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Town of New Shoreham (Block Island)

Project Stakeholder Meeting - Corn Neck Road
Resilience Strategy and Dune Restoration



PRESENTED BY:

GZA GeoEnvironmental, Inc. & Right Turn Solutions
August 4th, 2025



TODAY'S AGENDA

- Project Update
- Summary of Vulnerability Analysis
- Discussion of Mitigation Strategies/ Solutions
- Review of Conceptual Designs
- Next Steps
- Open Discussion

INTRODUCTIONS

- Town of New Shoreham
 - Alison Ring - Town Planner/ Project Manager
 - Amy Lewis Land - Interim Town Manager
 - James Geremia – Town Engineer
 - Mike Shea - DPW Director
 - Judy Gray - Chair of the Coastal Resiliency Committee
- GZA GeoEnvironmental
 - Michael Gardner - Project Manager
 - Matthew Page - Associate Principal/ Principal-in-Charge
 - Russell Morgan - Senior Principal / Consultant Reviewer
 - Rosemarie Fusco – Planning Specialist
- Right Turn Solutions (RTS)
 - Jenn Giardino – Public Outreach

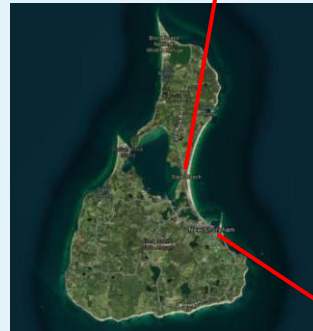


UPDATE

- Last Meeting: May 15th, 2025
 - Vulnerability Analysis Presentation
- Current Meeting: August 4th, 2025
 - Discussion of Mitigation Strategies/ Solutions and Conceptual Designs
- Next Steps:
 - Conceptual Design Selection

PROJECT BACKGROUND & OBJECTIVES

- The primary objective is to bolster the long-term resilience of the barrier beach and salt marsh system while protecting the existing roadway. The chosen approach should effectively mitigate the threats posed by erosion, rising sea levels, and storm events by promoting sediment accretion, stabilizing shorelines, and enhancing the overall capacity of the system to withstand dynamic coastal processes.
- Overarching Goals: Identify short term goals that can be built upon – phased approach
 1. Protect Corn Neck Road
 2. Protect the Town beach pavilion and parking area
 3. Maintain beach access and dunes
 4. Habitat preservation



KEY AREAS

Identified by
Stakeholders and
Vulnerability
Analyses



KEY AREAS

Scotch Beach Rd



KEY AREAS

Dune Paths



KEY AREAS

Town Beach Parking



Beach Pavilion



Parking Area



KEY AREAS

Revetment



KEY AREAS

Mosquito Beach/ Marsh



VULNERABILITY OVER TIME

Hazards

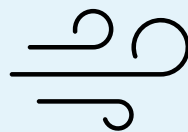
Large
Precipitation
Events



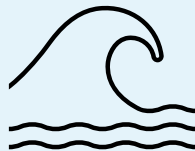
Flooding
Due to High
Coastal
Water Levels



High Wind



Large Waves



Storm Transformation Based on Stillwater Elevation with Projected NOAA 2022 Intermediate SLR

Present Day Storm Event Annual Exceedance Probability	Equivalent 2050 Storm Event Annual Exceedance Probability	Equivalent 2070 Storm Event Annual Exceedance Probability
1-Year	<1-Year	<1-Year
2-Year	1-Year	<1-Year
5-Year	2-Year	1-Year
10-Year	2 to 5-Year	1 to 2-Year
20-Year	5 to 10-Year	2-Year
50-Year	20-Year	10-Year
100-Year	50-Year	20-Year

MITIGATION STRATEGIES/ SOLUTIONS

🔧 Toolbox Options Include (interdisciplinary options):

Category

Example Strategies / Techniques

Natural & Nature-Based Features (NNBFs)

Beach nourishment, dune enhancement, thin layer deposition
living shorelines (e.g., coir logs, marsh edge plantings)

Hybrid Shoreline Protections

Vegetated reinforced dunes, cobble berms, low-profile
revetments, buried rock toe

Dune Restoration & Vegetation

Dune fencing, beachgrass planting (*Ammophila breviligulata*),
sand recycling and topographic repair

Green Infrastructure

Bioswales, infiltration basins, vegetated filter strips, rain
gardens

Permeable Surfaces

Porous pavement/ pavers, true grid systems, shell/gravel base
lots

Elevation & Relocation

Raise above design storm + sea level rise; retreat from high-
hazard/ low-lying areas

Access Management

Hardened boardwalks, mats, guide fences, signed beach access
points, seasonal path closures, elevated walkovers

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Example Strategies / Techniques

