



SA Regional Flood Planning Group

Region 12

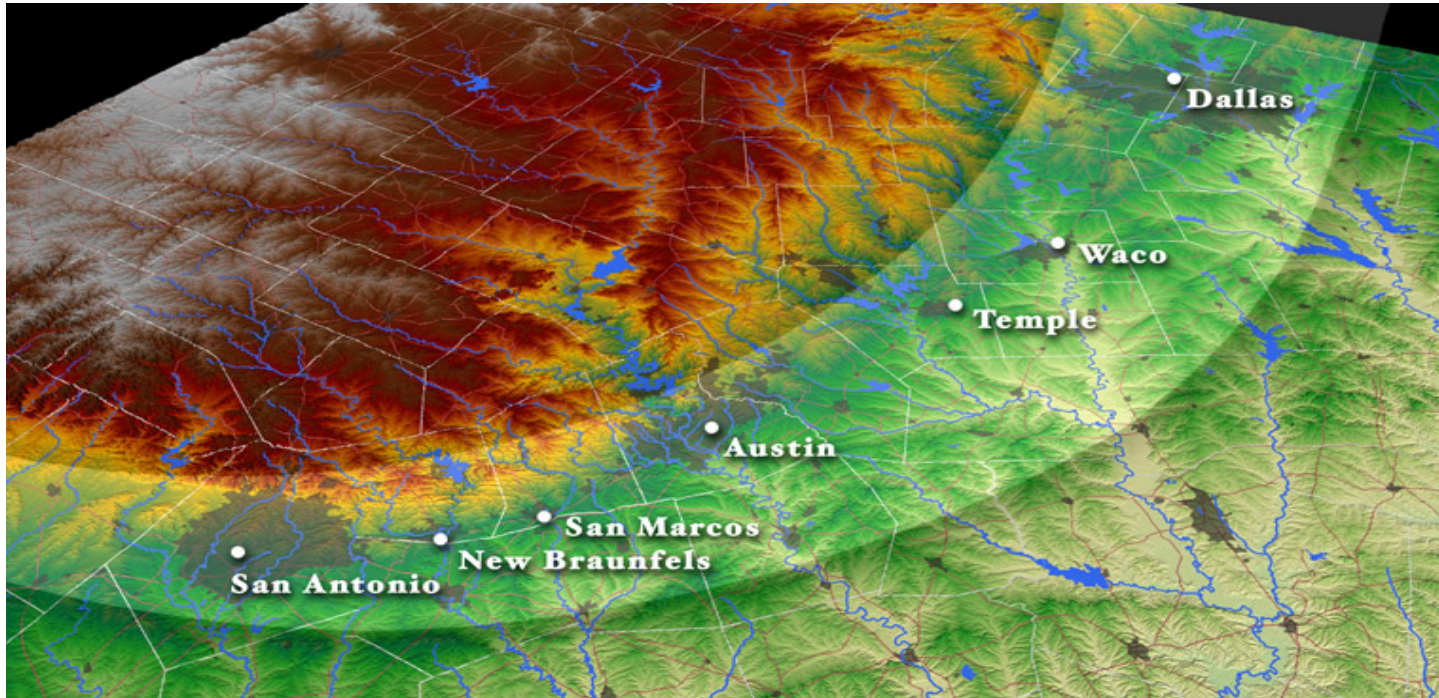
May, 2021

City of San Antonio Public Works

-Nefi Garza, P.E.



San Antonio is in Flash Flood Alley



Source: www.floodsafety.com



South Texas Rainfall Records

• Thrall (1921):	36"/18 hrs
• Ingram (1932):	36"/24 hrs
• D'Hanis (1935):	22"/3 hrs
• Pandale (1954):	32"/24 hrs
• New Braunfels (1972):	10"/1 hr
• TS Amelia (1978):	48"/52hrs
• TS Claudette (1979):	43"/24 hrs
• Zorn (1998):	32"/18 hrs
• TS Charley (1998):	18"/4 hrs
• Kerr County (2002):	42"/5 days
• Harvey, Houston area (2017):	52"/4 days

