

Drainage/Flood Control System

The city's drainage system consists of local and regional conveyance, detention, and storm water control facilities that provide protection from storms up to the 100-year event. The design storm is the 100-year, 24-hour event for detention facilities and the 100-year, 6-hour event for conveyances. The level of service required by current city code is to provide an adequate conveyance system to the farthest upstream property located within the city boundary.

There are five distinct, natural arroyo systems or watersheds within the city limits which flow from higher elevations in the northwest toward the lower elevations in the southeast: La Venada, La Barranca, Los Montoyas, Calabacillas and Black Arroyo. Smaller and contributing watersheds, and those located within the city's urban centers include: Rainbow Tributary Watershed, NM 528 Watershed, Rio Rancho Urban Center, and the Unnamed Watershed located between La Venada and La Barranca watersheds. Lastly, two recently annexed, though yet to be developed areas of the city know as Paradise West and Quail Ranch are within the jurisdiction of the Albuquerque Metropolitan Area Flood Control Authority (AMAFCA).

The Southern Sandoval County Arroyo Flood Control Authority (SSCAFCA) has jurisdiction over most drainage and flood control facilities in the Sandoval County portion of Rio Rancho, while the City of Rio Rancho has historically acted as SSCAFCA's designee for minor facilities that have drainage flows less than 500 cubic feet per second (cfs). Since its inception in 1990, SSCAFCA has constructed and now maintains more than 20 regional drainage and flood control facilities within the city limits. SSCAFCA capital projects and maintenance operations are supported by a \$2.077 property tax mill levied per \$1,000 of assessed value of residential and non-residential property within its boundaries.

As categorized in the Infrastructure and Capital Improvement Plan (ICIP), the drainage system does not refer to drainage infrastructure associated with roadway projects, but rather consists of stand-alone drainage, flood control, and erosion control projects the city will build, own, and maintain. Staff has

developed a comprehensive, easy to use, Geographic Information System (GIS) to readily display drainage data which helps in planning future drainage projects featured within the ICIP. Strides have been made to make drainage information more accessible and the GIS Section within the Public Works Engineering Division continues to develop and implement an inventory of local and regional drainage improvements. Additional data collection to provide for completeness and accuracy of the drainage system is an ongoing activity.

Current Capacity, Condition, and Challenges

According to the city's Comprehensive Plan published in November 2010, "...serious problems with drainage, erosion, and flood control persist due to chronic underfunding of drainage projects." Because large areas of the city were platted on a bulk basis with no subdivision improvements such as paved streets or storm drains severe drainage problems during heavy rain events is an imminent danger in many parts of the city. Deficiencies exist throughout the city and as more development occurs further up in the watersheds to the north and west of Unser Boulevard, the risk of flood and property damage increases.

To date, the approach taken toward drainage/floodplain management within the city's jurisdiction has been two fold. First, the city has developed and enforces various ordinances governing flood prevention, erosion control and storm drainage, and the creation of subdivisions. Currently, the city has five basic ordinances governing development and the associated drainage infrastructure required. These ordinances include Chapters 150, 152, 153, 154, and 155 of the Municipal Code. Technical design standards, criteria, and guidelines have also been established jointly with SSCAFCA and incorporated in the city's Development Process Manual (DPM) to facilitate the planning, design, construction, and operation of public and private drainage control, flood control, and erosion control within the community. The second part of the approach is to identify problem areas through city staff assessments of risk and/or citizen complaints. Projects are then defined, designed, and constructed to address drainage infrastructure needs with the caveat of

having sufficient funds available. As for floodplain management, the second part to the approach is the in-house identification of areas susceptible to flooding that are not identified by FEMA and the commissioning of detailed studies used to more accurately identify the flood potential of areas identified by FEMA as “Approximate A Zones.”

