



THOMAS
&
HUTTON

STORMWATER MANAGEMENT REPORT

James Island Drainage Study

Charleston County, SC

Prepared for:
Charleston County
City of Charleston
Town of James Island

J – 27041.0008

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BACKGROUND AND INTRODUCTION:

Charleston County along with the City of Charleston and The Town of James Island have retained Thomas & Hutton (T&H) to complete an island-wide Watershed Study of James Island. This project includes the first two tasks of a multi-task approach to developing a drainage masterplan. The project was commissioned to study various drainage metrics of the area, assess and make a formal report on the conditions of the existing drainage system, and develop a drainage masterplan to assist in focusing resources to address drainage issues on the island. The purpose of the project is explained in more detail below. The study area is approximately 10,000 acres and is bounded by Charleston Harbor along the northeast, the Stono River to the west, Sol Legare Island to the south, and the marshes surrounding Morris Island to the southeast. The study area was identified as an area in need of critical repair due to system failures, issues related to tidal influences and sea level rise, and undersized or lack of drainage infrastructure. Before repairs and improvements to the stormwater infrastructure can be designed and constructed, an assessment and prioritization of the existing drainage systems and problems needed to be performed.

PURPOSE:

The purpose of this study, and as documented in this report, is as follows:

- Analyze the various basin metrics,
- Prioritize the basins for project development,
- Summarize the needs/issues for each basin, and
- Develop a cost estimate for field data collection of the missing stormwater inventory.

DATA COLLECTION AND REVIEW:

Charleston County and the City of Charleston provided GIS stormwater inventory databases for their municipal areas across James Island. Additional data was provided by both stakeholders including work order requests from the years 2015 to 2019 and FEMA claims data from the years 1979 to 2018.

T&H collected all applicable data from an in-house GIS library including 2017 Charleston County LiDAR-derived topography, aerial photography, soils data, parcel data, among others.

EXISTING CONDITIONS EVALUATIONS:

Using the data collected, T&H delineated drainage basins that contribute to James Island's major outfalls. 30 basins were identified for the project study area. Refer to Figure 2 for a map of the drainage basins. T&H also identified several locations where stormwater infrastructure was undersized or nonexistent. Refer to Figure 17 for a map identifying these areas.

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Pipe Capacity and Level of Service Calculations:

The basins were sub-divided into over 500 sub-basins for analyses purposes. The sub-basins were assigned a runoff coefficient which was calculated based on land use coverage (The island being predominately residential).

Pipe capacity calculations were performed using the rational method for hydrology and Manning's equation for hydraulic routing. Multiple assumptions were made including the time of concentration for each sub-basin and pipe slopes (estimated based on the slope of the ground cover, which is predominately 0.2-0.3%). In addition, it was assumed for calculation purposes that all pipes were clean and capable of flowing at full capacity. Because tidal influence is not a variable in pipe capacity calculations, it was assumed that all systems have a free outfall (no tailwater).

The hypothetical flow at each pipe was calculated for various storm events, based on Charleston County's Stormwater Ordinance for the 1-, 2-, 5-, 10-, 25-, 50-, and 100-year storm events. The flow for each pipe was calculated based on the rational method and accounted for all upstream contributing areas. The calculated capacity of each pipe was then compared to the hypothetical event flows to determine the pipe's level of service (LOS). The LOS is a measure of the pipes ability to function under a certain storm event. Charleston County's required (or design) LOS, as defined by the ordinance, is correlated to drainage area (see table, below).

Table A: Hydraulic Design Criteria

Drainage System Type	Area (ac.)	Required (Design) Storm
Collector/Minor	0 - < 100	25-year
Major	100 - < 300	50-year
Large Watershed	300+	100-year

Comparing the pipe's existing LOS to the design LOS provides an indication of whether a pipe is under capacity, at capacity, or over capacity. Refer to Table 5 for a Level of Service Summary for each basin. Additionally, refer to Exhibit 1 of this report for an illustration of James Island's existing Drainage Conveyance Type.

Basin Priority Analysis:

Drainage infrastructure generally functions within a basin as a system and thus, their drainage system should be assessed holistically and not in a piecemeal fashion. To prioritize basins in terms of drainage conditions, a detailed analysis of historical data, pipe LOS, and other information was conducted. For each basin, the following were analyzed and ranked (largest to smallest):

- Drainage Area Acreage
- Number of Parcels
- Pipe LOS Factor
- Work Order Requests Factor
- Number of FEMA Flood Claims
- Elevation
- Hydrologic Soil Factor

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Each evaluation feature was then applied a score from 0 to 1 based on its weight value compared to other basins. The scoring was set to identify the weighted effect of that factor on the system's functionality. For example, the largest drainage basin was ranked 1 with a score of 1.0 and the smallest ranked 30 with a score of 0.0. The highest service request factor was scored 1.0 and the lowest 0.0. Each factor was then assigned a weight percentage to be used in arriving at a total basin priority score. The weight percentage of the 7 factors totaled 100%.

The drainage area acreage and number of parcels for each basin are a relative measure of the basin's size and thus, the area a drainage system must serve. The basin drainage areas were assigned a weight percentage of 15% and the number of parcels in each basin was assigned a weight percentage of 20%.

As discussed above, pipe capacity calculations were conducted and compared to the required flow for various storm events to determine the LOS of each pipe segment within the study area. The LOS represents the maximum capacity, or storm event, that each pipe can convey. A LOS factor was assigned to each pipe segment to represent its relative LOS (See table below for LOS factor differentiations). The pipe LOS factor comprises 10% of the basin ranking. Refer to Table 5 for summary of the LOS of each basin.

Table B: LOS Factor

Design Storm Achieved	<1-yr	1-yr	2-yr	5-yr	10-yr	25-yr +
LOS Factor	0	1	2	3	4	5

Drainage-related Work Order Requests made between January 2015 and January 2019 within the study area were recorded and assessed. Most requests/complaints made were a result of nuisance flooding, with some resulting from more severe and structural flooding. The number of complaints has remained somewhat constant over the last 4 years with an average of 230 per year. A severity factor was developed for work order requests to give more weight to the severity of the request (i.e. flooding vs maintenance). The work order request factor for each basin contributes to 20% of the basin ranking. Refer to Figure 7 for a map of Work Order requests for Charleston County and Figure 9 for a Combined Work Order request map.

FEMA flood claims within the study area were recorded and are shown in Table 9. Most claims, as shown on the FEMA Flood Claims graph (Fig 11), are associated with a named storm event, with Hurricane Joaquin in October 2015 having the most claims (87). The FEMA claims account for 10% of the basin ranking.

Using a storage area calculation tool paired with the LiDAR data received for James Island, T&H was able to determine the total area of each basin at elevations -4 through 36. Using this data, we calculated an average elevation to relatively compare basins. Refer to Figure 13 for an elevation map. The Average Elevation for each basin contributes to 15% of the basin ranking.

The soils data for this area is shown in Figure 15 and a table divided out by municipality is shown in Table 11. Using available Hydrologic Soil Group (HSG) data for James Island from the USGS, a HSG Factor was calculated, similar to that of a Curve Number calculation. Instead of using Land Use

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to break the calculations out further, T&H assigned numerical values of 1-4 to HSGs A-D, respectively. Using the numerical values and the areas associated with each HSG in each basin, we calculated an average HSG Factor to represent the soil conditions of a basin. The closer the number is to 1, the larger the particle size. The closer the number is to 4, the smaller the particle size and therefore seepage becomes harder and runoff quantities are higher. The HSG Factor for each basin contributes to 10% of the basin ranking.

Table C: HSG Factor

HSG:	A	B	C	D
Weight:	1.0	2.0	3.0	4.0

Refer to Table 12 for the Basins Priority Matrix which is a full accounting of the basin priority analysis. Refer to Figure 16 for the basin priority heat map determined by the analysis.

STUDY FINDINGS:

A summary of the study findings is presented below.

- Replacement of Storm Drain Systems:
 - This alternative consists of replacing/repairing all undersized and failed storm drain infrastructure with pipes sized to accommodate the 25-year or 50-year flow capacity where applicable. Providing positive drainage would eliminate the localized flooding in these areas.

- Implementation of Routine Inspection/Maintenance:
 - A program should be implemented that requires routine inspection and maintenance of the stormwater infrastructure. This is evident based on the numerous workorder requests pertaining to structures full of sediment/debris. Proper maintenance of the stormwater infrastructure is key to its long-term functionality. In addition, educating the property owners on the requirements of a properly functioning system could aid in reducing the amount of required maintenance and flooding complaints. Educating the property owners can possibly eliminate this potential for blocking/filling the inlet structures with sediment and debris and ultimately the number of complaints and service requests.

- Re-establish Road Sections:
 - Many of the roads on James Island do not exhibit the originally intended typical road sections which included shallow roadside drainage swales. A program could be implemented to rehabilitate the road sections. The rehabilitation would aim to re-establish the roadside swales and provide positive drainage. Off-street parking within the right-of-way would need to be either removed or replaced with inverted sections of pervious material to allow for positive drainage and infiltration.

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An estimate was performed to determine the approximate quantity of missing stormwater inventory throughout the project study area. This estimate was based on the average coverage of the existing inventory. A cost of \$60 per structure was used to develop a total cost per basin necessary for the field work to obtain the missing stormwater inventory. A summary of the total estimated missing structures, cost per basin, and total project cost are included in Table 13.

ALTERNATE PROJECTS:

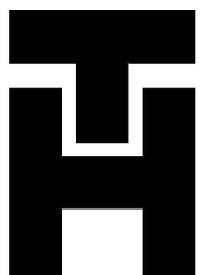
The following projects are easy or apparent improvements that can be made in a more timely manner than an entire basin drainage study would allow. Since these alternate mini improvement projects do not involve a time intensive drainage study, H&H modeling, or lengthy permitting, the cost of each project would be lower but the impact not as wide spread. In no particular ranking or order, the alternative smaller projects are:

Proj #	Basin	Pipe Size	Current Storm Event	Design Storm Event	Recommendation
1	Mill Creek	-	-	-	Insulate pipe to reduce # of sinkholes in area
2	Mill Creek	Unk.	-	25yr	Upsize pipe; High WOR #s upstream
3	Riverland Dr North	-	-	-	Add 3 rd outfall; high # of WOR upstream
4	Charleston Municipal Golf Course	18"	Unk.	25yr	High # WOR; upsize pipe
5	James Island Expressway	-	-	-	Add roadside pipes w/ inlet along Burning Tree Rd
6	Lake Francis	30"	10yr	50yr	Upsize pipe to 36"
7	Hollis Lake	18x29	2yr	25yr	Upsize pipe to (2) 24" or equivalent
8	Central Park Rd	18"	<1yr	25yr	Upsize pipe to 24"
9	Dills Bluff Rd	18"	<1yr	25yr	Upsize pipe to 30"
10	Dills Bluff Rd	18"	<1yr	25yr	Upsize pipe to 30"
11	Dills Bluff Rd	24"	<1yr	25yr	Upsize pipe to 30"
12	Charleston Harbor	24"	1yr	25yr	Upsize pipe to 30"
13	Charleston Harbor	18"	<1yr	25yr	Upsize pipe to 30"
14	Oceanview	24"	<1yr	25yr	Upsize pipe to 30"
15	Holy Cross Cemetery	24"	1yr	25yr	Upsize pipe to 30" or equivalent; high # of WOR upstream
16	Charleston Harbor	-	-	-	Insulate pipe to reduce # of sinkholes in area
17	Camp Road	24"	<1yr	25yr	Upsize pipe to 30"

JAMES ISLAND DRAINAGE MASTER STUDY

BASIN DESCRIPTIONS

J – 27041.0008



Prepared by:

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FINDINGS

Basin Name: **Mill Creek Basin**

Basin Priority: **5**

Score/Max: 57.9/100

<i>Drainage Area (ac.):</i>	586.9	<i>Rank:</i>	5
<i>Number Parcels:</i>	2.23	<i>Rank:</i>	13
<i>Avg. LOS:</i>	3.40	<i>Rank:</i>	23
<i>Work Order Factor:</i>	18.57	<i>Rank:</i>	5
<i>FEMA Claims:</i>	6.65	<i>Rank:</i>	4
<i>Avg. Elevation:</i>	10.8'	<i>Rank:</i>	19
<i>HSG Factor:</i>	2.54	<i>Rank:</i>	15

Existing Basin and Drainage System Description:

This basin is bounded by Fort Johnson Road to the north, and outfalls to Seaside Creek to the south. Stormwater is collected in roadside swales in the neighborhoods and brought to outfall points along the waterway that cuts through the middle and east portions of the basin. The southwest corner of the basin particularly around Westwood Drive and Seacroft Road experiences high numbers of historical flooding. The main outfall being one small channel that runs through the entire west side of the basin. The outfall pipes from Westwood Drive and Seacroft Road are both 30".

Basin Name: **Lake Francis Basin**

Basin Priority: **6**

Score/Max: 57.5/100

<i>Drainage Area (ac.):</i>	487.4	<i>Rank:</i>	7
<i>Number Parcels:</i>	3.10	<i>Rank:</i>	3
<i>Avg. LOS:</i>	2.25	<i>Rank:</i>	15
<i>Work Order Factor:</i>	11.90	<i>Rank:</i>	12
<i>FEMA Claims:</i>	4.72	<i>Rank:</i>	9
<i>Avg. Elevation:</i>	8.8'	<i>Rank:</i>	11
<i>HSG Factor:</i>	1.85	<i>Rank:</i>	22

Existing Basin and Drainage System Description:

This basin is bounded by James Island Creek to the northwest and the Ashley River marsh to the northeast. Stormwater is collected in varying neighborhoods and travels north towards Harbor View Road via a large channel. The drainage collects in Lake Francis and outfalls north under Fort Sumter Drive. Drainage north of Lake Francis outfalls to a marsh/channel between White Point Boulevard and Fort Sumter Drive. This basin is primarily comprised of roadside swales and larger canals. There are some pipes primarily 24"/30" pipes running under Harbor View Road.

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Basin Name: **Seaside Basin**

Basin Priority: **7** *Score/Max:* 56.6/100

<i>Drainage Area (ac.):</i>	133.7	<i>Rank:</i>	26
<i>Number Parcels:</i>	2.71	<i>Rank:</i>	5
<i>Avg. LOS:</i>	N/A	<i>Rank:</i>	N/A
<i>Work Order Factor:</i>	9.73	<i>Rank:</i>	20
<i>FEMA Claims:</i>	16.46	<i>Rank:</i>	1
<i>Avg. Elevation:</i>	6.6'	<i>Rank:</i>	4
<i>HSG Factor:</i>	2.92	<i>Rank:</i>	8

Existing Basin and Drainage System Description:

This basin is bounded by Planters Trace Drive and Seaside Plantation Drive to the south/southwest and some low-lying marshland connected to Clark Sound to the north. There is minimal stormwater infrastructure in this basin. Most of the stormwater runoff is overland sheet flow into the surrounding waterbody. Drainage from Planters Trace and the surrounding homes is conveyed through a 30" corrugated metal pipe into the marshland between Battery Brown Court and Battery Reynolds Court.

Basin Name: **Stono Creek Basin**

Basin Priority: **8** *Score/Max:* 56.3/100

<i>Drainage Area (ac.):</i>	213.1	<i>Rank:</i>	20
<i>Number Parcels:</i>	1.57	<i>Rank:</i>	21
<i>Avg. LOS:</i>	1.22	<i>Rank:</i>	8
<i>Work Order Factor:</i>	19.71	<i>Rank:</i>	4
<i>FEMA Claims:</i>	0.47	<i>Rank:</i>	22
<i>Avg. Elevation:</i>	8.1'	<i>Rank:</i>	5
<i>HSG Factor:</i>	3.40	<i>Rank:</i>	1

Existing Basin and Drainage System Description:

This basin is bounded by Riverland Drive to the northeast, the Stono River to the west, Woodland Shores Road to the north, and Terrabrook Lane to the south. There is a large canal that travels through the center of the basin from Riverland Drive out to Stono River. Drainage from the neighborhoods on the northern side of the canal drains south in roadside swales or 18" pipes, discharging into the canal. There is no data on inventory south of the canal.

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Basin Name: **Charleston Municipal Golf Course Basin**

Basin Priority: **11** *Score/Max:* 53.0/100

<i>Drainage Area (ac.):</i>	404.9	<i>Rank:</i>	9
<i>Number Parcels:</i>	2.09	<i>Rank:</i>	15
<i>Avg. LOS:</i>	1.56	<i>Rank:</i>	12
<i>Work Order Factor:</i>	11.11	<i>Rank:</i>	16
<i>FEMA Claims:</i>	3.70	<i>Rank:</i>	12
<i>Avg. Elevation:</i>	8.7'	<i>Rank:</i>	10
<i>HSG Factor:</i>	2.60	<i>Rank:</i>	14

Existing Basin and Drainage System Description:

This basin is bounded by Woodland Shores Road to the south and the Stono River to the west. Stormwater is collected from the north and east and runs west out-falling into the Stono River. Most of the runoff from the neighborhood roadside swales outfalls into a larger canal cutting through most of the basin. Drainage from Maybank Highway runs southwest along the road in 30" pipes. 125 acres of this basin, roughly 31% is comprised of the golf course and therefore has no infrastructure.

Basin Name: **Camp Road Basin**

Basin Priority: **12** *Score/Max:* 50.7/100

<i>Drainage Area (ac.):</i>	374.5	<i>Rank:</i>	12
<i>Number Parcels:</i>	1.79	<i>Rank:</i>	19
<i>Avg. LOS:</i>	2.26	<i>Rank:</i>	16
<i>Work Order Factor:</i>	16.82	<i>Rank:</i>	8
<i>FEMA Claims:</i>	1.07	<i>Rank:</i>	19
<i>Avg. Elevation:</i>	10.5'	<i>Rank:</i>	18
<i>HSG Factor:</i>	2.96	<i>Rank:</i>	6

Existing Basin and Drainage System Description:

This basin is bounded by Folly Road to the east and Newtown Cut to the north. Stormwater is collected south of Camp Road and conveyed through Mayflower Drive to a channel on the southwest side of the basin. Drainage from the north travels northwest along Camp Road or northeast along Folly Road until out-falling into Newtown Cut.

