Progress

Project No.	Project	Milestone Met
12-15P	28th St. Drainage System	City of Yuma has requested restudy of watershed to evaluate retention options within watershed.
12-16P	Kofa High School Retention	High School is considering drainage improvements and willing to discuss regional basin at the school. Area for Barkley Basin is no longer available.
12-45P	Giss Parkway Drainage	City of Yuma is planning revitalization of downtown area south of Giss Parkway which may increase scope of need.
12-56P	W. Yuma Mesa Storm Drain, 4th-32 th Street	Construction plans for 6 1/2 Street and 12th Avenue basins complete.
12-63P	Smucker Park Detention Basin	City of Yuma has provided much of the requested information for bidding the project. Staff has been reviewing information and preparing to bid the project anticipating receiving all information early in 2017.
12-80P	San Luis Drainage Improvements	Phase II final draft under city review.
12-84P	Basin Lands & Improvements	Basins have been acquired in Yuma and Foothills. Additional basins in Yuma and Foothills being considered for acquisition.
12-93P	Calle Maria Ponding	North Frontage Road Plans at 90% which will provide discharge and retention to area. Easement acquisition on-going.

Table 7.1 Projects with Significant Progress (Cont.)

Project No.	Project	Milestone Met
12-94P	South Somerton Drainage Improvements	Facility Inventory complete and drainage study 90% complete to provide discharge to basins.
12-95P	Bonnie Ave Storm Drain	Foothills Master Plan Update identified the need to construct a storm drain along Bonnie Avenue discharging into the Far West Basin. 60% design complete.
12-97P	North Frontage Road Retention Basins	Additional retention basins are needed to intercept runoff from I-8 and the surrounding areas. Land acquisition complete. Design is 90% complete.
12-102P	Coyote Wash Channelization	Coyote Wash has a poorly defined channel through developed areas within Wellton. Channelization would define extent of the channel and possibly reduce floodplain boundary. Included in Wellton Drainage Improvements.
12-103P	Wellton Drainage Improvements	Study of Wellton is 90% complete.
12-106P	East Main Canal Outfall	Project has been discussed with USBR.

LIST OF REFERENCES**NO. NAME OF REPORT OR INFORMATION**

1. Master Plan Drainage System Study for Yuma Valley—August 1989
2. East Yuma Storm Drainage System Plan—October 1988
3. East Mesa Storm Sewer Outfall System Study—August 1987
4. Yuma Regional Storm Water Management Plan—February 1980
5. Master Drainage Report—Metropolitan Yuma—February 1975
6. Foothills Master Storm Drainage Plan Study—October 1988
7. Colorado River Flood of 1983—Findings and Emergency Solutions Report—September 1983
8. Reconnaissance Report—Lower Gila River Flood Control Project—June 1980
9. Gila River Flood Channel Restoration Project—Design Memorandum—September 1994
10. North Central Yuma Storm Drainage System Report—November 1991
11. Mountain Shadow Estate, Phase III—Drainage Report
12. Hydrologic and Drainage Design Report—Avenue B—April 1990
13. Yuma B-8 Drainage Study—August 1992

LIST OF REFERENCES (CONT.)

NO. NAME OF REPORT OR INFORMATION

14. Drainage Improvements Feasibility Study—Interstate-8 and Giss Parkway—March 1993
15. Drainage Report for Proposed Flagship Corridor Industrial Park—July 1992
16. Flood Insurance Study—Yuma County 1985, 2008
17. Hydrogeology, Numerical Model and Scenario Simulations of the Yuma Area Ground Water Flow Model, Arizona, California and Mexico and Addendum, October 1993
18. 10th Street Drainage Area—Design Report—June 1995
19. Elks Area Drainage Study—April 1995
20. West Yuma Mesa Storm Drainage Discharge System Report—July 1996
21. Foothills Drainage Survey Report—September 1996
22. Flood Damage Survey Report—Somerton—October 1997
23. Design Concept Report, Bank Stabilization on Gila River—January 1997
24. LOMR for areas East of Fortuna Wash—FIRM Map No. 885D—June 2000
25. 23rd Street Detention Basin and Pump Station—Design Concept Report—March 2000
26. East Mesa Area Drainage Study – October 2004
27. Fortuna Wash Bank Stabilization Design Concept Report—May 2004
28. Fortuna Wash Bank Stabilization Concept Hydraulic Report—May 2004
29. East Mesa Area Drainage Study Alternative Analysis Report – December 2004
30. Avenue 64E/Gila River Bank Stabilization Project Final Design Report – October 2009
31. Northwest Somerton Area Drainage Study – February 2009
32. San Luis Area Drainage Study – September 2009
33. Gadsden Area Drainage Study – August 2010
34. Yuma East Area Drainage Study – 2011
35. Del Oro Estates Area Drainage Study – 2011
36. Draft Yuma Valley Master Drainage Plan Update – 2012
37. Foothills Master Plan Update - 2015

APPENDIX A

Needs, Recommendations, and Status

List of Projects

Group 11 – River, Wash, & Channel Needs, Recommendations, & Status

11-22P	Gila River Obstruction Removal	1
11-23P	Groundwater Drainage Well Maintenance	2
11-25P	East Main Canal Floodplain Delineation.....	3
11-32P	Fortuna Wash and Tributaries Bank Stabilization.....	4

Group 12 – Drainage & Facility Needs, Recommendations, & Status

12-01P	Tierra Kino and Del Oro Drainage Improvements	5
12-09P	28 th Avenue Ponding.....	6
12-15P	28 th Street Drainage System Trunkline.....	7
12-16P	Kofa High School Retention.....	8
12-20P	1 st Avenue/24 th Street Area Drainage Improvements	9
12-22P	Engler Avenue Retention Basin.....	10
12-45P	Giss Parkway Street Flooding.....	11
12-48P	Flood Control Mapping	12
12-49P	Master Drainage Plans	13
12-51P	12 th Avenue and Arena Drive Stormdrain	14
12-56P	West Yuma Mesa Storm Drainage Discharge Plan	15
12-63P	Smucker Park Area Drainage.....	16
12-66P	Wellton - County 14th Street Flooding.....	17
12-70P	Business 8 Flooding.....	18
12-72P	South Frontage Road Retention Basin.....	19
12-73P	South Gila Canal Underdrains	20
12-75P	Avenue 10E & Co. 10½ Street (Avenida Compadres Area)	21
12-76P	Avenue 7E Drainage Improvements.....	22
12-77P	Araby Road Drainage Improvements	22
12-78P	Gila Ridge Road Drainage Improvements.....	23
12-79P	Arizona Western College Drainage Improvements	24
12-80P	San Luis Area Drainage.....	25
12-81P	Yuma Mesa Conduit Vaults.....	26
12-82P	Mitigation Fund	27
12-84P	Basin Lands.....	28
12-85P	48 th Street & Foothills Blvd. Drainage Improvements	29

List of Projects (Cont.)

Group 12 – Drainage and Facility Needs, Recommendations, & Status (Cont.)

12-86P	Gadsden Area Drainage	30
12-88P	Yuma Valley Master Drainage Plan Update.....	31
12-90P	Atlantic Avenue Area Drainage Study	32
12-91P	Yuma East Flooding	33
12-92P	Desert Air Estates, Unit 1 & 2 and Country Life Mobile Estates Flooding	34
12-93P	Calle Maria/Avenida Primavera Ponding	35
12-94P	South Somerton Drainage Evaluation.....	36
12-95P	Bonnie Avenue Storm Drain.....	37
12-97P	North Frontage Road Retention Basins	38
12-98P	County 14th Street - Mesa Dunes Flooding.....	39
12-99P	Hettima Street Ponding	40
12-100P	San Luis Basin Discharge	41
12-101P	Yuma 45th Drive Basin Discharge	42
12-102P	Coyote Wash Channelization.....	43
12-103P	Wellton Drainage Improvements	44
12-104P	San Luis Mesa Erosion	45
12-105P	Tacna - Citrus Park Unit 4 Sheet Flow	46
12-106P	West Yuma Mesa Outfall.....	47
12-107P	Airport Loop Road Drainage Improvements	48
12-108P	Somerton Avenue F Pump Station.....	49

Group 11 - River, Wash, & Channel Needs, Recommendations, & Status

11-22P

Gila River Obstruction Removal – ON HOLD

Gila River—Between Avenues 6½E and 11E

Need: Obstructions need to be removed from the Gila River and the Avenue 7E bridge to increase channel capacity for 100-year flood.

Risk: Uprooted trees and other debris can plug the bridge openings resulting in partial damming of the river. Risk is moderate with potential flood area primarily agricultural and few structures. Risk is short-term due to high probability with high floods.

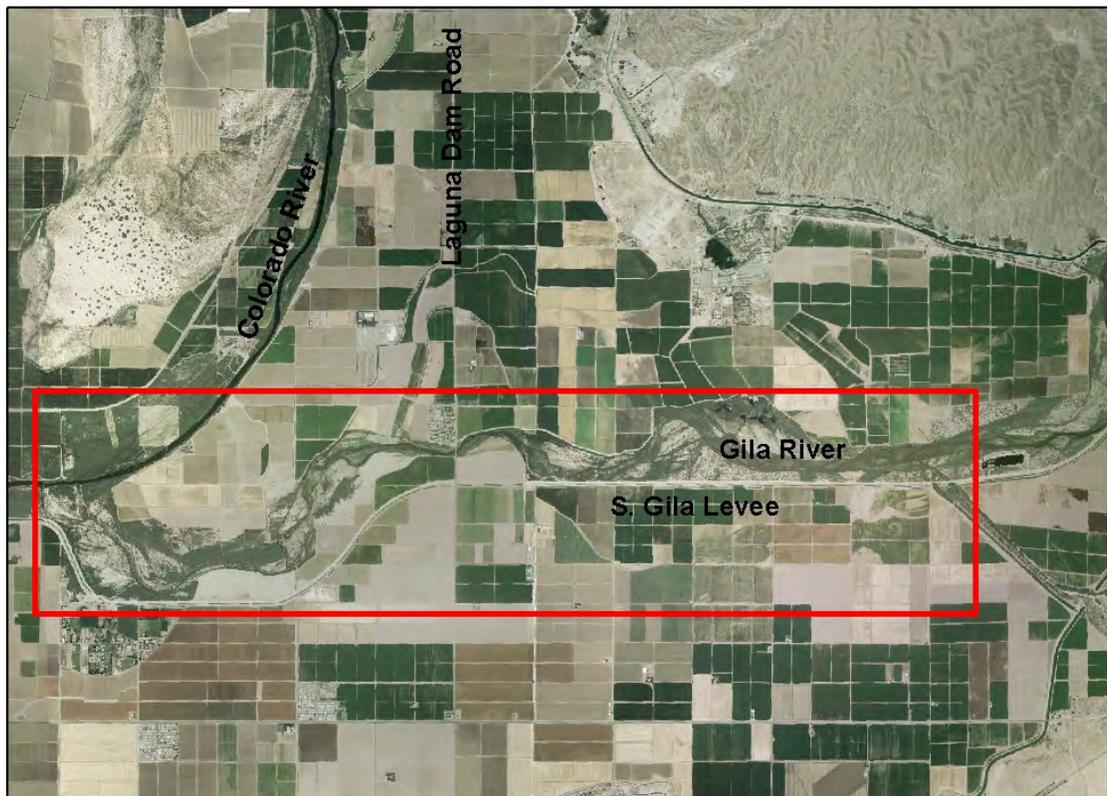
Recommended Solution: Establish a clear low-flow channel with overflow channels by removing thick salt cedars and other vegetation enabling routine channel maintenance. Work with other agencies to develop a project with wide support.

Estimated Cost: \$10 million (\$2 million provided by YCFCD)

Benefit/Cost: 1.6

Status: Clearing under Avenue 7E bridge performed by others. No planned activity until agencies provide funding mechanism.

Agencies: USBR, ACOE, YID, YCFCD, Arizona Fish & Game



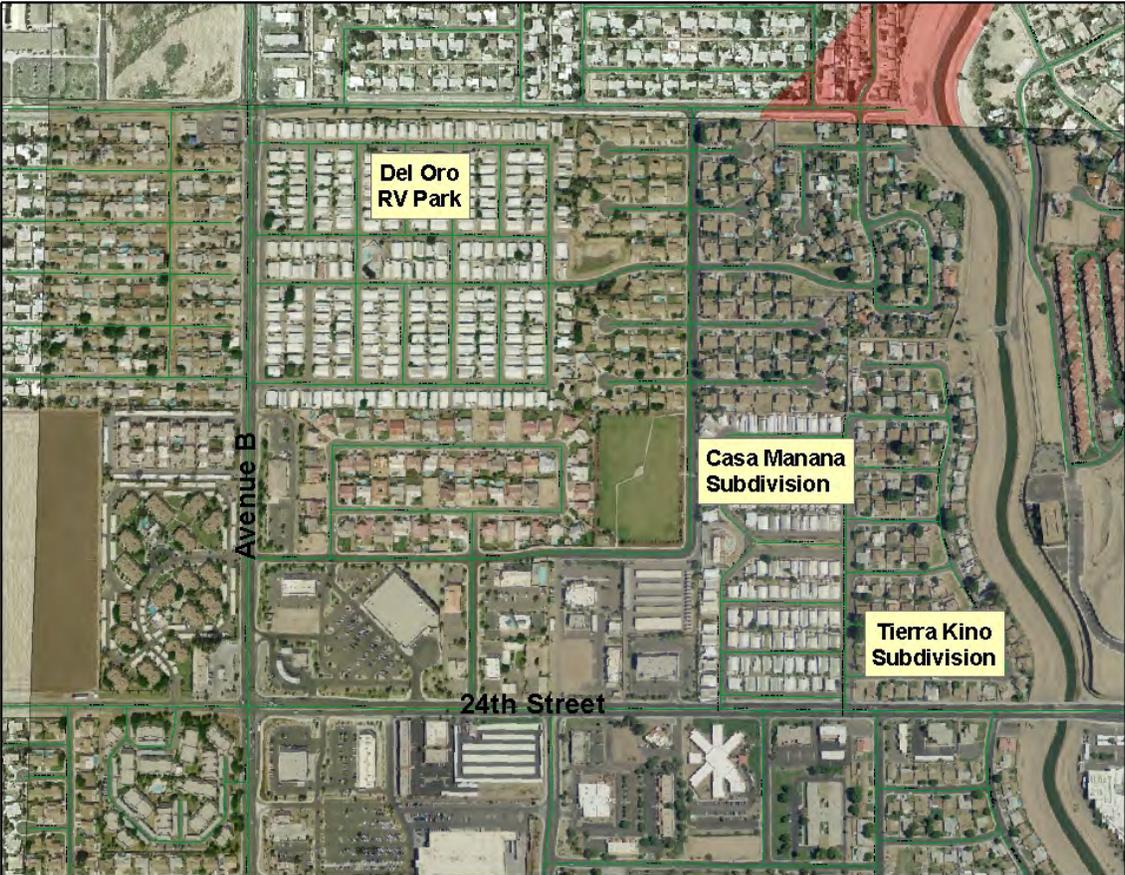
No.	Project
11-23P	<p data-bbox="298 237 971 275">Groundwater Drainage Well Maintenance</p> <p data-bbox="298 279 574 310">Yuma and Gila Valleys</p> <p data-bbox="298 315 1445 386">Need: High groundwater at various times of the year causes considerable problems in the Yuma and Gila Valley areas to residences and utilities.</p> <p data-bbox="298 390 1471 462">Risk: Due to the prolonged drought, the groundwater table is dropping. Extremely high groundwater occurs with Colorado River flooding and irrigation. High but predictable risk.</p> <p data-bbox="298 466 1299 537">Recommended Solution: Annual maintenance based on USBR and YCWUA recommendations and independent analysis.</p> <p data-bbox="298 541 870 573">Estimated Cost: \$50,000-200,000 Annually</p> <p data-bbox="298 577 545 609">Benefit/Cost: >1.0</p> <p data-bbox="298 613 1495 758">Status: YCWUA continues to perform site cleanup and electrical improvements at groundwater well sites. Site cleanup, control rewiring, repainting systems, and pump maintenance. Discharge lines for DW-2 and DW-9 under design. USBR has placed SCADA systems at a number of locations to measure future flow rates.</p> <p data-bbox="298 762 740 793">Agencies: YCFCD, USBR, YCWUA</p> 

