

Regional Sediment Budget and Shoreline Restoration Alternatives

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Presentation Overview

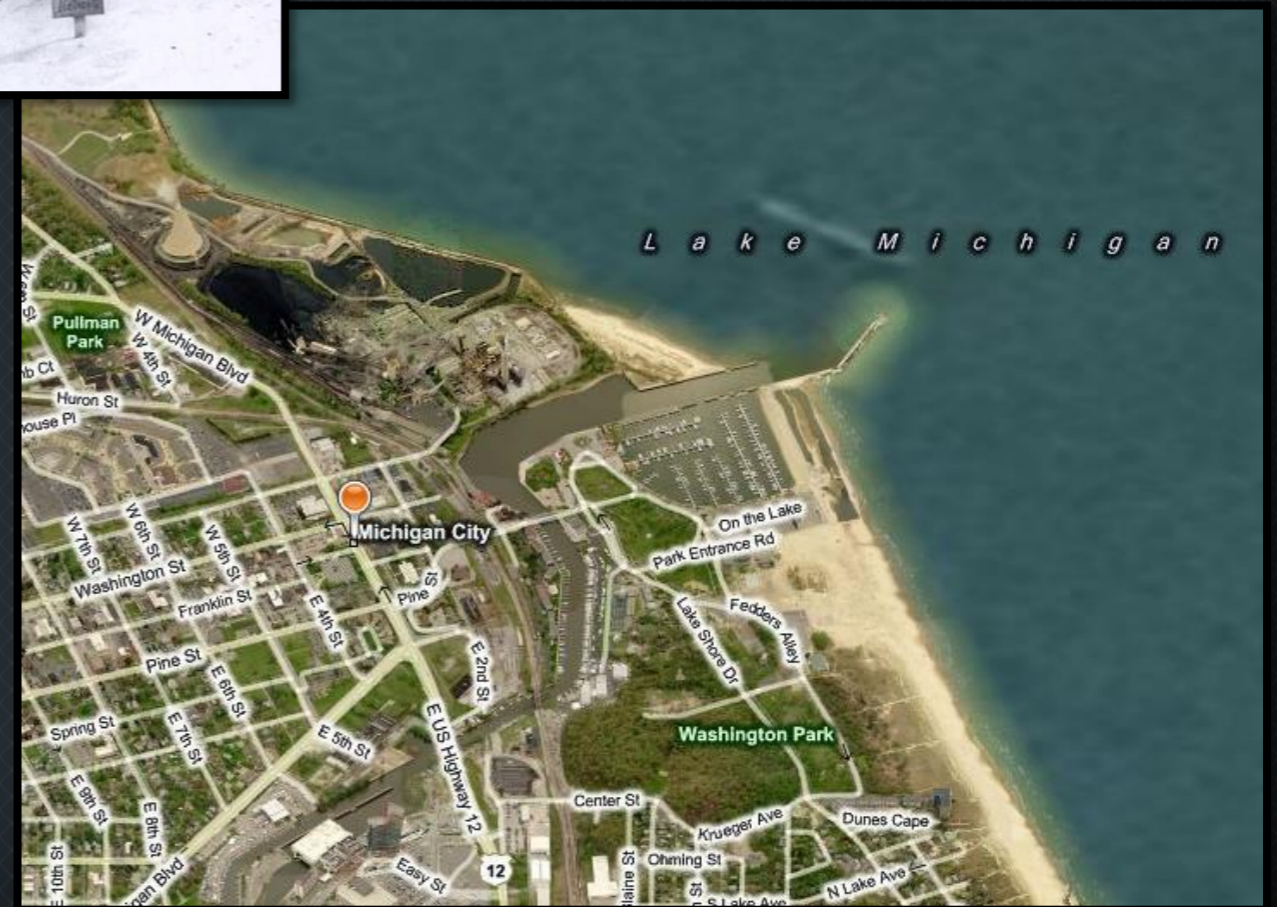
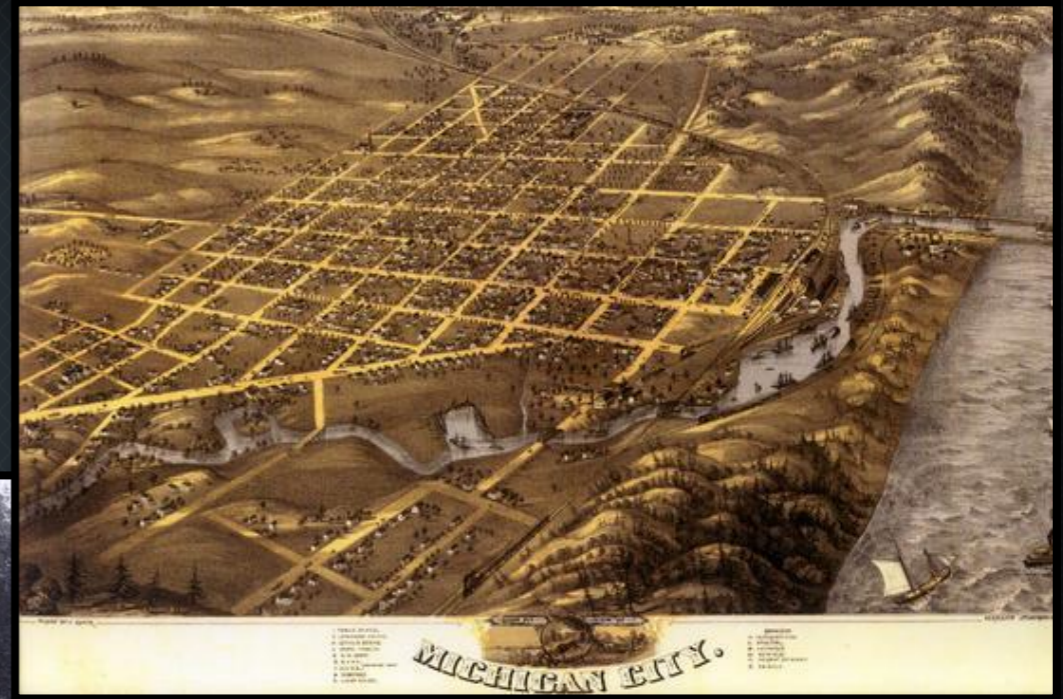
- Regional Sediment Management
- Indiana Shoreline
- Constraints and Opportunities
- Management Objectives
- Technical Analysis
- Long-Term Planning Alternatives

Regional Sediment Management

- Planning concept and action plans
- Effective management – stakeholder participation, natural sediment movement



