

26th to 34th Street, West Avenue to Bay Avenue Flood Mitigation Design

PRELIMINARY DESIGN PRESENTATION



Outline

Overview of Flooding Problem

Since the Study

Flood Solutions vs Flood Mitigation

Proposed Design

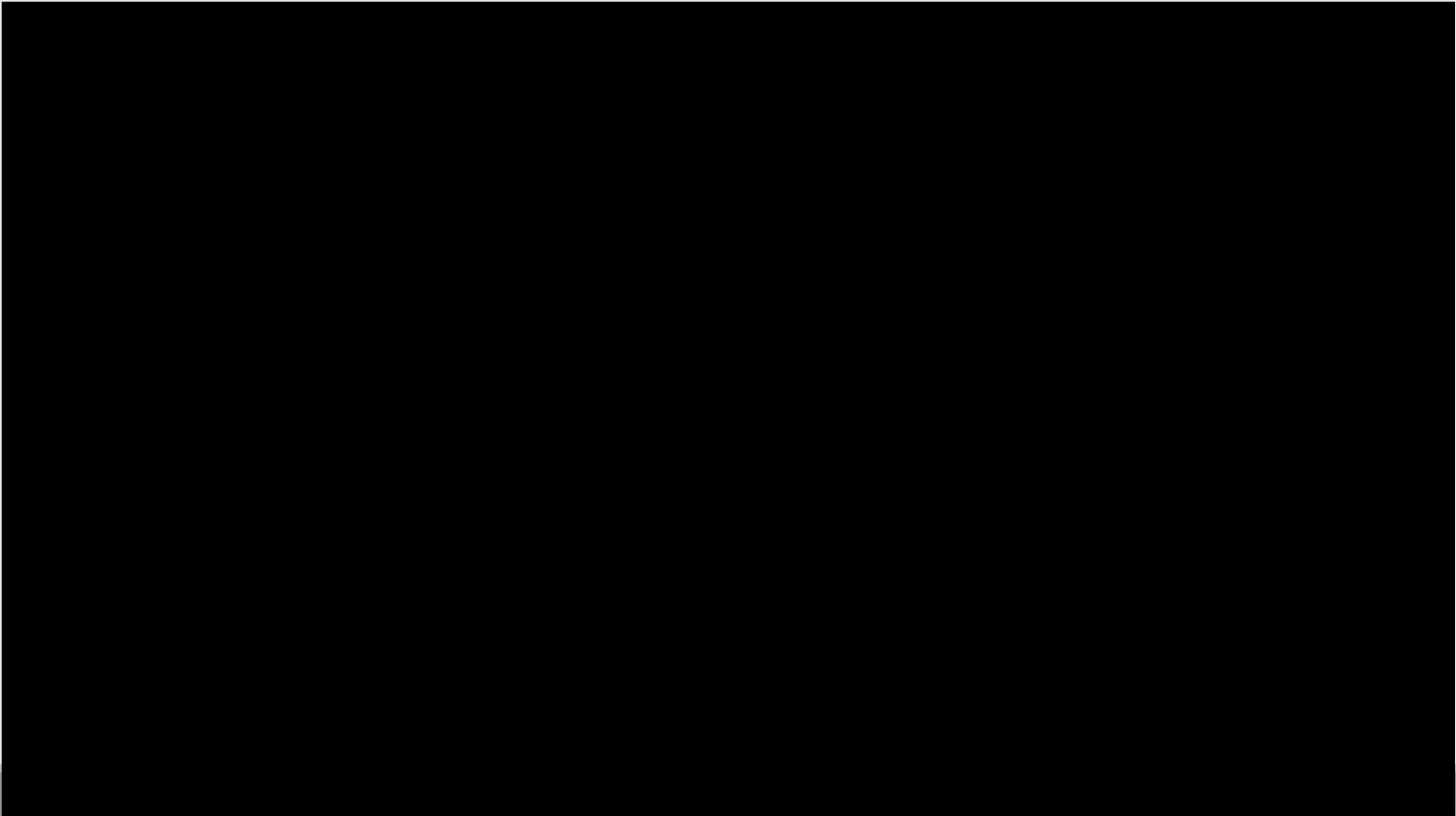
Next Steps

Tidal vs Rainfall

What is a 1-year storm? A 10-year storm?

What is the difference between Tidal Event and Riverine Event?

What are the different ways to mitigate this flooding?