No.	Project
11-25P	<p data-bbox="297 262 941 296">East Main Canal Floodplain Delineation</p> <p data-bbox="297 300 1182 333">Yuma—West Side of East Main Canal between 1st and County 14th Streets</p> <p data-bbox="297 338 1503 480">Need: As a result of numerous flood control improvements, the East Main Canal floodplain has been reduced in size. Once the Smucker Park Basin and West Yuma Mesa storm drain improvements are complete, the floodplain will be reevaluated. The Padre Ranchitos area can be evaluated at this time.</p> <p data-bbox="297 485 1458 556">Risk: Accurate mapping is needed for stakeholders to make informed decisions. Accurate mapping is needed to reflect true flood risk.</p> <p data-bbox="297 560 1498 703">Recommended Solution: Evaluate the Padre Ranchitos area. The East Drain may have adequate capacity to contain the mesa runoff to reduce the size of floodplain in this area. The floodplain north of 32nd Street does not have adequate freeboard to reduce the floodplain without the recommended retention.</p> <p data-bbox="297 707 646 741">Estimated Cost: \$350,000</p> <p data-bbox="297 745 937 779">Benefit/Cost: >1.0 (Letter of Map Revision only)</p> <p data-bbox="297 783 1469 888">Status: Magnolia Basin, Sunset Mesa Basin and Vista del Valle Basin have been expanded. Smucker Park Basin plans have been approved by ADWR. Plans complete for 6 1/2 Street and 12th Avenue Basins.</p> <p data-bbox="297 892 774 926">Agencies: YCFCD, Yuma, YCWUA</p>
	 <p>The map displays an aerial view of the Yuma area with a red-shaded floodplain along the East Main Canal. The canal runs north-south through the center of the city. Several streets are labeled: 8th Street, 12th Street, 16th Street, 24th Street, and 32nd Street. Specific basins are also labeled: Magnolia Basin to the north, 12th Street Basin to the east, and Smucker Park to the south. The area between the canal and the city center is labeled 'Floodplain' and 'Yuma Mesa'.</p>

No.	Project
11-32P	<p data-bbox="297 254 1094 296">Fortuna Wash and Tributaries Bank Stabilization</p> <p data-bbox="297 296 613 327">Foothills—Wash E Banks</p> <p data-bbox="297 327 1495 516">Need: The floodplain is 1,150 feet wide in the vicinity of Wash E before the confluence with Fortuna Wash. The Froude number is approaching 1 in the majority of the reach, indicating a severe potential for erosion. Residential subdivisions were developed in 2003 along the steep bank that was brought in as fill by the developer. Portions of the bank have been undercutting and several residential structures could be threatened by continued erosion.</p> <p data-bbox="297 516 1425 590">Risk: If significant erosion occurs homeowners could lose parts of their yards and some structures could also be lost.</p> <p data-bbox="297 590 1084 632">Recommended Solution: Prepare an erosion potential study.</p> <p data-bbox="297 632 634 663">Estimated Cost: \$50,000</p> <p data-bbox="297 663 548 705">Benefit/Cost: >1.0</p> <p data-bbox="297 705 1024 747">Status: The project is in the preliminary planning phase.</p> <p data-bbox="297 747 548 781">Agencies: YCFCD</p>



Group 12 – Drainage and Facility Needs, Recommendations, & Status

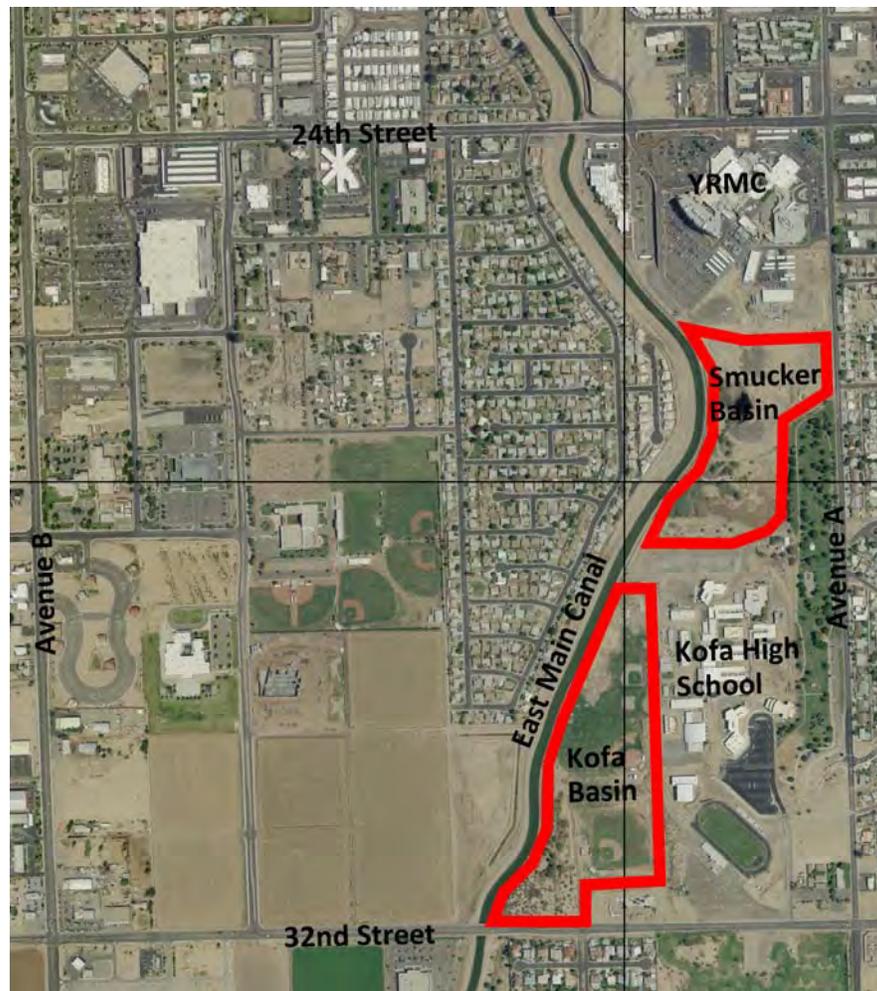
No.	Project
12-01P	<p>Tierra Kino and Del Oro Drainage Improvements - ON HOLD Yuma—Camino Tierra, Quail Avenue, Sidewinder Avenue</p> <p>Need: Streets and improvements have experienced repeated ponding and flooding. Risk: Greater than 50 homes. High, imminent risk due to the multiple homes receiving moderate damage from ponding. Recommended Solution: A storm sewer system is recommended to convey stormwater to the existing 23rd Street Retention Basin. Estimated Cost: \$600,000 for flood control facilities Benefit/Cost: 1.0 Status: Del Oro Estates concept design complete and submitted to City of Yuma for use. Casa Manana is complete. Agencies: YCFCD, Yuma</p>
	

No.	Project
12-09P	<p>28th Avenue Ponding – ON HOLD Yuma—La Jolla Subdivision 14th St., 14th Place and 15th St. at 28th Ave.</p> <p>Need: Ponding and shallow flooding of streets and residential yards. Curb is present providing protection from low intensity rain but water does not drain off streets.</p> <p>Risk: Greater than 50 homes. High, imminent risk due to homes built at street grade and no street drainage.</p> <p>Recommended Solution: Regrade road and/or construct storm drain system to connect to Avenue B storm drain or US Marine Corps basin to the west. The Avenue B solution would add flows to the 12th Street/Avenue B Basin.</p> <p>Estimated Cost: \$650,000</p> <p>Benefit/Cost: >1.0</p> <p>Status: Survey completed and design concepts is complete. Project on hold until property owners propose funding mechanism.</p> <p>Agencies: YCFCD, Yuma</p>



No.	Project
12-15P	<p>28th Street Drainage System Trunkline – ON HOLD Yuma—5th Ave. between 19th and 22nd St., 24th St. between 5th and 6th Ave., 28th St. between Fern Dr. and Las Palmas Vista</p> <p>Need: Ponding and flooding of streets, improvements, and residential yards. Catch basins exist in problem areas. Trunkline is needed on 28th St. for discharge into Smucker Park Basin.</p> <p>Risk: Greater than 50 homes at imminent risk for moderate damage due to ponding</p> <p>Recommended Solution: This project will provide a trunkline storm sewer that will discharge into the proposed Smucker Park Basin and include approximately 7,200 feet of storm sewer pipe, catch basins, manholes and appurtenances.</p> <p>Estimated Cost: \$13 million</p> <p>Benefit/Cost: >1.0</p> <p>Status: Design for Smucker Park to 8th Avenue section complete. The balance of the project is on hold until Smucker Park Basin is completed and required property acquired. City of Yuma has requested restudy of watershed to evaluate retention basin alternatives.</p> <p>Agencies: YCFCD, Yuma</p>

No.	Project
12-16P	<p>Kofa High School Retention Yuma—Kofa High School</p> <p>Need: Inadequate retention facilities allow uncontrolled stormwater from the area east of Kofa High School to discharge to East Main Canal. These basins supplement the capacity of the proposed Smucker Park Basin.</p> <p>Risk: Moderate, mid-term risk associated with potential for damage to East Main Canal which could then fail and compound the amount of flooding.</p> <p>Recommended Solution: Construct a retention basin, discharge force main and spillways to control discharge to canal. Additional land to be purchased or capacity offset by Smucker Park Basin.</p> <p>Cost Estimate: >\$5 million</p> <p>Benefit/Cost: >1.0</p> <p>Status: Due to development in the area, retention is limited to Kofa High School area. Kofa High School is considering drainage improvements to campus.</p> <p>Agencies: YCFCD, Yuma, YCWUA, YUHSD</p>

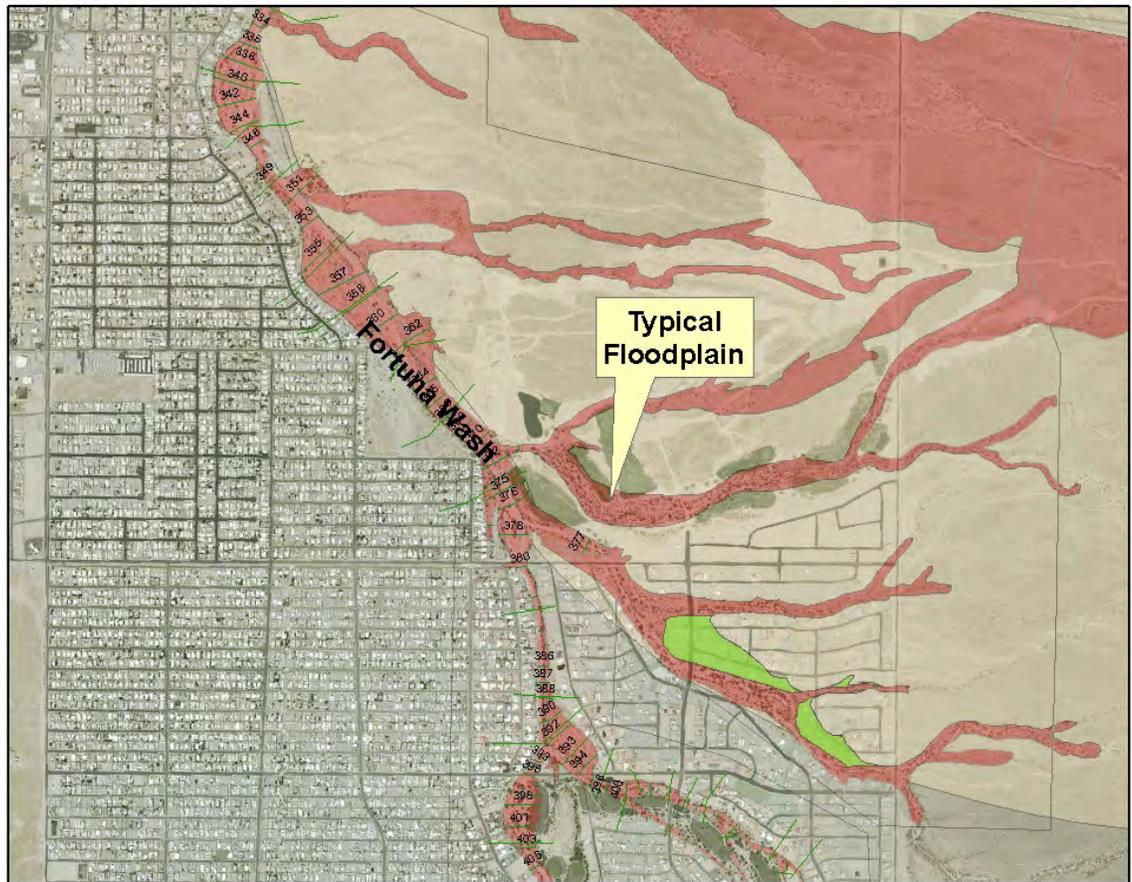


No.	Project
12-20P	<p>1st Avenue/24th Street Area Drain Improvements - ON HOLD Yuma—1st Ave. and 23rd St., Virginia Dr. and 25th St., and 26th Pl. and Palo Verde St.</p> <p>Need: Localized ponding and flooding is damaging residential and commercial improvements.</p> <p>Risk: Right-of-way ponding in localized areas. Low to moderate risk.</p> <p>Recommended Solution: A storm sewer is needed to improve drainage in the Virginia Drive and 25th Street area and the 26th Place and Palo Verde Street area. The 1st Avenue and 23rd Street catch basins may need a conveyance line.</p> <p>Cost Estimate: \$1,500,000</p> <p>Benefit/Cost: >1.0</p> <p>Status: Catch basins are in place at 1st Ave. and 23rd Street. Smucker Park and 28th Street trunkline are needed to drain this area.</p> <p>Agencies: YCFCD, Yuma</p>
	

