780 S. Apollo Blvd.
Suite 220
Melbourne, FL 32901

MEMORANDUM

Brevard County Vulnerability Assessment of 8 Cities and Towns

Town of Melbourne Beach Critical Asset Gap Analysis Summary Memo

TO: Ms. Lisa Frazier, Town Manager
ADDRESS: 507 Ocean Ave, Melbourne Beach, FL 32951
FROM: Applied Ecology Inc. (AEI)
DATE: November 6, 2025
SUBJECT: Town of Melbourne Beach vulnerability assessment gap analysis summary memo

INTRODUCTION

The State of Florida is particularly vulnerable to impacts of climate change such as sea level rise (SLR), storm surge and intense rainfall events. The frequency and severity of extreme events across the state have amplified the need for a coordinated approach to statewide resilience planning to reduce the impacts of climate changes at statewide, regional and local levels. In response, the State of Florida adopted Section 380.093, F.S. to guide data collection to complete a comprehensive assessment of state and local assets vulnerable to flooding from various future SLR and storm conditions. The Florida legislature updated F.S. Section 308.093 in 2024 with new climate research to clarify planning horizons and codify the Florida Flood Hub (FFH) as the new clearinghouse of Florida specific SLR and flooding data.

To complement these statewide planning efforts, the Florida Department of Environmental Protection (FDEP) created the Resilient Florida Grant Program to fund local government resilience planning and subsequent implementation of improvement projects. Planning grants have been awarded to local governments to fund Vulnerability Assessments (VAs) that identify risks related to SLR, storm surge and rainfall driven flooding scenarios. Upon completion of a state approved VA, the local government becomes eligible to apply for implementation project funding through Resilient Florida Grant Program. FDEP will use data collected through the Resilient Florida Grant Program to guide comprehensive statewide risk assessment, prioritize areas at most risk, and allocate funding and resources accordingly.

In 2023, Brevard County received an initial Resilient Florida Planning Grant to collect location and elevation data of critical stormwater infrastructure, especially outfalls to the Indian River Lagoon. The contract was expanded in 2024 to complete a full Vulnerability Assessment of unincorporated county areas. The Gap Analysis produced for the unincorporated County VA found information gaps within eight cities and towns that had not yet completed a state approved VA. As a result, in summer 2025, Brevard County requested additional funding to expand the Brevard County VA to complete state approved VAs for the City of Rockledge, City of West Melbourne, Town of Grant-Valkaria, Town of Indialantic, Town of Malabar, Town of Melbourne Beach, Town of Melbourne Village, and Town of Palm Shores.

Brevard County retained Applied Ecology, Inc. (AEI) to perform the required VA analyses, reporting and accompanying community engagement for all 8 cities and towns. AEI immediately started reaching out to the towns and cities to start the asset data collection in order to meet the quick turnaround project schedule.

AEI successfully met with the Town of Melbourne Beach on October 10, 2025. AEI team members Dr. Leesa Souto and Ms. Kelsey Mack conducted a virtual project kick-off meeting with Ms. Lisa Frazier, Town Manager. The main purpose of the kick-off meeting was to introduce the VA process and the team, discuss the critical assets already acquired for the town, and identify missing critical assets the town may wish to include in the VA. This memo summarizes the critical asset data reviewed by the Town of Melbourne Beach to provide the final delivery of the town assets.

ASSET SUMMARY

AEI assembled the existing and town-provided critical georeferenced data sources to complete a draft list of critical assets for the Town of Melbourne Beach VA as defined in Section 380.093 (2) (a), Florida Statute, that includes four categories:

1. Transportation assets and evacuation routes, including airports, bridges, bus terminals, ports, major roadways, marinas, rail facilities, and railroad bridges.
2. Critical infrastructure, including wastewater treatment facilities and lift stations, stormwater treatment facilities and pump stations, drinking water facilities, water utility conveyance systems, electric production and supply facilities, solid and hazardous waste facilities, military installations, communications facilities, and disaster debris management sites.
3. Critical community and emergency facilities, including schools, colleges, universities, community centers, correctional facilities, disaster recovery centers, emergency medical service facilities, emergency operation centers, fire stations, health care facilities, hospitals, law enforcement facilities, local government facilities, logistical staging areas, affordable public housing, risk shelter inventory, and state government facilities.
4. Natural, cultural, and historical resources, including conservation lands, parks, shorelines, surface waters, wetlands, and historical and cultural assets.