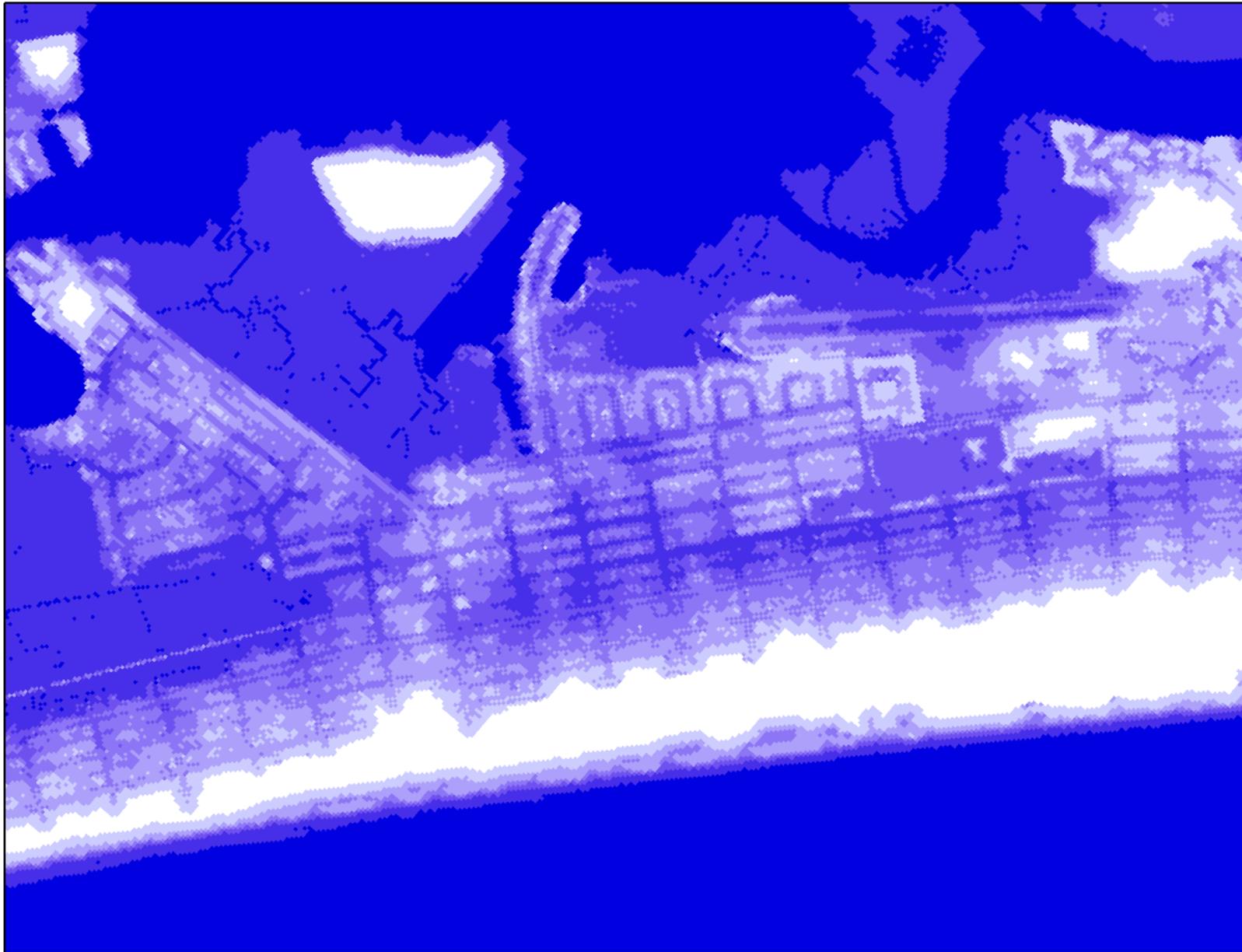
Tide Height at NOAA Station 8534720

NAVD88

- Average Tide Height: -0.109
- Average High Tide: 1.892
- Average Low Tide: -2.189
- Winter Storm Jonas (1/23/16)
 - Maximum High Tide: 5.226

MLLW

- Average tide height: 2.504
- Average High Tide: 4.507
- Average Low Tide: 0.425
- Winter Storm Jonas (1/23/16)
 - Maximum High Tide: 7.841



Eliminating Tidal Flooding

Raise the Island

Bulkhead the Island

Eliminating Rain Driven Flooding

Increase Capacity of the System

Add Mechanical Devices to Increase Capacity

Check Valves

*These Strategies Improve the Tidal Flooding Scenario

24 Hour Rainfall

245 Acre Study Area

Comprising mostly residential plots, some commercial, large areas of impervious roadway