No.	Project
12-22P	<p>Engler Avenue Retention Basin - ON HOLD Yuma—Engler Ave. and Calle Chapalla</p> <p>Need: Retention basin does not percolate and has no outfall. Neighboring field irrigation adds to problem. Stagnant water results.</p> <p>Risk: Health risk from water-borne illness. Negligible flood risk except west of Pacific where flooding in right-of-way is moderate.</p> <p>Recommended Solution: A pump station and force main to the existing Pacific Avenue retention basin on the East Mesa Storm Drain system is recommended. Drainage improvements to the open channel on the west side of Pacific Avenue to prevent erosion are also recommended.</p> <p>Cost Estimate: \$400,000</p> <p>Benefit/Cost: 0.4</p> <p>Status: Improvement plan design is complete. Survey has been completed to incorporate drainage improvements along Pacific Avenue. Portion of force main in easement has been constructed.</p> <p>Agencies: YCFCD</p>
	

No.	Project
12-45P	<p data-bbox="297 260 776 296">Giss Parkway Street Flooding</p> <p data-bbox="297 300 862 331">Yuma—Giss Parkway between railroad and I-8.</p> <p data-bbox="297 338 1461 443">Need: Giss Parkway underpass is depressed resulting in several-foot deep flooding of road and adjacent improvements during prolonged Colorado River flooding. Planned revitalization may require additional drainage improvements.</p> <p data-bbox="297 449 1395 520">Risk: Risks from 1) groundwater rise from Colorado River Flooding or 2) severe rain flooding underpass. Risk to buildings negligible.</p> <p data-bbox="297 527 1487 598">Recommended Solution: A design concept report is recommended to evaluate pumping and discharge alternatives.</p> <p data-bbox="297 604 1037 636">Estimated Cost: \$100,000 for study (\$2,000,000 project)</p> <p data-bbox="297 642 1040 674">Benefit/Cost: To be determined by design concept report.</p> <p data-bbox="297 680 594 711">Status: Not Addressed</p> <p data-bbox="297 718 743 749">Agencies: YCFCD, Yuma, ADOT</p>
	

No.	Project
12-48P	Flood Control Mapping Countywide
	<p>Need: Ongoing effort to update Countywide topographic mapping necessary to evaluate drainage problems and prepare design plans.</p> <p>Risk: Mapping is needed to assess risk for current and future development.</p> <p>Recommended Solution: Incorporate mapping into studies and projects as needed.</p> <p>Estimated Cost: Reoccurring biannual expense of \$500,000</p> <p>Status: Martinez Lake contour mapping has been received from USBR. Foothills study has updated mapping and hydrology in Foothills area. The Gila River and Coyote Wash Flood Insurance Rate Maps became effective on January 16, 2014.</p> <p>Agencies: YCFCD</p>



No.	Project
12-49P	<p data-bbox="297 268 667 306">Master Drainage Plans</p> <p data-bbox="297 310 444 338">Countywide</p> <p data-bbox="297 346 1481 380">Need: Up-to-date master drainage plans are needed to plan for future drainage development.</p> <p data-bbox="297 384 1481 453">Risk: Drainage plans are a risk management activity that helps reduce overall risk in an area by planning drainage development.</p> <p data-bbox="297 457 1393 491">Recommended Solution: Identify areas that need planning and prepare/update plans.</p> <p data-bbox="297 495 873 529">Estimated Cost: \$150,000-750,000 per plan</p> <p data-bbox="297 533 1430 602">Status: Dateland and Foothills Update master plans complete. Yuma Valley on hold for USBR. Small plans underway for South Somerton and Wellton under separate numbers.</p> <p data-bbox="297 606 1084 640">Agencies: YCFCD, USBR, Communities, Irrigation Districts</p> <div data-bbox="407 674 1414 1755" style="border: 1px solid black; padding: 10px; margin-top: 20px;"> <p>The map displays the geographical layout of Yuma County with various drainage basins highlighted in green. Yellow callout boxes with black text point to specific areas, providing the name of the drainage plan and its year. The plans shown are: Yuma Valley MDP Update 2011 (top center), W. Yuma Mesa MDP 1996 (upper left), East Mesa ADS 2005 (middle left), Dateland ADS 2010 (middle right), Foothills MDP 1988 (lower left), NW Somerton ADS 2009 (bottom left), Gadsden ADS 2010 (bottom left), and San Luis ADS 2009 (bottom left).</p> </div>

No.	Project
12-51P	12th Avenue and Arena Drive Stormdrain Yuma—12 th Avenue to Arena Drive to 9 th Place to 12 th Street
	<p>Need: Stormwater on steep slopes overtop curbs causing erosion on private property.</p> <p>Risk: Not determined</p> <p>Recommended Solution: Storm sewers are needed north of 12th Street to intercept runoff before it erodes private property along steep street sections.</p> <p>Estimated Cost: \$650,000</p> <p>Status: City of Yuma is designing improvements for Arena Avenue.</p> <p>Agencies: YCFCD, Yuma</p>



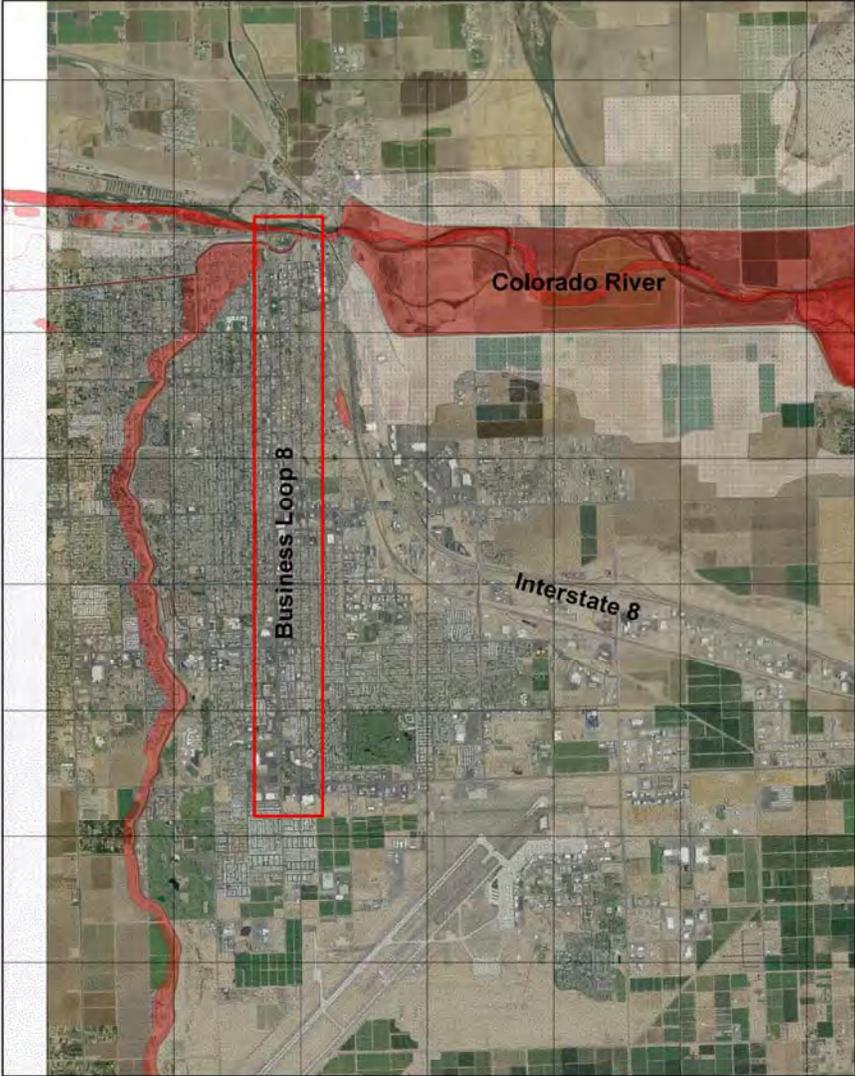
No.	Project
12-56P	<p data-bbox="298 262 1253 296">West Yuma Mesa Storm Drainage Discharge Improvements</p> <p data-bbox="298 300 997 333">Yuma—East Main Canal between 1st St and Co. 14th Street.</p> <p data-bbox="298 338 1479 443">Need: Planned improvements are not complete. IGA needed between the City of Yuma and YCWUA. The East Main Canal does not meet FEMA requirements for a certified flood control structure due to limited freeboard.</p> <p data-bbox="298 447 1498 520">Risk: High, mid-term risk of East Main Canal being flooded and cascading into Yuma Valley and flooding homes.</p> <p data-bbox="298 525 1479 630">Recommended Solution: Planned improvements include additional spillways and retention basins. Upon completion of the East Yuma Mesa CLOMR, the City of Yuma and YCWUA IGAs for operations and maintenance needed.</p> <p data-bbox="298 634 672 667">Estimated Cost: \$1,500,000</p> <p data-bbox="298 672 1492 777">Status: Construction plans are complete for remaining improvements recommended by West Yuma Mesa Storm Drainage Discharge System Reports. Magnolia, Sunset Mesa, and Vista del Valle Basins expanded. Design complete for 6 1/2 Street and 12th Avenue basins.</p> <p data-bbox="298 781 776 814">Agencies: YCFCD, YCWUA, Yuma</p>



No.	Project
12-63P	<p>Smucker Park Area Drainage Yuma—East Main Canal between 24th St. and 28th St.</p> <p>Need: Limited detention available for development above the canal resulting in uncontrolled discharge to East Main Canal.</p> <p>Risk: A large number of moderate and high-risk needs. Hundreds of homes affected by this project.</p> <p>Recommended Solution: A regional retention basin is needed to control discharges.</p> <p>Estimated Cost: \$8,700,000</p> <p>Status: Smucker Park has been designed and plan approval has been received from ADWR. City has acquired needed land and easements. The completion of this project affects Projects 12-15 and 12-20. City has been providing requested documents needed to bid the project.</p> <p>Agencies: YCFCD, YCWUA, Yuma, YUHSD</p>

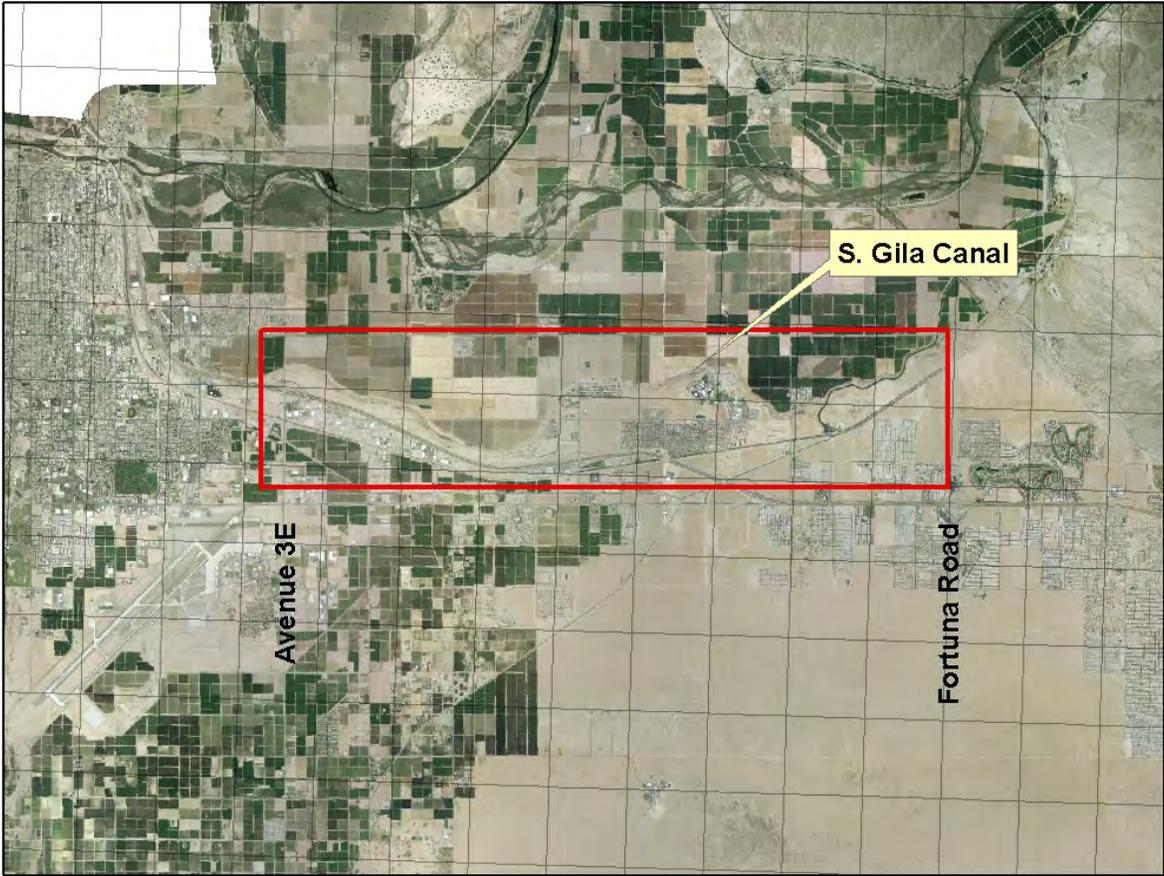


No.	Project
12-66P	<p data-bbox="300 220 941 262">Wellton - County 14th Street Sheet Flow</p> <p data-bbox="300 262 990 294">Wellton - County 14th Street between Avenue 25 and 28 E</p> <p data-bbox="300 304 1453 367">Need: Shallow sheet flows from the bombing range cause damage to landscaping and the surface between Avenue 25 and 28 E.</p> <p data-bbox="300 378 1258 409">Risk: Low risk from moderate hazard to <10 residences and infrastructure.</p> <p data-bbox="300 420 1518 483">Recommended Solution: Continue discussions with MCAS to permit Improvement District to make drainage improvements.</p> <p data-bbox="300 493 649 525">Estimated Cost: \$200,000</p> <p data-bbox="300 535 1412 598">Status: MCAS and District have met on site to review conditions. District requested a meeting with MCAS.</p> <p data-bbox="300 609 844 640">Agencies: YCFCD, Yuma County, MCAS</p> 

