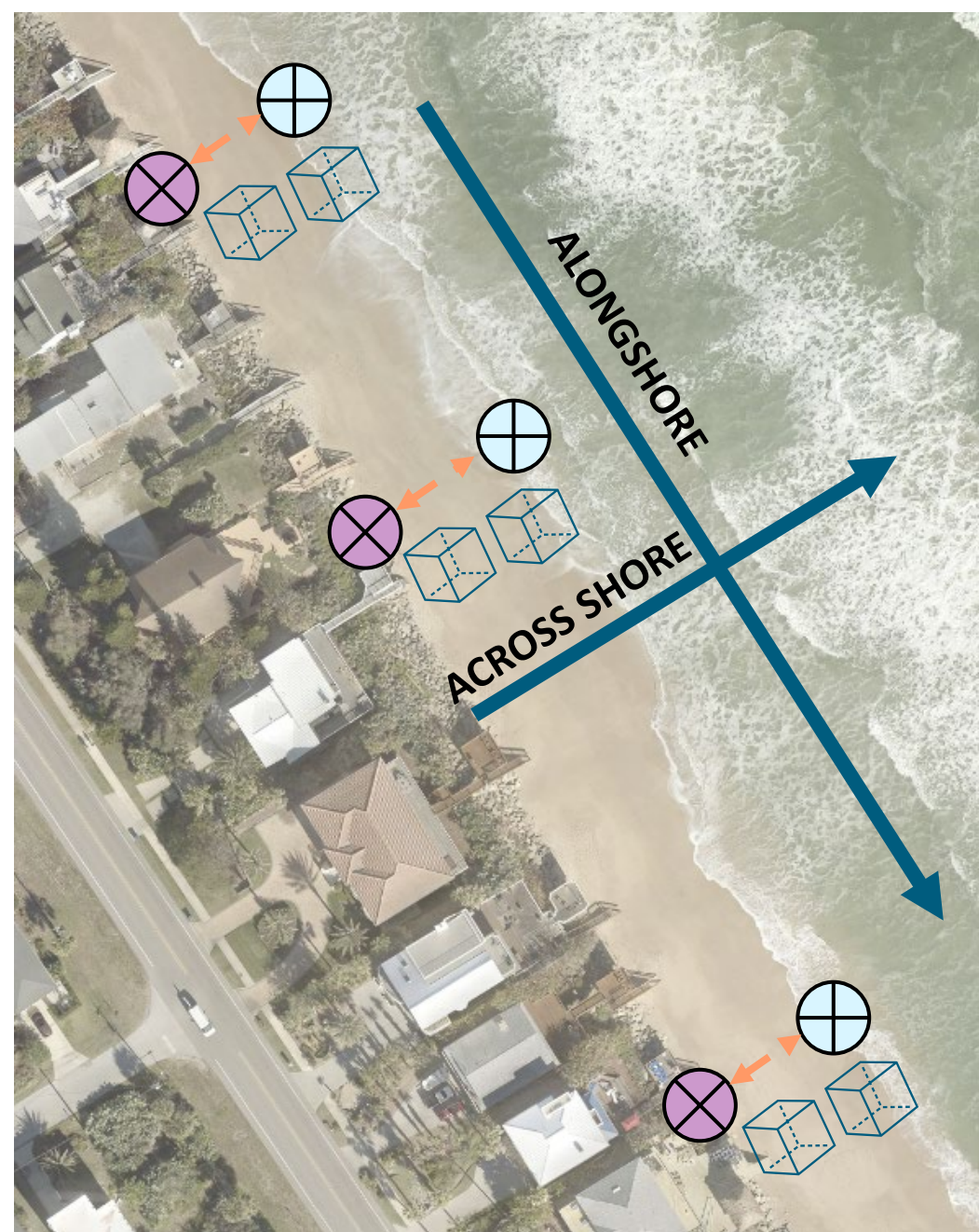
