

Design Considerations & Case Studies for Shoreline Restoration in Washington State

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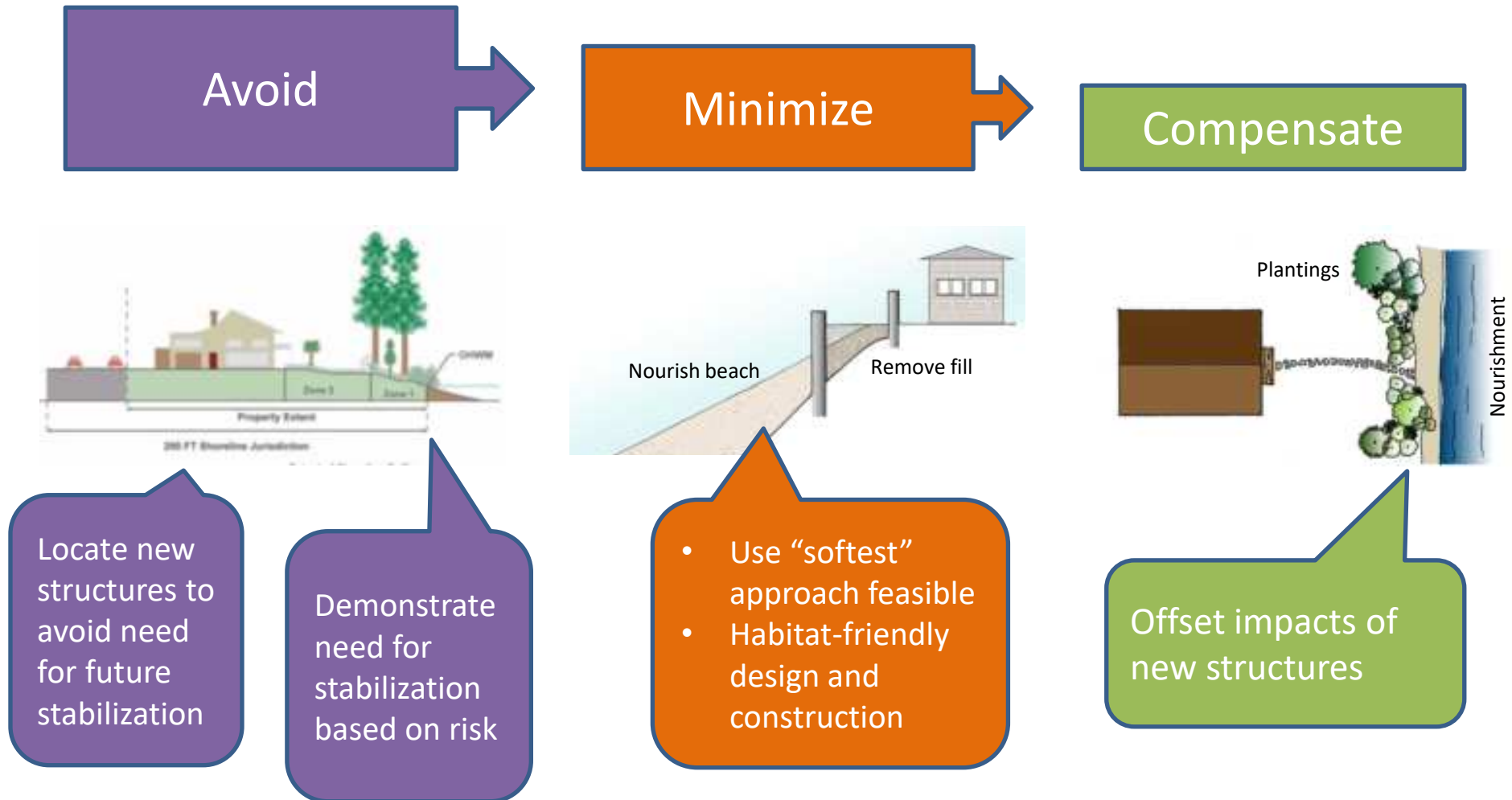
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It Takes a Team!



715 miles **(29%)** of Puget Sound shoreline is **armored**.