No.	Project
12-70P	<p data-bbox="295 260 617 296">Business 8 Flooding</p> <p data-bbox="295 296 527 331">Yuma—4th Avenue</p> <p data-bbox="295 338 1518 478">Need: The B-8 improvements, completed in 1999, ended at Chiquita Drive. Retention basins or extension of the B-8 line is needed. Surface drainage improvements have occurred with new commercial development but older businesses are still threatened by flooding. Evaluation of 4th Avenue needed.</p> <p data-bbox="295 485 511 520">Risk: Uncertain</p> <p data-bbox="295 527 941 562">Recommended Solution: Design concept report.</p> <p data-bbox="295 569 1063 604">Estimated Cost: \$75,000 for study (\$2,000,000 for project)</p> <p data-bbox="295 611 592 646">Status: Not Addressed</p> <p data-bbox="295 653 641 688">Agencies: YCFCD, Yuma</p>
	

No.	Project
12-72P	<p>South Frontage Road Retention Basin Foothills—South Frontage Road</p> <p>Need: The East Mesa Area Drainage Study and Foothills Master Drainage Plan Update identify the need for additional retention along South Frontage Road.</p> <p>Risk: Drainage improvements in the Foothills require an outfall. This basin provides some of the drainage for South Frontage Road and regional drainage.</p> <p>Recommended Solution: Purchase available land suitable for retention, expand existing basins and construct with South Frontage Road Improvements.</p> <p>Estimated Cost: \$450,000</p> <p>Status: Land has been purchased and cleared for a retention basin on South Frontage Road. Basin will be constructed with roadway improvements.</p> <p>Agencies: YCFCD, Yuma County</p>



No.	Project
12-73P	<p data-bbox="297 264 789 304">South Gila Canal Underdrains</p> <p data-bbox="297 304 691 344">South Gila Canal east of Ave. 3E</p> <p data-bbox="297 344 1406 415">Need: The underdrains are clogged and the extent of the resulting problem needs to be determined. Maintenance needed.</p> <p data-bbox="297 415 1190 455">Risk: Low risk of water backing up against canal and causing failure.</p> <p data-bbox="297 455 1487 527">Recommended Solution: Observe the extent of the resulting flooding. If necessary, prepare design concept.</p> <p data-bbox="297 527 647 567">Estimated Cost: \$100,000</p> <p data-bbox="297 567 594 606">Status: Not Addressed</p> <p data-bbox="297 606 751 642">Agencies: Yuma Irrigation District</p>
	 <p>The image is an aerial photograph of an agricultural area. A red rectangular box highlights a specific section of the land. A yellow callout box with a black border points to a canal within this red box, labeled 'S. Gila Canal'. Two vertical labels, 'Avenue 3E' and 'Fortuna Road', are positioned on the left and right sides of the map, respectively, indicating the location of these roads relative to the highlighted area. The terrain shows a mix of green fields and brownish, possibly irrigated or dry, areas.</p>

No.	Project
12-75P	<p data-bbox="297 260 1239 296">Avenue 10 E & Co. 10 ½ Street (Avenida Compadres Area)</p> <p data-bbox="297 302 630 331">Avenue 10 E & Co. 10½ St.</p> <p data-bbox="297 338 1520 407">Need: Flows from failed on-site retention in the area causes flooding in Tuscany Manufactured Home Park and along Avenida Compadres.</p> <p data-bbox="297 413 1029 443">Risk: Less than 20 homes at risk from moderate damage.</p> <p data-bbox="297 449 1425 518">Recommended Solution: Increase the size of the Southern Sands Basin and construct a drainage system to intercept additional runoff.</p> <p data-bbox="297 525 647 554">Estimated Cost: \$250,000</p> <p data-bbox="297 560 545 590">Benefit/Cost: <1.0</p> <p data-bbox="297 596 1469 665">Status: Basin was purchased for back taxes. Project on hold pending North Frontage Road improvements and additional needs.</p> <p data-bbox="297 672 545 701">Agencies: YCFCD</p>
	 <p data-bbox="581 1266 764 1295">District Basin</p> <p data-bbox="930 1444 959 1709">Avenida Compadres</p> <p data-bbox="686 1770 959 1799">North Frontage Road</p>

No.	Project
12-76P 12-77P	Avenue 7E and Araby Road Drainage Improvements Avenue 7E & South Gila Canal
	<p>Need: Runoff from Avenue 7E and Araby Road are flowing uncontrolled into South Gila Canal.</p> <p>Risk: Low to moderate risk of damage to canal or roads. Canal damage could result in severe damage to a few homes below canal.</p> <p>Recommended Solution: Construct drainage channel or drain to direct runoff from Avenue 7E and Araby Road away from South Gila Canal to retention areas.</p> <p>Estimated Cost: \$300,000</p> <p>Status: Not Addressed</p> <p>Agencies: YCFCD, Yuma</p>



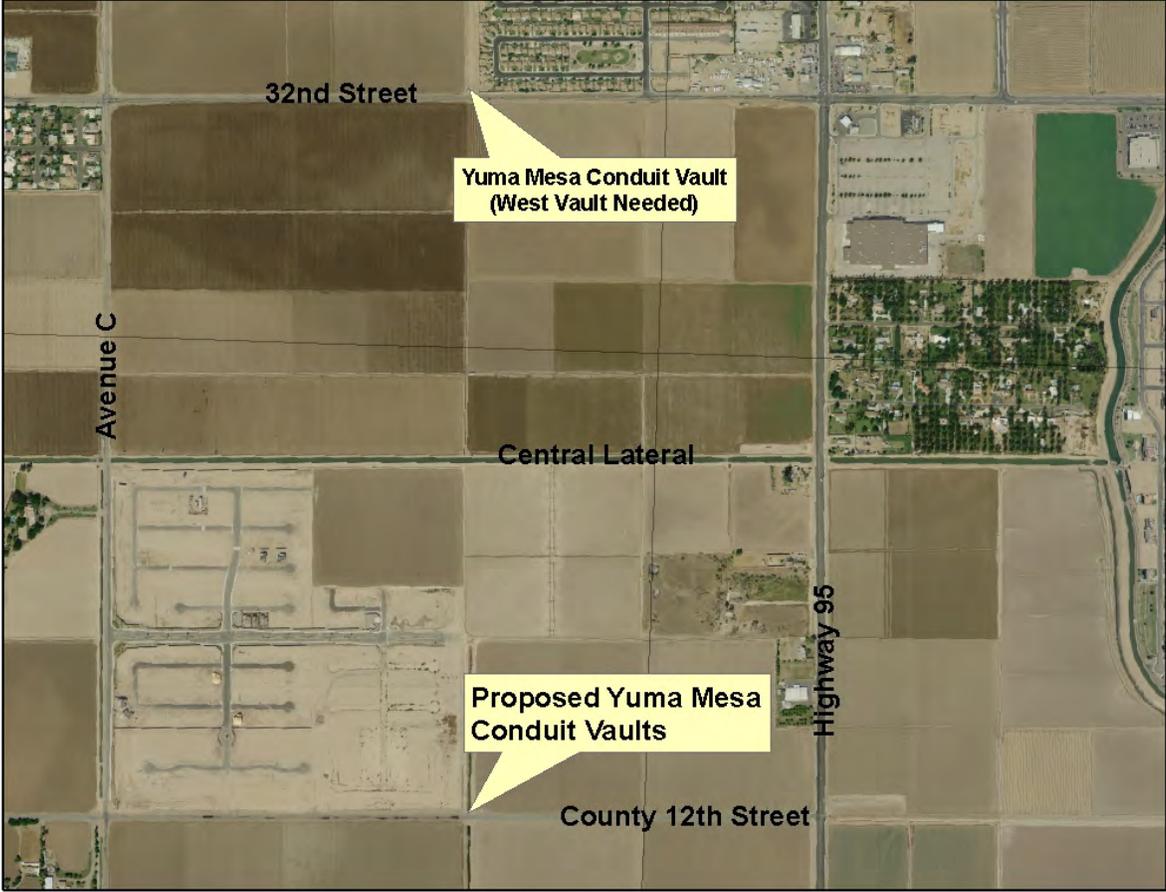
No.	Project
12-78P	<p data-bbox="295 296 961 338">Gila Ridge Road Drainage Improvements</p> <p data-bbox="295 338 829 369">Gila Ridge Road & Avenue 5½ E Alignment</p> <p data-bbox="295 373 1458 411">Need: Improvements to existing drainage structures are required due to localized ponding.</p> <p data-bbox="295 411 974 449">Risk: Low risk of flooding primarily in right-of-way</p> <p data-bbox="295 449 1466 525">Recommended Solution: The existing storm drain needs to be extended across Gila Ridge Road to allow drainage of the ponding area.</p> <p data-bbox="295 525 649 562">Estimated Cost: \$100,000</p> <p data-bbox="295 562 596 600">Status: Not Addressed</p> <p data-bbox="295 600 740 638">Agencies: YCFCD, Yuma County</p> <div data-bbox="328 667 1490 1543" style="text-align: center;">  <p data-bbox="474 947 699 982">Gila Ridge Road</p> <p data-bbox="474 1220 505 1367">Avenue 3E</p> <p data-bbox="1317 1297 1347 1451">Araby Road</p> </div>

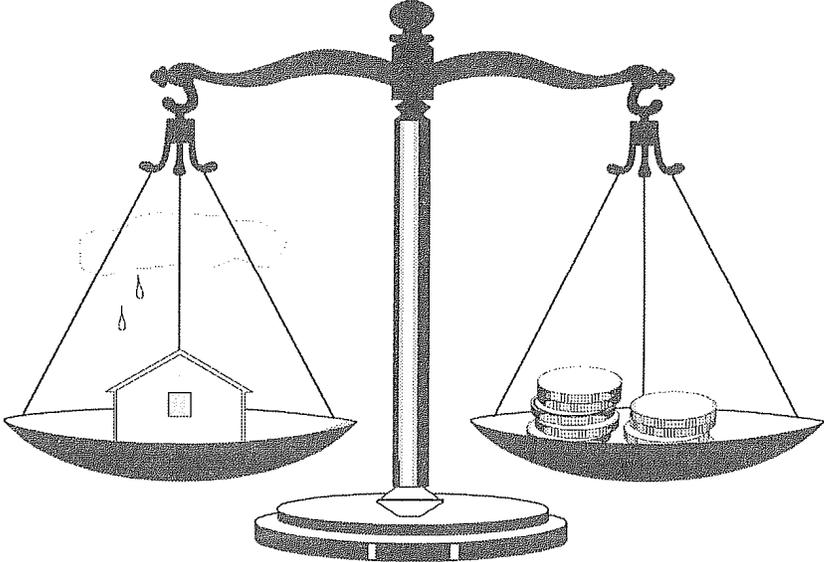
No.	Project
12-79P	<p>Arizona Western College Drainage Improvements Arizona Western College & South Gila Canal</p> <p>Need: Erosion control and drainage improvements are needed to control runoff from the mesa.</p> <p>Risk: Low to moderate risk of damage to canal or roads. Canal damage could result in damages to agricultural land below canal.</p> <p>Recommended Solution: Improved shoulder and drainage along Avenue 8E would decrease erosion.</p> <p>Estimated Cost: \$100,000</p> <p>Status: Not Addressed</p> <p>Agencies: YCFCD, Yuma, AWC</p>



No.	Project
12-80P	<p>San Luis Area Drainage - Phase I COMPLETE San Luis Mesa</p> <p>Need: Older sections of San Luis have insufficient drainage due to construction occurring before standards.</p> <p>Risk: High risk to over 50 homes of moderate damage due to homes built at or below street grade. New Port of Entry may need additional drainage.</p> <p>Recommended Solution: Area Drainage Study has identified the need for a storm drain system discharging to a regional basin along the international boundary west of Highway 95.</p> <p>Estimated Cost: \$1,250,000</p> <p>Benefit/Cost: >1.0 (Provides a discharge for the San Luis Mesa area)</p> <p>Status: Phase I constructing the outfall and trunk line along Main Street complete. Final draft plans are complete and under review by city for Phase II extending the system.</p> <p>Agencies: YCFCD, San Luis, ADOT</p>