Indiana Shoreline



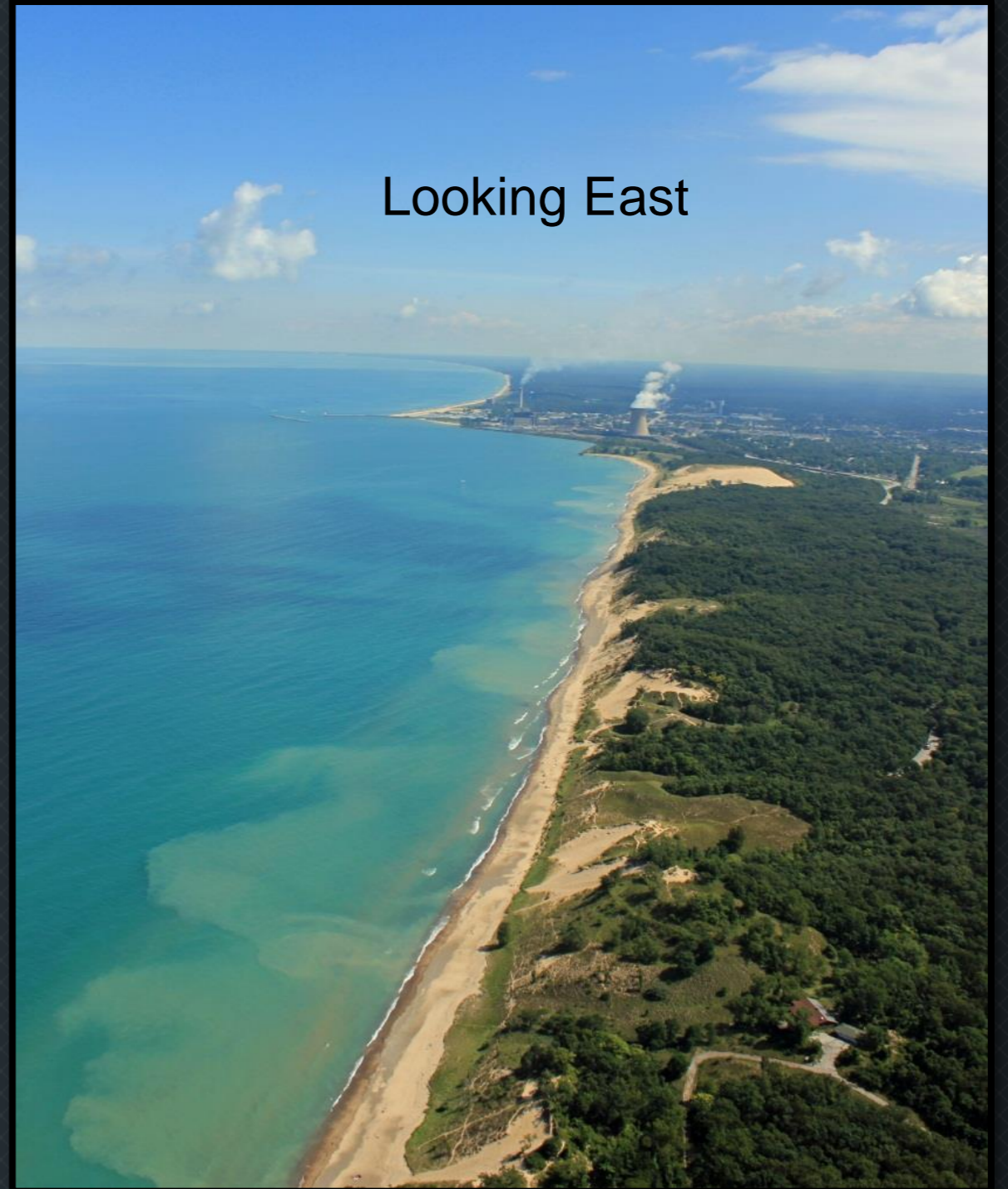
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Indiana Shoreline

Looking West



Looking East



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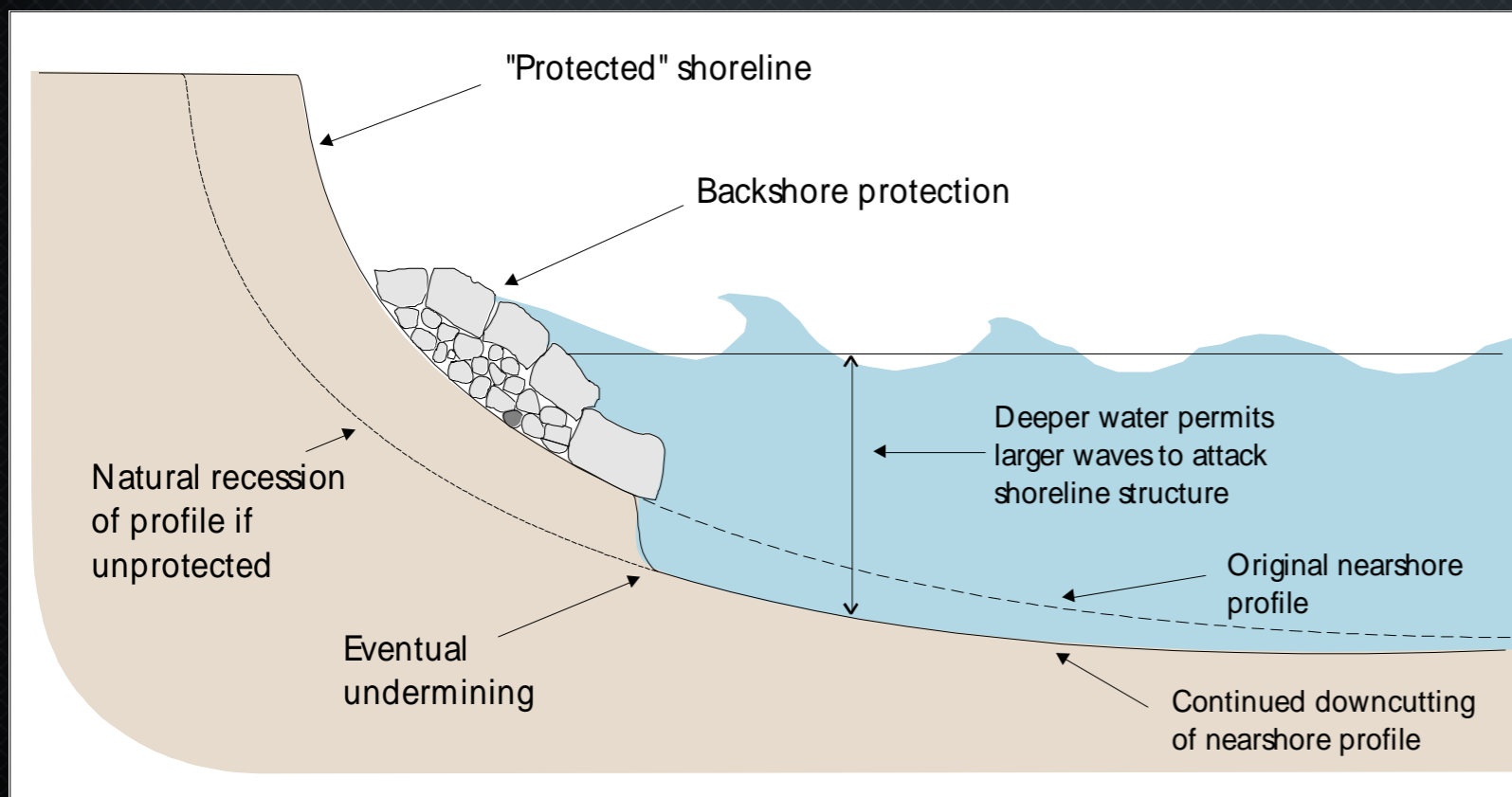
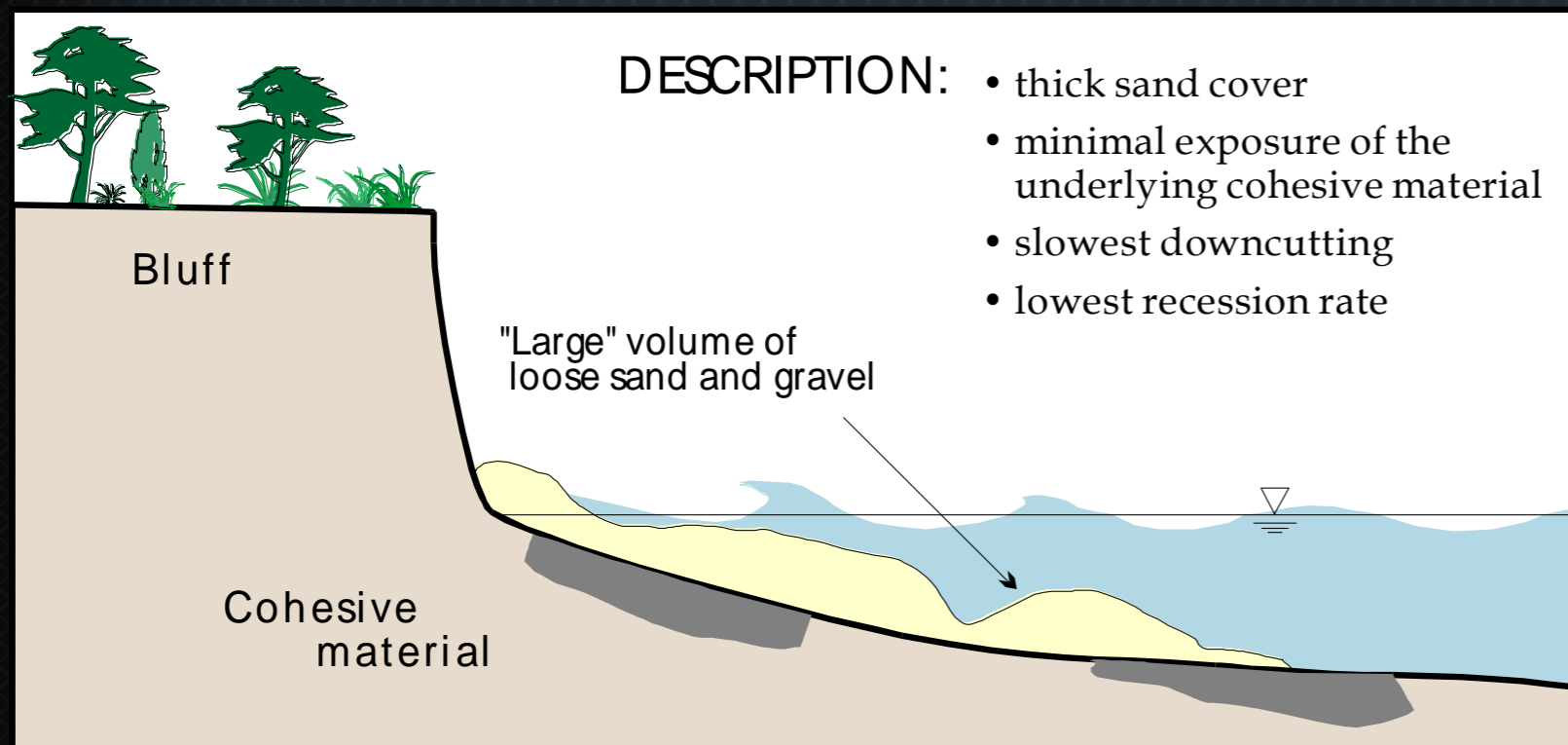
Constraints and Opportunities

