

## 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 \$2.07 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 Department of Public Works, Engineering Division 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).

The city’s Strategic Plan goals for Economic Vitality and Infrastructure have established the following objectives related to drainage infrastructure development:

- Make strategic and targeted public infrastructure improvements. More specifically, prioritize infrastructure improvements on already identified key development areas, and identify areas of the city that have high development potential with infrastructure deficiencies.
- Update the Comprehensive Plan that establishes policy for the physical development of the city.
- Leverage resources on an ongoing basis and initiate contact with other entities to compare approaches and explore sharing resources to increase output and maximize efficiencies.
- Address citizen infrastructure related concerns in a timely and empathetic manner on an ongoing and consistent basis.

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 for areas with potential development and for areas already developed with deficient drainage infrastructure, specifically developed areas on antiquated platted lots. 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.

## Developer Contributions

The city’s updated Impact Fee Plan and Ordinance (O-9, Enactment 17-12) effective July 1, 2017, requires development in areas not served by an engineered and approved storm water management system to pay drainage impact fees valued at:

- Single Family Residential: \$4,465
- Multi-Family Residential: \$1,323.75
- Non-Residential: \$394/1,000 square foot

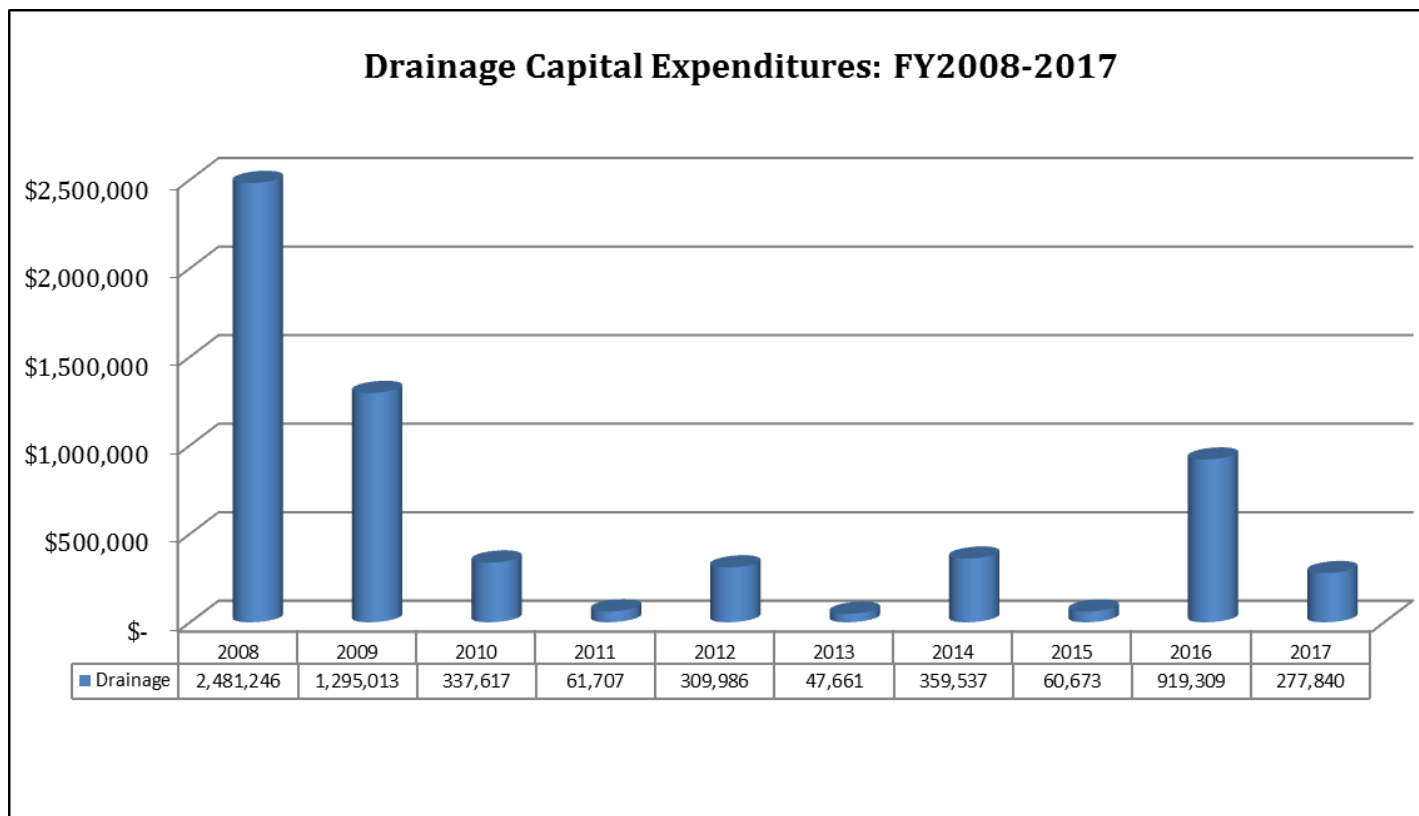
These funds are used to construct system level improvements in the city wide service area. In Fiscal Year 2017, development in areas not served by an engineered and approved storm water management system accounted for seven percent (7%) of all residential development. In contrast, developers that assemble 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.

