



Beach Nourishment Update

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Town Manager



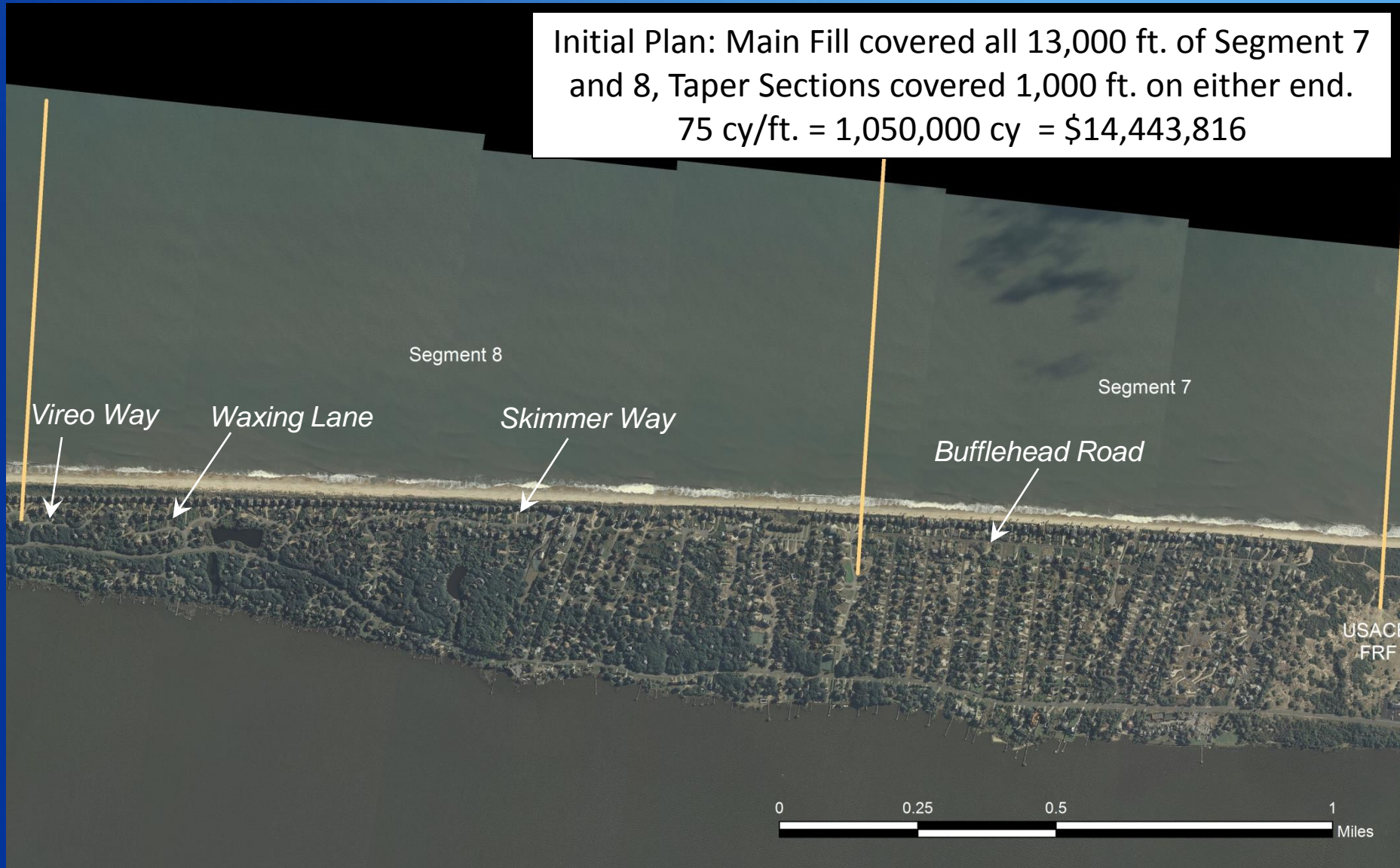
Beach Nourishment Update

- Project Status
 - Where we left off
 - Current Status
 - Project Schedule
- Project Funding
 - Dare County Occupancy Tax
- Municipal Service Districts
 - Proposed MSDs
 - MSD Funding Models
- Next Steps
 - Proposed timeline for adopting MSDs

Project Status – Where We Left Off

- Consensus on Moving Forward
- Why?
 - Erosion Protection
 - Storm Protection
 - Enhanced Recreational Beach
 - Maintain Tax Base
 - Maintain Reputation of Beaches
- Consensus on Project Scope

Design Analysis



Design Analysis

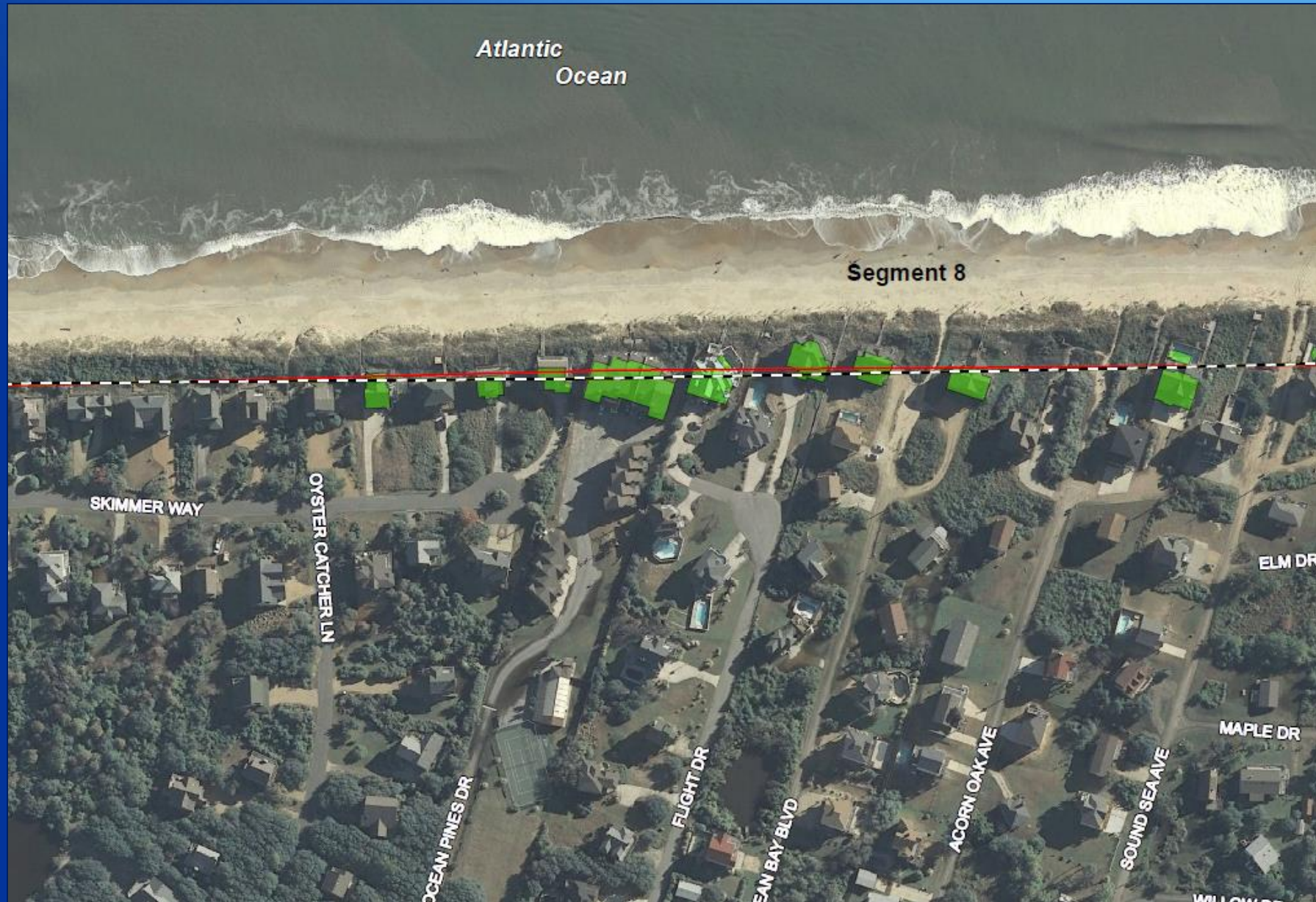


Vulnerability Analysis Update

Updated Survey Data and Storm Data

Segment	Dwelling Structures Impacted (Simulated Isabel Conditions)
	Without Project
1	-
2	4
3	5
4	3
5	-
6	-
7	49
8	34
9	1
10	-