- Natural Bluff / Beach Cycle
- Shoreline Development Impacts
- Man-Made Structures and Harbors
- Significant Volumes of Sediment Available

Management Objectives

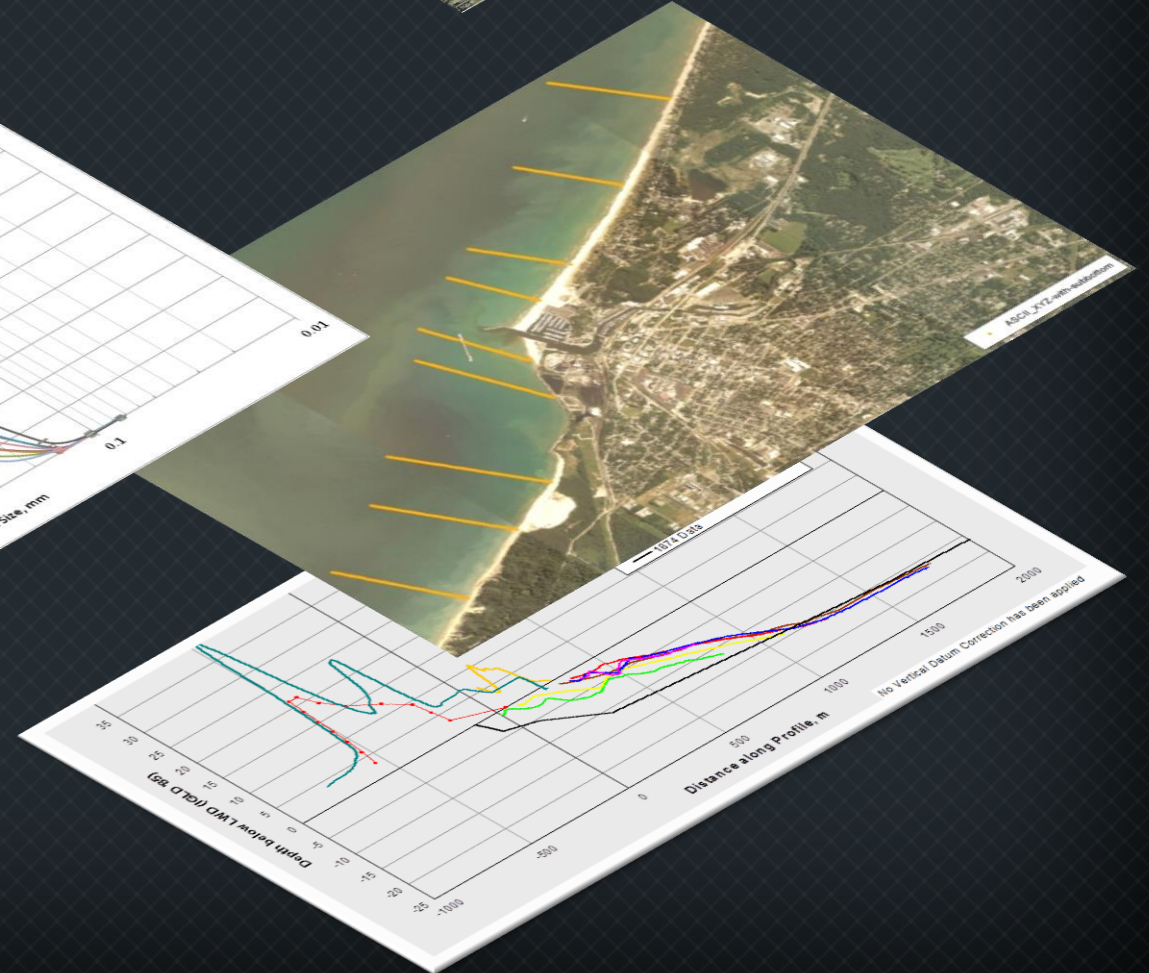
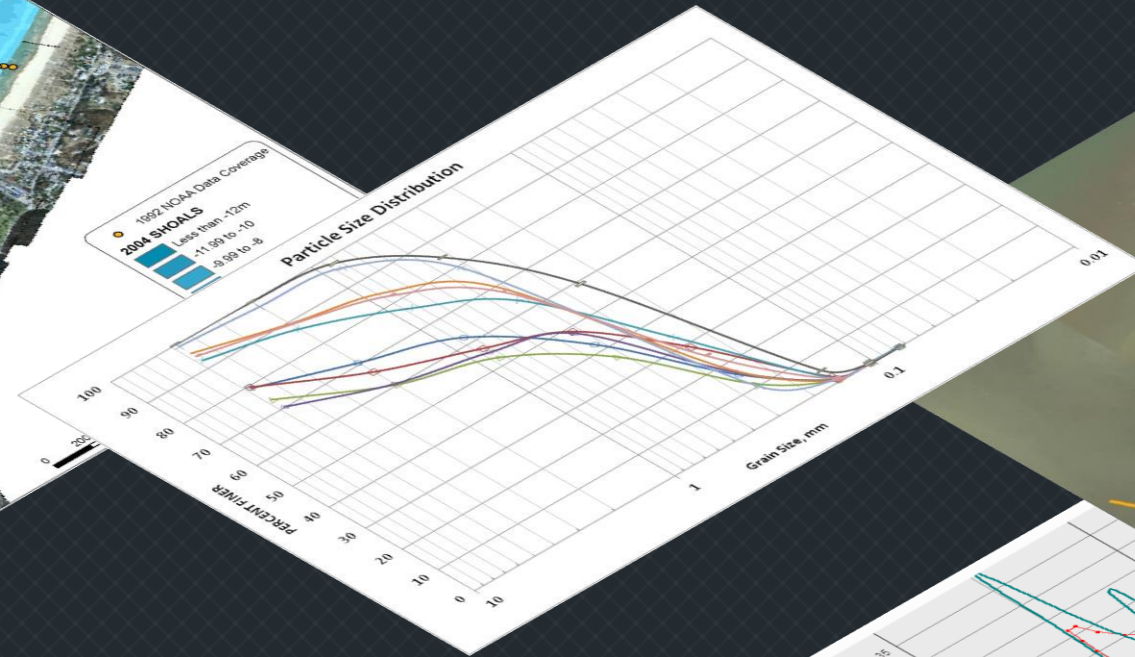
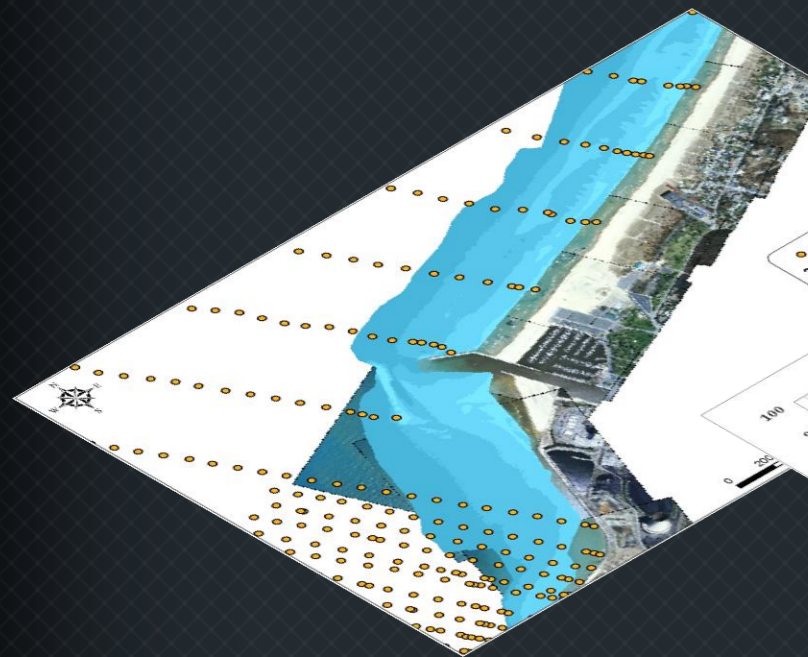
- Reduce Shoreline Erosion
- Restoration Focus on Beach Nourishment
- Regional Approach, Not Local
- Long-Term Plan Formulation