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Basin Name: **Parrot Creek Basin**

Basin Priority: **13** *Score/Max:* 50.3/100

<i>Drainage Area (ac.):</i>	322.5	<i>Rank:</i>	16
<i>Number Parcels:</i>	2.16	<i>Rank:</i>	14
<i>Avg. LOS:</i>	1.55	<i>Rank:</i>	11
<i>Work Order Factor:</i>	13.95	<i>Rank:</i>	9
<i>FEMA Claims:</i>	0.93	<i>Rank:</i>	20
<i>Avg. Elevation:</i>	9.8'	<i>Rank:</i>	15
<i>HSG Factor:</i>	2.35	<i>Rank:</i>	18

Existing Basin and Drainage System Description:

This basin is bounded by Fort Johnson Road to the north, Parrot Point Drive to the southeast, and the Bayview Soccer Complex to the west. Approximately 46 acres (or 15%) of the basin is made up of Parrot Creek which runs along the middle of the basin. Stormwater is collected from residential neighborhoods to the north and similarly to the south and conveyed to Parrot Creek. From the west, drainage runs under Bayview Farms Boulevard and Lighthouse Road (48" pipe) until it meets the tip of Parrot Creek.

Basin Name: **Folly Creek Basin**

Basin Priority: **14** *Score/Max:* 46.5/100

<i>Drainage Area (ac.):</i>	184.4	<i>Rank:</i>	23
<i>Number Parcels:</i>	1.93	<i>Rank:</i>	17
<i>Avg. LOS:</i>	1.00	<i>Rank:</i>	6
<i>Work Order Factor:</i>	10.31	<i>Rank:</i>	18
<i>FEMA Claims:</i>	0.00	<i>Rank:</i>	23
<i>Avg. Elevation:</i>	8.2'	<i>Rank:</i>	6
<i>HSG Factor:</i>	2.47	<i>Rank:</i>	16

Existing Basin and Drainage System Description:

This basin is bounded by marsh to the south, and Folly Road, Clearspring Drive, and Fort Lamar Road to the north. The stormwater conveyance measures in this basin are primarily roadside swales and larger channels, with a few 18" outfall or underneath the road pipes. Stormwater is collected from the north and runs south along Old Military Road, Folly Road, and Tower Battery Road out-falling in the marsh between James Island and Sol Legare.

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Basin Name: **Hollis Lake Basin**

Basin Priority: **15** *Score/Max:* 45.1/100

<i>Drainage Area (ac.):</i>	178.5	<i>Rank:</i>	24
<i>Number Parcels:</i>	1.68	<i>Rank:</i>	20
<i>Avg. LOS:</i>	4.63	<i>Rank:</i>	26
<i>Work Order Factor:</i>	17.93	<i>Rank:</i>	6
<i>FEMA Claims:</i>	5.60	<i>Rank:</i>	6
<i>Avg. Elevation:</i>	11.2'	<i>Rank:</i>	20
<i>HSG Factor:</i>	2.94	<i>Rank:</i>	7

Existing Basin and Drainage System Description:

This basin is bounded by Elliot Cut to the north and Folly Road to the east. Stormwater is conveyed north through a series of large corrugated metal culverts on the east or a small canal to the west into Hollis Lake in the middle of the basin. From there it travels east to Old Folly Rd through a 48" pipe and north along Folly Rd until finally out-falling into Wappoo Creek.

Basin Name: **Riverland Dr South Basin**

Basin Priority: **16** *Score/Max:* 43.5/100

<i>Drainage Area (ac.):</i>	725.6	<i>Rank:</i>	2
<i>Number Parcels:</i>	1.36	<i>Rank:</i>	25
<i>Avg. LOS:</i>	3.80	<i>Rank:</i>	25
<i>Work Order Factor:</i>	8.41	<i>Rank:</i>	21
<i>FEMA Claims:</i>	6.48	<i>Rank:</i>	5
<i>Avg. Elevation:</i>	11.7'	<i>Rank:</i>	23
<i>HSG Factor:</i>	3.01	<i>Rank:</i>	4

Existing Basin and Drainage System Description:

This basin is bounded by the Stono River to the west. Stormwater is collected in neighborhoods throughout the basin and all conveyed to a large canal running through the middle of the basin under Folly Road and Riverland Drive, directly out falling to the Stono River. The size and capacity of these pipes under the roads are unknown.

FINDINGS

Basin Name: **Signal Point Basin**

Basin Priority: **17** *Score/Max:* 43.2/100

<i>Drainage Area (ac.):</i>	386.1	<i>Rank:</i>	10
<i>Number Parcels:</i>	0.95	<i>Rank:</i>	26
<i>Avg. LOS:</i>	3.00	<i>Rank:</i>	20
<i>Work Order Factor:</i>	17.09	<i>Rank:</i>	7
<i>FEMA Claims:</i>	0.00	<i>Rank:</i>	23
<i>Avg. Elevation:</i>	11.9'	<i>Rank:</i>	24
<i>HSG Factor:</i>	3.19	<i>Rank:</i>	3

Existing Basin and Drainage System Description:

This basin is bounded by the Stono River to the west, portions of Folly Road to the east, and South Grimball Road to the south. Stormwater is collected in mostly roadside swales and conveyed south along Signal Point Road, Grimball Road, and South Grimball Road. Most of the stormwater runoff is conveyed into a pond downstream next to James Island Elementary School. From there it goes under Grimball Road in a 36" pipe and outfalls through a channel to the Stono River.

Basin Name: **Holy Cross Cemetery Basin**

Basin Priority: **18** *Score/Max:* 43.1/100

<i>Drainage Area (ac.):</i>	113.0	<i>Rank:</i>	29
<i>Number Parcels:</i>	2.35	<i>Rank:</i>	9
<i>Avg. LOS:</i>	1.13	<i>Rank:</i>	7
<i>Work Order Factor:</i>	20.36	<i>Rank:</i>	3
<i>FEMA Claims:</i>	0.00	<i>Rank:</i>	23
<i>Avg. Elevation:</i>	15.2'	<i>Rank:</i>	29
<i>HSG Factor:</i>	1.43	<i>Rank:</i>	26

Existing Basin and Drainage System Description:

This basin is bounded by Fort Johnson Road to the north/northwest and Parrot Point Creek to the southeast. Stormwater is collected through roadside drainage swales and conveyed southeast through dual 24" pipes from the cul-de-sac on Ritter Drive towards a large canal that cuts through the center of the basin, and then outfalls into Parrot Point Creek.

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Basin Name: **Riverland Dr North Basin**

Basin Priority: **21** *Score/Max:* 41.6/100

<i>Drainage Area (ac.):</i>	379.8	<i>Rank:</i>	11
<i>Number Parcels:</i>	1.36	<i>Rank:</i>	23
<i>Avg. LOS:</i>	2.50	<i>Rank:</i>	19
<i>Work Order Factor:</i>	6.85	<i>Rank:</i>	22
<i>FEMA Claims:</i>	2.90	<i>Rank:</i>	14
<i>Avg. Elevation:</i>	9.2'	<i>Rank:</i>	13
<i>HSG Factor:</i>	2.74	<i>Rank:</i>	13

Existing Basin and Drainage System Description:

This basin is bounded by the Stono River to the west, Newtown Cut to the north, and Bishop Gadsden Way to the east. Approximately 200 acres (53% of the entire basin) is uninhabited forested marsh belonging to the Charleston Museum. The other half of the basin drains using large channels and two pipes underneath Riverland Drive (one 24" and one 36").

Basin Name: **Country Club Basin**

Basin Priority: **22** *Score/Max:* 38.2/100

<i>Drainage Area (ac.):</i>	278.4	<i>Rank:</i>	17
<i>Number Parcels:</i>	0.52	<i>Rank:</i>	28
<i>Avg. LOS:</i>	0.83	<i>Rank:</i>	5
<i>Work Order Factor:</i>	11.14	<i>Rank:</i>	15
<i>FEMA Claims:</i>	1.44	<i>Rank:</i>	18
<i>Avg. Elevation:</i>	8.6'	<i>Rank:</i>	9
<i>HSG Factor:</i>	2.05	<i>Rank:</i>	20

Existing Basin and Drainage System Description:

This basin is bounded by Wappoo Creek to the north, and Dill Creek to the east. A large portion (132 acres) of this basin, roughly 47%, is comprised of a golf course with minimal drainage infrastructure. There is a small portion of drainage infrastructure in the southwest corner out-falling through a 12" and a 15" pipe on either side of Martello Drive towards the James Island Expressway Basin.

FINDINGS

Basin Name: **Grimball Farms Basin**

Basin Priority: **23** *Score/Max:* 38.0/100

<i>Drainage Area (ac.):</i>	367.5	<i>Rank:</i>	13
<i>Number Parcels:</i>	0.41	<i>Rank:</i>	29
<i>Avg. LOS:</i>	1.80	<i>Rank:</i>	13
<i>Work Order Factor:</i>	1.90	<i>Rank:</i>	27
<i>FEMA Claims:</i>	0.54	<i>Rank:</i>	21
<i>Avg. Elevation:</i>	5.2'	<i>Rank:</i>	1
<i>HSG Factor:</i>	3.24	<i>Rank:</i>	2

Existing Basin and Drainage System Description:

This basin is bounded by the Stono River to the west, South Grimball Road to the north, and low-lying marshland to the south. A large portion (254 acres or 69%) is comprised of unbuilt upon marsh or wetland. The remaining northern portion of this basin drains south through channels and outfalls on the west side of the basin to the Stono River.

Basin Name: **Charleston Harbor Basin**

Basin Priority: **24** *Score/Max:* 37.3/100

<i>Drainage Area (ac.):</i>	237.4	<i>Rank:</i>	19
<i>Number Parcels:</i>	2.26	<i>Rank:</i>	12
<i>Avg. LOS:</i>	0.42	<i>Rank:</i>	2
<i>Work Order Factor:</i>	2.95	<i>Rank:</i>	26
<i>FEMA Claims:</i>	0.00	<i>Rank:</i>	23
<i>Avg. Elevation:</i>	12.4'	<i>Rank:</i>	26
<i>HSG Factor:</i>	1.16	<i>Rank:</i>	29

Existing Basin and Drainage System Description:

This basin is bounded by the Charleston Harbor to the north and portions of Fort Johnson Road to the southeast. There's a large canal that makes up 23 acres (nearly 10% of the basin). The surrounding residential neighborhoods primarily run into this canal through roadside swales where applicable and 24"/18" drainage pipes. The far eastern tip outfalls to a second location through similar conveyance methods straight to the Charleston Harbor.

FINDINGS

Basin Name: **Fort Johnson Basin**

Basin Priority: **27** *Score/Max:* 31.4/100

<i>Drainage Area (ac.):</i>	117.4	<i>Rank:</i>	27
<i>Number Parcels:</i>	2.69	<i>Rank:</i>	6
<i>Avg. LOS:</i>	N/A	<i>Rank:</i>	N/A
<i>Work Order Factor:</i>	6.81	<i>Rank:</i>	23
<i>FEMA Claims:</i>	2.55	<i>Rank:</i>	16
<i>Avg. Elevation:</i>	12.6'	<i>Rank:</i>	27
<i>HSG Factor:</i>	1.40	<i>Rank:</i>	27

Existing Basin and Drainage System Description:

This basin is bounded by marsh to the south. Besides the marshy 15 acres that make up 13% of the basin, it is primarily residential. There is very little infrastructure present in the basin. There is a 15" pipe out-falling from Robert E Lee Blvd and a 24" pipe out-falling from Parrot Creek Way. The northern portion lacks any drainage infrastructure data.

Basin Name: **Stono River Basin**

Basin Priority: **28** *Score/Max:* 26.9/100

<i>Drainage Area (ac.):</i>	185.4	<i>Rank:</i>	22
<i>Number Parcels:</i>	0.67	<i>Rank:</i>	27
<i>Avg. LOS:</i>	N/A	<i>Rank:</i>	N/A
<i>Work Order Factor:</i>	10.25	<i>Rank:</i>	19
<i>FEMA Claims:</i>	0.00	<i>Rank:</i>	23
<i>Avg. Elevation:</i>	12.1'	<i>Rank:</i>	25
<i>HSG Factor:</i>	2.80	<i>Rank:</i>	10

Existing Basin and Drainage System Description:

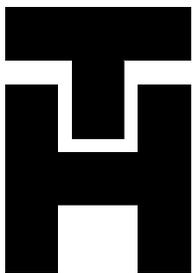
This basin is bounded by the Stono River to the west. There is limited stormwater inventory data for this basin. The basin is also primarily undeveloped, with a handful of residential homes in the lower middle portion. Stormwater runoff from this developed area outfalls in one of two major channels to the Stono River.

JAMES ISLAND DRAINAGE MASTER STUDY

TABLES

J – 27041.0008

Prepared by:



THOMAS & HUTTON

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Table 1: Area Per Basin

ID	Basin Name	Area (ac)	Subbasins	Rank	Score
1	Camp Road Basin	374.5	25	12	0.52
2	Central Park Rd Basin	603.6	24	3	0.70
3	Charleston Harbor Basin	237.4	14	19	0.31
4	Charleston Municipal Golf Course Basin	404.9	26	9	0.55
5	Country Club Basin	278.4	11	17	0.39
6	Dills Bluff Rd Basin	444.5	32	8	0.58
7	Elliot Cut Basin	249.4	32	18	0.33
8	Folly Creek Basin	184.4	8	23	0.22
9	Fort Johnson Basin	117.4	4	27	0.10
10	Fort Pemberton Basin	61.3	1	30	0.00
11	Grimball Farms Basin	367.5	8	13	0.52
12	Hollis Lake Basin	178.5	11	24	0.21
13	Holy Cross Cemetery Basin	113.0	18	29	0.09
14	James Island County Park Basin	362.2	5	14	0.51
15	James Island Creek Basin	985.0	96	1	1.00
16	James Island Expressway Basin	335.9	13	15	0.49
17	Kushiwah Creek Basin	519.4	46	6	0.64
18	Lake Francis Basin	487.4	34	7	0.61
19	Lighthouse Point Basin	201.4	31	21	0.25
20	Mill Creek Basin	586.9	11	5	0.69
21	Oceanview Basin	138.4	20	25	0.14
22	Parrot Creek Basin	322.5	23	16	0.46
23	Riverland Dr North Basin	379.8	5	11	0.53
24	Riverland Dr South Basin	725.6	20	2	0.80
25	Seaside Basin	133.7	4	26	0.13
26	Seaside Creek Basin	601.7	22	4	0.70
27	Signal Point Basin	386.1	18	10	0.53
28	Stono Creek Basin	213.1	13	20	0.27
29	Stono River Basin	185.4	2	22	0.22
30	Sweetgrass Creek Basin	113.1	6	28	0.09
	TOTAL	10,292.3	583		

Table 2: Land Use Per Municipality

Basin Name	Area (ac.)																							Total	
	Business/Commercial			Conservation			Industrial			PUD			Residential			Other - Devel.			Marsh			Road w/ RW			
	City	County	Town	City	County	Town	City	County	Town	City	County	Town	City	County	Town	City	County	Town	City	County	Town	City	County		Town
Camp Road	6.05		37.64	18.29	0.00	0.04						0.71	102.15		158.41			2.63	0.99		0.48	9.30		37.32	374.01
Central Park Rd	13.55	10.09		0.05	0.00		8.35	11.32		0.03	0.31		265.41	194.92		11.64	4.42		1.47	7.07		43.42	28.38		600.42
Charleston Harbor													70.52	0.00	133.09	0.06			7.87	0.76	0.04	10.80		14.26	237.40
Charleston Munic. Golf Course	1.85	2.15		145.57	0.20					5.63	0.67		55.61	144.88								21.43	28.54		406.54
Country Club	2.68	0.39											238.79	12.54		1.02			0.65			17.09	1.82		274.99
Dills Bluff Rd				0.20		0.01							144.10	0.83	205.24	1.20		0.03	36.29		2.21	16.90		38.01	445.02
Elliot Cut	3.18	10.17						0.03		0.00	1.34		41.51	132.11		0.24	0.01					25.25	35.53		249.37
Folly Creek		0.38		0.05									56.37	52.32		0.12	54.77					8.24	12.12		184.35
Fort Johnson													34.37		50.36	0.71		0.00	14.12		0.87	7.47		9.57	117.47
Fort Pemberton				1.15						7.05	0.05		7.76	34.49		0.07						2.48	7.37		60.44
Grimball Farms										256.27	0.03		3.68	0.06		0.96	97.04					0.83	8.64		367.52
Hollis Lake	42.37	0.00								10.48			81.90	12.30		7.31						24.00	0.14		178.49
Holy Cross Cemetery													18.03		69.99	0.16		0.00	6.64		1.84	3.05		13.10	112.82
James Island County Park				319.19	0.02								20.13	18.97								2.30	1.32		361.93
James Island Creek	17.50		26.43	0.38						25.96		1.72	270.06	0.26	465.06	5.00		4.67	7.93		0.09	69.14	0.31	88.58	983.08
James Island Expressway	56.54	1.50	0.38	13.93	0.03	0.01							137.93	21.00	3.97	3.84	1.04		21.29		0.00	69.79	2.90	0.73	334.88
Kushiwah Creek	0.01		0.59	7.66		0.01							165.10	3.34	253.86	0.64		0.97	1.66		0.02	37.15	0.50	48.13	519.63
Lake Francis	13.99	0.01	0.01	0.16		0.00				12.82	0.00	0.00	190.05	5.95	149.85	23.53	0.02	0.91	7.45		0.48	48.59	1.55	31.27	486.67
Lighthouse Point										1.91		3.44	23.31		142.85				2.39		3.08	5.65		18.71	201.33
Mill Creek	23.96		1.92	11.77		0.07	4.85						209.91	0.77	222.26	12.71	0.26	0.87				51.65	0.00	35.63	576.63
Oceanview										2.02		0.27	65.29		47.66				2.04			10.96		4.71	132.95
Parrot Creek										7.80		14.90	98.84		119.28	0.25		0.01				19.94		21.78	282.81
Riverland Dr North				204.78						61.32			90.54	1.07	1.42							20.22			379.35
Riverland Dr South	54.17	0.00	0.89	169.37	0.01	0.00				256.80		0.00	46.16	15.38	118.35	4.42		2.87				36.21	0.66	20.03	725.33
Seaside				14.04						4.20			67.80	0.01		2.61	0.42		0.05			22.47	0.00		111.61
Seaside Creek	11.62	4.36		35.23	0.04					56.60	0.18		222.56	68.63		4.51	111.34					55.86	22.17		593.08
Signal Point	5.41	11.99		7.61	0.03		40.10	0.06		44.79			32.16	54.15		1.95	158.81					10.32	16.80		384.18
Stono Creek				0.45									61.24	131.42					0.00	0.25		5.56	11.14		210.06
Stono River				79.27	0.07					30.33	0.89		3.16	16.94		0.06	48.16					0.12	6.43		185.44
Sweetgrass Creek				6.73		0.09							4.31		90.29							0.79		10.91	113.11
TOTAL	252.88	41.03	67.87	1035.88	0.40	0.24	53.30	11.41	0.00	784.02	3.48	21.04	2828.77	922.34	2231.95	83.01	476.28	12.97	110.84	8.08	9.11	656.97	186.33	392.72	10,190.9
% OF MUNICIPALITY	3%	1%	1%	10%	0%	0%	1%	0%	0%	8%	0%	0%	28%	26%	34%	1%	13%	0%	1%	0%	0%	7%	5%	6%	

