

DCR PARKWAYS FLOOD RESILIENCE ADAPTATION STRATEGIES

QUINCY SHORE DRIVE

JUNE 2026

EXECUTIVE SUMMARY

This report presents a feasibility-level evaluation of potential flood resilience adaptation strategies for Quincy Shore Drive - a highly vulnerable coastal parkway managed by the Massachusetts Department of Conservation and Recreation (DCR), within the larger Quincy Shores Reservation. Building on the findings of the 2025 DCR Parkway Climate Vulnerability Assessment (CCVA) and the 2020 DCR Parkway Master Plan, the study examines how a range of shoreline, roadway, and inland interventions could reduce exposure to coastal and precipitation-driven flooding projected through the 2070 design horizon. Quincy Shore Drive (the Parkway) was identified as a high-vulnerability corridor due to its low elevation, proximity to Quincy Bay and Blacks Creek, constrained right-of-way, and its dual role as the primary access for Wollaston Beach, Caddy Memorial Park, and nearby Moswetuset Hummock, but also as a local commuter route. The Parkway itself is listed as a Historic District in the National Register, and there are historic resources throughout and adjacent to the Parkway. This historic nature amplifies the need to establish adaptation strategies that best preserves these significant elements.

The strategies include structural, nature-based, and hybrid approaches to coastal resilience that are intentionally illustrative rather than prescriptive and are intended to inform future decision-making, stakeholder engagement, and capital planning. Strategies were evaluated at a conceptual level to determine viability, considering physical space limitations, environmental resources, land ownership, regulatory requirements, and operational needs. High-level cross sections were developed at representative locations across four (4) regions to show how strategies might be implemented and how they interact with real-world constraints. A key component of the analysis is the exploration of how potential reductions in roadway lane capacity and on-street parking could influence the type, scale, and spatial feasibility of adaptation measures. By testing scenarios that maintain existing vehicular capacity alongside alternatives that reduce travel lanes and/or parking, the study demonstrates how reallocating right-of-way can enable more robust flood protection, expanded multimodal facilities, increased ecological buffers, and reduced impervious surface area.

Due to the presence of piping plover and their associated habitat along Wollaston Beach, coordination with MassWildlife’s Natural Heritage & Endangered Speics Program is recommended during the next stages of project development. Strategies considered will need to implement best management practices to avoid impacts to shorebirds and improve long-term habitat value.

The scope of this study did not include a traffic analysis, and as such, a full traffic operations analysis will be required in a future project phase to determine the viability and potential impacts of considered lane reductions and parkway reconfigurations. The Massachusetts Coastal Flood Risk Model (MC-FRM) was utilized to establish a preliminary design flood elevation (DFE) for the 2070 1% storm event. It is recommended that site specific coastal modeling, in addition to hydrology and hydraulics analysis, be performed in a future phase of project development. This analysis, in conjunction with establishing targeted performance criteria with DCR and stakeholders, will help to quantify the effectiveness of proposed strategies.

Region 1, between Neponset Avenue and East Squantum Street, is highly constrained by adjacent, private land use and right-of-way limitations. With the area not being directly exposed to open coastline, the focus of flood resilience strategies in this region is on increasing stormwater storage and conveyance capacity via a combination of bioswales, subsurface detention systems, increased pipe sizes, new discharge pipes, and backwater measures. Separating the contribution of stormwater from City of Quincy municipal system should also be considered.

Region 2, between East Squantum Street and Billings Street, includes areas with existing parkland and seawalls where modest shoreline reconfiguration is feasible. Strategies in this region emphasize berms, revetments, and elevated promenades that improve coastal protection and recreational access while largely retaining existing roadway geometry. Options illustrate how maintaining full vehicular capacity limits the extent of inland resilience measures and multimodal improvements.

Region 3, between Billings Street and Fenno Street, presents greater flexibility and includes several options that explicitly test parking reductions and selective lane reconfigurations. Adaptation strategies in this region incorporate constructed dunes, beach nourishment, elevated shared-use paths, and new seawalls. More transformative options demonstrate how reducing parking or travel lanes can enable wider ecological buffers, dedicated bicycle facilities, and expanded pedestrian space, while still preserving essential access and views.

Region 4, between Fenno Street and Furnace Brook Parkway, adjacent to Blacks Creek and sensitive marshland, evaluates the most comprehensive adaptations. Strategies range from fortified revetments and berms to roadway elevation and lane reductions. Options that reduce vehicular capacity illustrate opportunities to elevate the roadway above design flood elevations, integrate stormwater improvements, enhance creek-side protection, and significantly expand multimodal and recreational amenities. For strategies that involve raising the Parkway, modifications to or reconstruction of the Sgt. Phillip Greenberg Memorial Bridge to a higher elevation should be considered to provide continuous flood resilience through to the southern limits of the Parkway. Repairs or replacement of the tide gates at the bridge should also be considered to offer control of potential flood waters from entering Blacks Creek.

Across all sections, adaptation strategies were qualitatively evaluated using DCR’s eight (8) Climate Adaptation Evaluation Criteria, highlighting tradeoffs related to flood risk reduction, environmental stewardship, access, cost, and community value. Collectively, the findings reinforce that future resilience planning for Quincy Shore Drive will require context-sensitive solutions informed by community engagement, permitting viability, and detailed modeling, analysis, and design.

INTRODUCTION

This report builds directly on the findings of the **DCR Parkways CCVA**, completed in 2025, which itself builds on the 2020 DCR Parkways Master Plan. Together, these efforts identified the DCR-managed parkways that are most vulnerable to flooding in the years 2030 and 2070, based on projections for **sea level rise, storm surge, and extreme precipitation**. This report serves as a **feasibility-level evaluation of adaptation strategies at Quincy Shore Drive**, located in the City of Quincy.

Unlike the CCVA, which documented flood vulnerability and broader community context across DCR’s entire 200-mile parkway network, this report focuses solely **on evaluating the physical, spatial, and operational feasibility of potential flood resilience interventions along the corridor**.

It provides a high-level representation of multiple adaptation strategies – ranging from nature-based solutions to reinforced infrastructure – and qualitatively rates their **alignment with DCR’s Climate Adaptation Evaluation Criteria**, potential trade-offs, and spatial fit given real-world constraints. These strategies are intended to be used to inform future discussions with stakeholders, future capital planning, and project development. It is important to note that while this report includes a wide array of possible shoreline adaptations, inland adjustments, and combinations thereof, there are other potential variations and combinations of these strategies not shown, that may be preferred.

The need for this next level of analysis stems from the CCVA’s identification of **Quincy Shore Drive as among the most vulnerable DCR parkways to flooding by 2070**. Due to Quincy Shore Drive’s close proximity to dense residential neighborhoods, its roadway configuration with multiple intersections and on-street parking, and consistently high traffic volumes from people commuting to destinations north and south of the Parkway, inundation of this segment could lead to major traffic disruptions, impacts to public safety, and considerable economic losses.

The CCVA used a structured methodology to assess vulnerability, considering three (3) key indicators:

- Exposure** to coastal and stormwater flooding hazards
- Sensitivity** based on roadway characteristics (e.g., parking, transit use, flood history)
- Adaptive capacity**, or the ability to withstand and recover from damage

Each parkway segment received a vulnerability rating – low, medium, high, or very high – based on the weighted combination of these factors.

Quincy Shore Drive was assigned a high vulnerability rating due to its frequent exposure to precipitation-based and coastal flooding. This high exposure, combined with the roadway’s high sensitivity, limited adaptive capacity, and an average replacement cost of approximately \$200,000 per 100-foot segment, highlights the need for comprehensive, context-sensitive adaptation strategies that intend to enhance the parkway’s flood resilience while supporting long-term community access and operations of local business.



Aerial View of Quincy Shore Drive Project Limits

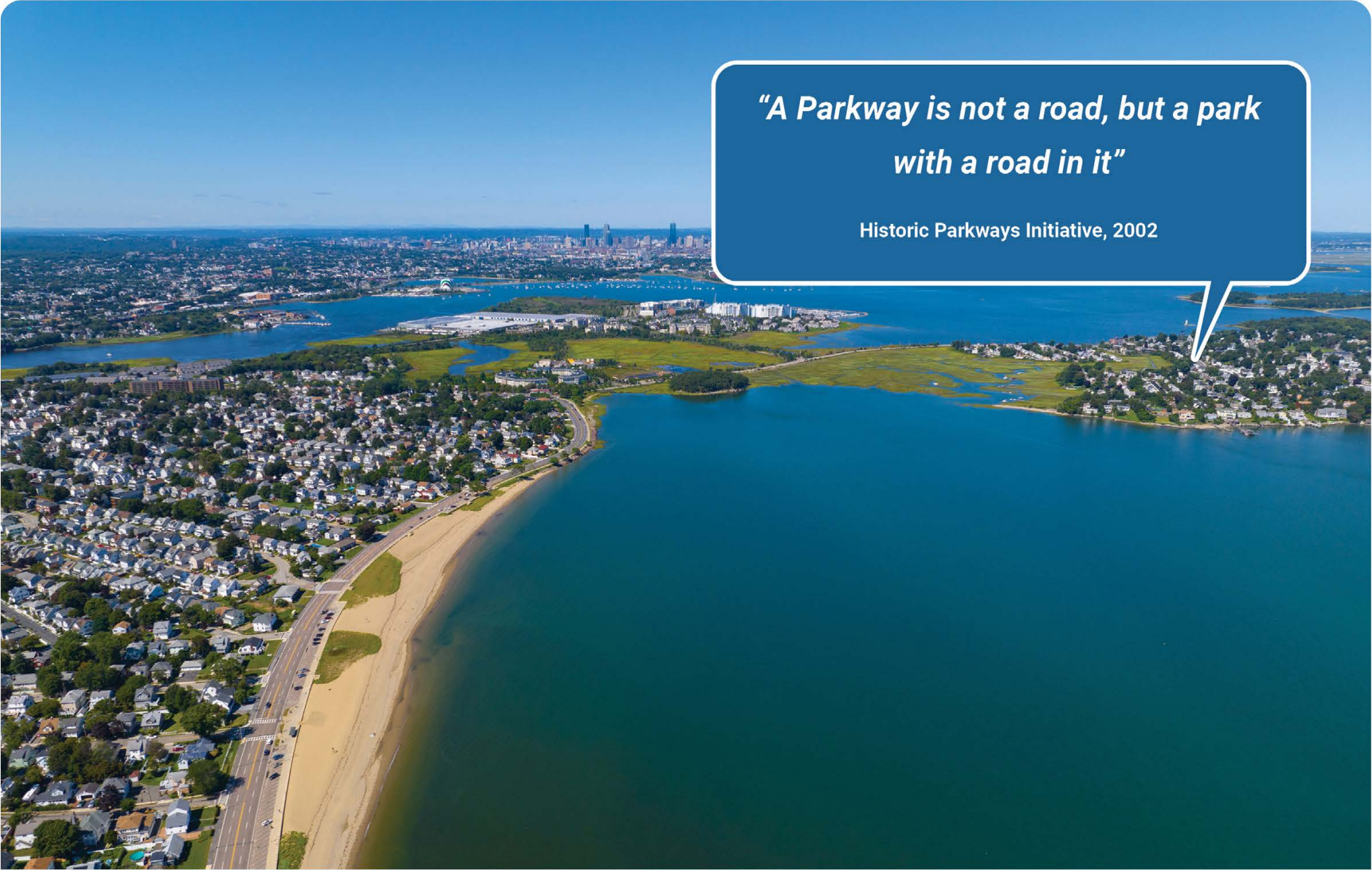
PAST, PRESENT, AND FUTURE OF DCR'S PARKWAYS

Boston’s Parkway system was designed to serve both recreational and transportation needs, with development of the Metropolitan Boston Parkway System in the late 19th century. Many of Boston’s Parkways were designed by Olmsted landscape architects, integrating into existing park landscapes, delineating park boundaries, and providing unintrusive access to parklands.

As the 20th century progressed, growing pressure to prioritize automobile traffic and access shifted the nature of the Parkways, as facilities designed to support pedestrians, cyclists, or carriages were replaced with wider highways. In 1972, Massachusetts voters passed Article 97. This amendment to the Massachusetts Constitution established a right to a clean environment, declared natural resources conservation a public purpose, and instituted a requirement for a two-thirds legislature vote to use Article 97 land for non-conservancy purposes. Many of DCR’s Parkways are classified as Article 97 land or run adjacent to Article 97 land, providing required access to natural and recreational resources protected under the Massachusetts Constitution. Conversion of more recreational Parkways to purely automotive uses was halted by the passage of Article 97, ensuring the continued function of the Parkways in the 20th century.

Today, many of DCR’s Parkways retain features that support non-automotive uses and continue to connect users to recreational spaces, amenities, and natural resources, while others more closely resemble traditional highways, functioning as critical transportation connections and, in some cases, unofficial evacuation routes. Regardless of the primary purpose of each individual Parkway, DCR's present day Parkway system serves a vital role in providing safe, accessible, multimodal transportation infrastructure throughout the Commonwealth.

Yet the 21st century has brought new challenges to the Parkway System, with coastal and precipitation-based flooding exacerbated by climate change expected to impact the operation and maintenance of many of DCR’s facilities. These Parkways were not originally designed to accommodate the volume of precipitation expected from the 1% annual chance storm event in 2070, nor were they built above the 2070 design flood elevation. The DCR



***“A Parkway is not a road, but a park
with a road in it”***

Historic Parkways Initiative, 2002

Aerial View of Quincy Shore drive Parkway.

Source: Adobe Stock

Parkways Climate Change Vulnerability Assessment (Parkways CCVA) is a comprehensive, data-driven study designed to proactively identify and address current and future flooding risks along Massachusetts’s historic

Parkways. This adaptation strategies report extends the analysis in the Parkways CCVA, identifying specific interventions that could be considered at one of DCR’s most vulnerability Parkways.

REPORT OBJECTIVES

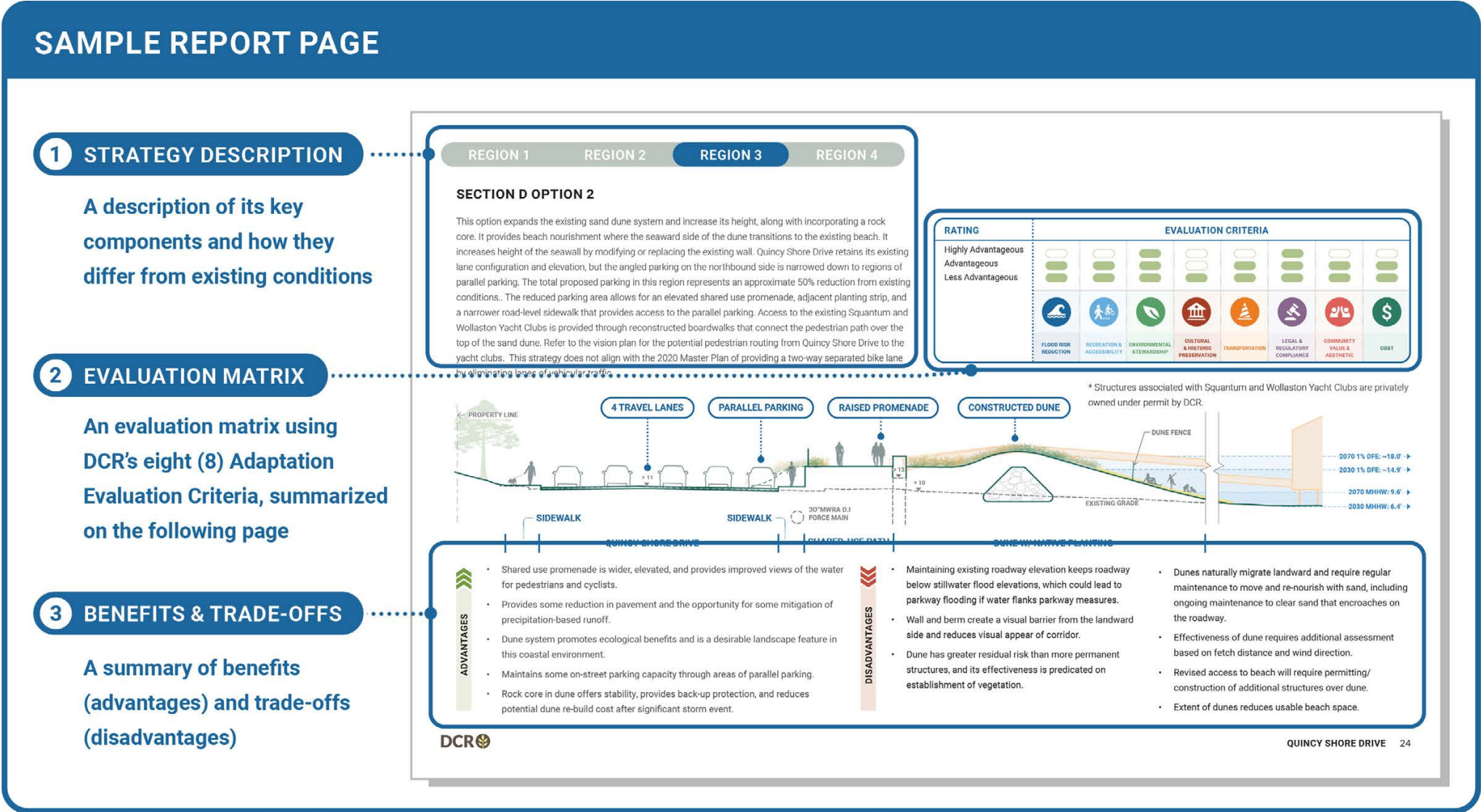
The objective of this report is to identify a diverse range of initial adaptation strategies along with possible roadway realignment plans to improve the flood resilience of the DCR Parkways, their associated infrastructure, and amenities, along Quincy Shore Drive. The strategies presented here are **preliminary in nature and provide an array of potential approaches** for mitigating flooding for both current and future storm events. They represent a starting point for DCR to begin **the process of developing performance criteria and identifying preferred strategies with input from community stakeholders and other agencies.**

For each adaptation strategy presented, **a high-level cross section** illustrates the approximate extent of proposed measures and how they may affect both DCR and non-DCR-owned land, as well as the pedestrians, cyclists, and vehicles that utilize this parkway corridor. While the goal of these strategies is focused on Quincy Shore Drive, in some instances, these strategies may provide co-benefits, such as reduced flood risks for surrounding parcels, roadways, or communities. However, these co-benefits should be considered ancillary benefits and are not evaluated in this study. Furthermore, the strategies identified in this report are **not intended to result in changes to FEMA flood maps.**

This report does not represent a comprehensive list of potential strategies; there may be variations or combinations of these strategies that are feasible but not included in this initial study. Once performance criteria and preferred strategies are established, **future phases of analysis, modeling, and design will be required** to more accurately determine effectiveness, impact, permitting viability, and cost before strategies can be implemented.