On October 10, 2025, AEI provided the town with a list of the acquired critical assets and an accompanying web map for the town to perform an expert peer review of the asset data. Specifically, it was requested that the town: 1) confirm that each asset had the correct ownership information, 2) confirm that all assets were in the correct location, and 3) identify any missing assets. Ms. Frazier provided an updated asset list to AEI on October 21, 2025, with the town requested revisions. The final lists and maps of Town of Melbourne Beach assets provided in this memo represent the final asset data that will be included in the VA.

DATA GAPS AND RECOMMENDATIONS

The town receives potable water from the City of Melbourne, who did not provide data for the drinking water facilities or water utility conveyance systems, thus has been identified as a data gap. In addition to the identification and location of critical assets, there were also topographic and flood scenario data acquired to model future sea level rise projections, storm surge, and combined flooding. The Flood Scenarios previously approved by FDEP for Brevard County are recommended to be used for the Town of Melbourne Beach to enable consistent comparisons of flood risks throughout the County. The flood risk scenario matrix and topographic map are provided as attachments to this memo. The data acquisition process did not reveal any data gaps that would prevent proceeding to the next step in the VA process.

NEXT STEPS

The inventory of critical assets attached to this memo will be included in the VA for the Town of Melbourne Beach. If there are any changes or additions needed, please respond by November 14, 2025. If we do not hear back by November 14, AEI will proceed with the flood exposure and sensitivity analyses using the FDEP-approved flood risk scenario matrix in Attachment 3.

Leesa Souto, Ph.D.
Sr. Project Manager

Attachments:

1. Asset Summary Tables and Maps
2. Topographic Map
3. Flood Risk Scenario Matrix

ATTACHMENT 1: CRITICAL ASSET SUMMARY TABLES AND MAPS

Table 1. Transportation Assets

Asset Type	Quantity
Airports	0
Bridges	0
Bus Terminals	0
Evacuation Routes	1.8 miles
Major Roadways	19.8 miles
Marinas	0
Ports	0
Rail Facilities	0
Railroad Bridges	0