Infrastructure and Capital Improvement Plan Development

The city’s 2009 Strategic Plan, Goal 1, Strategy H establishes the goal to “enhance existing and explore new tools for addressing the drainage needs of the city.” Potential tools identified by staff include drainage/floodplain master plans and individual watershed management plans. SSCAFCA has developed individual drainage master plans for all major watersheds within the city limits. As specific area plans are developed for the city, drainage facility plans will be developed assuming that the specific area plans were created based on watershed boundaries and sufficient funds are available for development of such plans. Funds are usually limited, therefore before drainage facility plans may be developed there needs to be a sufficient number of specific area plans in existence to identify the type of proposed development within the watershed.

City staff updates its capital plan concurrent with the annual budget process by which current year capital appropriations are requested to address priority infrastructure needs. Staff regularly works cooperatively with SSCAFCA to identify areas and projects of critical need as well as review and approve drainage solutions for newly developed land within the city. As drainage infrastructure needs are identified and funding secured projects are incorporated into the city’s Infrastructure and Capital Improvement Plan (ICIP).

Developer Contributions

The city’s Impact Fee Plan and Ordinance, adopted in 2005, requires development in obsolete platted areas to pay drainage impact fees valued at \$4,465 for single family homes, \$1,191 for multi-family units, and \$1,786 per thousand square feet of non-residential building space. These funds are used to

construct system level improvements in the city wide service area. In Fiscal Year 2016, development in obsolete platted areas accounted for seven percent (7%) of all residential development. In contrast, developers that assemble various properties and re-plot these properties for development are required by means of the aforementioned ordinances to construct all required drainage infrastructure. Drainage impact fees are not collected from this type of development. Dedication of drainage infrastructure to the city is typically restricted to surface street improvements, associated underground drainage pipelines, and local area detention ponds. Regional drainage facilities constructed as part of approved subdivisions and non-residential development areas are dedicated to SSCAFCA who is responsible for maintenance. Some regional and local facilities are built for multi-purpose use as park land subject to the city’s park system objectives and design standards. The most recently example is the agreement for construction of the 3.5 acre Gateway Pond at the intersection of 22nd Avenue in 19th Street near the Petroglyph Medical Plaza in southern Rio Rancho. City staff, with the assistance of a consultant, is currently reviewing and updating impact fees. A final report and recommendation will be presented to the Governing Body in Fiscal Year 2017.

Funding Sources

Drainage capital expenditures are supported by various sources, including:

- Drainage impact fees
- Contributions and Donations
- Intergovernmental grants
- General Fund transfers