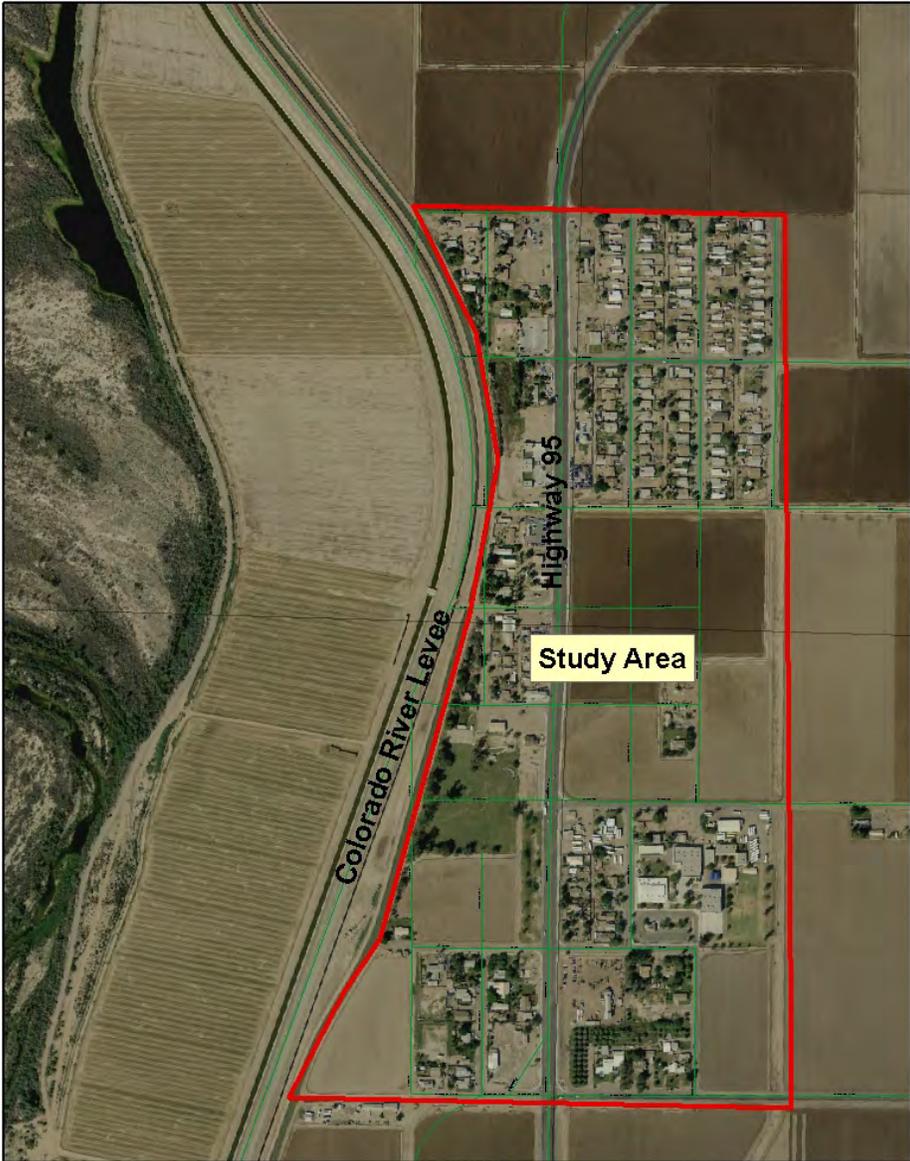


No.	Project
12-81P	<p data-bbox="297 262 743 296">Yuma Mesa Conduit Vaults</p> <p data-bbox="297 300 743 333">Yuma Valley at Co. 11th & 12th Street</p> <p data-bbox="297 338 1477 409">Need: Connection vaults are needed at these locations for future connections in accordance with the Yuma Valley Master Plan.</p> <p data-bbox="297 413 1498 485">Risk: Long-term health risk for no disposal of retained stormwater for the areas served by the proposed connections.</p> <p data-bbox="297 489 1503 522">Recommended Solution: Coordinate with USBR to determine capacity and construct vaults.</p> <p data-bbox="297 527 667 560">Estimated Costs: \$150,000</p> <p data-bbox="297 564 1466 674">Status: USBR is evaluating conduit capacity and water quality issues prior to permitting connections. The Yuma Valley Master Drainage Plan is being updated to redirect drainage toward the Valley Drain System. This area has access to both systems.</p> <p data-bbox="297 678 781 711">Agencies: YCFCD, YCWUA, USBR</p>
	

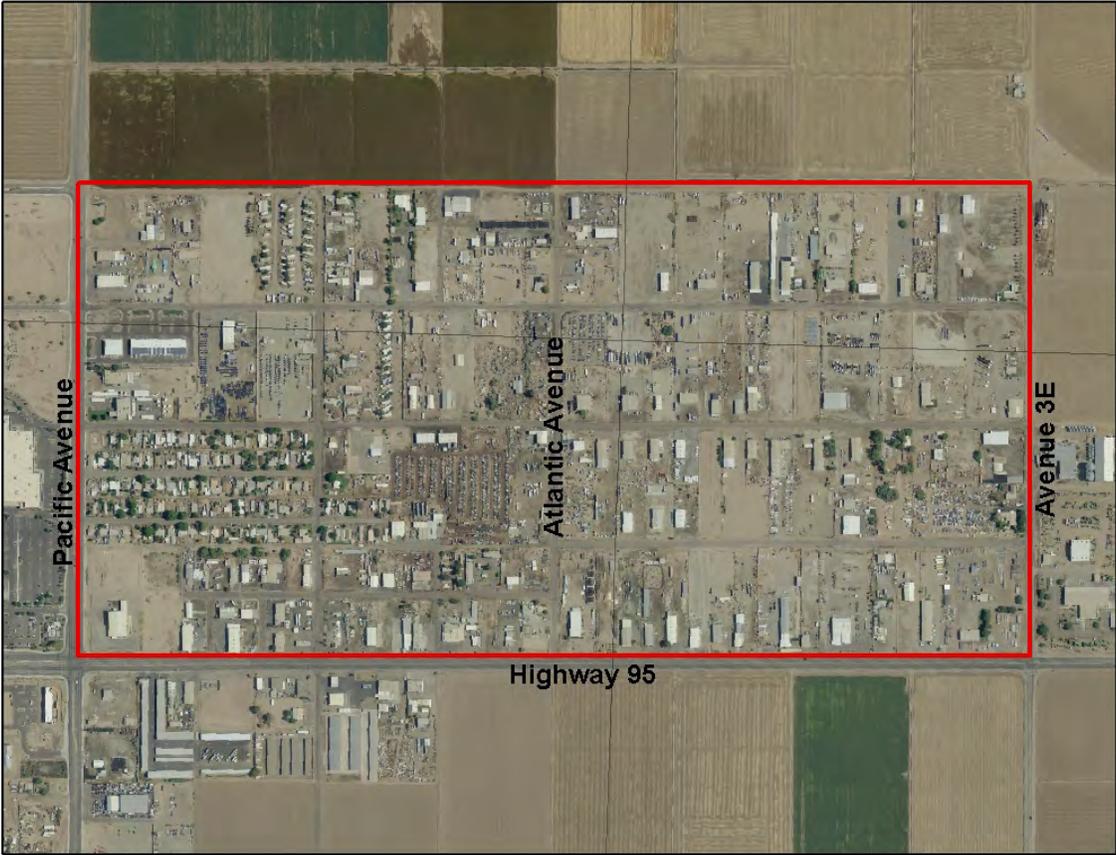
No.	Project
12-82P	<p data-bbox="297 262 565 296">Mitigation Fund</p> <p data-bbox="297 300 589 333">Countywide Floodplains</p> <p data-bbox="297 338 1487 409">Need: A fund/process is needed to purchase and remove structures from the floodplain when the cost is less than other flood control mitigation.</p> <p data-bbox="297 413 812 447">Risk: High, imminent risk to structures.</p> <p data-bbox="297 451 1474 590">Recommended Solution: Provide funding and develop guidelines for use of funds for mitigation. This fund would be used to pay to remove at-risk structures from the floodplain instead of paying for structural protection. Staff needs to prepare a draft mitigation plan for review.</p> <p data-bbox="297 594 730 627">Estimated Costs: Undetermined</p> <p data-bbox="297 632 529 665">Status: No action</p> <p data-bbox="297 669 537 703">Agencies: YCFCD</p>
	

No.	Project
12-84P	<p data-bbox="297 262 755 296">Basin Lands & Maintenance</p> <p data-bbox="297 300 444 333">Countywide</p> <p data-bbox="297 338 1344 409">Need: Additional basins are needed to rehabilitate areas with failing drainage and accommodate future development.</p> <p data-bbox="297 413 1455 485">Risk: Purchasing basin lands when land is available is cheaper than purchasing developed land. Maintenance needed to prevent deterioration of basins.</p> <p data-bbox="297 489 1448 560">Recommended Solution: Purchase of land to set aside for retention basins. Land needed along East Main Canal.</p> <p data-bbox="297 564 711 598">Estimated Cost: \$180,000/acre</p> <p data-bbox="297 602 1495 709">Status: Basin lands have been acquired along North Frontage Road, Somerton, Gadsden, Foothills, and Yuma. Basins improved at Sunset Mesa and Vista Del Valle. Basins complete in Gadsden. North Frontage Road basin easements being acquired.</p> <p data-bbox="297 714 545 747">Agencies: YCFCD</p> <div data-bbox="313 856 1487 1738">  </div>

No.	Project
12-85P	<p data-bbox="297 262 1138 296">48th Street & Foothills Blvd. Drainage Improvements</p> <p data-bbox="297 300 813 333">Foothills Blvd between 48th and 52nd Streets</p> <p data-bbox="297 338 1471 371">Need: Foothills Blvd runoff is ponding at the intersection of 48th Street and Foothills Blvd.</p> <p data-bbox="297 375 1276 409">Risk: Fewer than 10 homes and right-of-way affected by moderate flooding.</p> <p data-bbox="297 413 1352 447">Recommended Solution: Design retention along Foothills Blvd to reduce runoff.</p> <p data-bbox="297 451 654 485">Estimated Cost: \$200,000</p> <p data-bbox="297 489 1479 594">Status: Design concept report is complete recommending retention within the east right-of-way. Project to be constructed with 48th Street/Foothills Boulevard intersection improvements. Intersection plans underway.</p> <p data-bbox="297 598 748 632">Agencies: YCFCD, Yuma County</p> <div data-bbox="469 674 1373 1850" style="text-align: center;"> <p data-bbox="586 831 737 865">48th Street</p> <p data-bbox="1008 863 1195 896">Ponding Area</p> <p data-bbox="943 1167 969 1356" style="writing-mode: vertical-rl; transform: rotate(180deg);">Foothills Blvd</p> </div>

No.	Project
12-86P	<p data-bbox="297 260 685 296">Gadsden Area Drainage</p> <p data-bbox="297 302 402 329">Gadsden</p> <p data-bbox="297 338 1122 373">Need: Gadsden has ponding and localized flooding after storms.</p> <p data-bbox="297 380 1458 415">Risk: Moderate to high risk of flooding throughout Gadsden. Assessment study complete.</p> <p data-bbox="297 422 1495 520">Recommended Solution: An area drainage study is needed to identify the extent of flooding and recommend an overall solution for Gadsden. An alternate is to include Gadsden drainage into a new San Luis drainage system.</p> <p data-bbox="297 527 672 562">Estimated Cost: \$4,000,000</p> <p data-bbox="297 569 1468 636">Status: Basin is complete in Gadsden. An outfall to the Bypass Drain or Colorado River is recommended by the draft Yuma Valley Master Plan Update.</p> <p data-bbox="297 642 740 678">Agencies: YCFCD, Yuma County</p>
	 <p>The image is an aerial photograph of a rural area. On the left side, a wide, light-colored river channel is visible, bordered by a dark, vegetated levee. A road, labeled 'Highway 95', runs vertically through the center-right of the image. A red outline delineates a 'Study Area' that encompasses a residential and agricultural area adjacent to the river and highway. The surrounding landscape consists of large, flat agricultural fields and some scattered buildings.</p>

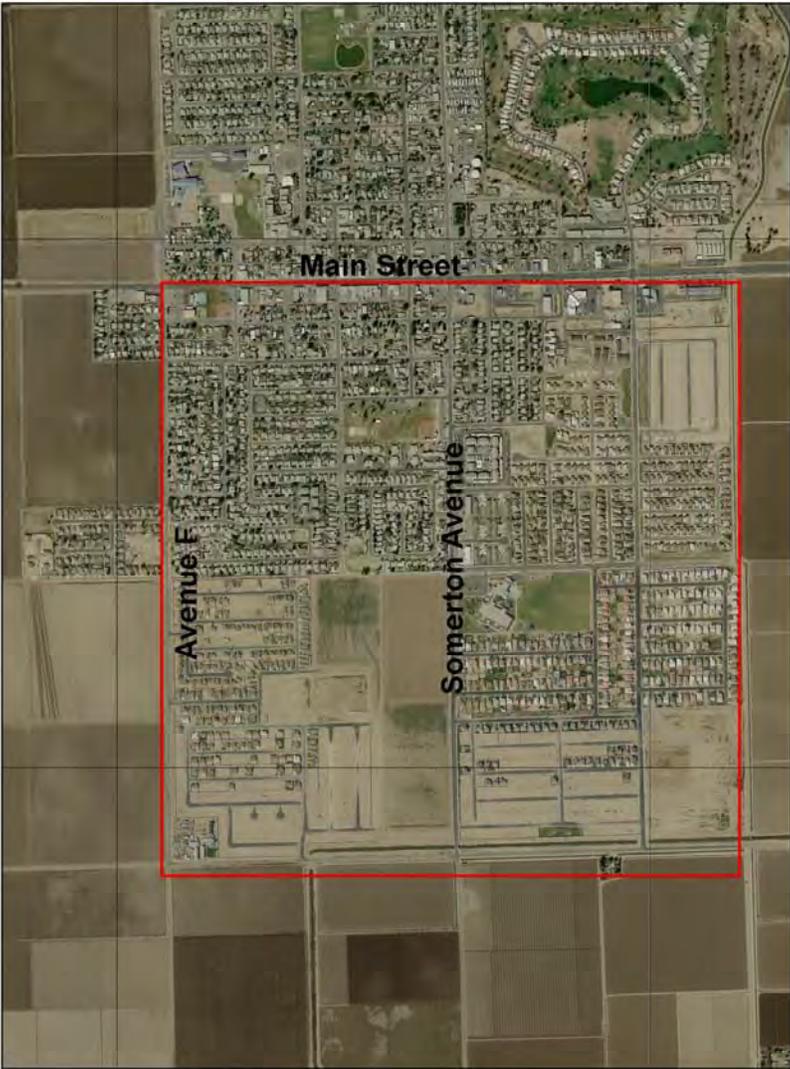
No.	Project
12-88P	<p>Yuma Valley Master Drainage Plan Update - ON HOLD Yuma Valley</p> <p>Need: The Yuma Valley Master Drainage Plan is 20 years old. During the past two decades, many improvements have been constructed to address the identified drainage needs. An update to the master plan is needed to identify existing and future drainage needs and recommend improvement alternatives.</p> <p>Risk: Due to the age of the study, assumption and conditions of plan need to be reviewed and the area restudied to determine continued effectiveness.</p> <p>Recommended Solution: Update the Yuma Valley Master Plan including coordination with YCWUA, USBR, Yuma, Somerton and San Luis. (No new aerial photography)</p> <p>Estimated Cost: \$450,000</p> <p>Status: Final Draft Study is complete. Coordinating review with USBR</p> <p>Agencies: YCFCD, USBR, YCWUA, Municipalities</p>
	 <p>The image is an aerial photograph of the Yuma Valley region. A red line outlines the 'Yuma Valley Study Area'. Three yellow labels with black text are overlaid on the map: 'Yuma' is located in the upper right portion of the study area; 'Yuma Valley Study Area' is centered within the red outline; and 'San Luis' is located at the bottom edge of the study area. The terrain shows a mix of urban development, agricultural fields, and natural features like hills and water bodies.</p>