As shown on the strategy page sample to the right, each strategy is summarized on its own page and includes **a description of the strategy scope, an evaluation matrix, and a list of bulleted benefits and trade-offs**, to supplement the **high-level cross section.**

For each parkway region, a representative plan view sketch—or **vision plan**—was developed to illustrate how the parkway corridor could be reimaged by implementing one or more adaptation strategies. Similar to the cross



EVALUATION CRITERIA

To provide an initial, qualitative way to compare the wide range of adaptation strategies included in this study, a simple rating system was established based on **eight (8) Adaptation Evaluation Criteria** provided by DCR. The evaluation criteria consists of the following:

- Flood Risk Reduction
- Recreation & Accessibility
- Environmental Stewardship
- Cultural & Historic Preservation
- Transportation
- Legal & Regulatory Compliance
- Community Value & Aesthetic
- Cost

A description for each of the eight (8) criteria is shown in the table to the right.

For each strategy, a bar chart matrix was created to comprehensively rate **how well each strategy meets DCR's criteria**, from "Less Advantageous" to "More Advantageous". Please see an example below.



FLOOD RISK REDUCTION

RATING SYSTEM

- **More Advantageous** (three bars filled)
- **Advantageous** (two bars filled)
- **Less Advantageous** (one bar filled)

EVALUATION CRITERIA

Refer to the table on the right for a listing and description of each adaptation category.

EVALUATION CRITERIA		DESCRIPTION
	FLOOD RISK REDUCTION	Reduces the likelihood of parkway flooding due to storm events up to the 2070 1% annual chance flood.
	RECREATION & ACCESSIBILITY	Maintains or enhances recreational amenities and universal access (waterfront, etc.) for visitors.
	ENVIRONMENTAL STEWARDSHIP	Preserves and restores natural resources, habitat, and water quality.
	CULTURAL & HISTORIC PRESERVATION	Preserves and protects cultural and historic assets and archaeological resources.
	TRANSPORTATION	Improves transportation network by strengthening transportation alternatives, implementing traffic calming measures, and providing or improving safety for all users.
	LEGAL & REGULATORY COMPLIANCE	Considers permissibility, land ownership, and adherence to regulations.
	COMMUNITY VALUE & AESTHETIC	Considers alignment with community priorities, resources, and facilities, and preferred aesthetic character, as currently understood by DCR.
	COST	Accounts for up-front design, permitting, and construction costs, as well as ongoing maintenance and mitigation costs averaged over the life of the project.

COASTAL RESILIENCE VOCABULARY

The strategies proposed for the Quincy Shore Drive draw from a shared coastal resilience vocabulary. While each strategy is tailored to specific conditions, they aim to address the combined effects of sea level rise, storm surge, wave action, and erosion. The following terms provide a foundation understanding the critical climate risks this Parkway faces and the adaptation strategies proposed throughout this report:

SEA-LEVEL RISE (SLR)

The gradual rise of ocean levels caused by climate change. Though the current rate may seem minor (less than one inch per year), projections show a possible rise of more than 3 feet by 2070, leading to more frequent and eventually permanent areas of coastal flooding.

STORM SURGE

A temporary rise in water level during storms caused by wind and low atmospheric pressure. Nor’easters and hurricanes are primary drivers. Surge is measured as the stillwater elevation above normal tides, excluding individual wave heights.

WAVE RUN-UP

The upward rush of water from a wave striking a sloped surface. It can exceed the height of offshore waves, especially on steep or armored coastlines, and must be accounted for in vertical and horizontal design limits.

WAVE OVERTOPPING

When wave run-up exceeds the crest of a dune or wall, sending water – and often debris – over the crest and onto landward shoreline elements. This causes flooding, erosion, and dangerous flow conditions. Designs should aim to limit overtopping rates for public and structural safety.

OVERLAND WAVE ACTION

Occurs when storm generated waves move across inland areas that have been inundated by storm surge, and results in increased flood depth and velocity. These dynamic forces are to be considered in structural design to provide safety and resilience.

MEAN HIGHER HIGH WATER (MHHW)

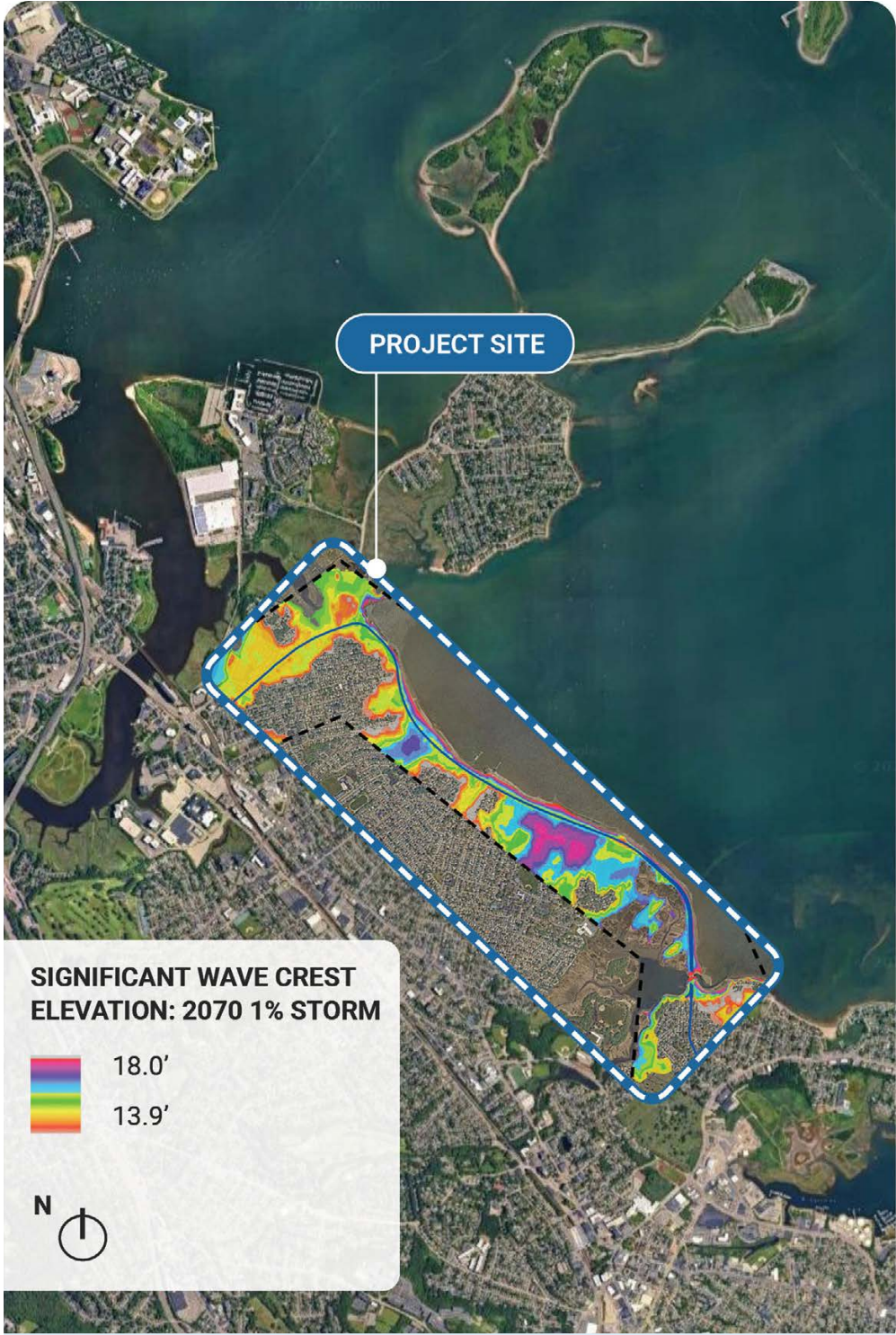
The average daily highest tide, or average of the higher high water height of each tidal day observed over the National Tidal Datum Epoch. Flood inundation typically begins when water levels exceed MHHW (from NOAA).

DESIGN FLOOD ELEVATION (DFE)

The Design Flood Elevation (DFE) represents the flood elevation used to inform the design of adaptation measures and is based on the 1% AEP Significant Wave Crest Elevation projected by the MC-FRM under future sea-level rise conditions. The DFE accounts for sea-level rise, storm surge–driven water surface elevation, and wave action. All elevations referenced in this report are relative to the NAVD88 vertical datum.

EROSION

Coastal erosion is the loss or displacement of sediment due to daily coastal conditions or storm events. Erosion can lead to the loss of embankments, structures, and other forms of infrastructure, and can worsen flooding as storms progress. Adaptation strategies must account for potential erosion and structural failure over time.



Quincy Shore Drive Project Limits with MC-FRM output of Significant Wave Crest Elevation for 2070 1% Storm

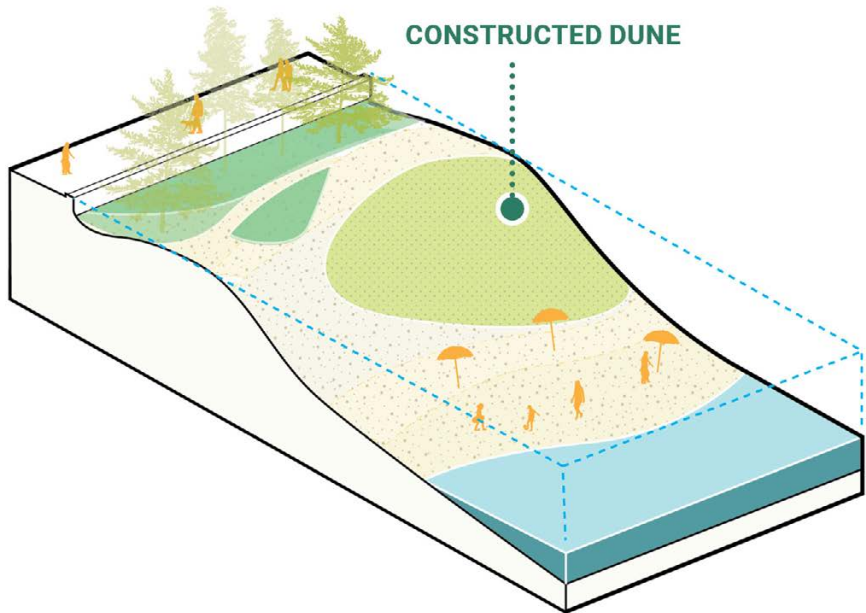
TYPES OF ADAPTATION STRATEGIES

The diagrams to the right represent the overarching adaptation strategy categories proposed for Quincy Shore Drive. Each type of strategy plays a different role in managing risk, improving resilience to flooding, and balancing infrastructure with natural systems. Understanding these elements helps clarify how different interventions work individually or in combination to build a more resilient shoreline and Parkway system.

While traditional standalone seawalls may also be considered, sloped rock revetments, vegetated dunes, and stepped walls were proposed to provide some wave energy dissipation and promote/enhance beach access where possible.

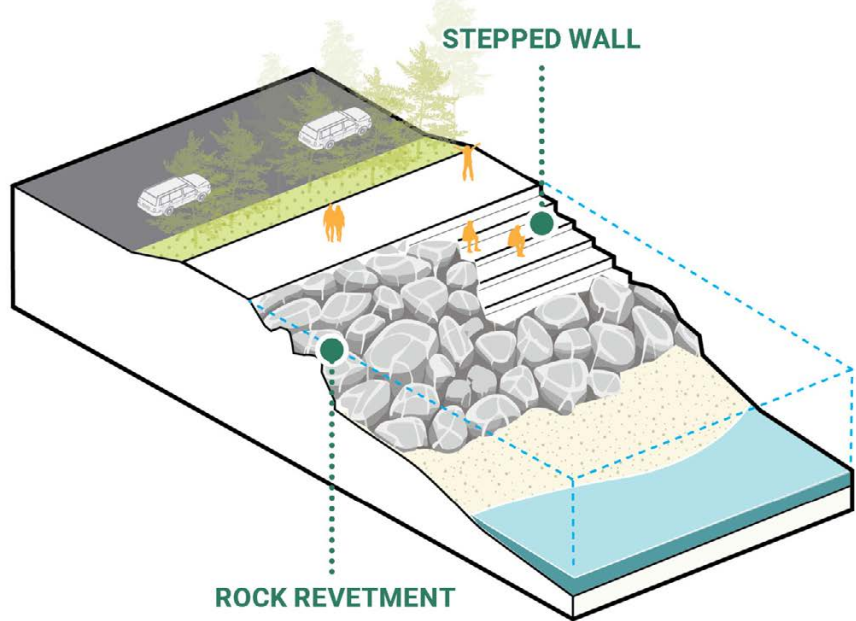
1 BEACH NOURISHMENT AND DUNES

Constructed dunes mimic the natural shoreline, providing flood protection, space for recreation, and habitat.



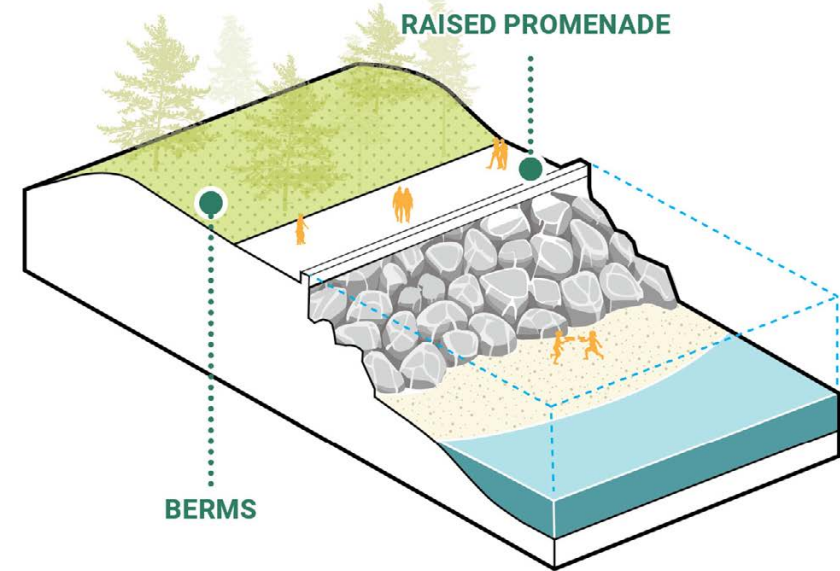
2 STEPPED SEA WALLS AND ROCK REVETMENTS

Structural measures designed to provide storm damage protection, wave energy dissipation, and flood protection.



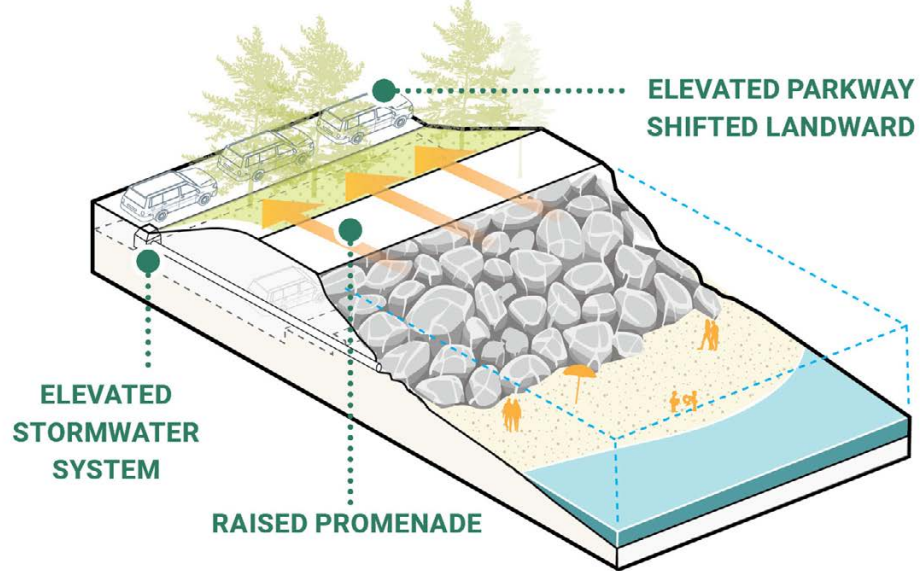
3 RAISED PROMENADES AND BERMS

Raised promenades and inland constructed berms allow for high-value amenity space along the water to also serve as flood resilience through landform and coastal planting.



4 STRATEGIC RETREAT

Strategic retreat involves relocating vulnerable infrastructure and amenities away from high-risk coastal areas. Often times, retreat is combined with other strategies to provide flood resilience.



PARKWAY CONTEXT

Quincy Shore Drive is highly exposed to precipitation-based and coastal flooding. With on-street parking and high traffic volumes, this historic road has increased sensitivity and a low adaptive capacity. The Parkway serves as a vital north-south coastal corridor that connects Squantum, Marina Bay, and Adams Shore to mainland Quincy and the City of Boston. Situated to the east of Route 3A and the Red Line, Quincy Shore Drive supports access for visitors, residents, and local businesses to and from the shoreline. It

offers residents direct, convenient access to Wollaston Beach and the adjacent shoreline, making it easy to reach the beach, yacht clubs, and scenic waterfront areas along Quincy Bay. Its continuous, well-used waterfront corridor supports walking, jogging, and casual strolling with expansive water and skyline views, reinforcing its role as a valued everyday recreational route. The Parkway has been flooded during severe storm events. While most neighborhoods in Quincy can access multiple routes for emergency

evacuation, Squantum and Marina Bay are isolated and rely on Quincy Shore Drive to access the mainland during evacuations. The frequency and severity of both storm surge submersion and wave overtopping will increase significantly by the year 2070. Enhancing Quincy Shore Drive’s resilience to storm surge, sea level rise, and extreme precipitation will protect the Parkway and its infrastructure from recurring damages and failures and enhance the ability to evacuate from the coastline.