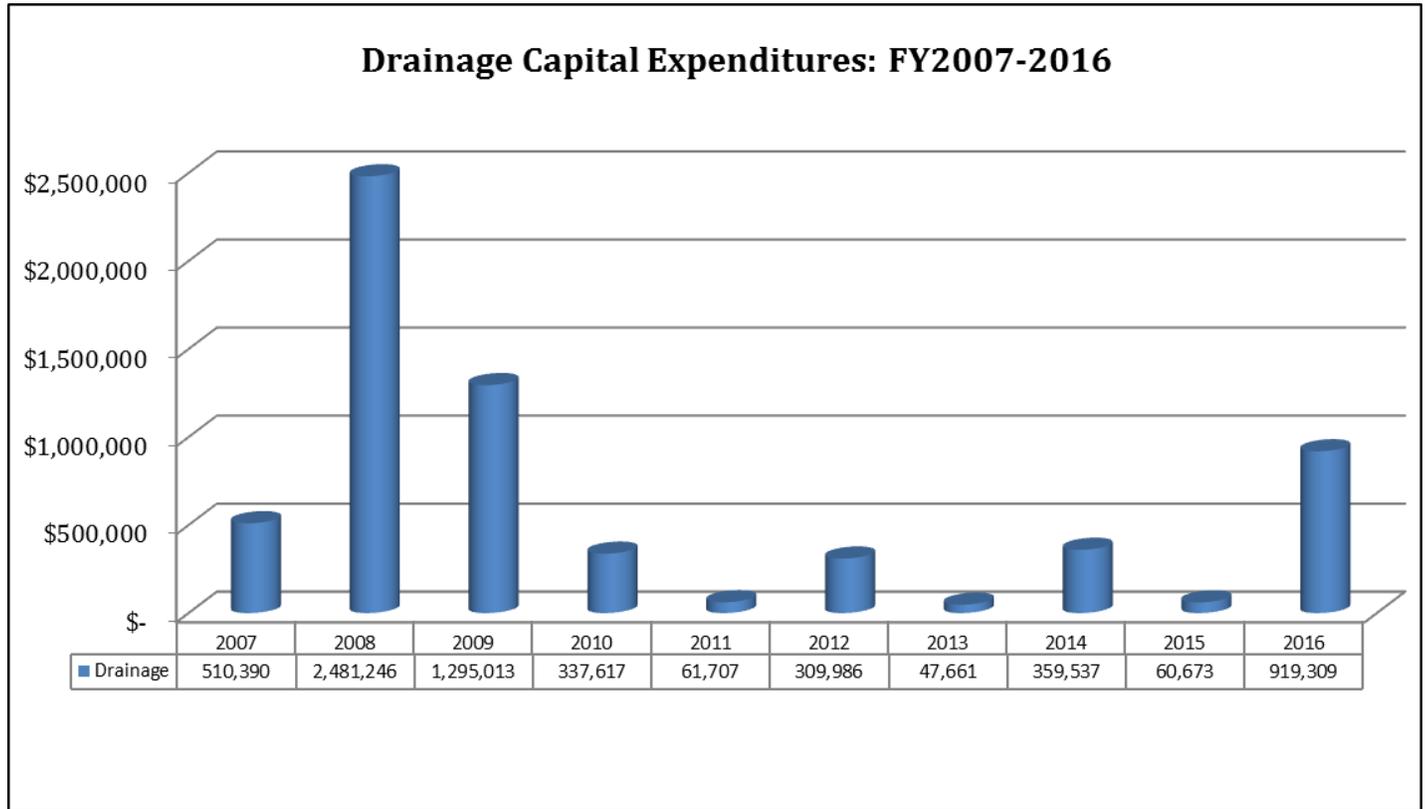
Drainage capital expenditures are down dramatically from their 10 year peak of \$2.5 million in Fiscal Year 2008. Significant expenditures for drainage infrastructure in Fiscal Years 2008 and 2009 were related to remediation and repair of channels and arroyos to their pre-flood condition after severe flooding throughout the city in the summer of 2006. Funding for remediation projects include federal and state grants as well as general operating fund resources. In recent years, drainage impact fees have been the main source of funding for the modest

Capital Improvement Plan Drainage



FY17

drainage infrastructure capital program, accounting for more than seventy (70%) of expenditures. More recently general funds have been allocated to the Sports Complex Armoring and Idalia Road Tributary Culvert Crossing projects. The city also funded significant drainage infrastructure between Fiscal Years 2007 and 2011 via Special Assessment Districts (SADs).



