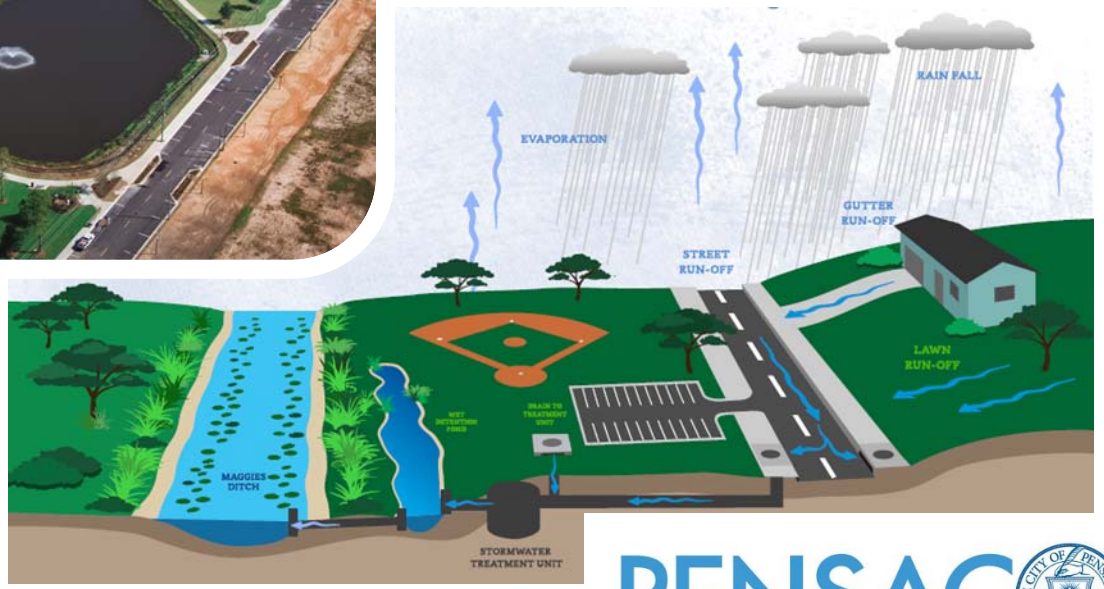
City of Pensacola
Update to Stormwater Master Plan

Public Works and
Facilities Department
July 2019



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Introduction

- **The City of Pensacola's previous Stormwater Master Plan was compiled and published in 1987.**

- **Objective PF-1.3 of the City's Comprehensive Plan identifies the need to update the City's Stormwater Master Plan in order to assess need to extend or increase capacity of the municipal drainage system.**

- **The current adopted Comprehensive Plan Describes Levels of Service (L.O.S.) for Drainage as follows:**

  - **L.O.S. A = tolerates street flooding to a depth of 3 inches or less in the gutters (1.5 inches at roadway center) when the rest of the pavement is passable, and allows open or green space flooding of up to 12 inches as long as there is no threat to public health or safety, or permanent impediment to the intended use of the property.**

  - **L.O.S. B = tolerates flooding of entire street surface up to 4 inches.**

  - **L.O.S. C = tolerates structural flooding.**

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Introduction

- The City of Pensacola entered into a contract with Mott MacDonald for the Engineering services required to update the City Wide Stormwater Master Plan and was completed in two (2) phases.

- The first phase consisted of the development of a comprehensive stormwater hydrologic and hydraulic model. This effort required collection of data both via field survey, as well as review of hard copy plans, files and electronic data.

- This effort resulted in delineation of ten (10) distinct watershed boundaries which contribute flow to the City.

- Once all data for each watershed was collected and verified to be accurate, this information was entered into the latest version of the stormwater modeling software known as ICPR4.

- The model was run for the 100-year critical duration storm and areas of current stormwater rate/volume issues were identified.

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- The severity of the rate/volume issues at each location was used to develop a ranking matrix for which locations needed to be prioritized in the development of design solutions for each area.

- Ultimately, ten (10) locations were identified as critical areas which were in need of in-depth analysis and production of a design solution.

- Design solutions have been produced to rectify the ten (10) critical stormwater rate/volume issues to an acceptable Level of Service as described in the Comprehensive Plan.

- Phase two of the project was the compilation of the actual Plan/Report utilizing the information generated by the model.