Design Analysis



Design Analysis

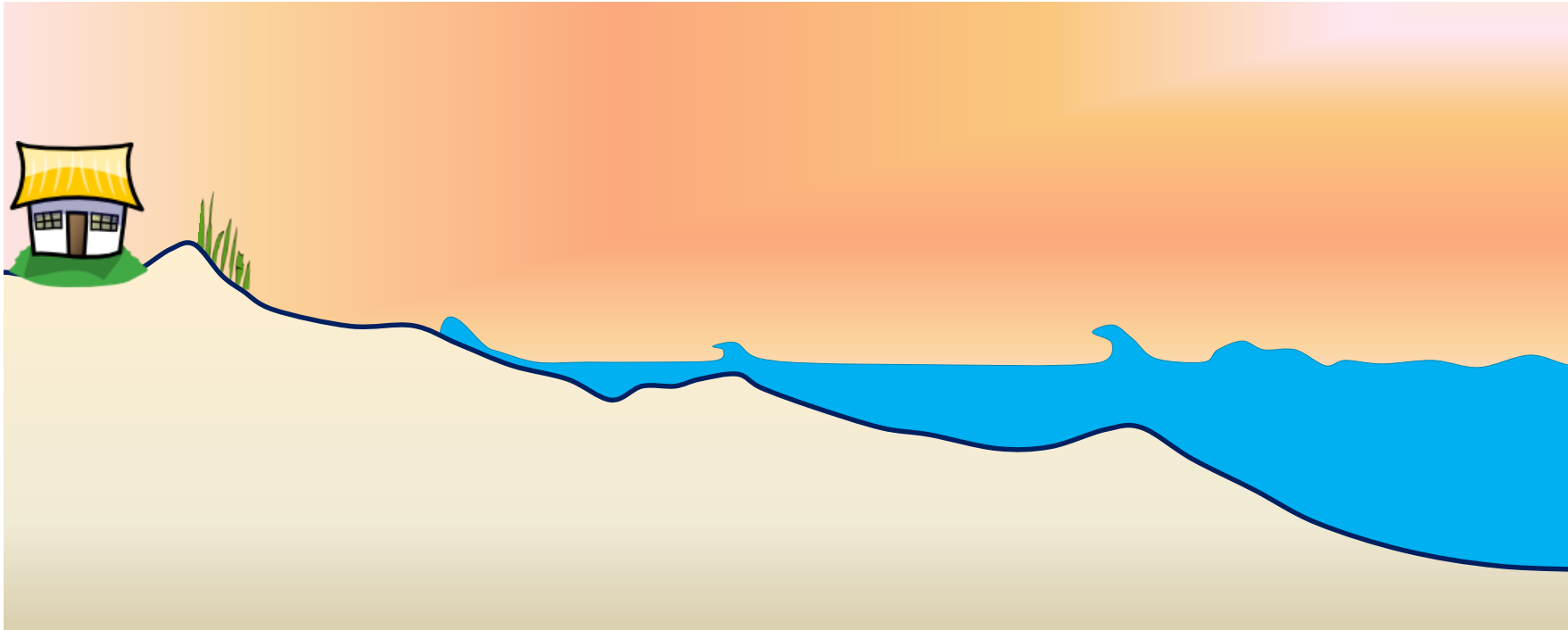
Design	Volume (cy)	Average Density (cy/ft.)
20/40	768,000	85
20/60	965,000	107
20/80	1,166,000	129
Hybrid	1,063,000	117
75 cy/lf.	676,000	75

Vulnerability Analysis Update

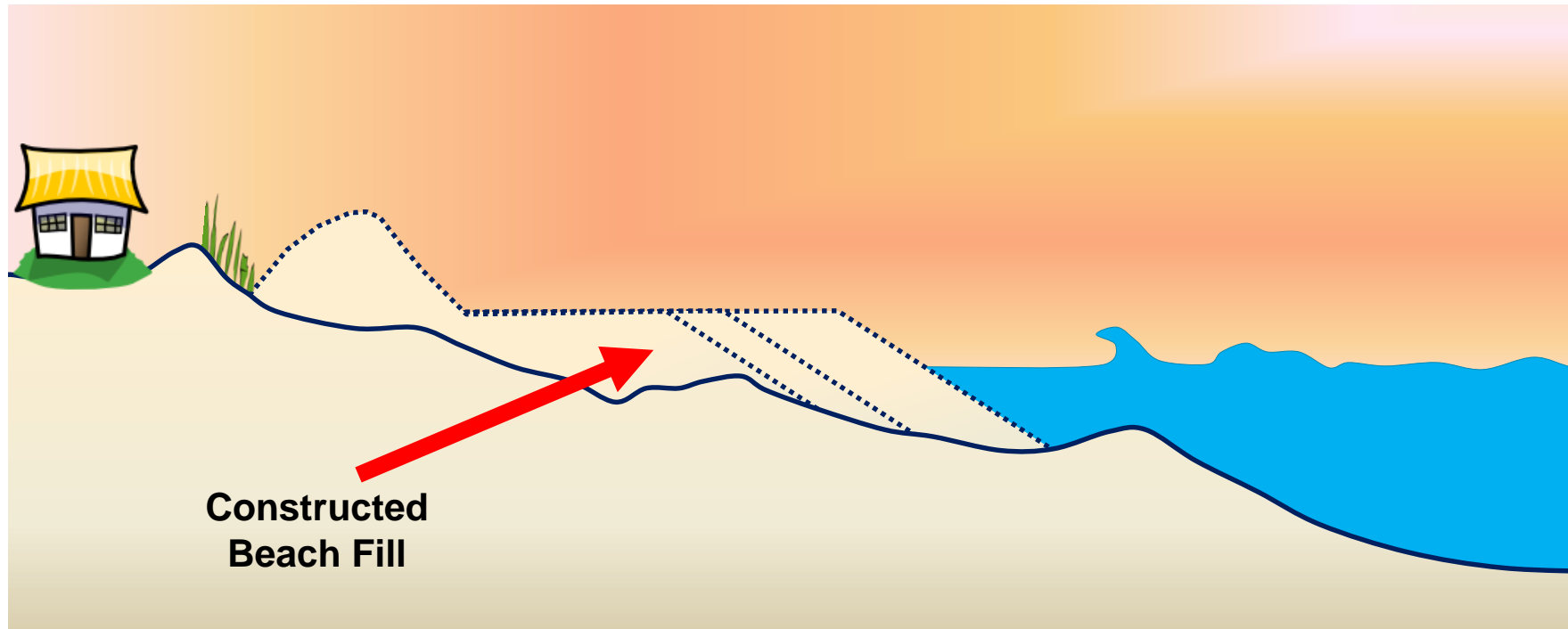
Updated Survey Data and Storm Data

		Segment 7	Segment 8	Total % Reduction
Without Project	Num. Structures Impacted	49	34	
	% Reduction			
20/40 Design	Num. Structures Impacted	4	11	82%
	% Reduction	92%	68%	
20/60 Design	Num. Structures Impacted	2	7	89%
	% Reduction	96%	79%	
20/80 Design	Num. Structures Impacted	1	3	95%
	% Reduction	98%	91%	
Hybrid Design	Num. Structures Impacted	1	6	92%
	% Reduction	98%	82%	
75 cy/lf Design	Num. Structures Impacted	25	18	48%
	% Reduction	49%	47%	