## 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 Drainage infrastructure capital program accounting for more than sixty percent (60%) of expenditures. More recently general fund sources were 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).



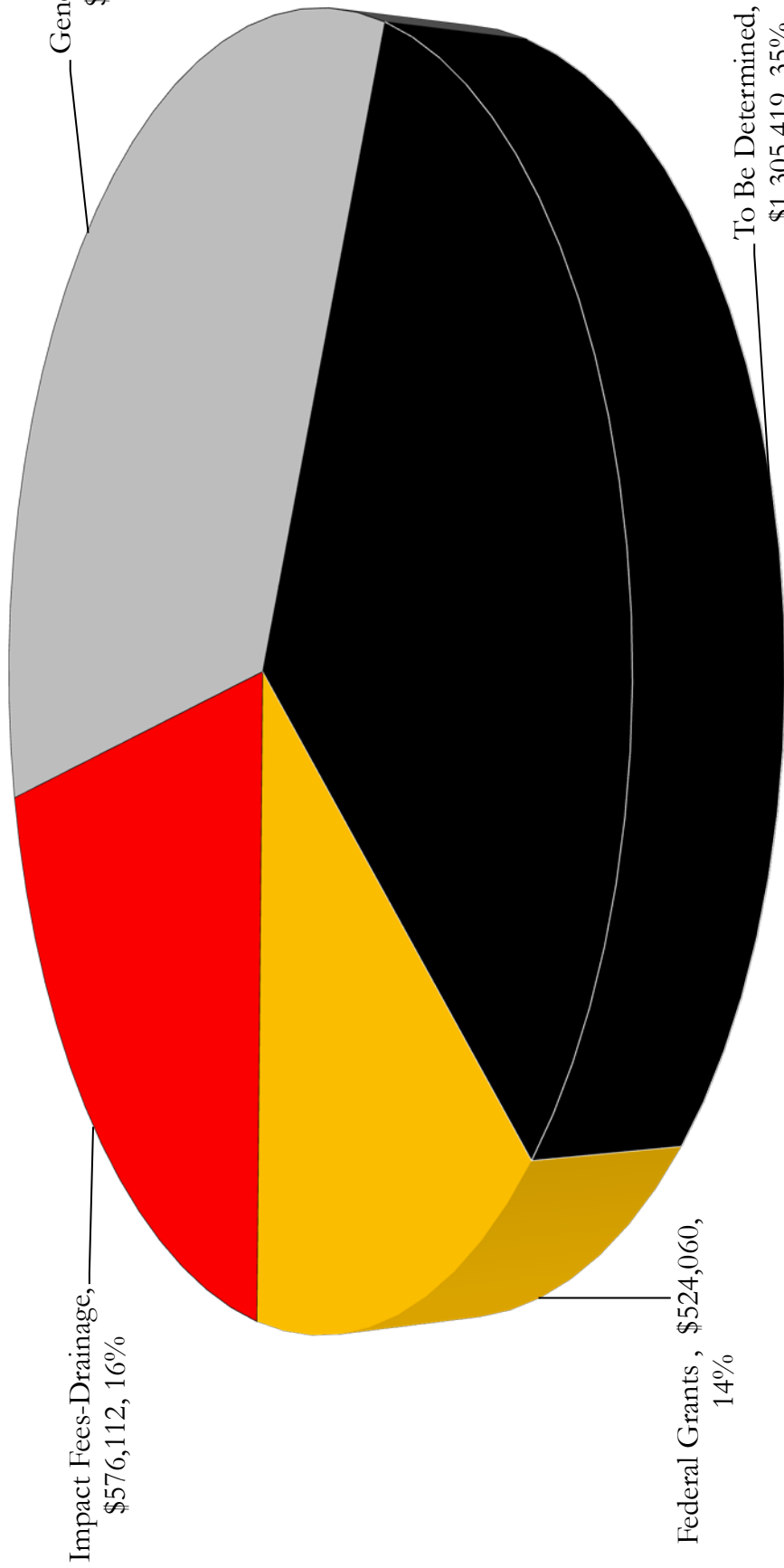


2018-2023 Infrastructure and Capital Improvement Plan  
Drainage

**FY2018-FY2023: ICIP Summary**

Rank Priority	Project No.	Project Title	Project to Date	2018 Budget	2018 Additional Spending Anticipated	2018 Total	2019	2020	2021	2022	2023	Funding Requested: FY18-FY23	Funding Source			Total Funding (A)+(B)+ (C)
													(A)	(B)	(C)	
1	PW1567	Sportscomplex Armoring	\$ 86,440	\$ -	\$ 635,138	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 635,138	General Fund Revenues	Federal Grants		\$ 635,138
2	PW1884	Northern Boulevard Drainage Improvements	\$ -	\$ 136,303	\$ 136,303	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 136,303	Impact Fees- Drainage			\$ 136,303
3	N/A	Idalia Road Culvert Crossing at Arroyo de la Baranca	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,174,849	\$ -	\$ -	\$ -	\$ 1,174,849	General Fund Revenues			\$ 1,174,849