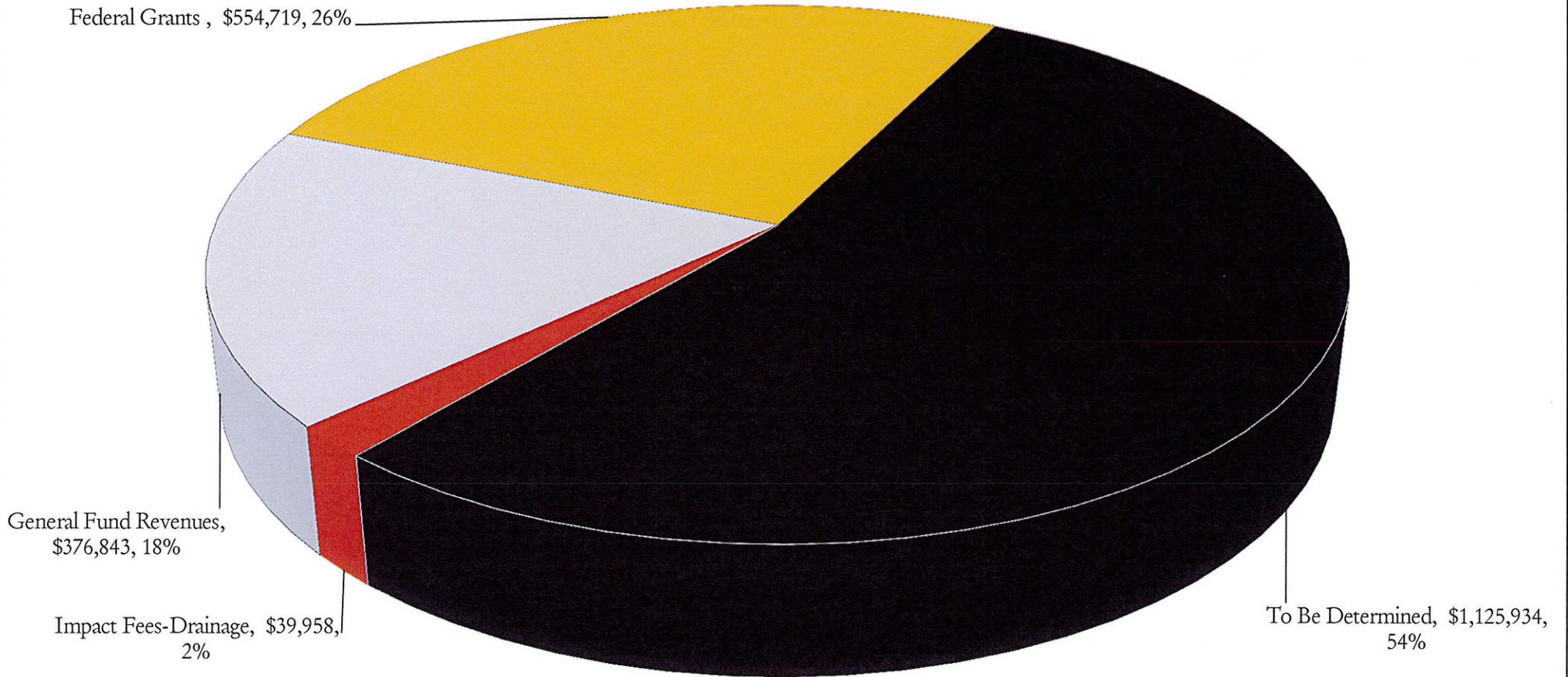
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FY2017-FY2022: ICIP Summary

Rank Priority	Project No.	Project Title	Project to Date	2017 Budget	2017 Additional Spending Anticipated	2017 Total	2018	2019	2020	2021	2022	Funding Requested: FY17-FY22	Funding Source	Funding Source	Funding Source	Total Funding
													(A)	(B)	(C)	(A)+(B)+ (C)
1	PI0638	Los Milagros Channel Improvements	\$ 924,817	\$ -	\$ 39,958	\$ 39,958	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 39,958	Impact Fees- Drainage			
													\$ 39,958			\$ 39,958
2	PW1567	Sportscomplex Armoring	\$ 24,117	\$ -	\$ 715,509	\$ 715,509	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 715,509	General Fund Revenues	Federal Grants		
													\$ 160,790	\$ 554,719		\$ 715,509
3	PW1691	Idalia Road Culvert Crossing (Approx 2000' west of Iris Rd)	\$ 394,974	\$ -	\$ 216,053	\$ 216,053	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 216,053	General Fund Revenues			
													\$ 216,053			\$ 216,053
4	N/A	Idalia Road Culvert Crossing at Arroyo de la Baranca	\$ -	\$ -	\$ -	\$ -	\$ 1,125,934	\$ -	\$ -	\$ -	\$ -	\$ 1,125,934	To Be Determined			
													\$ 1,125,934			\$ 1,125,934

TOTALS	\$ 1,343,907	\$ -	\$ 971,520	\$ 971,520	\$ 1,125,934	\$ -	\$ -	\$ -	\$ -	\$ 2,097,454						\$ 2,097,454
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	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	TOTAL
Impact Fees-Drainage	\$ 39,958						\$ 39,958
General Fund Revenues	\$ 376,843						\$ 376,843
Federal Grants	\$ 554,719						\$ 554,719
To Be Determined		\$ 1,125,934					\$ 1,125,934
TOTAL	\$ 971,520	\$ 1,125,934	\$ -	\$ -	\$ -	\$ -	\$ 2,097,454