Source: NWSFO Austin/San Antonio

Note: San Antonio annual rainfall average is 30"/ per year



Flash Flood Alley



July 2002: US - 281 facing south at Quarry



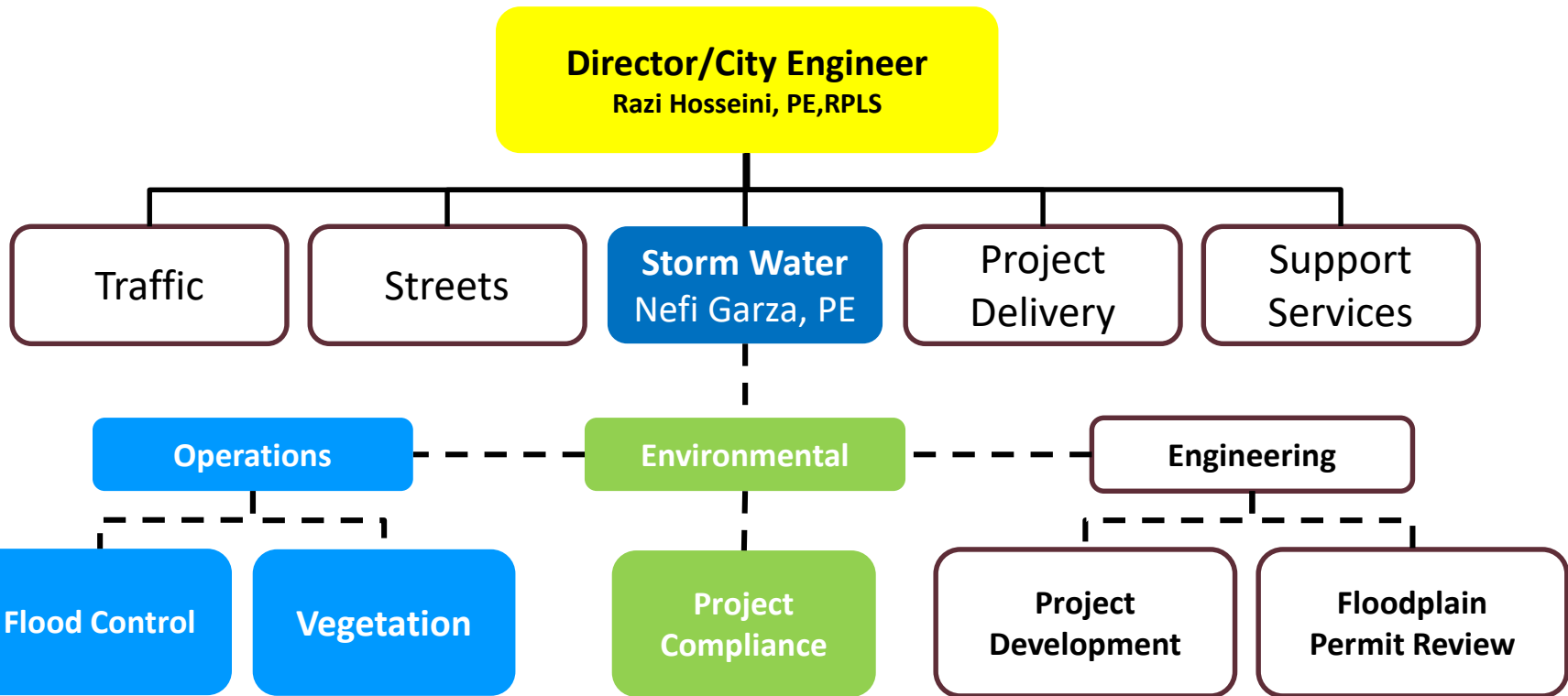
Flash Flood Alley



July 2002: IH-10 facing North at Rim/Fiesta Texas



Department Overview



Storm Water Inventory

Asset	City Wide
Channels	926 Miles
Natural Creeks	369 Miles
FEMA 100 year flood plain	56 SQ-MI
Underground	574 Miles
Streets	4,081 Miles