No.	Project
12-90P	<p>Atlantic Avenue Area Drainage Study Atlantic Avenue north of Highway 95 Vicinity</p> <p>Need: The Atlantic Avenue area has developed prior to development standards. Paved roads did not address drainage resulting in runoff ponding adjacent to road.</p> <p>Risk: Moderate risk to road improvements.</p> <p>Recommended Solution: Prepare an area drainage study to identify the extent of flooding and recommend an overall solution for the area.</p> <p>Estimated Cost: \$5,000,000</p> <p>Status: No activity</p> <p>Agencies: YCFCD, Yuma County</p>
	

No.	Project
12-91P	<p data-bbox="297 254 760 296">Yuma East Flooding - ON HOLD</p> <p data-bbox="297 296 792 327">Yuma East, Units 3 & 4 near Mesa Drive.</p> <p data-bbox="297 327 1503 401">Need: Failed on-site retention and homes at or below street grade results in flooding of streets and some yards and mobile home pits.</p> <p data-bbox="297 401 1089 443">Risk: Greater than 20 homes are at risk of moderate flooding.</p> <p data-bbox="297 443 1312 478">Recommended Solution: Improvement District needed to fund improvements.</p> <p data-bbox="297 478 646 514">Estimated Cost: \$385,000</p> <p data-bbox="297 514 1471 588">Status: Design Concept Report is complete. Project on hold until property owners propose funding mechanism.</p> <p data-bbox="297 588 740 623">Agencies: YCFCD, Yuma County</p> <div data-bbox="477 730 1308 1812" style="text-align: center;"> </div>

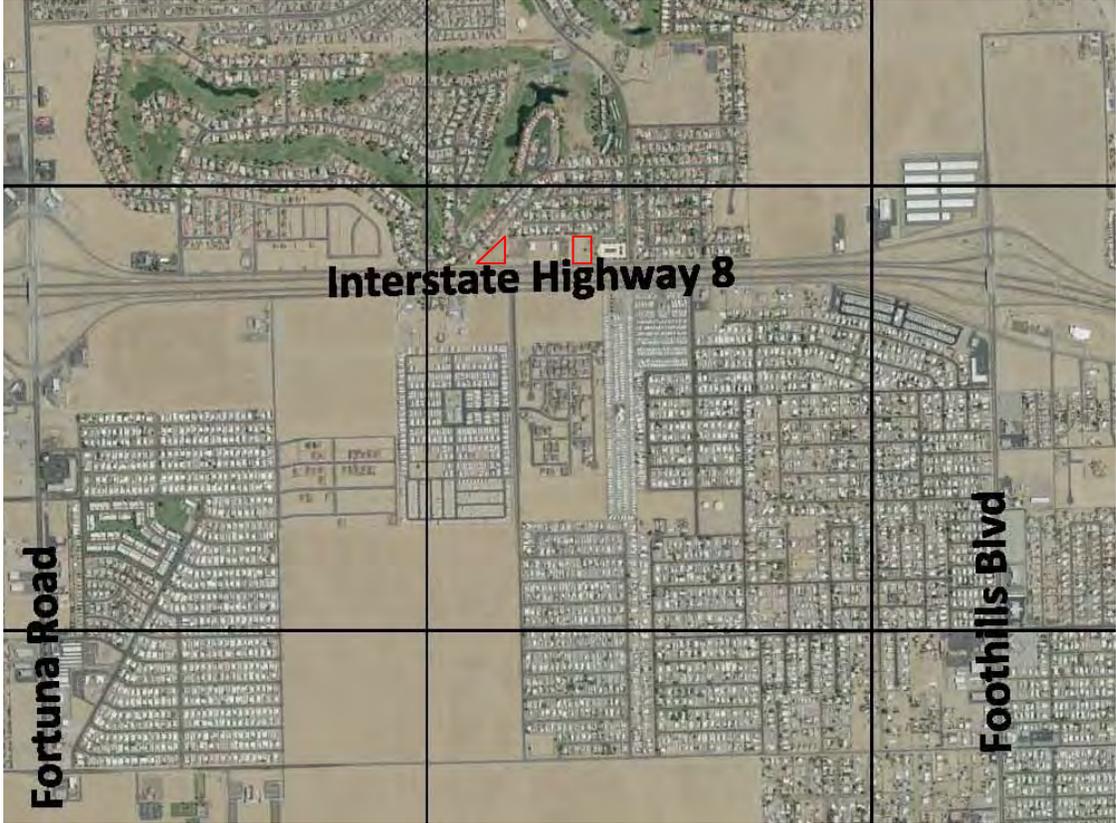
No.	Project
12-92P	<p>Desert Air Estates, Unit 1 & 2 and Country Life Mobile Estates Flooding - ON HOLD Desert Air Estates, Units 1 & 2 and Country Life Mobile Estates Subdivisions near Avenue 9E.</p> <p>Need: Failed on-site retention and homes at or below street grade results in flooding of streets and some yards and mobile home pits.</p> <p>Risk: Greater than 20 homes are at risk of moderate flooding.</p> <p>Recommended Solution: Prepare a conceptual design to identify drainage options.</p> <p>Estimated Cost: \$1,000,000</p> <p>Status: Design Concept Report is complete. Project on hold until property owners propose funding mechanism.</p> <p>Agencies: YCFCD, Yuma County</p>
	

No.	Project
12-93P	<p data-bbox="297 222 862 258">Calle Maria/Avenida Primavera Ponding</p> <p data-bbox="297 258 607 289">Mesa Del Sol Subdivision</p> <p data-bbox="297 296 1263 327">Need: Failed on-site retention results in flooding of streets and some yards.</p> <p data-bbox="297 333 1495 403">Risk: Four homes are at risk of moderate flooding resulting from excessive drainage entering their property from other lots that do not have adequate onsite retention.</p> <p data-bbox="297 409 1365 441">Recommended Solution: Prepare a conceptual design to identify drainage options.</p> <p data-bbox="297 447 646 478">Estimated Cost: \$250,000</p> <p data-bbox="297 485 1446 590">Status: Area was included in Foothills Master Plan Update and identified the need for additional retention along North Frontage Road. Retention basin along N. Frontage Road being designed. Plans for North Frontage Road stormwater system are at 90% complete.</p> <p data-bbox="297 596 740 627">Agencies: YCFCD, Yuma County</p> <div data-bbox="560 724 1242 1764" style="text-align: center;"> <p>The image is an aerial photograph of a residential subdivision. It shows a grid of streets. From top to bottom, the streets are labeled: Camino del Sol (a vertical street), Avenida Primavera (a vertical street), Calle Maria (a horizontal street), and Interstate 8 (a wide horizontal highway). The area between Camino del Sol and Avenida Primavera is densely packed with houses. To the right of Avenida Primavera, there are more houses and some open areas. Below Interstate 8, there are parking lots and some commercial or industrial buildings.</p> </div>

No.	Project
12-94P	<p data-bbox="297 254 812 296">South Somerton Drainage Evaluation</p> <p data-bbox="297 296 690 327">Somerton – South of Main Street</p> <p data-bbox="297 327 1385 401">Need: City of Somerton has identified the need for improved drainage and discharge facilities.</p> <p data-bbox="297 401 1438 474">Risk: Localized ponding and no discharge system results in insect problems and reduced capacity for back-to-back storms.</p> <p data-bbox="297 474 1008 516">Recommended Solution: Need has not been evaluated</p> <p data-bbox="297 516 834 548">Estimated Cost: \$100,000 for evaluation</p> <p data-bbox="297 548 1179 590">Status: Facility Inventory complete. Drainage Study 90% complete.</p> <p data-bbox="297 590 784 621">Agencies: YCFCD, City of Somerton</p> 

No.	Project
12-95P	<p>Bonnie Avenue Storm Drain System Foothills - North of Co. 12th Street and West of Foothills Blvd.</p> <p>Need: Foothills Master Plan identified need for storm drain for Bonnie Avenue and adjoining streets and discharge to Far West Basin.</p> <p>Risk: Moderate risk due to low impact to >50 residences.</p> <p>Recommended Solution: Storm drain along Bonnie Avenue discharging to Far West Basin. Local drainage improvements can be added with road improvements.</p> <p>Estimated Cost: \$700,000</p> <p>Status: Base mapping for plans complete.</p> <p>Agencies: YCFCD, Yuma County</p>



No.	Project
12-97P	<p>North Frontage Road Retention Basins Foothills - North of 40th Street</p> <p>Need: Foothills Master Plan identified need for retention basins along North Frontage Road to capture flows from Interstate Highway 8 and nearby streets.</p> <p>Risk: Moderate risk due to moderate impact to >20 residences.</p> <p>Recommended Solution: Storm drain along North Frontage Road discharging to new basin. Local drainage improvements can be added with road improvements.</p> <p>Estimated Cost: \$200,000</p> <p>Status: Plans are 90% complete. Land acquired for basins.</p> <p>Agencies: YCFCD, Yuma County</p>
 <p>The image is an aerial photograph of a residential and commercial area. A major highway, Interstate Highway 8, runs horizontally across the middle of the image. To the left of the highway, a road labeled 'Fortuna Road' runs vertically. To the right, a road labeled 'Foothills Blvd' runs vertically. The area is densely packed with houses and some larger buildings. Two red markers are placed on the map: a red triangle pointing upwards and a red square, both located just north of Interstate Highway 8, near the center of the image.</p>	

No.	Project
12-98P	<p data-bbox="298 247 919 281">County 14th Street - Mesa Dunes Subdivision</p> <p data-bbox="298 281 831 315">Yuma Mesa - Co. 14th Street and Avenue 7E</p> <p data-bbox="298 315 1295 352">Need: Localized flooding due to uncontrolled runoff from the bombing range.</p> <p data-bbox="298 352 1036 390">Risk: Moderate risk due to low impact to >50 residences.</p> <p data-bbox="298 390 1094 428">Recommended Solution: Coordinate evaluation with MCAS.</p> <p data-bbox="298 428 646 466">Estimated Cost: \$150,000</p> <p data-bbox="298 466 565 504">Status: New Project</p> <p data-bbox="298 504 847 541">Agencies: YCFCD, Yuma County, MCAS</p>
	

No.	Project
12-99P	<p>Hettima Subdivision Street Ponding Yuma - 16th Street and East Main Canal</p> <p>Need: Inadequate street gutters prevent drainage from draining to 16th Street per subdivision design resulting in ponding at intersections.</p> <p>Risk: Low risk due to low impact to <20 residences and streets.</p> <p>Recommended Solution: Replace gutters as needed and install cross gutters to release drainage to 16th Street.</p> <p>Estimated Cost: \$50,000</p> <p>Status: New Project</p> <p>Agencies: YCFCD, Yuma County</p>
	

No.	Project
12-100P	<p>San Luis Basin Discharge System San Luis - Merrill Avenue and Los Oros Street</p> <p>Need: Subdivision basins lack discharge facilities resulting in insects and reduced capacity for back-to-back storms. Future development in the valley will also lack method of discharge.</p> <p>Risk: Moderate risk due to low impact to >30 residences.</p> <p>Recommended Solution: Evaluate extending Merrill Avenue system to drain Rio Sonora St. basins. Drainage Plan for valley between developed San Luis and Gadsden to prepare for future development.</p> <p>Estimated Cost: \$250,000</p> <p>Status: Discussion has occurred with City identifying the need to connect Rio Sonora St. basins sooner than drainage plan would allow due to planned road improvements.</p> <p>Agencies: YCFCD, San Luis</p>