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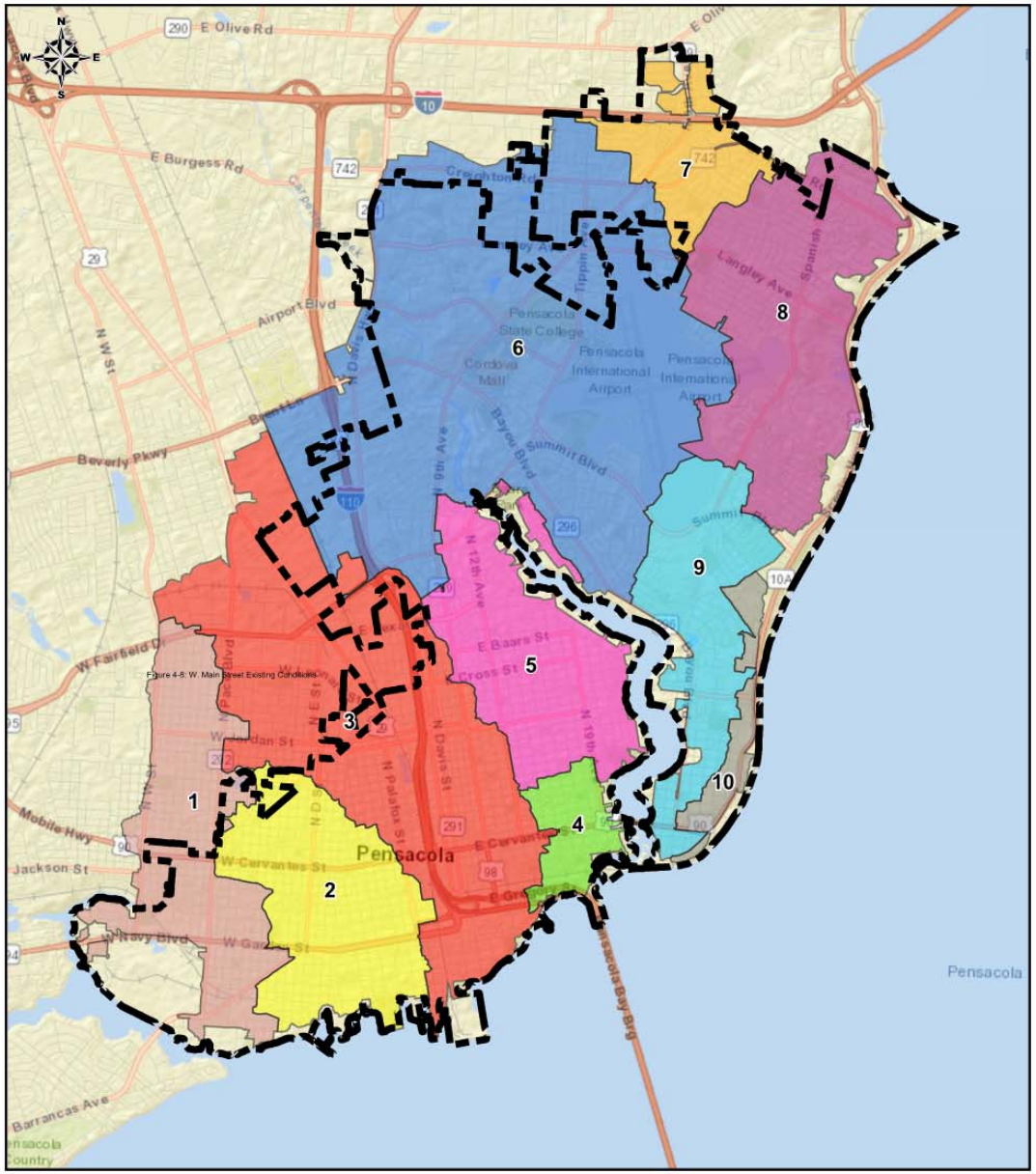
Watershed Boundaries Identified



City Limits	Watershed 6
Watershed 1	Watershed 7
Watershed 2	Waterhsed 8
Watershed 3	Watershed 9
Watershed 4	Watershed 10
Watershed 5	

STORMWATER MASTER PLAN
EXISTING WATERSHED BOUNDARIES
CITY OF PENSACOLA
PENSACOLA, FLORIDA

DWG NO:

PROJECT: 379997 | DRAWN BY: SDW | APPROVED BY: MM
REV: 0 | CHECKED BY: KM | REFERENCE SCALE: 1 IN = 5,000 FT

PENSACOLA | MOTT MACDONALD

FEET
2,500 1,250 0 2,500 5,000

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Watershed Boundary Characteristics

Table 1: Existing Watershed Information

Watershed	*Drainage Area (Acres)	Number of Nodes/Structures	Length of Pipe (LF)	Primary Outfalls
1	813	643	82,727	3 into Maggie's Ditch and Bayou Chico; 3 Outfalls into Bayou Chico and Pensacola Bay
2	1,281	1,075	112,303	5 Outfalls into Pensacola Bay
3	3,178	1,554	198,696	6 Outfalls into Pensacola Bay
4	308	182	17,781	4 Outfalls into Pensacola Bay
5	1,228	483	53,919	13 Outfalls into Bayou Texar
6	4,989	1,685	208,744	11 Outfalls into Carpenters Creek 2 Outfalls into Bayou Texar
7	547	188	21,825	2 Outfalls into Graveyard Branch
8	1,789	609	80,085	7 Outfalls into Escambia Bay
9	1,015	315	39,511	4 Outfalls into Bayou Texar; Remaining into Stormwater Pond @ Bayou Blvd. and Inverness Dr.
10	241	82	9,544	3 Outfalls into Escambia Bay

*Note that the drainage areas may include areas outside of the City limits.

