
Fiscal & Policy Considerations of a Terminal Groin at New River Inlet
River Rd
Port Dr
Oyster Ln
Coastal Dr
Marine Dr
Grant Dr
Sandpiper Dr
Bay Cir
Porpoise Pl
New River Inlet Rd
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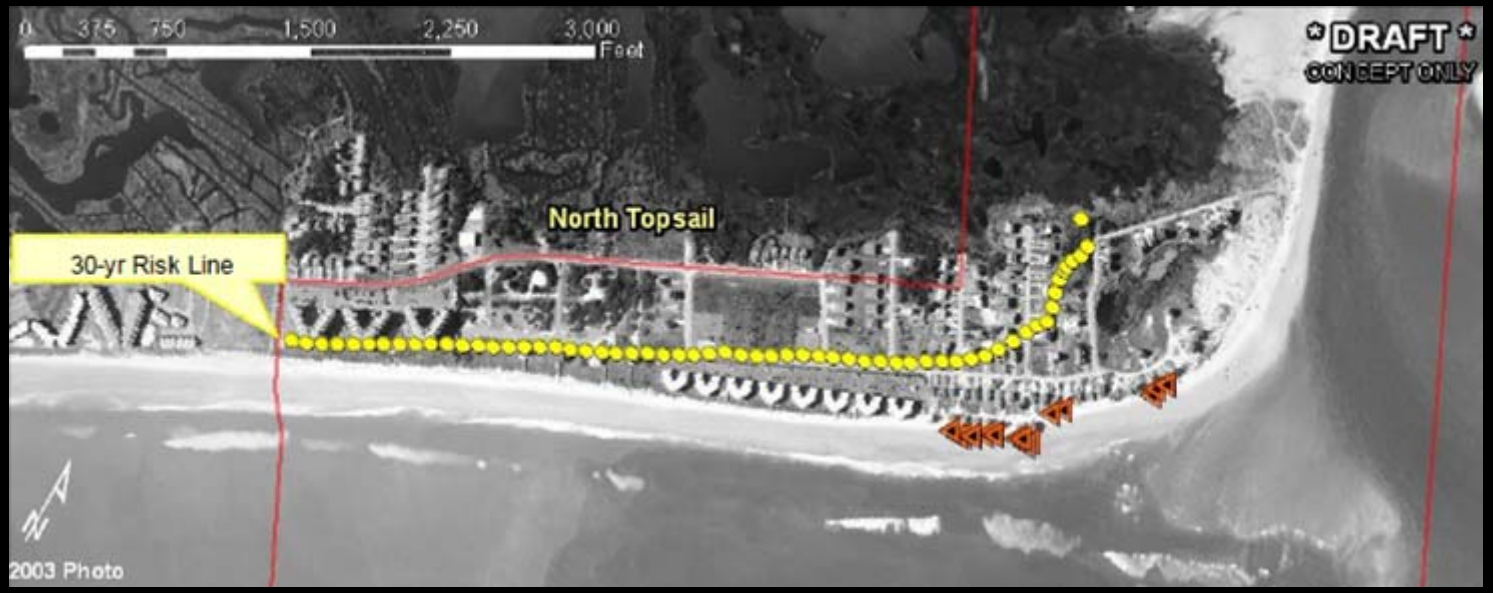
- Costs: Range from $1,125/lf for groin (CSE) to $2,750/lf (G&B) and $4-5/cy (not including mob) for nourishment. Initial costs ~ $7 million.

  Maintenance costs: Depends on the trapping efficiency of TG and storms. Estimates vary from $2.25 million/yr (CRC) to every 5 years (PSDS)

- Benefits: Property damage reduction, but no quantitative assessment or mention of reduced need for/cost of nourishment

