

## Repetitive Loss Area Analysis (RLAA)

In 2014 the City of Tarpon Springs contracted with STANTEC Engineering to complete an in depth Stormwater Action Plan (SAP) to address drainage to reduce or eliminate flooding in areas that are problematic. In 2018 there was an update to this SAP listing all of the current projects alleviating the areas with drainage issues. The City has completed, resolved or eliminated 18 identified projects and there are currently 6 capital improvement projects in design or in the construction phase.

With the 2017 CRS Coordinator's Manual update requiring a Repetitive Loss Area Analysis (RLAA), we have requested additional money in our Fiscal Year 2019 budget to expand upon the current RLAA/SAP. The RLAA will provide valuable information that can be used in conjunction with our SAP to include future drainage projects not already identified throughout the City. It is to be noted, that both the RLAA and the SAP are projects that are constantly evolving due to completion of drainage improvement projects and receipt of new information regarding flooding from residents or staff.

Table 1 contains a summary of the completed stormwater projects and flood prone areas as identified in SAP Phase 1.

Table 1 - Repetitive Loss Area Analysis - Stormwater Action Plan Phase I Results							
Repetitive Loss Area	N/A	2	3	4	5	6	Count
Completed Stormwater Projects	13		6	1	2	2	24
Flood Prone Area	27	1	6	2	2		38
Stormwater Problem To Be Addressed By Others	6		1				7

As part of the RLAA initiative, the following activities were performed to satisfy the 5 steps outlined in the 2017 Coordinator's Manual.

**Step 1:** Advise all the properties in the repetitive loss areas that the analysis will be conducted and request their input on the hazard and recommended actions.

A Storm Savvy flyer was sent to all residents of Tarpon Springs in the utility bill to inform them about the RLAA initiative. To encourage participation in the RLAA, the Storm Savvy informs citizens of where to obtain a Flood Prevention Planning Questionnaire, where they can provide important information regarding flooding issues, flood protection measures, flood-related information, and whether or not the City may follow-up with the resident. The Flood Prevention Planning Questionnaire is available in hard-copy form in City Hall and the City Library.

In addition, the form is available on the City's website. The Storm Savvy publicizes the website and City locations of the hard-copy form. The Streets and Stormwater Department gathers this information to better assess drainage patterns in the area. Data is collected with regard to how streets flood, property flooding, warning notification, what parts of the property flooded, as well as dates and duration of flooding. In addition, the resident may specify the number of inches of water present, road accessibility, flood protection measures in place such as backup valves, sump pumps, waterproofed walls, etc. The ability to attach photos and videos is also enabled for residents to better verify flooding comments and concerns.

**Step 2:** Contact Agencies or organizations that may have plans or studies that could affect the cause or impacts of flooding.

Active and historical studies were researched and incorporated in the Stormwater Action Plan. Specifically, the Master Drainage Study created by Dames & Moore was evaluated. In some cases, flood prone areas that were identified by Dames & Moore were still problem areas and therefore prioritized in the stormwater focus areas where appropriate.

**Step 3:** Visit each building in the repetitive loss area and collect basic area.

During the RLAA data collection process, photos of the properties within the repetitive loss area, description and photo numbers, drainage patterns, and mitigation recommendations were collected. It is to be noted that although photos were not captured of every building, that drainage patterns and mitigation recommendations were documented for the overall area and not for the repetitive loss property specifically. Drainage improvements such as a roadside swale were recommended to alleviate flooding. Similarly to repetitive loss areas, the City's stormwater focus areas do not specifically target a single property but incorporate a larger area so that drainage improvements can alleviate flooding. Addressing larger drainage areas reduces flood risk for the largest number of residents and assists in prioritizing critical infrastructure and roadways necessary to execute roadway level of service for emergency vehicles and flood evacuation. The tables in support of the RLAA data collection process are not published and are for internal use only. Protected by the Privacy Act of 1974.