**DRAINAGE
PROJECTS UNDER CONSIDERATION**

Rank	Project Name	Fiscal Year(s)	Project Estimate
5	Northern Blvd Drainage Improvements	2018	\$ 130,684
6	Christopher Point Pond Improvements	2019	\$ 136,770
7	Grey Hawk Pond Rework	2020	\$ 139,232
8	Redriver Watershed (Monterrey/Granada	2021-2022	\$ 1,398,275
9	Southern Blvd Phase 2 Pond Acquisition	2022	\$ 1,371,000
10	City Center Facility Plan-Storm Drainage & Land Acquisition	2021	\$ 10,530,978
11	Guadalajara Basin Improvements Phase II	2020-2022	\$ 2,250,000
12	Alberta Watershed Phase III	2020-2021	\$ 1,000,000
13	WWTP# 3 Channel Stabilization	2020-2022	\$ 1,950,000
14	Paseo del Volcan Dam-City Portion	2020	\$ 1,527,682
15	Nicklaus Channel Outfall	2021	\$ 188,011
16	Antigua Road Outfall	2019	\$ 250,000
17	Chamisa Greens Detention Pond	2020	\$ 90,741
18	MonteBella Flood Control	2020	\$ 990,850
	TOTAL		\$ 21,954,223

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1. PROJECT INFORMATION

Project Title	Los Milagros Channel Improvements	Requesting Department	Dept. of Public Work/Engineering	Department Rank Priority No.	1
Project Category	Drainage	CIP Year	FY2006	Project No.:	PI0638
Estimated Useful Life	Greater than 25 Years	District Location	Council District 3	Project Request Status	Revised Project Request

2. PROJECT DESCRIPTION AND SCOPE

The project consists of channel improvements from the outlet of the Los Milagros Subdivision pond across Gemini Rd, across Chessman Rd to the Los Montoyas Arroyo. Construction will include channel grading and shaping, drop structures, culvert road crossings with concrete head walls, and outlet erosion protection. Phase I: Los Milagros to Gemini Road. Phase II: Gemini Road to Los Montoyas Arroyo will include placing the existing channel into a storm drain and outfall into an outfall structure adjacent to the Los Montoyas Arroyo. .

3. PROJECT JUSTIFICATION

The project is required to protect road crossings, allow development of the area, and prevent potential loss of private property in the event of a flood.

4. PROJECT HISTORY AND STATUS

USACoE permits were issued in 2006. The project was not funded and completed within the 2011 permits and an extended permit was obtained prior to Phase I construction. To help finance the project, a Special Condition for Building Permit Approval was filed with Sandoval County on February 11, 2005. The special condition required a total of 41 lots along Chessman Dr., Istle Rd., Garden Rd., Gemini Rd., and Holly Ct. to either build a grade control structure in accordance with city requirements or contribute a sum of \$7,275 for such drainage construction. To date, the city has collected \$42,650 in contribution revenue. Due to the city's lack of funding for the ultimate drainage solution, construction of temporary grading improvements were completed using infrastructure fund capital funds in June 2010 at a total cost of \$22,763. Design of the ultimate drainage for the Los Milagros subdivision to Gemini Rd. was completed in October 2013 and construction of Phase I was completed in May 2014. Design of Phase II improvements from Gemini Rd. to Los Montoya's was completed in October 2014, and construction is currently under construction to be completed in Spring 2016.

5. CAPITAL COSTS

PHASE	SOURCE(S) OF COST INFO	PRIOR YEARS	FY17	FY18	FY19	FY20	FY21	FY202	TOTAL
Pre Design and Env. Review									\$ -
Land Acq./ROW	City contract or price agreement	\$ 8,171							\$ 8,171
Design and Specifications	City contract or price agreement	\$ 117,033	\$ 942						\$ 117,975
Construction	City contract or price agreement	\$ 729,585							\$ 729,585
Construction Management	City contract or price agreement	\$ 70,028	\$ 39,015						\$ 109,043
Equipment/ Vehicle									\$ -
Other									\$ -
TOTAL		\$ 924,817	\$ 39,958	\$ -	\$ 964,775				