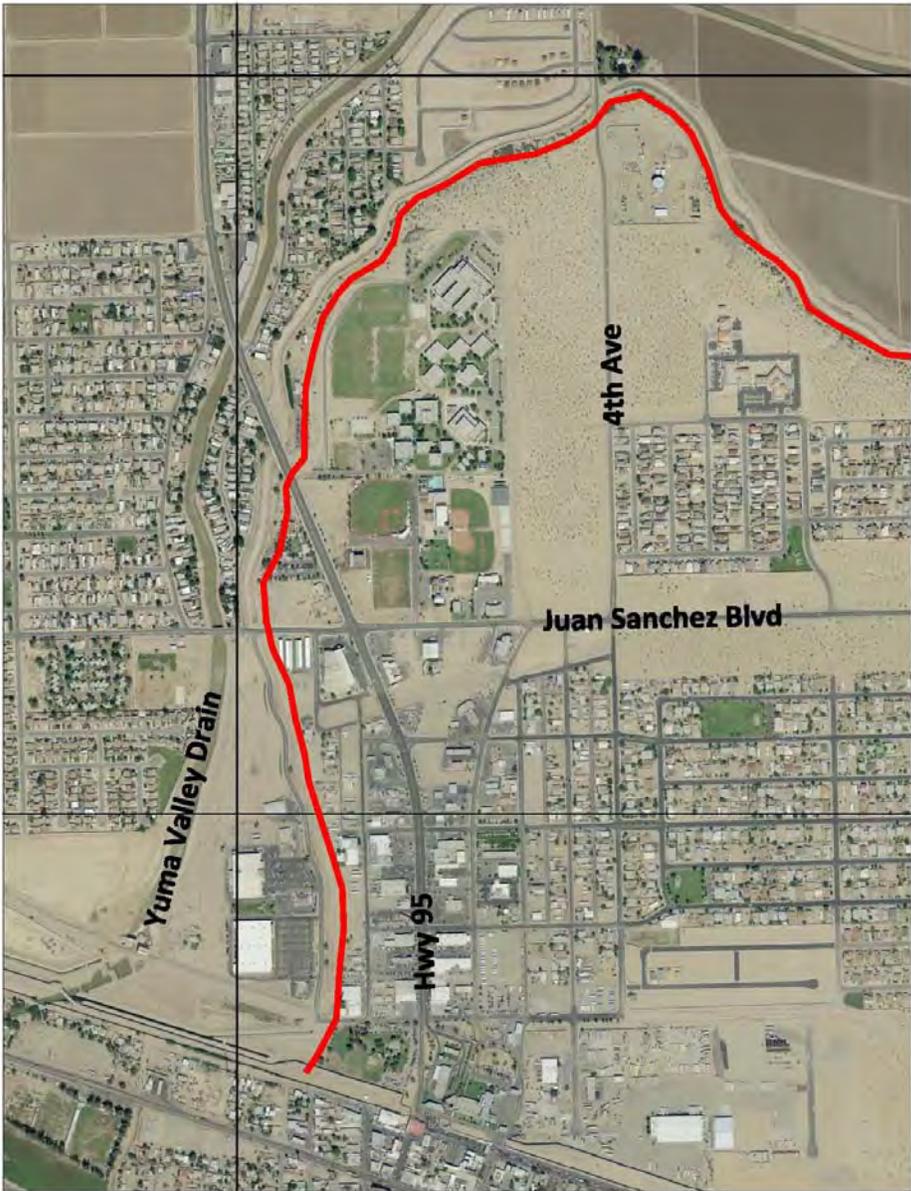


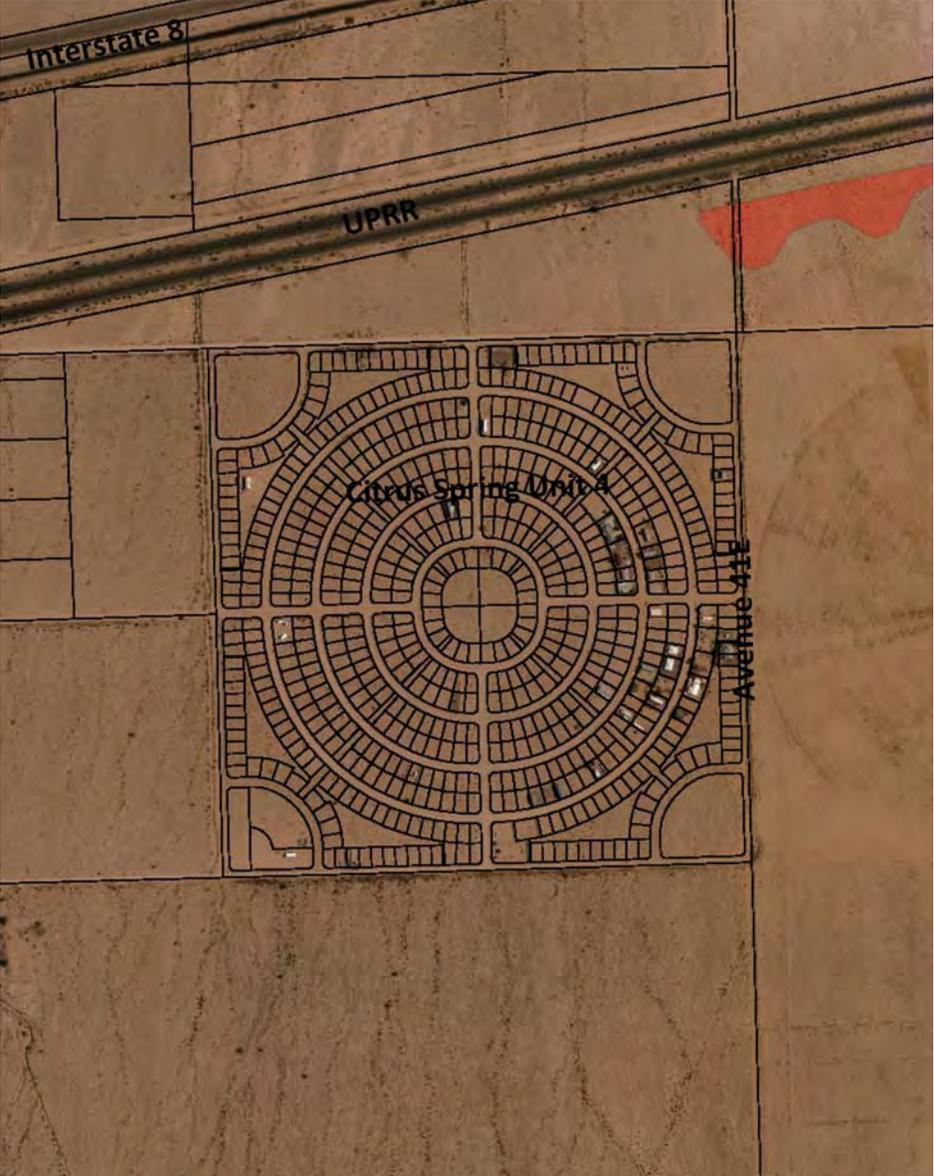
No.	Project
12-101P	<p data-bbox="300 247 771 283">Yuma 44th Drive Basin Discharge</p> <p data-bbox="300 283 738 319">Yuma - 15th Street and 44th Avenue</p> <p data-bbox="300 319 1063 354">Need: Subdivision retention basin has no discharge system.</p> <p data-bbox="300 354 974 390">Risk: Low risk due to low impact to <10 residences.</p> <p data-bbox="300 390 1250 426">Recommended Solution: Construct discharge system to irrigation lateral.</p> <p data-bbox="300 426 657 462">Estimated Cost: \$150,000.</p> <p data-bbox="300 462 568 497">Status: No progress.</p> <p data-bbox="300 497 641 533">Agencies: YCFCD, Yuma</p>



No.	Project
12-102P	<p>Coyote Wash Channelization Wellton - Coyote Wash</p>
	<p>Need: The Coyote Wash channel is not well defined within Wellton, increasing the floodplain width.</p> <p>Risk: Moderate risk due to moderate impact to <20 residences.</p> <p>Recommended Solution: Evaluate channelization of Coyote Wash.</p> <p>Estimated Cost: \$75,000 for evaluation.</p> <p>Status: Being evaluated with Wellton Study</p> <p>Agencies: YCFCD, WMIDD, Wellton</p>
	

No.	Project
12-103P	<p>Wellton Drainage Improvements Wellton - Various Locations</p> <p>Need: Ponding at intersections and low lying areas in Wellton. Town has also identified drainage needs along roads.</p> <p>Risk: Low risk due to low impact to >10 residences each.</p> <p>Recommended Solution: Evaluate need</p> <p>Estimated Cost: \$50,000</p> <p>Status: Study is 90% complete.</p> <p>Agencies: YCFCD, Wellton</p>
	

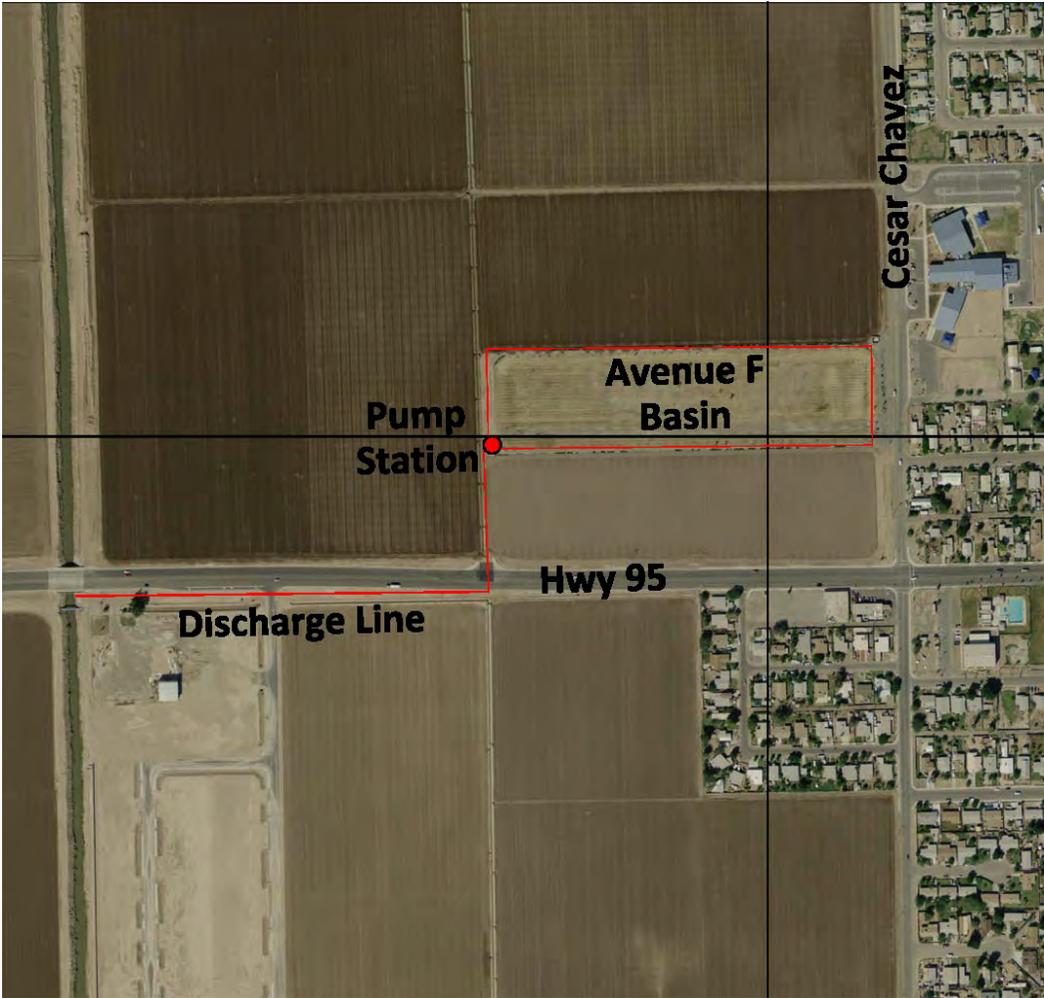
No.	Project
12-104P	<p>San Luis Mesa Erosion San Luis - 4th Avenue to International Boundary</p> <p>Need: Uncontrolled runoff is eroding the side of the mesa. Risk: Moderate risk due to sedimentation in the Yuma Valley Drain. Recommended Solution: Evaluate flood potential along mesa. Estimated Cost: \$150,000. Status: No progress Agencies: YCFCD, YCWUA, San Luis</p>
	 <p>The image is an aerial photograph of a residential and commercial area in San Luis, Arizona. A red line is drawn along the eastern edge of a mesa, indicating the area of erosion. The mesa is a large, flat, sandy area. To the west of the mesa is the Yuma Valley Drain, a large, winding waterway. Several major roads are visible: Hwy 95 runs north-south through the center, Juan Sanchez Blvd runs east-west across the middle, and 4th Ave runs north-south on the right side. The surrounding area is densely populated with houses and buildings. The red line follows the boundary between the mesa and the surrounding flatlands, starting from the bottom left and curving towards the top right.</p>

No.	Project
12-105P	<p data-bbox="297 224 824 258">Tacna - Citrus Park Unit 4 Sheet Flow</p> <p data-bbox="297 258 675 291">Tacna - Avenue 41E Alignment</p> <p data-bbox="297 296 1299 329">Need: Private roads are flooding from uncontrolled sheet flow from the south.</p> <p data-bbox="297 329 1203 363">Risk: Eroded or flooded roads will make properties inaccessible. <1.0.</p> <p data-bbox="297 367 1495 401">Recommended Solution: Private road improvements including drainage to address problem.</p> <p data-bbox="297 405 748 438">Estimated Cost: Study - \$100,000</p> <p data-bbox="297 443 1466 514">Status: New Project - No further action until homeowners propose improvement district or other financial proposal.</p> <p data-bbox="297 518 740 552">Agencies: YCFCD, Yuma County</p>  <p>The image is a site plan map showing a residential development labeled 'Citrus Spring Unit 4'. The development features a circular street layout with multiple concentric streets and radial streets connecting to a central point. To the north of the development, there are two parallel lines representing the Union Pacific Railroad (UPRR). Further north, Interstate 8 is also shown. To the east of the development, a vertical street is labeled 'Avenue 41E'. A red shaded area is visible in the upper right quadrant of the map, possibly indicating a specific project area or a boundary. The map is overlaid on a brown, textured background.</p>

No.	Project
12-106P	<p>West Yuma Mesa Outfall Yuma - Along East Main Canal</p> <p>Need: The basins along the West Yuma Mesa drain into the East Main Canal which results in comingling of stormwater into irrigation water. The canal also has limited capacity to convey stormwater when carrying irrigation water which will prolong drain times from the basins. A dedicated outfall draining to the Colorado River or Yuma Valley drain system would increase increase discharge capacity.</p> <p>Risk: Moderate risk to >1,000 residences and businesses from repetitive storms.</p> <p>Recommended Solution: Construct force main outfall to drain basins.</p> <p>Estimated Cost: \$100,000 study</p> <p>Status: Discussions have occurred with USBR</p> <p>Agencies: YCFCD, USBR, YCWUA, Yuma</p>



No.	Project
12-107P	<p>Airport Loop Road Drainage Improvements Yuma - Airport Loop Road/MCAS</p> <p>Need: Uncontrolled runoff from the runway extension is leaving MCAS and flowing across the Airport Loop Road and into the Yuma Valley.</p> <p>Risk: Moderate risk to Agricultural Land</p> <p>Recommended Solution: Construct retention basin on MCAS.</p> <p>Estimated Cost: \$600,000</p> <p>Status: City of Yuma has contacted MCAS</p> <p>Agencies: City of Yuma, MCAS</p>
	 <p>The image is an aerial photograph showing the intersection of Airport Loop Rd and Co. 14th St. The MCAS facility is visible in the upper right quadrant. A red rectangle highlights a drainage area near the intersection of Airport Loop Rd and Co. 14th St. The surrounding area includes agricultural fields and a canal.</p>

No.	Project
12-108P	<p data-bbox="297 296 786 331">Avenue F Pump Station - Somerton</p> <p data-bbox="297 331 805 367">Somerton - Avenue F North of Main Street</p> <p data-bbox="297 367 1442 443">Need: Avenue F basin is the terminal discharge point for most of Somerton's stormwater. Currently, the basin discharges by gravity to the valley drain system.</p> <p data-bbox="297 443 1325 478">Risk: Moderate risk to >1,000 residences and businesses from repetitive storms.</p> <p data-bbox="297 478 1203 514">Recommended Solution: Construct force main outfall to drain basins.</p> <p data-bbox="297 514 646 550">Estimated Cost: \$250,000</p> <p data-bbox="297 550 565 585">Status: New Project</p> <p data-bbox="297 585 821 621">Agencies: YCFCD, Somerton, YCWUA</p> 