Table 3: Parcel Count Per Municipality

Basin Name	Parcels				Area (acre)	Parcels/acre	Rank	Score
	City	County	Town	Total				
Camp Road Basin	169		503	672	374.49	1.79	19	0.46
Central Park Rd Basin	750	644		1,394	603.56	2.31	11	0.65
Charleston Harbor Basin	205	1	331	537	237.45	2.26	12	0.63
Charleston Municipal Golf Course Basin	315	532		847	404.88	2.09	15	0.57
Country Club Basin	106	39		145	278.38	0.52	28	0.07
Dills Bluff Rd Basin	368	6	719	1,093	444.53	2.46	8	0.70
Elliot Cut Basin	231	581		812	249.36	3.26	1	1.00
Folly Creek Basin	128	228		356	184.35	1.93	17	0.51
Fort Johnson Basin	159		157	316	117.44	2.69	6	0.79
Fort Pemberton Basin	37	158		195	61.26	3.18	2	0.97
Grimball Farms Basin	14	135		149	367.54	0.41	29	0.03
Hollis Lake Basin	286	13		299	178.47	1.68	20	0.43
Holy Cross Cemetery Basin	52		213	265	112.96	2.35	9	0.66
James Island County Park Basin	67	39		106	362.16	0.29	30	0.00
James Island Creek Basin	1,368	3	1,584	2,955	984.99	3.00	4	0.90
James Island Expressway Basin	260	78	15	353	335.89	1.05	24	0.23
Kushiwah Creek Basin	577	22	712	1,311	519.39	2.52	7	0.73
Lake Francis Basin	935	40	538	1,513	487.44	3.10	3	0.94
Lighthouse Point Basin	103		313	416	201.38	2.07	16	0.56
Mill Creek Basin	759	12	540	1,311	586.89	2.23	13	0.62
Oceanview Basin	182		76	258	138.44	1.86	18	0.49
Parrot Creek Basin	353		343	696	322.51	2.16	14	0.59
Riverland Dr North Basin	510	4	4	518	379.82	1.36	23	0.33
Riverland Dr South Basin	371	27	335	733	725.63	1.01	25	0.22
Seaside Basin	358	4		362	133.65	2.71	5	0.80
Seaside Creek Basin	986	410		1,396	601.73	2.32	10	0.65
Signal Point Basin	105	263		368	386.09	0.95	26	0.20
Stono Creek Basin	112	222		334	213.07	1.57	21	0.39
Stono River Basin	31	93		124	185.44	0.67	27	0.12
Sweetgrass Creek Basin	29		133	162	113.11	1.43	22	0.35
TOTAL	9,926	3,554	6,516	19,996	10,292.3			
AVERAGE						1.91		

Table 4: Land Use Per Basin

Basin Name	Area (ac.)								Total
	Business/ Commercial	Conservation	Industrial	PUD	Residential	Other Dev.	Marsh	Road w/ RW	
Camp Road	74.80	35.70		0.73	213.67	1.02	1.47	46.62	374.01
Central Park Rd	37.30	33.76	16.32	0.32	398.65	33.74	8.51	71.82	600.42
Charleston Harbor		2.91			200.76	0.00	9.64	24.09	237.40
Charleston Municipal Golf Course	4.28	156.73		11.11	184.47	0.00		49.96	406.55
Country Club	3.77	158.25			95.67	0.00	1.67	18.91	278.28
Dills Bluff Rd	0.86	25.35			297.01	27.09	39.49	54.73	444.52
Elliot Cut	18.17	6.47		1.34	162.60	0.01		60.77	249.36
Folly Creek	1.40	0.31			119.30	42.98		20.35	184.35
Fort Johnson		2.89			82.51	0.00	14.99	17.04	117.44
Fort Pemberton		7.52		10.31	33.58	0.00		9.86	61.26
Grimball Farms		36.06		224.79	7.59	89.62		9.47	367.54
Hollis Lake	29.22				117.10	8.03		24.14	178.49
Holy Cross Cemetery					88.18	0.00	8.49	16.15	112.82
James Island County Park		334.67			15.18	8.46		3.63	361.93
James Island Creek	62.10	0.38		28.79	717.35	7.06	8.03	158.02	981.72
James Island Expressway	42.65	63.71			124.67	9.14	21.29	73.42	334.88
Kushiwah Creek	1.02	11.79			397.17	2.04	21.43	85.77	519.22
Lake Francis	12.23	9.99		10.59	335.39	28.46	7.92	81.42	486.02
Lighthouse Point				7.08	161.24	1.32	7.34	24.36	201.33
Mill Creek	25.94	43.52	0.90		395.71	23.28		87.28	576.63
Oceanview				1.17	112.95	1.12	2.04	15.67	132.95
Parrot Creek				21.02	229.42	3.00		41.72	295.16
Riverland Dr North		204.78		55.38	98.89	0.00		20.22	379.26
Riverland Dr South	169.06	196.18		158.60	140.36	4.23		56.90	725.33
Seaside		16.87		1.59	70.63	0.00	0.05	22.47	111.61
Seaside Creek	25.40	47.62		44.21	276.22	121.75		78.03	593.22
Signal Point	38.08	16.45	41.09	43.58	104.18	115.61		27.13	386.13
Stono Creek		1.44			191.67	0.00	0.25	16.70	210.06
Stono River		88.19		5.04	46.85	38.81		6.55	185.44
Sweetgrass Creek		53.15			48.26	0.00		11.70	113.11
TOTAL	546.29	1554.72	58.31	625.64	5467.25	566.77	152.61	1234.88	10206.47
PERCENT OF TOTAL	5%	15%	1%	6%	54%	6%	1%	12%	

Table 5: Level of Service Summary

Pipe LOS Summary											Rank	Score
Basin Name	<1-yr	1yr	2yr	5yr	10yr	25yr	50yr	100-yr +	Total	LOS		
Camp Road Basin	8	1	2	1		2		5	19	2.26	16	10
Central Park Rd Basin	4		2		1	1	2	4	14	3.07	22	5
Charleston Harbor Basin	9	1	2						12	0.42	2	25
Charleston Municipal Golf Course Basin	10	1	2	1				4	18	1.56	12	15
Country Club Basin	5					1			6	0.83	5	22
Dills Bluff Rd Basin	11	1	1			2	1	7	23	2.30	18	9
Elliot Cut Basin	14	1			2	2	1	5	25	1.96	14	13
Folly Creek Basin	4							1	5	1.00	6	21
Fort Johnson Basin									0	N/A	N/A	N/A
Fort Pemberton Basin									0	N/A	N/A	N/A
Grimball Farms Basin	3				1			1	5	1.80	13	14
Hollis Lake Basin			1					7	8	4.63	26	1
Holy Cross Cemetery Basin	11	1		1	1	1		1	16	1.13	7	20
James Island County Park Basin			1					1	2	3.50	24	3
James Island Creek Basin	28	2	2		2	5	2	16	57	2.26	16	10
James Island Expressway Basin	2		1		1			3	7	3.00	20	6
Kushiwah Creek Basin	22			1		3		4	30	1.27	9	18
Lake Francis Basin	11		2	1	3	2		5	24	2.25	15	12
Lighthouse Point Basin	7	1		1					9	0.44	3	24
Mill Creek Basin	4	1				2		8	15	3.40	23	4
Oceanview Basin	3		1						4	0.50	4	23
Parrot Creek Basin	5	1	2	1	1			1	11	1.55	11	16
Riverland Dr North Basin	1							1	2	2.50	19	8
Riverland Dr South Basin	2			1		1		6	10	3.80	25	2
Seaside Basin									0	N/A	N/A	N/A
Seaside Creek Basin	8	1	2			1		2	14	1.43	10	17
Signal Point Basin	3			1	1			4	9	3.00	20	6
Stono Creek Basin	6			2				1	9	1.22	8	19
Stono River Basin									0	N/A	N/A	N/A
Sweetgrass Creek Basin	1								1	0.00	1	26
TOTAL	181	12	21	11	13	23	6	87	354			
PERCENT OF TOTAL	51%	3%	6%	3%	4%	6%	2%	25%				
AVERAGE										2.0		

LOS Factors	
<1-yr	0
1yr	1
2yr	2
5yr	3
10yr	4
25yr	5
50yr	5
100-yr +	5

Table 6: County and Town Work Order Requests

Basin Name	Charleston County / Town of JI Drainage Related Work Order Requests (WOR)								
	Flooding			Maintenance			TOTAL	Area (ac.)	# WOR/ 100 Ac.
	High	Medium	Low	High	Medium	Low			
Camp Road Basin	6	13		2	10	10	41	374.49	10.95
Central Park Rd Basin		5		1	1		7	603.56	1.16
Charleston Harbor Basin	2		1				3	237.45	1.26
Charleston Municipal Golf Course Basin		3				1	4	404.88	0.99
Country Club Basin	3	2		3	4	3	15	278.38	5.39
Dills Bluff Rd Basin	4	5		3	5	15	32	444.53	7.20
Elliot Cut Basin		1					1	249.36	0.40
Folly Creek Basin	1	3			2	6	12	184.35	6.51
Fort Johnson Basin	1	1			1	1	4	117.44	3.41
Fort Pemberton Basin							0	61.26	0.00
Grimball Farms Basin						2	2	367.54	0.54
Hollis Lake Basin							0	178.47	0.00
Holy Cross Cemetery Basin	3	4	1		5	2	15	112.96	13.28
James Island County Park Basin	2					1	3	362.16	0.83
James Island Creek Basin	14	33	3	9	22	55	136	984.99	13.81
James Island Expressway Basin						1	1	335.89	0.30
Kushiwah Creek Basin	2	11	2	2	6	13	36	519.39	6.93
Lake Francis Basin	1	5	1		6	13	26	487.44	5.33
Lighthouse Point Basin	1	3	1	2	2	3	12	201.38	5.96
Mill Creek Basin	5	7	1	3	1	4	21	586.89	3.58
Oceanview Basin							0	138.44	0.00
Parrot Creek Basin	3	7	2		6	8	26	322.51	8.06
Riverland Dr North Basin		1				1	2	379.82	0.53
Riverland Dr South Basin	3	7		3	1	5	19	725.63	2.62
Seaside Basin						1	1	133.65	0.75
Seaside Creek Basin	2	11	2		3	4	22	601.73	3.66
Signal Point Basin	3	18	2		5	4	32	386.09	8.29
Stono Creek Basin		6		3	3	9	21	213.07	9.86
Stono River Basin	4	4		1		2	11	185.44	5.93
Sweetgrass Creek Basin	1						1	113.11	0.88
TOTAL	61	16	150	32	164	83	506		
AVERAGE									4.28

Flooding High - 'Investigate' outfall issue or sinkhole

Flooding Medium - 'Investigate' drainage issue along road/neighborhood

Flooding Low - 'Investigate' yard flooding issue

Maintenace High - 'Cleaning' or 'Repair' of outfall or sinkhole area

Maintenance Medium - On going drainage issue that needs cleaned out

Maintenance Low - Ditch maintenance/cleaning

Table 8: Combined Work Order Requests

Basin Name	Combined Work Order Requests (WOR)									WOR Factor	WOR Factor / Ac	Rank	Score	
	Charleston County		City of Charleston		Town of James Island		Total	Area (ac.)	Total # / 100 ac.					
	Drainage	Maintenance	Drainage	Maintenance	Drainage	Maintenance								
Camp Road Basin				4		19	21	44	374.5	11.75	63	16.82	7	0.71
Central Park Rd Basin	11	13	15	77				116	603.6	19.22	142	23.53	2	0.97
Charleston Harbor Basin			1			2	1	4	237.4	1.68	7	2.95	26	0.13
Charleston Municipal Golf Course Basin	3	17		22				42	404.9	10.37	45	11.11	11	0.50
Country Club Basin		4	6	15				25	278.4	8.98	31	11.14	16	0.50
Dills Bluff Rd Basin			5	11		9	23	48	444.5	10.80	62	13.95	8	0.61
Elliot Cut Basin	1	4	1	2				8	249.4	3.21	10	4.01	24	0.18
Folly Creek Basin	2	4	2	7				15	184.4	8.14	19	10.31	20	0.46
Fort Johnson Basin			2	3			1	6	117.4	5.11	8	6.81	25	0.31
Fort Pemberton Basin								0	61.3	0.00	0	0.00	30	0.00
Grimball Farms Basin				7				7	367.5	1.90	7	1.90	26	0.09
Hollis Lake Basin			4	24				28	178.5	15.69	32	17.93	15	0.76
Holy Cross Cemetery Basin						8	7	15	113.0	13.28	23	20.36	18	0.85
James Island County Park Basin	1	1	3	2				7	362.2	1.93	11	3.04	23	0.14
James Island Creek Basin			14	43		37	95	189	985.0	19.19	240	24.37	1	1.00
James Island Expressway Basin			5	26				31	335.9	9.23	36	10.72	14	0.48
Kushiwah Creek Basin			3	10		15	25	53	519.4	10.20	71	13.67	4	0.60
Lake Francis Basin		2	5	14		5	22	48	487.4	9.85	58	11.90	10	0.53
Lighthouse Point Basin			1	4		4	9	18	201.4	8.94	23	11.42	18	0.51
Mill Creek Basin			3	72		11	9	95	586.9	16.19	109	18.57	3	0.78
Oceanview Basin				1				1	138.4	0.72	1	0.72	29	0.03
Parrot Creek Basin			2	6		10	15	33	322.5	10.23	45	13.95	11	0.61
Riverland Dr North Basin			1	24				25	379.8	6.58	26	6.85	17	0.31
Riverland Dr South Basin			9	21		6	10	46	725.6	6.34	61	8.41	9	0.38
Seaside Basin			2	9				11	133.7	8.23	13	9.73	22	0.44
Seaside Creek Basin	4	7	16	22				49	601.7	8.14	69	11.47	5	0.51
Signal Point Basin	23	9	2	7				41	386.1	10.62	66	17.09	6	0.72
Stono Creek Basin	7	15	5	3				30	213.1	14.08	42	19.71	13	0.82
Stono River Basin	8	3						11	185.4	5.93	19	10.25	20	0.46
Sweetgrass Creek Basin			1					1	113.1	0.88	2	1.77	28	0.08
TOTAL	60	79	108	436		126	238	1047						
AVERAGE										8.58				

WOR Factor	
Drainage	2
Maintenance	1

Table 9: FEMA Claims Per Basin

FEMA Claims Combined (excluding Hugo)		Area (ac.)	# Claims / 100 Ac	Rank	Score
Basin Name	Claims				
Camp Road Basin	4	374.5	1.068	19	0.00
Central Park Rd Basin	32	603.6	5.302	7	0.06
Charleston Harbor Basin	0	237.4	0.000	23	0.32
Charleston Municipal Golf Course Basin	15	404.9	3.705	12	0.23
Country Club Basin	4	278.4	1.437	18	0.09
Dills Bluff Rd Basin	18	444.5	4.049	11	0.25
Elliot Cut Basin	4	249.4	1.604	17	0.10
Folly Creek Basin	0	184.4	0.000	23	0.00
Fort Johnson Basin	3	117.4	2.555	16	0.16
Fort Pemberton Basin	0	61.3	0.000	23	0.00
Grimball Farms Basin	2	367.5	0.544	21	0.03
Hollis Lake Basin	10	178.5	5.603	6	0.34
Holy Cross Cemetery Basin	0	113.0	0.000	23	0.00
James Island County Park Basin	0	362.2	0.000	23	0.00
James Island Creek Basin	52	985.0	5.279	8	0.32
James Island Expressway Basin	24	335.9	7.145	3	0.43
Kushiwah Creek Basin	23	519.4	4.428	10	0.27
Lake Francis Basin	23	487.4	4.719	9	0.29
Lighthouse Point Basin	21	201.4	10.428	2	0.63
Mill Creek Basin	39	586.9	6.645	4	0.40
Oceanview Basin	4	138.4	2.889	15	0.18
Parrot Creek Basin	3	322.5	0.930	20	0.06
Riverland Dr North Basin	11	379.8	2.896	14	0.18
Riverland Dr South Basin	47	725.6	6.477	5	0.39
Seaside Basin	22	133.7	16.461	1	1.00
Seaside Creek Basin	20	601.7	3.324	13	0.20
Signal Point Basin	0	386.1	0.000	23	0.00
Stono Creek Basin	1	213.1	0.469	22	0.03
Stono River Basin	0	185.4	0.000	23	0.00
Sweetgrass Creek Basin	0	113.1	0.000	23	0.00