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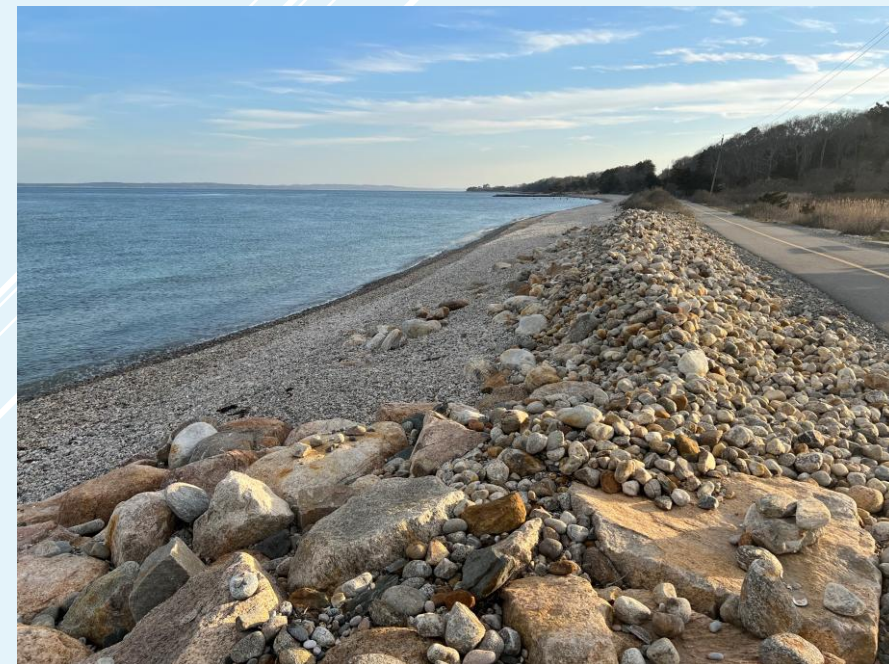
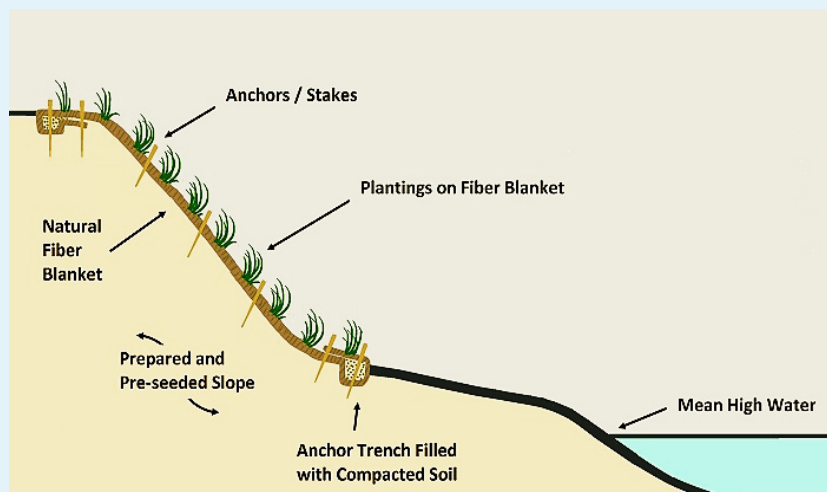


Photo Credit: Stone Living Lab

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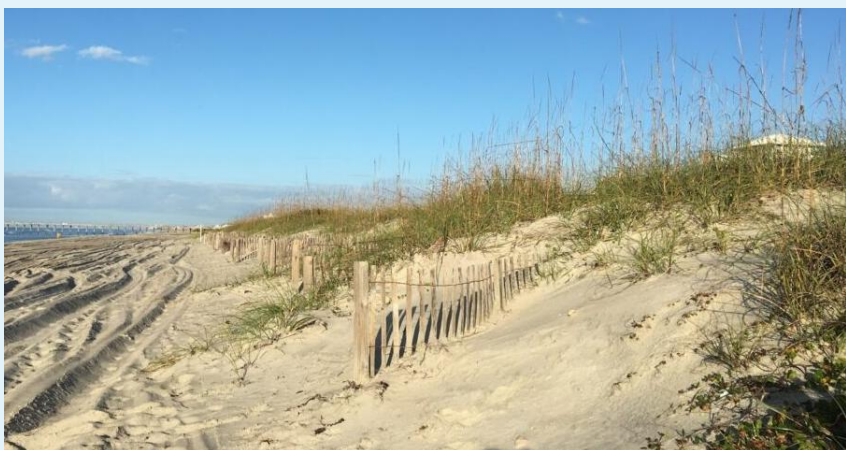
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Dune Restoration & Vegetation

Example Strategies / Techniques

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Green Infrastructure

Example Strategies / Techniques

Bioswales, infiltration basins, vegetated filter strips, rain gardens



<https://online.encodeplus.com/regs/deq-va/doc-viewer.aspx?secid=1130#secid-1130>



https://dep.nj.gov/wp-content/uploads/stormwater/bmp/nj_swbmp_9.7-small-scale-bioreten-tion-systems.pdf