1 Year Event -	2.68 Inches of Rain -	14.67 Million Gallons of Runoff
2 Year Event -	3.27 Inches of Rain -	18.04 Million Gallons of Runoff
5 Year Event -	4.24 Inches of Rain -	23.53 Million Gallons of Runoff
10 Year Event -	5.08 Inches of Rain -	33.79 Million Gallons of Runoff

1 Hour Rainfall

245 Acre Study Area

Comprising mostly residential plots, some commercial, large areas of impervious roadway

1 Year Event -	1.2 Inches of Rain -	7.98 Million Gallons of Runoff
2 Year Event -	1.5 Inches of Rain -	9.97 Million Gallons of Runoff
5 Year Event -	1.9 Inches of Rain -	12.64 Million Gallons of Runoff
10 Year Event -	2.2 Inches of Rain -	14.64 Million Gallons of Runoff

Outfall Condition



Outfall Condition



Roadway Drainage Condition



Roadway Drainage Condition



Approach

Model the Existing Conditions

- 1 year Event
- 2 Year Event
- 5 Year Event
- 10 Year Event
- Average Tide
- High Tide

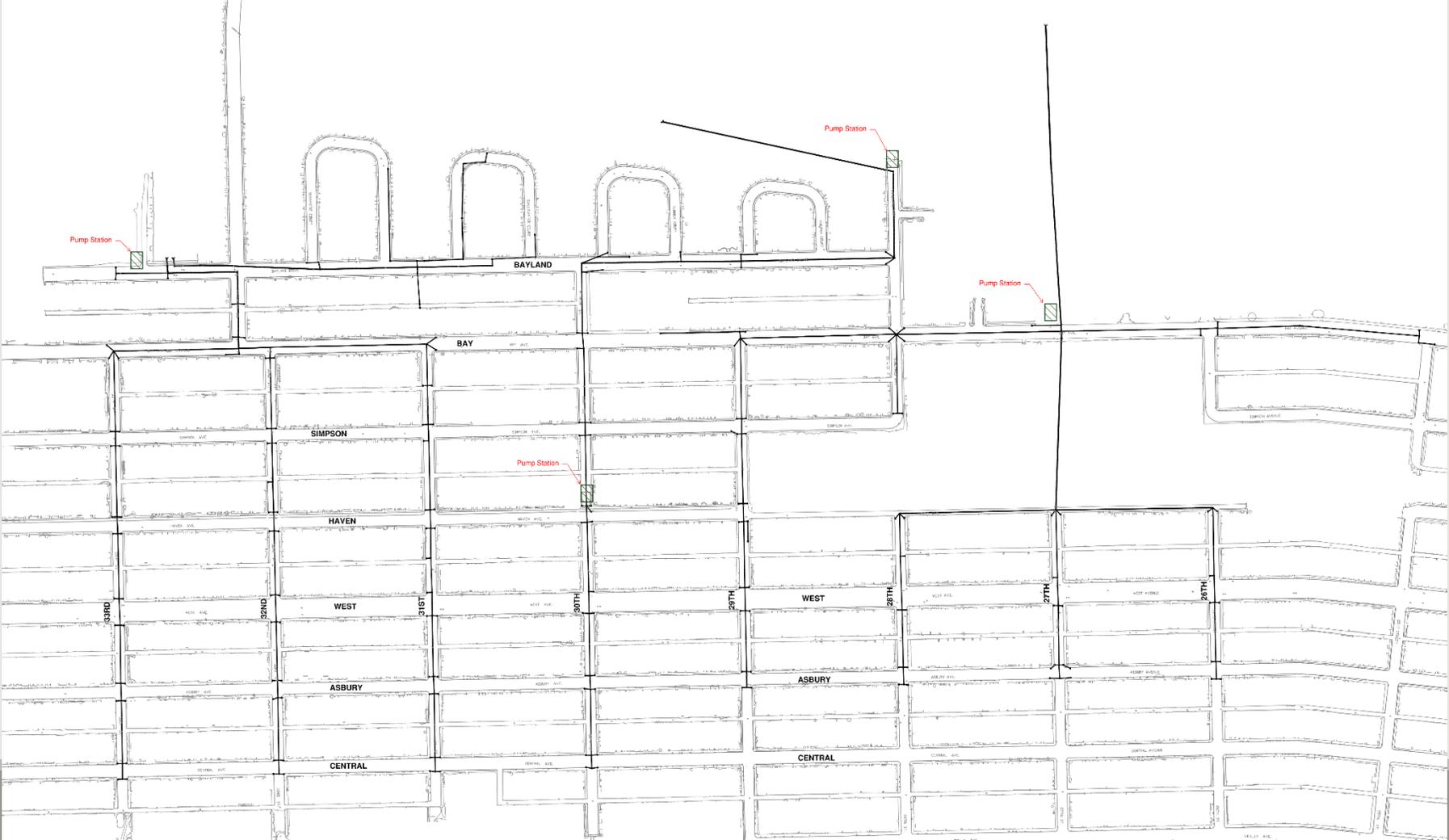
Analyze Mechanical Solutions

- Pumps