4	N/A	Chistopher Point Pond Improvements	\$ -	\$ -	\$ -	\$ 142,651	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 142,651	Impact Fees- Drainage			\$ 142,651
5	N/A	Gray Hawk Pond Improvements	\$ -	\$ -	\$ -	\$ -	\$ 145,219	\$ -	\$ -	\$ -	\$ -	\$ 145,219	Impact Fees- Drainage			\$ 145,219
6	N/A	RedRiver Watershed (Monterey/Granada) Drainage Improvements	\$ 221,912	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 151,939	\$ 1,305,419	\$ -	\$ 1,457,358	Impact Fees- Drainage	To Be Determined		\$ 1,457,358

**TOTALS**    \$ 308,352    \$ 136,303    \$ 635,138    \$ 771,441    \$ 142,651    \$ 145,219    \$ 1,326,788    \$ 1,305,419    \$ -    \$ 3,691,518



Impact Fees-Drainage, \$576,112, 16%

General Fund Revenues, \$1,285,927, 35%

Federal Grants, \$524,060, 14%

To Be Determined, \$1,305,419, 35%

	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	TOTAL
Federal Grants	\$ 524,060						\$ 524,060
Impact Fees-Drainage	\$ 136,303	\$ 142,651	\$ 145,219	\$ 151,939	\$ 200,000		\$ 776,112
General Fund Revenues	\$ 111,078			\$ 1,174,849			\$ 1,285,927
To Be Determined					\$ 1,105,419		\$ 1,105,419
<b>TOTAL</b>	<b>\$ 771,441</b>	<b>\$ 142,651</b>	<b>\$ 145,219</b>	<b>\$ 1,326,788</b>	<b>\$ 1,305,419</b>	<b>\$ -</b>	<b>\$ 3,691,518</b>