Shoreline Erosion



Data

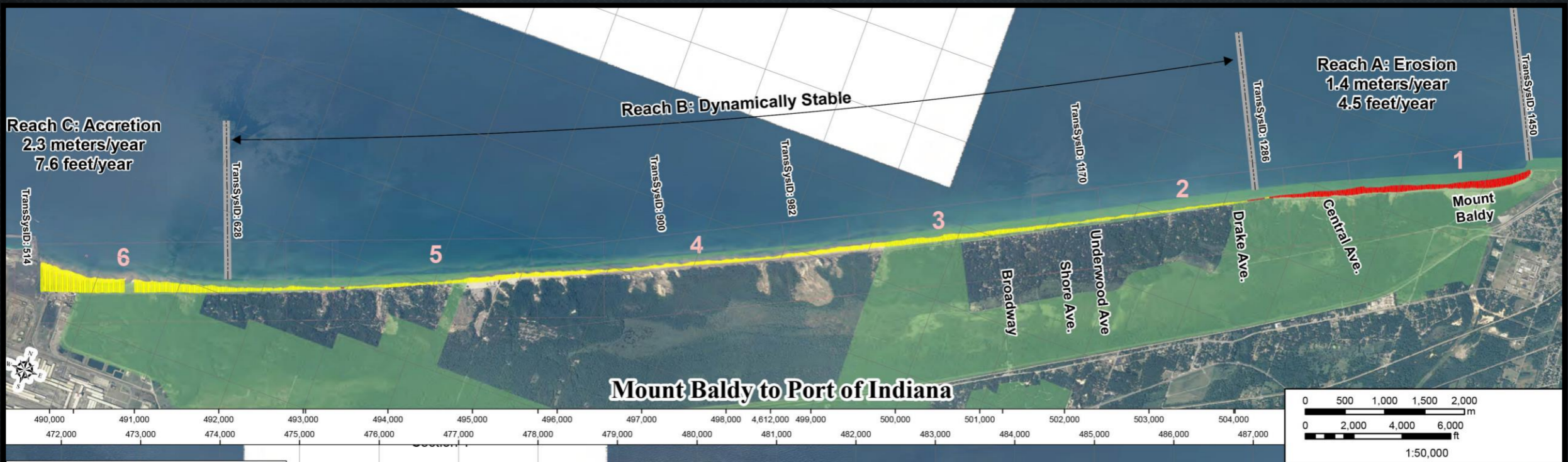
- Survey Data
- Offshore Profiles
- Soils
- Dredging and Nourishment