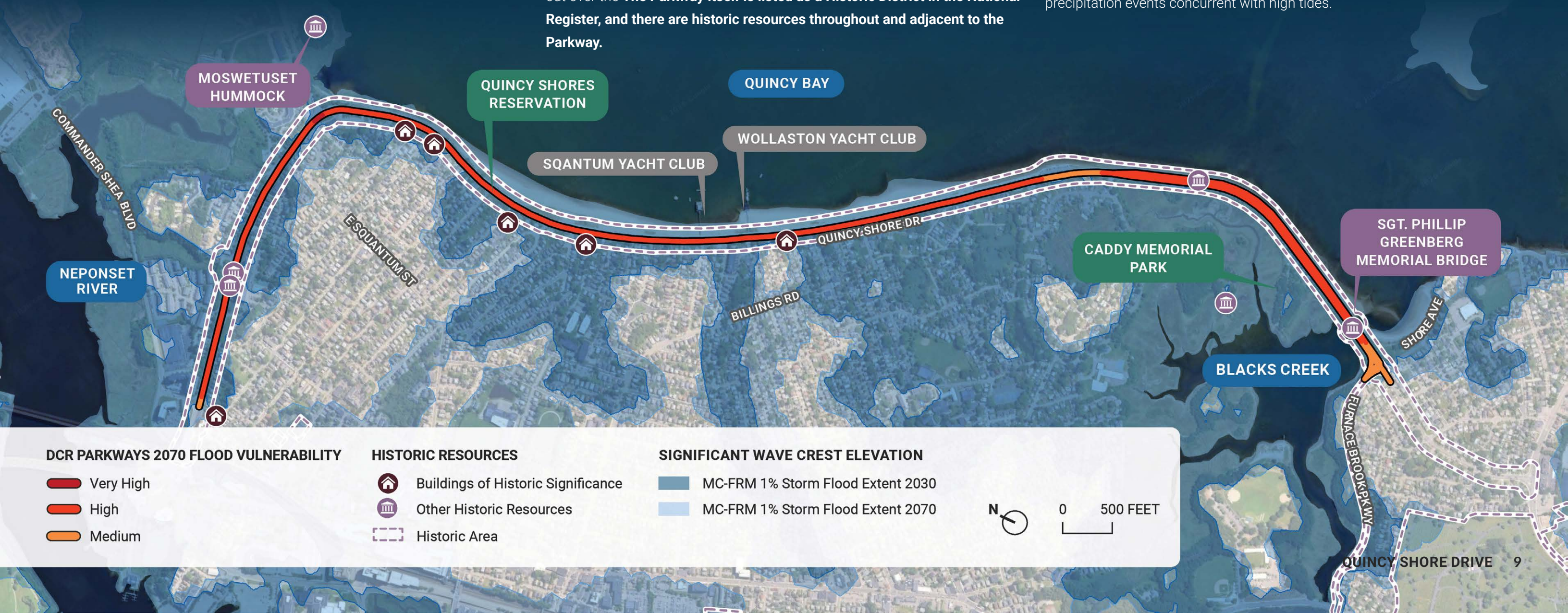
EXISTING CONDITIONS

Quincy Shore Drive is a heavily traveled coastal corridor that serves as a connection between North Quincy and major thoroughfares within the City's roadway network, while also providing primary access to Quincy Shores Reservation, which includes the Wollaston Beach, Caddy Park, and the Moswetuset Hummock recreational areas. Located between Commander Shea Boulevard and Furnace Brook Parkway, **the roadway functions as both a commuter route and a destination corridor**, supporting beachgoers, pedestrians, cyclists, and local residents throughout the year. **The proximity of the parkway to Quincy Bay and the Neponset River and its elevation, makes this segment increasingly vulnerable to flooding caused by storm surge, sea level rise, and extreme precipitation events.**

The Parkway is situated between Quincy Bay (the Bay) to the east, the Neponset River, and developed land to the north, Blacks Creek and dense residential neighborhoods to the west, and dense residential neighborhoods along Furnace Brook Parkway and Shore Ave to the south. The existing shoreline treatment along this corridor includes significant lengths of concrete seawall, which is protected by stone revetment in select areas. Areas of localized rock revetment and vegetated dunes are present on the northern and southern ends of the corridor. Landward of the shoreline, the corridor is dominated by paved roadway infrastructure, sidewalks, and parking areas. Both the Wollaston Yacht Club and the Squantum Yacht Club are accessed directly from the Parkway via timber boardwalks that extend out over the **The Parkway itself is listed as a Historic District in the National Register, and there are historic resources throughout and adjacent to the Parkway.**

Under existing conditions, portions of the roadway already experience flooding and overtopping during severe coastal storms, resulting in hazardous driving conditions and periodic lane closures. The map below includes shading that represents the extent of coastal flood risk expected for a **100-year (1% annual chance) storm for both 2030 and 2070.** In many instances along the corridor, stormwater discharge pipes for the Parkway are shared with the City of Quincy, which has resulted in **stormwater surcharges within the Parkway that further compound the flooding problems.**

Under future conditions, maintaining reliable access for daily travel, recreational use, emergency response, and evacuation will become increasingly challenging, particularly during severe storm conditions and precipitation events concurrent with high tides.



SITE CONSTRAINTS

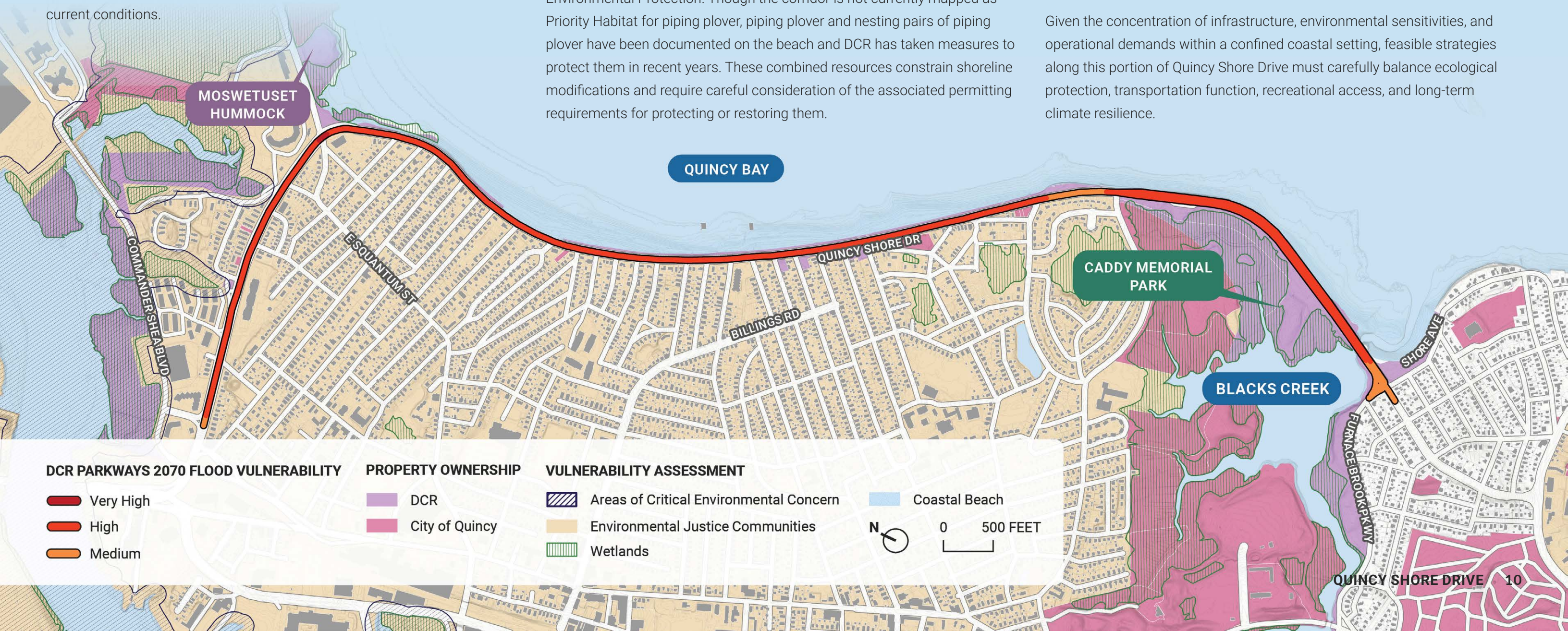
While the Quincy Shore Drive corridor presents important opportunities to improve coastal resilience and transportation reliability, it is also defined by a series of spatial, environmental, and regulatory constraints that limit where and how adaptation measures can be implemented. Between Commander Shea Blvd and East Squantum St, the Parkway is bounded by dense residential neighborhoods and some retail establishments. South of East Squantum St, the Parkway is bounded by Quincy Bay to the east. The northern portion of this stretch is bounded by dense residential neighborhoods and intersecting streets to the west while the southern portion is bounded Blacks Creek to the west. These adjacencies severely constrain the ability to alter the parkway's elevation or alignment from its current conditions.

Compared to the rest of the state, communities adjacent to Quincy Shore Drive have higher-than-average minority, low-income, and limited English-speaking populations with lower educational attainment. Historic governmental underinvestment and limited financial resources increase vulnerability to flooding while constraining residents' ability to prepare for, respond to, and recover from flood impacts.

Critical environmental resources are present within and adjacent to the corridor, including coastal beach and salt marsh, and significant portions of the parkway are located within historic tidelands, making the area subject to Chapter 91 Jurisdiction through the Massachusetts Department of Environmental Protection. Though the corridor is not currently mapped as Priority Habitat for piping plover, piping plover and nesting pairs of piping plover have been documented on the beach and DCR has taken measures to protect them in recent years. These combined resources constrain shoreline modifications and require careful consideration of the associated permitting requirements for protecting or restoring them.

Significant historic cultural resources are also located within Quincy Shores Reservation. The Caddy Park area adjacent to the Blacks Creek area along the southern portion of the corridor and Moswetuset Hummock at the northern limit of the corridor are both considered to be areas of archaeological significance. Public access and recreational use throughout the corridor present additional constraints. The corridor supports a heavily trafficked multi-use path, beach access points, parking areas, and seasonal recreational activity, all of which are highly valued by the community. The conversion of beachfront pavement to coastal resilience infrastructure that addresses coastal flooding, poses trade-offs around parking supply, peak-season capacity, and visitor access.

Given the concentration of infrastructure, environmental sensitivities, and operational demands within a confined coastal setting, feasible strategies along this portion of Quincy Shore Drive must carefully balance ecological protection, transportation function, recreational access, and long-term climate resilience.



STRATEGIES OVERVIEW

To address the various coastal, transportation, and recreational conditions along Quincy Shore Drive, climate adaptation strategies have been organized into **four distinct regions**, each with its unique shoreline conditions and physical constraints. This regional framework allows for tailored, context-sensitive approaches while ensuring that the overall vision for the corridor remains cohesive and aligned with long-term resilience objectives.

Strategies for each region **respond directly to existing uses and conditions, including commuter and recreational traffic, beach access, adjacent**

residential neighborhoods, parkland amenities, and shoreline protection infrastructure. The approach is informed by site observations, coordination with DCR and municipal staff, and a review of the **DCR's 2020 Parkways Master Plan** and the **Boston to Blue Hills planning documents**.

Based on this information gathering, several key themes emerged to guide the development of adaptation strategies across all three regions:

- The need to **maintain reliable, year-round access**
- The importance of **preserving public access to the beach and views of Quincy Bay**
- The opportunity to **address aging infrastructure while planning for future climate conditions**

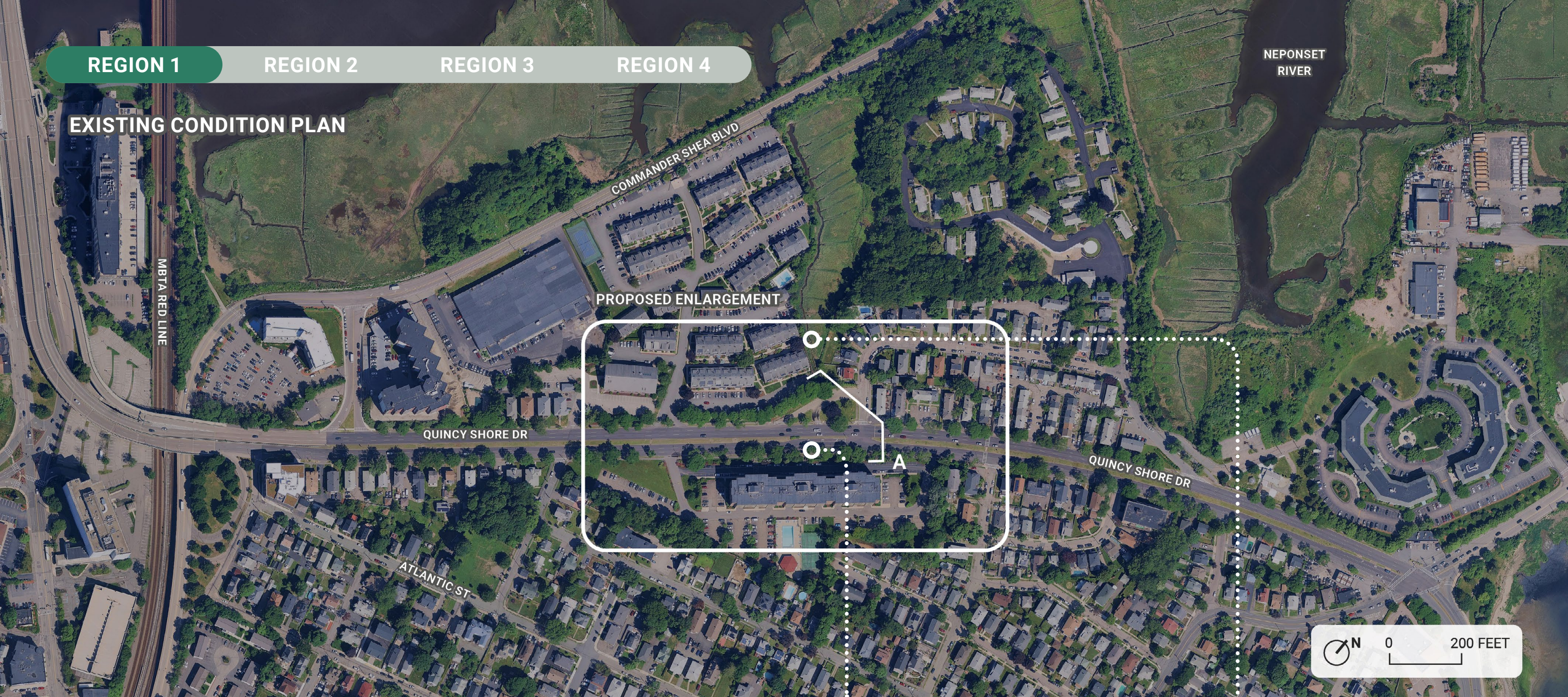
- The importance of **integrating multimodal transportation infrastructure to improve safety and accessibility** for all users

The strategies explored in the following sections are based on these themes. Each region is evaluated through plan view and representative cross sections that illustrate a high-level vision for the range of potential treatments. Strategies are assessed using **DCR's eight (8) Evaluation Criteria** for parkways to provide a consistent framework for understanding trade-offs, performance, and alignment with long-term climate resilience and operational goals across the corridor.

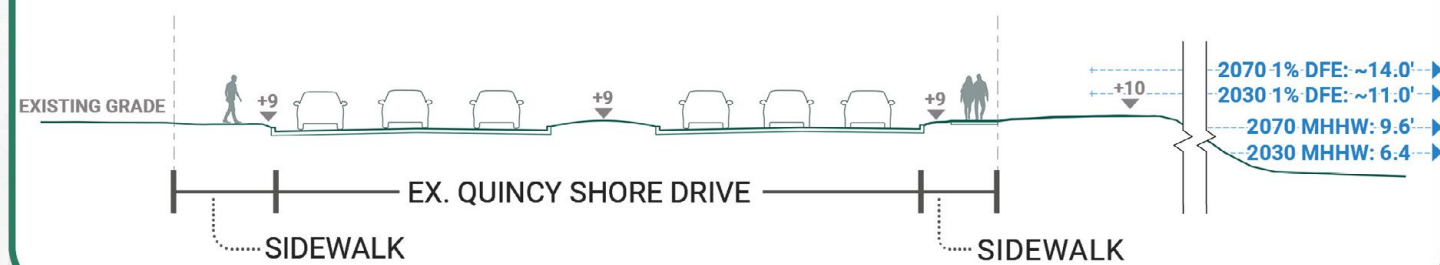


Region 1 Existing Conditions	12	Region 2 Existing Conditions	15	Region 3 Existing Conditions	21	Region 4 Existing Conditions	26
Region 1 Proposed Strategies	13	Region 2 Proposed Strategies	16	Region 3 Proposed Strategies	22	Region 4 Proposed Strategies	27
Section A (Option 1)	14	Section B (Option 1-2)	17	Section D (Option 1-3)	23	Section E (Option 1-3)	28
		Section C (Option 1-2)	19				

EXISTING CONDITION PLAN



EXISTING CROSS SECTION A



EXISTING CONDITION



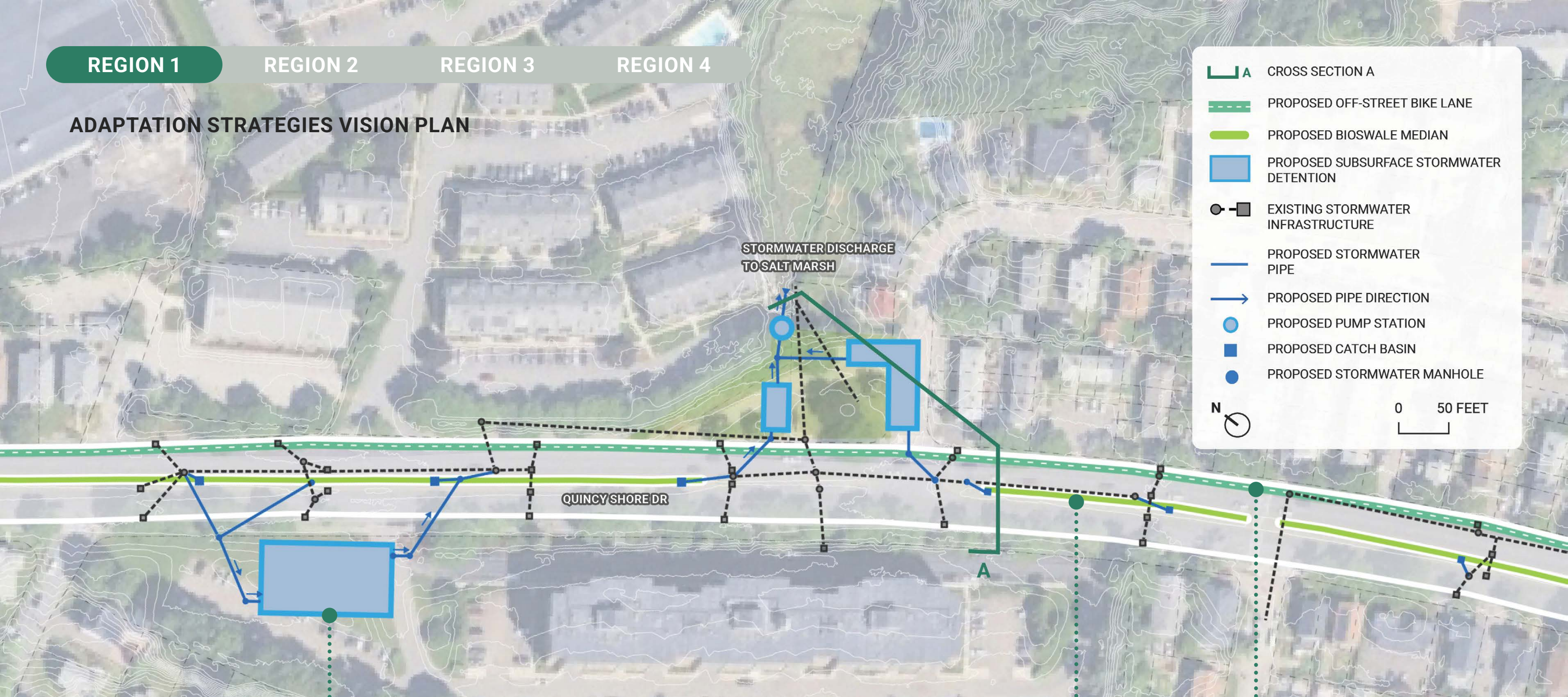
Photo along Quincy Shore Drive Looking East

EXISTING CONDITION



Photo at Bay State Road Looking North

ADAPTATION STRATEGIES VISION PLAN



Precedent Image (Source: Advance Concrete Products)



Precedent Image (Source: Boston Landscape Co.)