<b>DRAINAGE</b>			
<b>PROJECTS UNDER CONSIDERATION</b>			
<b>Rank</b>	<b>Project Name</b>	<b>Fiscal Year(s)</b>	<b>Project Estimate</b>
7	Southern Blvd Phase 2 Pond Acquisition	2022	\$ 1,371,000
8	City Center Facility Plan-Storm Drainage & Land Acquisition	2021	\$ 10,530,978
9	Guadalajara Basin Improvements Phase II	2020-2022	\$ 2,250,000
10	Alberta Watershed Phase III	2020-2021	\$ 1,000,000
11	WWTP#3 Channel Stabilization	2020-2022	\$ 1,950,000
12	Paseo del Volcan Dam-City Portion	2020	\$ 1,527,682
13	Nicklaus Channel Outfall	2021	\$ 188,011
14	Antigua Road Outfall	2020	\$ 250,000
15	Chamisa Greens Detention Pond	2020	\$ 90,741
16	MonteBella Flood Control	2020	\$ 990,850
	<b>TOTAL</b>		<b>\$ 20,149,262</b>

**1. PROJECT INFORMATION**

Project Title	Sportscomplex Armoring	Requesting Department	Dept. of Public Work/Engineering	Department Rank Priority No.	1
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 erosion control through bank stabilization by applying non-structural concrete slope paving. Concrete stabilizations are well known to have a life span of more than 50 years.

**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. A revised application was submitted October 14, 2016 and staff continues to work with the New Mexico State Department of Homeland Security to receive funding for the project.

**5. CAPITAL COSTS**

PHASE	SOURCE(S) OF COST INFO	PRIOR YEARS	FY18	FY19	FY20	FY21	FY22	FY23	TOTAL
Planning and Feasibility									\$ -
Pre Design and Env. Review	City contract or price agreement	\$ 57,974	\$ 735						\$ 58,709
Land Acq./ROW									\$ -
Design and Specifications	City contract or price agreement	\$ 28,466	\$ 7,419						\$ 35,885
Construction	Cost Consultant		\$ 609,820						\$ 609,820
Construction Management	Cost Consultant		\$ 12,493						\$ 12,493
Other	Cost Consultant		\$ 4,671						\$ 4,671
<b>TOTAL</b>		<b>\$ 86,440</b>	<b>\$ 635,138</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 721,578</b>

**6. PROPOSED SOURCES OF FUNDING**

REVENUE SOURCE	EXPENDITURE FUND	PRIOR YEARS	FY18	FY19	FY20	FY21	FY22	FY23	TOTAL
General Fund Revenues	101-General Fund	\$ 6,848	\$ 69,612						\$ 76,460
General Fund Revenues	305-Infrastructure Fund	\$ 63,609	\$ 41,466						\$ 105,075
General Fund Revenues	307-Infr Rehab Fund	\$ 15,982	\$ -						\$ 15,982
Federal Grants			\$ 524,060						\$ 524,060
<b>TOTAL</b>		<b>\$ 86,440</b>	<b>\$ 635,138</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 721,578</b>



**1. PROJECT INFORMATION**

Project Title	Northern Blvd Drainage Improvements	Requesting Department	Dept. of Public Work/Engineering	Department Rank Priority No.	2
Project Category	Drainage	CIP Year	FY2018	Project No.:	PW1834
Estimated Useful Life	Greater than 25 Years	District Location	Multiple Districts	Project Request Status	Revised Project Request

**2. PROJECT DESCRIPTION AND SCOPE**

The project involves designing and constructing drainage improvements along Northern Blvd. at two locations. The first location is just west of 3rd Street NW (approximately 300 Northern Blvd. NW). The second location is between 10th Street NE and Alfoz Place NE (approximately 1105 Northern Blvd. NE). Both locations have a storm runoff conveyence issue which would require very minimal design (maybe in-house) to remedy the issues.