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Technical Analysis

Shoreline Evolution



Legend

- Indiana Dunes N.L. Park Boundary

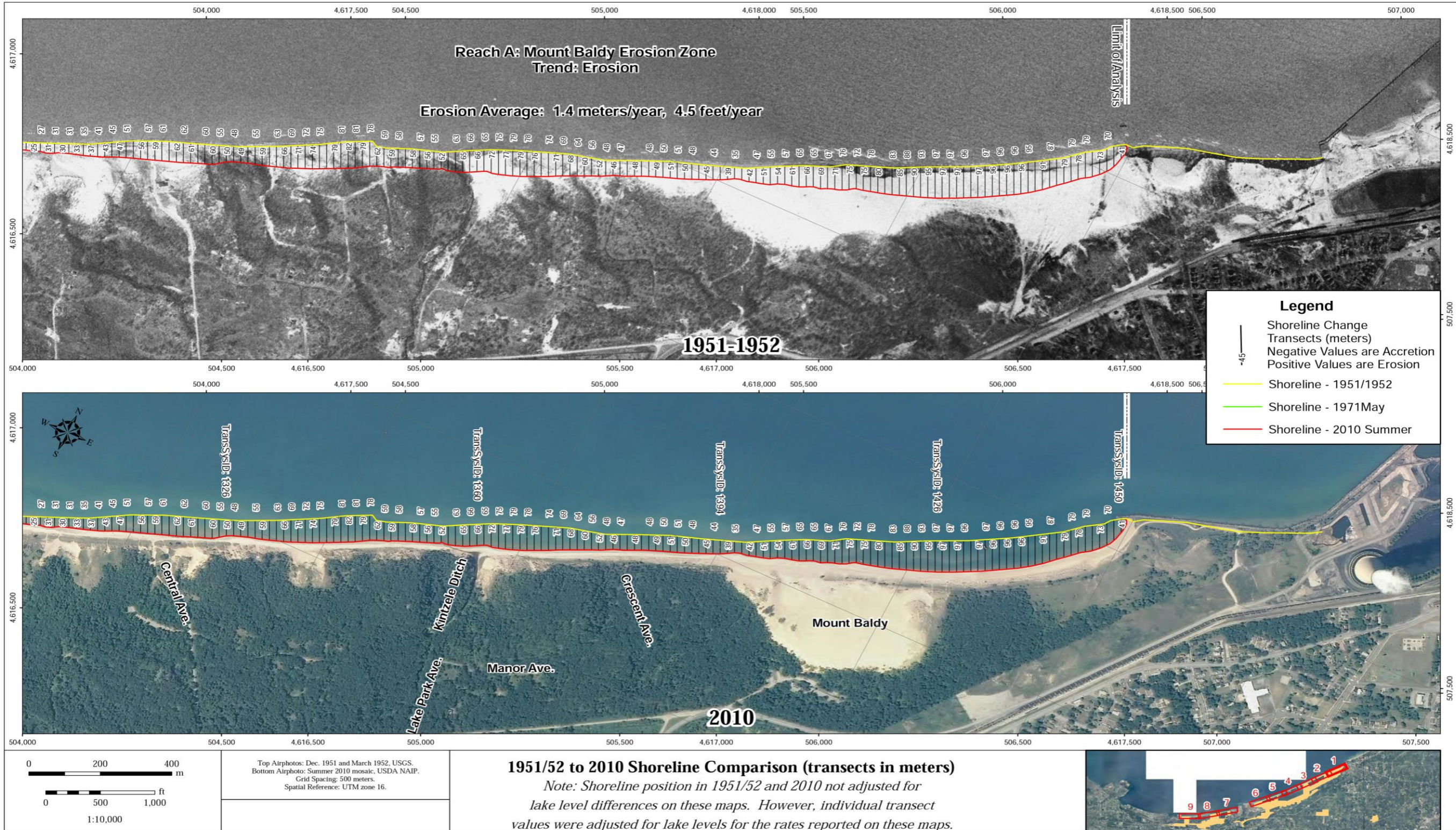
Shoreline Change Trend

- Accretion
- Erosion



Technical Analysis

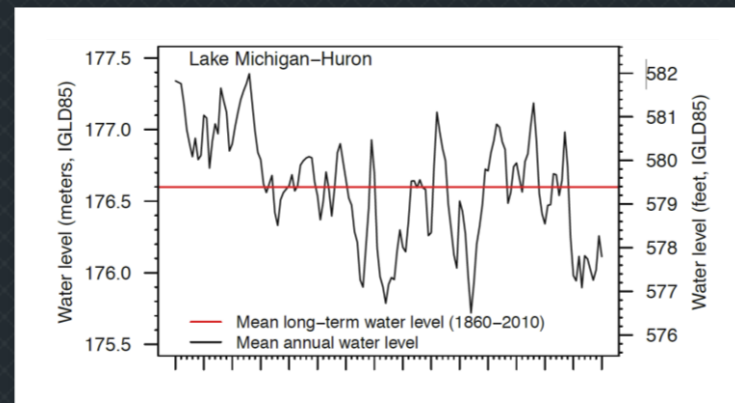
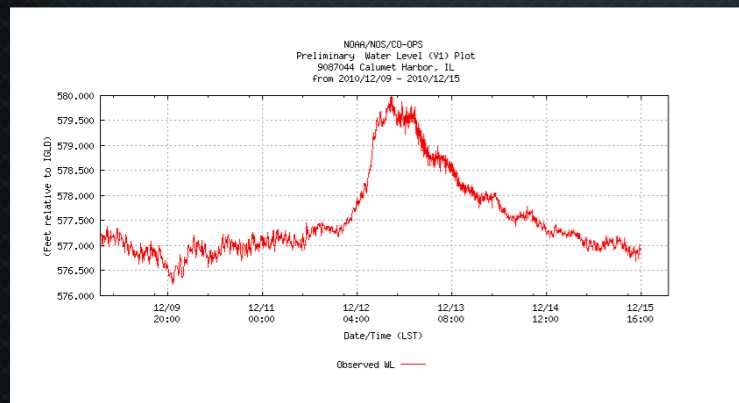
Shoreline Evolution