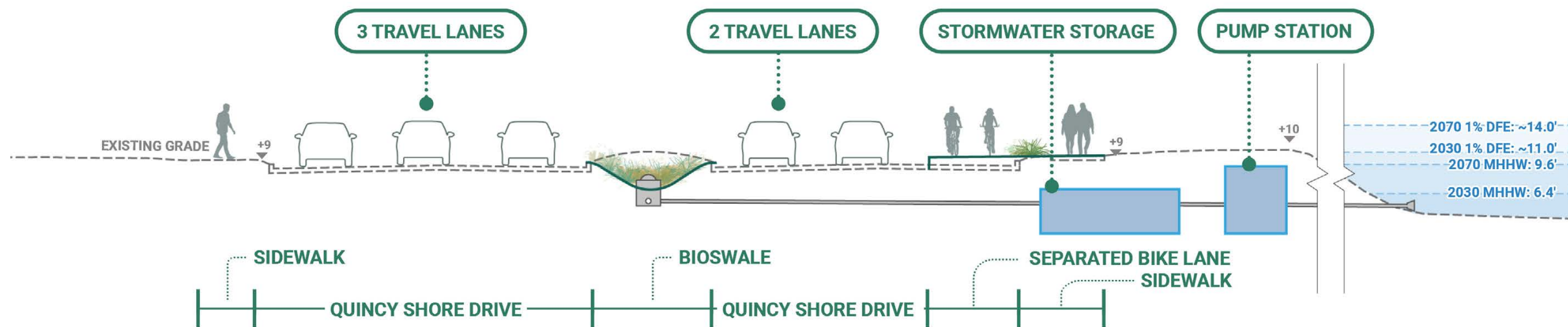


Precedent Image (Source: Stantec)

SECTION A OPTION 1

This option focuses on increasing stormwater capacity and treatment by incorporating bioswales within the Parkway median and subsurface detention (or infiltration) systems adjacent to the Parkway. These measures are intended to alleviate the current capacity issues of the stormwater conveyance system, which receives runoff contribution from the City's municipal system. The quantity and sizing of the subsurface storage system will be dependent on a determination of the contributing off-site area, groundwater depth and soil composition (for potential infiltration), and the extent of mitigation desired. Deeper storage systems will likely require pumping to discharge stormwater during high tide and storm events. Replacing existing pipes with larger diameter pipes, and adding backflow preventers should also be considered to enhance flood resilience in this region. To accommodate a dedicated 2-way bike path along the north side of the parkway for improving multi-modal access, a westbound lane reduction from three (3) to two (2) lanes will likely be required. This configuration aligns with the 2020 Master Plan. For this option and throughout the report, proposed lane reductions and/or parkway reconfigurations will require a traffic analysis to determine feasibility and potential impacts to capacity and level of service.

RATING	EVALUATION CRITERIA							
Highly Advantageous								
Advantageous								
Less Advantageous								
	FLOOD RISK REDUCTION	RECREATION & ACCESSIBILITY	ENVIRONMENTAL STEWARDSHIP	CULTURAL & HISTORIC PRESERVATION	TRANSPORTATION	LEGAL & REGULATORY COMPLIANCE	COMMUNITY VALUE & AESTHETIC	COST



*Parkway raising is not feasible in this region due to development adjacencies and direct connections from municipal streets and private driveways. Strategies beyond the purview of this study that would involve coordination with other entities could potentially consist of walls or road raising along Commander Shea Blvd or a flood gate structure at Squantum Point to prevent storm surge from entering the Neponset River.

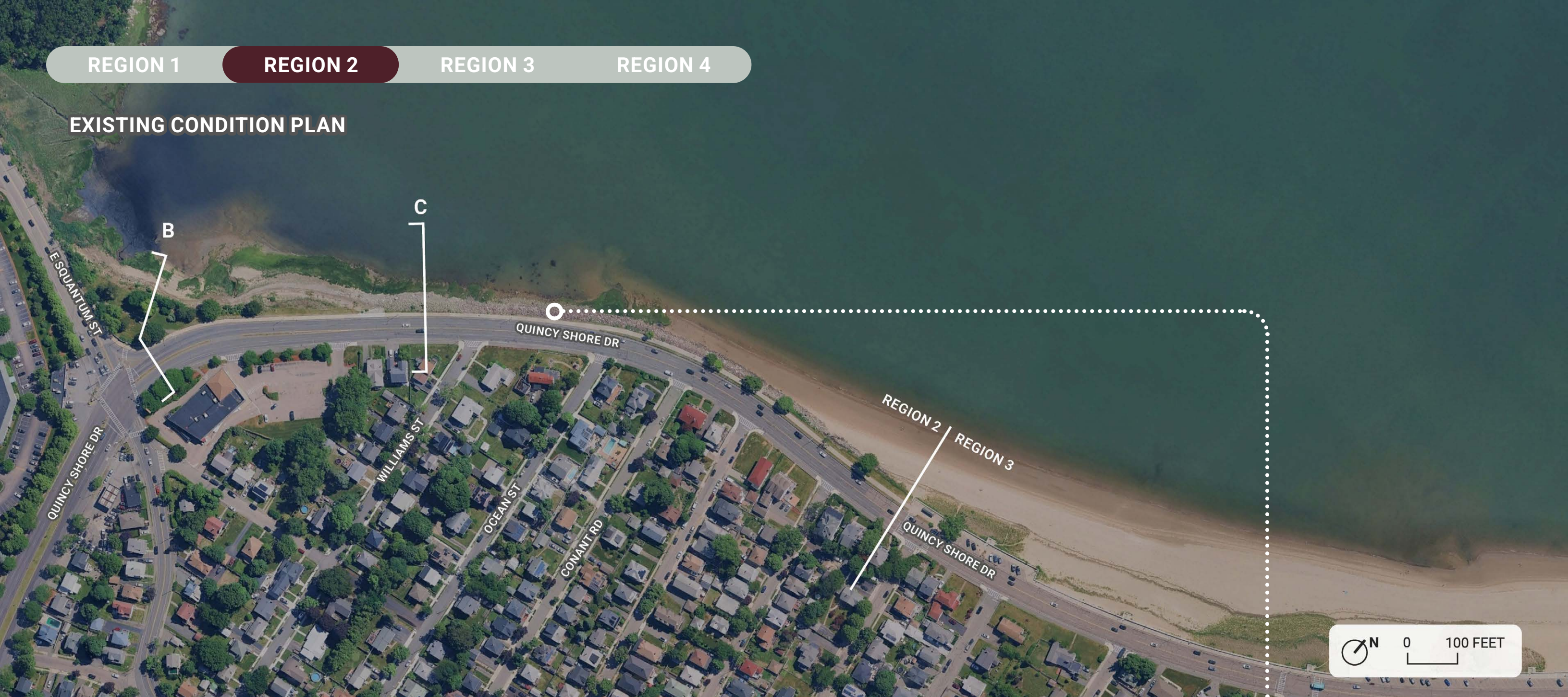
ADVANTAGES

- Subsurface detention system and bioswale increase storage capacity of DCR's stormwater conveyance system to mitigate precipitation-based flooding.
- Bioswale improves stormwater treatment and enhances parkway aesthetics.
- Provides safer, dedicated, off-street bicycle facilities to encourage multi-modal use.
- A new, dedicated DCR discharge pipe would alleviate capacity issues stemming from current shared piping with the City of Quincy.

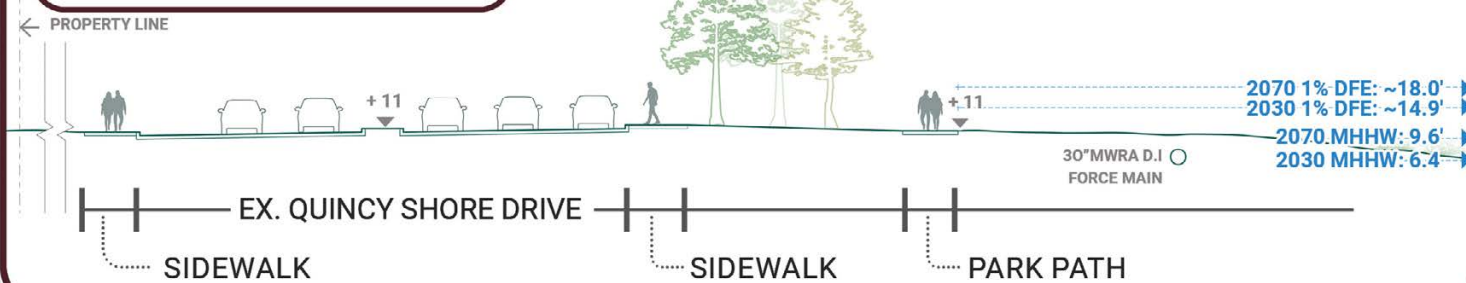
DISADVANTAGES

- Depending on the depth of the subsurface detention system, pumping may be required for discharge during certain tide or after certain storm events.
- Maintaining the existing roadway elevation keeps roadway below the design flood elevation, which could lead to coastal flooding of the parkway from the Neponset River, or if water from Quincy Bay flanks parkway resilience measures in Regions 2 - 4.
- Dedicated, off-street bicycle facilities requires lane reduction for vehicular traffic.
- Does not significantly reduce pavement.
- Stormwater elements in the median and along either side of the road may impact the historic integrity of the Parkway and put existing, mature trees at risk from root damage caused during construction

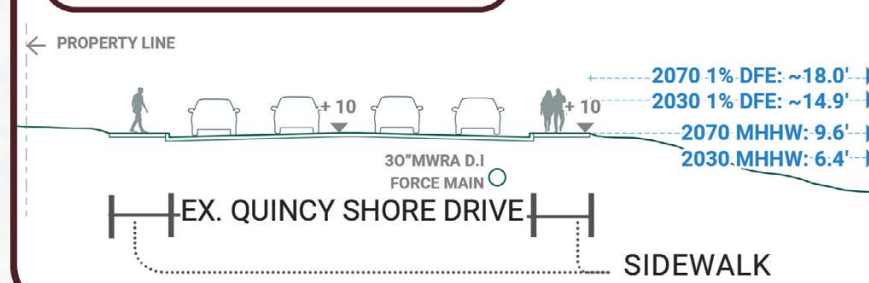
EXISTING CONDITION PLAN



EXISTING CROSS SECTION B



EXISTING CROSS SECTION C



EXISTING CONDITION



Photo at the beach looking North

ADAPTATION STRATEGIES VISION PLAN

REFLECTS OPTION 1 AT SECTION B & OPTION 2 AT SECTION C



ELEVATED OVERLOOK

Precedent Image (Source: Aspect Studios)



SALT MARSH PRESERVATION

Precedent Image (Source: The Trustees)



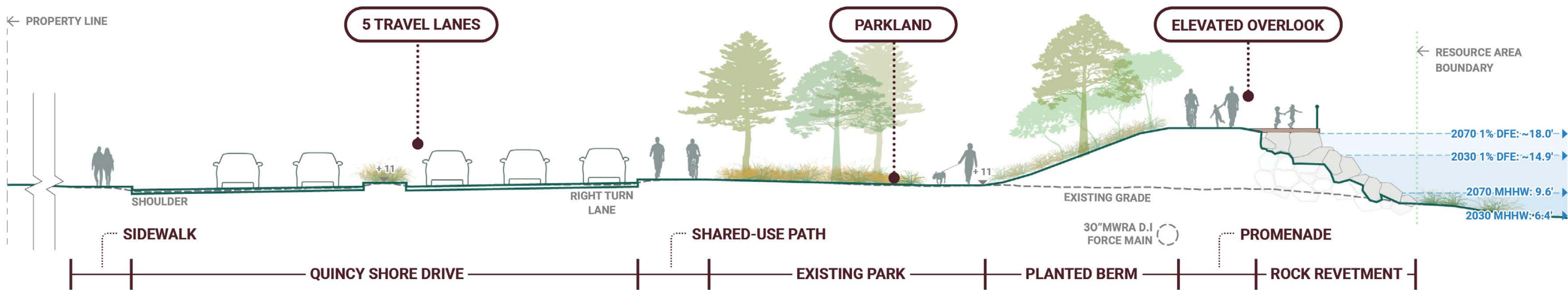
SEAWALL WITH REVETMENT

Precedent Image (Source: Brett Boardman)

SECTION B OPTION 1

In this option, an earthen berm reinforced by rock revetment is added along the shoreline, with a planted slope on the inland side transitioning the elevation back down to the existing park space. Quincy Shore Drive retains its lane configuration and elevation. To provide access to views of the water, an elevated promenade with an overlook structure are added along the top of the berm. The existing paths may require modification to accommodate the berm. Existing trees in a portion of the park are preserved. The sidewalk on the northbound side is widened to accommodate shared use with bikes, however, this does not fully align with the 2020 Master Plan of providing a two-way separated bike lane by eliminating lanes of vehicular traffic. No existing parking exists within this region and no new parking is proposed. Potential impacts to the existing salt marsh from the expanded revetment will need to be evaluated in the next phases of strategy development.

RATING	EVALUATION CRITERIA							
Highly Advantageous								
Advantageous								
Less Advantageous								



ADVANTAGES

- Offers enhanced recreation space and access closer to the water with large buffer from the vehicular traffic
- Allows for many of the existing trees closer to the roadway to remain and maintains space for future a statue/monument at the roadway elevation.
- Rock revetment requires less maintenance than dunes and stepped walls.

- Elevated shared use promenade is located above the design flood elevation.
- Requires less fill than Option 2.
- Offers more space for a shared use path along the northbound side of the parkway.
- Rock revetment provides enhanced wave energy dissipation compared to seawalls.

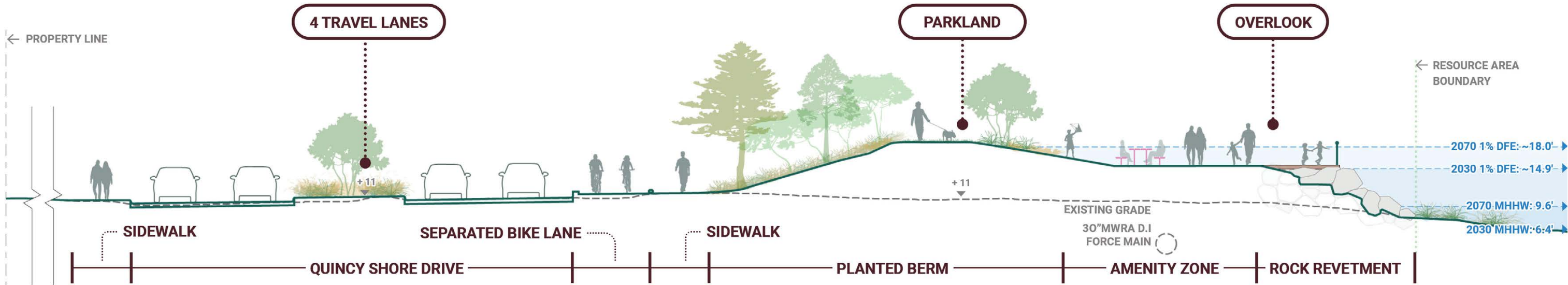
DISADVANTAGES

- Maintaining existing roadway elevation keeps roadway below the stillwater elevation, which could lead to parkway flooding if water flanks parkway measures, and may inhibit stormwater discharge during storm events without a pump station or significant subsurface storage.
- Berm creates a visual barrier from the landward side, particularly for vehicles.
- Rock revetment provides less ecological benefit than dunes.
- Does not reduce pavement or mitigate precipitation-based runoff.
- The rock revetment does not serve as an amenity feature for parkway users and will likely preclude the salt marsh from expanding landward.

SECTION B OPTION 2

In this option, the existing park space is elevated and fortified by added rock revetment on the seaward side, with a planted berm on the inland side that transitions back down to the existing sidewalk. Quincy Shore Drive retains its existing elevation, but would likely require a lane reduction to implement a dedicated, off-street bike path. Additionally, the shoulder on the southbound side is removed to allow for a widening of the historic median. The park is oriented toward the water, with the planted berm providing separation between the active portions of the park space and the roadway. To provide access to views of the water, an elevated promenade with an overlook structure that extends over a portion of the revetment. This strategy does align with the 2020 Master Plan of providing a two-way separated bike lane by eliminating lanes of vehicular traffic. No existing parking exists within this region and no new parking is proposed. Potential impacts to the existing salt marsh from the expanded revetment will need to be evaluated in the next phases of strategy development.

RATING	EVALUATION CRITERIA							
Highly Advantageous								
Advantageous								
Less Advantageous								
	FLOOD RISK REDUCTION	RECREATION & ACCESSIBILITY	ENVIRONMENTAL STEWARDSHIP	CULTURAL & HISTORIC PRESERVATION	TRANSPORTATION	LEGAL & REGULATORY COMPLIANCE	COMMUNITY VALUE & AESTHETIC	COST



- ADVANTAGES
- Expanded promenade and overlook area offers amenities and a waterfront park environment with an enhanced buffer from vehicular traffic.
 - Offers wider median for enhanced landscaping and gateway entrance to beach area.
 - Rock revetment requires less maintenance than dunes and stepped walls.
 - Encourages non-vehicular traffic with dedicated bike lanes.
 - Rock revetment provides enhanced wave energy dissipation compared to seawalls.