Funding

SOURCE

Storm Water
Utility Fee

Regional Storm
Water Fund

METHOD

Existing
Impervious Cover

New
Development
FILO

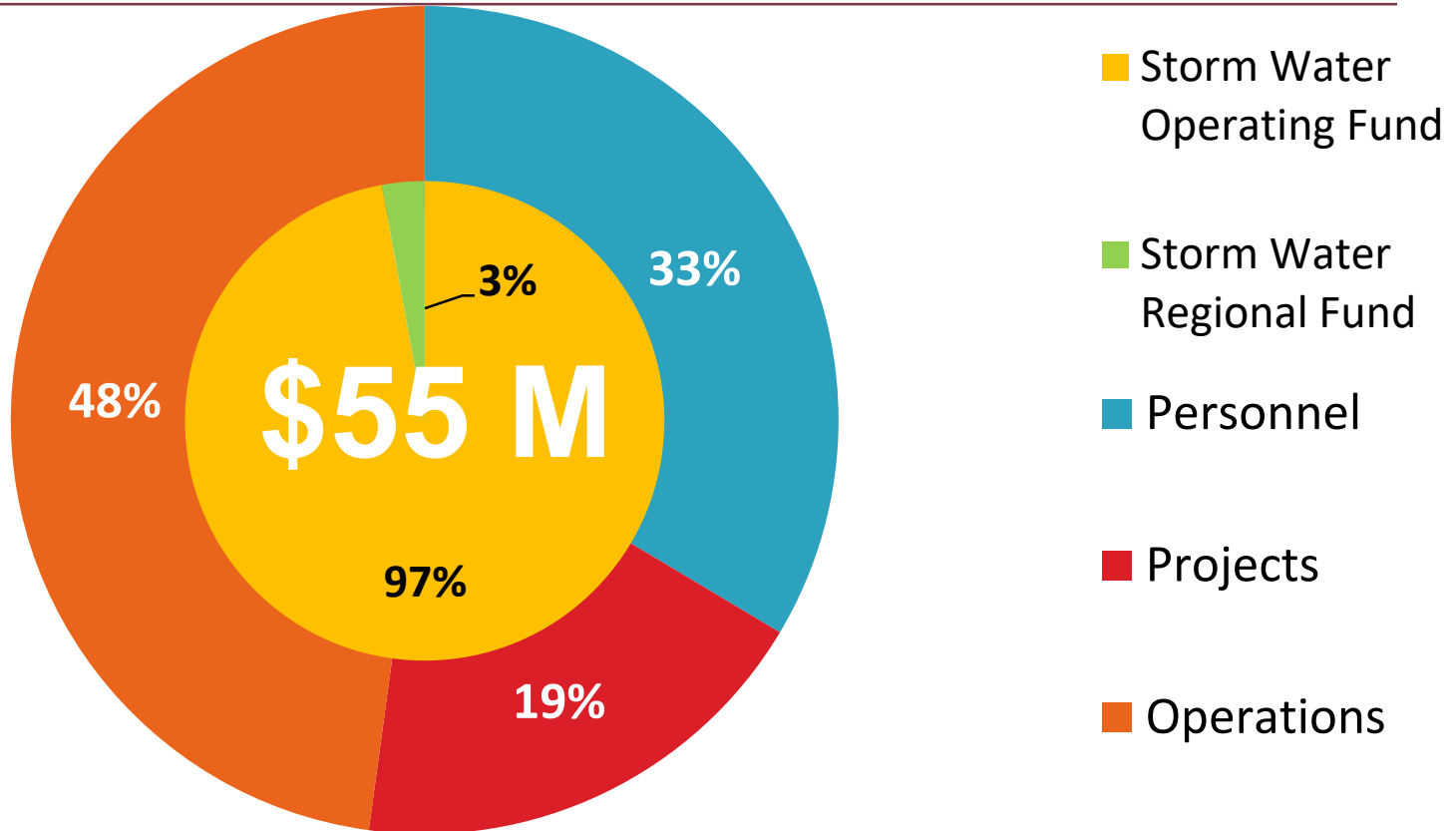
USE

Maintenance

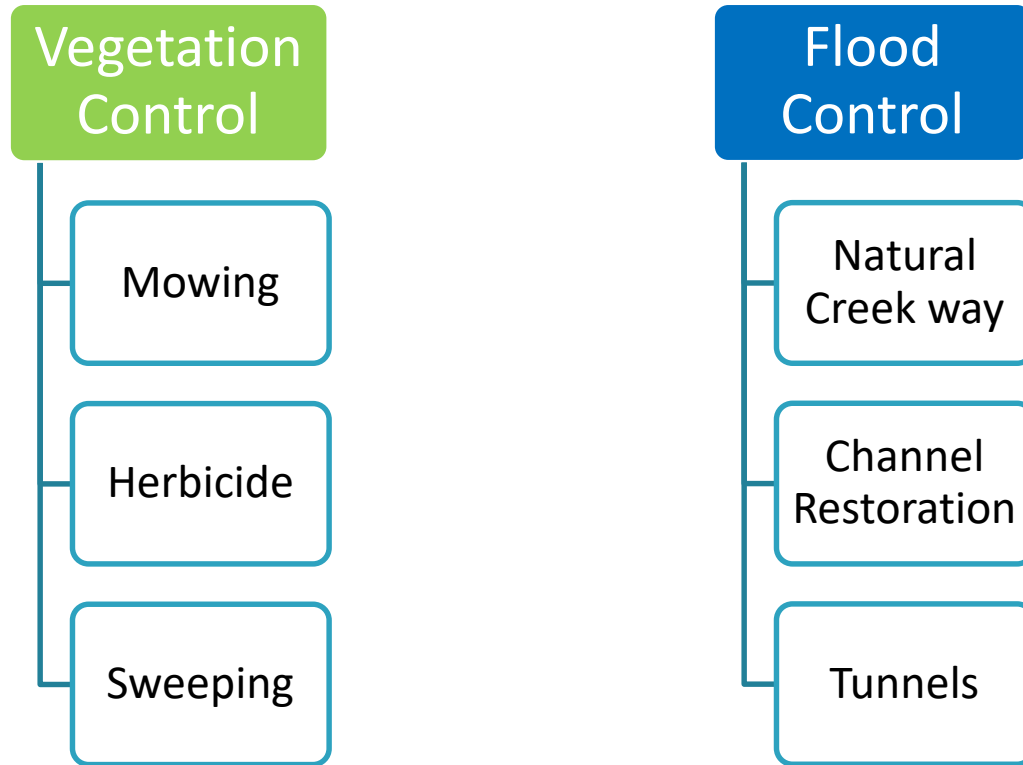
Regional
Drainage Projects



Funding



Maintenance Program



Mowing



Channel Mowing



TxDOT Mowing

INTERACTIVE MOWING SCHEDULE

<http://www.sanantonio.gov/TCI/Projects/Interactive-Mowing-Schedule>

Street Sweeping



Residential Sweeping



Special Events

STREET SWEEPING SCHEDULE

Street Sweeping Schedule

Search an Address

Sweeping

- Sweeping Downtown
- Sweeps Residential
- Sweeps Arterial
- Sweeps Nightly
- Street None Sweeping
- Others
- TXDOT
- Sweeping Zone
- Quadrant