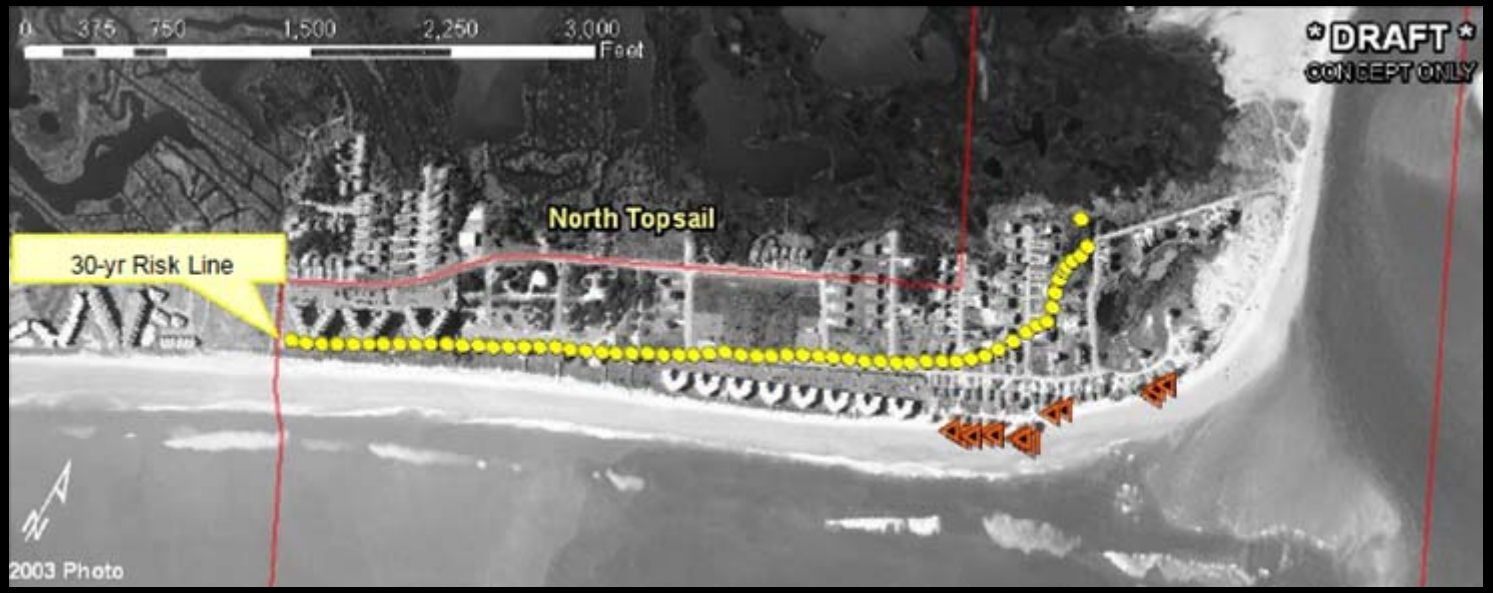
- Community Goals & Objectives: Why a groin (or nourishment or anything)?



At-Risk Properties:	**376**
Total Assessed Value:	**$66,817,693**
% of Municipal Tax Base:	**7.92%**
% of County Tax Base:	**0.53%**
Total Annual Tax Revenue*:	**$797,038**
NPV Tax Revenue Over 30 Years:**	**$32,939,174**

* Estimate includes municipal and county ad valorem, occupancy and sales tax

** Using a discount rate of 3% and price appreciation rate of 5%



Imminent Risk Properties:	**37**
Total Assessed Value:	**$2,914,211**
% of Municipal Tax Base:	**0.35%**
% of County Tax Base:	**0.02%**
Total Annual Tax Revenue*:	**$34,762**
NPV Tax Revenue Over 30 Years:**	**$1,436,621**

* Estimate includes municipal and county ad valorem, occupancy and sales tax

** Using a discount rate of 3% and price appreciation rate of 5%

	All	IRPs
Properties:	376	37
Total Assessed Value:	$66,817,693	$2,914,211
% of Municipal Tax Base:	7.92%	0.35%
% of County Tax Base:	0.53%	0.02%
Total Annual Tax Revenue Loss*:	$797,038	$34,762
NPV Tax Revenue Loss Over 30 Years*:	$32,939,174	$1,436,621

* Estimate includes municipal and county ad valorem, occupancy and sales tax

** Using a discount rate of 3% and price appreciation rate of 5%

The basic rationale for a terminal groin for North Topsail Beach is to trap and retain the flow of sand moving north before it reaches the inlet. The resulting shoreline planform would be "anchored" by the structure. A fillet (section of accreted beach) would provide protection to existing properties. Once filled to capacity, the terminal groin would allow excess sand to "bypass" the structure and resume building a spit into the inlet. Because net sand transport is into New River Inlet from both directions, adverse impacts of the structure would be highly localized and would not likely extend to Onslow Beach. Positive impacts of the structure would extend some uncertain distance to the south in relation to the scale of the groin and interactions of the offshore shoals of the inlet ("ebb-tidal delta") with the fillet. A terminal groin at Pawleys Island (SC) and adjacent Midway Inlet provides an analogous setting which CSE will use to describe the potential impacts and maintenance issues North Topsail Beach is likely to face.