*** Areas outside City of Pensacola jurisdiction (FDOT or Escambia County owned right of way) were strictly modeled for hydraulic connectivity purposes and were not analyzed for design improvements.**

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Stormwater Rate/Volume Issues Identified

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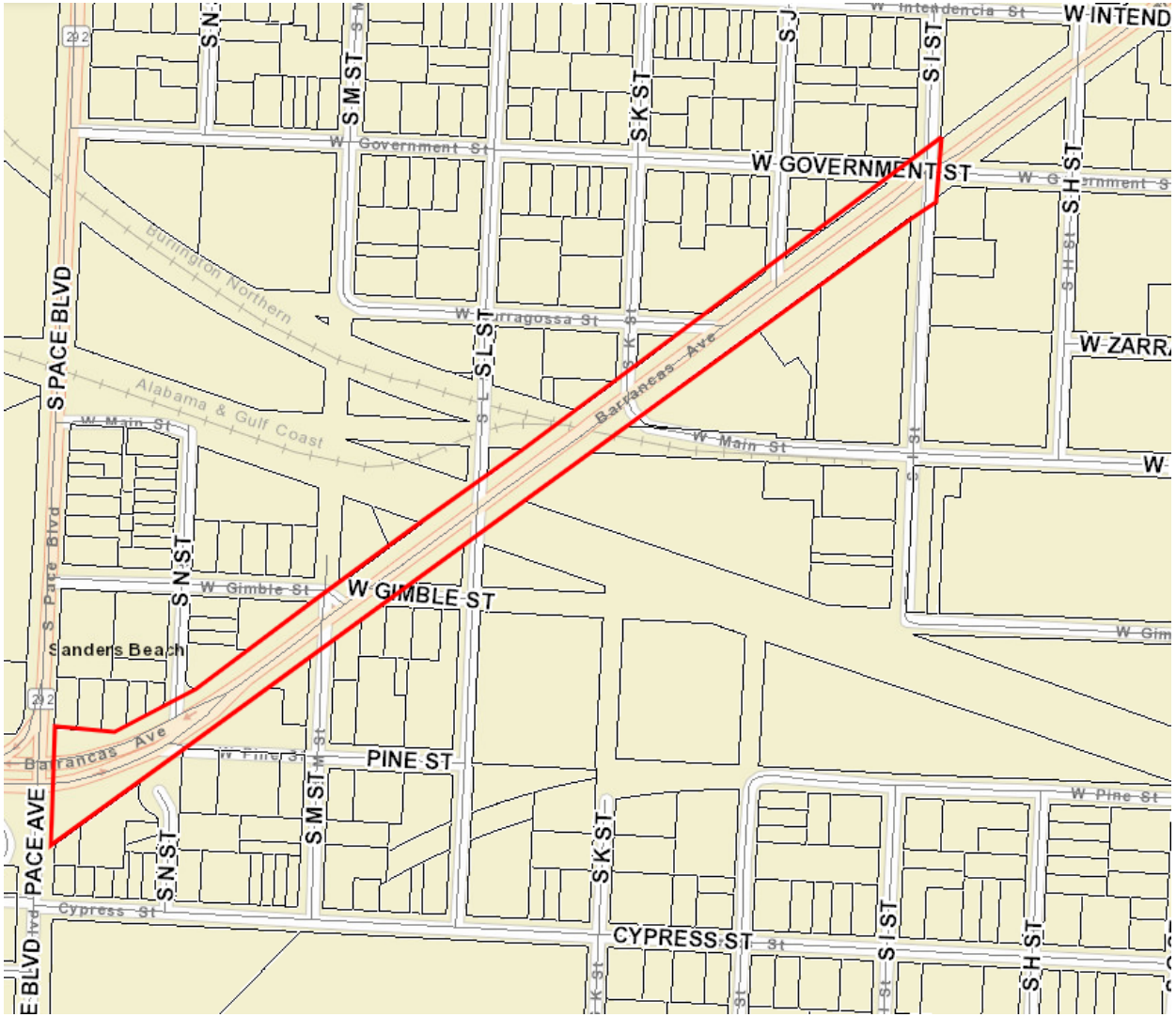
Barrancas Avenue (South)



- **Flooding occurs along Barrancas Avenue between S. I Street and S. Pace Blvd.**
- **Design Solution Estimated Construction Cost = $3,023,897.00**