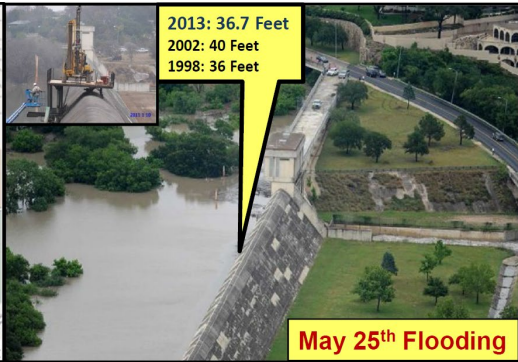
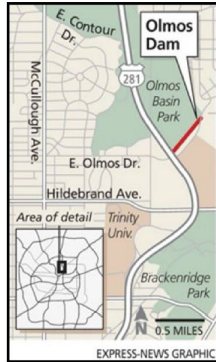
Street: BUENA VISTA ST

CYCLE	MONTH	YEAR
1	OCT	2016
2	JAN	2016
3	APR	2017
4	JUN	2017

Zoom to

Flood Control

San Antonio River Tunnel Outlet



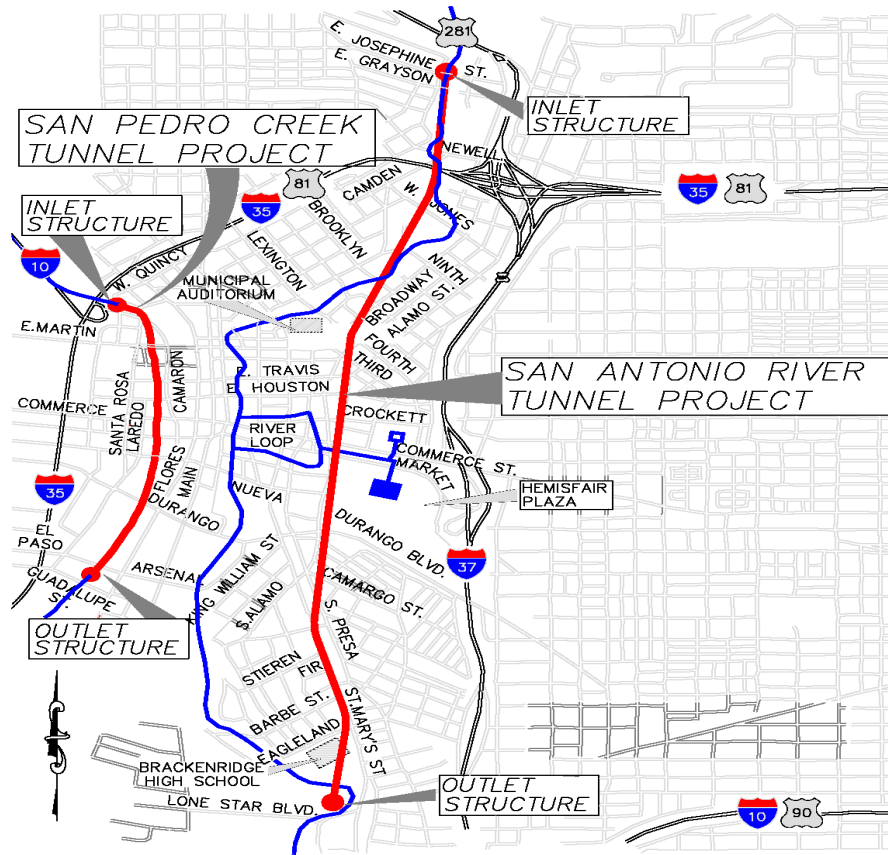
(Photo: Billy Calzada, SA Express News)





Olmos Dam After Retrofitting





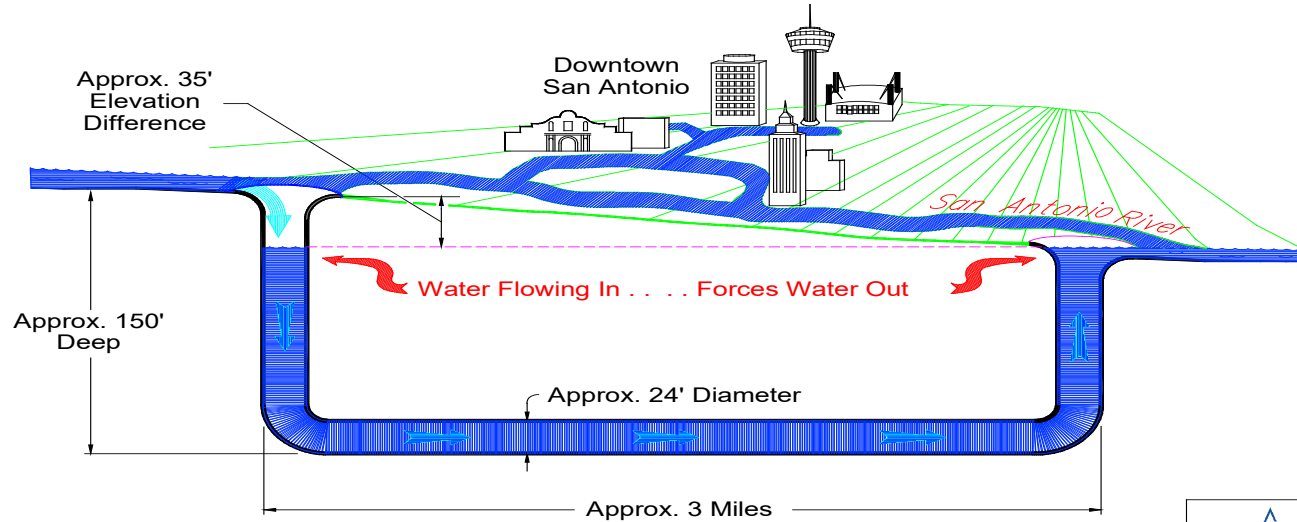
TUNNEL PROJECTS

- SAN PEDRO CREEK TUNNEL = 100% COMPLETE
- SAN ANTONIO RIVER TUNNEL = 100% COMPLETE
- SAN ANTONIO RIVER TUNNEL INLET STRUCTURE = 100% COMPLETE
- SAN ANTONIO RIVER TUNNEL OUTLET STRUCTURE = 100% COMPLETE

