

SAVE THE SHORE

A Comprehensive Approach to Flood Mitigation in Coastal Communities

Borough of Manasquan
Monmouth County, New Jersey



Prepared by:

Colliers Engineering & Design

Manasquan Office of Emergency Management

Objective:

To assess the full extent of the coastal flood risk in Manasquan accounting for sea level rise, and develop a comprehensive, scalable, and cost-effective mitigation plan that addresses flooding up to major coastal events with a phased implementation.

Each project provides standalone protection while contributing to a cohesive, long-term strategy designed to enhance public safety, protect property, improve transportation, and strengthen the overall quality of life for Manasquan residents.



Situation:

Chronic and pervasive coastal flooding poses significant challenges to public safety, infrastructure, and quality of life, affecting over 40% of the residents in Manasquan. The persistent inundation of roadways and properties threatens stranded residents and motorists, hinders emergency services' ability to respond effectively due to impassable roads, and causes extensive damage to vehicles, residences, and other property. These impacts are only exacerbated by rising sea levels and increasing storm frequency.



A majority of the roadways within the project area are situated at or below an elevation of 3.0 feet, making them highly susceptible to flooding. **On average, these roadways experience flooding approximately 112 times per year, resulting in over 250 hours of road closures annually.** This frequent disruption underscores the urgent need for mitigation measures to address the growing threat of chronic flooding and its cascading effects on public safety and infrastructure.

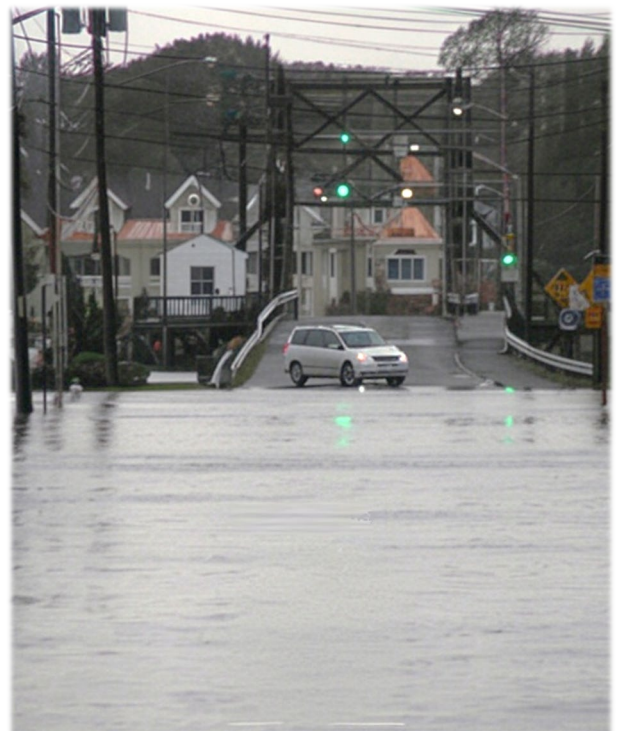
Project Area:



This flood mitigation plan utilizes a phased implementation of an integrated flood protection system, combining floodwalls, enhanced drainage infrastructure, and elevated roadways, to provide a seamless, borough-wide flood defense.

Project Highlights:

- Construction of over 9 miles of new elevated roadways, sidewalks, and curbing to protect against flooding and allow unimpeded access through major coastal flood events.
- Installation of 3 floodwalls spanning more than 1,900 linear feet to provide robust flood protection.
- Upgrade of 36 drainage outfalls to accommodate increased runoff volumes, equipped with automated valves to mitigate tidal surges and facilitate efficient operation and maintenance.
- Construction of new water and sanitary sewer services, alongside comprehensive drainage system upgrades throughout the project area, to improve infrastructure reliability and flood management.



Project Benefits:

- Safeguards the entire town against coastal flooding up to design elevation 5.0' NAVD88
- Reduction of flood impacts from approximately 112 events per year to less than one annually, with only one storm event in the past decade exceeding the project's design protective capacity.
- Protection of 1,400 residential units from coastal flooding impacts, except during the most extreme storm events.
- Elevation of over 9 miles of roadways to exceed moderate coastal flooding levels, ensuring access for residents, visitors and emergency services.
- Elevation of critical evacuation routes to remain operational during a 30-year storm event, addressing current annual closures that strand over 1,000 homeowners at least once annually.
- Mitigation of current sea level rise impacts of 4.3 mm annually, effectively extending the borough's resilience by over 140 years, ensuring long-term safety for future generations.