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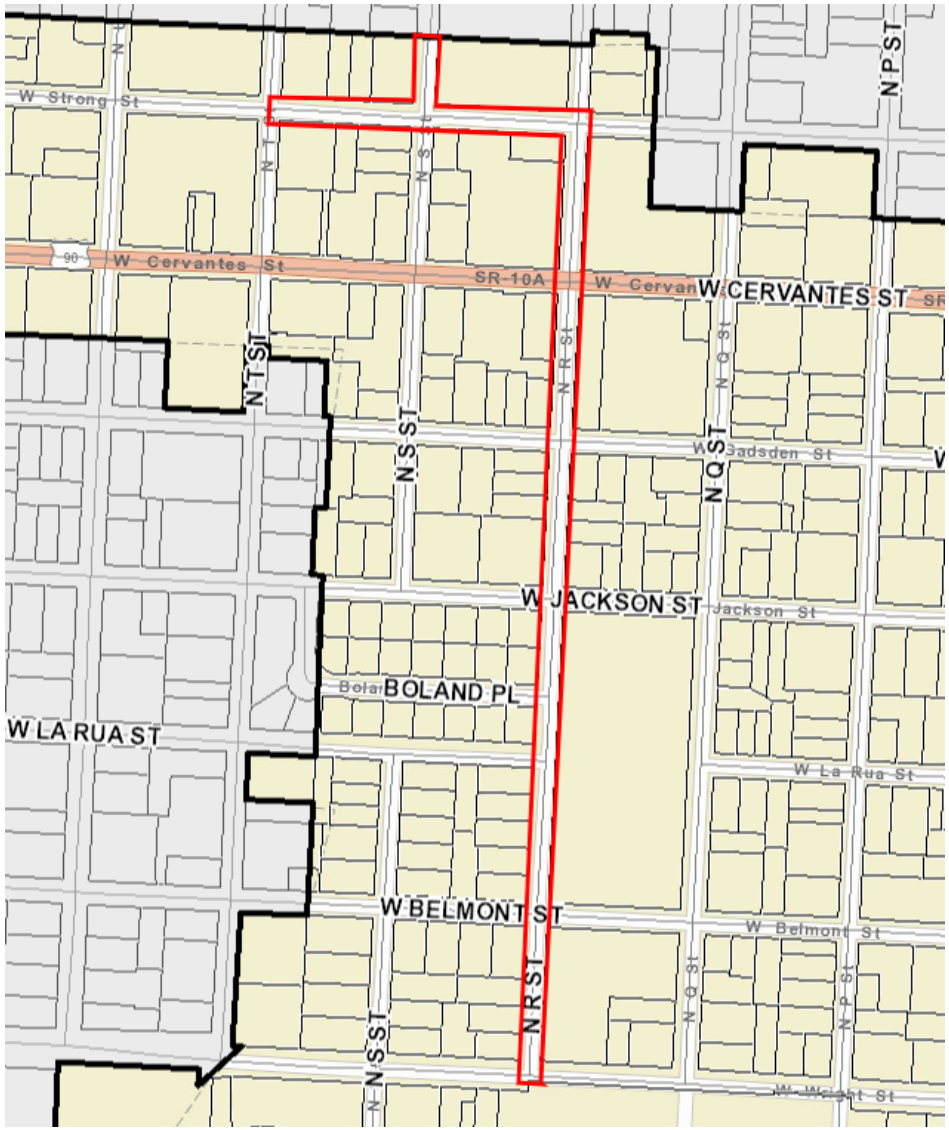
W. Strong Street



- **Flooding occurs along W. Strong Street between N. S Street and N. R Street. Flooding also occurs along N. R Street between W. Jackson Street and W. Belmont Street.**
- **Design Solution Estimated Construction Cost = $1,250,805.00**

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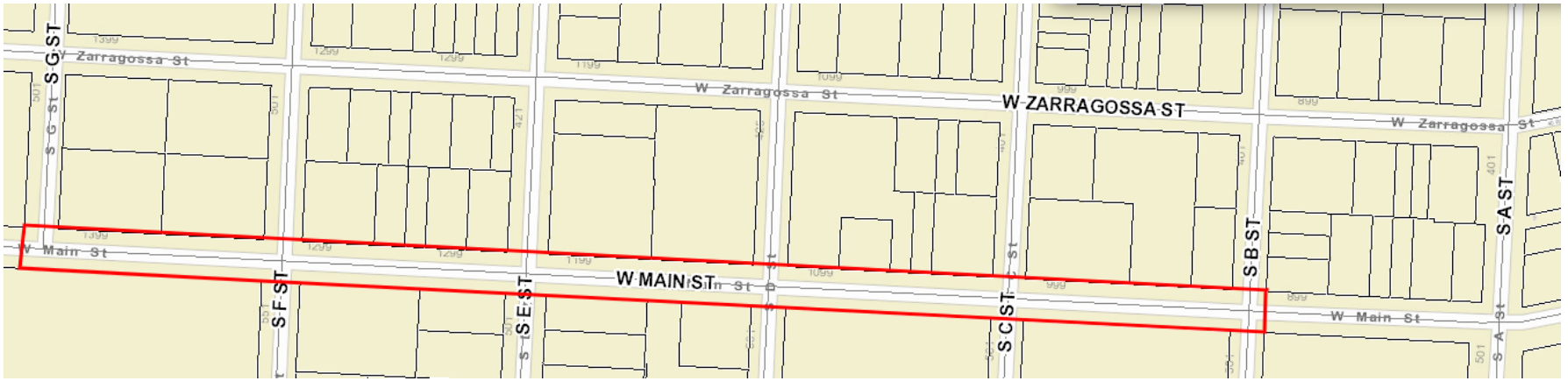
W. Main Street



- **Flooding occurs along W. Main Street between S. B Street and S. G Street.**
- **Design Solution Estimated Construction Cost = $9,204,162.00**