Table 10: Average Elevation Per Basin

Basin Average Elevation (ft. NAVD 88)		Rank	Score
Basin	Avg Elev		
Camp Road	10.5	18	0.53
Central Park Rd	9.3	14	0.42
Charleston Harbor	12.4	26	0.66
Charleston Municipal Golf Course	8.7	10	0.36
Country Club	8.6	9	0.35
Dills Bluff Rd	9.9	16	0.48
Elliot Cut	11.7	22	0.61
Folly Creek	8.2	6	0.31
Fort Johnson	12.6	27	0.67
Fort Pemberton	17.4	30	1.00
Grimball Farms	5.2	1	0.00
Hollis Lake	11.2	20	0.57
Holy Cross Cemetery	15.2	29	0.85
James Island County Park	5.9	2	0.08
James Island Creek	9.9	17	0.48
James Island Expressway	8.3	7	0.32
Kushiwah Creek	11.5	21	0.60
Lake Francis	8.8	11	0.37
Lighthouse Point	6.4	3	0.12
Mill Creek	10.8	19	0.55
Oceanview	9.0	12	0.39
Parrot Creek	9.8	15	0.47
Riverland Dr Noth	9.2	13	0.41
Riverland Dr South	11.7	23	0.61
Seaside	6.6	4	0.15
Seaside Creek	8.4	8	0.33
Signal Point	11.9	24	0.62
Stono Creek	8.1	5	0.30
Stono River	12.1	25	0.64
Sweetgrass Creek	12.9	28	0.69

Table 11: Hydrologic Soil Group Per Basin

Basin Name	Hydrologic Soil Group Area (ac.) Per Municipality																			Total				Soil Factor	Rank	Score	
	City of Charleston						Charleston County						Town of James Island														
	A	A/D	B	C	C/D	W	A	A/D	B	C	C/D	W	A	A/D	B	C	C/D	W	A	B	C	D					
Camp Road Basin	13.27	78.34	36.50	1.85	6.83								47.11	118.03	66.74	1.31	4.51		60.38	103.24	3.16	207.71	2.96	6	0.81		
Central Park Rd Basin	10.08	131.09	190.94		10.82	1.46		22.57	98.72	122.97		12.93							32.65	313.91	0.00	253.57	2.79	12	0.74		
Charleston Harbor Basin	69.50	0.82	10.26		5.02	3.65	0.75						0.01	142.41	1.56	0.84		0.94	1.69	212.66	11.10	0.00	8.34	1.16	29	0.02	
Charleston Municipal Golf Course Basin	21.71	77.37	90.34		35.89	3.81	52.97	43.45	78.45		0.84									74.68	168.79	0.00	157.55	2.60	14	0.65	
Country Club Basin	94.47	38.78	109.76		15.78	1.44	3.04	0.99	10.73											97.51	120.49	0.00	55.55	2.05	20	0.41	
Dills Bluff Rd Basin	59.84	39.35	54.36		43.60	1.56	0.83							156.80	46.65	34.38		4.68	2.97	217.48	88.74	0.00	134.28	2.12	19	0.44	
Elliott Cut Basin	29.49	5.02	27.49	1.13	7.04		91.14	10.99	72.21	2.23	2.62									120.63	99.70	3.36	25.67	1.74	24	0.27	
Folly Creek Basin	2.41	21.45	37.95		2.96		37.18	29.50	43.31		9.60									39.59	81.26	0.00	63.50	2.47	16	0.60	
Fort Johnson Basin	39.52		4.19		12.97									58.01		2.13		0.65		97.53	6.32	0.00	13.62	1.40	27	0.13	
Fort Pemberton Basin	17.98	0.21	0.30		0.03		40.00	1.43	0.01		0.47									57.98	0.31	0.00	2.14	1.11	30	0.00	
Grimball Farms Basin	2.03	92.24	109.23		58.22		5.98	67.42	19.18		13.19									8.02	128.41	0.00	231.09	3.24	2	0.93	
Hollis Lake Basin	42.11	106.86	13.48		3.58		11.86	0.58												53.97	13.48	0.00	111.01	2.94	7	0.80	
Holy Cross Cemetery Basin	22.75				5.13									74.17	9.64			1.27		96.92	0.00	0.00	16.05	1.43	26	0.14	
James Island County Park Basin		144.21	163.43	15.37	18.62			3.81	14.50		1.99									0.00	177.93	15.37	168.63	2.97	5	0.82	
James Island Creek Basin	242.72	43.94	67.28	0.11	43.45				0.55		0.02		268.95	154.77	142.38	4.17	16.80			511.68	210.20	4.29	258.98	2.01	21	0.39	
James Island Expressway Basin	47.64	57.72	173.68		22.83	1.48	4.38	10.37	11.17		0.21	0.33	0.35		4.49		0.26			52.38	189.34	0.00	91.39	2.39	17	0.56	
Kushiwah Creek Basin	55.88	11.20	124.70	9.19	0.73	10.68	2.68		1.02			0.13	205.85	15.23	74.50	4.60	0.00	3.40		264.42	200.22	13.79	27.16	1.61	25	0.22	
Lake Francis Basin	73.48	36.05	150.67	4.39	4.50	27.84	2.78		3.87			0.88	113.42	12.13	44.05	4.57	3.25	5.55		189.67	198.60	8.95	55.93	1.85	22	0.32	
Lighthouse Point Basin	1.81	10.58	17.81		2.74	0.31							36.61	51.73	43.68		34.84	1.22		38.42	61.49	0.00	99.89	2.81	9	0.74	
Mill Creek Basin	48.76	123.17	126.37		14.94	1.60		0.03	1.00				66.65	65.80	120.62		7.69			115.41	247.99	0.00	211.63	2.54	15	0.62	
Oceanview Basin	40.67	6.62	31.16		1.87								18.17	5.01	29.03		0.48			58.84	60.18	0.00	13.97	1.77	23	0.29	
Parrot Creek Basin	14.57	62.38	48.92		1.02	0.00							57.77	18.76	75.46		3.40	0.62		72.35	124.38	0.00	85.56	2.35	18	0.54	
Riverland Dr North Basin	47.79	150.12	164.31		13.92	0.80		1.07					1.24	0.28						49.03	164.31	0.00	165.38	2.74	13	0.71	
Riverland Dr South Basin	40.08	282.87	201.54	10.53	32.12		0.04	5.17	10.84				22.22	62.19	48.50		9.49			62.34	260.89	10.53	391.83	3.01	4	0.83	
Seaside Basin	10.29	46.46	44.75		9.62	0.07		0.05	0.14			0.24								10.29	44.89	0.00	56.37	2.92	8	0.79	
Seaside Creek Basin	76.38	140.48	127.21		37.11	5.18	28.78	94.44	68.72		14.78	0.00								105.16	195.93	0.00	286.80	2.80	11	0.74	
Signal Point Basin	9.61	80.61	51.01		1.69		10.74	156.88	75.10		0.46									20.35	126.10	0.00	239.63	3.19	3	0.91	
Stono Creek Basin		32.64	25.69		8.92		3.78	82.41	32.17		24.46									3.78	57.86	0.00	148.42	3.40	1	1.00	
Stono River Basin	4.70	53.41	54.85					23.11	49.38											4.70	104.23	0.00	76.51	2.80	10	0.74	
Sweetgrass Creek Basin	7.12				4.70									93.14				8.16		100.26	0.00	0.00	12.86	1.34	28	0.10	
TOTAL	1,146.65	1,874.01	2,258.16	42.57	426.63	59.90	319.53	630.39	615.33	2.23	81.80	1.35	1,362.88	561.79	686.80	14.64	96.43	15.45	2829.06	3560.29	59.45	3671.05					
PERCENT OF MUNICIPALITY	20%	32%	39%	1%	7%	1%	19%	38%	37%	0%	5%	0%	50%	21%	25%	1%	4%	1%									
AVERAGE																								2.35			

Soil Factor	
HSG A	1
HSG B	2
HSG C	3
HSG D	4

Table 12: Basin Prioritization Part 1

Basin Name	1				2				3				4			
	Drainage Area			15.0%	Parcels			20.0%	Level of Service			10.0%	Work Order Requests			20.0%
	Area (ac.)	Rank	Score	W. Score	#/ac	Rank	Score	W. Score	Avg. LOS	Rank	Score	W. Score	WOR Factor/ac	Rank	Score	W. Score
Camp Road Basin	374.49	12	0.34	5.1	1.8	19	0.51	10.1	2.3	16	0.49	5.1	16.8	8	0.69	13.8
Central Park Rd Basin	603.56	3	0.59	8.8	2.3	11	0.68	13.6	3.1	22	0.66	3.4	23.5	2	0.97	19.3
Charleston Harbor Basin	237.45	19	0.19	2.9	2.3	12	0.66	13.3	0.4	2	0.09	9.1	2.9	26	0.12	2.4
Charleston Municipal Golf Course Basin	404.88	9	0.37	5.6	2.1	15	0.61	12.1	1.6	12	0.34	6.6	11.1	16	0.46	9.1
Country Club Basin	278.38	17	0.24	3.5	0.5	28	0.08	1.5	0.8	5	0.18	8.2	11.1	15	0.46	9.1
Dills Bluff Rd Basin	444.53	8	0.41	6.2	2.5	8	0.73	14.6	2.3	18	0.50	5.0	13.9	10	0.57	11.4
Elliot Cut Basin	249.36	18	0.20	3.1	3.3	1	1.00	20.0	2.0	14	0.42	5.8	4.0	24	0.16	3.3
Folly Creek Basin	184.35	23	0.13	2.0	1.9	17	0.55	11.1	1.0	6	0.22	7.8	10.3	18	0.42	8.5
Fort Johnson Basin	117.44	27	0.06	0.9	2.7	6	0.81	16.2	N/A	N/A	N/A	N/A	6.8	23	0.28	5.6
Fort Pemberton Basin	61.26	30	0.00	0.0	3.2	2	0.98	19.5	N/A	N/A	N/A	N/A	0.0	30	0.00	0.0
Grimball Farms Basin	367.54	13	0.33	5.0	0.4	29	0.04	0.8	1.8	13	0.39	6.1	1.9	27	0.08	1.6
Hollis Lake Basin	178.47	24	0.13	1.9	1.7	20	0.47	9.3	4.6	26	1.00	0.0	17.9	6	0.74	14.7
Holy Cross Cemetery Basin	112.96	29	0.06	0.8	2.3	9	0.69	13.9	1.1	7	0.24	7.6	20.4	3	0.84	16.7
James Island County Park Basin	362.16	14	0.33	4.9	0.3	30	0.00	0.0	3.5	24	0.76	2.4	3.0	25	0.12	2.5
James Island Creek Basin	984.99	1	1.00	15.0	3.0	4	0.91	18.3	2.3	16	0.49	5.1	24.4	1	1.00	20.0
James Island Expressway Basin	335.89	15	0.30	4.5	1.1	24	0.26	5.1	3.0	20	0.65	3.5	10.7	17	0.44	8.8
Kushiwah Creek Basin	519.39	6	0.50	7.4	2.5	7	0.75	15.1	1.3	9	0.27	7.3	13.7	11	0.56	11.2
Lake Francis Basin	487.44	7	0.46	6.9	3.1	3	0.95	19.0	2.3	15	0.49	5.1	11.9	12	0.49	9.8
Lighthouse Point Basin	201.38	21	0.15	2.3	2.1	16	0.60	12.0	0.4	3	0.10	9.0	11.4	14	0.47	9.4
Mill Creek Basin	586.89	5	0.57	8.5	2.2	13	0.65	13.1	3.4	23	0.74	2.6	18.6	5	0.76	15.2
Oceanview Basin	138.44	25	0.08	1.3	1.9	18	0.53	10.6	0.5	4	0.11	8.9	0.7	29	0.03	0.6
Parrot Creek Basin	322.51	16	0.28	4.2	2.2	14	0.63	12.6	1.5	11	0.33	6.7	14.0	9	0.57	11.5
Riverland Dr North Basin	379.82	11	0.34	5.2	1.4	23	0.36	7.2	2.5	19	0.54	4.6	6.8	22	0.28	5.6
Riverland Dr South Basin	725.63	2	0.72	10.8	1.0	25	0.24	4.8	3.8	25	0.82	1.8	8.4	21	0.35	6.9
Seaside Basin	133.65	26	0.08	1.2	2.7	5	0.82	16.3	N/A	N/A	N/A	N/A	9.7	20	0.40	8.0
Seaside Creek Basin	601.73	4	0.59	8.8	2.3	10	0.68	13.7	1.4	10	0.31	6.9	11.5	13	0.47	9.4
Signal Point Basin	386.09	10	0.35	5.3	1.0	26	0.22	4.5	3.0	20	0.65	3.5	17.1	7	0.70	14.0
Stono Creek Basin	213.07	20	0.16	2.5	1.6	21	0.43	8.6	1.2	8	0.26	7.4	19.7	4	0.81	16.2
Stono River Basin	185.44	22	0.13	2.0	0.7	27	0.13	2.5	N/A	N/A	N/A	N/A	10.2	19	0.42	8.4
Sweetgrass Creek Basin	113.11	28	0.06	0.8	1.4	22	0.38	7.7	0.0	1	0.00	10.0	1.8	28	0.07	1.5

LOS Factor	
<1-yr	0
1-yr	1
2-yr	2
5-yr	3
10-yr	4
25-yr +	5

Serv. Req. Factor	
Maintenance	1
Drainage/Flooding	2

Table 12: Basin Prioritization Part 2

Basin Name	5				6				7				Basin Priority	
	FEMA Claims			10.0%	Elevation			15.0%	Hydrologic Soil Group			10.0%	Total Score	Overall Ranking
	#/ac.	Rank	Score	W. Score	Avg Elev	Rank	Score	W. Score	Soil Factor	Rank	Score	W. Score		
Camp Road Basin	1.07	19	0.00	0.0	10.49	18	0.43	8.5	2.96	6	0.81	8.1	50.7	12
Central Park Rd Basin	5.30	7	0.06	0.6	9.28	14	0.34	10.0	2.79	12	0.74	7.4	63.1	2
Charleston Harbor Basin	0.00	23	0.32	3.2	12.36	26	0.59	6.2	1.16	29	0.02	0.2	37.3	24
Charleston Municipal Golf Course Basin	3.70	12	0.23	2.3	8.66	10	0.28	10.7	2.60	14	0.65	6.5	53.0	11
Country Club Basin	1.44	18	0.09	0.9	8.55	9	0.28	10.9	2.05	20	0.41	4.1	38.2	22
Dills Bluff Rd Basin	4.05	11	0.25	2.5	9.87	16	0.38	9.2	2.12	19	0.44	4.4	53.4	9
Elliot Cut Basin	1.60	17	0.10	1.0	11.74	22	0.54	7.0	1.74	24	0.27	2.7	42.8	20
Folly Creek Basin	0.00	23	0.00	0.0	8.25	6	0.25	11.2	2.47	16	0.60	6.0	46.5	14
Fort Johnson Basin	2.55	16	0.16	1.6	12.59	27	0.60	5.9	1.40	27	0.13	1.3	31.4	27
Fort Pemberton Basin	0.00	23	0.00	0.0	17.45	30	1.00	0.0	1.11	30	0.00	0.0	19.5	30
Grimball Farms Basin	0.54	21	0.03	0.3	5.16	1	0.00	15.0	3.24	2	0.93	9.3	38.0	23
Hollis Lake Basin	5.60	6	0.34	3.4	11.16	20	0.49	7.7	2.94	7	0.80	8.0	45.1	15
Holy Cross Cemetery Basin	0.00	23	0.00	0.0	15.20	29	0.82	2.7	1.43	26	0.14	1.4	43.1	18
James Island County Park Basin	0.00	23	0.00	0.0	5.92	2	0.06	14.1	2.97	5	0.82	8.2	32.0	26
James Island Creek Basin	5.28	8	0.32	3.2	9.92	17	0.39	9.2	2.01	21	0.39	3.9	74.7	1
James Island Expressway Basin	7.15	3	0.43	4.3	8.30	7	0.26	11.2	2.39	17	0.56	5.6	43.0	19
Kushiwah Creek Basin	4.43	10	0.27	2.7	11.51	21	0.52	7.2	1.61	25	0.22	2.2	53.1	10
Lake Francis Basin	4.72	9	0.29	2.9	8.76	11	0.29	10.6	1.85	22	0.32	3.2	57.5	6
Lighthouse Point Basin	10.43	2	0.63	6.3	6.36	3	0.10	13.5	2.81	9	0.74	7.4	60.0	3
Mill Creek Basin	6.65	4	0.40	4.0	10.79	19	0.46	8.1	2.54	15	0.62	6.2	57.9	5
Oceanview Basin	2.89	15	0.18	1.8	9.02	12	0.31	10.3	1.77	23	0.29	2.9	36.3	25
Parrot Creek Basin	0.93	20	0.06	0.6	9.78	15	0.38	9.4	2.35	18	0.54	5.4	50.3	13
Riverland Dr North Basin	2.90	14	0.18	1.8	9.22	13	0.33	10.0	2.74	13	0.71	7.1	41.6	21
Riverland Dr South Basin	6.48	5	0.39	3.9	11.75	23	0.54	7.0	3.01	4	0.83	8.3	43.5	16
Seaside Basin	16.46	1	1.00	10.0	6.62	4	0.12	13.2	2.92	8	0.79	7.9	56.6	7
Seaside Creek Basin	3.32	13	0.20	2.0	8.35	8	0.26	11.1	2.80	11	0.74	7.4	59.3	4
Signal Point Basin	0.00	23	0.00	0.0	11.89	24	0.55	6.8	3.19	3	0.91	9.1	43.2	17
Stono Creek Basin	0.47	22	0.03	0.3	8.08	5	0.24	11.4	3.40	1	1.00	10.0	56.3	8
Stono River Basin	0.00	23	0.00	0.0	12.07	25	0.56	6.6	2.80	10	0.74	7.4	26.9	28
Sweetgrass Creek Basin	0.00	23	0.00	0.0	12.93	28	0.63	5.5	1.34	28	0.10	1.0	26.5	29