For a terminal groin of the order 800 feet long at North Topsail Beach, cost is likely to be in the range of $1–$2 million depending on the amount of scour protection needed and exposure to the inlet channel. This cannot be determined with confidence without further study. The trapping capacity for a groin with such dimensions is likely to be in the range 75,000–150,000 cy. Volumes in this range will not be economical unless they can be obtained from New River Inlet via harbor dredge. The cost of mobilizing for an offshore borrow area would be significantly higher (eg – approximately $2 million for mobilization and $5–$10 per cubic yard for pumping). These assumptions yield a project cost upward of $5 million, assuming the higher estimates given here.


9 Acres
800 ft.
2,000 ft.
Marine Dr
Grant Dr
Sandpiper Dr
Bayview Dr
Image USDA Farm Service Agency
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Cost of Groin w/ Periodic Nourishment

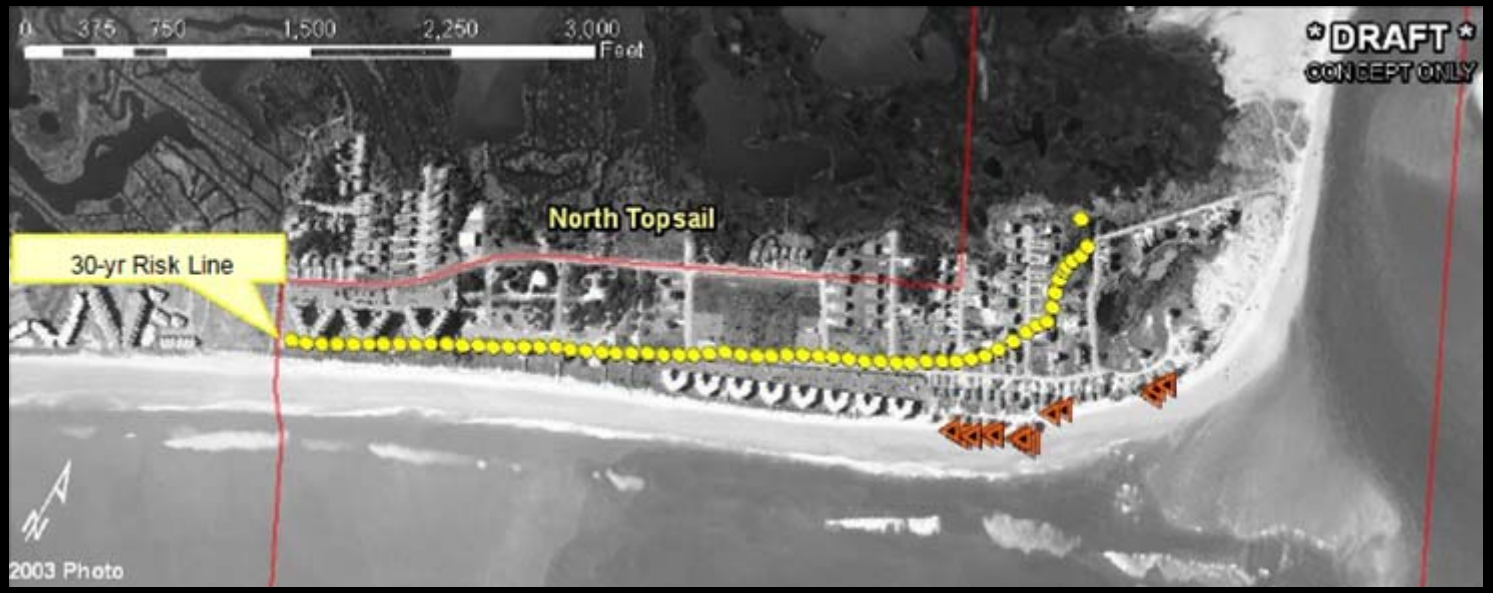
Discount rate	0.03
Price appreciation rate (%)	0.05

Year	Annual Flow	NPV
0	$5,000,000	$5,000,000
1	$0	$0
2	$0	$0
3	$0	$0
4	$0	$0
5	$2,250,000	$1,940,870
6	$0	$0
7	$0	$0
8	$0	$0
9	$0	$0
10	$2,250,000	$1,674,211
11	$0	$0
12	$0	$0
13	$0	$0
14	$0	$0
15	$2,250,000	$1,444,189
16	$0	$0
17	$0	$0
18	$0	$0
19	$0	$0
20	$2,250,000	$1,245,770
21	$0	$0
22	$0	$0
23	$0	$0
24	$0	$0
25	$2,250,000	$1,074,613
26	$0	$0
27	$0	$0
28	$0	$0
29	$0	$0
30	$2,250,000	$926,970