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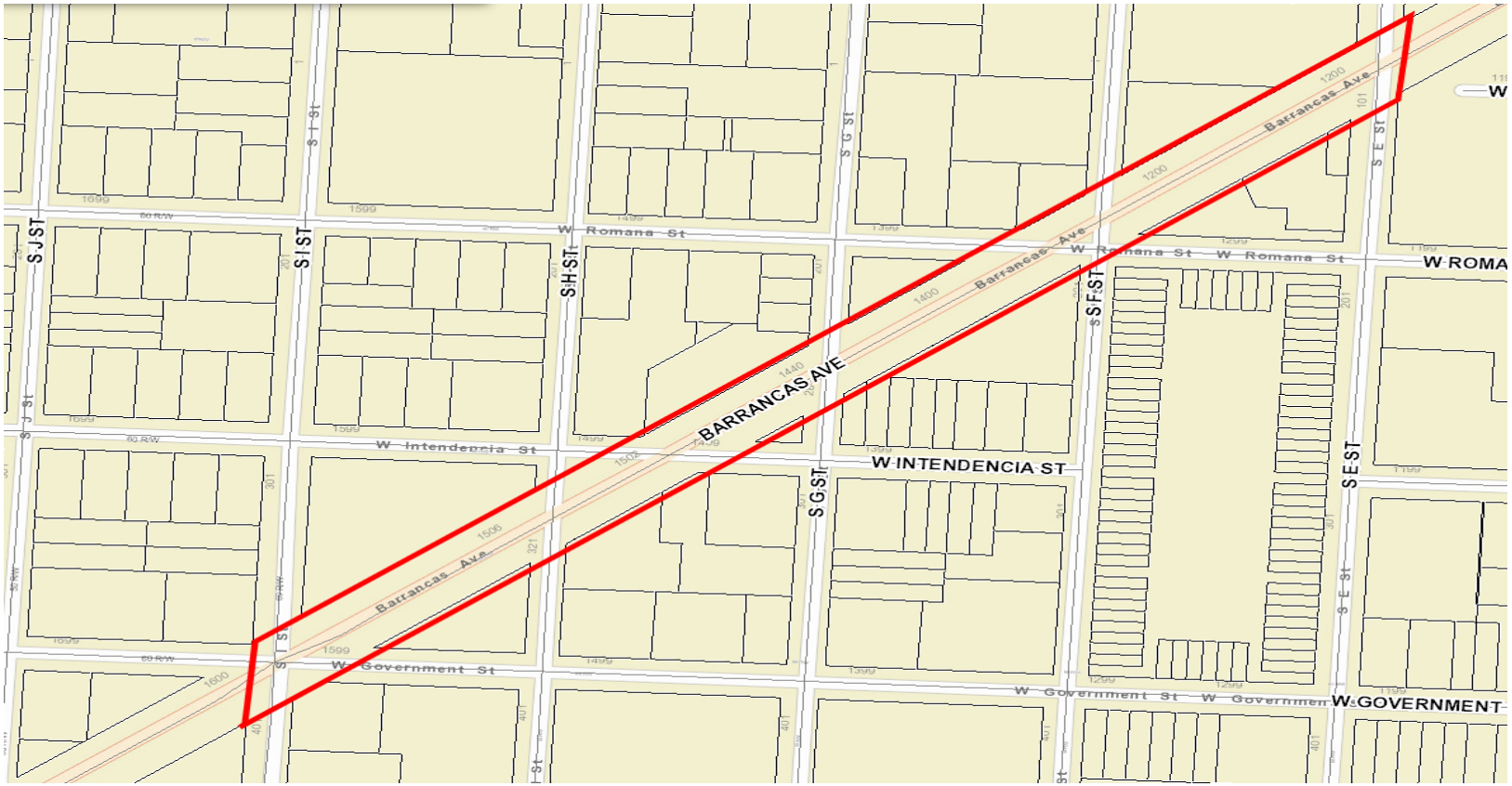
Barrancas Avenue (North)



- **Flooding occurs on the north portion of Barrancas Avenue between S. E St and S. I St.**

- **Design Solution Estimated Construction Cost = $2,682,444.00 (plus $9,204,162.00 for Main Street project)**