Technical Analysis

Water Level and Surge Analysis

Wave Climate



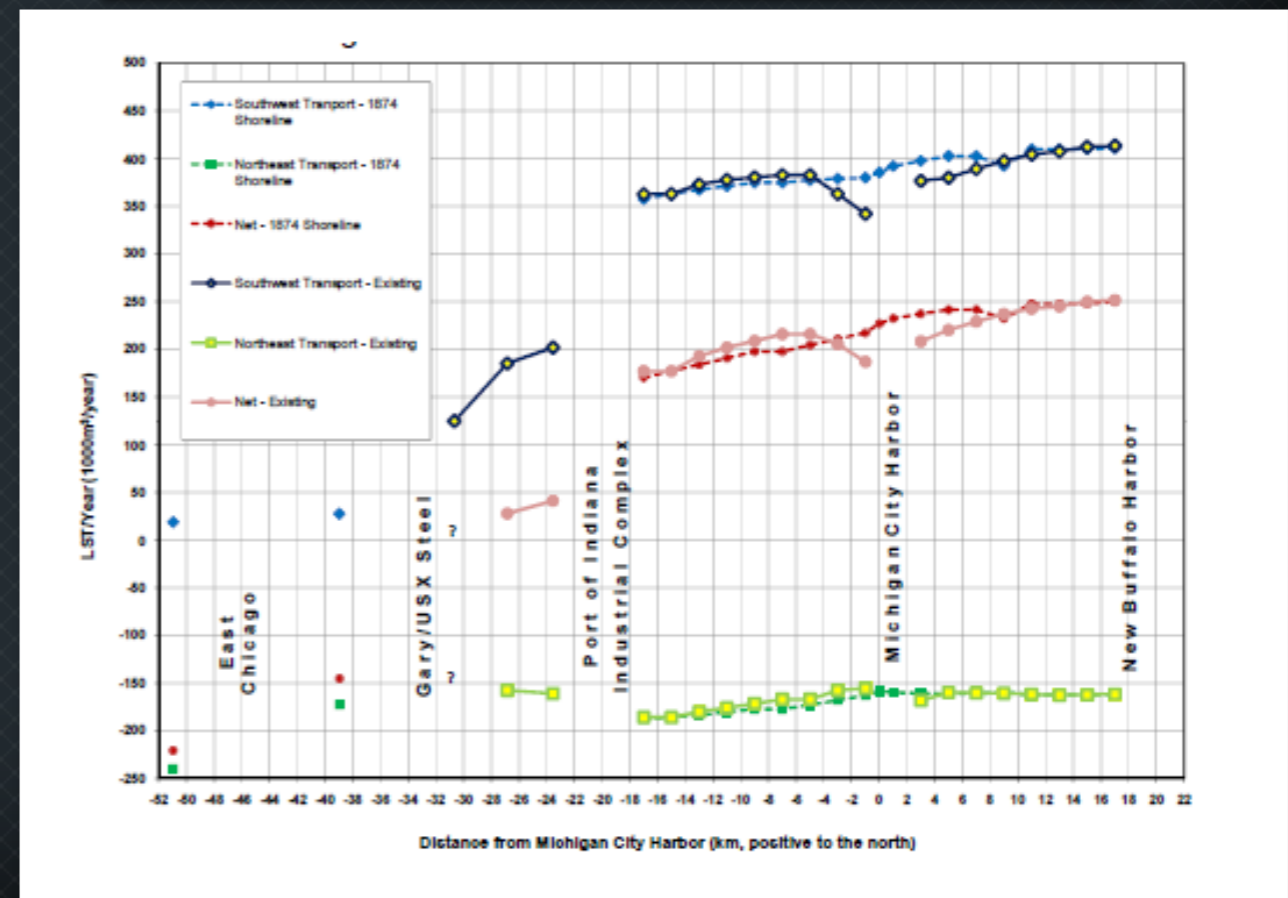
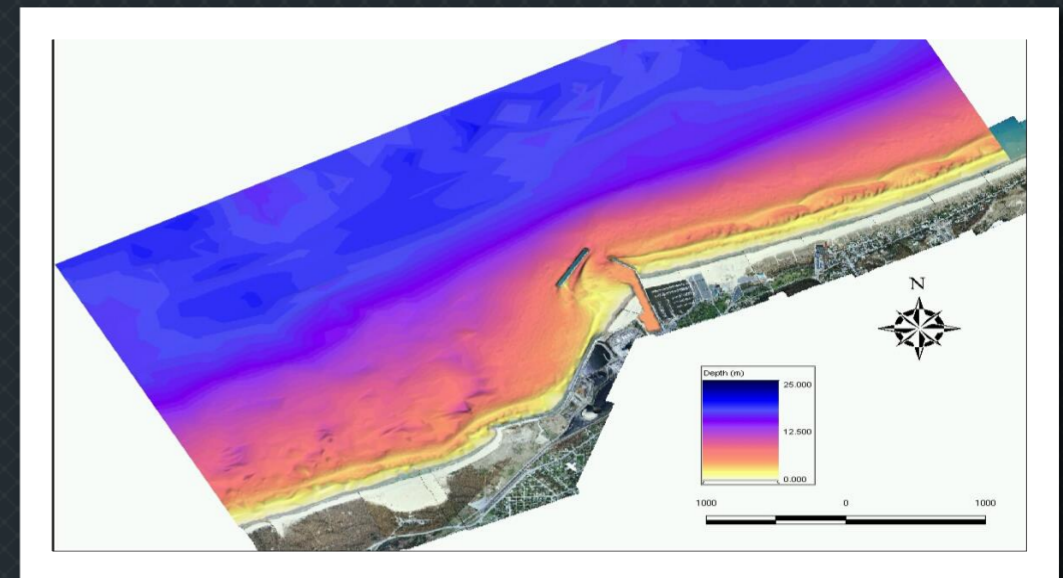
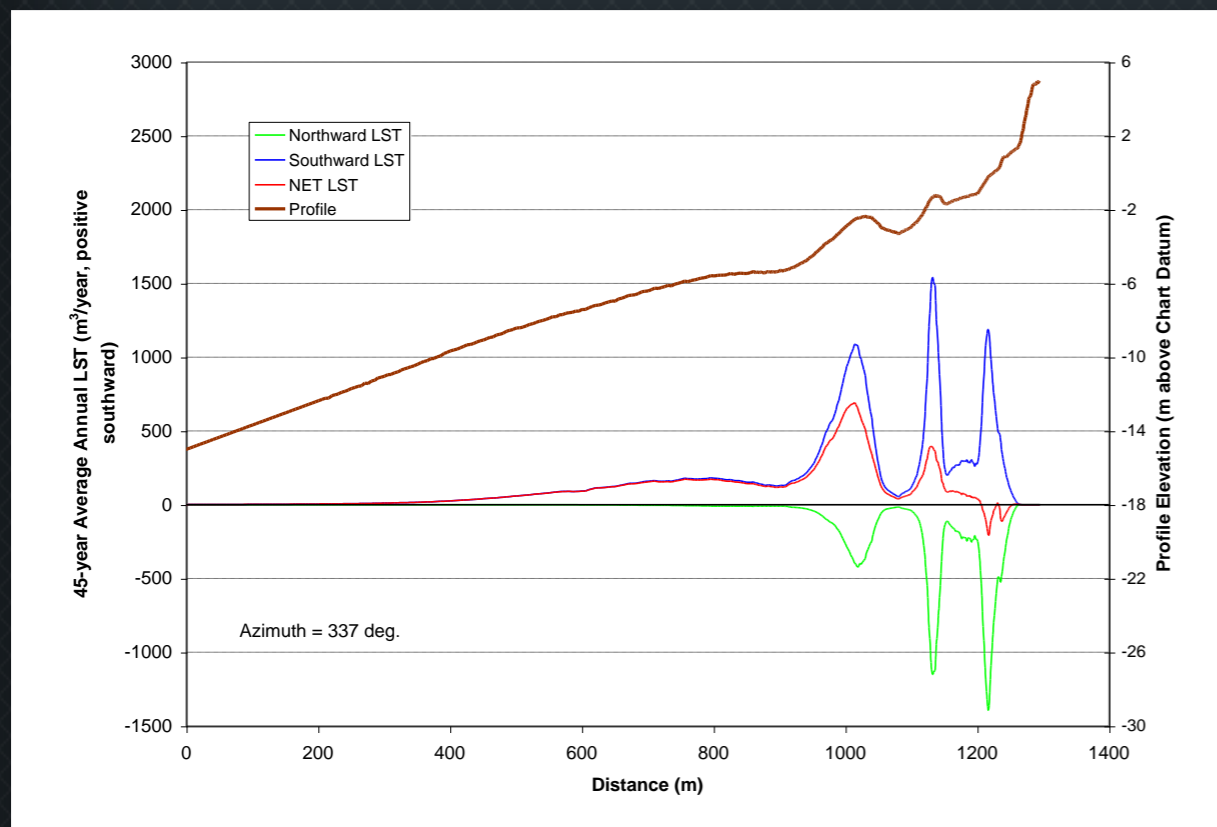
Return Period (years)	Lake Level (ft LWD)	Lake Level (IGLD 85)	USACE 1988 (ft IGLD 85)	USACE 1993 (ft IGLD 85)
2	4.0	581.5	-	-
5	5.1	582.6	-	-
10	5.7	583.2	582.5	582.9
25	6.4	583.9	-	-
50	6.8	584.3	583.6	583.4
100	7.2	584.7	584.0	584.3
200	7.5	585.0	-	-
500	7.9	585.4	584.9	-



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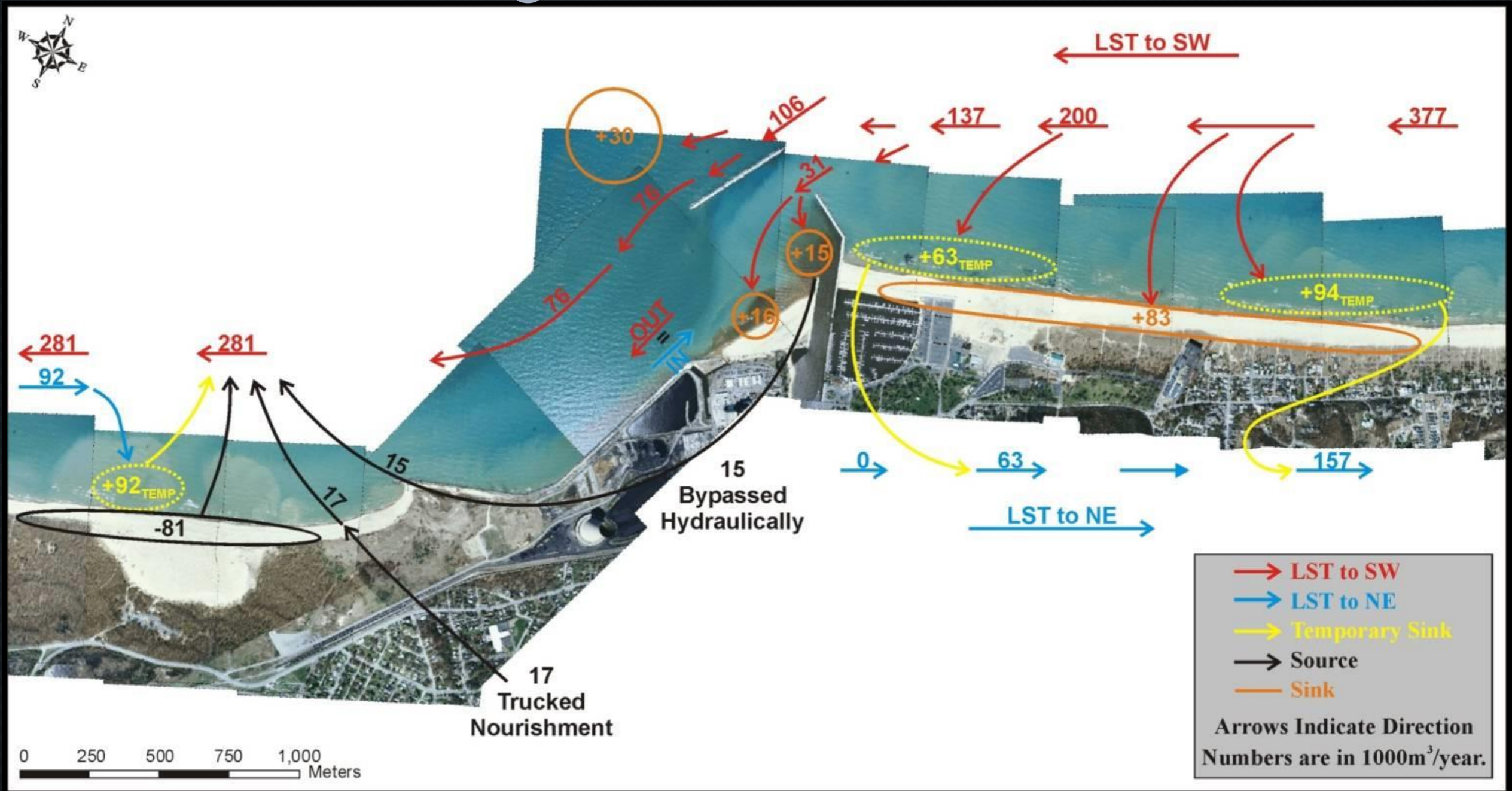
Technical Analysis