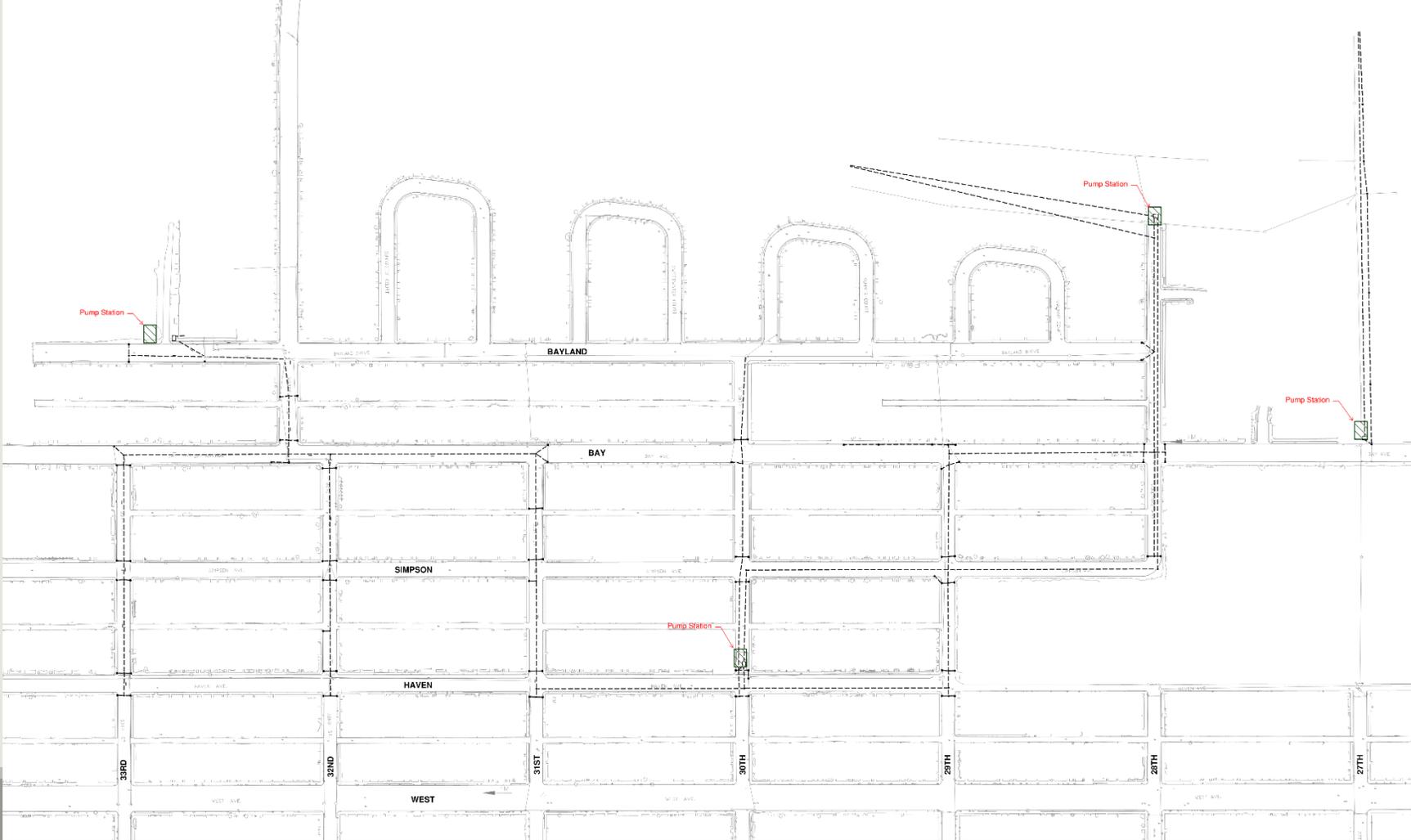
Analyze Infrastructure Solutions

- Rerouting Drainage
- Roadway Profile Raises

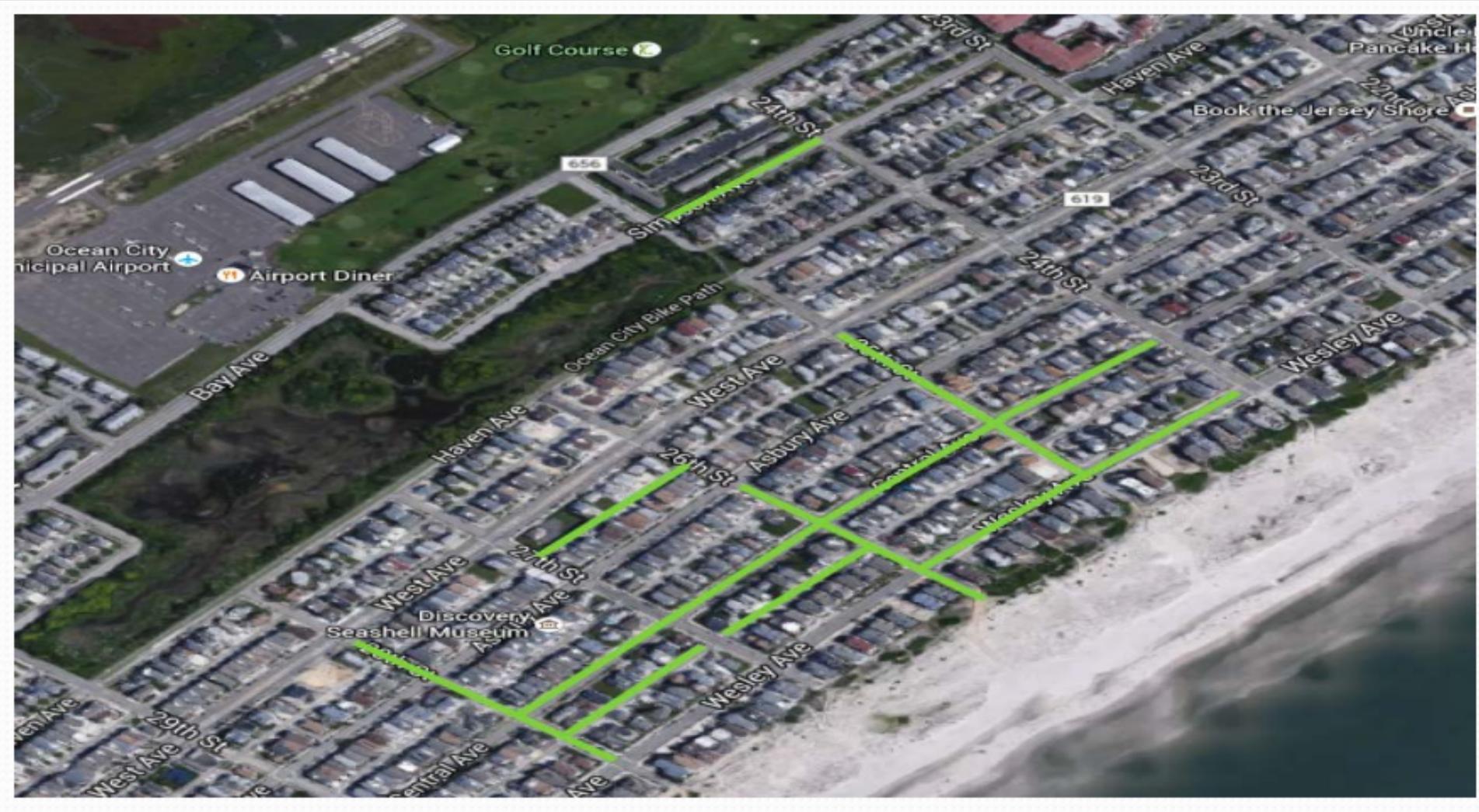
Proposed Plan



Proposed Design



Possible Paving Additions



Potential Pump Locations



Potential Pump Locations



Next Steps

Finalize Design

Submit and Obtain Permits

Develop Contract Plans

Advertise and Accept a Bid

Throughout the final design process, residents will be engaged to develop the final design elements of the project