Regulatory Requirements for No Net Loss of Ecological Function



Graphics: Bainbridge Island SFR Mitigation Manual

HEALTHY SHORELINES



SUPPORT

FORAGE FISH



SUPPORT

SALMON



SUPPORT

ORCAS





Design Considerations

Can we full restore process to sustain an unarmored shoreline?



Hoypus Point, Deception Pass State Park

Upland drainage management structures/ issues



Relocate buildings, utilities and other infrastructure



Do we need beach nourishment and wood?



How can we enhance and replace native vegetation?





Design Process

Site Characterization

- Inventory structures and utilities
- Measure topography
- Identify water levels
- Determine wind-wave climate
- Determine erosion rates
- What else???

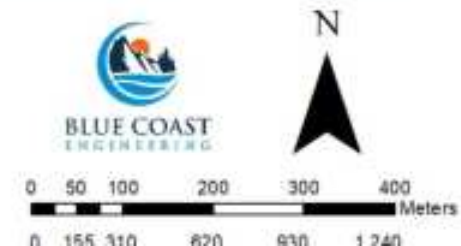


Sediment Supply & Transport



Net Sediment Drift Direction
Around Point no Point

- Left to Right
- No Appreciable Drift
- Right to Left



Opportunities and Constraints



Determine Design Criteria: *Reference Site Analysis*



Hoypus Point Restoration, Deception Pass State Park, Whidbey Island, WA

Northwest Straits Foundation





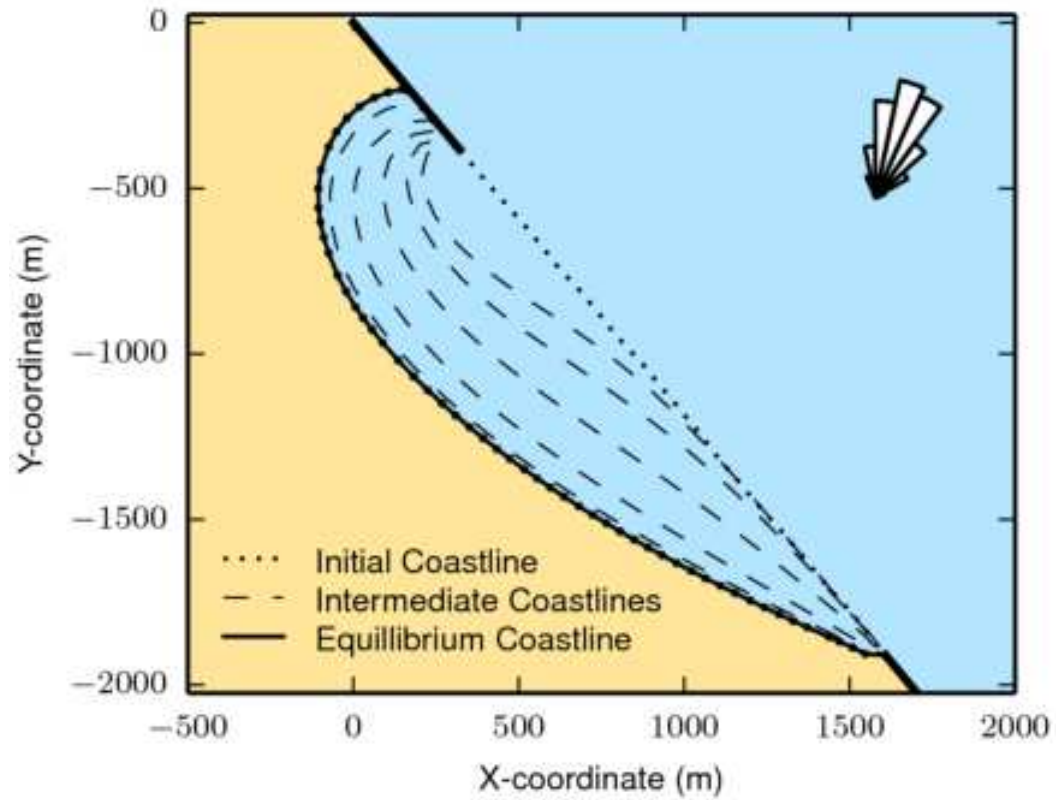
Case Studies

Feasibility, Design, Construction



Little Squalicum Beach, Bellingham, WA

Crenulate Shoreline Shape, Adjacent to Rocky Headland



([Hurst et al., 2015](#))