Regional Sediment Transport



Technical Analysis

Sediment Budget



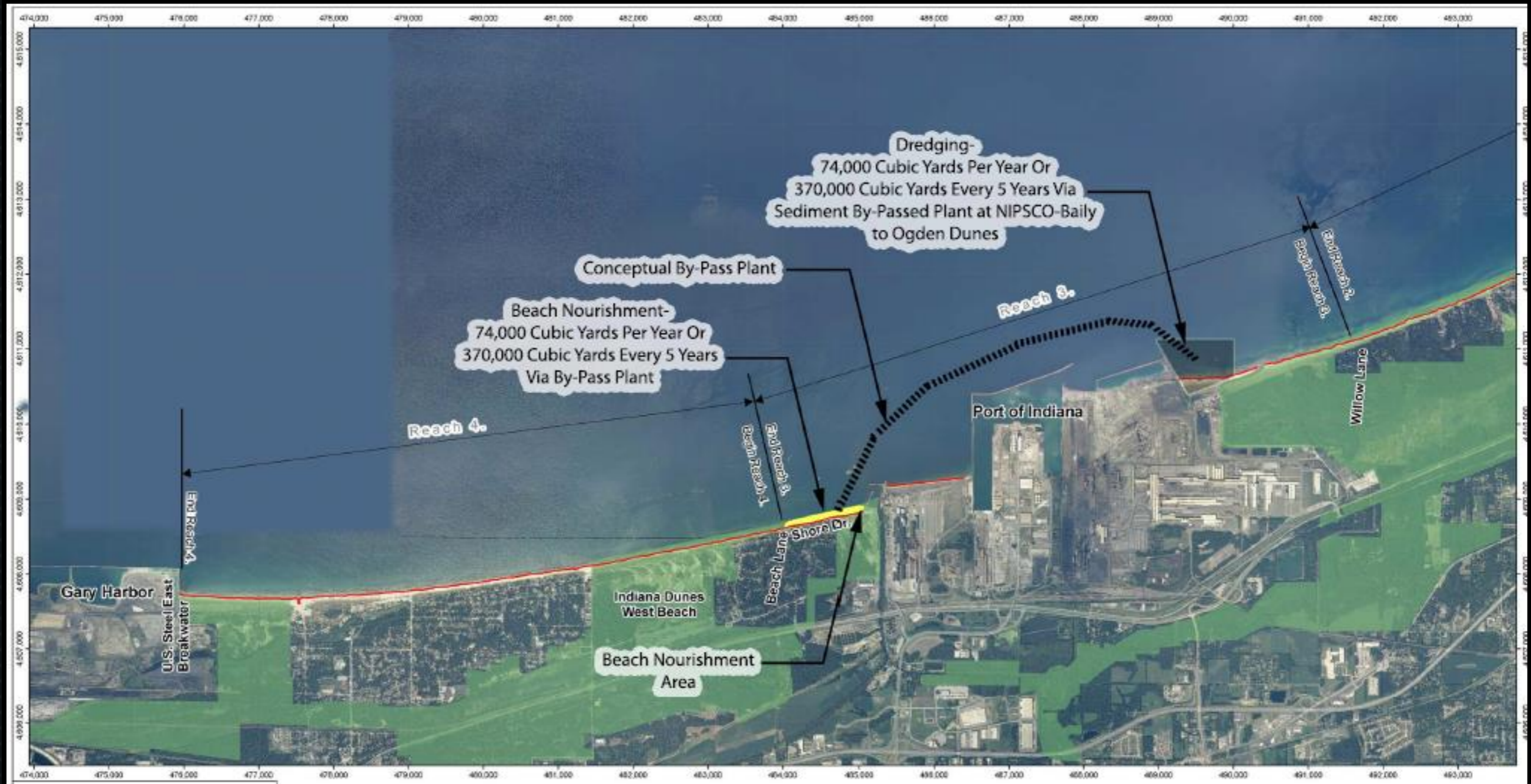
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Long-Term Planning Alternatives