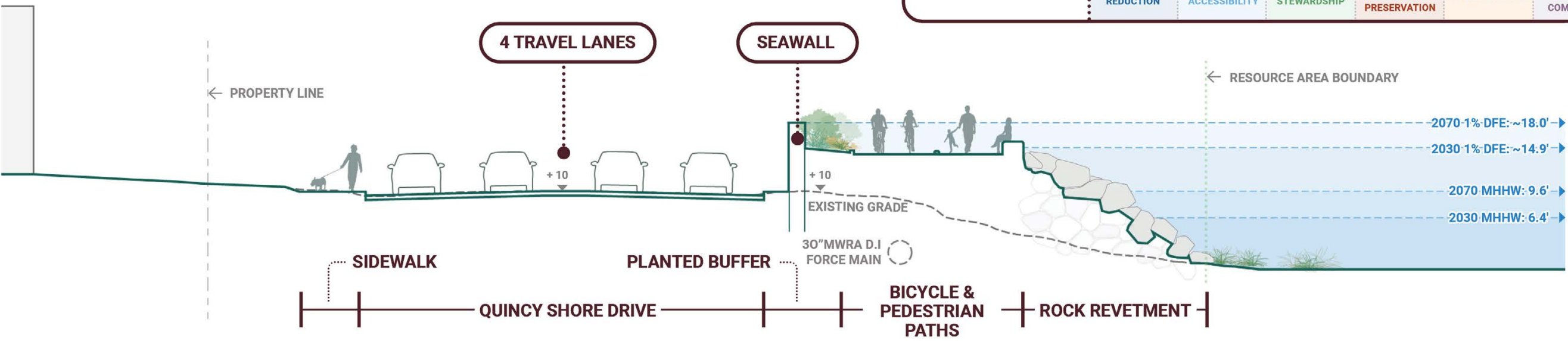
- DISADVANTAGES
- Impacts more of the existing green space and requires removal and replacement of more trees than Option 1.
 - Maintaining existing roadway elevation keeps roadway below the stillwater elevation, which could lead to parkway flooding if water flanks parkway measures, and may inhibit stormwater discharge during storm events without a pump station or significant subsurface storage.

- The programmed portion of the park space is also located below the design flood elevation, which may render the area unusable during certain storm events.
- Berm creates a visual barrier from the landward side, particularly for vehicles.
- Likely requires elimination of a dedicated right turn lane on northbound side in order to accommodate a dedicated, off-street

- bicycle path, which could reduce the level of service.
- Does not reduce pavement or mitigate precipitation-based runoff.
- The rock revetment does not serve as an amenity feature for parkway users and will likely preclude the salt marsh from expanding landward.
- Requires more imported fill than Option 1.

SECTION C OPTION 1

This option will fortify and increase the height of rock revetment, backed by a new seawall, and create an elevated shared use promenade at the crest of the revetment. It includes installation of a retaining wall between the roadway and the promenade that also acts as a seawall to provide increased flood resilience from the design flood elevation. Quincy Shore Drive retains its existing lane configuration and elevation. A planted slope gently transitions the elevation difference between the multi-use trail and the top of the seawall. This strategy does not align with the 2020 Master Plan of providing a two-way separated bike lane by eliminating lanes of vehicular traffic. No existing parking exists within this region and no new parking is proposed. Potential impacts to the existing salt marsh from the expanded revetment will need to be evaluated in the next phases of strategy development.



RATING	EVALUATION CRITERIA							
Highly Advantageous								
Advantageous								
Less Advantageous								
	FLOOD RISK REDUCTION	RECREATION & ACCESSIBILITY	ENVIRONMENTAL STEWARDSHIP	CULTURAL & HISTORIC PRESERVATION	TRANSPORTATION	LEGAL & REGULATORY COMPLIANCE	COMMUNITY VALUE & AESTHETIC	COST

ADVANTAGES

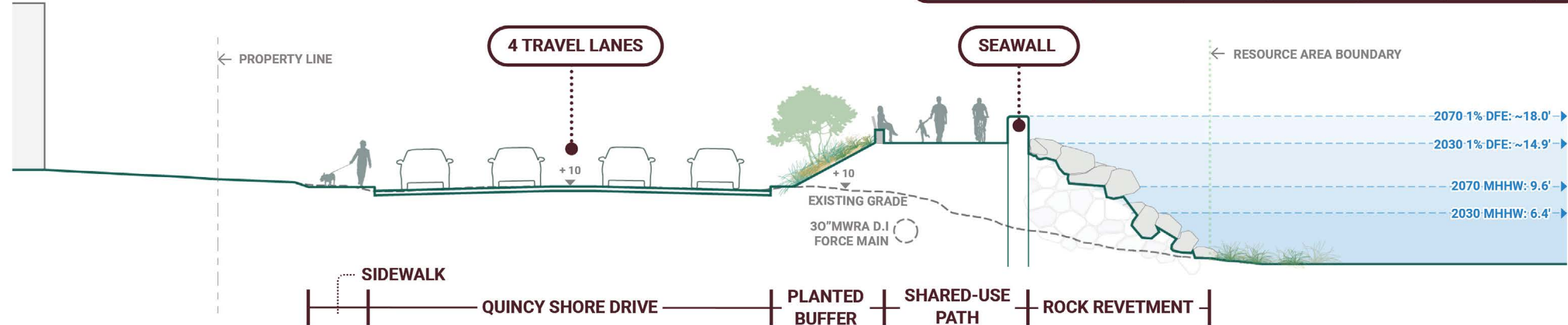
- Allows space for dedicated off-street bicycle lanes and pedestrian promenade elevated above the roadway with improved views of the water.
- Elevated bike lanes and pedestrian promenade provide improved separation from vehicular circulation on roadway.
- Expanded rock revetment can be installed over the existing revetment.
- Rock revetment requires less maintenance than dunes and stepped walls.
- Rock revetment provides enhanced wave energy dissipation compared to seawalls.

DISADVANTAGES

- Maintaining existing roadway elevation keeps roadway below stillwater and design flood elevations, which could lead to parkway flooding if water flanks or overtops parkway measures.
- Wall creates a visual barrier from the landward side and reduces visual appear of corridor.
- Rock revetment provides less ecological benefit than dunes and does not serve as an amenity feature for parkway users.
- Exposed retaining wall creates maintenance challenges and long-term cost liability.
- The revetment does not serve as an amenity feature for parkway users and may preclude the salt marsh from expanding landward.
- To keep the expanded revetment from extending beyond the existing seaward limit of revetment and to avoid a higher seawall on the seaward side, the new promenade is located below the design flood elevation, which may render the area unusable during certain storm events.
- Does not allow for raising of roadway stormwater infrastructure to improve ability to discharge during higher tides and certain storm events.

SECTION C OPTION 2

This option will fortify and increase the height of rock revetment and construct a seawall behind it. It creates an elevated shared use promenade on the landward side of the seawall that transitions back down to the roadway with a planted, gentle slope. Quincy Shore Drive retains its existing lane configuration and elevation, but the sidewalk on the northbound side is eliminated to create a wider, elevated promenade. This strategy does not fully align with the 2020 Master Plan of providing a two-way separated bike lane by eliminating lanes of vehicular traffic. No existing parking exists within this region, and no new parking is proposed. Potential impacts to the existing salt marsh from the expanded revetment will need to be evaluated in the next phases of strategy development.



RATING	EVALUATION CRITERIA							
Highly Advantageous								
Advantageous								
Less Advantageous								
	FLOOD RISK REDUCTION	RECREATION & ACCESSIBILITY	ENVIRONMENTAL STEWARDSHIP	CULTURAL & HISTORIC PRESERVATION	TRANSPORTATION	LEGAL & REGULATORY COMPLIANCE	COMMUNITY VALUE & AESTHETIC	COST

ADVANTAGES

- Vegetated slope reduces impact of the visual barrier from the landward side
- Shared use promenade is wider, elevated, and provides unobstructed views of the water and beach for pedestrians and cyclists.
- Elevated shared use promenade provides improved separation from vehicular circulation on roadway.
- Elevated shared use promenade has enhanced resilience to flooding due to seawall installation on the seaward side of the promenade when compared to Option 1.
- Expanded rock revetment can be installed over the existing revetment.
- Rock revetment requires less maintenance than dunes and walls, and provides more ecological benefit than walls.

DISADVANTAGES

- Maintaining existing roadway elevation keeps roadway below stillwater flood elevations, which could lead to parkway flooding if water flanks parkway measures.
- Elevated path creates a visual barrier from the landward side, reducing views to the water.
- Rock revetment provides less ecological benefit than dunes.
- Does not significantly reduce pavement or mitigate precipitation-based runoff.
- The rock revetment does not serve as an amenity feature for parkway users and will likely preclude the salt marsh from expanding landward.
- Does not allow for raising of roadway stormwater infrastructure to improve ability to discharge during higher tides and certain storm events.

EXISTING CONDITION PLAN

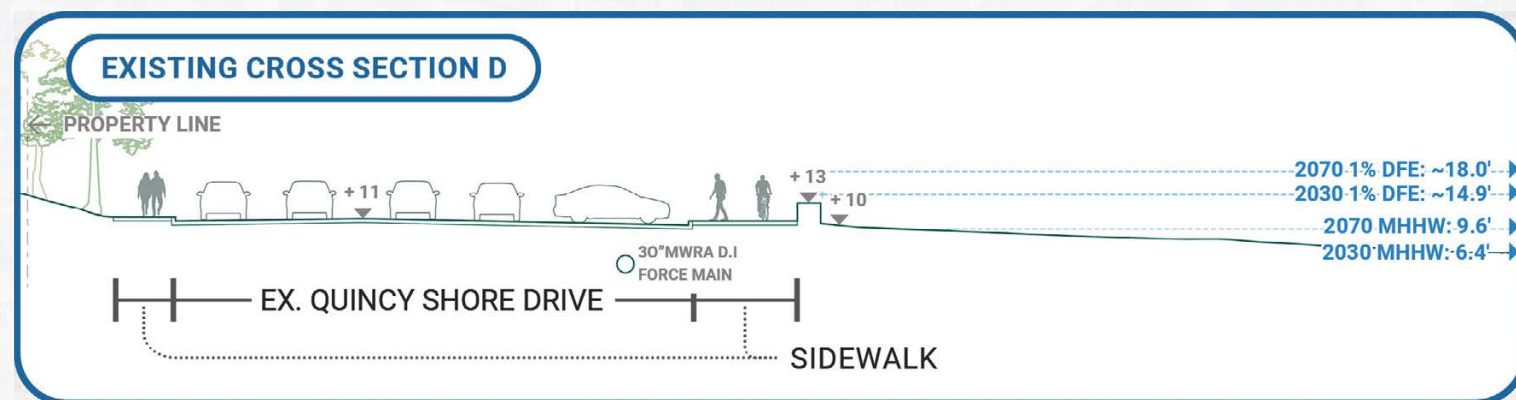


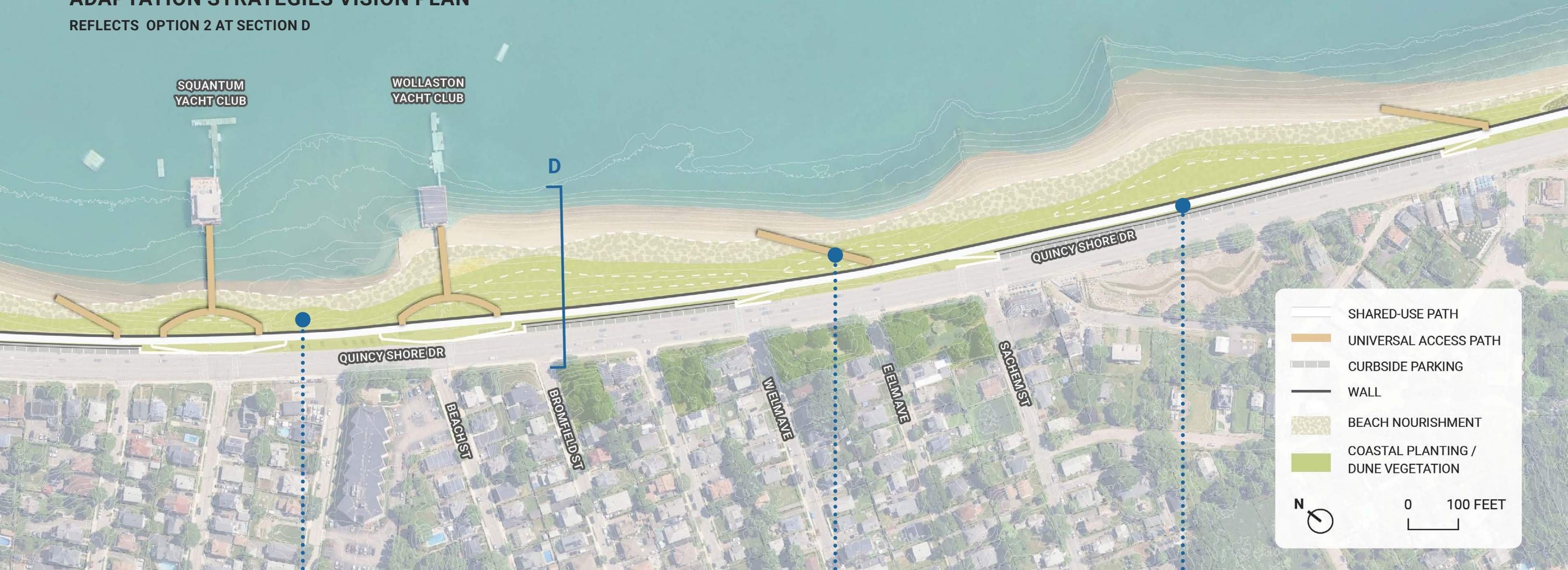
Photo along the Parkway looking North



Photo along the Parkway looking South

ADAPTATION STRATEGIES VISION PLAN

REFLECTS OPTION 2 AT SECTION D



CONSTRUCTED DUNE

Precedent Image (Source: R. Schwartz)



UNIVERSAL BEACH ACCESS PATH

Precedent Image (Source: mellowme_kids)



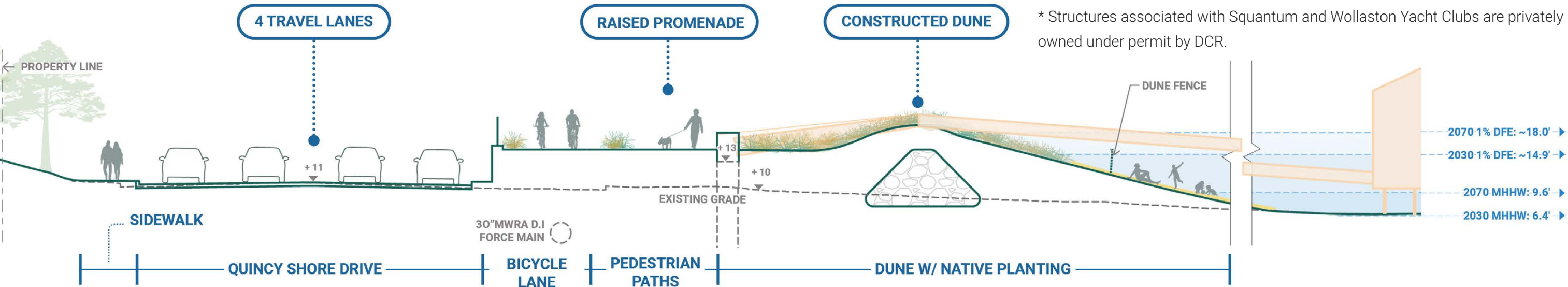
SHARED-USE PATH

Precedent Image (Source: Ty Cole/Scape)

SECTION D OPTION 1

This option expands the existing sand dune system and increase its height, along with incorporating a rock core. It provides beach nourishment where the seaward side of the dune transitions to the existing beach. It increases height of the seawall by modifying or replacing the existing wall. Quincy Shore Drive retains its lane configuration and elevation but the angled parking on the northbound side is eliminated. This allows for a dedicated, elevated bike trail in addition to a pedestrian promenade and two planting buffers. This option eliminates the road-level sidewalk and shifts all pedestrian circulation on the northbound side of the parkway to the elevated promenade. Access to the existing Squantum and Wollaston Yacht Clubs is provided through reconstructed boardwalks that connect the pedestrian path over the top of the sand dune. Refer to the vision plan for the potential pedestrian routing from Quincy Shore Drive to the yacht clubs. This strategy does generally align with the 2020 Master Plan of providing a two-way separated bike lane but without eliminating lanes of vehicular traffic.

RATING	EVALUATION CRITERIA							
Highly Advantageous								
Advantageous								
Less Advantageous								
	FLOOD RISK REDUCTION	RECREATION & ACCESSIBILITY	ENVIRONMENTAL STEWARDSHIP	CULTURAL & HISTORIC PRESERVATION	TRANSPORTATION	LEGAL & REGULATORY COMPLIANCE	COMMUNITY VALUE & AESTHETIC	COST



- ADVANTAGES
- Provides separate and dedicated bicycle path and pedestrian path that are elevated, without eliminating vehicular travel lanes.
 - Provides some reduction of pavement and the opportunity for some mitigation of precipitation-based runoff.
 - Dune system promotes ecological benefits and is a desirable landscape feature in this coastal environment.
 - Rock core in dune offers stability, provides back-up protection, and reduces potential dune re-build cost after significant storm event.

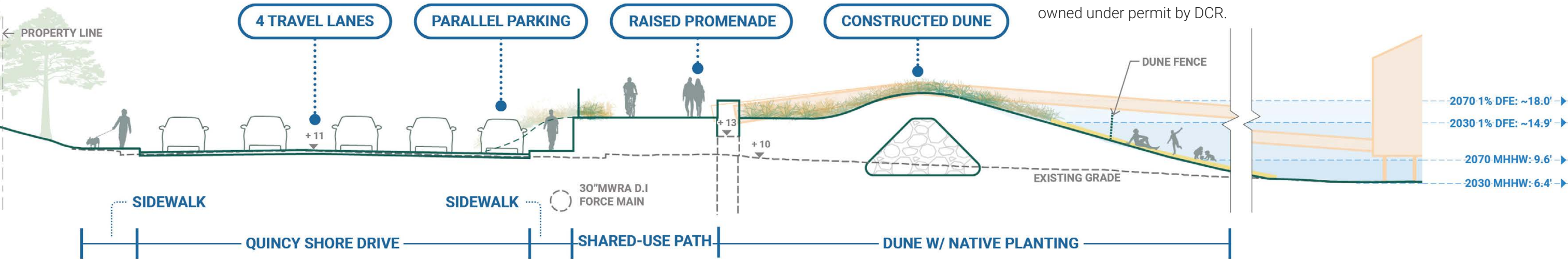
- DISADVANTAGES
- Maintaining existing roadway elevation keeps roadway below stillwater flood elevations, which could lead to parkway flooding if water flanks parkway measures.
 - Walls create a visual barrier from the landward side and reduces visual appear of corridor.
 - Street parking is eliminated.
 - Dune has greater residual risk than more permanent structures, and its effectiveness is predicated on establishment of vegetation.