TUNNEL —
EXISTING CHANNEL —



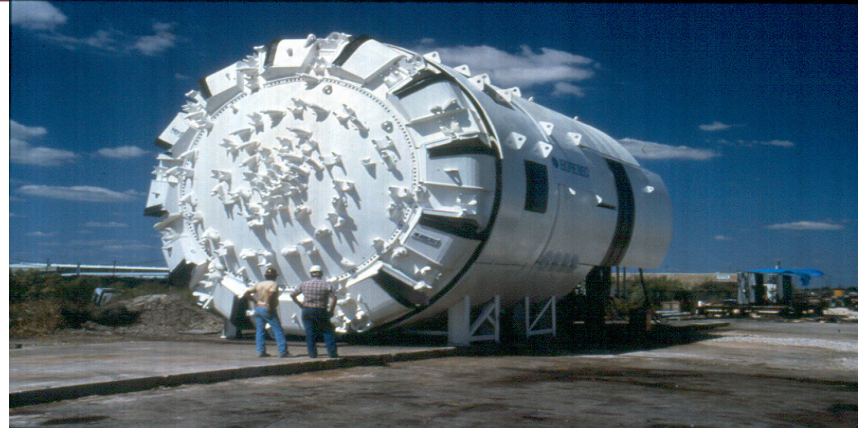
San Antonio River Flood Tunnel How Does It Work?



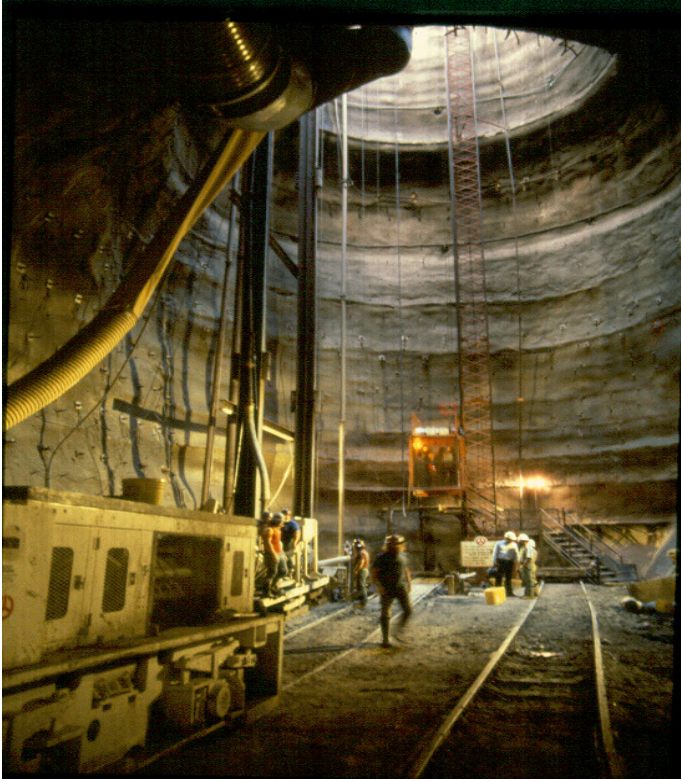
FLOOD FLOW SCHEMATIC



San Antonio River Tunnel Construction



San Antonio River Tunnel Construction



Flood Control



Concrete Rip Rap Channel Wall Repair (Sealing Channel)



Debris & Vegetation Removal (Six Mile Creek and Roosevelt)



Tree Down (114 Downing)



Homeless Encampment Cleanup (San Pedro and Basse)

Project Development

Investigate

Plan

FUNDING

Design

Construct

CITY OF SAN ANTONIO
TRANSPORTATION & CAPITAL IMPROVEMENTS

PROJECT SUMMARY SHEET Updated: 6/12/2014
Page 1 of 1

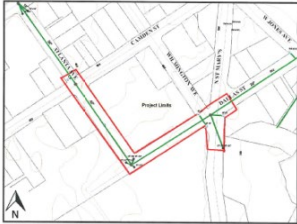


Project Name: Dallas and Atlanta Drainage System Replacement PH 1
Council District: 1
Project Limits: St. Mary's to Camden St.
Watershed: San Antonio River
Future Project #: 2538

Funding Information			Cost Information	
Fund	Year	Amount	Category	Cost
To Be Determined (TBD)	\$	-	Design	\$90,000
			Real Estate	\$0
			Environmental	\$0
			Miscellaneous	\$170,000
			Construction	\$869,000
Total Funding	\$	-	Total Cost*	\$1,129,000

*Rounded up to the nearest thousand

Project Description
 Project limits are within a series of pipe collapses due to deteriorating infrastructures in the area. The project will replace the existing system with new 42" pipe, and will replace all the existing inlets in the area. Project will include full street reconstruction with curbs, sidewalks, and driveway approaches.