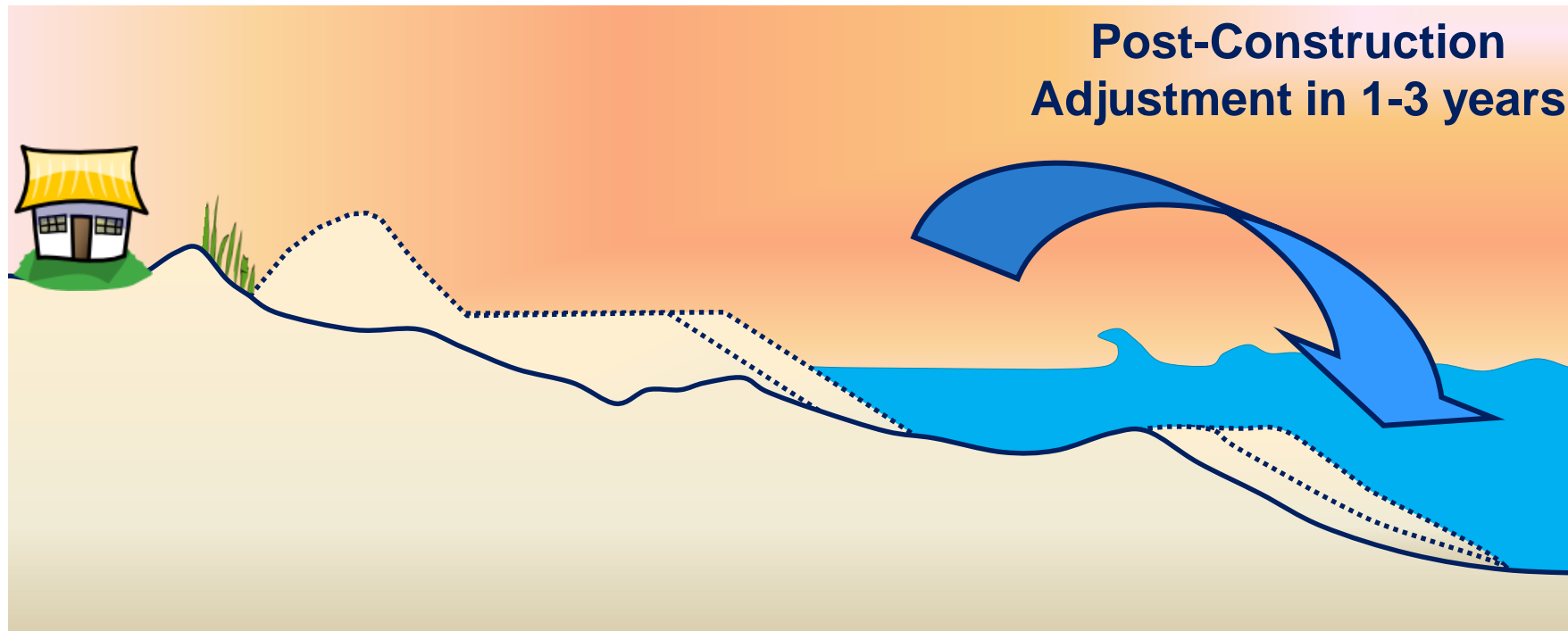
Storm Damage Reduction Project



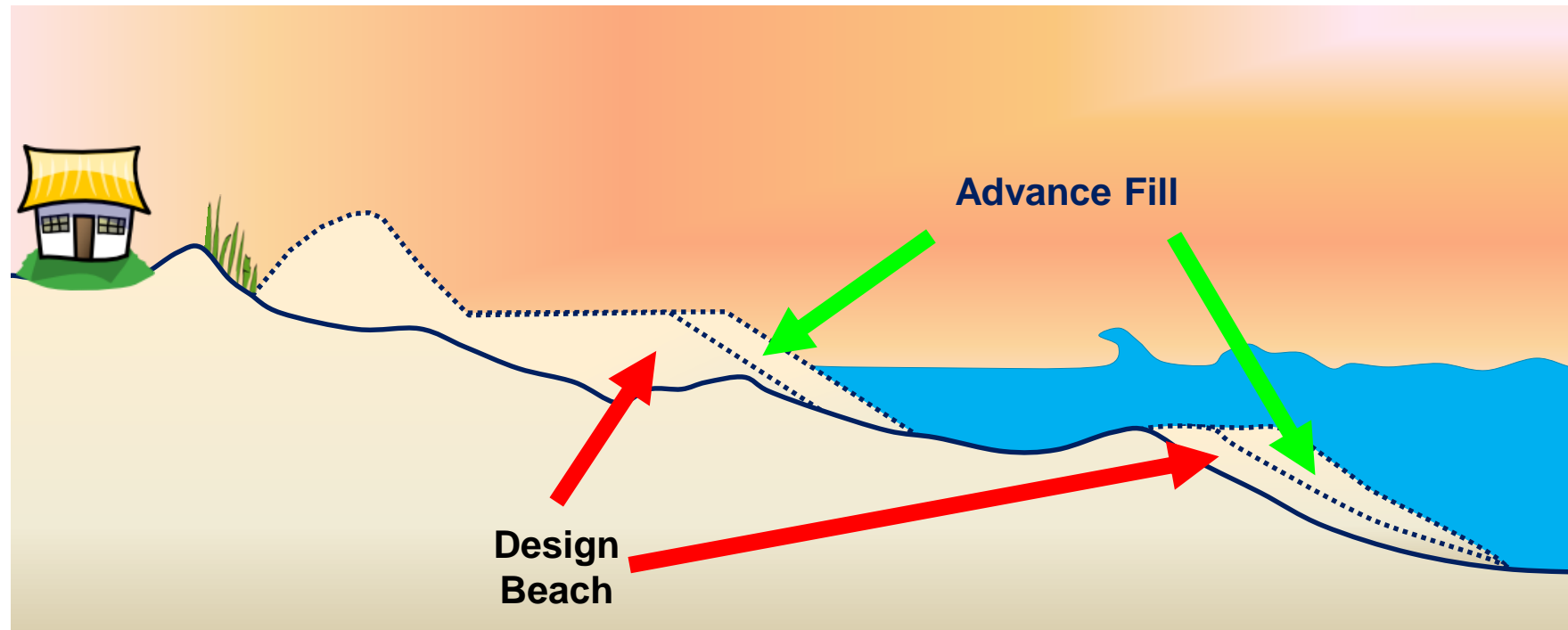
Storm Damage Reduction Project



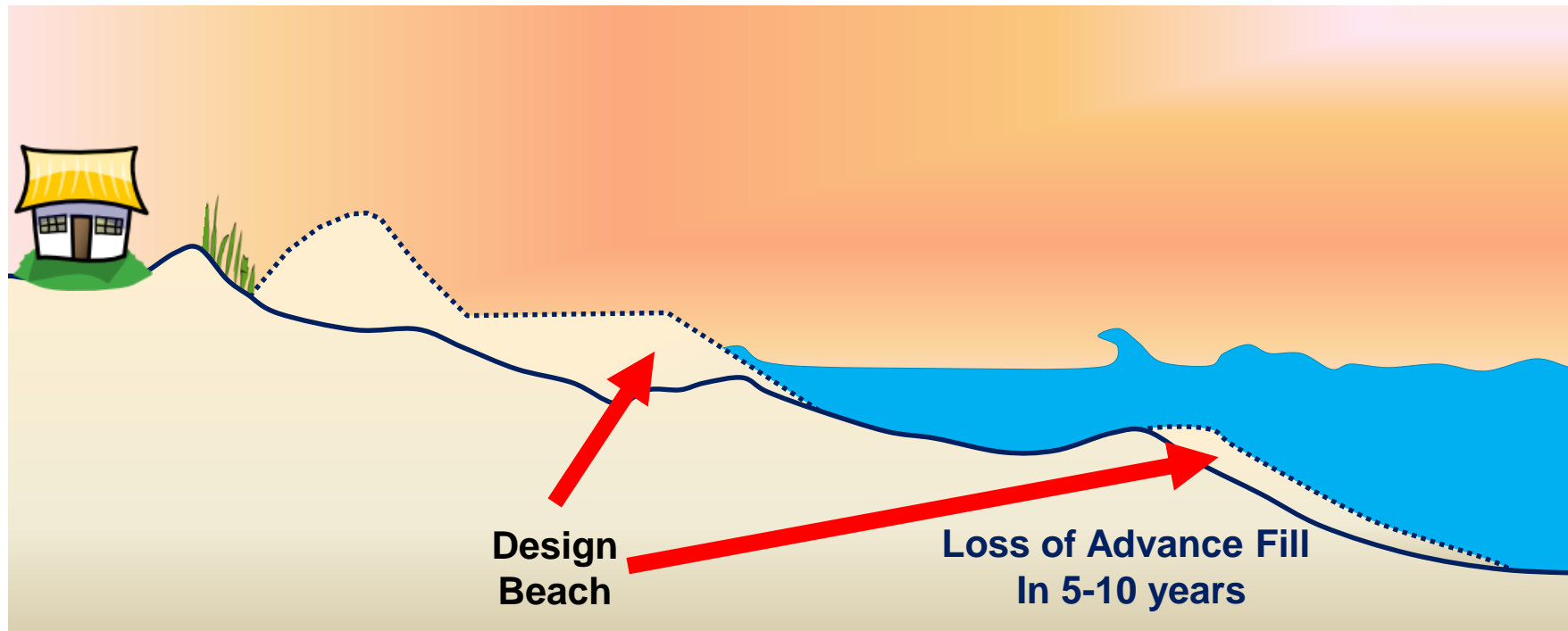
Storm Damage Reduction Project



Storm Damage Reduction Project



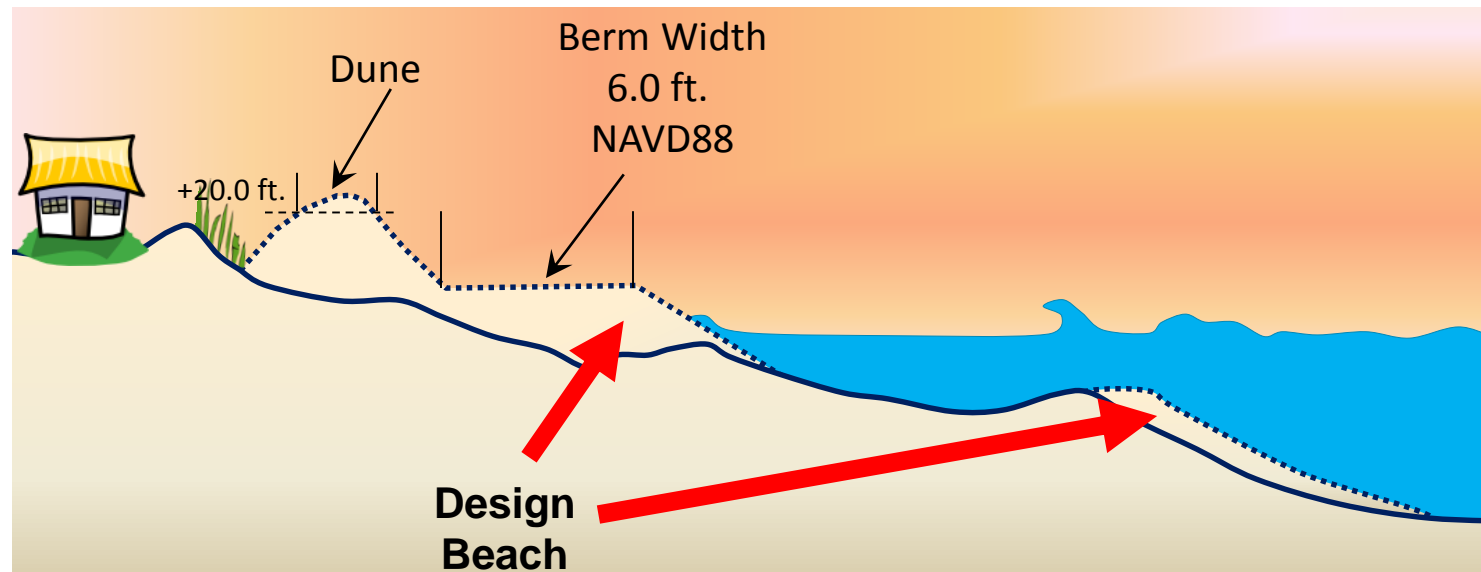
Storm Damage Reduction Project

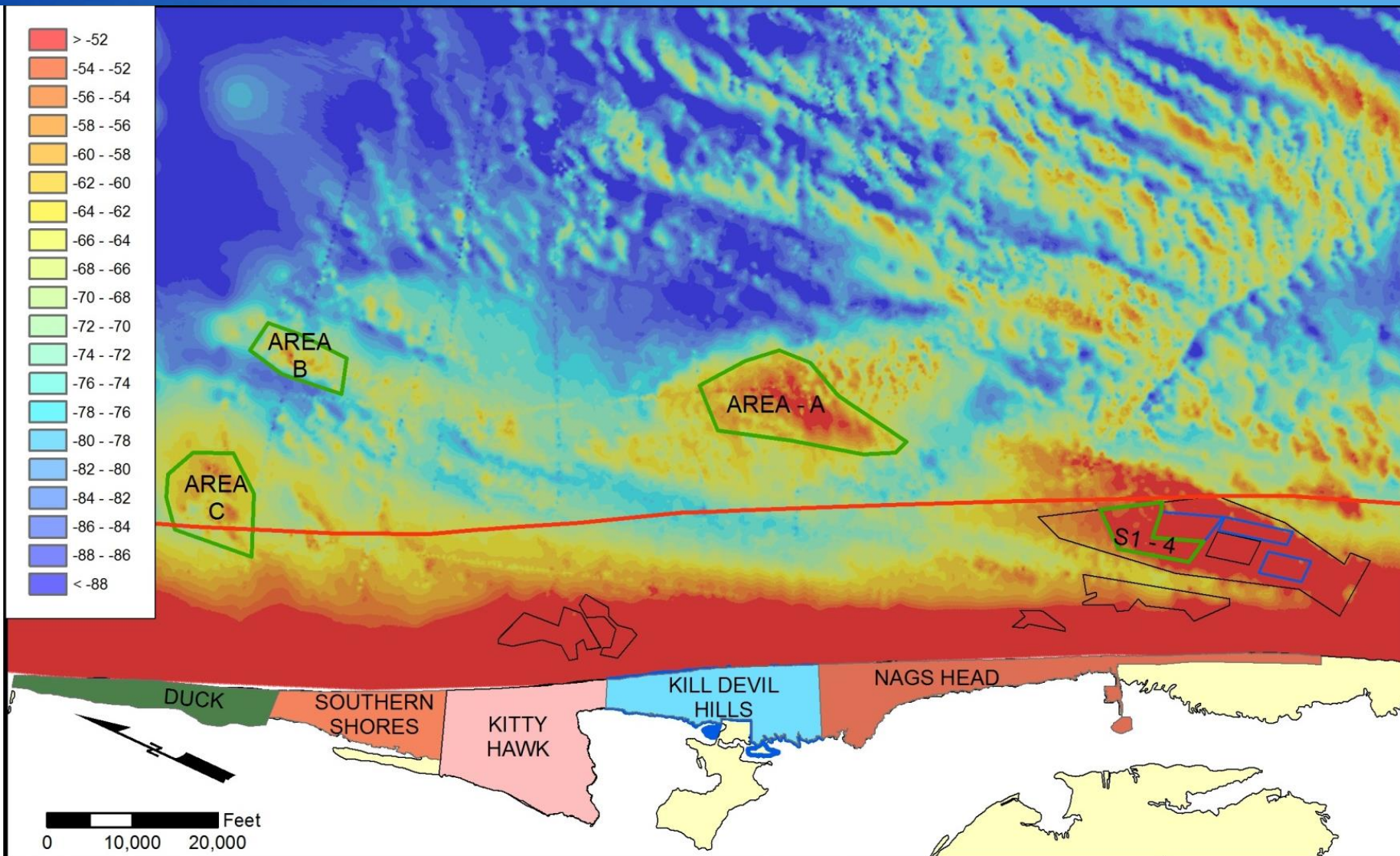