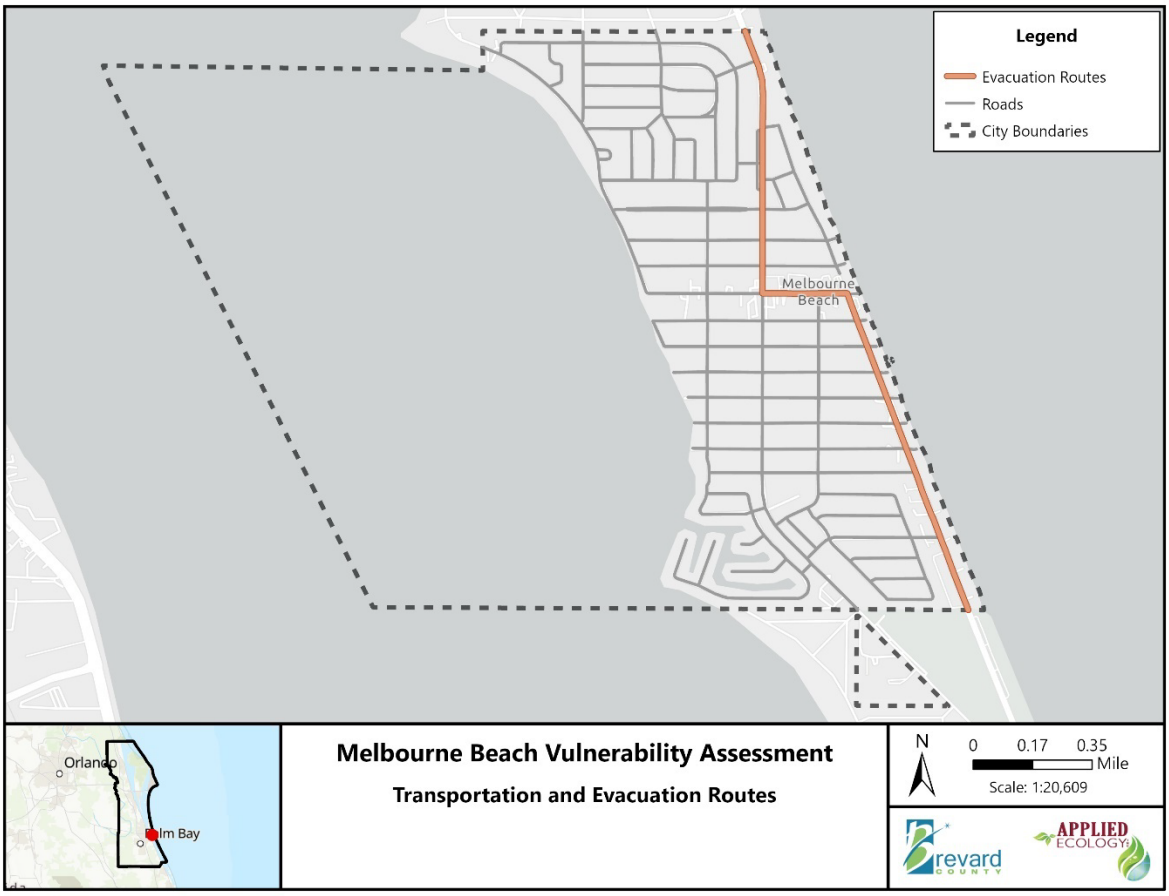

Figure 1. Transportation Assets

Table 2. Critical Infrastructure

Asset Type	Quantity
Communication Facilities	1
Disaster Debris Management Sites	1
Drinking Water Facilities	0
Electrical Production and Supply Facilities	0
Military Installations	0
Solid and Hazardous Waste Facilities	0
Stormwater Treatment Facilities and Pump Stations	646
Utility Servies	1
Wastewater Treatment Facilities and Lift Stations	590