Project Type: Drainage
Type of Estimate: Planning
Project Status: Unfunded
Consultant: TBD


Environmental



Other Programs

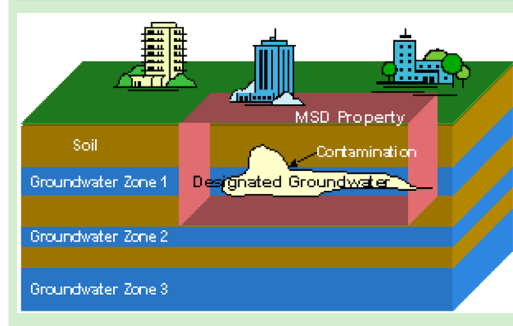


<http://www.sanantonio.gov/Remember-the-River/Home>

Adopt-a-Spot



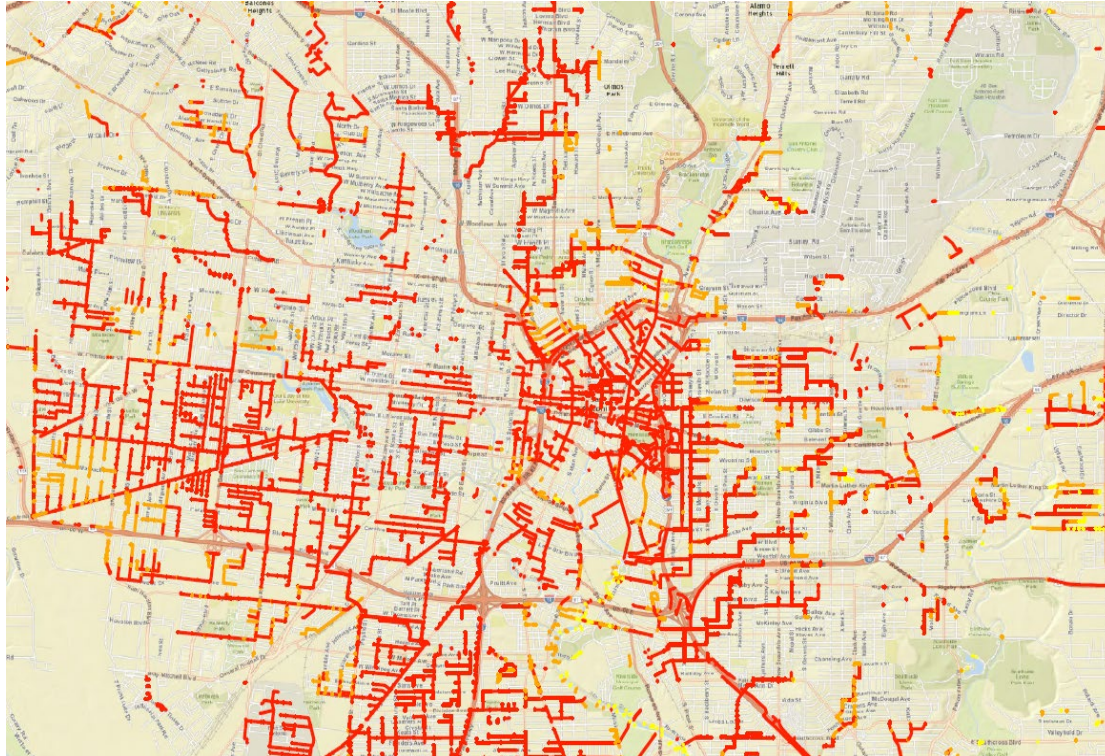
MSD



Coal Tar



Televising (Condition Assessment)