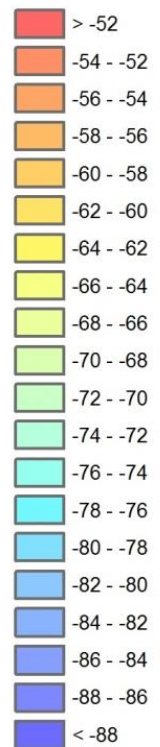


Over 70 different designs were simulated

Design Analysis

- **20/40** - Dune: 20 ft. wide crest at 20 ft. NAVD88 elevation; Berm: 40 ft. wide berm at 6 ft. NAVD88 elevation
- **20/60** - Dune: 20 ft. wide crest at 20 ft. NAVD88 elevation; Berm: 60 ft. wide berm at 6 ft. NAVD88 elevation
- **20/80** - Dune: 20 ft. wide crest at 20 ft. NAVD88 elevation; Berm: 80 ft. wide berm at 6 ft. NAVD88 elevation






Notes:

1. Bathymetry data based on historical NOS bathymetry (assume MLW ft).

Legend:

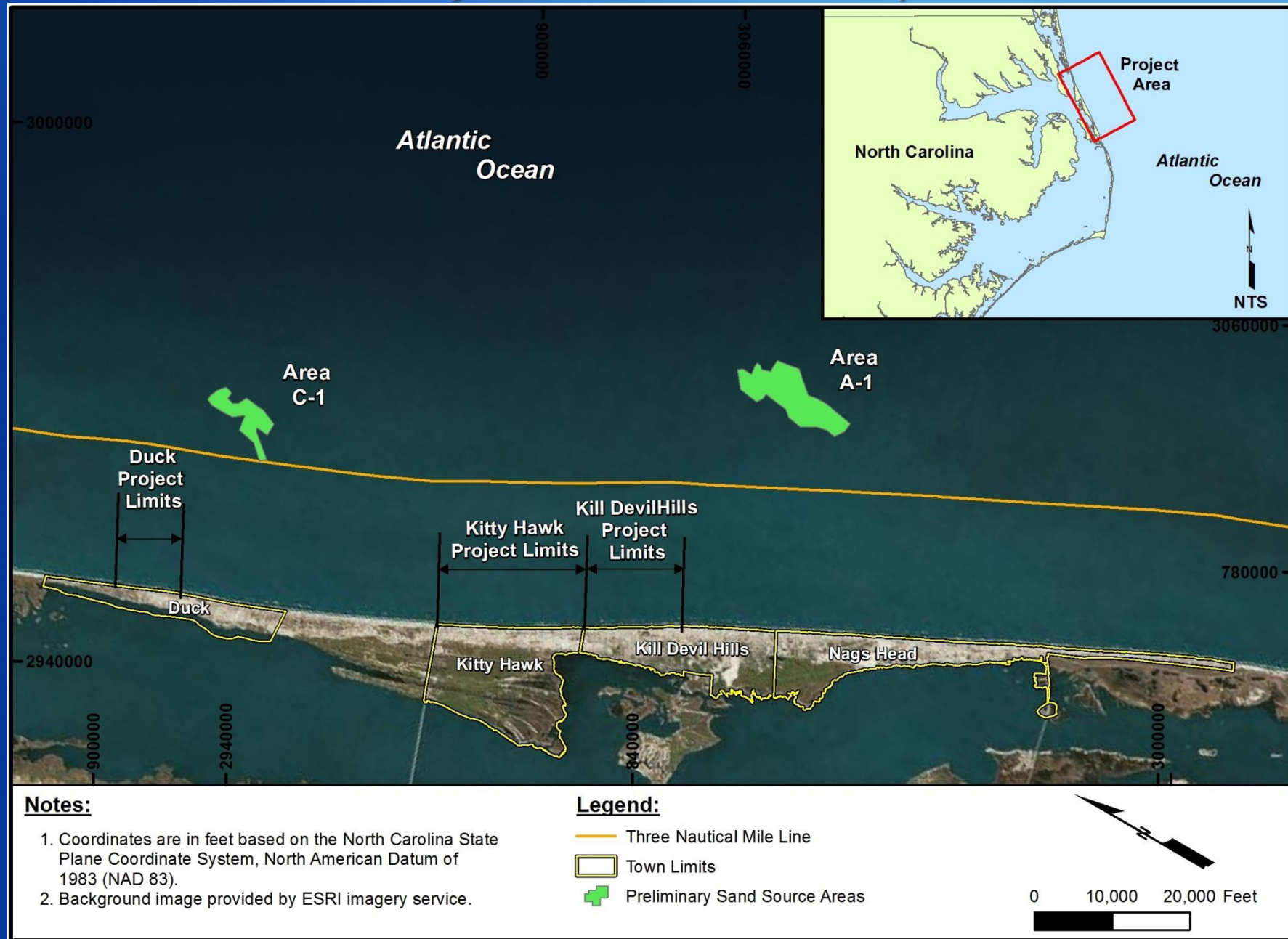
- STATE/FEDERAL BOUNDARY
- ▭ PROPOSED SURVEY AREAS
- ▭ NAGS HEAD BORROW AREAS
- ▭ USACE BORROW AREAS