~ Equilibrium Shape

Following Several Large Storm and King Tide Events





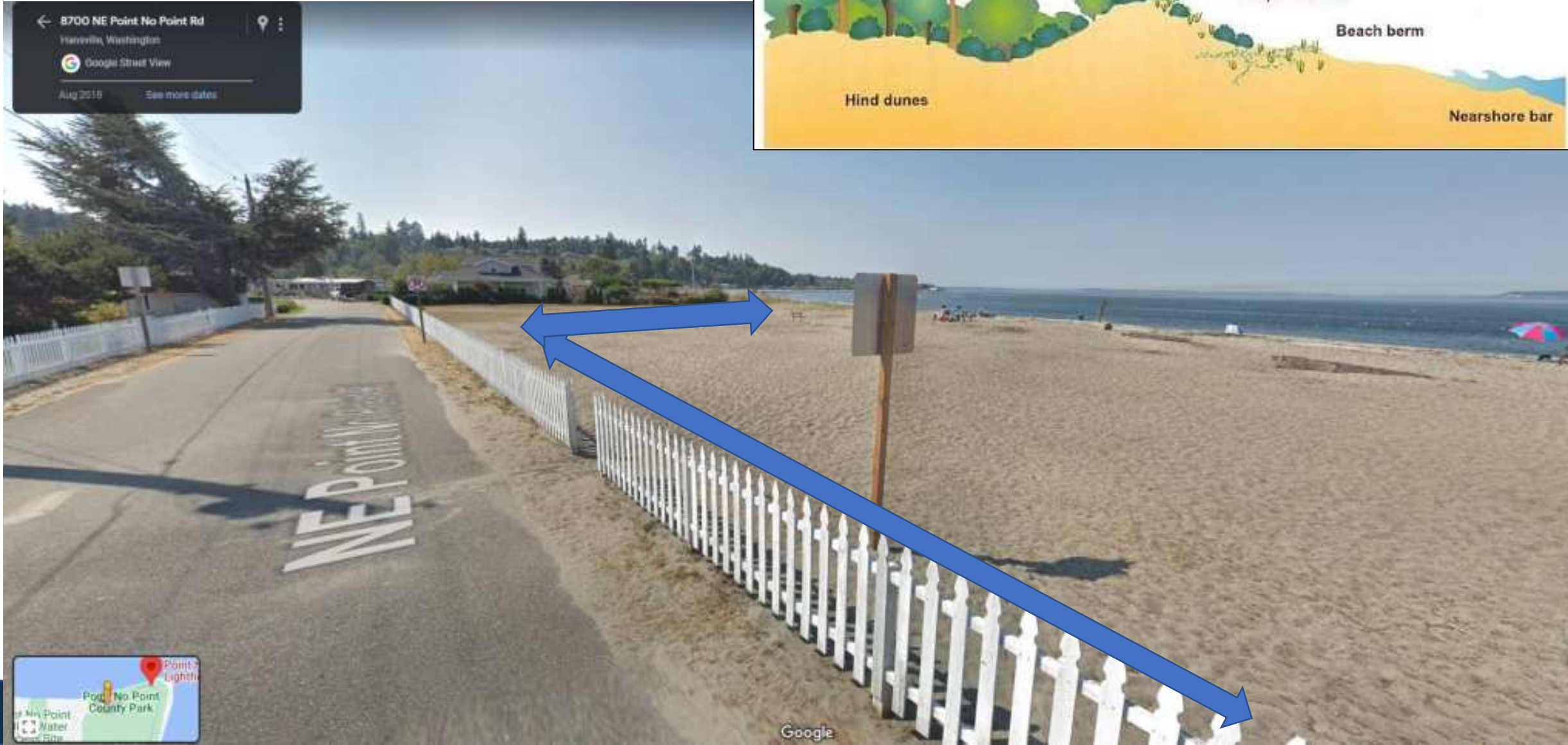
Shoreline Enhancement

Point No Point County Park & Lighthouse, Hansville, WA



December 2022

Rebuild Beach, Deter Flooding, and Protect Historic Structures





Post – Construction December 2025

Before



After



Questions