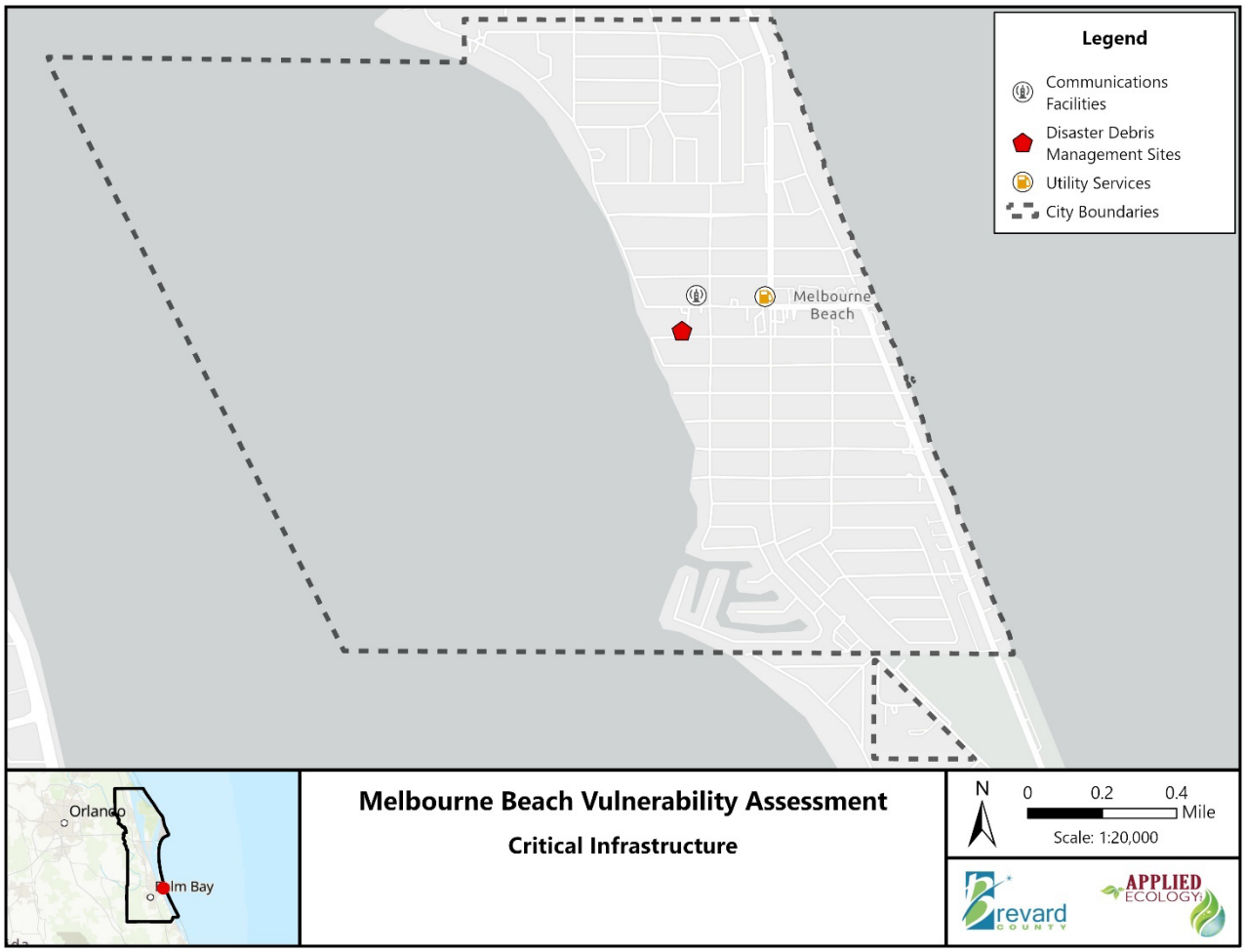

Figure 2. Critical Infrastructure

Table 3. Critical Stormwater Infrastructure

Asset Type	Quantity
Baffle Boxes	8
Bio-Retention and Swales	4
End Structure	4
Exfiltration Pipes	133 (2.18 miles)
Inlets	300
Inlet Baskets	23
Manholes	13
Outfalls	20
Pipes	140 (5.02 miles)

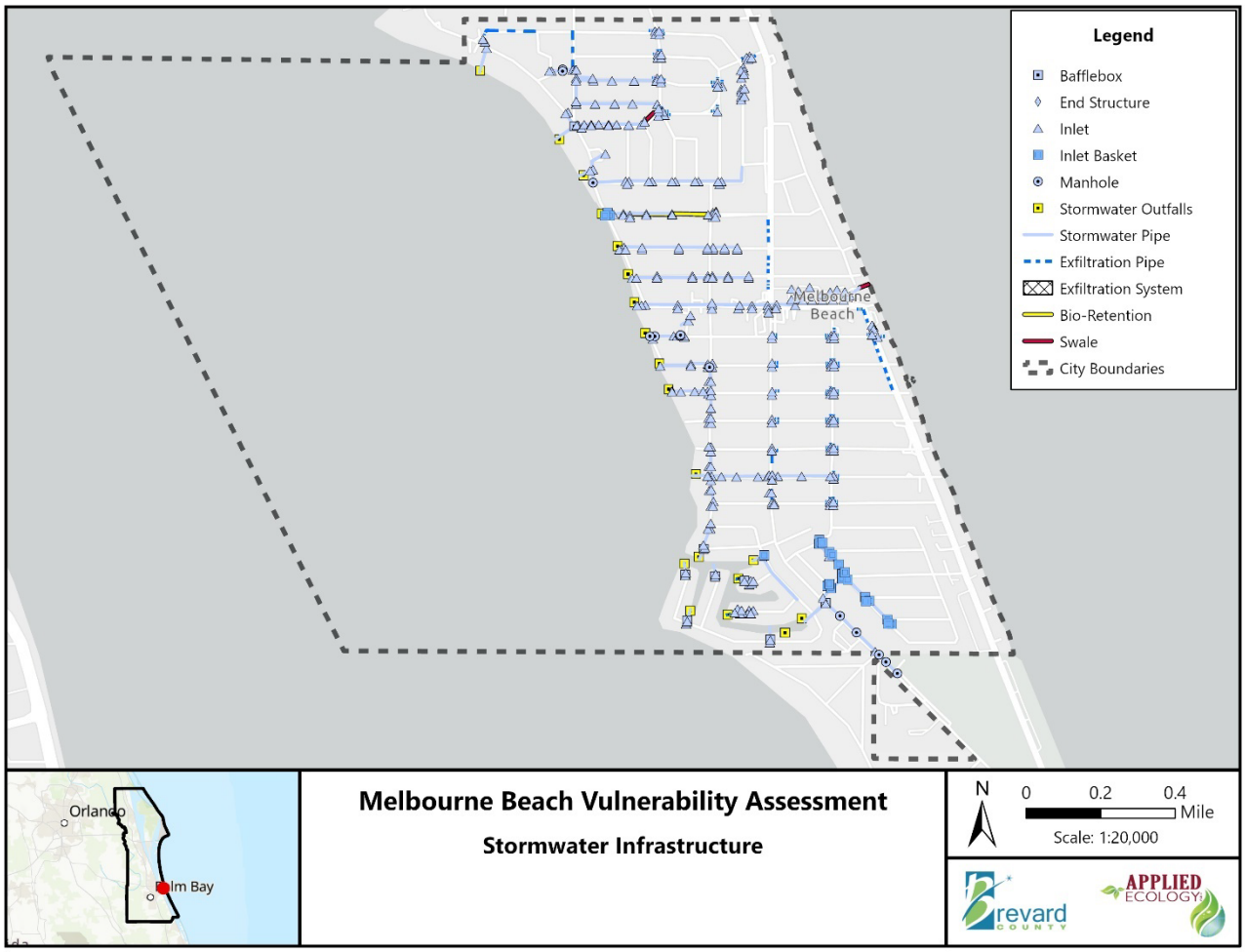

Figure 3. Critical Stormwater Infrastructure

Table 4. Critical Wastewater Infrastructure

Asset Type	Quantity
Gravity Sewer Lines	296 (15.88 miles)
Manholes	293
Lift Stations	1