NPV = $13,306,624

NPV Cost of Terminal Groin: $13,306,624

NPV Estimated Tax Revenue Protected: $1,436,621



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NPV Tax Revenue Over 30 Years:**	**$32,939,174**

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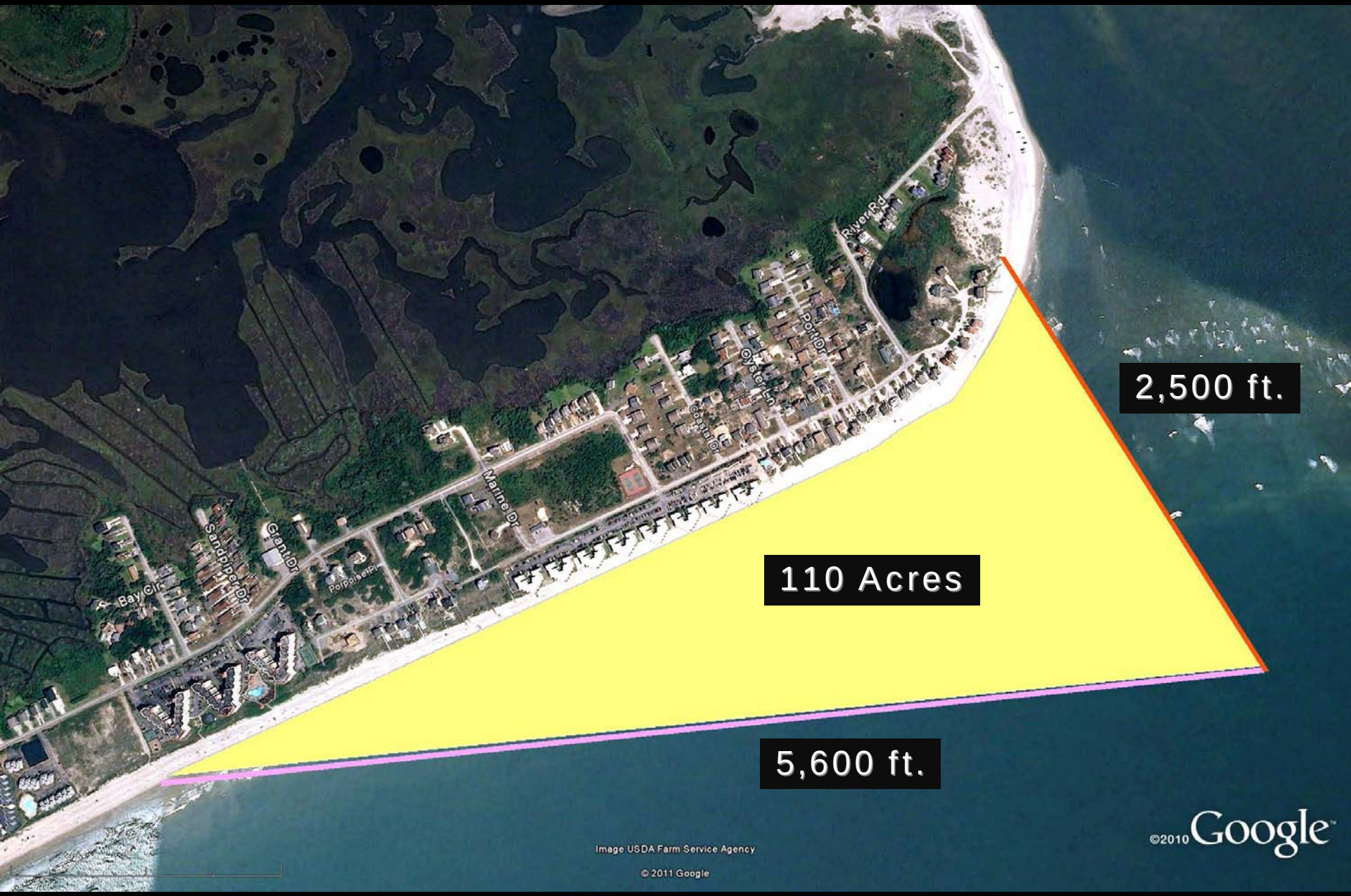
2,500 ft.
110 Acres
5,600 ft.
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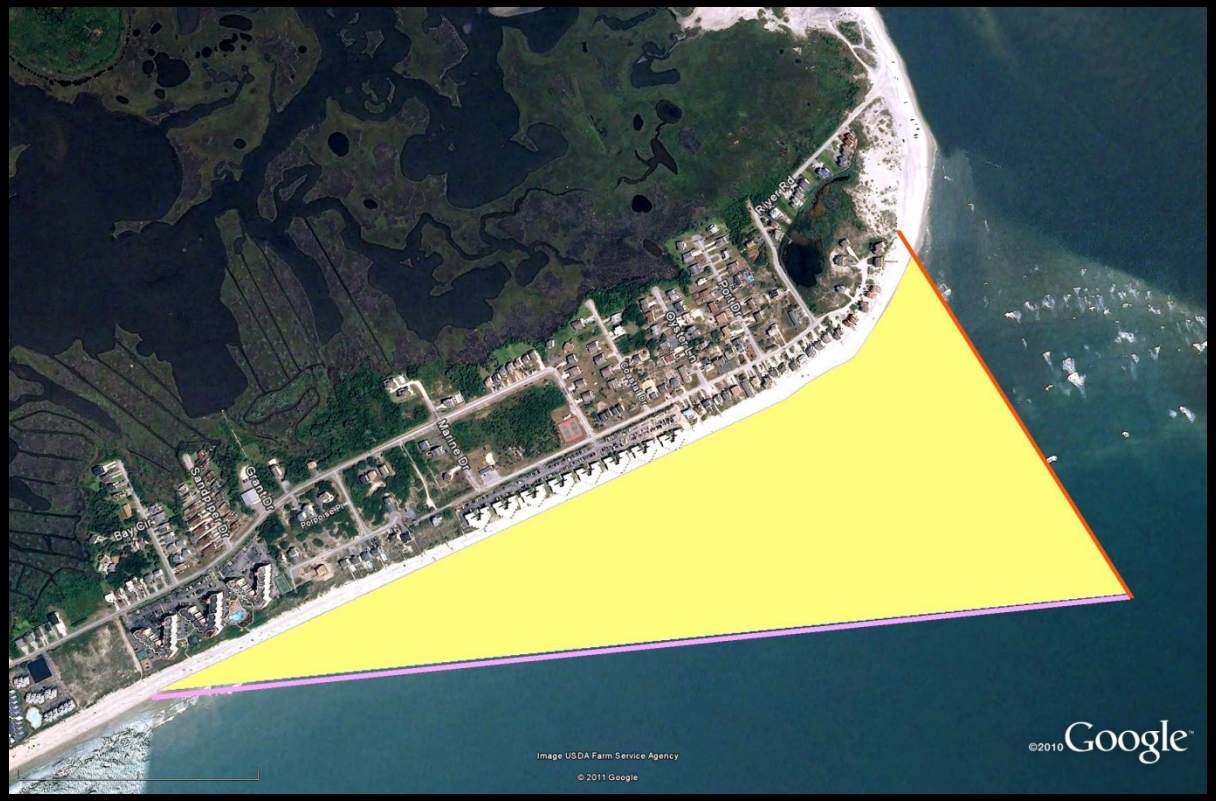
Cost of Groin w/ Periodic Nourishment