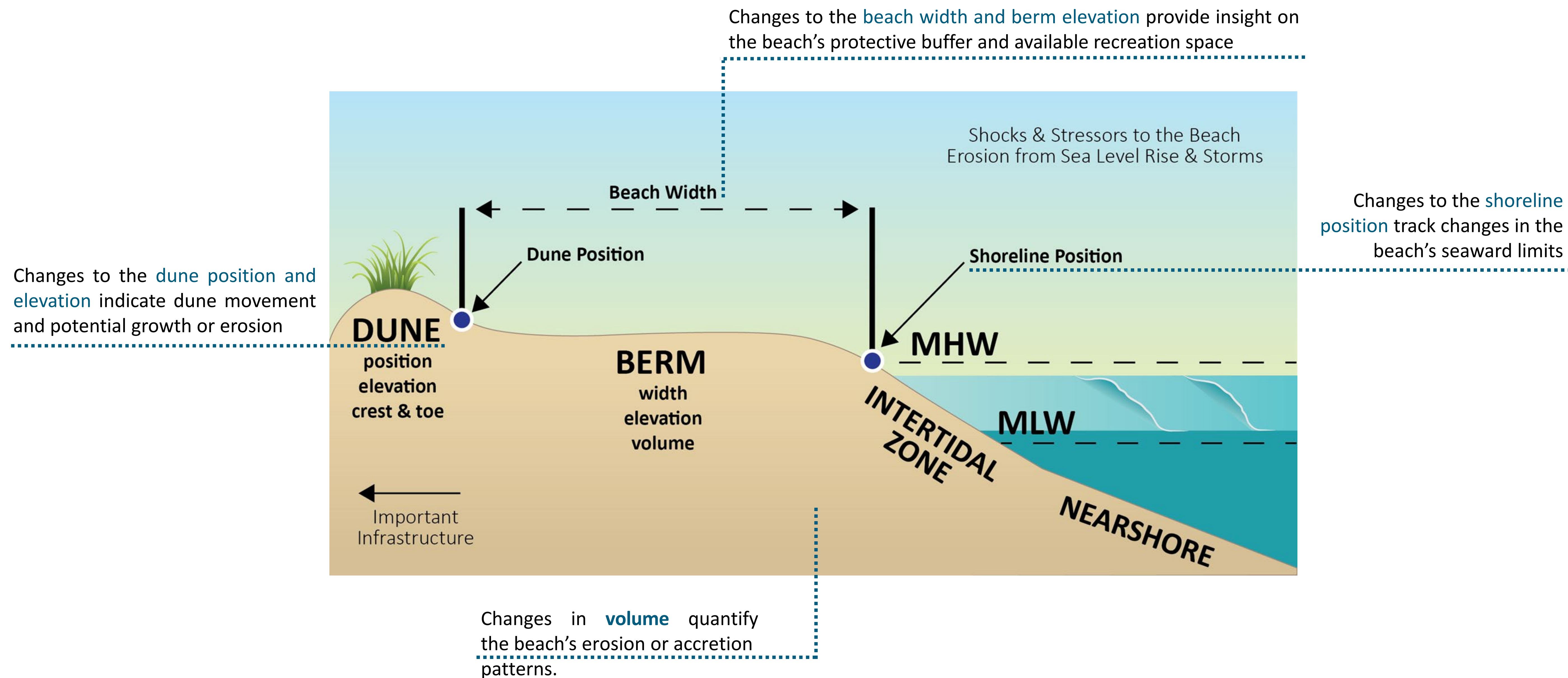