Entf.: 26.52 ft; Pos.: 0 View (0°); View: 9°; Z: 90°; R: 0°

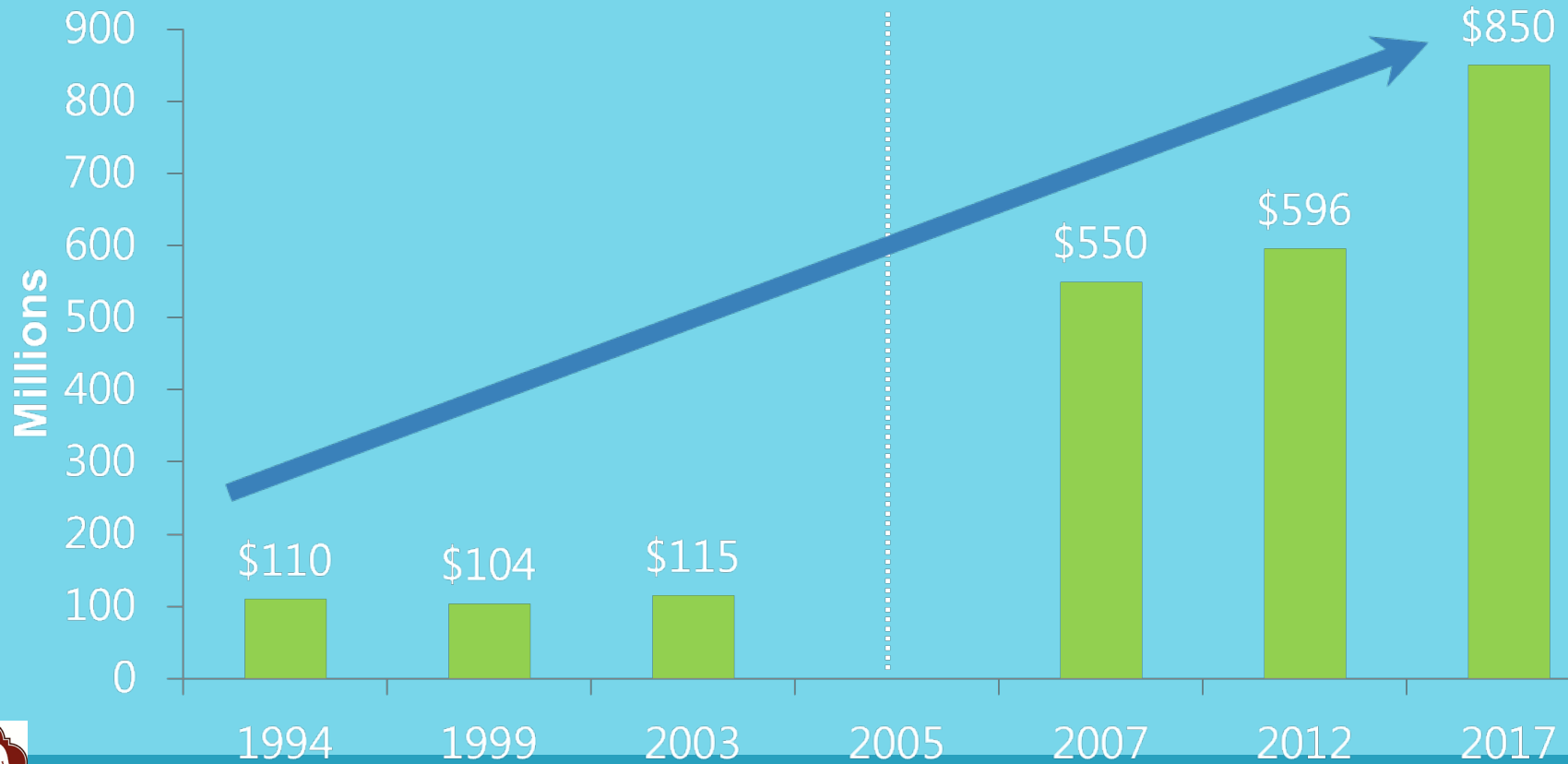
N. Alamo & 9th Street

Risk1 (Peak COF x Peak LOF)

Risk (By Grading)

- 1
- 2
- 3
- 4
- 5

City of San Antonio Bond Program History



Bond Projects

Bond Year	Drainage Prop	Street Prop
2007	\$ 152M	\$ 307M
2012	\$ 128M	\$ 337M
2017	\$ 139M	\$ 445M
	\$ 419M	\$ 1.1B



2017-2022 Bond



**STREETS, BRIDGES
& SIDEWALKS
IMPROVEMENTS**

\$445.263M

64 Projects



**DRAINAGE
& FLOOD CONTROL
IMPROVEMENTS**

\$138.988M

19 Projects



**PARKS, RECREATION
& OPEN SPACE
IMPROVEMENTS**

\$187.313M

79 Projects



**LIBRARY
& CULTURAL FACILITIES
IMPROVEMENTS**

\$24.025M

13 Projects



**PUBLIC SAFETY
FACILITIES
IMPROVEMENTS**

\$34.411M

5 Projects



**NEIGHBORHOOD
IMPROVEMENTS**

\$20.000M

Numerous

<https://qagis.sanantonio.gov/tci/proposedbonds2017/>



Drainage & Flood Control

19 Projects | \$138,988,000

Projects to improve or develop storm water drainage systems to include detention basins, channels, low-water crossing improvements, and other drainage projects in coordination with the Bexar Regional Watershed Management Program.

- Underground stormwater drainage
- Channels
- Water detention



REDUCE
FLOODING FROM
ESTIMATED

263

PROPERTIES

San Antonio Development Standards

100-year Ultimate

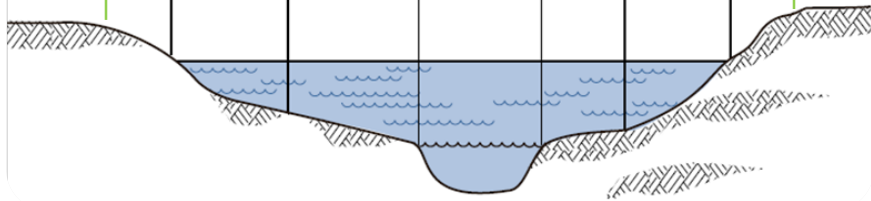
Special Flood Hazard Area
100-Year Floodplain

Floodway

Flood Fringe



Flood Fringe

Stream Channel



Flood Zones (FEMA NFHL)