Discount rate	0.03
Price appreciation rate (%)	0.05



Year	Annual Flow	NPV
0	$15,000,000	$15,000,000
1	$0	$0
2	$0	$0
3	$0	$0
4	$0	$0
5	$5,000,000	$4,313,044
6	$0	$0
7	$0	$0
8	$0	$0
9	$0	$0
10	$5,000,000	$3,720,470
11	$0	$0
12	$0	$0
13	$0	$0
14	$0	$0
15	$5,000,000	$3,209,310
16	$0	$0
17	$0	$0
18	$0	$0
19	$0	$0
20	$5,000,000	$2,768,379
21	$0	$0
22	$0	$0
23	$0	$0
24	$0	$0
25	$5,000,000	$2,388,028
26	$0	$0
27	$0	$0
28	$0	$0
29	$0	$0
30	$5,000,000	$2,059,934

NPV = $33,459,164

NPV Cost of Terminal Groin: $33,459,164

NPV Estimated Tax Revenue Protected: $32,939,174

	All	IRPs
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Community Goals & Objectives

Selection of Plan by the Community

Upon review of alternative plans and cost estimates, the community would be expected to select a preferred plan best meeting the goals, objectives, and budget available. Because nourishment is likely to be required in conjunction with groin construction, much of the budget would likely go toward purchase and placement of sand. The plan selected by the community would likely be the best combination of groin lengths and trapping capacities that fall within the budget available. CSE, as a rule, seeks to optimize groin lengths and nourishment volumes for a given budget allowing up to 15 percent deviation in either parameter because of the uncertainty in prices before construction bids are received.