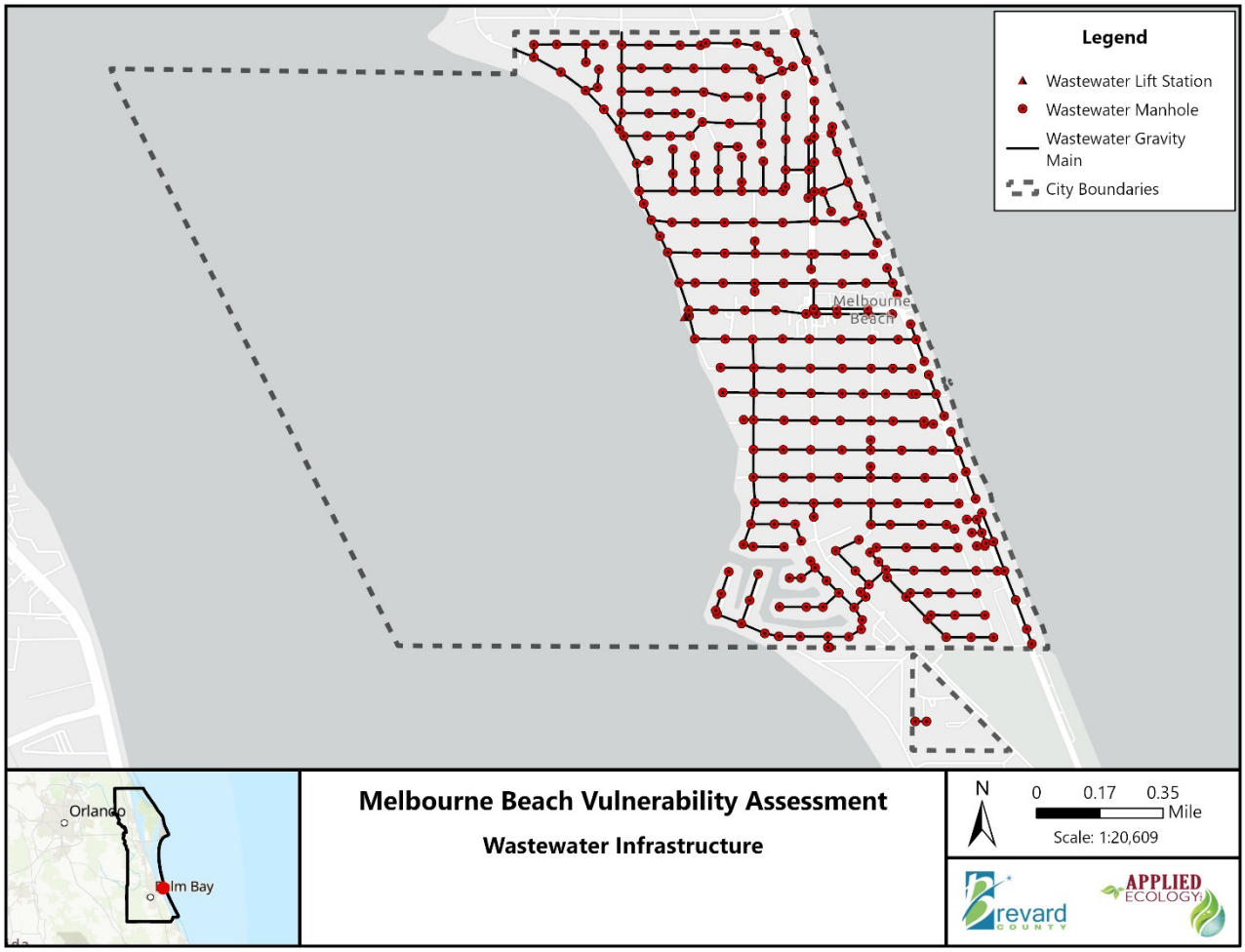

Figure 4. Critical Wastewater Infrastructure

Table 5. Critical Community and Emergency Facilities

Asset Type	Quantity
Affordable Public Housing	0
Colleges/Universities	0
Community Centers	2
Correctional Facilities	0
Fire Stations	0
Health Care Facilities	0
Hospitals	0
Law Enforcement Facilities	0
Local Government Facilities	1
Logistical Staging Areas	0
Risk Shelter Inventory	0
Schools	3
State Government Facilities	0