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Permeable Surfaces

Example Strategies / Techniques

Porous pavement/ pavers, true grid systems, shell/gravel base lots



Photo Credit: TrueGrid



Photo Credit: Green Giant

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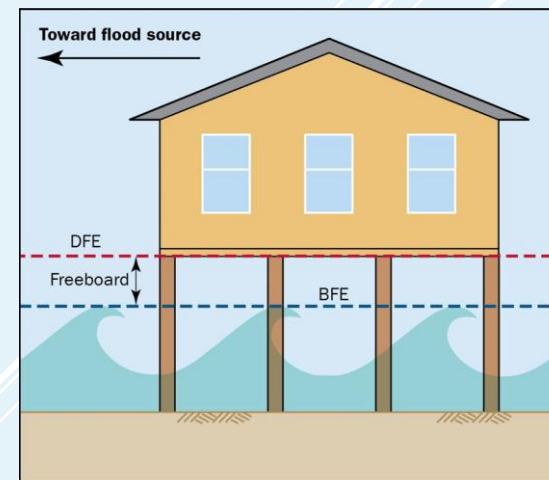
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CONCEPTUAL DESIGN EVALUATION CRITERIA

5

•Excellent

4

•Good

3

•Neutral

2

•Bad

1

•Worst

Concepts rated 1 through 5, with 5 being most favorable on the following categories:



Relative Risk
of Success



Potential
Ecosystem
Co-Benefits



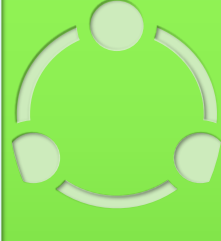
Aesthetics
(natural look)



Accessibility



Effectiveness



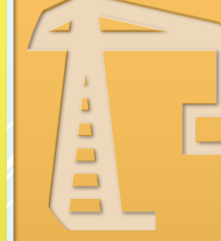
Adaptation
Potential
(Short/Long
Term)



Long-Term
Savings vs
Do-Nothing
(Over 45-
years)



Maintenance
Frequency



Estimated
Construction
Cost



Regulatory
Feasibility
and
Compliance
(permitting
review
length)

VULNERABILITIES- SCOTCH BEACH ROAD

Frequent Flooding:

- Scotch Beach parking lot floods during even minor rain events.
- Flooding is caused by:
 - Poor drainage
 - Low elevations (near-surface groundwater and SLR)
 - Approximately 5-acre watershed area
 - Compacted soils.

Storm Flooding

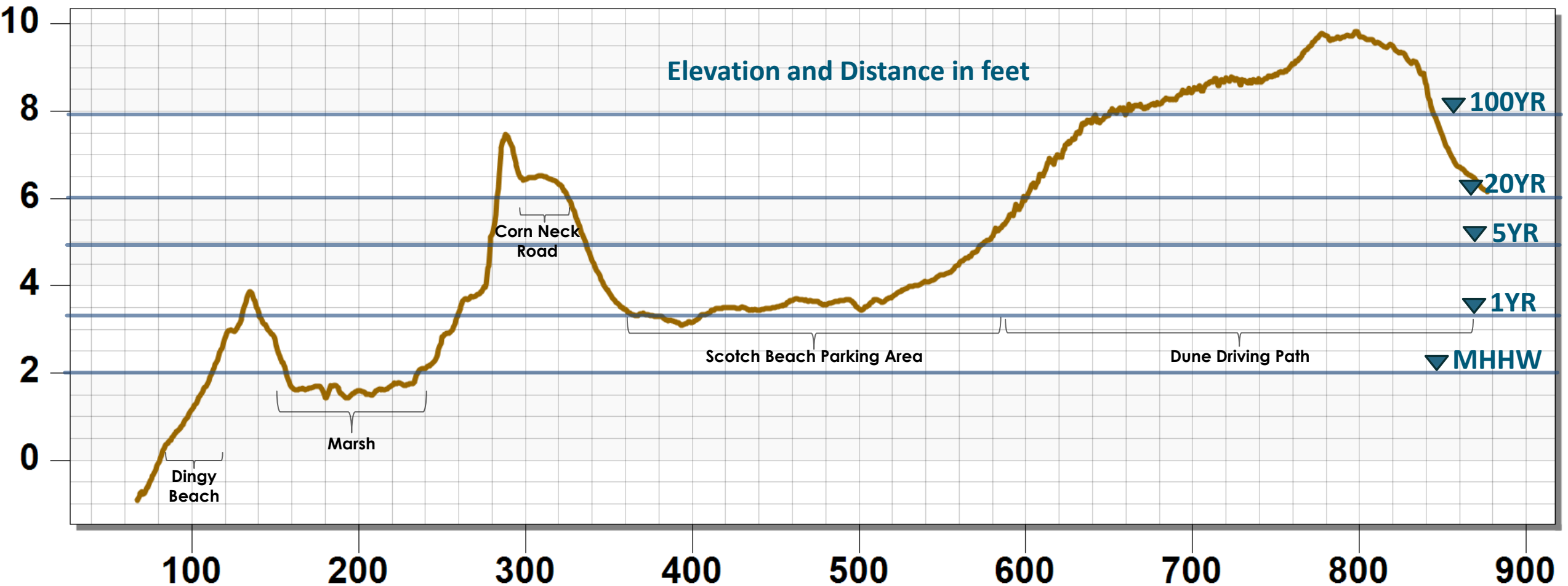
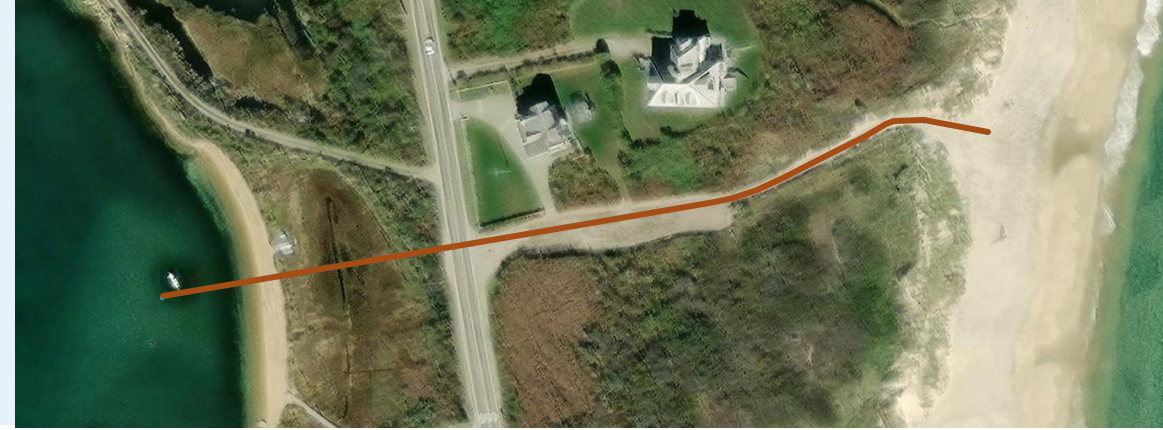
- Significant precipitation flooding occurs approximately during the 1-year event and greater
- Flooding is also caused by caused by:
 - Wave Runup and Overtopping (waves run down the roadway through the dunes)