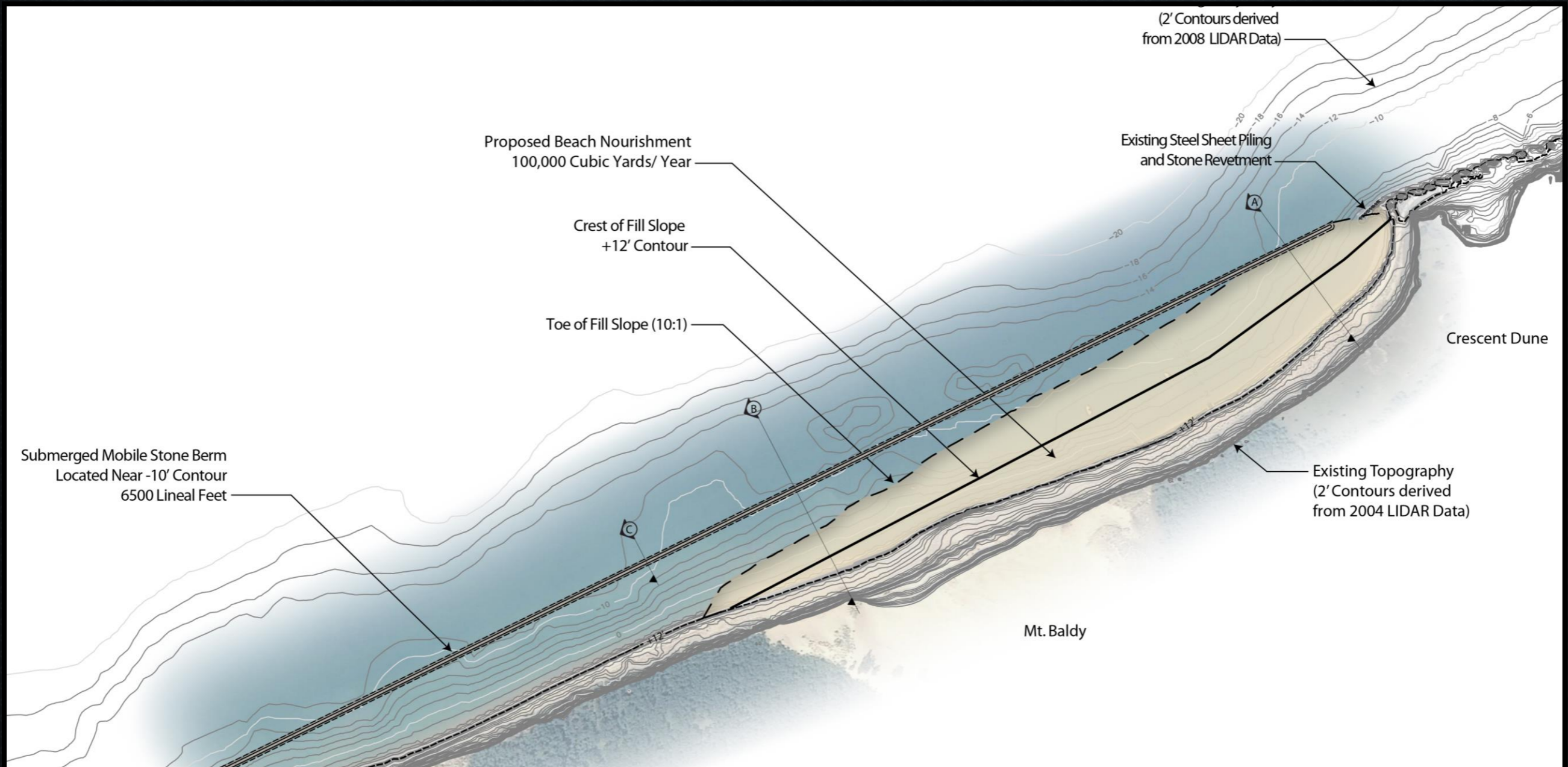


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Long-Term Planning Alternatives

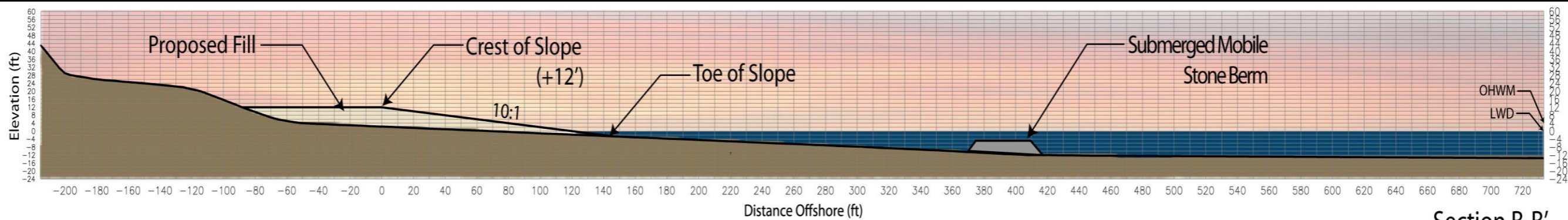


Long-term Planning Alternatives

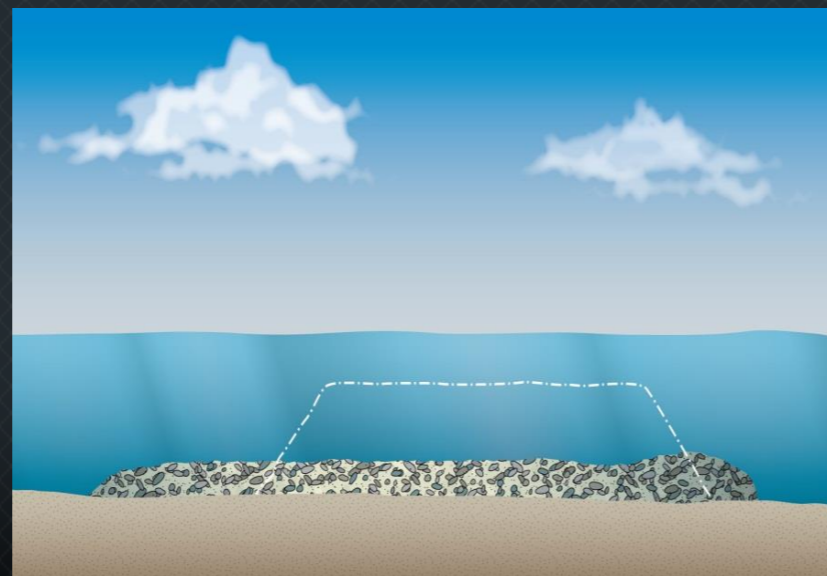
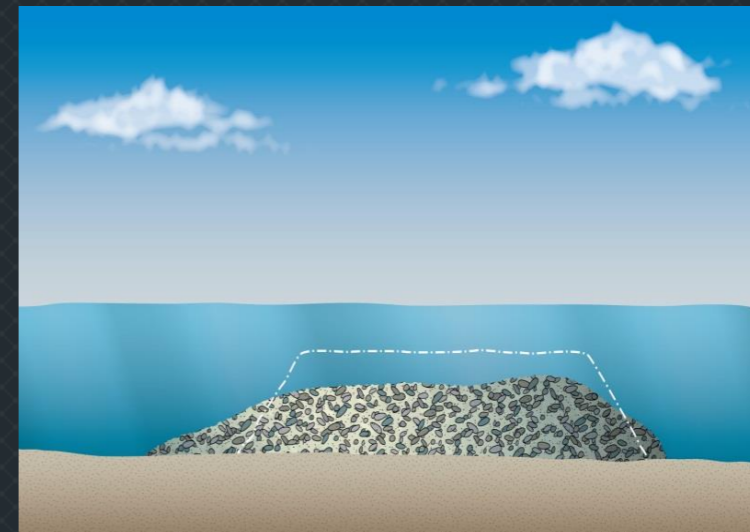
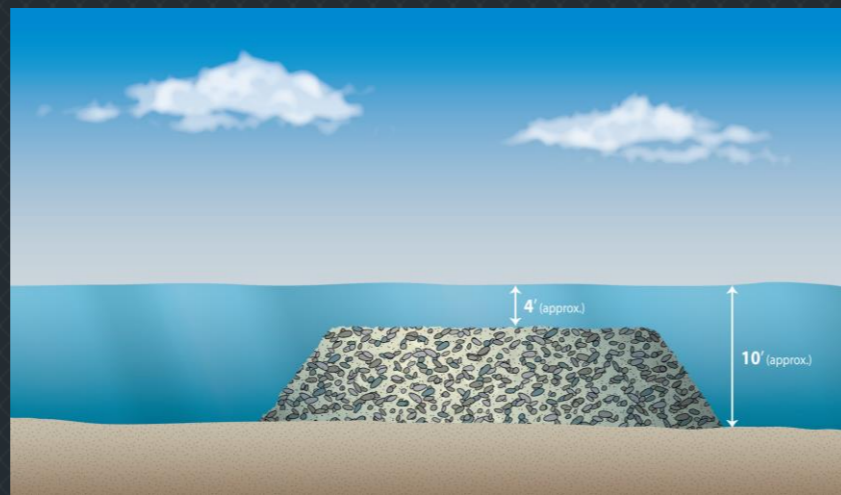


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Long-Term Planning Alternatives



Section B-B'



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Summary, Conclusions, Recommendations

- 20 Year Planning Timeframe
- Cost Advantages Comparing with Current Practices
- Working Towards a Sustainable Shoreline
- Natural Look
- Habitat Restoration Opportunities