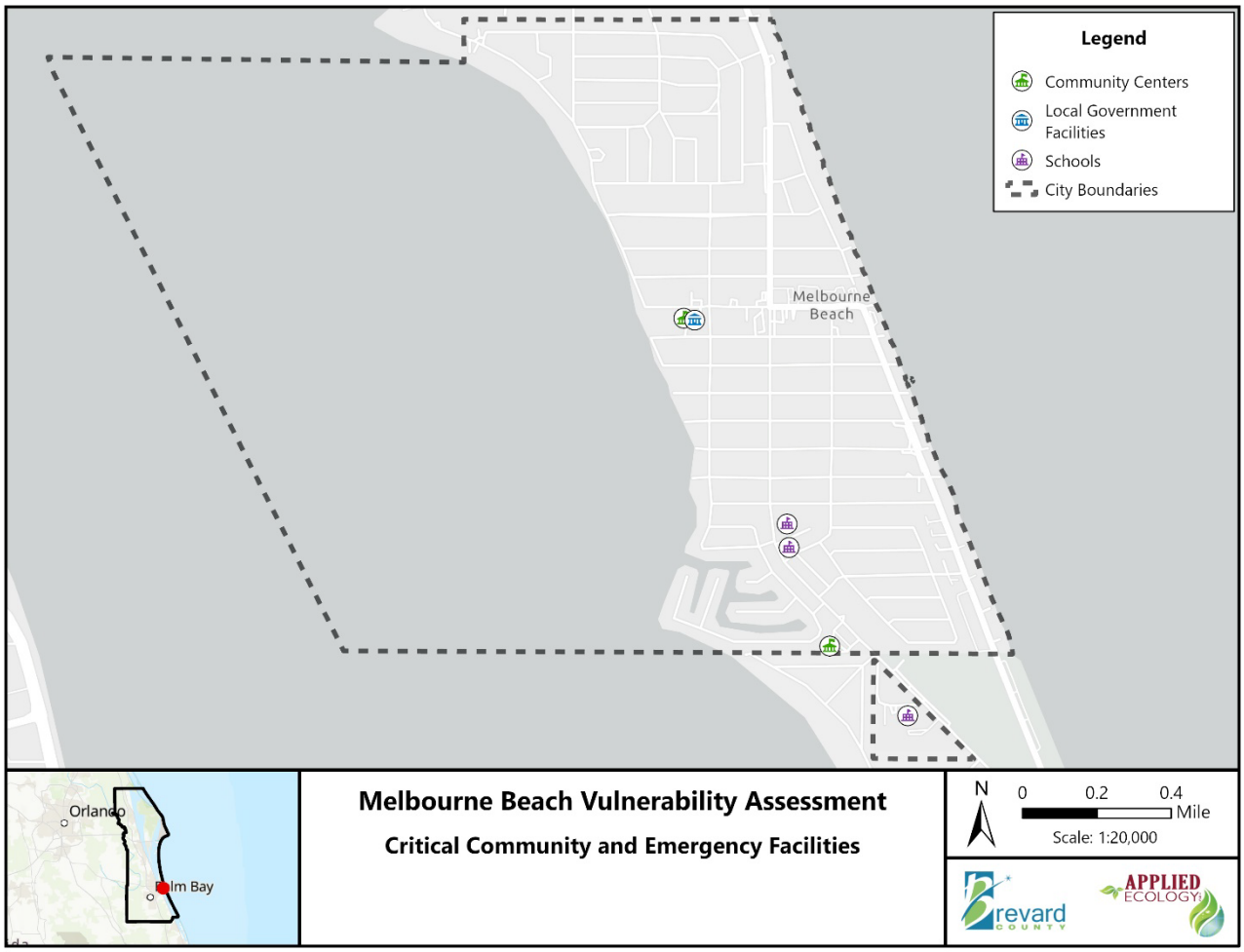

Figure 5. Critical Community and Emergency Facilities

Table 6. Natural, Cultural and Historic Resources

Asset Type	Quantity
Conservation Lands	0.74 acres
Dune Crossovers	11
Libraries	1
Parks	13
Preserves	1
Shorelines	4.69 miles
Surface Waters	1 (IRL)
Wetlands	0
Historic and Cultural Assets	5