- Dunes naturally migrate landward and require regular maintenance to move and re-nourish with sand, including ongoing maintenance to clear sand that encroaches on the roadway.
- Effectiveness of dune requires additional assessment based on fetch distance and wind direction.
- Revised access to beach will require permitting/construction of additional structures over dune.
- Extent of dunes reduces usable beach space.

SECTION D OPTION 2

This option expands the existing sand dune system and increase its height, along with incorporating a rock core. It provides beach nourishment where the seaward side of the dune transitions to the existing beach. It increases height of the seawall by modifying or replacing the existing wall. Quincy Shore Drive retains its existing lane configuration and elevation, but the angled parking on the northbound side is narrowed down to regions of parallel parking. The total proposed parking in this region represents an approximate 50% reduction from existing conditions.. The reduced parking area allows for an elevated shared use promenade, adjacent planting strip, and a narrower road-level sidewalk that provides access to the parallel parking. Access to the existing Quantum and Wollaston Yacht Clubs is provided through reconstructed boardwalks that connect the pedestrian path over the top of the sand dune. Refer to the vision plan for the potential pedestrian routing from Quincy Shore Drive to the yacht clubs. This strategy does not align with the 2020 Master Plan of providing a two-way separated bike lane by eliminating lanes of vehicular traffic.

RATING	EVALUATION CRITERIA							
Highly Advantageous								
Advantageous								
Less Advantageous								
	FLOOD RISK REDUCTION	RECREATION & ACCESSIBILITY	ENVIRONMENTAL STEWARDSHIP	CULTURAL & HISTORIC PRESERVATION	TRANSPORTATION	LEGAL & REGULATORY COMPLIANCE	COMMUNITY VALUE & AESTHETIC	COST



* Structures associated with Quantum and Wollaston Yacht Clubs are privately owned under permit by DCR.

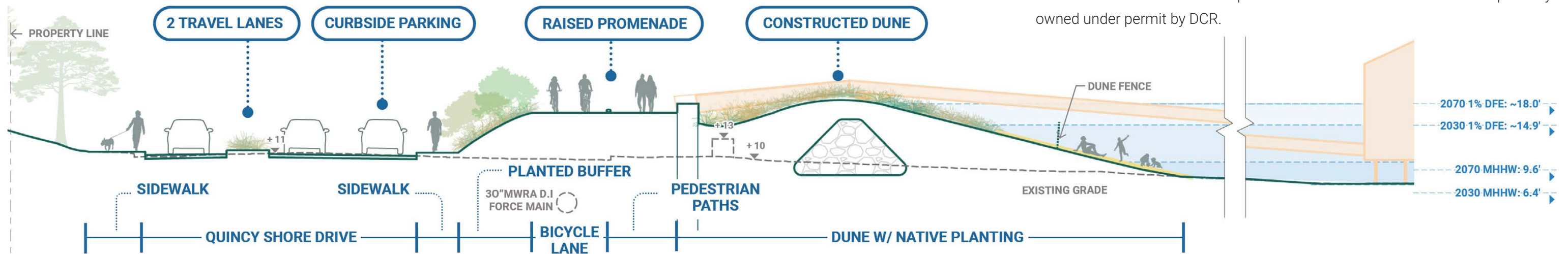
- ADVANTAGES
- Shared use promenade is wider, elevated, and provides improved views of the water for pedestrians and cyclists.
 - Provides some reduction in pavement and the opportunity for some mitigation of precipitation-based runoff.
 - Dune system promotes ecological benefits and is a desirable landscape feature in this coastal environment.
 - Maintains some on-street parking capacity through areas of parallel parking.
 - Rock core in dune offers stability, provides back-up protection, and reduces potential dune re-build cost after significant storm event.

- DISADVANTAGES
- Maintaining existing roadway elevation keeps roadway below stillwater flood elevations, which could lead to parkway flooding if water flanks parkway measures.
 - Wall and berm create a visual barrier from the landward side and reduces visual appear of corridor.
 - Dune has greater residual risk than more permanent structures, and its effectiveness is predicated on establishment of vegetation.

- Dunes naturally migrate landward and require regular maintenance to move and re-nourish with sand, including ongoing maintenance to clear sand that encroaches on the roadway.
- Effectiveness of dune requires additional assessment based on fetch distance and wind direction.
- Revised access to beach will require permitting/ construction of additional structures over dune.
- Extent of dunes reduces usable beach space.

SECTION D OPTION 3

This option expands and raises the existing sand dune system, along with incorporating a rock core. It provides beach nourishment where the seaward side of the dune transitions to the existing beach and constructs a new seawall inland of the existing wall. Quincy Shore Drive retains its overall existing traffic pattern but is reduced to one lane in each direction, separated by a planted median, and the angled parking on the northbound side is narrowed down to regions of parallel parking. The total proposed parking in this region represents an approximate 50% reduction from existing conditions. The reduced parkway configuration allows for a dedicated, elevated bicycle lane in addition to a pedestrian path with a planted slope that transitions back down to the roadway. Access to the existing Squantum and Wollaston Yacht Clubs is provided through reconstructed boardwalks that connect the pedestrian path over the top of the sand dune. This strategy generally aligns with the 2020 Master Plan of providing a two-way separated bike lane with vehicular lane reductions.



ADVANTAGES

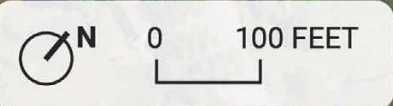
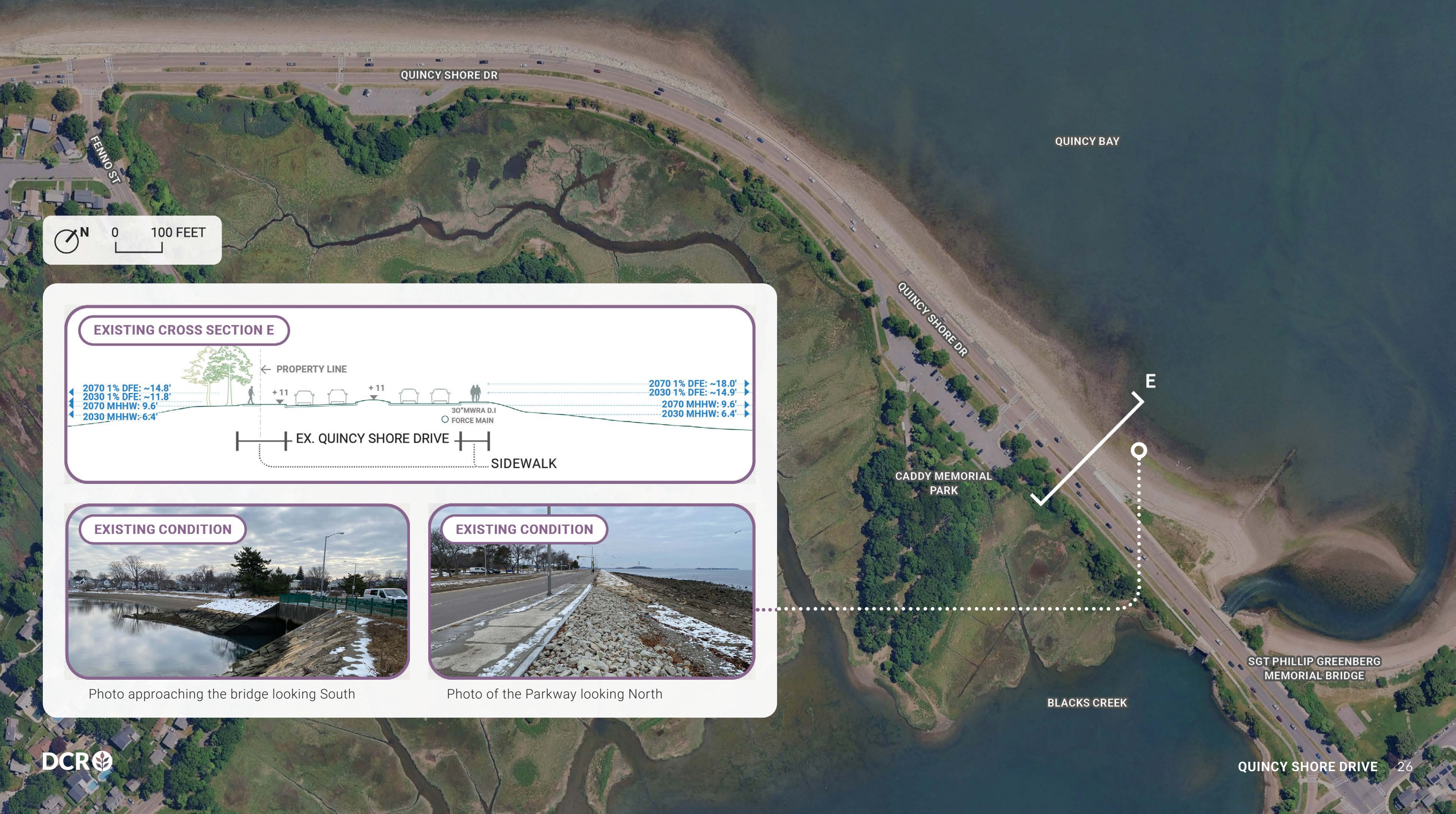
- Provides separate and dedicated bicycle path and pedestrian path that are elevated, maintaining water views and offering revised access with boardwalks or timber paths across the dunes.
- Reduced roadway and parking footprint allow for dune expansion without encroaching as far into the recreational beach zone in comparison to other options.
- Maintains some on-street parking capacity through areas of parallel parking.
- Reduces pavement and provides opportunity for some mitigation of precipitation-based runoff.
- Dune system promotes ecological benefits and is a desirable feature in this coastal environment.
- Rock core in dune offers stability, provides back-up protection, and reduces potential dune re-build cost after significant storm event.

DISADVANTAGES

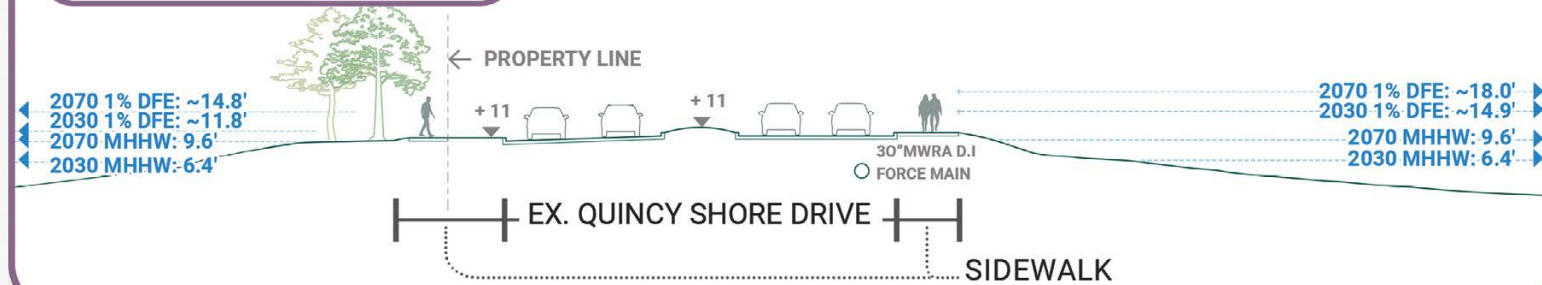
- Maintaining existing roadway elevation keeps roadway below stillwater flood elevations, which could lead to parkway flooding if water flanks adaptation measures.
- Vehicular travel and parking capacity is reduced from existing conditions.
- Flood resilience measures create a landward visual barrier and reduce visual appeal of corridor.
- Dunes and wall present additional long-term operations and maintenance costs when compared to rock revetment, including sand nourishment for dune and clearing sand that has encroached onto the road.
- Dune has greater residual risk than more permanent structures.
- Effectiveness of dune requires additional assessment of fetch length and wind direction.
- Revised access to beach will require permitting/construction of additional structures over dune.

RATING	EVALUATION CRITERIA							
Highly Advantageous								
Advantageous								
Less Advantageous								
	FLOOD RISK REDUCTION	RECREATION & ACCESSIBILITY	ENVIRONMENTAL STEWARDSHIP	CULTURAL & HISTORIC PRESERVATION	TRANSPORTATION	LEGAL & REGULATORY COMPLIANCE	COMMUNITY VALUE & AESTHETIC	COST

EXISTING CONDITION PLAN



EXISTING CROSS SECTION E



EXISTING CONDITION



Photo approaching the bridge looking South

EXISTING CONDITION



Photo of the Parkway looking North

ADAPTATION STRATEGIES VISION PLAN

REFLECTS OPTION 1 AT SECTION E



SHARED-USE PATH

REVETMENT

BEACH NOURISHMENT

SALT MARSH

COASTAL PLANTING / DUNE VEGETATION

SALT MARSH

N

0 100 FEET



EXPANDED REVETMENT + SHARED-USE PATH

Precedent Image (Source: Yohan Zerdoun)



STEPPED WALL + REVETMENT

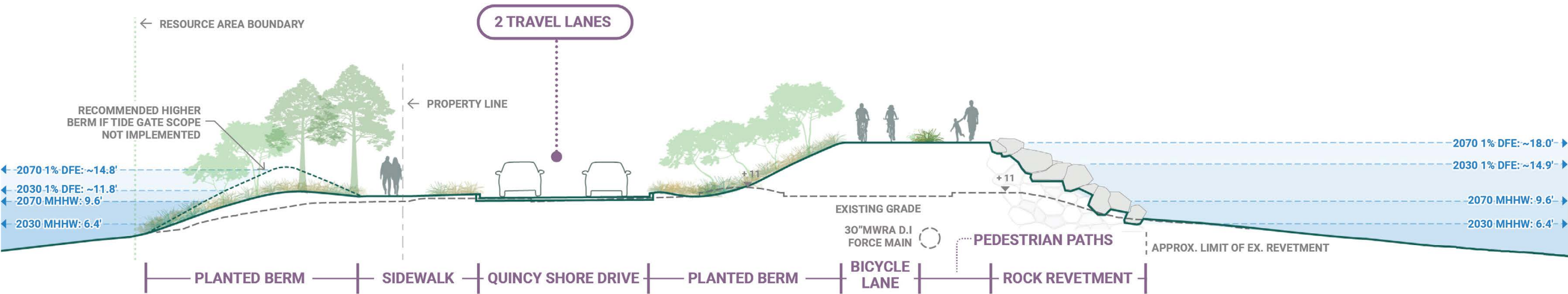
Precedent Image (Source: Marmot Construction)

*REPLACE AND ELEVATE BRIDGE TO PROVIDE ADEQUATE FREEBOARD BETWEEN BOTTOM BRIDGE CHORD AND DFE. TRANSITION ROADWAY APPROACHES ON EITHER SIDE OF BRIDGE. REPLACE TIDE GATES TO ALLOW FOR CONTROL OF INCOMING BAY WATER DURING STORM EVENTS TO IMPROVE RESILIENCE TO FLOODING FROM BLACKS CREEK (NOT SHOWN IN SECTION VIEWS).

SECTION E OPTION 1

This option fortifies and increases the height of the rock revetment that is backed by an earthen berm. Quincy Shore Drive retains its overall existing traffic pattern, but is reduced to one lane in each direction, and the planted median is eliminated. The reduced number of lanes and eliminated median allows for the addition of elevated, dedicated bikes lanes and a pedestrian promenade, separated from the northbound side of the parkway by a gentle, planted slope. Repair or replacement of the existing tide gates at the Sgt. Phillip Greenberg Memorial Bridge is recommended to mitigate flooding from Blacks Creek (not depicted in this section). This strategy generally aligns with the 2020 Master Plan of providing a two-way separated bike lane with vehicular lane reductions. The existing off-street parking lots will be maintained so no loss of parking is anticipated in this region.

RATING	EVALUATION CRITERIA							
Highly Advantageous								
Advantageous								
Less Advantageous								
	FLOOD RISK REDUCTION	RECREATION & ACCESSIBILITY	ENVIRONMENTAL STEWARDSHIP	CULTURAL & HISTORIC PRESERVATION	TRANSPORTATION	LEGAL & REGULATORY COMPLIANCE	COMMUNITY VALUE & AESTHETIC	COST



ADVANTAGES

- The bay side shared use promenade is wider, elevated, and provides unobstructed view of the water for pedestrians and cyclists.
- Significantly reduces pavement and provides opportunity for some mitigation of precipitation-based runoff.
- Expanded rock revetment can be installed over the existing revetment

- Rock revetment requires less maintenance than dunes and stepped walls.
- Tide gate upgrades may preclude the need for a higher berm or barrier along the southbound shoulder for flood mitigation from Blacks Creek.

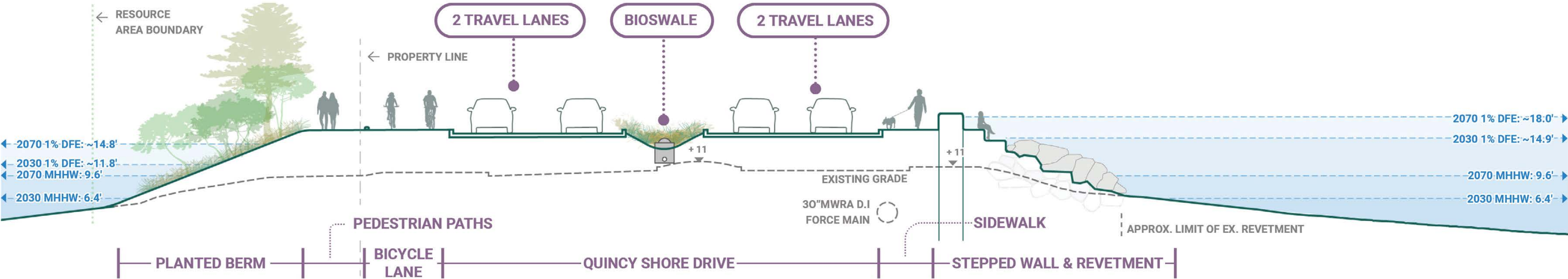
DISADVANTAGES

- Maintaining existing roadway elevation keeps roadway below stillwater flood elevations, which could lead to parkway flooding if water flanks parkway measures.
- Roadway travel capacity is reduced due to lane reduction.
- Berms create visual barriers from the roadway to Quincy Bay.
- Rock revetment provides less ecological benefit than dunes and does not serve as an amenity for parkway users.
- Does not allow for raising of roadway stormwater infrastructure to improve ability to discharge during higher tides and certain storm events.

SECTION E OPTION 2

This option elevates the four lanes of Quincy Shore Drive, the pedestrian promenade on the northbound side, and creates a dedicated two-way bike lane and separate pedestrian promenade along the southbound side. The existing rock revetment on the seaward side is fortified and extended higher up, then transitions to a stepped seawall for pedestrian seating. A planted earthen berm supports the elevated bike lane and pedestrian promenade along the southbound side and provides flood mitigation from Blacks Creek. Quincy Shore Drive retains its existing lane configuration but does not fully align with the 2020 Master Plan in that it offers a dedicated bike lane instead of a shared use path along the southbound side of the Parkway. To provide continuous flood resilience with an elevated roadway in this region, modifications to or replacement of the Sgt. Phillip Greenberg Memorial Bridge would be required. As part of the bridge modifications, it is recommended that the existing tide gates be repaired or replaced to control flooding of Blacks Creek. The existing off-street parking lots will be maintained so no loss of parking is anticipated in this region.