Soil Factor	
HSG A	1
HSG B	2
HSG C	3
HSG D	4

Table 13: Missing Inventory

Missing Inventory (ac.)						
Basin	City of Charleston	Charleston County	Town of James Island	TOTAL	Percent of Basin	Total Cost to Inventory
Camp Road Basin	85.8		56.5	142.3	38%	\$ 29,600
Central Park Rd Basin	5.6	2.0		7.6	1%	\$ 1,600
Charleston Harbor Basin	4.0		25.7	29.7	13%	\$ 6,200
Charleston Municipal Golf Course Basin	1.6	15.5		17.2	4%	\$ 3,600
Country Club Basin	196.4			196.4	71%	\$ 40,900
Dills Bluff Rd Basin	26.5	0.2	6.9	33.6	8%	\$ 7,000
Elliot Cut Basin	6.2	31.8		38.0	15%	\$ 7,900
Folly Creek Basin				0.0	0%	\$ -
Fort Johnson Basin	22.5		42.2	64.7	55%	\$ 13,500
Fort Pemberton Basin	2.1	19.4		21.5	35%	\$ 4,500
Grimball Farms Basin				0.0	0%	\$ -
Holy Cross Cemetery Basin	16.2		0.6	16.9	9%	\$ 3,500
Hollis Lake Basin				0.0	0%	\$ -
James Island County Park Basin	3.7	0.1		3.8	1%	\$ 800
James Island Creek Basin	162.3		0.7	163.0	17%	\$ 33,900
James Island Expressway Basin	136.7	0.0		136.7	41%	\$ 28,500
Kushiwah Creek Basin	115.0	1.8	32.7	149.5	29%	\$ 31,100
Lake Francis Basin	156.0	2.3	23.8	182.0	37%	\$ 37,900
Lighthouse Point Basin				0.0	0%	\$ -
Mill Creek Basin	78.6		35.5	114.1	19%	\$ 23,800
Oceanview Basin	35.7			35.7	26%	\$ 7,400
Parrot Creek Basin	100.6		0.3	100.9	31%	\$ 21,000
Riverland Dr North Basin	172.7	1.1	1.5	175.3	46%	\$ 36,500
Riverland Dr South Basin	220.0		10.1	230.2	32%	\$ 47,900
Seaside Basin	85.2	0.1		85.3	64%	\$ 17,800
Seaside Creek Basin	170.9			170.9	28%	\$ 35,600
Signal Point Basin				0.0	0%	\$ -
Stono Creek Basin	14.0	0.2		14.2	7%	\$ 3,000
Stono River Basin				0.0	0%	\$ -
Sweetgrass Creek Basin	0.8		41.5	42.3	37%	\$ 8,800
Grand Total	1816.1	80.2	276.7	2172.9	21%	\$ 452,300.00

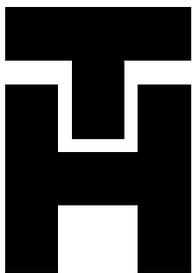
Assumed \$60/structure for inventory cost with roughly 3.5 structures per acre. Totals: \$208/ac.

JAMES ISLAND DRAINAGE MASTER STUDY

FIGURES

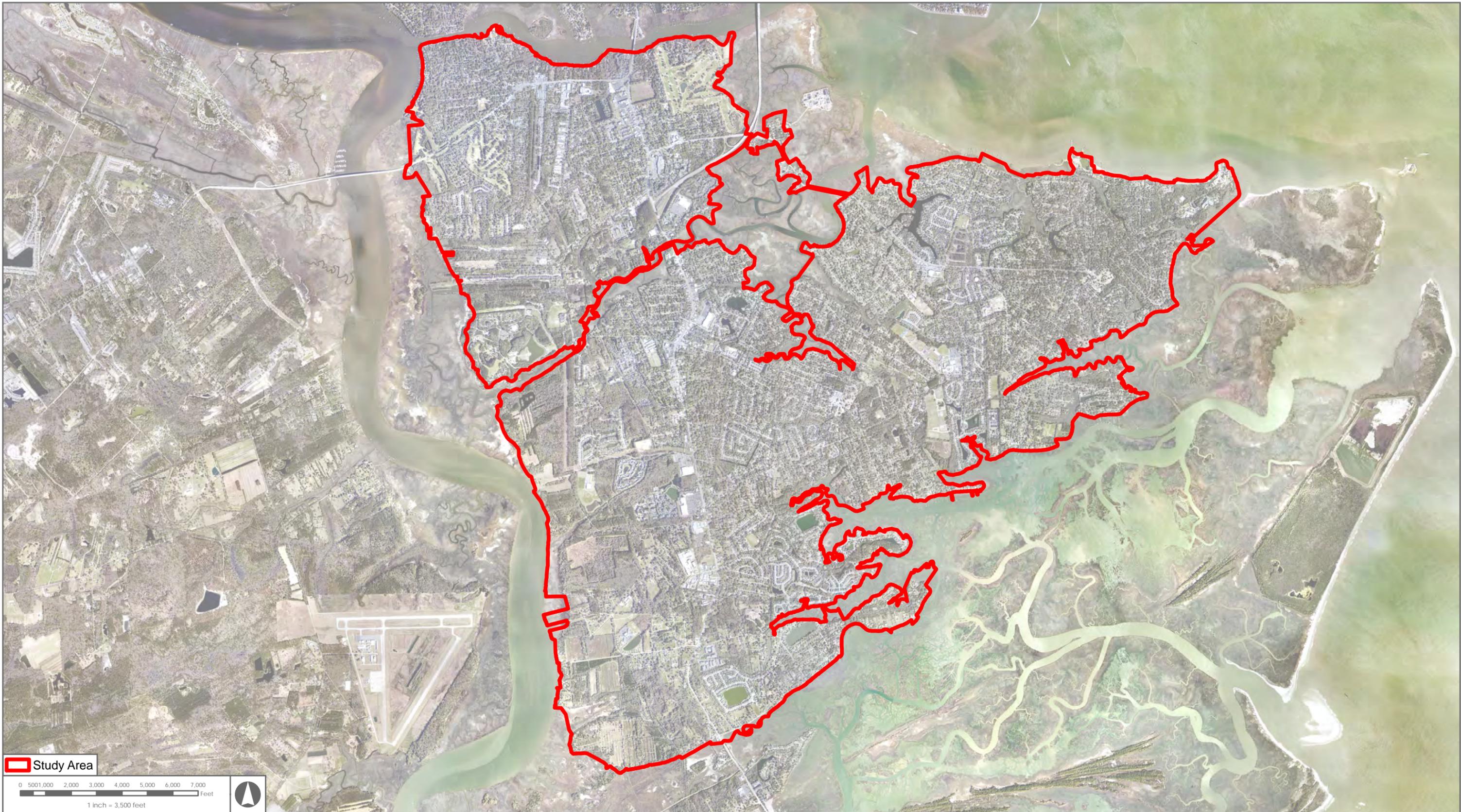
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Study Area

0 5001,000 2,000 3,000 4,000 5,000 6,000 7,000 Feet

1 inch = 3,500 feet



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James Island Drainage Masterplan

Charleston County, SC

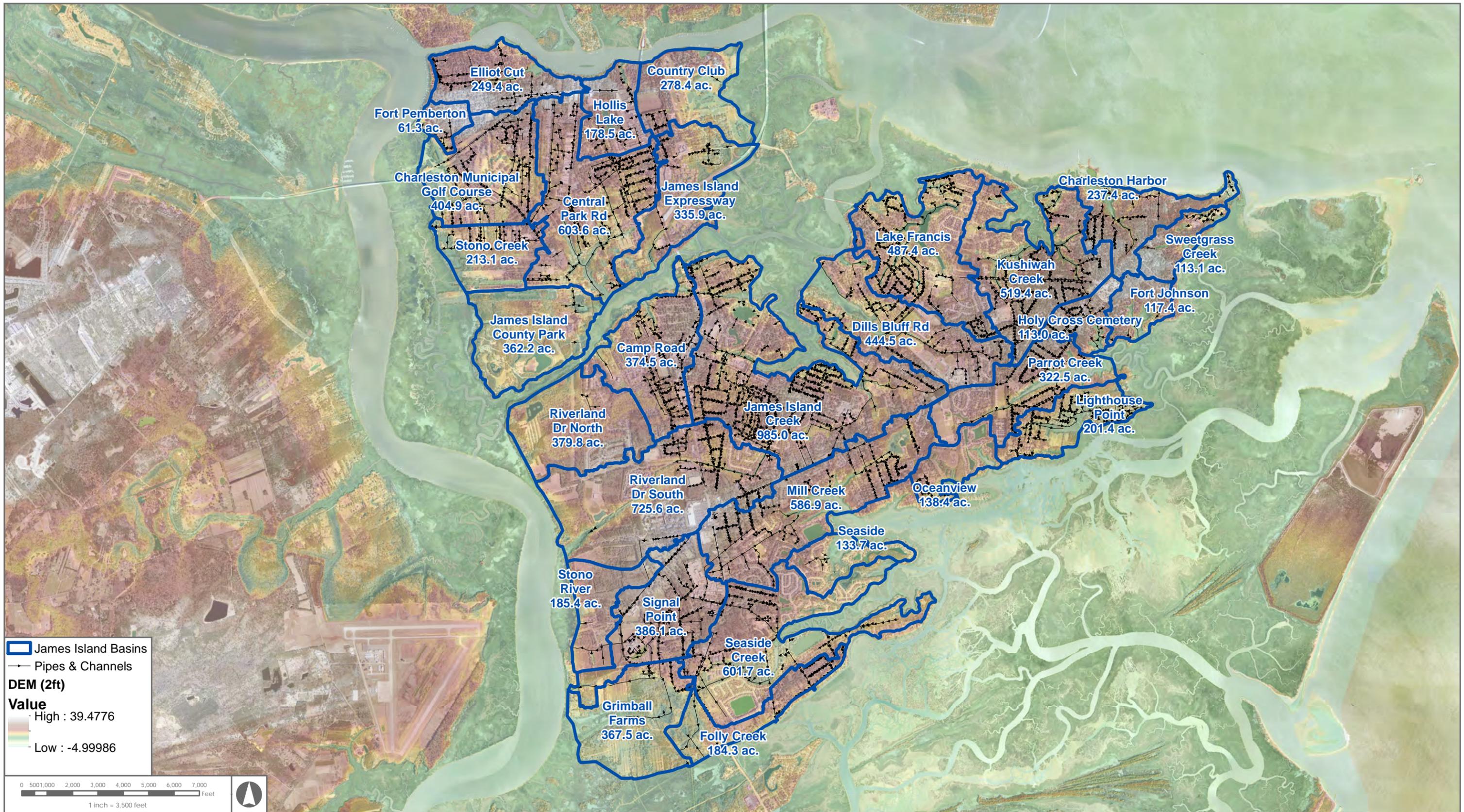
Figure 1: Study Area



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Charleston County, SC

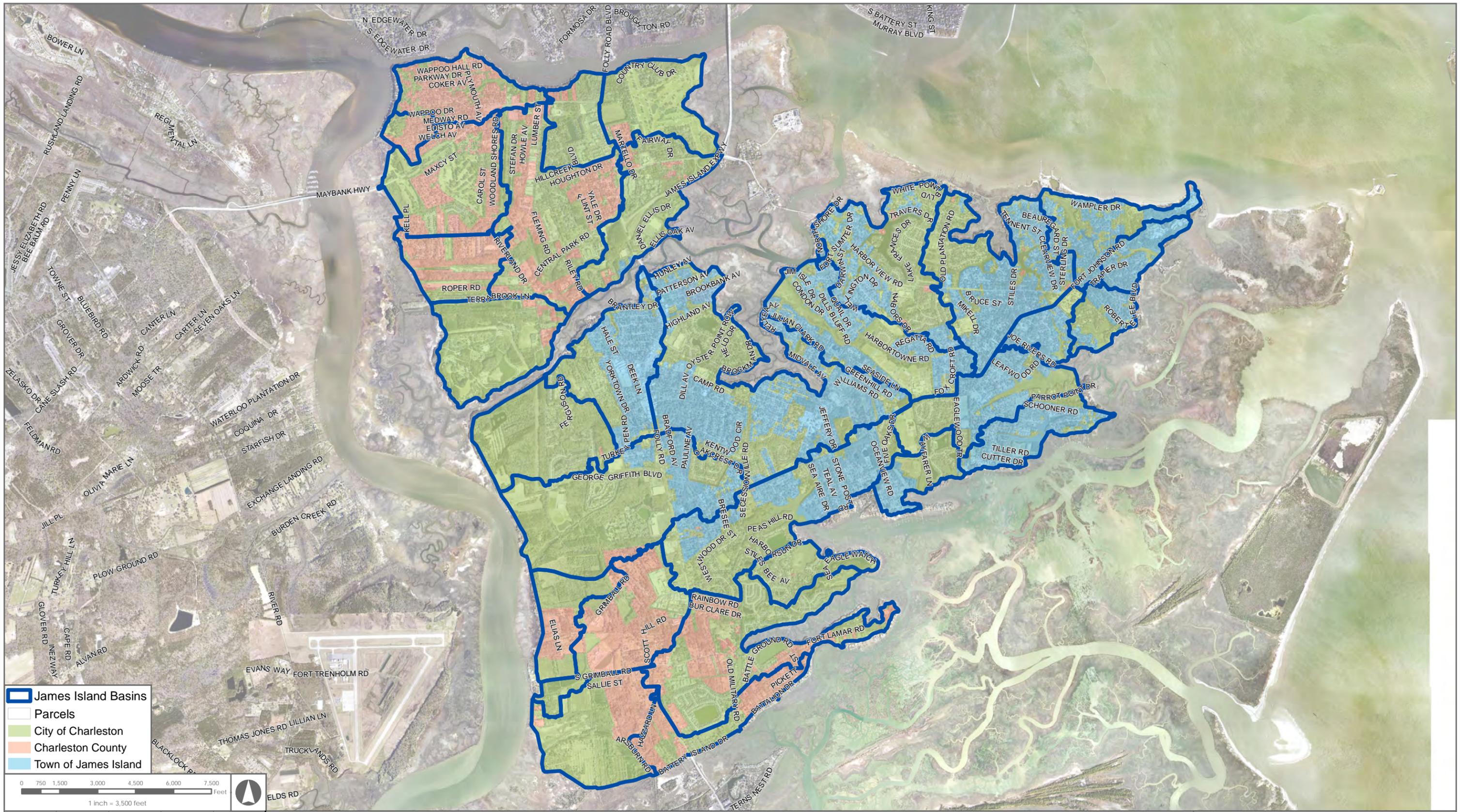
Figure 2: Drainage Basins Map

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Aerial	Charleston County	2017		
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James Island Basins

- Basins
- Parcels
- City of Charleston
- Charleston County
- Town of James Island



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Thomas & Hutton compiled the map information from the following sources:		
Data	Source	Date
Basins	T&H	2019
Parcels	Charleston County	2018
Municipalities	Charleston County	2018
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Charleston County, SC

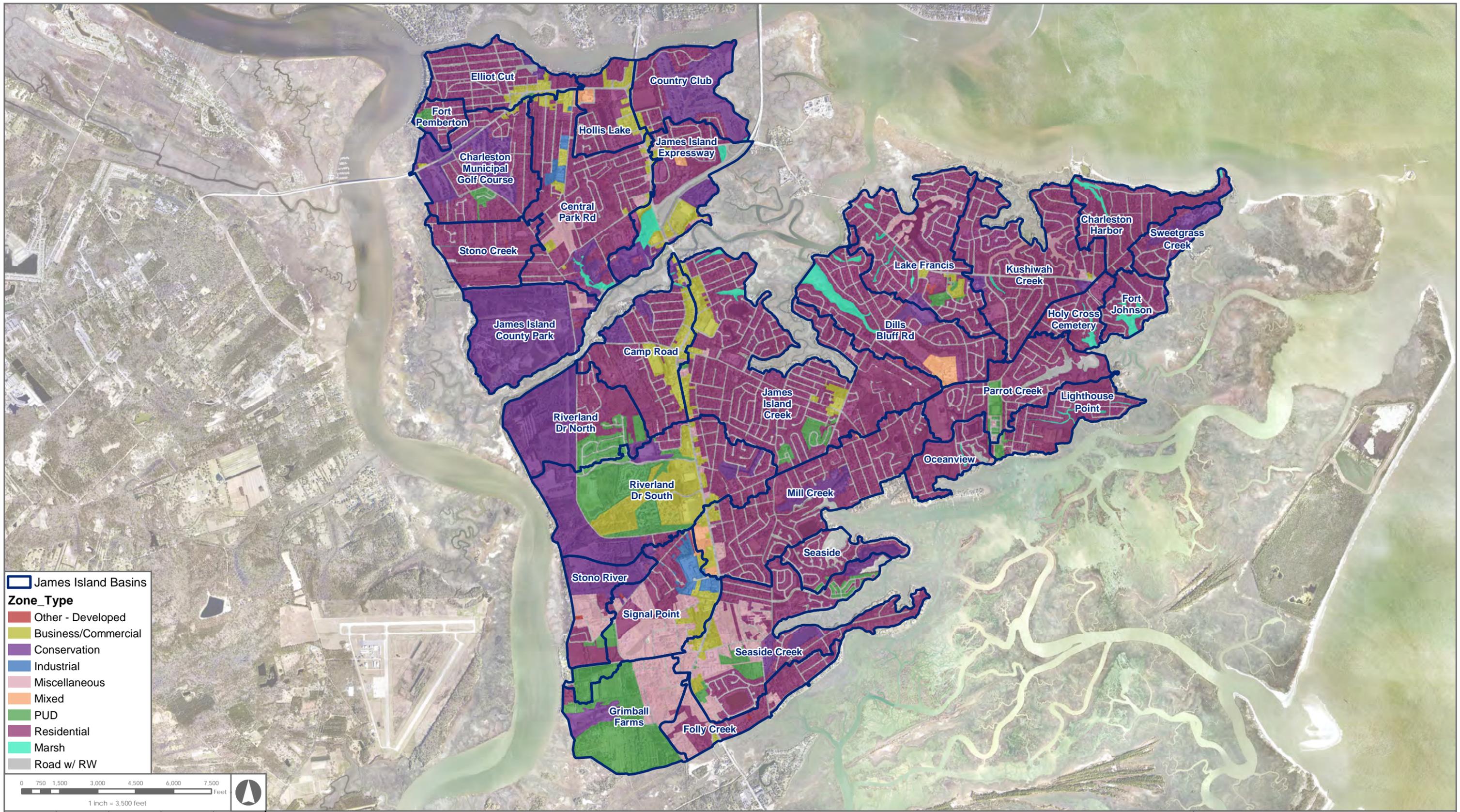
Figure 3: Municipalities Coverage Map

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James Island Drainage Masterplan