VULNERABILITIES- SCOTCH BEACH ROAD

Recent Examples (Water Level, ft NAVD88):

- Superstorm Sandy 2012 (6.1ft)
- Hurricane Bob 1991 (5.8ft)
- December 23, 2022 Storm (5.2ft)
- January 13, 2024 Storm (5.2ft)
- The Perfect Storm, 1991 (5.1ft)



CONCEPTUAL DESIGN 1 - SCOTCH BEACH ROAD

Pervious Pavers and Stormwater Best Management Practices (BMPs)

- Fill and Regrading
- Permeable Pavers
- Vegetated Swale



CONCEPTUAL DESIGN 2 - SCOTCH BEACH ROAD

Parking Retrofit with Integrated Stormwater Management System and Swale

- Fill and Regrading
- Vegetated Stormwater Management System
- Vegetated Swale



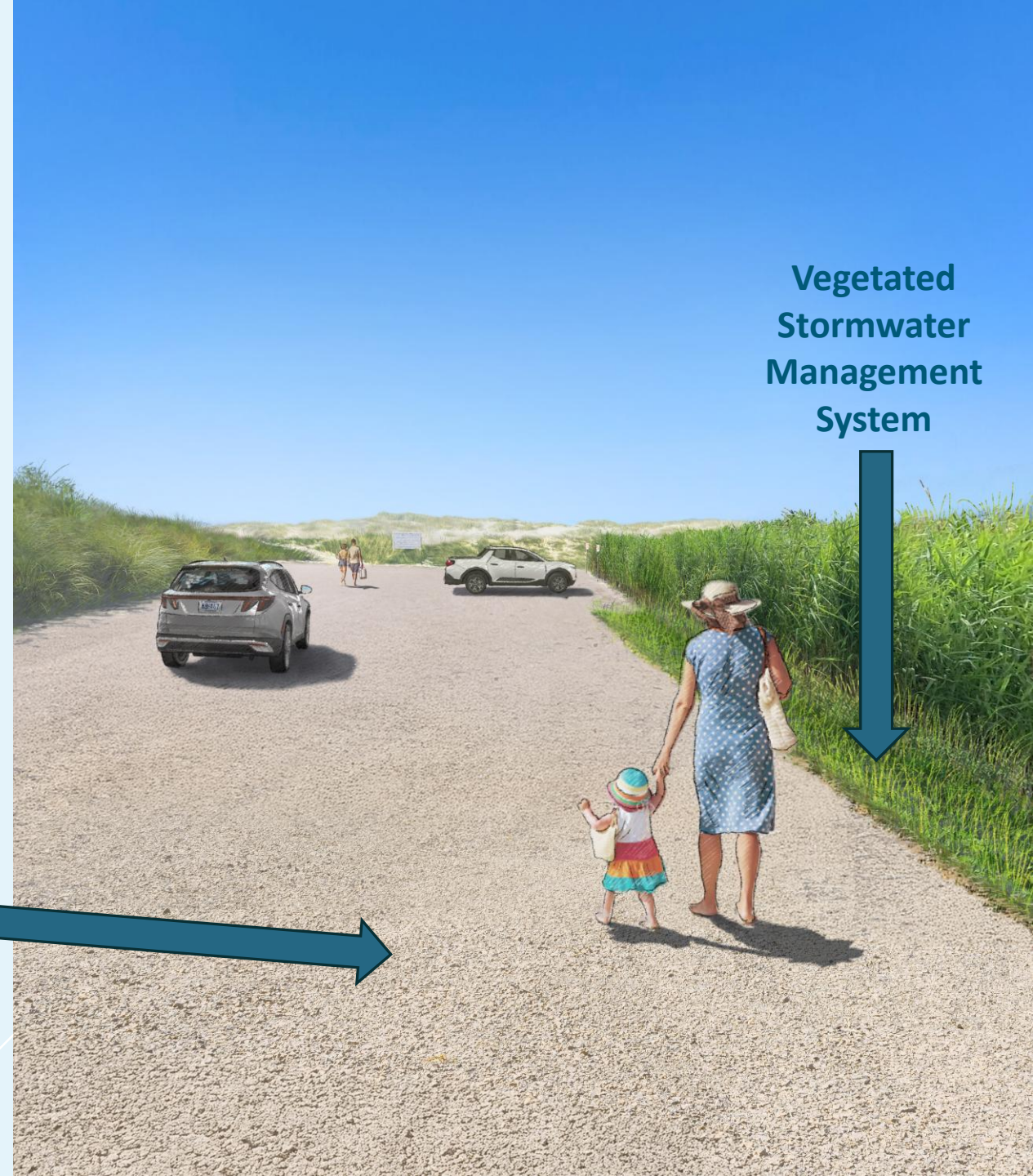
CONCEPTUAL DESIGN 2 – SCOTCH BEACH ROAD (BEFORE)