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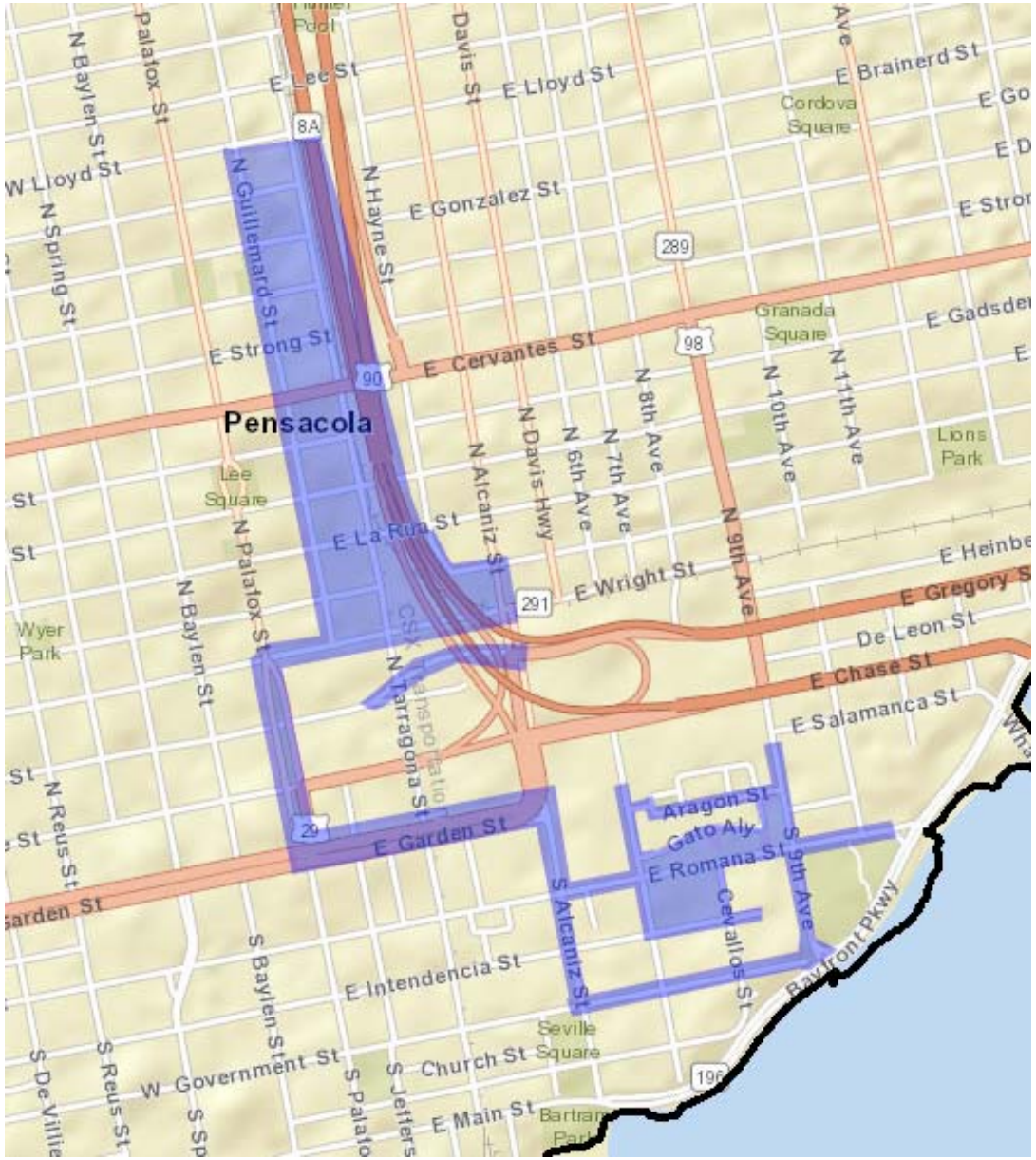
Downtown, Aragon Community, and S. 9th Avenue



- **Flooding occurs in the blue areas. Water from these areas then sheet flows into the Aragon Community.**
- **Design Solution Estimated Construction Cost = $924,977.00 (plus $21,985,026.00 for proposed improvements designed as part of the Downtown Drainage Study)**

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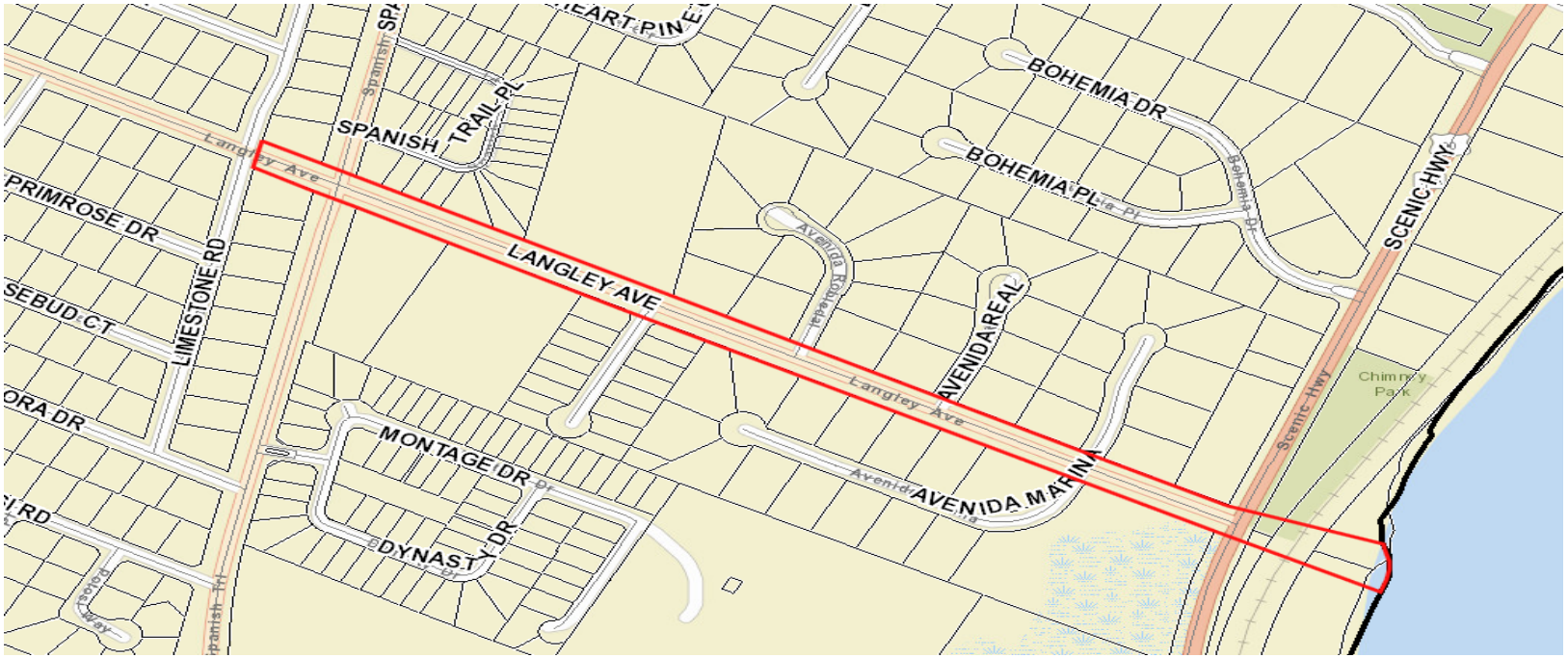
Langley Avenue (East)