Charleston County, SC

Figure 4: Land Use Map

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Land Use	GeoInfoq	2018
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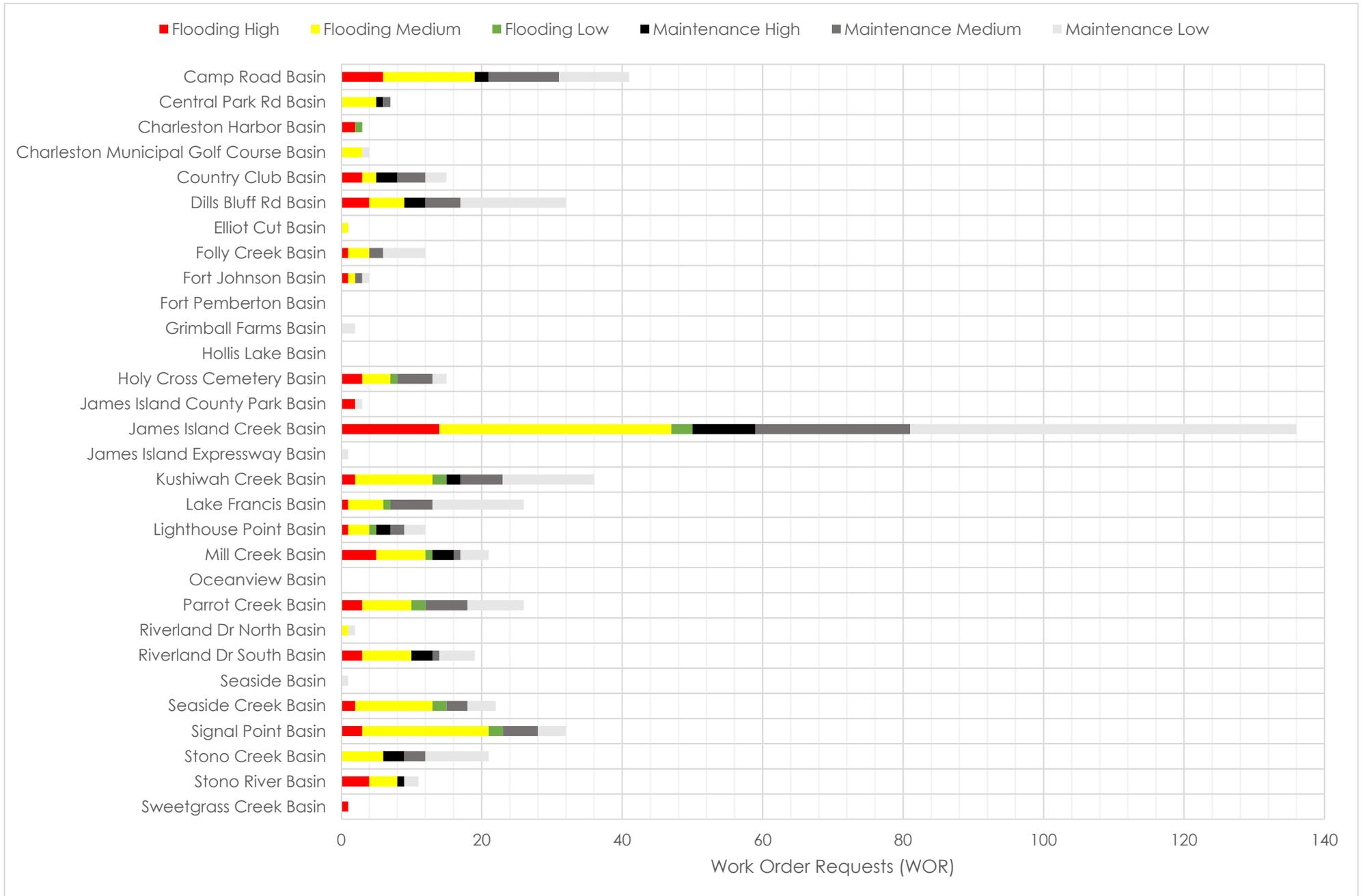
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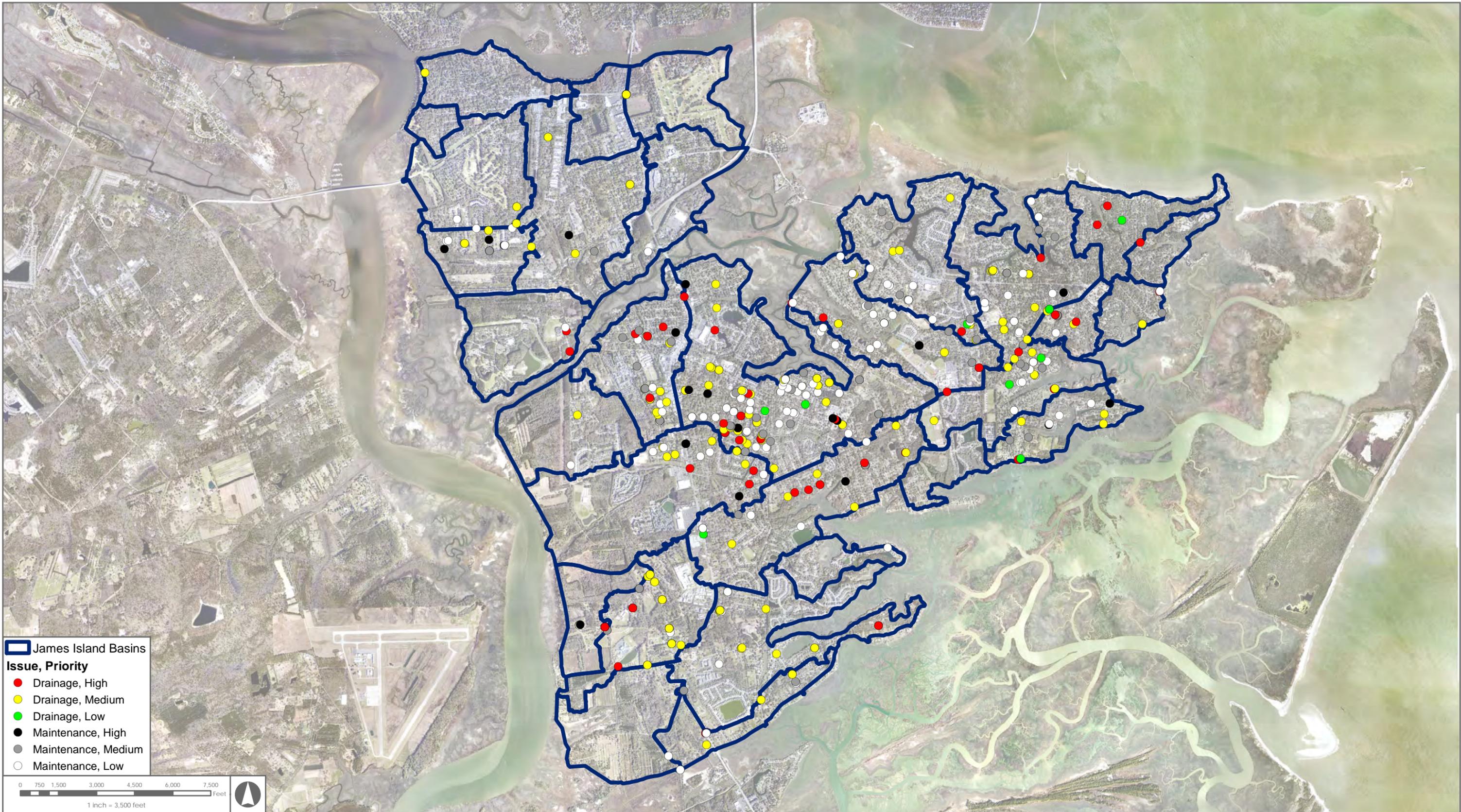
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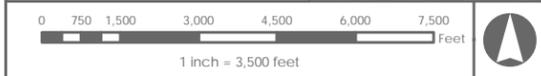
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Figure 6: Charleston County / Town of James Island - Drainage Related WOR





- James Island Basins**
- Issue, Priority**
- Drainage, High
 - Drainage, Medium
 - Drainage, Low
 - Maintenance, High
 - Maintenance, Medium
 - Maintenance, Low



Job Number: 27041.0008	Produced: 1/14/19	Produced By: KHK	Modified: 5/13/2019	Modified By: KHK
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Vertical Datum:				
Thomas & Hutton compiled the map information from the following sources:				
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Basins WOR	T&H Charleston County	2018 2018		

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James Island Drainage Masterplan

Charleston County, SC

Figure 7: Charleston County Work Order Requests (2015-2018)

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Figure 8: City of Charleston Drainage Related WOR

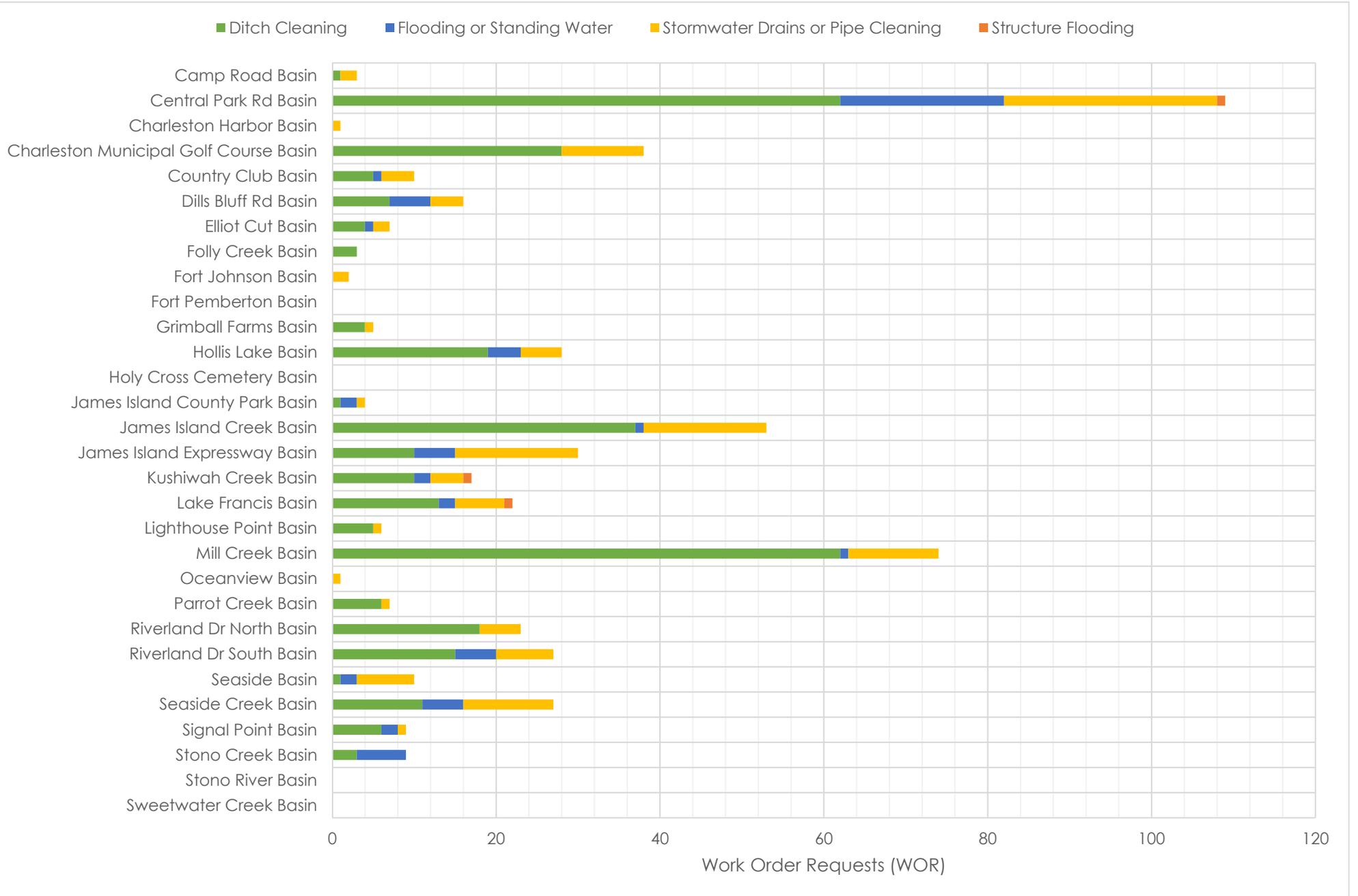
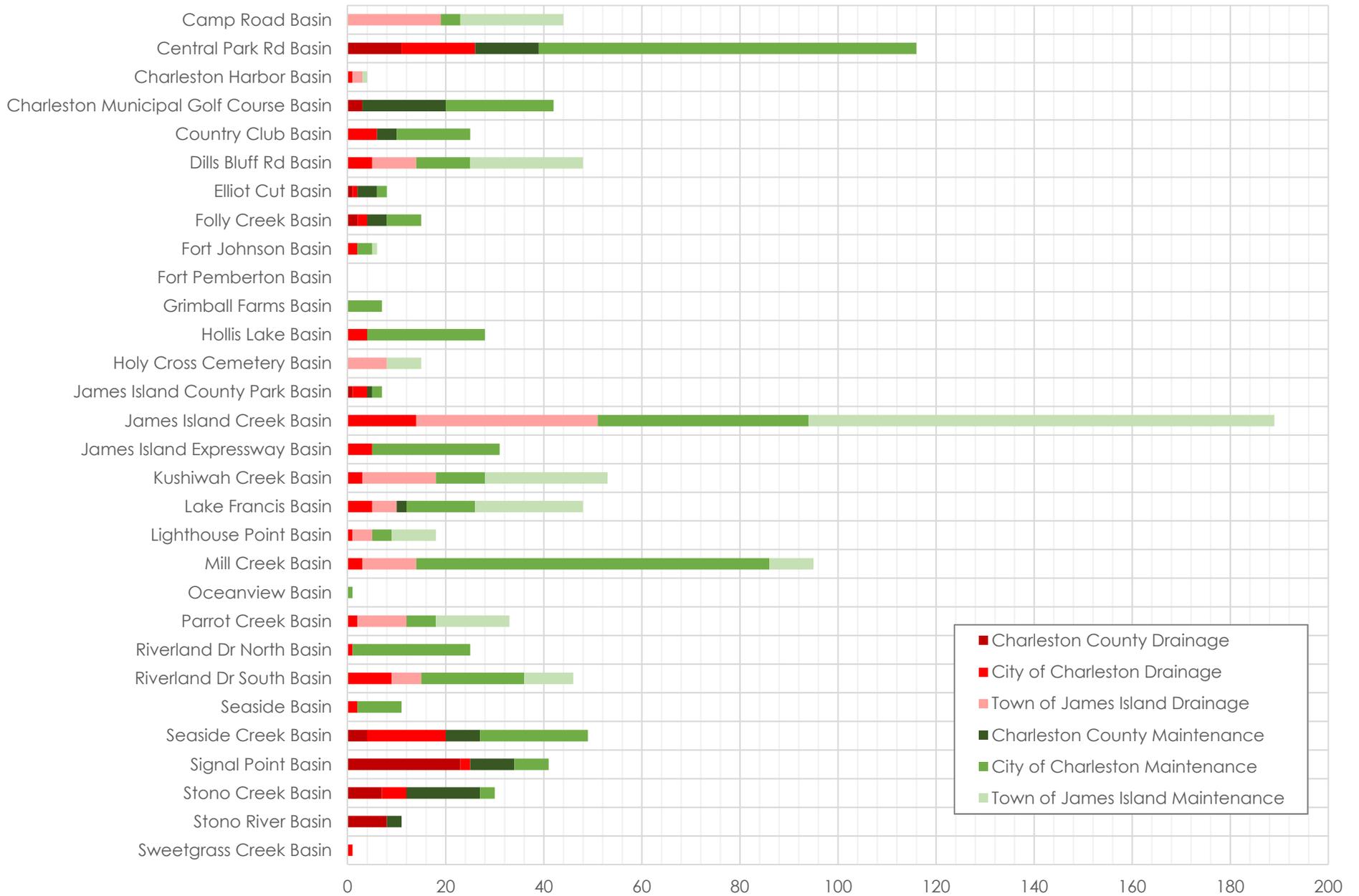
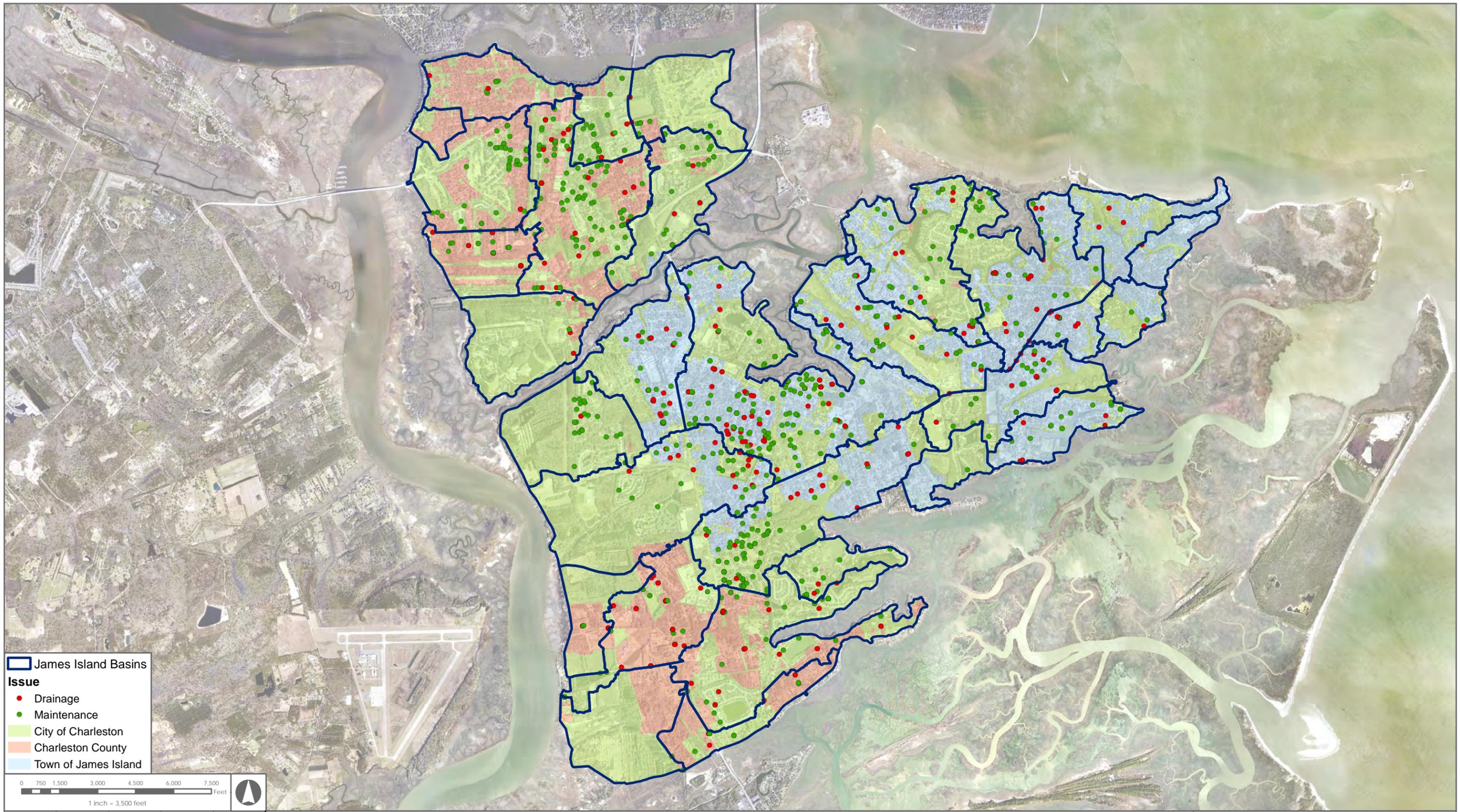