**Flood Frequency based upon observed tide heights at
USGS tide station located at Glimmer Glass Bridge**

<u>Annual Occurrences</u>	<u>Current</u>	<u>Post-Project</u>	<u>Reduction</u>
Ocean Ave Submerged	16	<1	99%
Brielle Road Submerged	27	<1	99%
Main Street Submerged	63	<1	99%
Perrine Blvd Submerged	112	<1	99%

Stockton Lake Flood Wall



Project Details:

- 1300 LF Bulkhead + 1200 LF Flood Wall elevated to 7.0' NAVD88
- 11 Upgraded drainage outfalls protected with tide control valves
- Engineering Estimate: \$1.5m

Project Protects:

- Evacuation route protected to 30-year storm event (currently submerged during 1-year storm)
- 0.5 mi of Stockton Lake Blvd protected from 30-year storm
- Protects 40 residences and facilitates evacuation of beach areas



Perrine Blvd Area



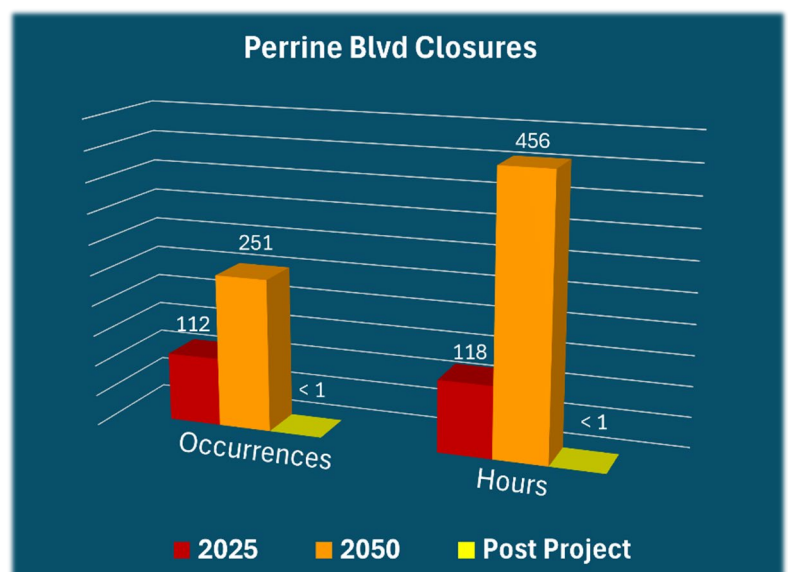
Project Details:

- 2.2 miles of roadway elevated to 5.0' NAVD88
- New water & sewer utilities
- 11 upgraded drainage outfalls protected with tide control valves
- Property restoration
- Engineering Estimate: \$3.8m

Project Protects:

- 160 residential units
- 2.2 mi roads protected including:

Perrine Blvd	S. Jackson Ave
Warren Ave	S Potter Ave
Dewey Ave	River Place
Farragut Ave	E. Virginia Ave
S. McClellan Ave	Pine Ave
- Municipal marina
- 30 residential docks
- Sanitary sewer lift station



Main Street West of Bridge:



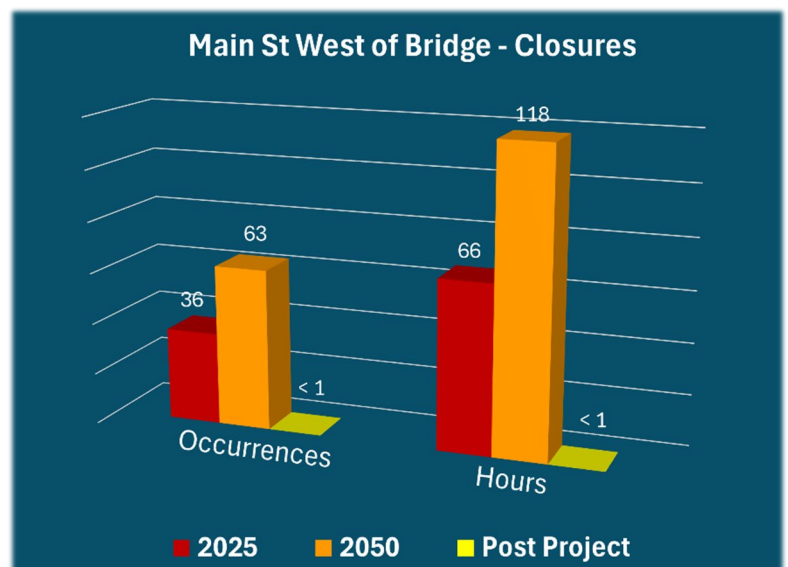
Project Details:

- 0.5 miles of roadway elevated to 5.0' NAVD88
- 150 LF flood wall
- New water & sewer utilities
- 9 upgraded drainage outfalls protected with tide control valves
- New concrete curb & sidewalks including property restoration
- Engineering Estimate: \$3.7m

Project Protects:

- 200 residential units
- 2 mi roads protected including:

East Main Street	Rogers Ave
Pearce Ct	Perrine Blvd
Meadow Ave	Cedar Ave
Pershing Ave	Watson Pl
Lockwood Ave	Euclid Ave
Potter Ave	Sims Ave
- 10 residential docks
- 5 recreational fields



Ocean Avenue Evacuation Route



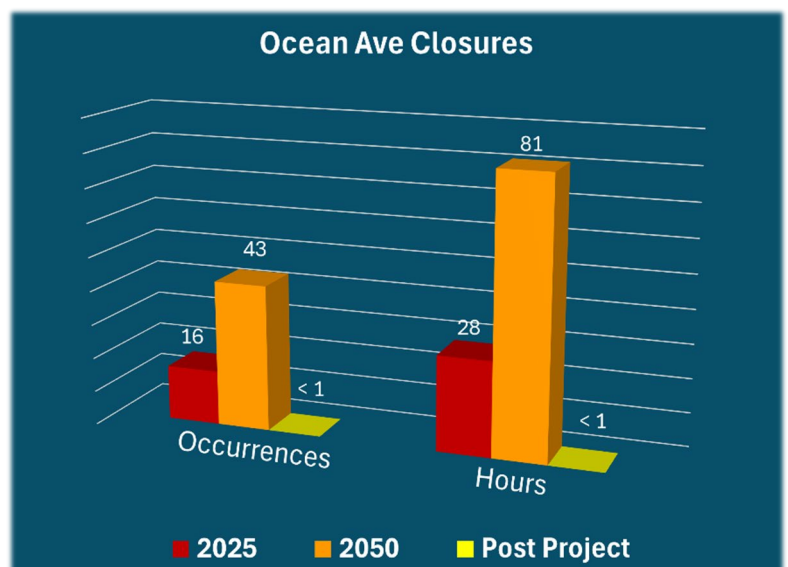
The Ocean Avenue evacuation route is the primary access and evacuation route for the entire beachfront including over 1,000 residential units and 20 businesses.

Project Details:

- 0.3 miles of roadway elevated to 6.0' NAVD88
- New water & sewer utilities
- New concrete curb & sidewalks including property restoration
- Engineering Estimate: \$2.3m

Project Protects:

- 60 residential units
- Provides safe evacuation for entire beachfront including over 1,000 residential units and 20 commercial establishments up to a 30-year storm event (currently submerged during 1-year storm)



Main Street East of Bridge:



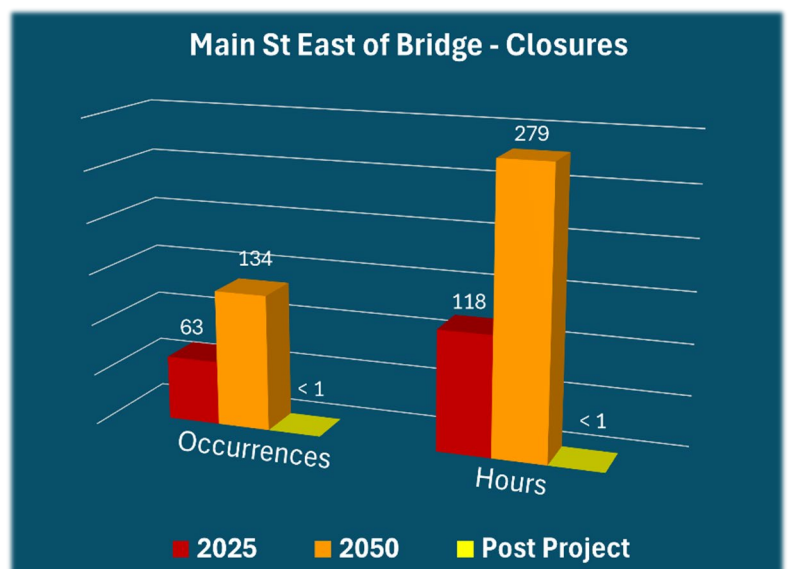
Project Details:

- 0.5 miles of roadway elevated to 5.0' NAVD88
- 550 LF flood wall
- New water & sewer utilities
- 5 upgraded drainage outfalls protected with tide control valves
- New concrete curb & sidewalks including property restoration
- Engineering Estimate: \$1.6m

Project Protects:

- 100 residential units
- 0.5 mi roads protected including:

East Main Street	2 nd Ave
Capatins Court	3 rd Ave
Pickle Alley	4 th Ave
- 50-slip municipal marina
- Municipal public works facility and parking lots (2)
- 3 commercial establishments
- 1 house of worship



Brielle Road Area



Project Details:

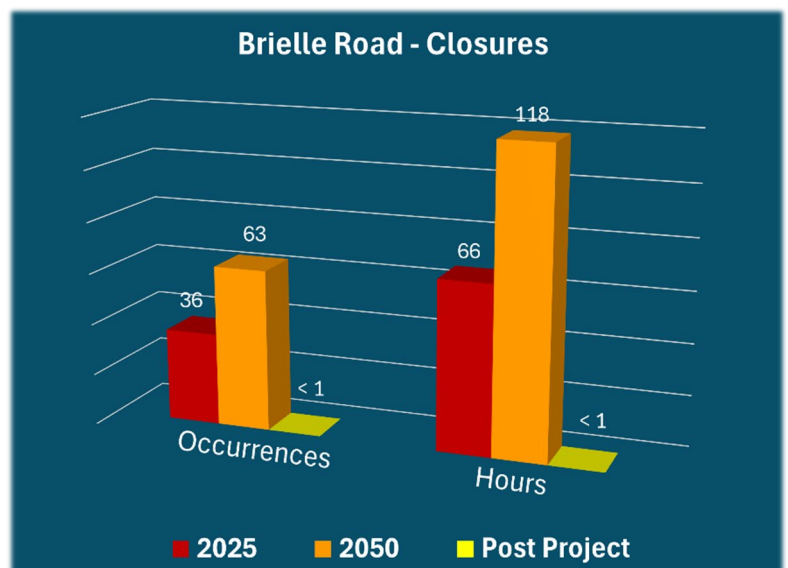
- 1.5 miles of roadway elevated to 5.0' NAVD88
- New water & sewer utilities
- 4 upgraded drainage outfalls protected with tide control valves
- New concrete curb & sidewalks including property restoration
- Engineering Estimate: \$6.7m

Project Protects:

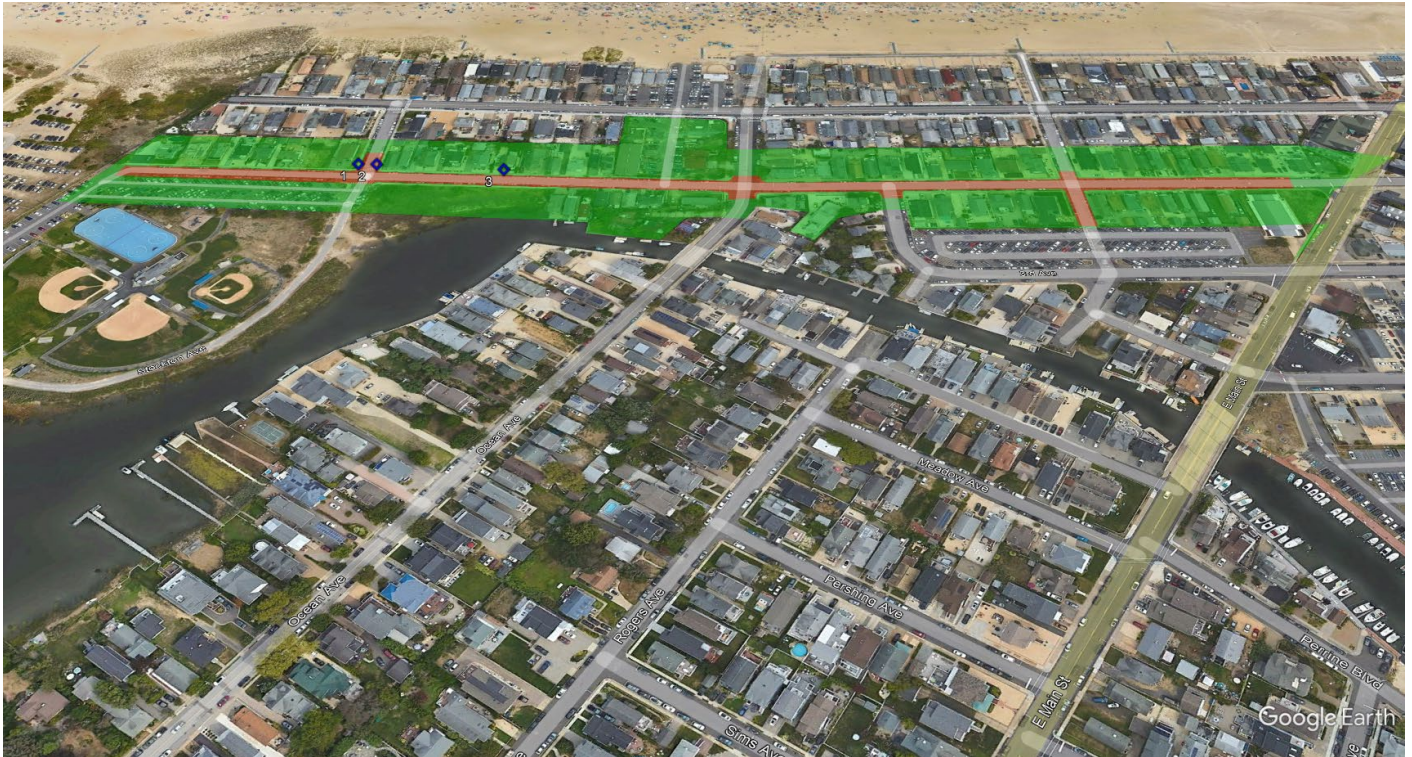
- 370 residential units
- 1.5 mi roads incl. critical evac route

Brielle Road	2 nd Ave
Long Ave	3 rd Ave
Glimmerglass Cir	4 th Ave
Deep Creek Dr	Tarpon Ave

- 4 marinas
- 4 commercial establishments



2nd Ave Area

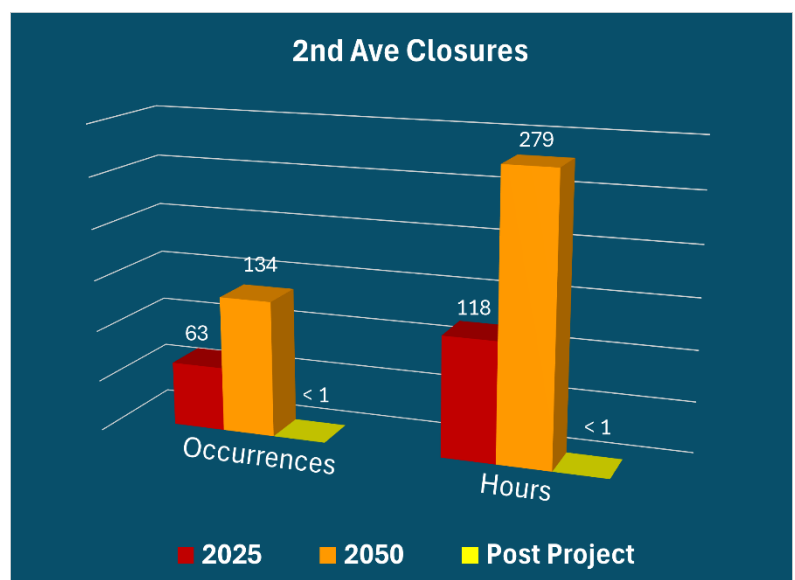


Project Details:

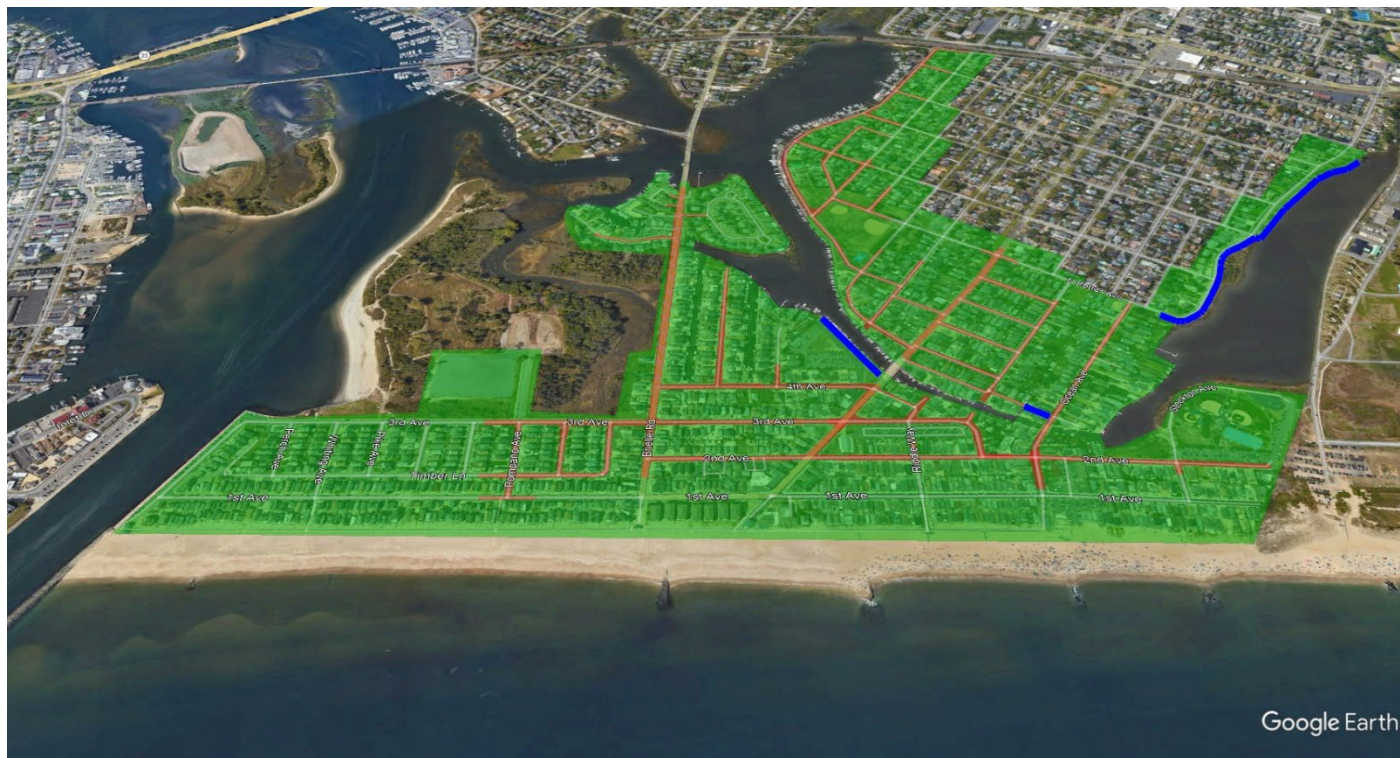
- 0.5 miles of roadway elevated to 5.0' NAVD88
- New water & sewer utilities
- 3 upgraded drainage outfalls protected with tide control valves
- New concrete curb & sidewalks including property restoration
- Engineering Estimate: \$2.75m

Project Protects:

- 76 residential units
- 0.5 mi roads protected including:
 - 2nd Ave
 - Riddle Way
- Municipal public works facility
- 1 recreational complex
- 1 house of worship



Road Paving Tie-Ins:



Project Details:

- 1.6 miles of roadway elevated to 5.0' NAVD88
- New water & sewer utilities
- Upgraded drainage
- New concrete curb & sidewalks including property restoration
- Engineering Estimate: \$2.5m

Project Protects:

- 296 residential units
- 1.6 mi roads elevated including:

East Main St	Sims Ave
Euclid Ave	Potter Ave
Watson Pl	1 st Ave
Holly Pl	2 nd Ave
Meadow Ave	3 rd Ave
Pershing Ave	Timber Ln
Rogers Ave	Marlin Ave
Lockwood Ave	Pompano Ave
- 1 house of worship
- 3 commercial establishments