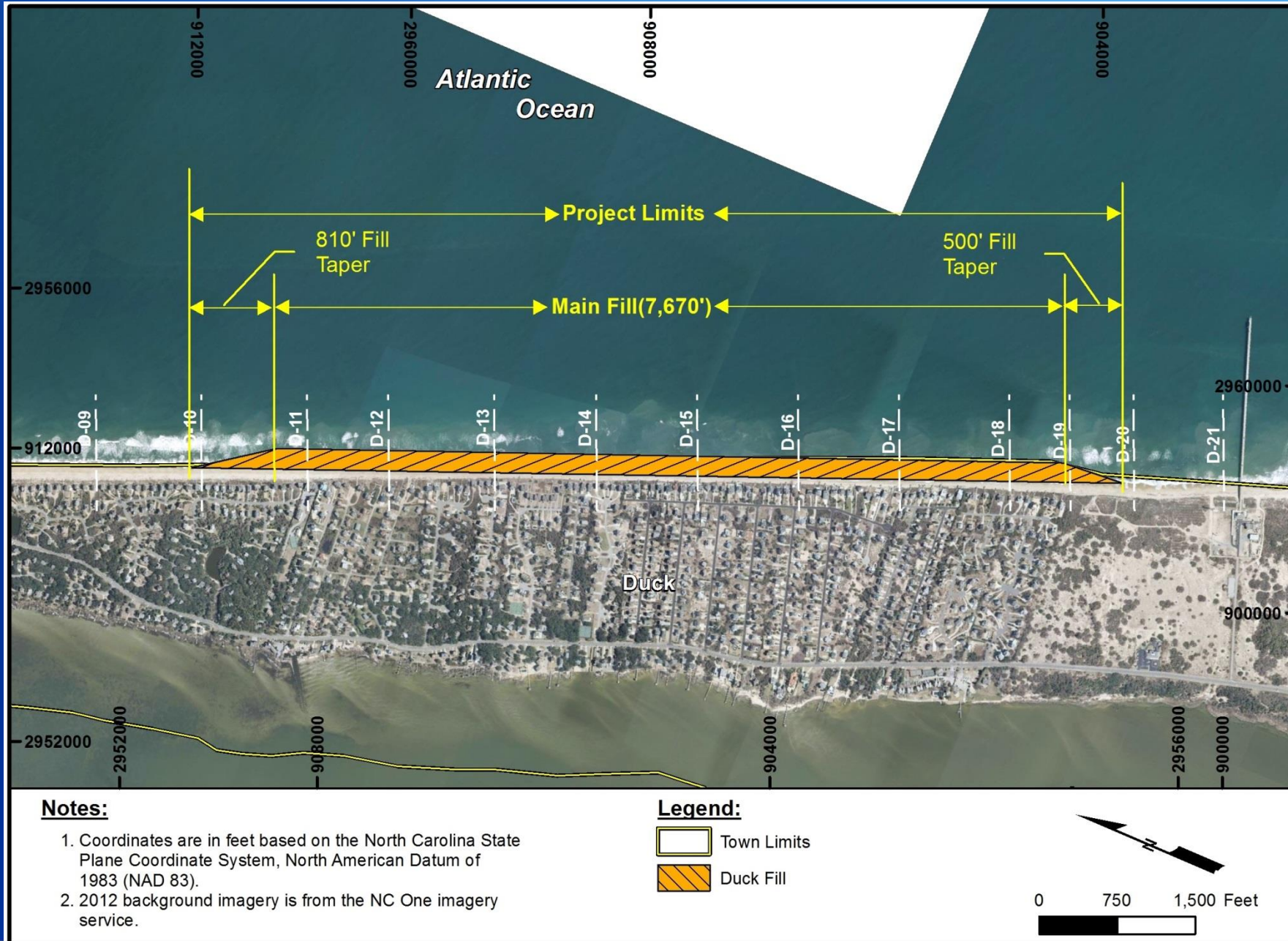
Project Status – Current Status

- All Town Projects moving forward
- Duck/Kill Devil Hills Projects clearly in focus
- Kitty Hawk Project still has some decisions to be made
- Projects are still on schedule

Project Overview Map



Duck Project Area



Project Specifications

	Town of Duck	Town of Kitty Hawk	Town of Kill Devil Hills	TOTAL:
Total Volume (CY)	1,061,000	1,603,000	914,800	3,579,000
Project Length - Main Fill (Ft. / Miles)	7,670 / 1.45	18,900 / 3.58	12,588 / 2.38	39,158 / 7.42
Taper Length (N ft. / S ft.)	810 / 500	1000 / N/A	N/A / 1009	
Total Project Length (ft. / Miles) ¹	8980 / 1.7	19900 / 3.77	13597 / 2.58	42,477 / 8.23
Fill Density (CY/Ft.) ²	127	83	70	
Dune crest width (ft.)	20	N/A	20	
Dune crest elevation (ft. NAVD88)	+20.0	N/A	+15.0	
Seaward Dune Slope	1V:5H	N/A	1V:5H	
Width of Design Berm (ft.)	Variable (65 - 75)	50	40	
Elevation of Design Berm (ft.)	+6.0	+6.0	+6.0	

¹ - Total Project Length includes Main Fill length and tapers

² - Fill Density is calculated by dividing the total volume by the main fill length and 1/2 the total taper length

Project Construction Cost Estimates

Project	Volume	Mobilization & Demobilization	Unit Cost	15.00%	Total Construction Estimate (With Contingency)
			\$/cy	contingency	
Duck	1,063,000	\$1,457,000	\$9.95	\$1,805,000	\$13,839,000
KH	1,603,000	\$2,198,000	\$8.16	\$2,292,000	\$17,570,000
KDH	911,600	\$1,250,000	\$7.65	\$1,234,000	\$9,458,000
TOTALS:	3,577,600	4,905,000	Pro-Rated	5,331,000	40,867,000
			\$8.56		

Project Construction Cost Estimates

Project	Volume	Mobilization & Demobilization	Unit Cost	15.00%	Total Construction Estimate (With Contingency)
			\$/cy	contingency	
Duck	1,061,200	\$1,457,000	\$9.95	\$1,802,000	\$13,818,000
KH	1,603,000	\$2,198,000	\$8.16	\$2,292,000	\$17,570,000
KDH	914,800	\$1,250,000	\$7.65	\$1,237,000	\$9,485,000
TOTALS:	3,577,600	4,905,000	Pro-Rated	5,331,000	40,873,000
			\$8.56		

For the purposes of the MSD discussions, I am using the slightly higher construction cost of \$13,839,000

Project Status – Project Schedule

- Complete all Environmental Documentation 2/12/2015
- Receive FONSI 10/15/2015
- Receive all Permits 12/14/2015
- Open Bids for Construction After 1/1/2016
- Review Bids and Seek Approval from LGC 2/2/2016
- Construction Commences 3/5/2016 – 2/27/2017

Project Funding – Dare County Occupancy Tax

- Models are subject to change; HOWEVER, Duck's funding is not expected to change
- County will hold the contract for construction and pay invoices through occupancy tax funds and debt acquired by the County and the Towns
- Towns will pay the debt service of their respective portions of the project cost