Figure 9: Combined Drainage Related WOR





James Island Basins

Issue

- Drainage
- Maintenance

Jurisdiction

- City of Charleston
- Charleston County
- Town of James Island



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Basins	T&H	2018		
WOR	Charleston County & City of Charleston	2018		

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James Island Drainage Masterplan

Charleston County, SC

Figure 10: Combined Work Order Requests (2015-2018)



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Figure 11: FEMA Flood Claims (City of Charleston only, excluding Hurricane Hugo)

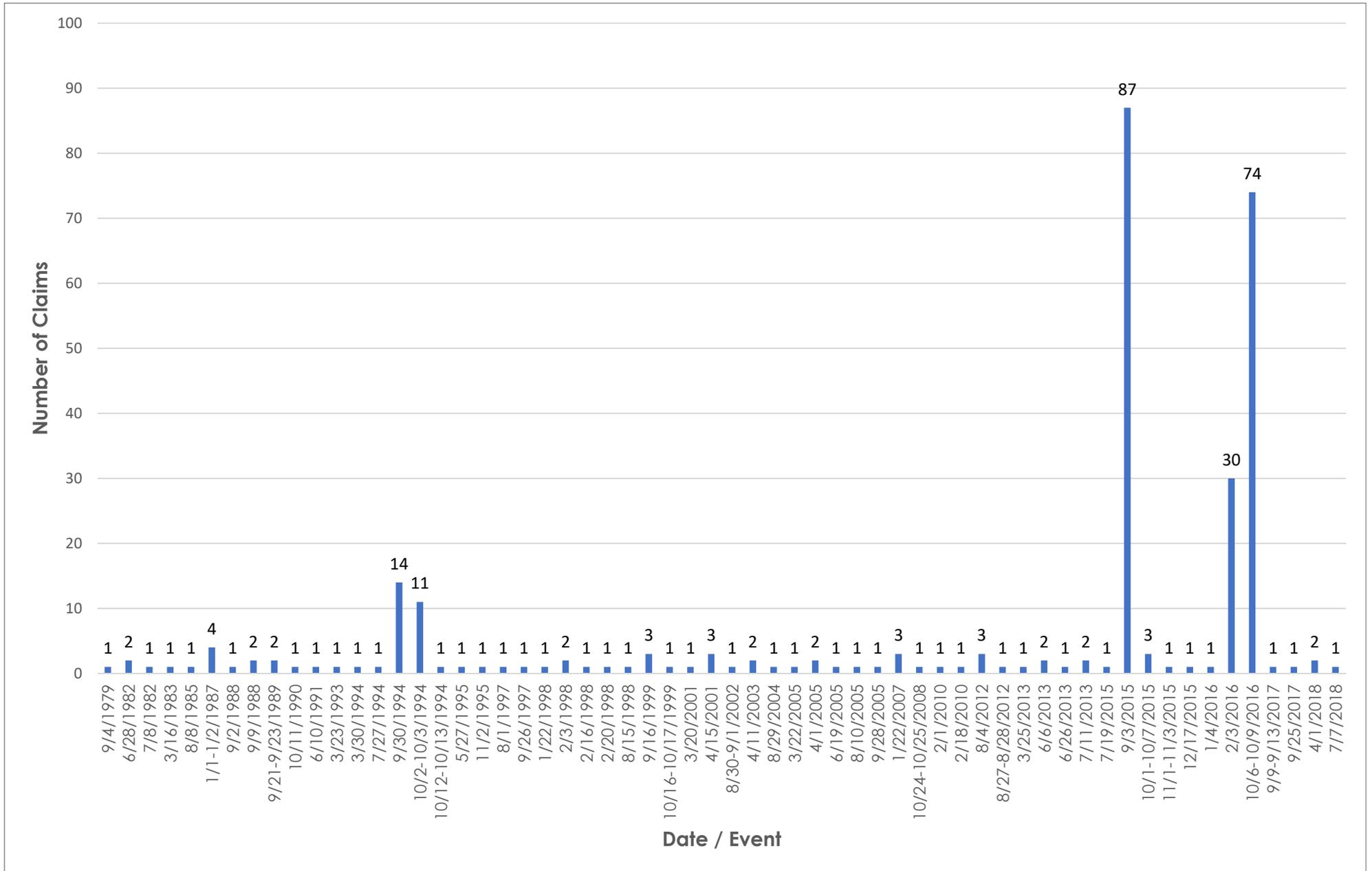
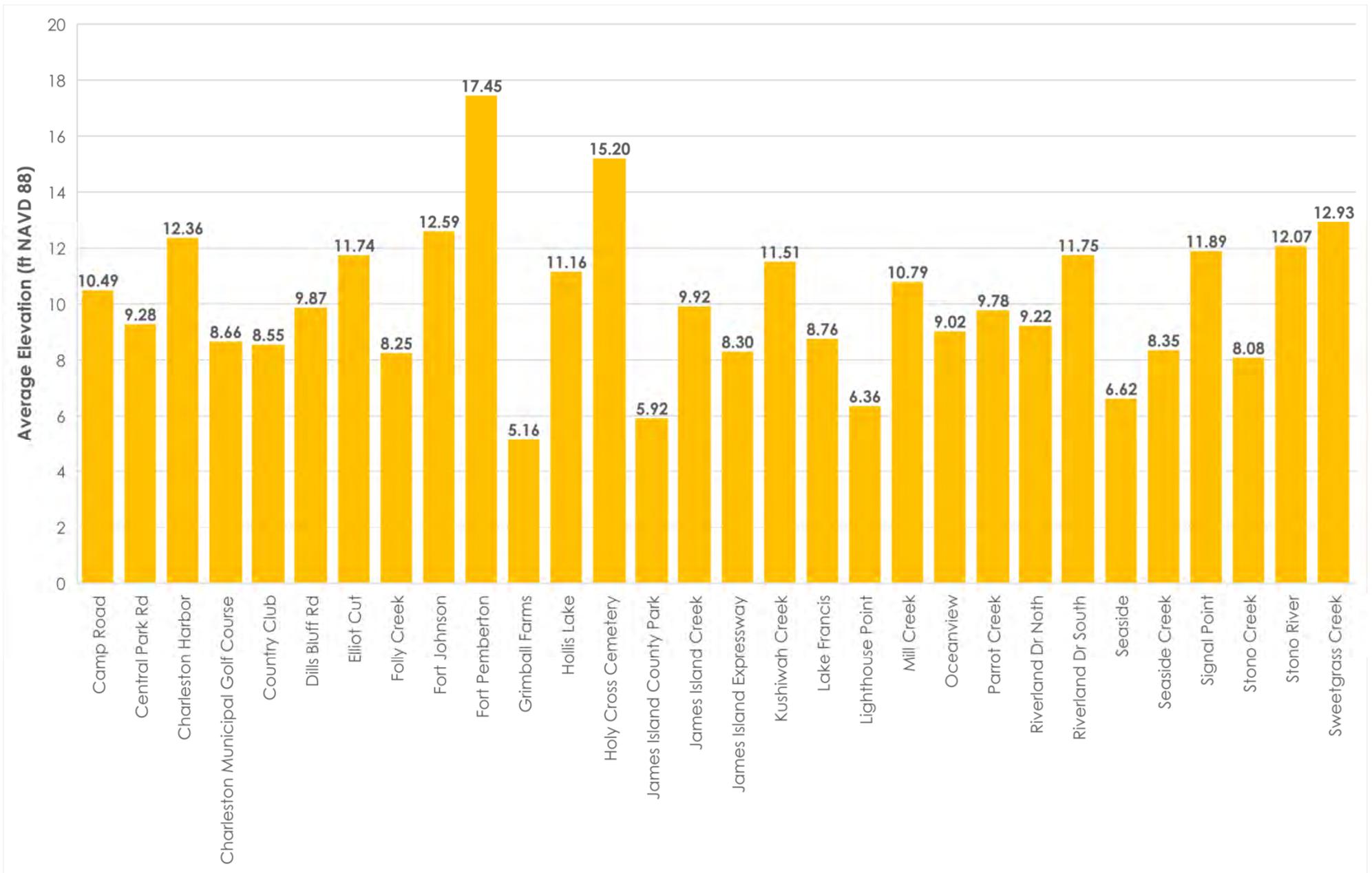
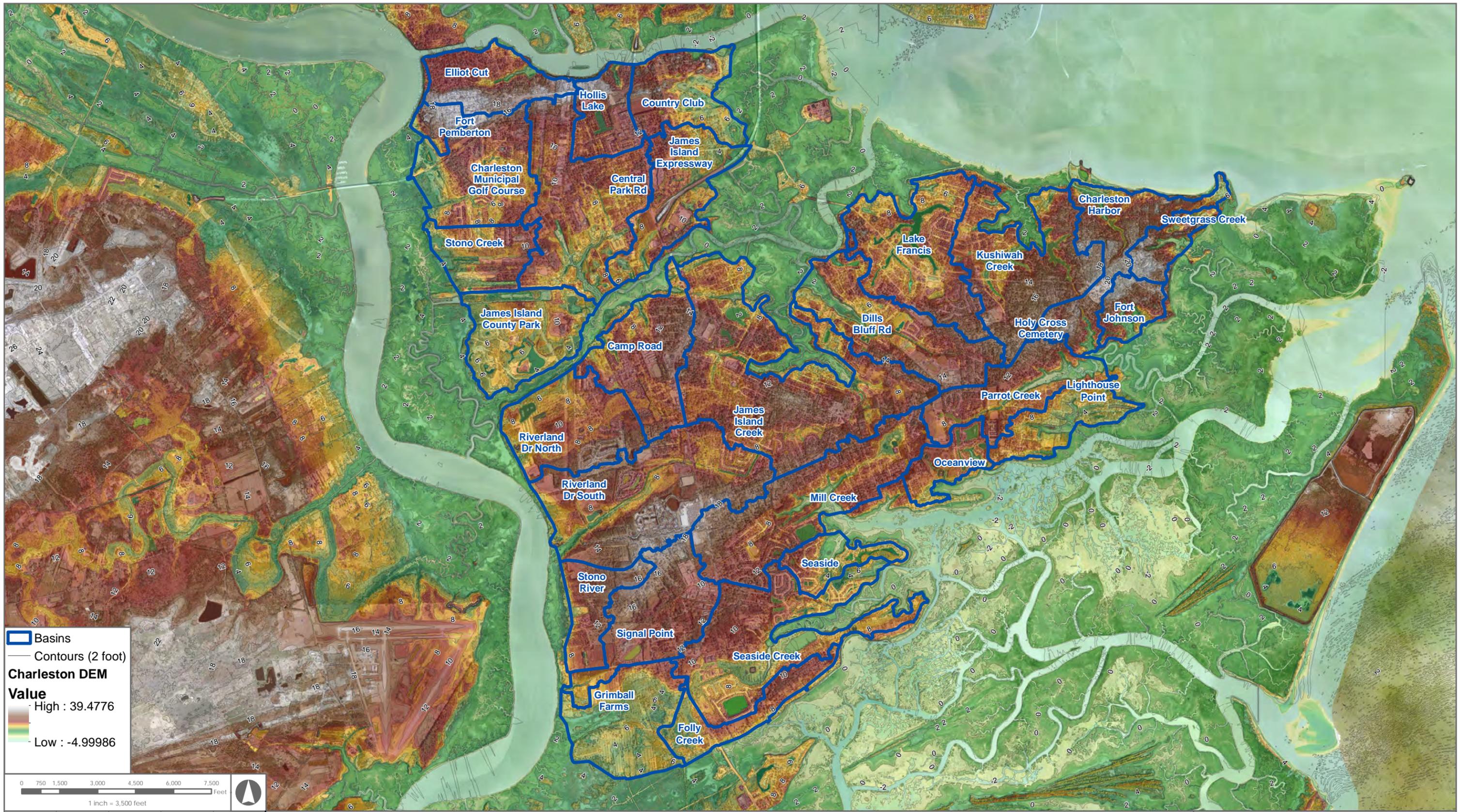
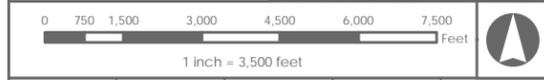


Figure 12: Basin Average Elevation





Basins
 Contours (2 foot)
Charleston DEM
Value
 High : 39.4776
 Low : -4.99986



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 File: F:\27041\27041.0008\GIS\Map\Exhibit\Basin Elevation Exhibit.mxd | Vertical Datum:

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Basins	T&H	2018
Contours	Charleston County	2018
DEM	Charleston County	2018

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James Island Drainage Masterplan