- **Flooding occurs along Langley Avenue between Spanish Trail and Scenic Highway.**

- **Design Solution Estimated Construction Cost = $9,777,190.00**

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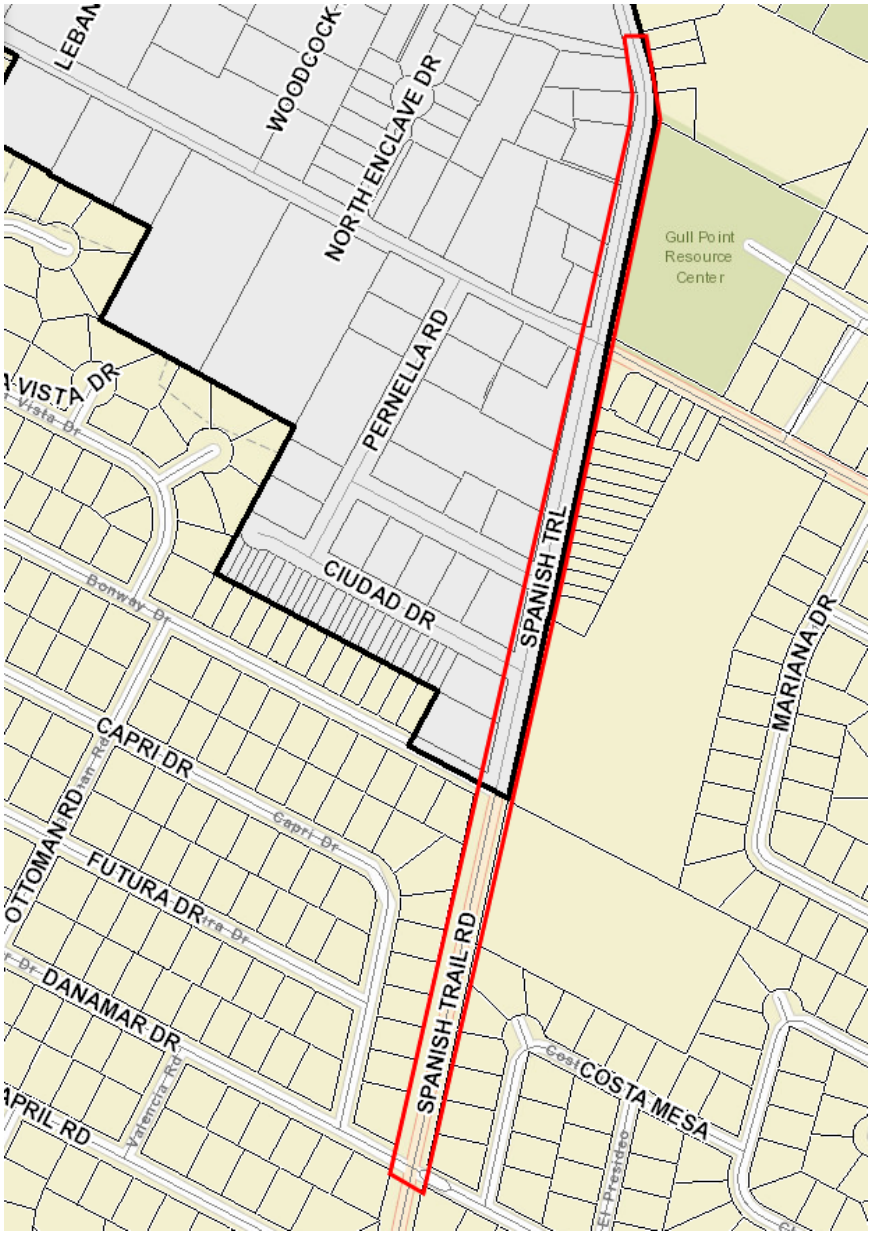
Spanish Trail North