6. PROPOSED SOURCES OF FUNDING

REVENUE SOURCE	EXPENDITURE FUND	PRIOR YEARS	FY17	FY18	FY19	FY20	FY21	FY202	TOTAL
Contributions, Donations and Impact Fees- Drainage	305- Infrastructure Fund 355-Impact Fees Drainage	\$ 42,650	\$ -						\$ 42,650
		\$ 882,167	\$ 39,958						\$ 922,125
									\$ -
TOTAL		\$ 924,817	\$ 39,958	\$ -	\$ 964,775				

1. PROJECT INFORMATION

Project Title	Sportscomplex Armoring	Requesting Department	Dept. of Public Work/Engineering	Department Rank Priority No.	2
Project Category	Drainage	CIP Year	FY2015	Project No.:	PW1567
Estimated Useful Life	Greater than 25 Years	District Location	Council District 4	Project Request Status	Revised Project Request

2. PROJECT DESCRIPTION AND SCOPE

The project consists of constructing flood control measures, such as gabion reinforcement (or an equal permanent solution) of the south bank or the Montoya's Arroyo which abuts the north side of the Sports Complex. Repair of the eroding bank will require importation and installation of approximately 15,556 cubic yards of fill dirt, and stabilization with gabions approximately 3,000 linear feet up to seven feet above the arroyo invert.

3. PROJECT JUSTIFICATION

The city's main sports fields are at great risk due to the meandering Montoya's Arroyo. The arroyo in its natural state, has significantly eroded the north side of the facility where playing fields and a skate park are located. The project will enhance the site's existing flood control measures and protect the Sports Complex and its patrons in the long term by eliminating the repeated, steep and large scale erosion of the north side of the complex. Since the erosion is repetitive, having occurred in 2006, 2010, and 2013, mitigation action is desired.

4. PROJECT HISTORY AND STATUS

Staff submitted a Notice of Interest (NOI) to the Federal Emergency Management Agency (FEMA) for Mitigation Grant funding in March 2014. The estimated total damages for the last ten year period resulting from the inadequate drainage situation has been estimated to be \$138,182. In April 2014, FEMA notified the city of the project's eligibility for Mitigation Grant funding and a full application was submitted on September 29, 2014 for federal assistance and is currently under review.

5. CAPITAL COSTS

PHASE	SOURCE(S) OF COST INFO	PRIOR YEARS	FY17	FY18	FY19	FY20	FY21	FY22	TOTAL
Planning and Feasibility									\$ -
Pre Design and Env. Review									\$ -
Land Acq./ROW									\$ -
Design and Specifications	City contract or price agreement	\$ 24,117	\$ 36,762						\$ 60,879
Construction	Cost Consultant		\$ 678,747						\$ 678,747
Construction Management									\$ -
Other									\$ -
TOTAL		\$ 24,117	\$ 715,509	\$ -	\$ 739,626				

6. PROPOSED SOURCES OF FUNDING

REVENUE SOURCE	EXPENDITURE FUND	PRIOR YEARS	FY17	FY18	FY19	FY20	FY21	FY22	TOTAL
General Fund Revenues	101-General Fund	\$ 6,848	\$ 57,000						\$ 63,848
General Fund Revenues	305-Infrastructure Fund	\$ 1,286	\$ 103,790						\$ 105,076
General Fund Revenues	307-Infr Rehab Fund	\$ 15,982	\$ -						\$ 15,982
Federal Grants			\$ 554,719						\$ 554,719
TOTAL		\$ 24,117	\$ 715,509	\$ -	\$ 739,626				

1. PROJECT INFORMATION

Project Title	Idalia Road Culvert Crossing (Approx 2000' west of Iris Rd)	Requesting Department	Dept. of Public Work/Engineering	Department Rank Priority No.	3
Project Category	Drainage	CIP Year	FY2016	Project No.:	PW1691
Estimated Useful Life	16-25 Years	District Location	Multiple Districts	Project Request Status	New Project Request

2. PROJECT DESCRIPTION AND SCOPE

The project consists of the replacement of a partially-failed existing corrugated metal pipe (CMP) culvert with a properly-designed concrete box culvert under Idalia Rd at the tributary of the Arroyo de la Barranca (just west of the Idalia Road and Iris Road roundabout).