**Step 4:** Review alternative approaches and determine whether any property protection measures or drainage improvements are feasible.

The RLAA tables contain mitigation improvements based on the types of buildings and location. In the development of the stormwater focus areas, special attention was paid to critical infrastructure as noted in the Emergency Services section of 510-4 of the CRS Coordinator's Manual as well as water quality issues that might impact natural resources. Flood attenuation was also prioritized for both street and private property as a preventative measure to reduce flood risk. The City actively engages its citizens as noted in Activity 330 of the CRS Coordinator's Manual to inform them of their flood zone and help them understand how to address flooding concerns or provide information about flood protection and flood insurance.

**Step 5:** Document the findings.

The findings for each repetitive loss area are documented below. More detail on each stormwater focus area can be referenced in the attached SAP. The SAP can be found on the City's website at [https://www.ctsfl.us/index\\_htm\\_files/StormwaterCIP.pdf](https://www.ctsfl.us/index_htm_files/StormwaterCIP.pdf).

Completed stormwater projects are outlined in the CRS Project Status Update 2018 for projects from 2011-2018. A capital improvement program is in place to plan and fund action items for the stormwater program. The City of Tarpon Springs - Stormwater Capital Improvement Program can be found on the City's website at [https://www.ctsfl.us/index\\_htm\\_files/StormwaterCIP.pdf](https://www.ctsfl.us/index_htm_files/StormwaterCIP.pdf).

**Repetitive Loss Area 1:**

Currently, no stormwater projects or flood prone areas have been identified in Area 1. Due to the density of other flood prone areas and their proximity to residential properties, CIP funds were allocated to address Areas 3, 4, 5, and 6. There are 6 repetitive loss properties within Area 1.

**Repetitive Loss Area 2:**

1 flood prone area has been identified from the SAP within Repetitive Loss Area 2. Area 2 contains 2 repetitive loss properties. Flood Prone Area #39 has been identified as street and yard flooding.

ID	Repetitive Loss Area	Location Type
39	2	Flood Prone Area

**Repetitive Loss Area 3:**

Area 3 contains 6 flood prone areas and 6 stormwater projects have been completed to address drainage problems. Area 3 contains 61 repetitive loss properties and was therefore the focus of CIP funding.

ID	Repetitive Loss Area	Location Type
23	3	Completed Stormwater Projects
61	3	Completed Stormwater Projects
49	3	Completed Stormwater Projects
59	3	Completed Stormwater Projects
24	3	Completed Stormwater Projects
48	3	Completed Stormwater Projects
43	3	Flood Prone Area
42	3	Flood Prone Area
62	3	Flood Prone Area
25	3	Flood Prone Area
24B	3	Flood Prone Area
100	3	Flood Prone Area
76	3	Stormwater Problem To Be Addressed By Others

Flood Prone Area #43 has been identified as street and private property flooding, #42 as street flooding with inadequate infrastructure/backwater, #62 has been identified as street and private property flooding with water quality concerns, #25 as rear yard flooding, #24B as private property flooding, and 100 as street flooding.

**Repetitive Loss Area 4:**

Two flood prone areas have been identified in the SAP and 1 stormwater project has been completed to alleviate areas of flooding. Area 4 contains 2 repetitive loss properties.

ID	Repetitive Loss Area	Location Type
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30	4	Completed Stormwater Projects
31	4	Flood Prone Area
70	4	Flood Prone Area

Flood Prone Area #31 has been identified as roadside flooding due to a ditch along Huey Avenue that floods and #70 as street and private property flooding.

**Repetitive Loss Area 5:**

Two flood prone areas have been identified in the SAP and 2 stormwater projects have been completed to date. Area 5 contains 3 repetitive loss properties.

ID	Repetitive Loss Area	Location Type
33	5	Flood Prone Area
15	5	Flood Prone Area
32	5	Completed Stormwater Projects
52	5	Completed Stormwater Projects

Flood Prone Area #15 has been identified as street and private property flooding. Highland Avenue roadway was deemed impassible. #33 contains street and private property flooding.