RATING	EVALUATION CRITERIA							
Highly Advantageous								
Advantageous								
Less Advantageous								
	FLOOD RISK REDUCTION	RECREATION & ACCESSIBILITY	ENVIRONMENTAL STEWARDSHIP	CULTURAL & HISTORIC PRESERVATION	TRANSPORTATION	LEGAL & REGULATORY COMPLIANCE	COMMUNITY VALUE & AESTHETIC	COST



ADVANTAGES

- Elevated promenades, bike lane, and roadway improves views for parkway users and enhances visual appeal of corridor.
- Elevating the road above the stillwater flood elevation provides improved flood resilience from both the seaward and the inland side and allows for stormwater infrastructure to be raised up to improve ability to discharge during high tides and certain storm events.
- Parkway configuration maintains existing vehicular capacity.
- Upper stepped wall allows for seating and high tide amenity space.
- Lower rock revetment requires less maintenance than dunes and stepped walls.
- Tide gate upgrades enhance flood resilience from Blacks Creek.

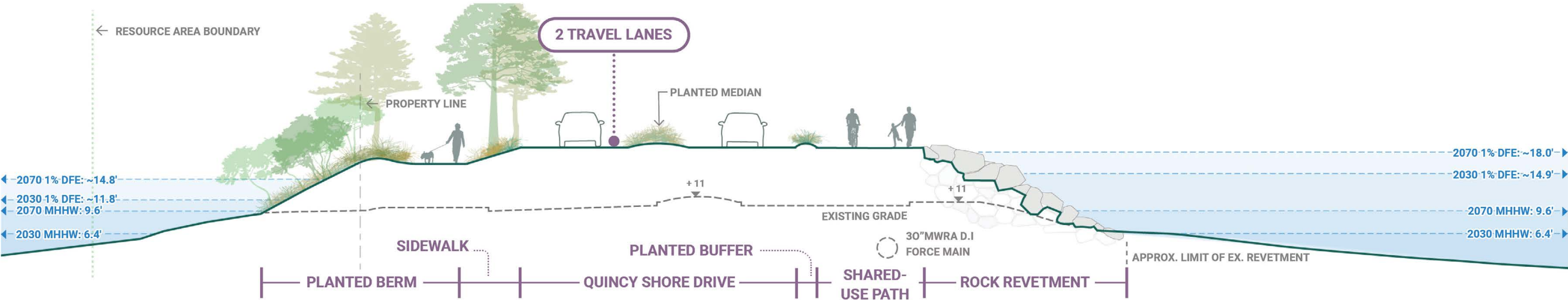
DISADVANTAGES

- Does not reduce pavement and provides opportunity for only marginal mitigation of precipitation-based runoff.
- Does not reduce pavement.
- Stepped wall presents additional long-term operations and maintenance cost compared to revetment and has lower ecological value compared to dune.

SECTION E OPTION 3

Elevate Quincy Shore Drive and the adjacent promenades and pedestrian path on both the northbound and southbound sides of the parkway, respectively, using fill. Fortify and extend higher up the existing rock revetment along the northbound side. Along the southbound side, a planted earthen berm supports the elevated pedestrian path and provides flood mitigation from Blacks Creek. Quincy Shore Drive retains its overall existing traffic pattern but is reduced to one lane in each direction, with the vegetated median remaining. This strategy generally aligns with the 2020 Master Plan of providing a shared use promenade along the parkway, except that it is located along the northbound side instead of the southbound side and vehicular lanes are reduced. To provide continuous flood resilience with an elevated roadway in this region, modifications to or replacement of the Sgt. Phillip Greenberg Memorial Bridge would be required. As part of the bridge modifications, it is recommended that the existing tide gates be repaired or replaced to control flooding of Blacks Creek. The existing off-street parking lots will be maintained so no loss of parking is anticipated in this region.

RATING	EVALUATION CRITERIA							
Highly Advantageous								
Advantageous								
Less Advantageous								
	FLOOD RISK REDUCTION	RECREATION & ACCESSIBILITY	ENVIRONMENTAL STEWARDSHIP	CULTURAL & HISTORIC PRESERVATION	TRANSPORTATION	LEGAL & REGULATORY COMPLIANCE	COMMUNITY VALUE & AESTHETIC	COST



ADVANTAGES

- Elevated promenades and roadway improves views for parkway users and enhances visual appeal of the corridor.
- Elevating the road above the stillwater flood elevation provides improved flood resilience from both Quincy Bay and Blacks Creek and allows for stormwater infrastructure to be raised up for improved ability to discharge during high tides and certain storm events.

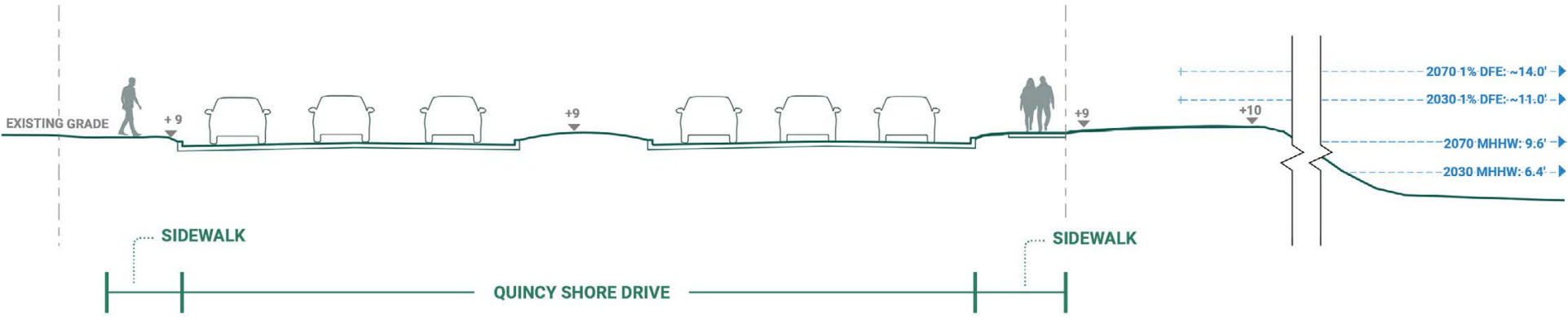
- Lane reduction allows for the parkway, promenade, and paths to be elevated and wider without encroaching beyond the existing seaward limits of revetment.
- Marginally reduces pavement and provides opportunity for some mitigation of precipitation-based runoff.

- Expanded rock revetment can be installed over the existing revetment.
- Rock revetment requires less maintenance than dunes and stepped walls.
- Tide gate upgrades enhance flood resilience from Blacks Creek.

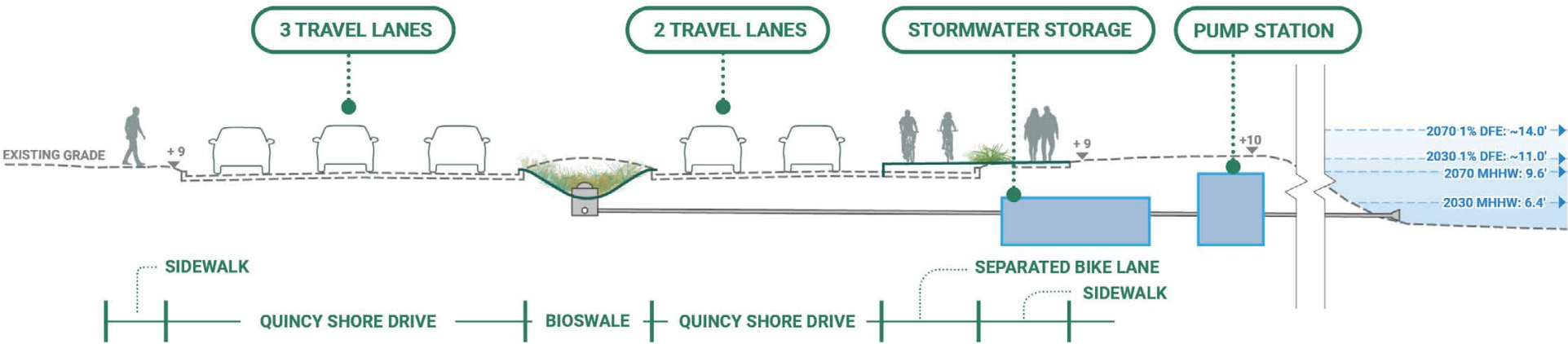
DISADVANTAGES

- Roadway travel capacity is reduced due to lane reductions.
- Rock revetment provides less ecological benefit than dunes.
- Beyond flood protection, the rock revetment does not serve as an amenity feature for parkway users.