CONCEPTUAL DESIGN 2 – SCOTCH BEACH ROAD (AFTER)

Grade Raised,
Sloped Towards the Wetland

Vegetated
Stormwater
Management
System



VULNERABILITIES- TOWN BEACH PARKING AREA

Frequent Flooding:

- Parking lots flood during even minor rain events.
- Flooding is caused by:
 - Poor drainage
 - Low elevations (near-surface groundwater and SLR)
 - Approximately 5-acre watershed area
 - Compacted soils

Storm Flooding

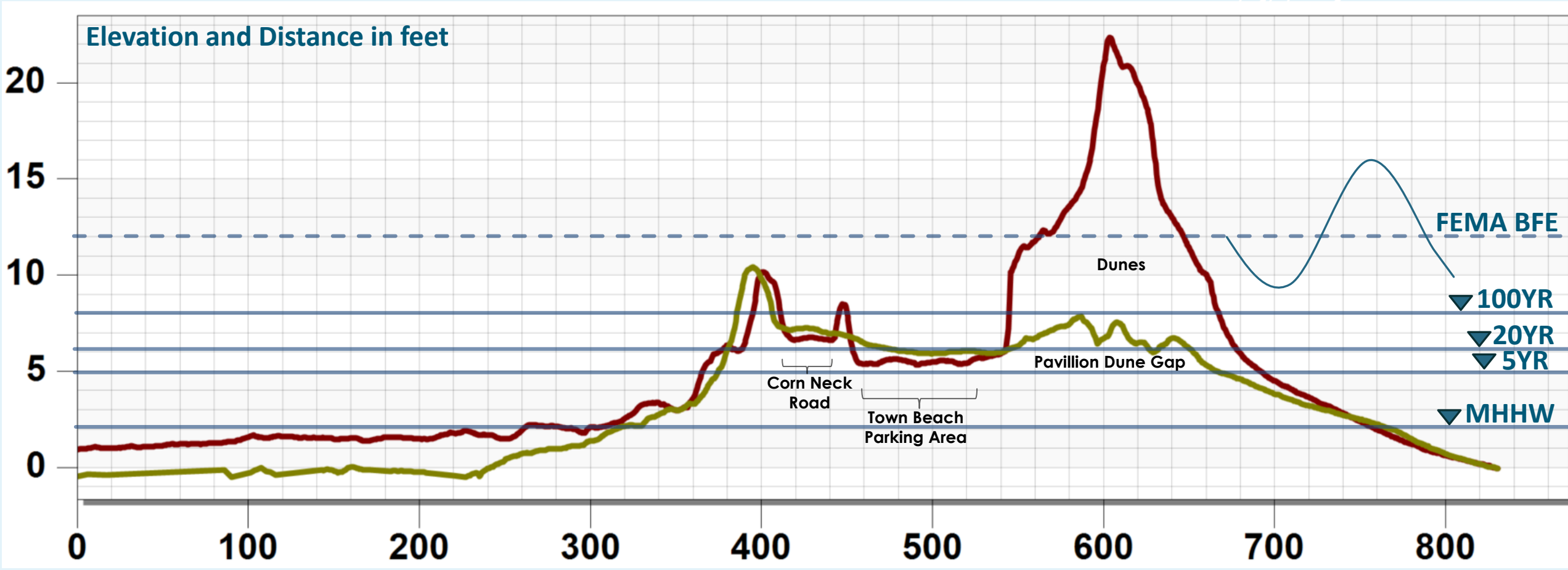
- Significant precipitation flooding occurs approximately during the 1-month event and greater
- Flooding is also caused by caused by:
 - Wave Runup and Overtopping through low-lying areas where the beach pavilion interrupts the dune system