**Repetitive Loss Area 6:**

Two stormwater projects have been completed in Area 6. Although no flood prone areas were identified through the SAP, there are 3 repetitive loss properties located in Area 6.

ID	Repetitive Loss Area	Location Type
16	6	Completed Stormwater Projects
66	6	Completed Stormwater Projects

In addition to targeting flood prone areas that overlap with repetitive loss areas, the City of Tarpon Springs is proactive in addressing drainage problems in other locations to alleviate flooding concerns or stormwater infrastructure issues.

ID	Repetitive Loss Area	Location Type
13	N/A	Completed Stormwater Projects
38	N/A	Completed Stormwater Projects
40	N/A	Completed Stormwater Projects
36	N/A	Completed Stormwater Projects
34	N/A	Completed Stormwater Projects
19	N/A	Completed Stormwater Projects
26	N/A	Completed Stormwater Projects
	N/A	Completed Stormwater Projects
55	N/A	Completed Stormwater Projects
56	N/A	Completed Stormwater Projects

60	N/A	Completed Stormwater Projects
64	N/A	Completed Stormwater Projects
53	N/A	Completed Stormwater Projects
51	N/A	Completed Stormwater Projects
3	N/A	Flood Prone Area
2	N/A	Flood Prone Area
<b>ID</b>	<b>Repetitive Loss Area</b>	<b>Location Type</b>
6	N/A	Flood Prone Area
5	N/A	Flood Prone Area
14	N/A	Flood Prone Area
4	N/A	Flood Prone Area
18	N/A	Flood Prone Area
1B	N/A	Flood Prone Area
22	N/A	Flood Prone Area
35	N/A	Flood Prone Area
20	N/A	Flood Prone Area
29	N/A	Flood Prone Area
8	N/A	Flood Prone Area
10	N/A	Flood Prone Area
11	N/A	Flood Prone Area
17	N/A	Flood Prone Area
28	N/A	Flood Prone Area
7	N/A	Flood Prone Area
21	N/A	Flood Prone Area
57	N/A	Flood Prone Area
69	N/A	Flood Prone Area
28A	N/A	Flood Prone Area
74	N/A	Flood Prone Area
71	N/A	Flood Prone Area
72	N/A	Flood Prone Area
102	N/A	Flood Prone Area
101	N/A	Flood Prone Area
12	N/A	Stormwater Problem To Be Addressed By Others
41	N/A	Stormwater Problem To Be Addressed By Others
37	N/A	Stormwater Problem To Be Addressed By Others
8	N/A	Stormwater Problem To Be Addressed By Others
75	N/A	Stormwater Problem To Be Addressed By Others
1A	N/A	Stormwater Problem To Be Addressed By

		Others
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### **Cause of Flooding**

#### **Hurricane Information**

There were two dates listed on several of the AW-501's that correspond with storm events in our area:

June 23–27 2012 - Tropical Storm Debby: This was a weak system but lasted a few days and produced catastrophic flooding across northern and central Florida. There was record river flooding in certain areas.

September 1 2016 - Hurricane Hermine: Many counties in Florida received flooding up to nine feet due to river swelling.

#### **Geographic Location and Topography**

As a coastal community, the City of Tarpon Springs is tidally influenced and as such has heavy exposure to natural elements. Areas # 1, 2, 3, 5, & 7 are all tidal influenced areas. These areas have high tides & high winds, and water surges affect all locations within these areas. As for areas # 4 & 6, these locations are low-lying depressional areas that are subject to the "bowl effect" and partial to flooding due to topography.

The SAP contains further details for stormwater focus areas including reasoning for developing the stormwater focus areas and recommended capital improvements. In 2018, a CRS Project Status Update was developed to summarize the results of the SAP for a total of 18 stormwater improvement projects completed between 2011-2018.