



Ms. Corey Miles, Coastal Management Officer

December 8, 2023

Town of Scituate  
600 Chief Justice Cushing Highway  
Scituate, MA 02066

Re: Cole Parkway Resilient Design and Engineering  
**Project Understanding Memo**

Ms. Miles,

Collins Engineers, Inc. (Collins) has prepared the following memorandum regarding the Cole Parkway Resilient Design and Engineering project (the Project), demonstrating Collins' understanding of the project and summarizing the primary project objectives of the Town and the Scituate Harbor community. This memo provides a summary of the existing site and its current uses, history of past significant flooding events, historical site improvements, key project goals, and identifies the project priorities of the community as outlined in previous stakeholder engagement initiatives.

***Site Use and Project Background***

The Town of Scituate (the Town) developed the Scituate Harbor Sustainability and Resilience Master Plan (the Master Plan) in 2020, which outlines a large-scale long-term vision to create a more resilient and inviting Scituate Harbor coastal business district through the implementation of various coastal flood barriers and site improvements. The Master Plan identifies flooding as a primary concern throughout all historic, current, and future storm planning horizons, with detailed floodplain modeling indicating that a large majority of the critical infrastructure, including public transportation routes, utility stations, local businesses, Town-owned buildings, and public assets such as parking areas, boat launches, and parks will be inundated in a present day 100-year storm, and on a more frequent basis in future years.

The Cole Parkway has been identified as an immediate focus area within the Scituate Harbor coastal business district to begin implementing flood protection barriers and improving the site's coastal resilience. This area currently consists of a public paved parking lot, a small asphalt boat launch, a precast concrete seawall, a riprap revetment, a concrete public walking path (Harborwalk) at the top of the seawall, and a linear park that spans between the seawall and the parking lot with benches, a gazebo, and other public amenities. Based on a preliminary review of historic drawings, a majority of the coastal infrastructure was constructed in the mid-1950s, indicating that many of these structures may be nearing the end of their useful service life.

Scituate Harbor is fondly referred to as "the heart of the Town", demonstrating the value this coastal business district holds for the local community. The Cole Parkway has a long history of serving as a popular destination for outdoor public events and activities throughout the summer months including the annual Scituate Heritage Days, Knights of Columbus carnival, various live music events and summer holiday gatherings. Cole Parkway also provides the primary public parking area for the downtown business district to access local businesses, restaurants, residences, marinas, and shops along Front Street, making it vital to the Harbor's economy and demonstrating the need to preserve this valuable coastal asset from current and future flood hazards.

***Historic and Current Flooding***

The Scituate Harbor coastal business district has been historically susceptible to flooding during extreme weather events which directly impacts local businesses, residences, key public assets, and other significant facilities. One of the most notable historic storms was the Great Blizzard of February 1978 which resulted in the second highest tide recorded in Boston to date, 4.82 feet higher than the mean high tide line. This storm resulted in the loss of hundreds of residences, businesses, and a majority of public and waterfront infrastructure within the coastal areas of the town, taking months to recover from.

As recently as 2018, the Parkway and surrounding Scituate Harbor coastal business district has seen this type of severe inundation when two separate winter storms battered the Town. The Blizzard of 2018 hit Scituate on January 4, 2018 and resulted in the highest recorded tides in Boston to date, 4.88 feet higher than the mean high tide line. Wave swells between 15-20 feet breached the concrete seawall, carrying ice and debris which resulted in significant flooding within the coastal areas of the Town. Two months later, another nor'easter,



**Photo 1: Flooding in Cole Parkway during Winter Storm Riley (photo from The Weather Channel)**

Winter Storm Riley, hit between March 2 and 4, causing record flooding throughout the Massachusetts coastline nearly 4.5 feet above the high tide line. Cole Parkway sustained substantial damage from the stillwater flood elevations combined with breaking waves that submerged the entire parking lot under several feet of water (see Photo 1) and extended inland to Front Street, remaining flooded for nearly a week before the water fully receded. These two winter storms in 2018 resulted in power outages, a multitude of insurance claims, millions of dollars in damage, and an urgent need to develop storm hardening structures to protect the district from similar future storms.

In addition to storm-driven coastal flooding concerns, the parking lot at Cole Parkway has been partially inundated during higher high tides when existing drainage outfall outlets that extend through the seawall are submerged under the tides. During these tides, seawater backflows through the existing stormwater outlet pipes and fills the catch basins, causing the water to surface through the catch basin grates and flood the parking lot until the tide recedes. This flooding can render portions of the parking lot unusable and interferes with traffic flow throughout the Parkway during these times. These nuisance flooding events are only predicted to become more frequent and result in more widespread flooding as sea levels rise in the coming years.

***Historic Plans/Licenses***

The history on the site's infrastructure can be interpreted from the existing historical documents and regulatory licenses that were provided with the RFQ, obtained from publicly available environmental permitting agencies, and provided by the Town of Scituate. Based on our understanding of the site, the footprint of Cole Parkway consisted of a natural shoreline with tidal flats and marshlands until approximately 1926, when a timber bulkhead was installed approximately ±200 feet seaward of the original shoreline. The inland area between the existing shoreline and the bulkhead was filled with dredged material from the Scituate Harbor channel to create a public park, as licensed under Chapter 91 License No. 681, which supersedes License No. 626.