- **Flooding occurs along Spanish Trail Road between Danamar Dr. and north of Gull Point Resource Center.**
- **Design Solution Estimated Construction Cost = $3,019,450.00 (plus $9,777,190.00 for Langley Avenue East)**

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Langley Avenue (West)

- **Flooding occurs on Langley Avenue between Spanish Trail Road westward to the City limits line (west of Hitzman Park Entrance).**

- **Design Solution Estimated Construction Cost = $1,491,671.00 (Plus $9,777,190.00 for Langley Avenue East**

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Hidden Oaks

- **Flooding occurs along Hidden Oak Drive.**

- **Design Solution Estimated Construction Cost = $1,230,192.60 (plus $9,777,190.00 for Langley Avenue East and $1,491,671.00 for Langley Avenue West)**

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Cherry Laurel Drive

- **Flooding occurs along Cherry Laurel Drive between Reynosa Drive and Hilltop Drive.**

- **Design Solution Estimated Construction Cost = $4,088,484.00 (plus $9,777,190.00 for Langley Avenue East)**

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Project Ranking Methodology

- **The ranking methodology applied to prioritizing of the projects incorporated the following criteria:**
  - **Comprehensive Plan Level of Service (LOS)**
  - **Benefited Drainage Area**
  - **Environmental Sensitivity**
  - **Potential Contamination**
  - **Community Impacts**
  - **Construction Sequence**

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Project Ranking Results

PROJECT NAME	PROJECT COST
W. Strong Street	$1,250,805.00
Langley Avenue (West)	$1,491,671.00 (Dependent on Installation of Langley Ave. East Project)
Downtown, Aragon Community, and S. 9th Avenue	$22,910,003.00
Barrancas Avenue (North Segment)	$2,682,444.00 (Dependent on Installation of Main Street Project)
Langley Avenue (East)	$9,777,190.00
Cherry Laurel Drive	$4,088,484.00 (Dependent on Installation of Langley Ave. East Project)
Hidden Oaks	$1,230,192.60 (Dependent on Installation of Langley Ave. East and Langley Ave. West Projects)
Spanish Trail (North)	$3,019,450.00 (Dependent on Installation of Langley Ave. East Project)
Barrancas Avenue (South)/L Street	$3,023,897.00
W. Main Street	$9,204,162.00
TOTAL	$58,678,298.60

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Summary - moving forward

- Much progress has been made in both the areas of stormwater Quality and Quantity since 2001 due to established priorities/commitments and availability of funding from local, state and federal sources (key).

- Continued aggressive efforts by the Mayor's office and City Council will provide both long and short term benefits to the stormwater program and ensure future progress.

- Future budgeting and identification of additional substantial funding mechanisms will be required for construction of the more significant projects.

- Nine (9) stormwater projects currently proposed within the 5-Year Capital Improvement Plan for FY2020-FY2024 to address less significant roadway flooding issues ($350K-775K).

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Budgeted Capital Projects 5-Yr Plan

	PROJECT	2020	2021	2022	2023	2024
1	L' Street at Kiwanis Park (**flooding/treatment**)	45,000	275,000			
2	Bayou Blvd, Lee, Lloyd and Stanley St. Outfalls to Bayou Texar (**flooding/treatment**)	50,000	386,400			
3	Land Acquistion for Stormwater Facility Sites	50,000	50,000	50,000	50,000	50,000
4	9th Ave Outfall to Pensacola Bay (**flooding/treatment**)			55,000	750,000	
5	Bayou Blvd, Perry, Blount and Avery St. Outfalls at Bayou Texar (**flooding/treatment**)	365,000				
6	Scott, Yates, Lakeview and Strong Outfalls at Bayou Texar (**flooding/treatment**)	362,000				
7	Stormwater Vaults Citywide	250,000	250,000	275,000	275,000	275,000
8	Stormwater Capital Maintenance	375,000	375,000	375,000	375,000	375,000
9	NPDES Permit Monitoring	125,000	125,000	125,000	125,000	125,000
10	Alcaniz Street Outfall to Pensacola Bay (**treatment**)	500,000				
11	Langley Ave and Homewood (**flooding/treatment**)	*55,000*	325,000			
12	Spring Street Outfall to Pensacola Bay (**treatment**)	50,000	400,000			
13	Barrancas Ave. "E" to "L" Street (**flooding/treatment**)	*150,000*				
14	Cordova Square Pond Rehab (**flooding/treatment**)	*59,400*	250,000			
15	Spanish Trail Pipe Rehabilitation (**flooding**)			781,400		
16	Spring Street Pipe Rehabilitation (**flooding**)			*775,000*		
17	Summit Blvd, Spanish Trail to Firestone (**flooding/treatment**)					646,400
18	South Devilliers Street (**flooding/treatment**)				*475,000*	190,000
19	Cross Street, MLK to 9th Ave (**flooding**)				*386,400*	250,000
20	12th Ave. @ Fairfield Drive (**flooding**)					525,000
21	Stormwater Grant Match-Funding	140,000	140,000	140,000	140,000	140,000
	TOTAL FOR STORMWATER PROJECTS	**2,576,400**	**2,576,400**	**2,576,400**	**2,576,400**	**2,576,400**

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Discussion

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