3. PROJECT JUSTIFICATION

The existing CMP culvert structure under Idalia Rd at the tributary of the Arroyo de la Barranca (just west of the Idalia and Iris Rd roundabout) has partially failed. An immediate replacement of this crossing is needed to protect this Idalia Rd crossing from a complete failure under a severe rain event. A new box culvert and adjacent arroyo bank stabilization is expected to last well into the future and has been designed to accommodate fully anticipated developed flows.

4. PROJECT HISTORY AND STATUS

The existing CMP culvert structure under Idalia Rd at the tributary of the Arroyo de la Barranca (just west of the Idalia and Iris Rd roundabout) was constructed in the late 1990's. Construction commenced in March 2016 to be completed in summer 2016.

5. CAPITAL COSTS

PHASE	SOURCE(S) OF COST INFO	PRIOR YEARS	FY17	FY18	FY19	FY20	FY21	FY22	TOTAL
Planning and Feasibility									\$ -
Pre Design and Env. Review									\$ -
Land Acq./ROW									\$ -
Design and Specifications	City contract or price agreement	\$ 58,231	\$ -						\$ 58,231
Construction	City contract or price agreement	\$ 336,743	\$ 167,994						\$ 504,737
Construction Management									\$ -
Equipment/ Vehicle									\$ -
Other	Other		\$ 48,059						\$ 48,059
TOTAL		\$ 394,974	\$ 216,053	\$ -	\$ 611,027				

6. PROPOSED SOURCES OF FUNDING

REVENUE SOURCE	EXPENDITURE FUND	PRIOR YEARS	FY17	FY18	FY19	FY20	FY21	FY22	TOTAL
General Fund Revenues	305-Infrastructure Fund	\$ 338,899	\$ 216,053						\$ 554,952
G.O. Bond Proceeds	329-GO Bond Fund	\$ 6,075	\$ -						\$ 6,075
Impact Fees-Roads	351-Impact Fees Roads	\$ 50,000	\$ -						\$ 50,000
									\$ -
TOTAL		\$ 394,974	\$ 216,053	\$ -	\$ 611,027				

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Los Milagros Channel Improvements (PI0638)

Temporary grading improvements were completed in June 2010 at a cost of \$22,763, while design of the ultimate drainage solution for the Los Milagros subdivision to Gemini Rd. was completed in October 2013. Construction of Phase 1 improvements to Gemini Rd. were completed in May 2014 and design of Phase 2 improvements from Gemini Rd. to Los Montoyas' Arroyo were completed in October 2014. Construction of Phase 2 improvements was completed in spring 2016. The project was necessary to protect road crossings, allow development of the area, and prevent potential loss of private property in the event of a flood. Funding consisted of developer contributions (\$42,650) and drainage impact fees (\$922,126).



**Sports Complex
Armoring (PW1567)**

The project consists of flood control measures to the south bank of Los Montoyas' Arroyo which abuts the north side of the Sports Complex. The city's main sports fields are at great risk due to the meandering Los Montoyas' Arroyo, which in its natural state has significantly eroded the north side of the facility. Total estimated damages



over the last ten years resulting from the inadequate drainage situation are \$138,182. Staff has submitted an application for federal assistance in the total project amount \$739,626. Of that amount \$184,906 represents the local match share which the city has secured via in kind materials and services donations, and commitment of general fund sources.

Idalia Tributary Crossing (PW1691)

The Governing Body appropriated an amount of \$500,000 in general fund sources at Midyear FY2016 to address the partially failed road crossing of the tributary of the Arroyo de la Barranca at Idalia Road approximately 200' west of Iris Road. An immediate replacement of the box culvert and adjacent arroyo bank stabilization will protect the road crossing from complete failure in a severe rain event. Construction commenced in April to be completed in May 2016. Additional project funding has been allocated from general fund sources (\$54,952), bond proceeds (\$6,075), and road impact fees (\$50,000).