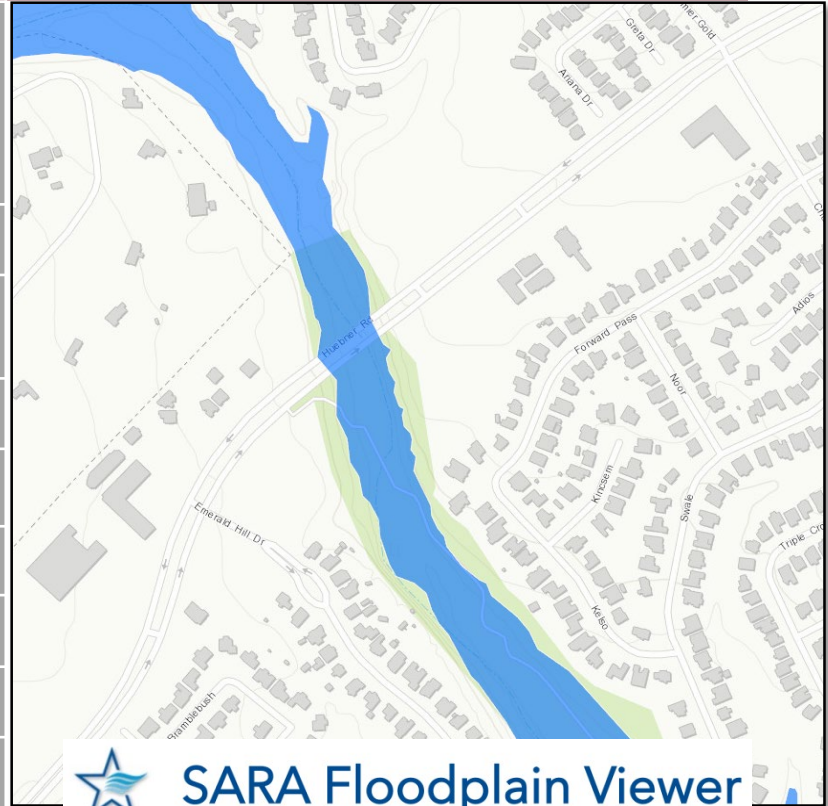
FEMA Flood Zones

-  1% Annual Chance Flood Risk
-  1% Annual Chance Flood Risk (Future)



Flood Resiliency

Facility	% Outside Floodplain	Out	In
Clinics	93%	195	15
Communication Towers	83%	440	92
Daycares	91%	156	15
Gas Stations	93%	231	18
Grocery Stores	89%	124	16
Hospitals	87%	108	16
Retirement Centers	87%	94	14
Vet Clinics	84%	38	7



Continued Investment



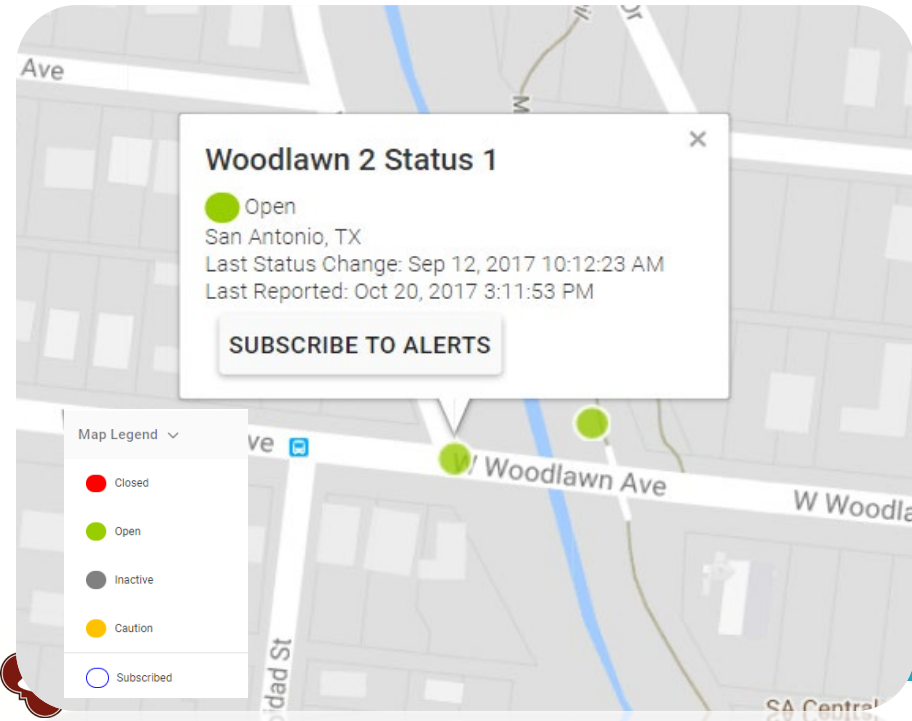
Old Spanish Trail
(Laddie Place)



Seeling Channel

Bexar Flood

 **BEXAR** flood **Bexarflood.org**
providing current flood information and emergency road closures



Woodlawn 2 Status 1

● Open
San Antonio, TX
Last Status Change: Sep 12, 2017 10:12:23 AM
Last Reported: Oct 20, 2017 3:11:53 PM

SUBSCRIBE TO ALERTS

Map Legend

- Closed
- Open
- Inactive
- Caution
- Subscribed

Woodlawn Ave

W Woodla

SA Central



Questions?



Nefi Garza, P.E.

Assistant Director