County of Dare

Beach Nourishment Projects - Issuance January 2016

Monday, September 8, 2014

Version 4 - Towns Hold Harmless

Dare Pays Share of Towns' Debt Service

Updates from Sept 3, 2014 CP&E Construction Estimates

	Revenues	Expenditures (Before New Nourishment Projects)	One-Time Expenditures	New Nourishment Debt Service (Other Towns)	New Nourishment Debt Service (Dare Project)	Interest Earnings	EOY Fund Balance	Interest Earning Rate
2014	\$ 5,365,510	\$ 2,353,291				\$ 123,751	\$ 20,052,860	0.65%
2015	\$ 7,797,100	\$ 2,356,399				\$ 129,394	\$ 25,622,955	0.70%
2016	\$ 8,031,013	\$ 2,180,250	\$ 24,000,000			\$ 228,379	\$ 7,702,097	1.00%
2017	\$ 8,271,943	\$ 180,500		\$ 1,320,096	\$ 5,875,000	\$ 208,282	\$ 8,806,726	1.25%
2018	\$ 8,520,102	\$ 180,750		\$ 1,221,575	\$ 5,700,000	\$ 123,816	\$ 10,348,318	1.50%
2019	\$ 8,775,705	\$ 181,000		\$ 1,123,055	\$ 5,525,000	\$ 167,607	\$ 12,462,575	1.75%
2020	\$ 9,038,976	\$ 181,250		\$ 1,024,535	\$ 5,350,000	\$ 228,109	\$ 15,173,874	2.00%
2021	\$ 9,310,145	\$ 181,500		\$ 926,015	\$ 5,175,000	\$ 310,910	\$ 18,512,414	2.25%
2022	\$ 9,589,450	\$ 181,750				\$ 421,079	\$ 28,341,193	2.50%
2023	\$ 9,877,133	\$ 182,000				\$ 644,237	\$ 38,680,563	2.75%

Total County Commitment to Town Projects: \$ 29,615,277

County of Dare**Beach Nourishment Projects - Issuance January 2016****Individual Town Project Breakdowns**

Monday, September 8, 2014

Version 4 - Towns Hold Harmless

	Permitting Cost	Construction Cost	Total Project Cost	% of Total Town Projects	Dare Co. Down Payment	Total Borrowed Amount	
Duck	\$ 750,000	\$ 13,839,000	\$ 14,589,000	34%	\$ 7,700,000	\$ 6,889,000	Special Obligation Bonds
Kitty Hawk	\$ 870,000	\$ 17,570,000	\$ 18,440,000	43%	\$ 11,254,691	\$ 7,185,309	Special Obligation Bonds
Kill Devil Hills	\$ 550,000	\$ 9,458,000	\$ 10,008,000	23%	\$ 5,045,309	\$ 4,962,691	Special Obligation Bonds
Total:	\$ 2,170,000	\$ 40,867,000	\$ 43,037,000	100%	\$ 24,000,000	\$ 19,037,000	
Dare		\$ 25,000,000	\$ 25,000,000		\$ -	\$ 25,000,000	160A-20 Installment Purchase
Totals:	\$ 2,170,000	\$ 65,867,000	\$ 68,037,000		\$ 24,000,000	\$ 44,037,000	

County of Dare

Beach Nourishment Projects - Issuance January 2016

Individual Town Projects

Term: 5 years

Interest Rate: 3.50%

0.0782 Cents Town-1

Duck - 34% of Total Projects

1¢ = \$156,188

\$ 0.21 Current Property Tax Rate

	Principal	Interest	Debt Service	County Contributed	Town Contributed	¢ on Property Tax	% Change in Tax Rate	New Property Tax Rate
2014								
2015								
2016								
2017	\$ 1,377,800	\$ 241,115	\$ 1,618,915	\$ 397,525	\$ 1,221,390	0.0782	37%	0.2882
2018	\$ 1,377,800	\$ 192,892	\$ 1,570,692	\$ 349,302	\$ 1,221,390	0.0782	37%	0.2882
2019	\$ 1,377,800	\$ 144,669	\$ 1,522,469	\$ 301,079	\$ 1,221,390	0.0782	37%	0.2882
2020	\$ 1,377,800	\$ 96,446	\$ 1,474,246	\$ 252,856	\$ 1,221,390	0.0782	37%	0.2882
2021	\$ 1,377,800	\$ 48,223	\$ 1,426,023	\$ 204,633	\$ 1,221,390	0.0782	37%	0.2882
2022								
2023								
Totals:	\$ 6,889,000	\$ 723,345	\$ 7,612,345	\$ 1,505,394				



Municipal Service Districts

- Why are we doing the project?
 - Erosion Protection
 - Storm Protection
 - Enhanced Recreational Beach
 - Maintain Tax Base
 - Maintain Reputation of Beaches

Municipal Service Districts

- Who benefits from the BN Project?

- Oceanfront Property Owners

- Erosion Protection
- Storm Protection
- Enhanced Recreational Beach
- Maintain Tax Base
- Maintain Reputation of Beaches

- Non-Oceanfront

- Enhanced Recreational Beach
- Maintain Tax Base
- Maintain Reputation of Beaches

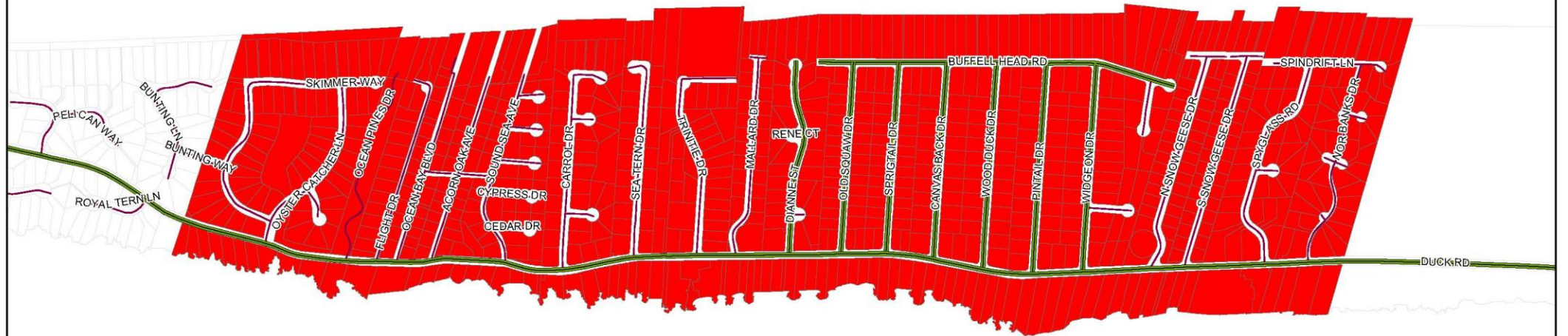
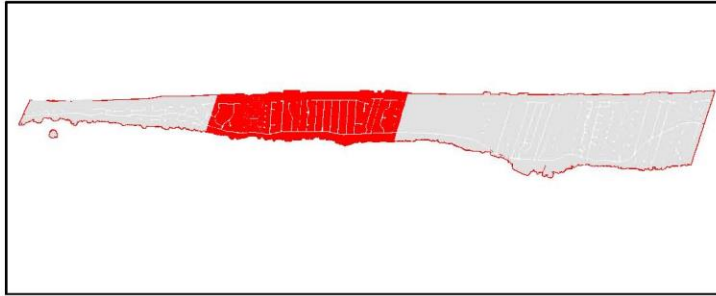
- Entire Town

- Maintain Tax Base
- Maintain Reputation of Beaches



Beach Nourishment Area

Proposed Municipal Service Districts





PER CAN WAX
BUNTING-WAY
BUNTING-WAY
ROYAL TERN LN
SKIMMER-WAY
OCEANVIEW DR
ACORN LANE
CYPRESS DR
CEDAR DR
SEASIDE DR
HERING DR
MAIN ST
RENE ST
CLUSSEAU DR
SHRIGLEY DR
CANVAS BACK DR
TODDLER DR
PINAL DR
WILDER DR
MOWGEES DR
SNOWGESSE DR
SPINDRIFT LN
DUCK RD