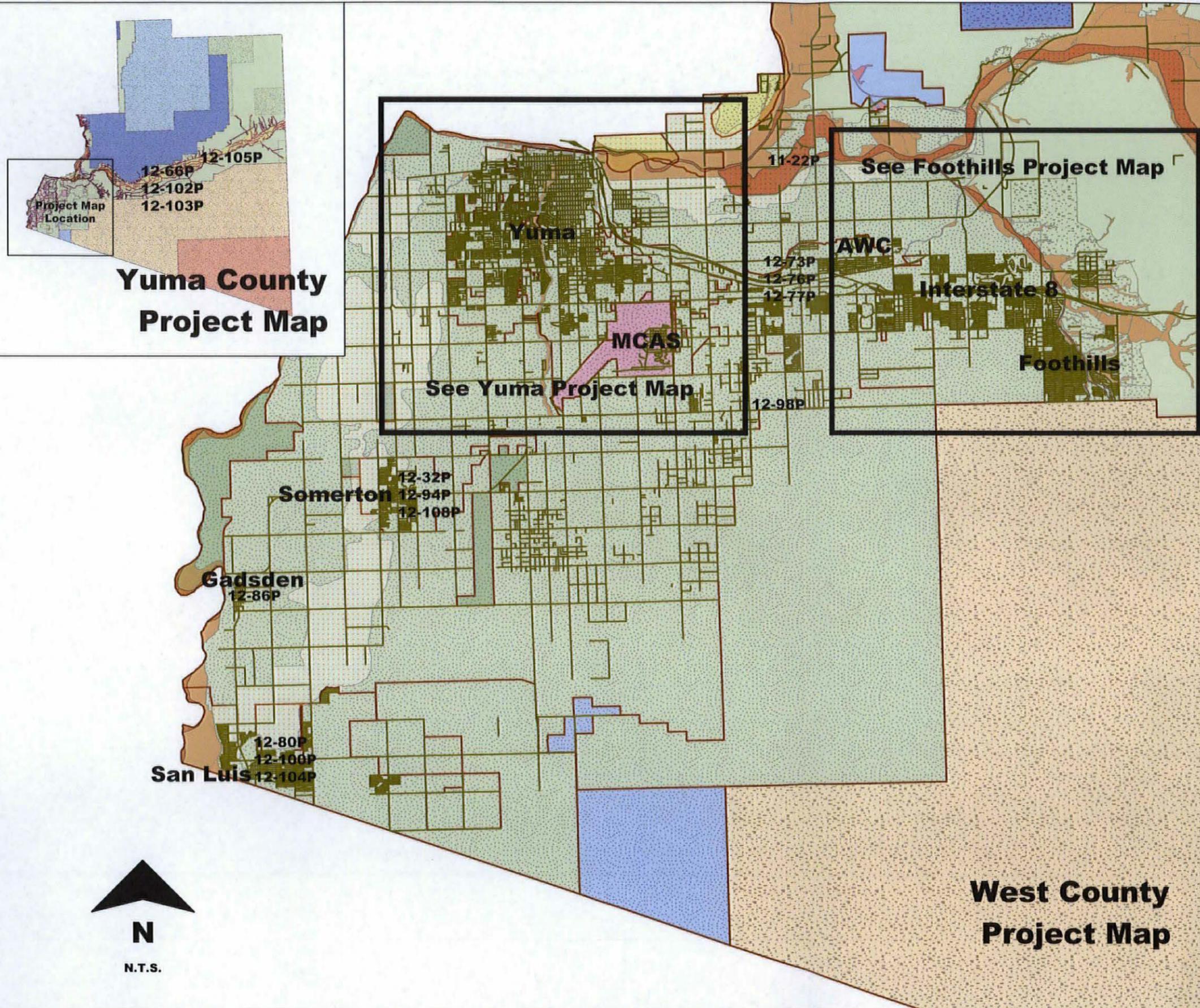
APPENDIX B

Project Location Maps

List of Project Location Maps

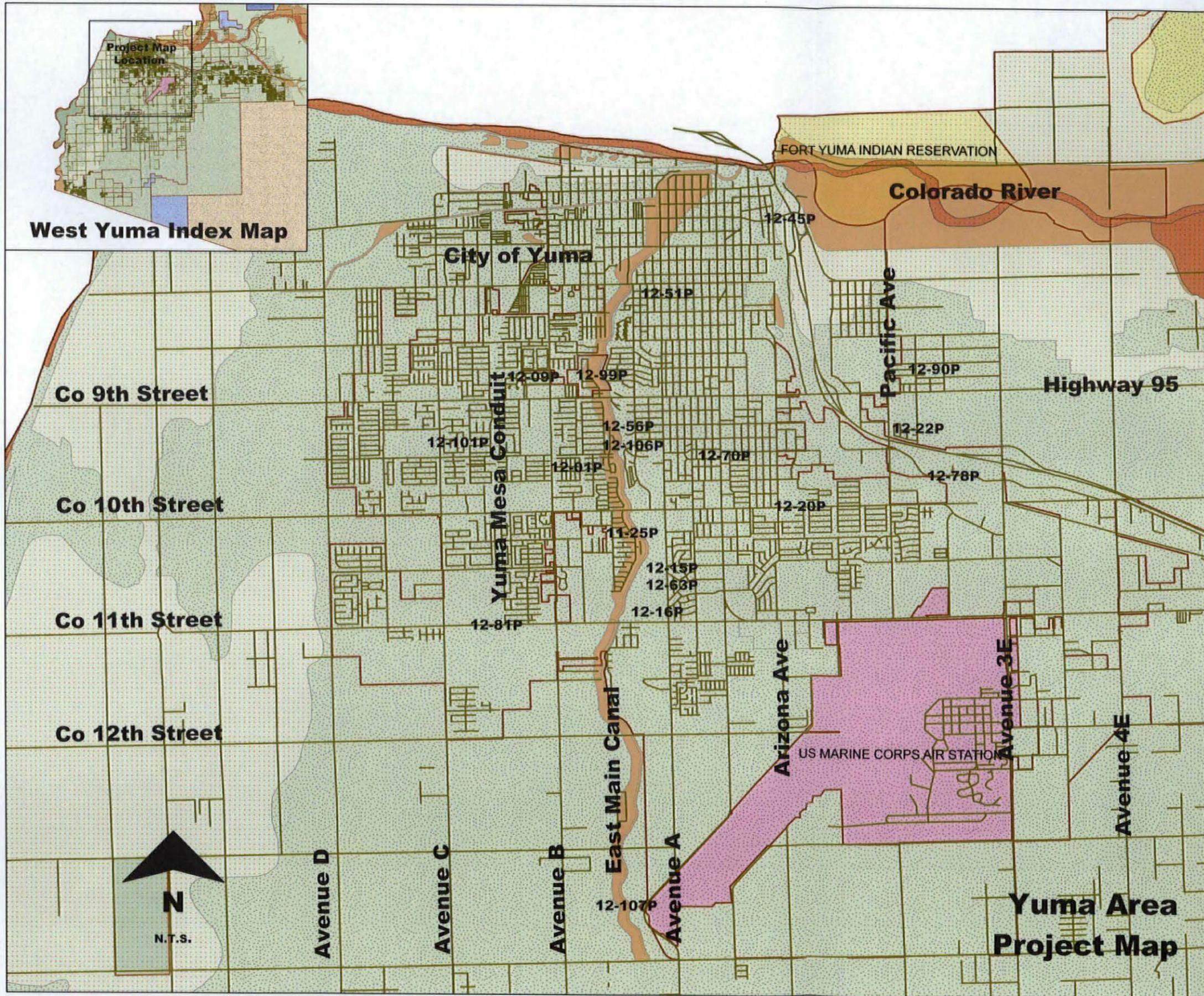
Yuma County Project Map	PM1
West County Project Map	PM1
Yuma Area Project Map	PM2
Foothills & East Mesa Project Map	PM3

Project Location Maps Yuma County & West County



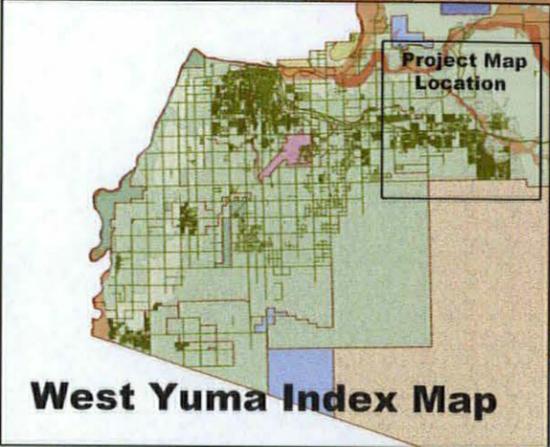
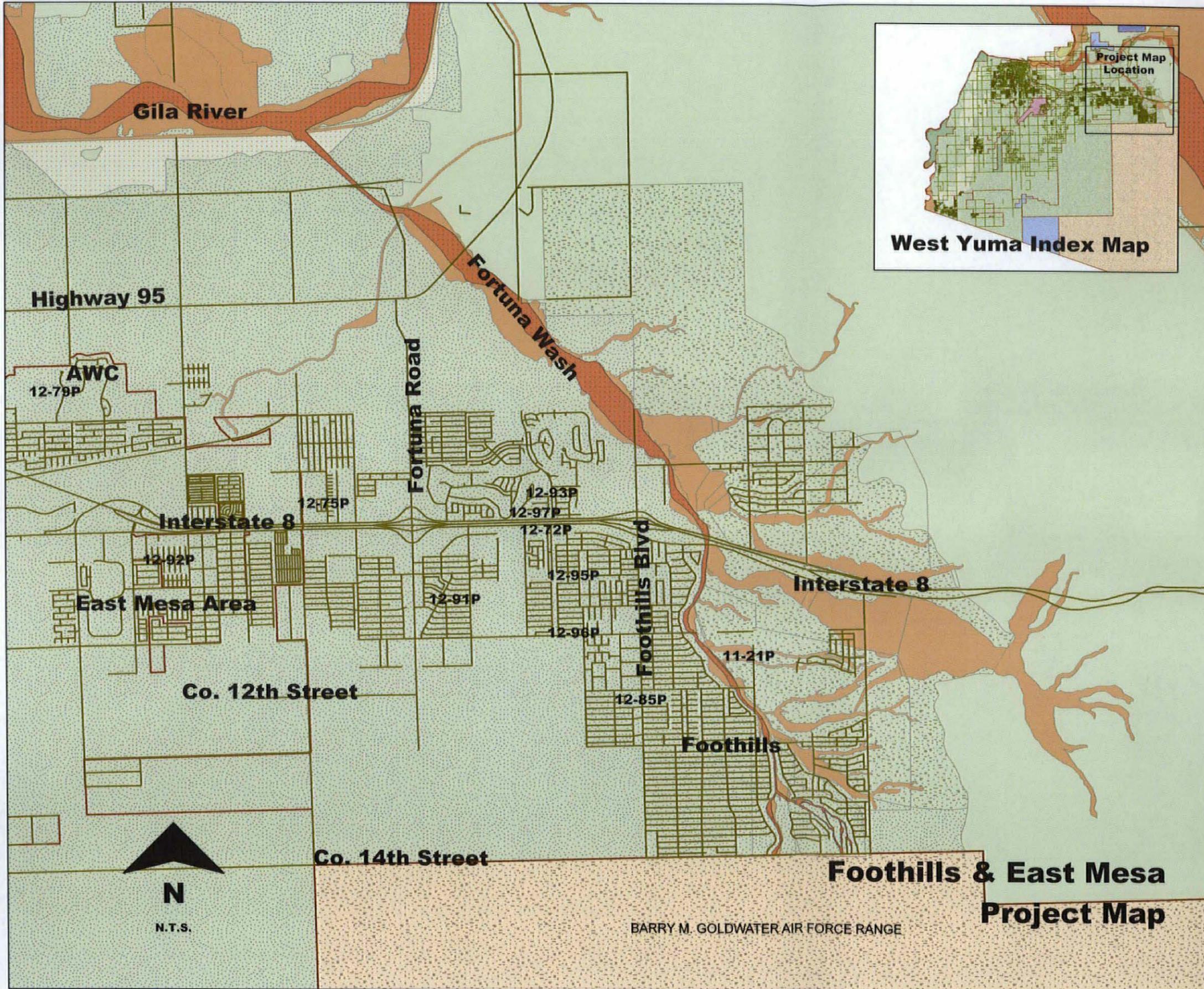
No.	Description
11-22P	Gila River Obstruction Removal
12-48P	Flood Control Mapping (Countywide)
12-49P	Master Drainage Plans (See Individual Plans)
12-66P	Wellton - Co. 14th Street Sheet Flow
12-73P	South Gila Canal Underdrains
12-76P	Avenue 7E Drainage Improvements
12-77P	Araby Road Drainage Improvements
12-80P	San Luis Area Drainage
12-86P	Gadsden Area Drainage
12-88P	Yuma Valley Master Plan Update (Yuma Valley)
12-94P	South Somerton Drainage Evaluation
12-98P	Co. 14th Street - Mesa Dunes Flooding
12-100P	San Luis Basin Discharge
12-102P	Coyote Wash Channelization
12-103P	Wellton Drainage Improvements
12-104P	San Luis Mesa Erosion
12-105P	Tacna - Citrus Park Unit 4 Sheet Flow
12-108P	Somerton - Avenue F Pump Station

Project Location Maps Yuma Area

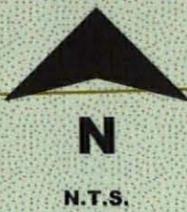


No.	Description
11-23P	Groundwater Drainage Well Maintenance (Yuma Valley)
11-25P	East Main Canal Floodplain Delineation
12-01P	Tierra Kino & Del Oro Drainage Improvements
12-09P	28th Avenue Ponding
12-15P	28th Street Drainage System Trunkline
12-16P	Kofa High School Retention
12-20P	1st Avenue/24th Street Area Drainage Improvements
12-22P	Engler Avenue Retention Basin
12-45P	Giss Parkway Street Flooding
12-51P	12th Avenue/Arena Drive Stormdrain
12-56P	West Yuma Mesa Storm Drainage Discharge Plan
12-63P	Smucker Park Area Drainage
12-70P	Business 8 Flooding
12-78P	Gila Ridge Road Drainage
12-81P	Yuma Mesa Conduit Vaults
12-88P	Yuma Valley Master Drainage Plan Update (Yuma Valley)
12-90P	Atlantic Avenue Area Drainage Study
12-99P	Hettima Street Ponding
12-101P	Yuma 45th Drive Basin Discharge
12-106P	West Yuma Mesa Outfall
12-107P	Airport Loop Road Drainage

Project Location Maps Foothills & East Mesa Area



No.	Description
11-32P	Fortuna Wash Tributaries Bank Stabilization
12-72P	South Frontage Road Retention
12-75P	Avenida Compadres Area
12-79P	Arizona Western College Drainage
12-85P	48th Street & Foothills Boulevard Drainage Improvements
12-91P	Yuma East Flooding
12-92P	Desert Air Estates, 1 & 2 & Country Life Mobile Estates
12-93P	Calle Maria/Avenida Primavera Ponding
12-95P	Bonnie Avenue Storm Drain
12-96P	County 12th Street Detention Basins
12-97P	North Frontage Road Basins



BARRY M. GOLDWATER AIR FORCE RANGE

Foothills & East Mesa Project Map