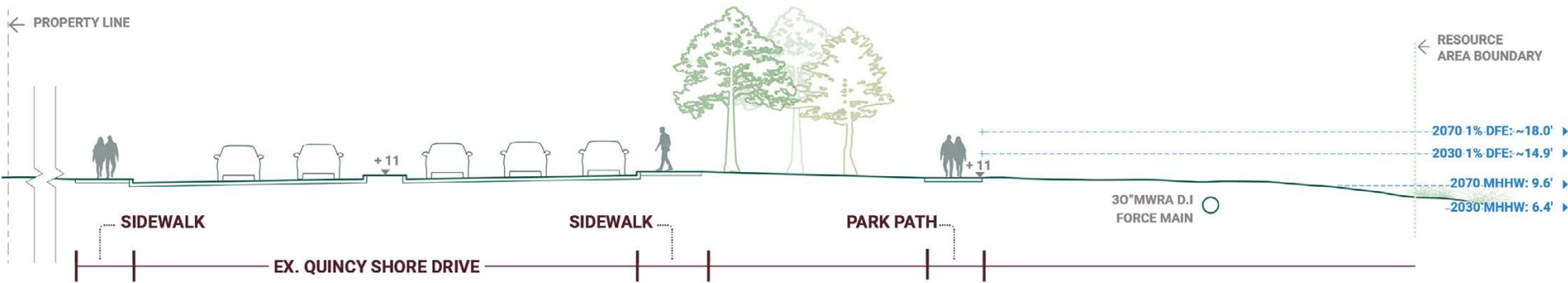
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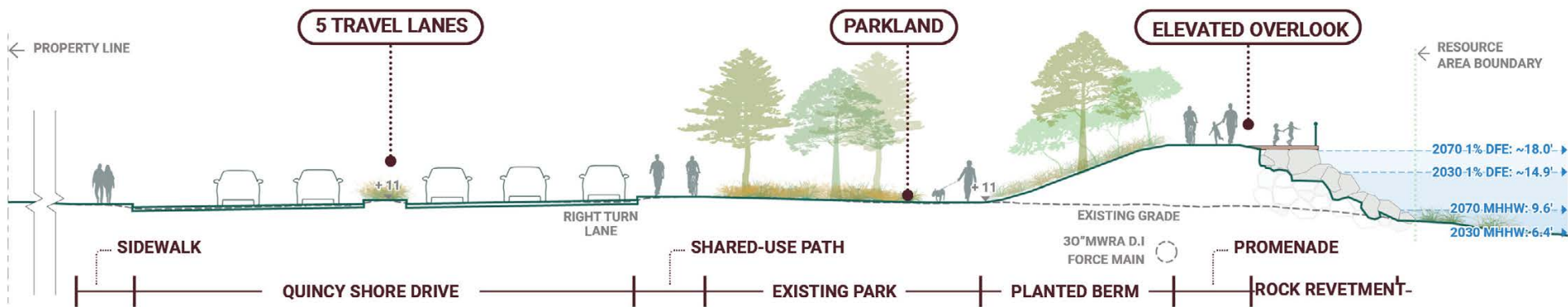
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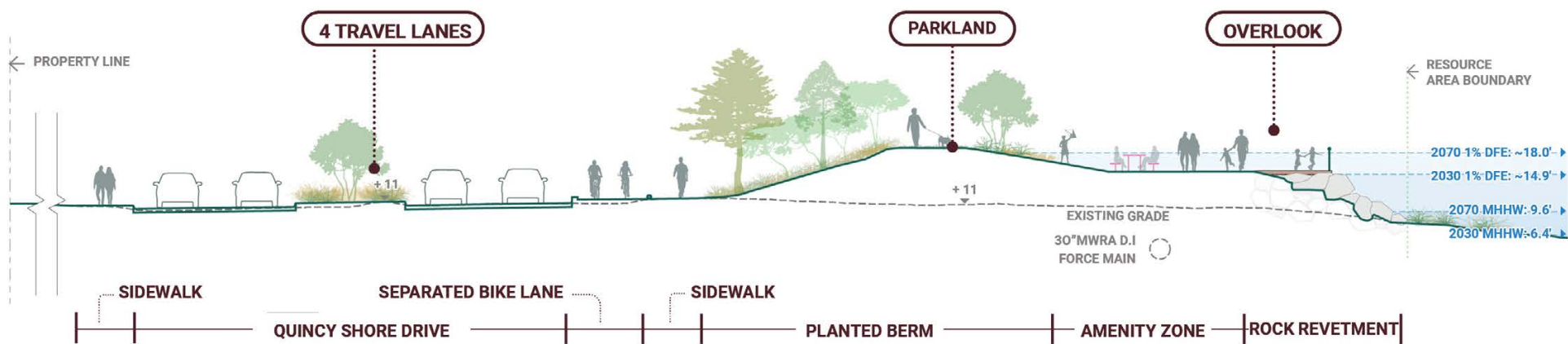
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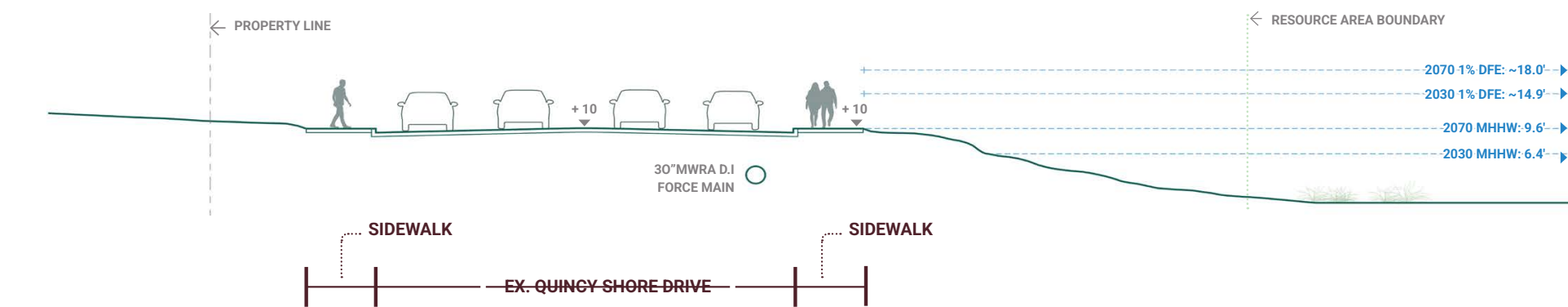
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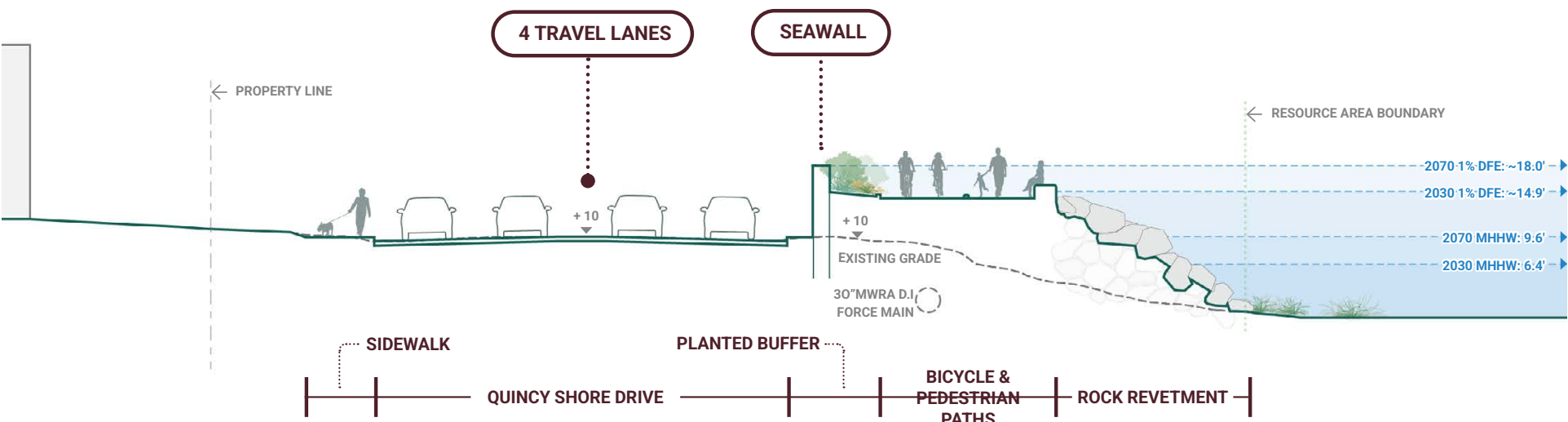
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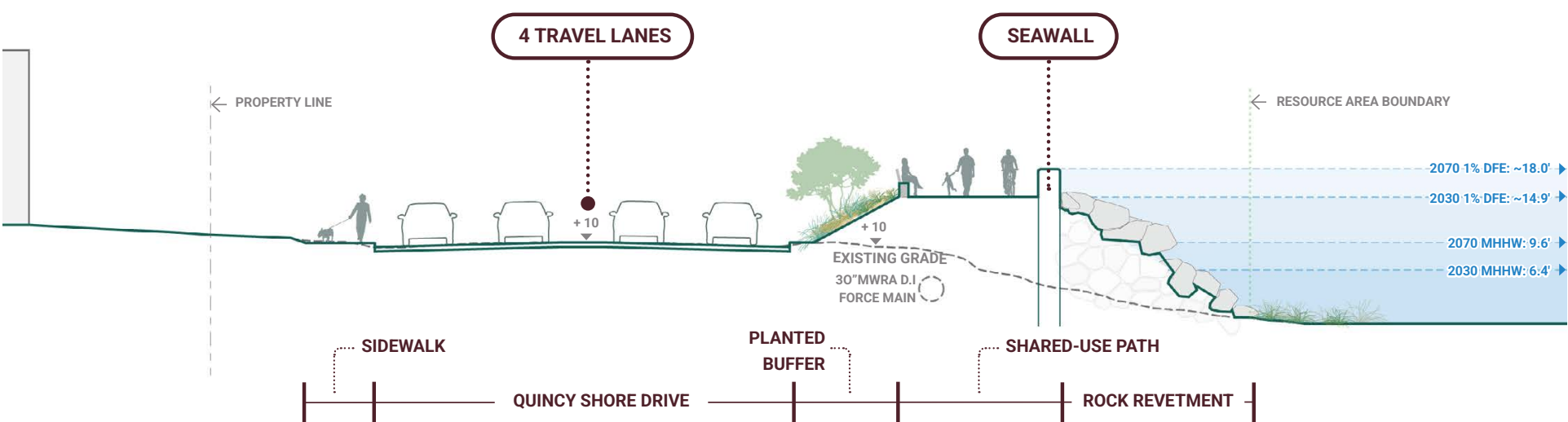
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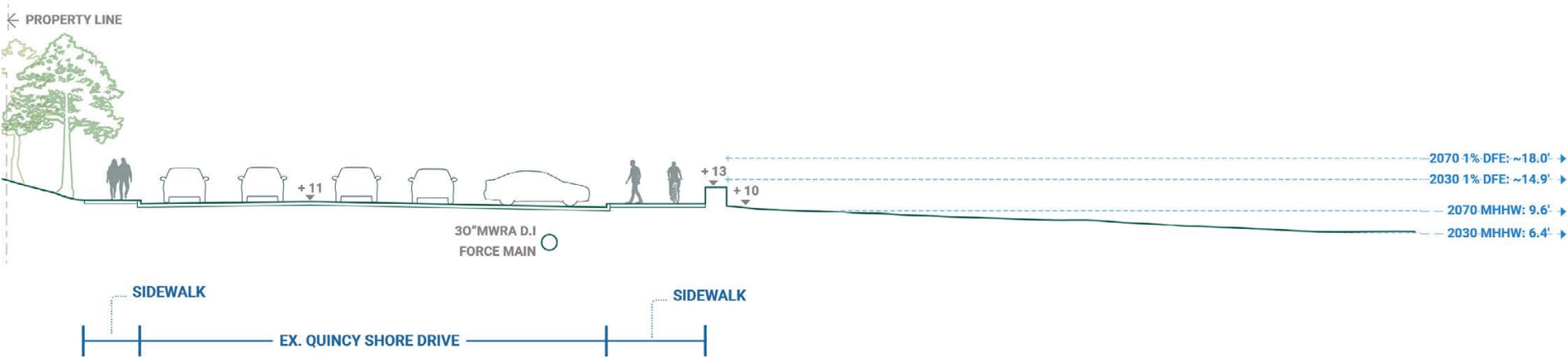
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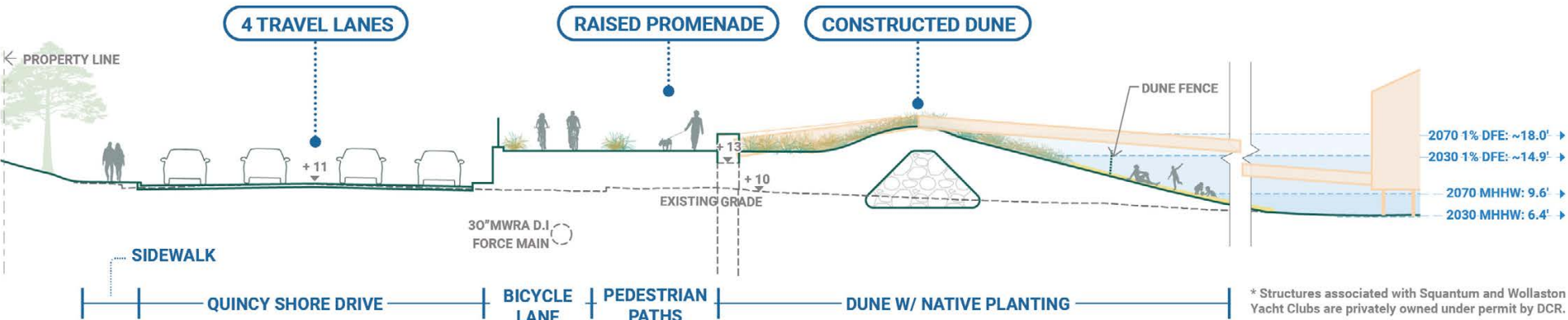
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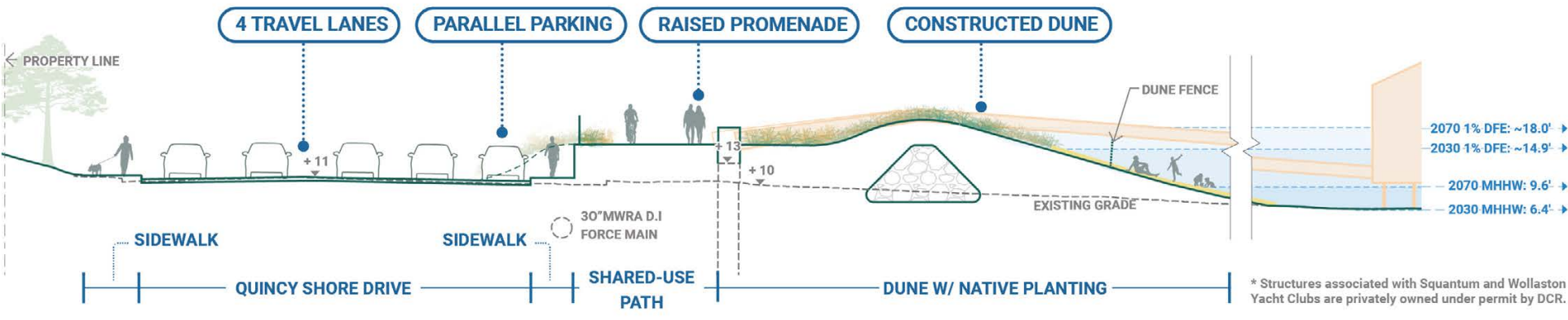
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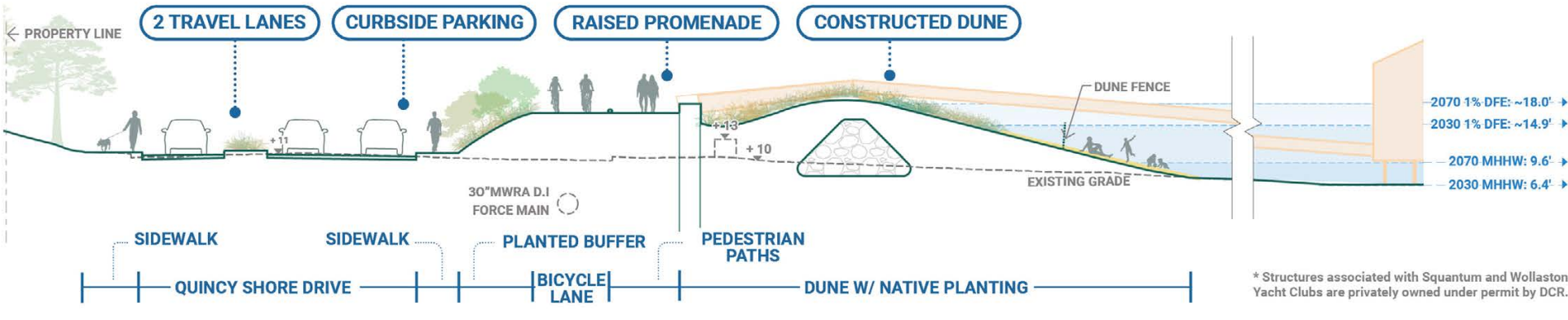
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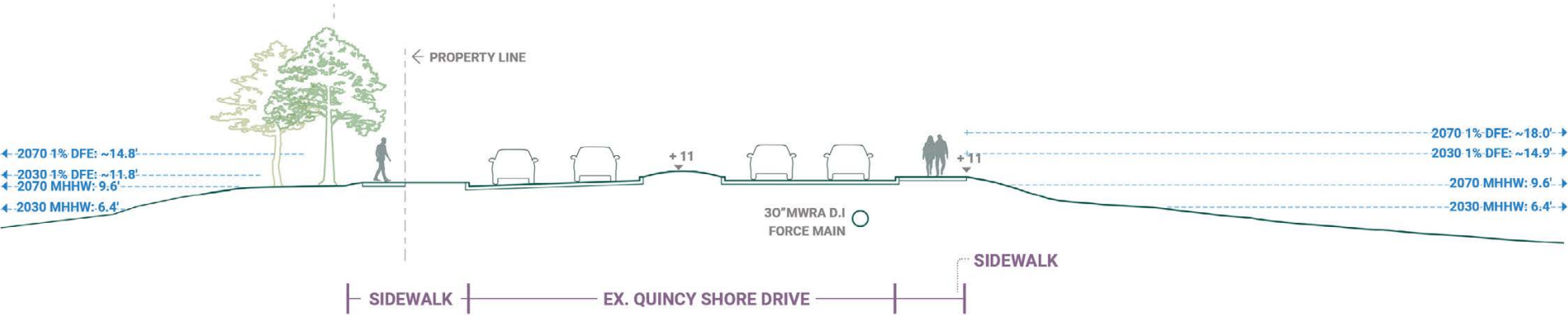
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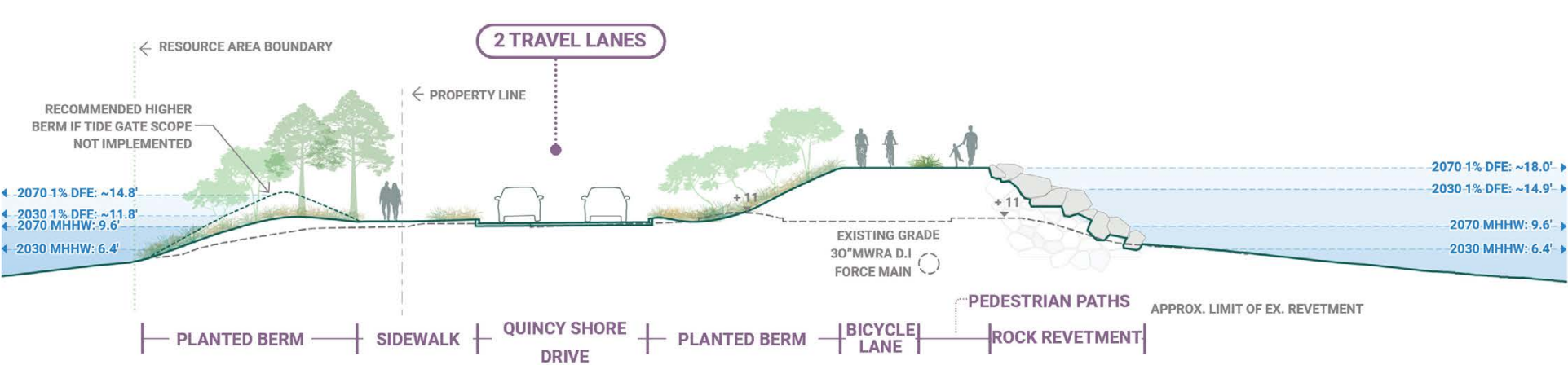
SECTION D OPTION 3



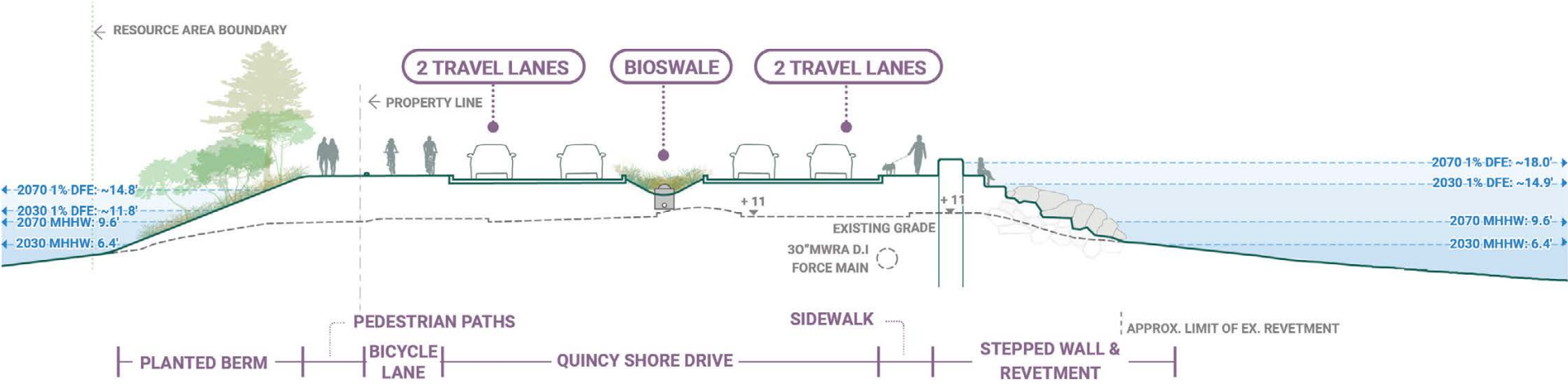
SECTION E EXISTING CONDITIONS



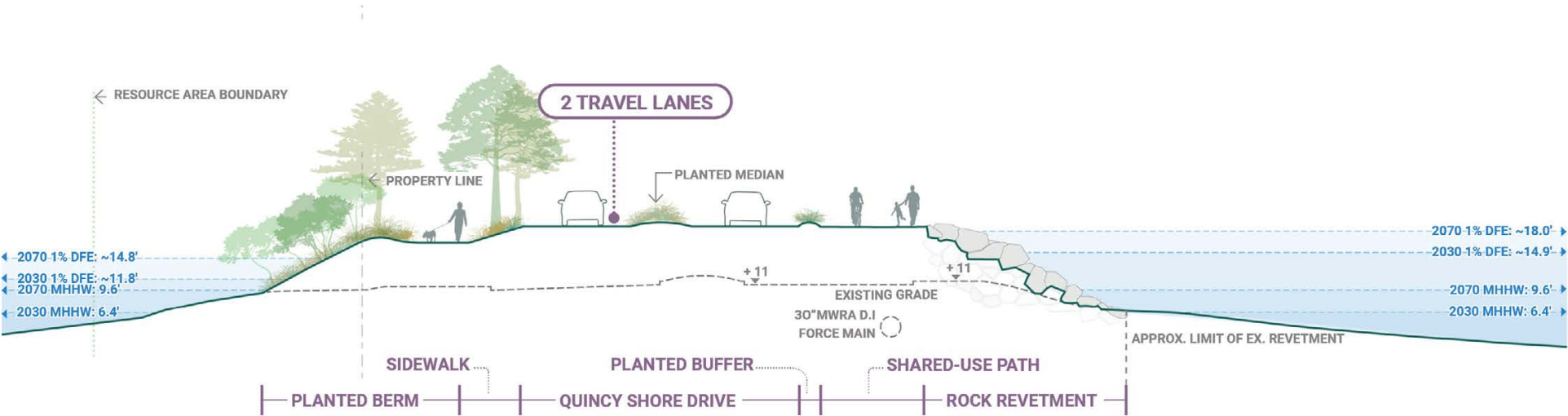
SECTION E OPTION 1



SECTION E OPTION 2



SECTION E OPTION 3



CONCLUSIONS & NEXT STEPS

This report identifies and illustrates a menu of potential adaptation strategies aimed at improving the resilience of Quincy Shore Drive and its adjacent reservation space to coastal and extreme precipitation-based flooding associated with the 1% storm event projected for 2070. The plan view and cross-section diagrams are based on publicly available LiDAR topography, aerial imagery, supporting map datasets, and site-specific field observations. These illustrations are intended to convey approximate spatial relationships and physical constraints that influence the feasibility of each strategy.

The high-level evaluation of advantages and disadvantages, paired with qualitative ratings across DCR's Climate Adaptation Framework categories, is intended to support relative comparisons between options. Together, these materials are meant to guide DCR in identifying preferred strategies for advancement into the next stages of analysis and design.

Importantly, this study affirms that there is no single solution that addresses the entire corridor. The region-based approach reflects the diverse physical and operational conditions along the Parkway, and the strategies presented are tailored to that complexity. While each region presents unique challenges, the report offers a clear starting point for site-specific resilience planning that remains cohesive across the corridor.

To progress this effort, DCR may consider the following next steps:

- **Identify funding programs that align with near-term next steps** – such as conceptual design advancement, modeling, and/or stakeholder engagement. Positioning the project for competitive funding can help support phased implementation over time.
- **Conduct a benefit-cost analysis (BCA)** of preferred adaptation strategies to help prioritize investments based on cost-effectiveness, risk reduction, and multi-benefit potential.
- **Develop a consolidated land use map and supplemental community context layer** to better understand how adjacent uses – public and private – will be affected by or could support future interventions. This will also assist in coordination with non-DCR landowners and agencies.

- **Perform site-specific wave, sediment transport, and hydrodynamic modeling to evaluate the effectiveness of each proposed strategy.** Outputs from the Massachusetts Coastal Flood Risk Model (MC-FRM) can be used to inform boundary conditions. High-resolution wave models, such as XBeach or FUNWAVE, are recommended for simulating wave processes, while hydrodynamic models such as Delft3D Flexible Mesh or SFINCS should be applied to assess circulation, and flooding.
- **Conduct a cultural resources reconnaissance survey, including an archaeological sensitivity assessment,** for the anticipated project impact areas to help refine design alternatives, identify potential mitigation measures, support historic preservation requirements during environmental permitting, and inform outreach with stakeholders such as Tribal Nations, Descendent Communities, and Municipal Historical Commissions
- **Perform a traffic operations and parking analysis** to determine the feasibility of considered lane reductions and on-street parking reductions, and to evaluate potential impacts to vehicular capacity and level of service.
- **Refine and advance selected strategies into preliminary conceptual designs,** incorporating additional technical input on engineering feasibility, public realm impacts and enhancement, constructability, permitting, and maintenance.
- **Initiate targeted public outreach and engagement,** focused on local stakeholders, property owners, and City leadership. This step is critical for gathering early input on design priorities, understanding community trade-offs, and building support for future implementation.
- **Begin reviewing the permitting and regulatory requirements associated with the selected adaptation strategies, including coordination with local agencies,** MassDEP Wetlands & Waterways Program, CZM, and federal agencies such as the Army Corps of Engineers. Early identification of likely constraints and opportunities will facilitate discussion, inform decisions, and streamline future design and approval processes.

Taken together, these next steps will allow DCR to move forward with a grounded, adaptable, and informed approach – one that strengthens the long-term resilience of this critical coastal corridor while remaining responsive to both the physical site and the needs of the community it serves.



View of Project Site, February 2025



DCR 

 Stantec