VULNERABILITIES- TOWN BEACH PARKING AREA

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CONCEPTUAL DESIGN 1 – TOWN BEACH PARKING AREA

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CONCEPTUAL DESIGN 2 – TOWN BEACH PARKING AREA

Parking Retrofit with Integrated Stormwater Management System and Swale

- Fill and Regrading
- Vegetated Stormwater Management System
- Vegetated Swale



RECOMMENDED CONCEPTUAL DESIGN – TOWN BEACH PARKING AREA (BEFORE)



RECOMMENDED CONCEPTUAL DESIGN – TOWN BEACH PARKING AREA (AFTER)



Permeable
Pavers

Grade Raised, Sloped
Towards Vegetated Swale

Vegetated
Swale

VULNERABILITIES- DUNE PATHWAYS

Pedestrian Damage:

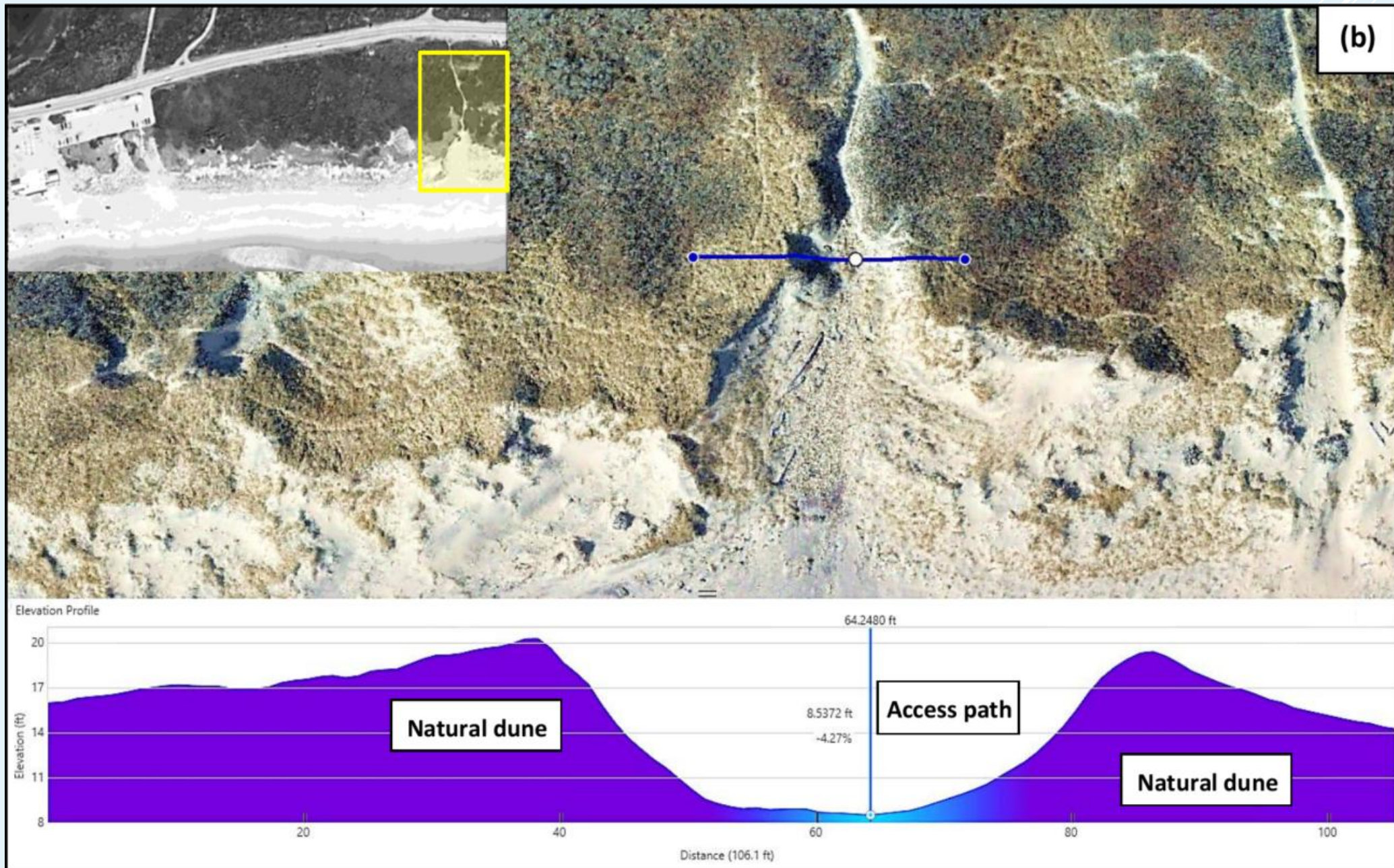
- Dune damage is caused by:
 - Foot and vehicle traffic disturbing vegetation
 - Foot and vehicle traffic moving sand, flattening and widening pathways
 - Traffic “fanning-out” on the beach side of the paths