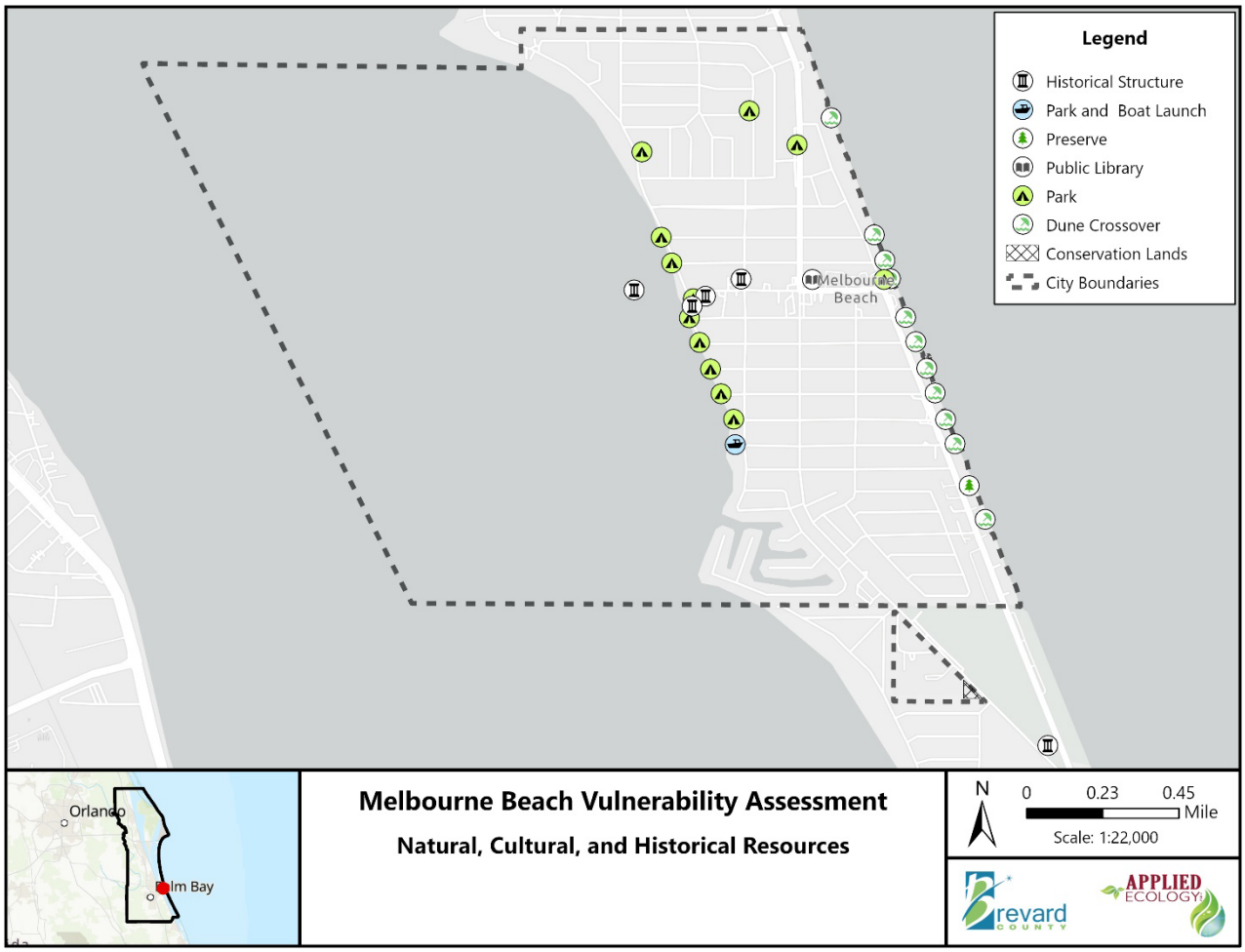

Figure 6. Natural, Cultural and Historical Resources

ATTACHMENT 2: TOPOGRAPHIC MAP

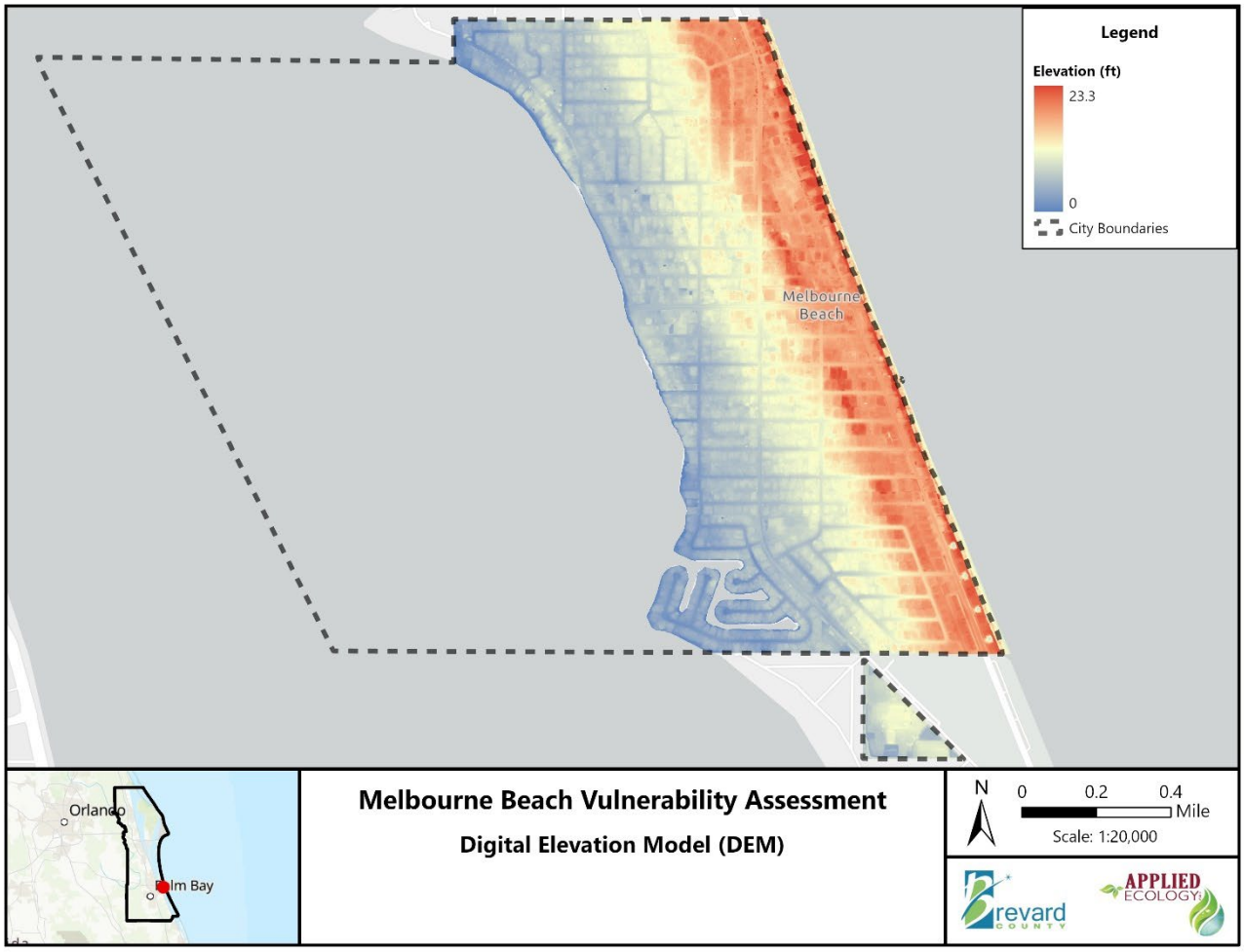

Figure 1. Digital Elevation Model showing Topography of the Town of Melbourne Beach

ATTACHMENT 3: FLOOD RISK SCENARIO MATRIX

Table 1. Flood Risk Scenario Matrix

Flood Risk Scenario	Return Period	Planning Horizon	SLR Projection
Coastal Tidal Flooding	N/A	Current	N/A
		2050	Intermediate-Low
			Intermediate
		2080	Intermediate-Low
			Intermediate
Storm Surge Flooding	20-Year	Current	N/A
		2050	Intermediate-Low
			Intermediate
		2080	Intermediate-Low
			Intermediate
	100-Year	Current	N/A
		2050	Intermediate-Low
			Intermediate
		2080	Intermediate-Low
			Intermediate
	500-Year	Current	N/A
Rainfall-Induced Flooding (Depth in inches)	20-Year	Current	N/A
		2050	Intermediate-Low
			Intermediate
		2080	Intermediate-Low
			Intermediate
	100-Year	Current	N/A
		2050	Intermediate-Low
			Intermediate
		2080	Intermediate-Low
			Intermediate
	500 - Year	Current	N/A