Municipal Service Districts

- Two Plans
 - MSD Only Plan
 - 1/3 Plan

Municipal Service Districts

	Total Est Cost:	\$14,589,000	P &C					
	County Portion:	\$7,700,000						
	Borrowed Amt:	\$6,889,000						
MSD Only								
				County	General Town	Oceantfront	Non-Oceanfrt	
Fiscal Year	Principal	Interest	Debt Service	Contribution	Contribution	Contribution	Contribution	Total
2016	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2017	\$1,377,800	\$241,115	\$1,618,915	\$397,525	\$15,562	\$601,955	\$603,873	\$1,618,915
2018	\$1,377,800	\$192,892	\$1,570,692	\$349,302	\$15,562	\$601,955	\$603,873	\$1,570,692
2019	\$1,377,800	\$144,669	\$1,522,469	\$301,079	\$15,562	\$601,955	\$603,873	\$1,522,469
2020	\$1,377,800	\$96,446	\$1,474,246	\$252,856	\$15,562	\$601,955	\$603,873	\$1,474,246
2021	\$1,377,800	\$48,223	\$1,426,023	\$204,633	\$15,562	\$601,955	\$603,873	\$1,426,023
	\$6,889,000	\$723,345	\$7,612,345					
			Esimated Parcels:	2754	112	719		
			Project/MSD Rate:	N/A	\$0.525	\$0.185		
			Avg. Tax Per Parcel:	\$5.65	\$5,374.60	\$839.88		

Municipal Service Districts

MSD Only Plan							
	Property	Current			Additional		
<u>Oceanfront</u>	<u>Value</u>	<u>Tax Rate</u>	<u>Current Tax</u>	<u>MSD Rate</u>	<u>Tax</u>	<u>Total Tax</u>	
Skimmer Way	\$897,300	\$0.21	\$1,884.33	\$0.525	\$4,710.83	\$6,595.16	
Sound Sea	\$1,135,100	\$0.21	\$2,383.71	\$0.525	\$5,959.28	\$8,342.99	
Mallard Drive	\$649,800	\$0.21	\$1,364.58	\$0.525	\$3,411.45	\$4,776.03	
Buffell Head Rd	\$1,041,500	\$0.21	\$2,187.15	\$0.525	\$5,467.88	\$7,655.03	
Spindrift Lane	\$1,210,200	\$0.21	\$2,541.42	\$0.525	\$6,353.55	\$8,894.97	
	Property	Current			Additional		
<u>Non - Oceanfront</u>	<u>Value</u>	<u>Tax Rate</u>	<u>Current Tax</u>	<u>MSD Rate</u>	<u>Tax</u>	<u>Total Tax</u>	
Skimmer Way	\$580,300	\$0.21	\$1,218.63	\$0.185	\$1,073.56	\$2,292.19	
Sound Sea	\$467,600	\$0.21	\$981.96	\$0.185	\$865.06	\$1,847.02	
Mallard Drive	\$329,400	\$0.21	\$691.74	\$0.185	\$609.39	\$1,301.13	
Canvas Back	\$400,700	\$0.21	\$841.47	\$0.185	\$741.30	\$1,582.77	
Duck Road	\$717,300	\$0.21	\$1,506.33	\$0.185	\$1,327.01	\$2,833.34	

Municipal Service Districts

Total Est Cost: \$14,589,000

P & C

County Portion: \$7,700,000

Borrowed Amt: \$6,889,000

1/3 Plan

Fiscal Year	Principal	Interest	Debt Service	County	General Town	Oceantfront	Non-Oceanfrt	Total
				Contribution	Contribution	Contribution	Contribution	
2016	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2017	\$1,377,800	\$241,115	\$1,618,915	\$397,525	\$406,332	\$407,036	\$408,022	\$1,618,915
2018	\$1,377,800	\$192,892	\$1,570,692	\$349,302	\$406,332	\$407,036	\$408,022	\$1,570,692
2019	\$1,377,800	\$144,669	\$1,522,469	\$301,079	\$406,332	\$407,036	\$408,022	\$1,522,469
2020	\$1,377,800	\$96,446	\$1,474,246	\$252,856	\$406,332	\$407,036	\$408,022	\$1,474,246
2021	\$1,377,800	\$48,223	\$1,426,023	\$204,633	\$406,332	\$407,036	\$408,022	\$1,426,023
	\$6,889,000	\$723,345	\$7,612,345					
			Esimated Parcels:	2754	112	719		
			Project/MSD Rate:	\$0.026	\$0.355	\$0.125		
			Avg. Tax Per Parcel:	\$147.54	\$3,634.25	\$567.49		

Municipal Service Districts

1/3 Plan							
	Property	Current			Additional		
<u>Oceanfront</u>	<u>Value</u>	<u>Tax Rate</u>	<u>Current Tax</u>	<u>MSD Rate</u>	<u>Tax</u>	<u>Total Tax</u>	
Skimmer Way	\$897,300	\$0.21	\$1,884.33	\$0.355	\$3,185.42	\$5,069.75	
Sound Sea	\$1,135,100	\$0.21	\$2,383.71	\$0.355	\$4,029.61	\$6,413.32	
Mallard Drive	\$649,800	\$0.21	\$1,364.58	\$0.355	\$2,306.79	\$3,671.37	
Buffell Head Rd	\$1,041,500	\$0.21	\$2,187.15	\$0.355	\$3,697.33	\$5,884.48	
Spindrift Lane	\$1,210,200	\$0.21	\$2,541.42	\$0.355	\$4,296.21	\$6,837.63	
	Property	Current			Additional		
<u>Non-Oceanfront</u>	<u>Value</u>	<u>Tax Rate</u>	<u>Current Tax</u>	<u>MSD Rate</u>	<u>Tax</u>	<u>Total Tax</u>	
Skimmer Way	\$580,300	\$0.21	\$1,218.63	\$0.125	\$725.38	\$1,944.01	
Sound Sea	\$467,600	\$0.21	\$981.96	\$0.125	\$584.50	\$1,566.46	
Mallard Drive	\$329,400	\$0.21	\$691.74	\$0.125	\$411.75	\$1,103.49	
Canvas Back	\$400,700	\$0.21	\$841.47	\$0.125	\$500.88	\$1,342.35	
Duck Road	\$717,300	\$0.21	\$1,506.33	\$0.125	\$896.63	\$2,402.96	



Next Steps

- Consensus on MSD Plan
- Timeline for adopting MSDs

Next Steps

- Requirements for Adoption of MSDs
 - Council must adopt a resolution defining a service district(s) and indicating that the area of the proposed MSDs is in need of a service to a greater extent than other areas.
 - A report must be prepared that includes a map of the proposed MSDs, with boundaries, a statement that the proposed district meets the standards for a MSD, and a plan for providing the MSDs with a service allowed under state statutes, in this case beach nourishment. This report must be available at least four weeks prior to the public hearing on the resolution.

Next Steps

- Requirements for Adoption of MSDs (continued)
 - Council must hold a public hearing on the resolution.
 - Notice of the public hearing must be mailed to all property owners in the MSDs at least four weeks prior to the date of the public hearing and must include a map of the proposed district and a statement that the report is available for public inspection, the person responsible for the mailing must certify that the mailing was completed. A notice of the public hearing will also be required to be published in a newspaper.
 - The resolution shall take effect at the beginning of the fiscal year commencing after its passage; i.e. MSD taxes levied.

Next Steps

- Proposed Schedule
 - Prior to January 26, 2015: Report prepared in accordance with state statutes
 - January 26, 2015: Letters sent to all property owners in proposed MSDs
 - March 4, 2015: Public Hearing on Resolution
 - July 1, 2015: Ad Valorem Taxes in MSDs levied



Next Steps

- Consensus on MSD Plan
- Approval of Timeline for adopting MSDs