Coastal Storm Damage:

- Storm waves running up the beach or directly impacting the dunes
- Waves are able to run-up the beach further along flattened pathway areas and eroding sand



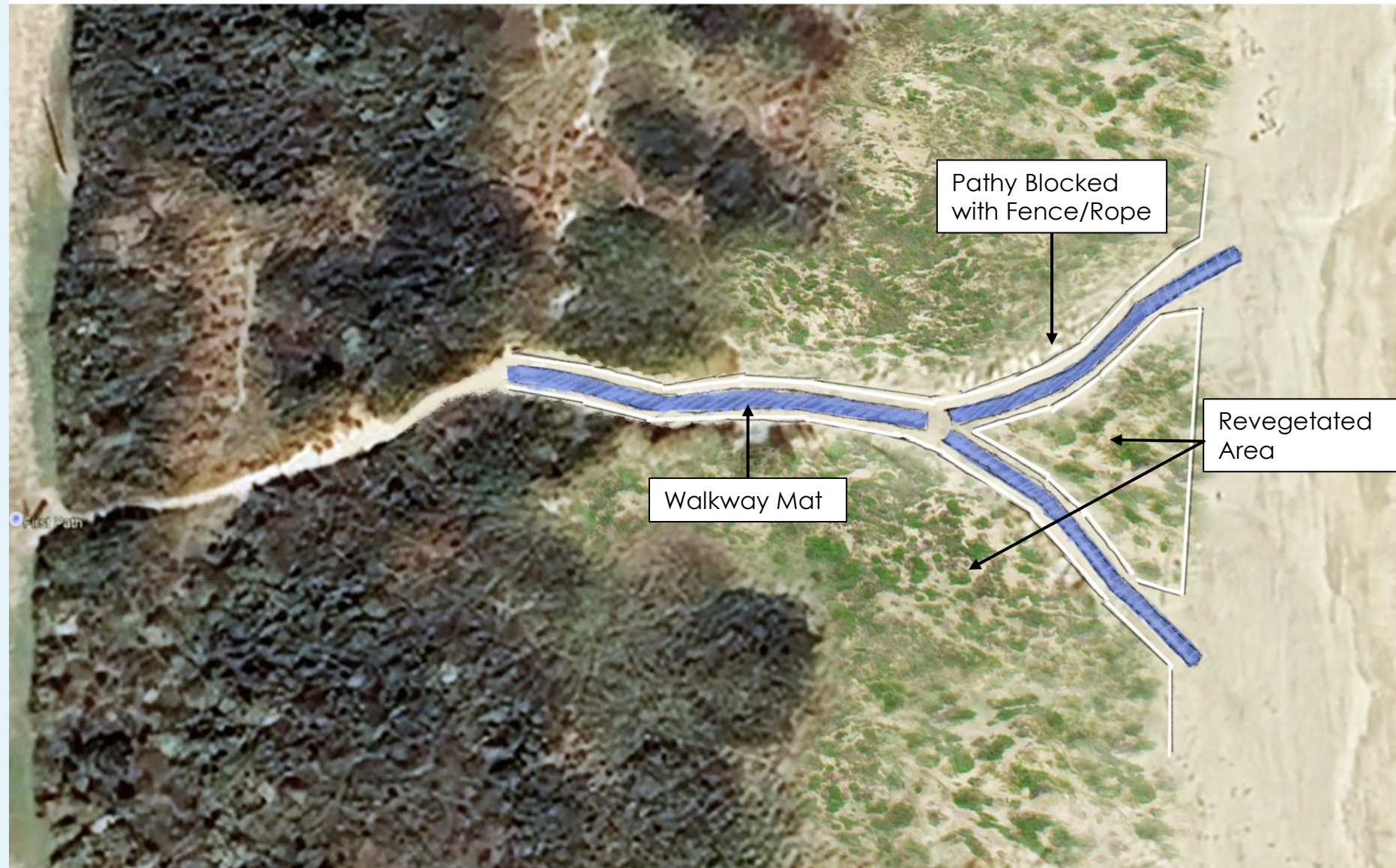
VULNERABILITIES- DUNE PATHWAYS



CONCEPTUAL DESIGN 1 – DUNE PATHWAYS

Simple Pathway and Dune Protection

- Pathway Redirection
- Fencing
- Plantings
- Walkway Mats



CONCEPTUAL DESIGN 2 – DUNE PATHWAYS

Pathway Closure and Opening

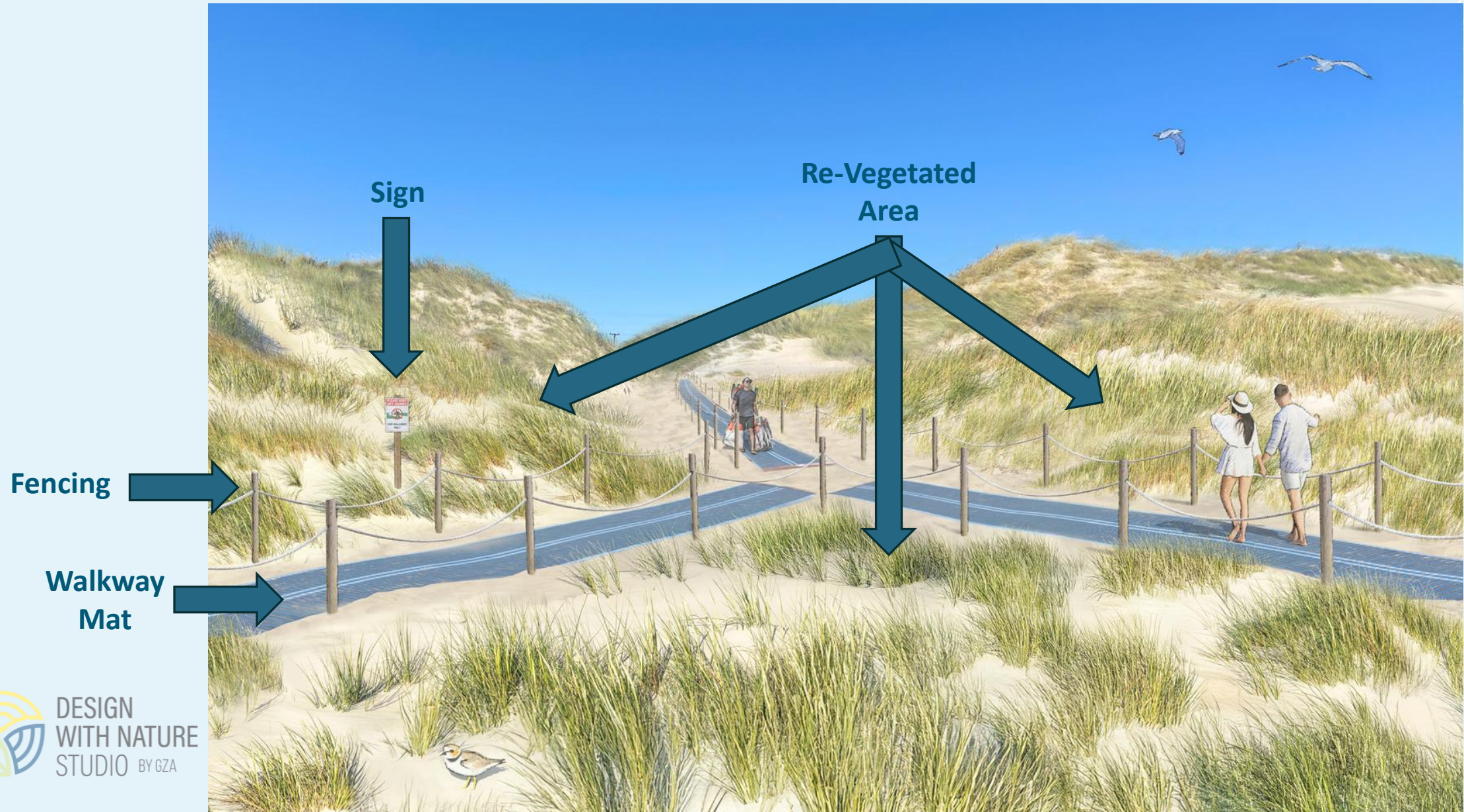
- Simple Fencing
- Plantings
- Pathway Cycling Planning



CONCEPTUAL DESIGN 1 – DUNE PATHWAYS (BEFORE)



CONCEPTUAL DESIGN 1 – DUNE PATHWAYS (AFTER)



MASTER PLAN PHASED APPROACH

Phase 1

- 0-5 years

Phase 2

- 5-10 years

Phase 3

- 10+ years



NEXT STEPS

- Conceptual design alternatives
 - Select top concepts at three (3) areas of concern
 - Assess concepts through coastal modeling
- Advance Select Designs to Construction



BREAKOUT GROUPS



QUESTIONS/ COMMENTS?