**3. PROJECT JUSTIFICATION**

The Public Works Streets and Right-of-way division has had numerous compliants of water ponding at these two locations throughout the years. Staff determined, after visiting the site, that the existing Corrogated Metal Pipe (CMP) at both locations are plugged with sediment and the swales have been filled in with "blow sand".

**4. PROJECT HISTORY AND STATUS**

From as-built drawings, Northern Blvd was designed from Rainbow Blvd to Unser Blvd in February 1998 and constructed occurred some time after that.

**5. CAPITAL COSTS**

PHASE	SOURCE(S) OF COST INFO	PRIOR YEARS	FY18	FY19	FY20	FY21	FY22	FY23	TOTAL
Planning and Feasibility									\$ -
Pre Design and Env. Review									\$ -
Land Acq./ROW									\$ -
Design and Specifications			\$ 20,445						\$ 20,445
Construction	Recent City project		\$ 115,858						\$ 115,858
Construction Management									\$ -
Equipment/ Vehicle									\$ -
Other									\$ -
<b>TOTAL</b>			\$ 136,303	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 136,303

**6. PROPOSED SOURCES OF FUNDING**

REVENUE SOURCE	EXPENDITURE FUND	PRIOR YEARS	FY18	FY19	FY20	FY21	FY22	FY23	TOTAL
Impact Fees- Drainage	355-Impact Fees Drainage		\$ 136,303						\$ 136,303
									\$ -
									\$ -
									\$ -
<b>TOTAL</b>			\$ 136,303	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 136,303



**1. PROJECT INFORMATION**

Project Title	Idalia Road Culvert Crossing at the Arroyo de la Barranca	Requesting Department	Dept. of Public Work/Engineering	Department Rank Priority No	3
Project Category	Drainage	CIP Year	FY2021	Project No.:	TBD
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 the replacement of the existing corrugated metal pipe (CMP) culvert with a properly-designed concrete box culvert under Idalia Rd at the Arroyo de la Barranca arroyo.

**3. PROJECT JUSTIFICATION**

The existing CMP culvert structure under Idalia Road and the Arroyo de la Barranca has eroded and could fail in a similar manner as the crossing further northeast on Idalia Road. A replacement of this crossing is needed to protect this Idalia Road 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 will be designed to accommodate fully anticipated developed flows.

**4. PROJECT HISTORY AND STATUS**

The existing CMP culvert structure under Idalia Road at the Arroyo de la Barranca was constructed in the late 1990's. Replacement of the tributary crossing further northeast on Idalia Road was completed in June 2016. Design and construction cost were doubled to determine an estimate for the arroyo crossing which is approximatley twice the size.

**5. CAPITAL COSTS**

PHASE	SOURCE(S) OF COST INFO	PRIOR YEARS	FY18	FY19	FY20	FY21	FY22	FY23	TOTAL
Planning and Feasibility									\$ -
Pre Design and Env. Review									\$ -
Land Acq./ROW									\$ -
Design and Specifications	Other					\$ 121,470			\$ 121,470
Construction	Other					\$ 1,053,379			\$ 1,053,379
Construction Management									\$ -
Equipment/ Vehicle									\$ -
Other									\$ -
<b>TOTAL</b>			\$ -	\$ -	\$ -	\$ 1,174,849	\$ -	\$ -	\$ 1,174,849

**6. PROPOSED SOURCES OF FUNDING**

REVENUE SOURCE	EXPENDITURE FUND	PRIOR YEARS	FY18	FY19	FY20	FY21	FY22	FY23	TOTAL
General Fund Revenues	305-Infrastructure Fund					\$ 1,174,849			\$ 1,174,849
									\$ -
									\$ -
<b>TOTAL</b>			\$ -	\$ -	\$ -	\$ 1,174,849	\$ -	\$ -	\$ 1,174,849