Cole Parkway was expanded again in the mid- to late-1950s with the construction of a concrete seawall east of the 1926 bulkhead, which expanded the footprint to its present-day size. According to the 1954 historical plans, this was comprised of a series of curved precast concrete blocks with a stone revetment at the toe extending out into Scituate Harbor. This significantly expanded the Cole Parkway and a large volume of fill was placed between the existing bulkhead and the new seawall with a new pedestrian walkway installed along the top of the seawall. The paved parking area was reconfigured in 1987 to create a more navigable traffic pattern and included parking space layout updates, installation of drainage infrastructure, pedestrian walkway improvements, and plantings including trees and other vegetation to create more green space within the Parkway. In more recent years, other more minor site improvements have taken place including the construction of the gazebo, several gardens, memorial stones, benches, and decorative sculptures throughout the park.

The most recent project within the Parkway was a Town of Scituate Marina enhancement project which included a full replacement of all floating docks and utility stations, the construction of an ADA accessible gangway to the floating docks, and the construction of a pile supported fixed pier next to the Harbormaster's office circa 2020 (MassDEP Division of Waterways License No. 14790). Repairs to deteriorated areas of the concrete seawall including cracking and spalling were also permitted under this license, but it's unclear if seawall repairs were completed. Based on discussions with the Town, a separate project is currently underway to repair cracks and spalls throughout the concrete seawall.

### ***Project Goals***

The primary goal for the project is to provide flood protection from coastal threats of sea level rise and storm surge through the development of a flood protection barrier around the perimeter of Cole Parkway. The project will serve as the "resiliency pilot area" and first of many future projects to create a more resilient Scituate Harbor, strengthening the economic vitality of the downtown coastal business district and improving the Town's already popular community attractions. In addition to the resiliency improvements, this project will also include various site improvements to upgrade the existing public infrastructure including stormwater conveyance, public parking and roadways, and park areas.

Current and future design storms will be evaluated to gain an understanding of the types of impacts and flood elevations these coastal hazards will have on Cole Parkway. The data and modeling developed during the early stages of the project will be used to inform the progression of the conceptual alternatives and assist the Town in determining the desired level of protection from coastal storms and the design flood elevation for proposed flood protection structures. The project will also evaluate the impact to adjacent properties due to the proposed flood protection structures within Cole Parkway, and identify measures to alleviate potential negative impacts in other areas of the Scituate Harbor district impacted by wave reflection from the proposed structure.

Throughout the course of the project, other design elements will be integrated into the proposed alternatives to enhance existing public assets, including reconfiguring the parking lot layout with minimal impacts to the number of existing parking spaces in an effort to better circulate traffic throughout the Parkway, creating a safer layout for pedestrians, and developing areas of green space to break up the large expanses of paved areas. The existing drainage infrastructure will be evaluated to determine ways that stormwater can be better captured and treated prior to discharging into Scituate Harbor. Non-structural BMP solutions including drainage swales and rain gardens will be evaluated to integrate more landscaped areas into the site. Alternative options for inland sustainable and resilient solutions will also be considered, including a solar powered

microgrid system to supply power to the Cole Parkway area and Town of Scituate Marina, and landscaping throughout the parking lot to reduce the heat effect of pavement during the warmer months. Alternatives to enhance the existing harborwalk and linear park at Cole Parkway will be evaluated to ensure that these areas remain inviting and accessible to pedestrians and bicyclists.

The project will help generate flood/storm design parameters and public feedback on alternatives that can be referenced in the future as more resiliency projects are designed within other areas of the Scituate Harbor coastal business district in coming years. The preferred alternative is anticipated to increase community gathering and provide a functional, durable, and inviting site for the public to reinforce Scituate Harbor as the heart of the Town.

**Community Priorities**

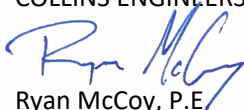
The Master Plan prepared in 2020 summarized three alternative solutions for improving coastal resiliency and flood protection that were presented to the Scituate community, project stakeholders, and members of the Town. Alternative A “Close the Mouth” consists of constructing a perimeter of flood defenses at the mouth of the Harbor to provide coastal storm protection in areas farther offshore in the form of a hurricane barrier and breakwater; Alternative B “Lift the Edge” includes increasing the elevation of the edge of the coast where it meets the water such as raising the existing elevations of existing seawalls, bulkheads, or revetments, or elevating a waterfront sidewalk to serve as a raised flood barrier; and Alternative C “Floodproofing with Infrastructure” includes providing storm hardening barriers by increasing the elevation of inland areas through construction of new waterfront parks/infrastructure all throughout the coast of the Scituate Harbor coastal business district.

These alternatives were ranked according to criteria such as estimated acreage of flood protection, impacts on public parking areas, ability to enhance civic gathering, preliminary engineering design and construction cost estimates, maintenance cost implications, and approximate construction schedules. After considering this criterion, the highest regarded alternative amongst the community was Alternative B.

In addition to flooding concerns, the Scituate Harbor community has identified several features that should be protected and preserved to the greatest extent practicable. Cole Parkway is centrally located within Scituate Harbor and provides the majority of public parking to the local community to access the downtown areas of the district. As conceptual designs are developed it will be critical to maximize or maintain the number of existing parking spaces and streamline the traffic flow within the site to preserve this valuable public parking area. Additionally, the memorial trees, bricks, community gardens, and dedicated sculptures carry significance for members of the public and must be carefully considered as alternatives are developed to preserve these features to maintain the community value of this area.

We trust that this Project Understanding Memo meets your needs at this time. Please do not hesitate to reach out to us with any questions or concerns.

Respectfully,  
COLLINS ENGINEERS, INC.



Ryan McCoy, P.E.  
Project Manager



Allison Gilmore, P.E.  
Deputy Project Manager