Charleston County, SC

Figure 13: Digital Elevation Map

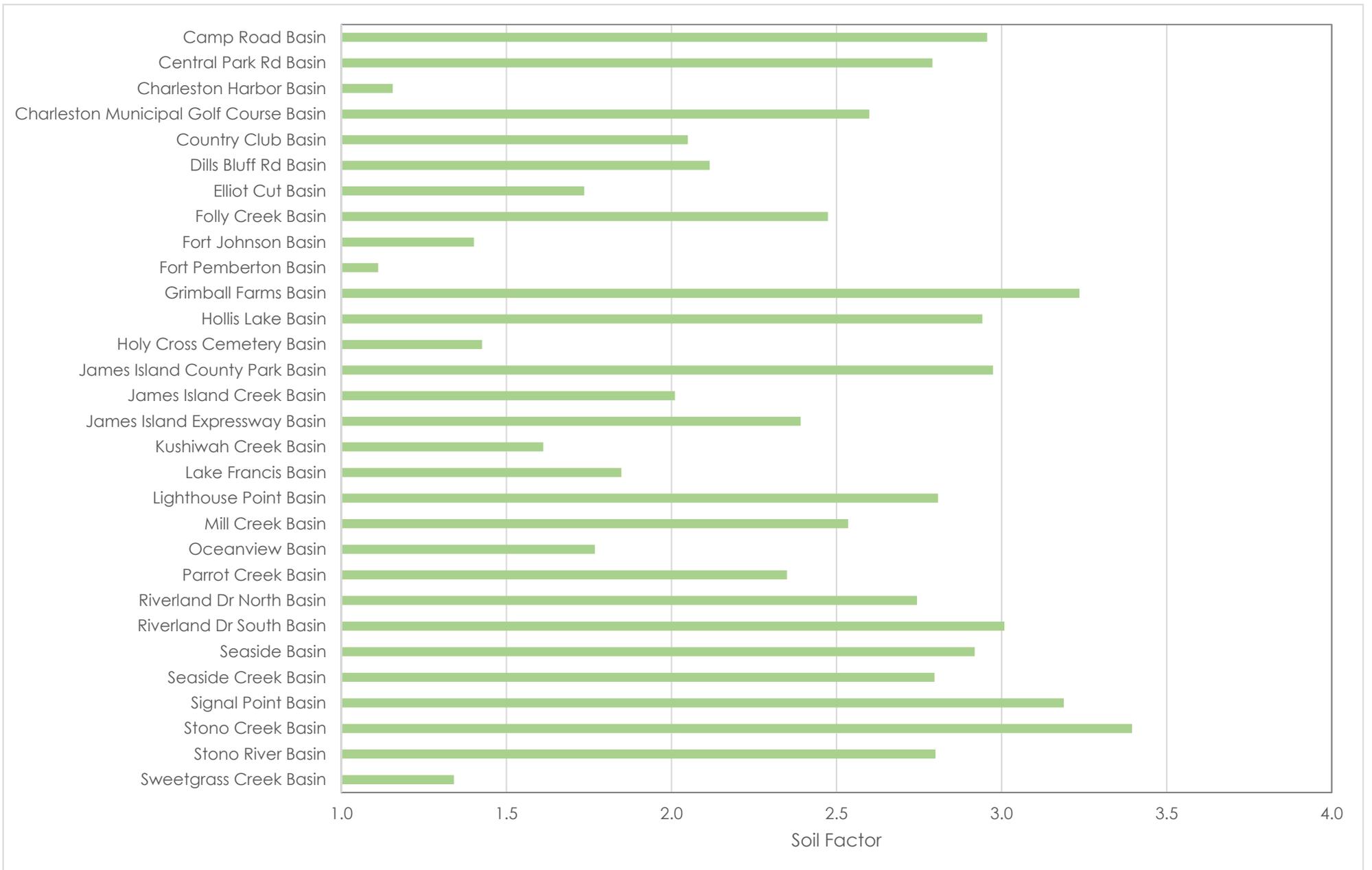
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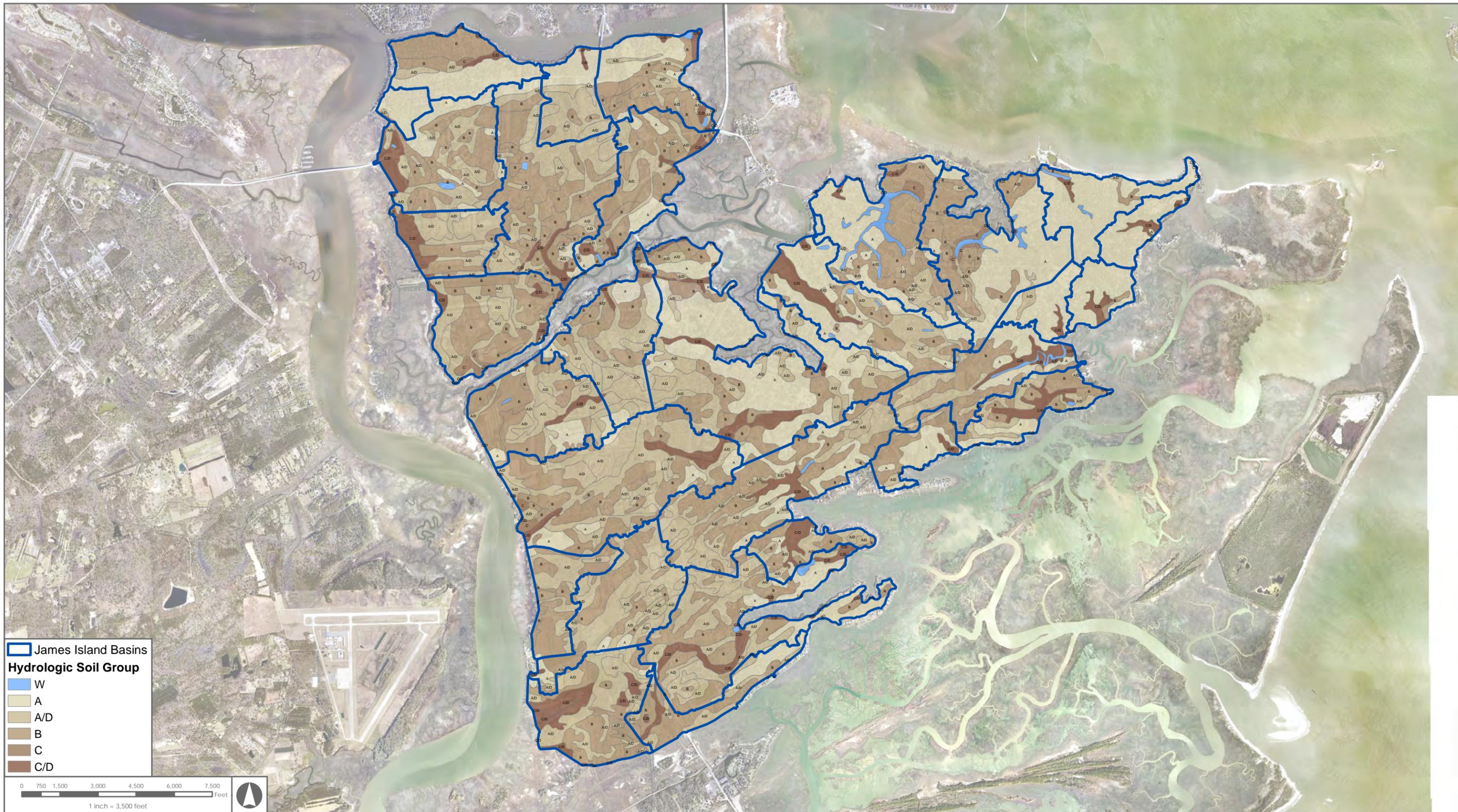
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Figure 14: Hydrologic Soil Group Factor Per Basin





James Island Basins

Hydrologic Soil Group

- W
- A
- A/D
- B
- C
- C/D



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Soils	USDA	2018		

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Charleston County, SC

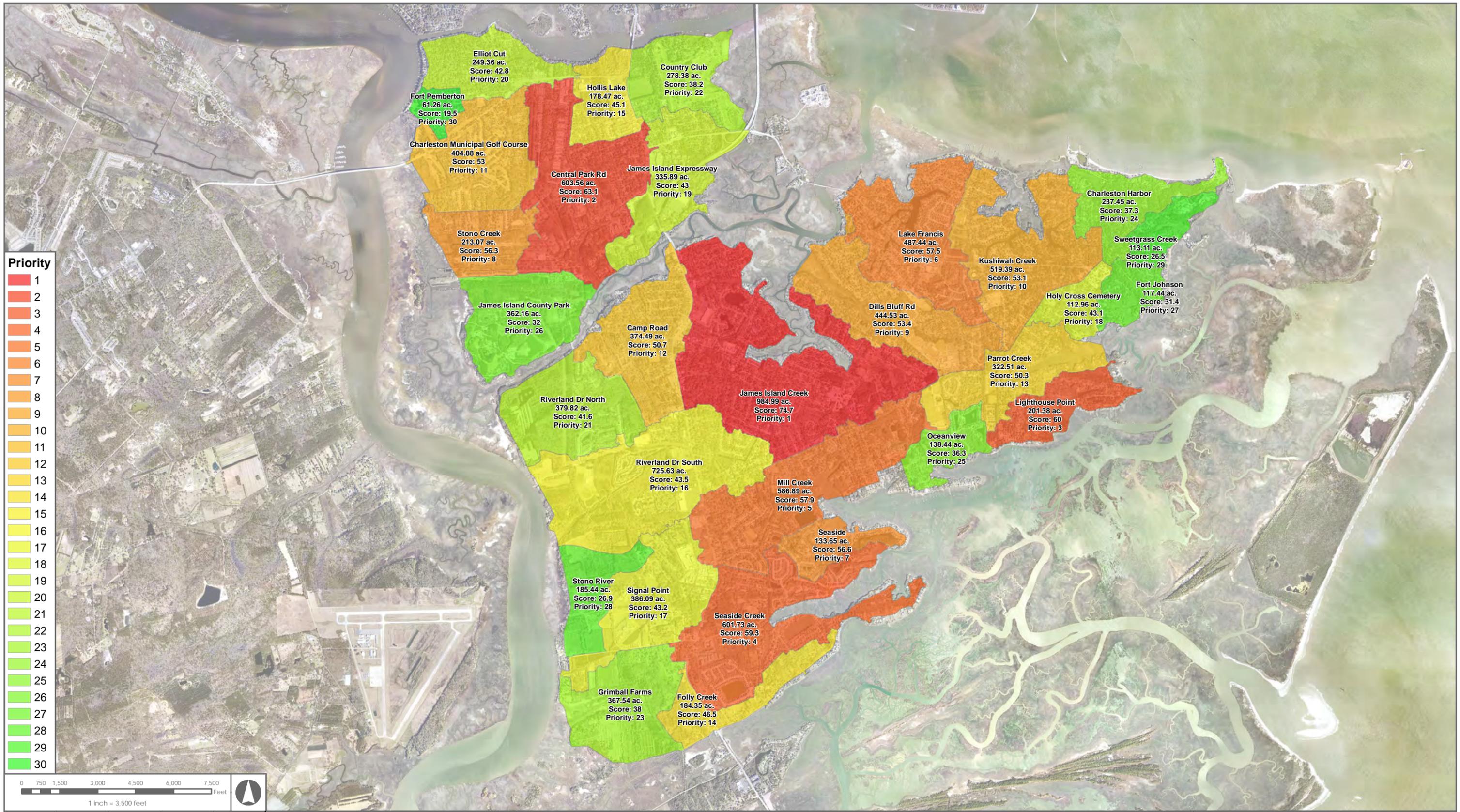
Figure 15: Hydrologic Soil Group Map



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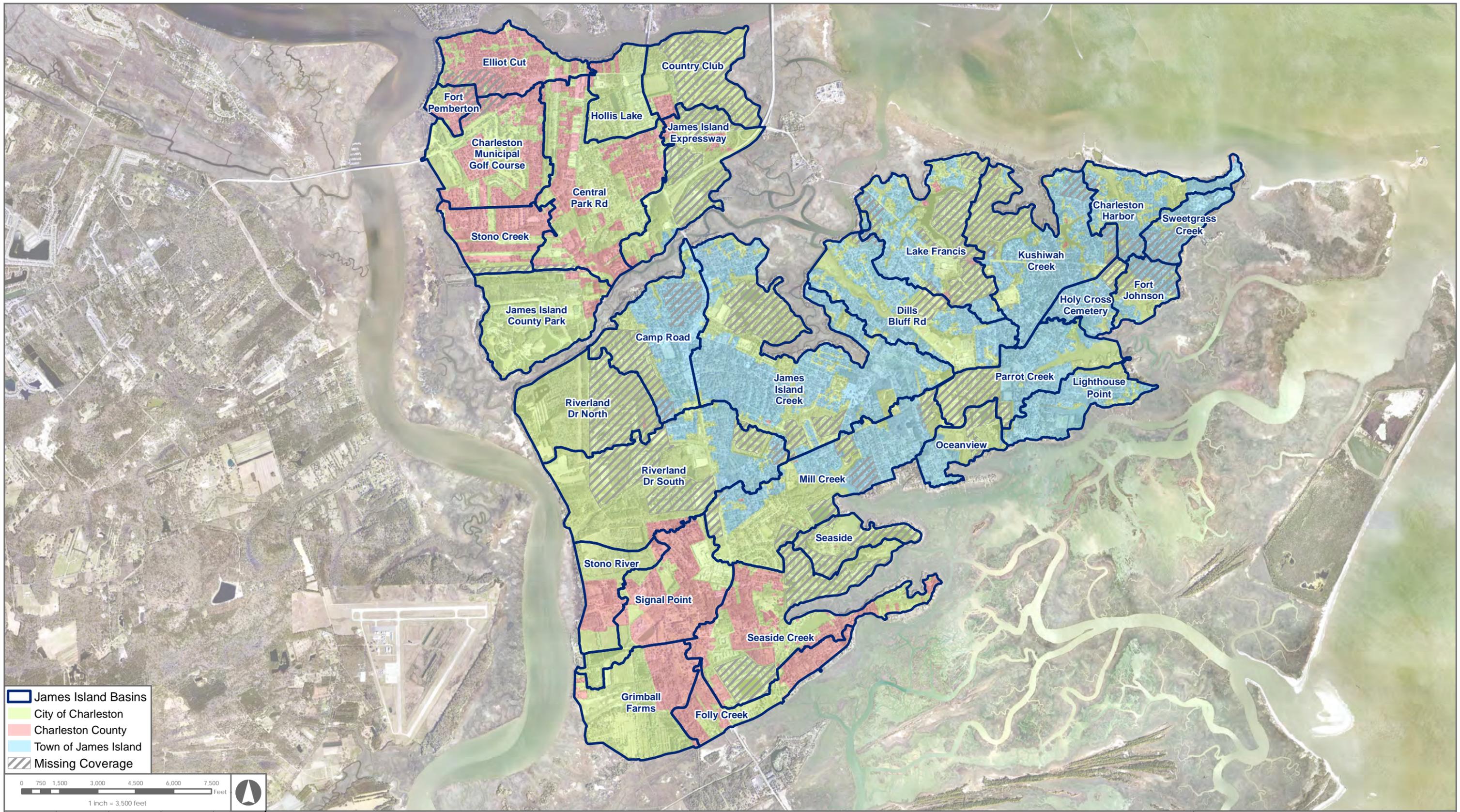
Charleston County, SC

Figure 16: Basin Prioritization

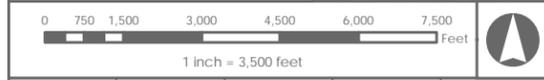
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Aerial		2017		
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 James Island Basins
 City of Charleston
 Charleston County
 Town of James Island
 Missing Coverage



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Data	Source	Date
Municipality Areas	Town of James Island & City of Charleston	2018
James Island Basins	T&H	2018
Missing Coverage Areas	T&H	2019

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James Island Drainage Masterplan

Charleston County, SC

Figure 17: Missing Inventory

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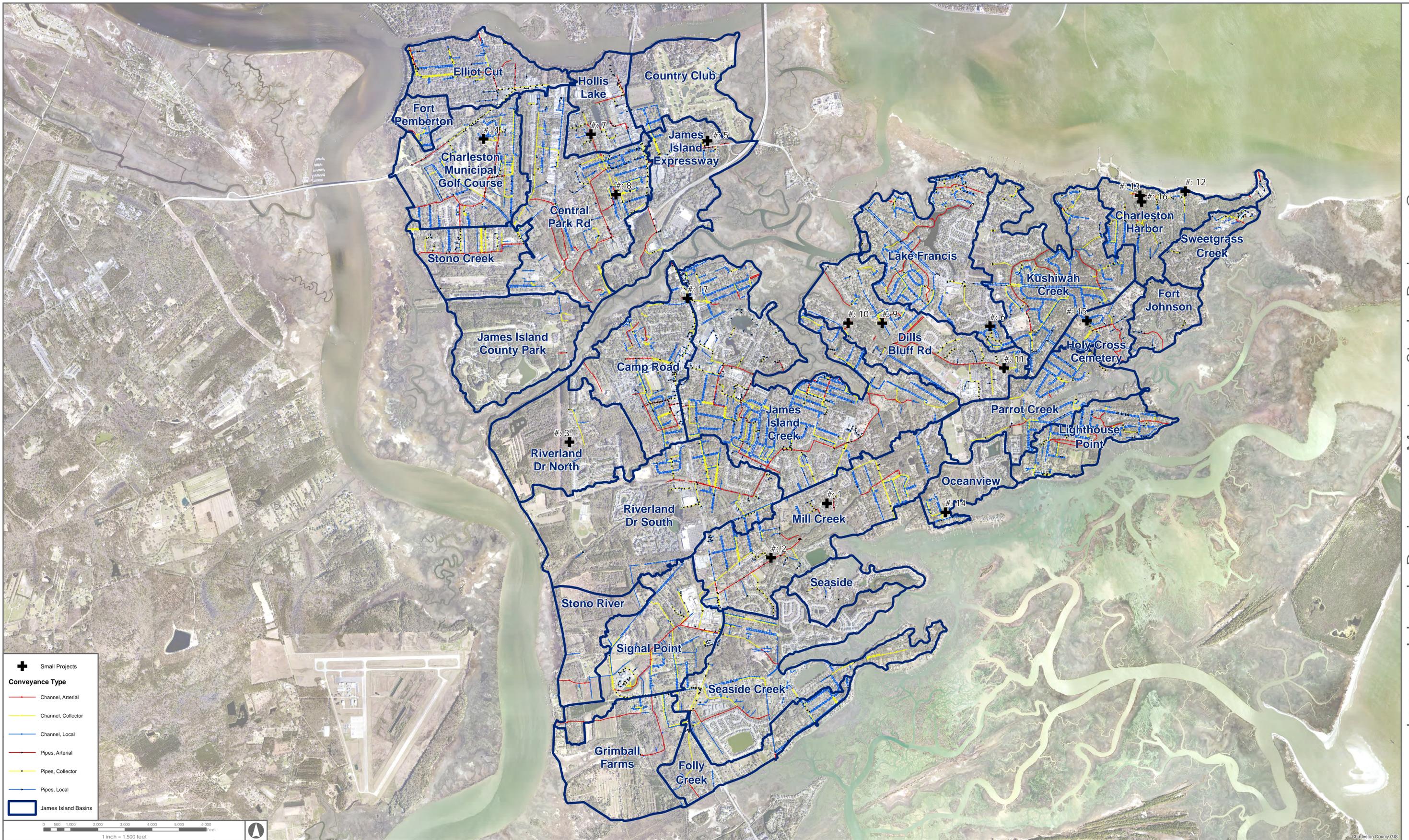
EXHIBITS

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+ Small Projects

Conveyance Type

- Channel, Arterial
- Channel, Collector
- Channel, Local
- Pipes, Arterial
- Pipes, Collector
- Pipes, Local
- James Island Basins

0 500 1,000 2,000 3,000 4,000 5,000 6,000 Feet

1 inch = 1,500 feet

Job Number:	Produced:	Produced By:	Modified:	Modified By:
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James Island Drainage Masterplan

Charleston County, SC

Exhibit 1: Drainage Conveyance



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