METHODS

Analyze topographic and bathymetric data to determine beach evolution through evolution parameters

- ⊗ **Dune position and elevation**— movement and growth/erosion of the dune
- ⊕ **Shoreline position**— tracks the beach's seaward limits
- ↔ **Beach width and berm elevation**— provides insight on the beach's protective buffer and available recreation space
- 📐 **Volume**— quantify erosion or accretion patterns

Analyzed in the alongshore and across shore directions

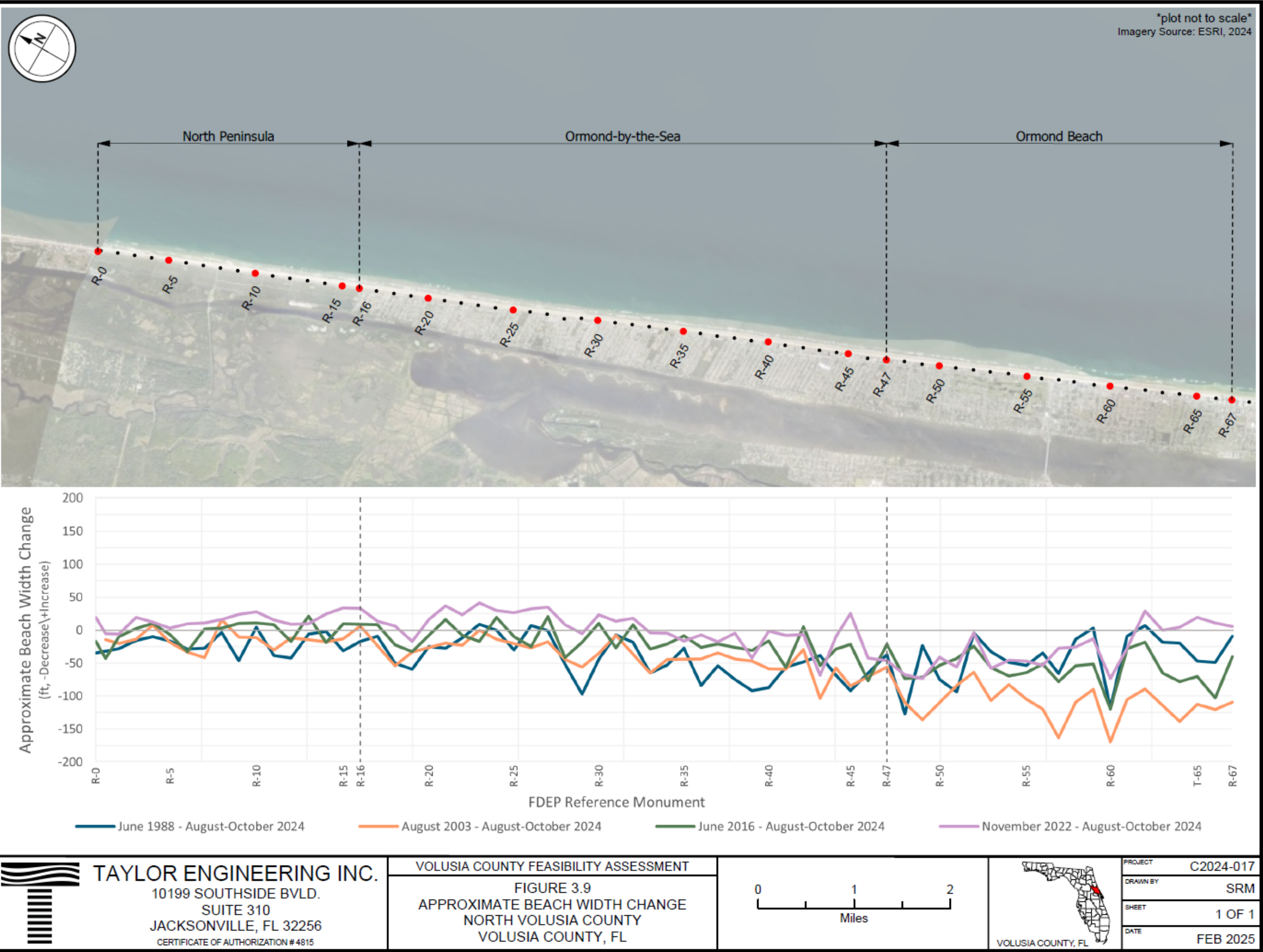
SURVEYS ANALYZED

- ① **June 1988 to August-October 2024—long-term, 35-year period**
- ② **August 2003 to August-October 2024—intermediate, 20-year period**
August 2003 survey occurred prior to the 2004 hurricanes
- ③ **June 2016 to August-October 2024—intermediate, 8-year period**
June 2016 survey occurred prior to Hurricane Matthew (October 2016) and several other recent major hurricanes
- ④ **November 2022 to August-October 2024—near-term changes over the last two years**
Beach changes in the wake of Hurricanes Ian and Nicole (September and November 2022)

**Impacts of Hurricane Milton (October 2024) discussed in a separate report*

BEACH TRENDS

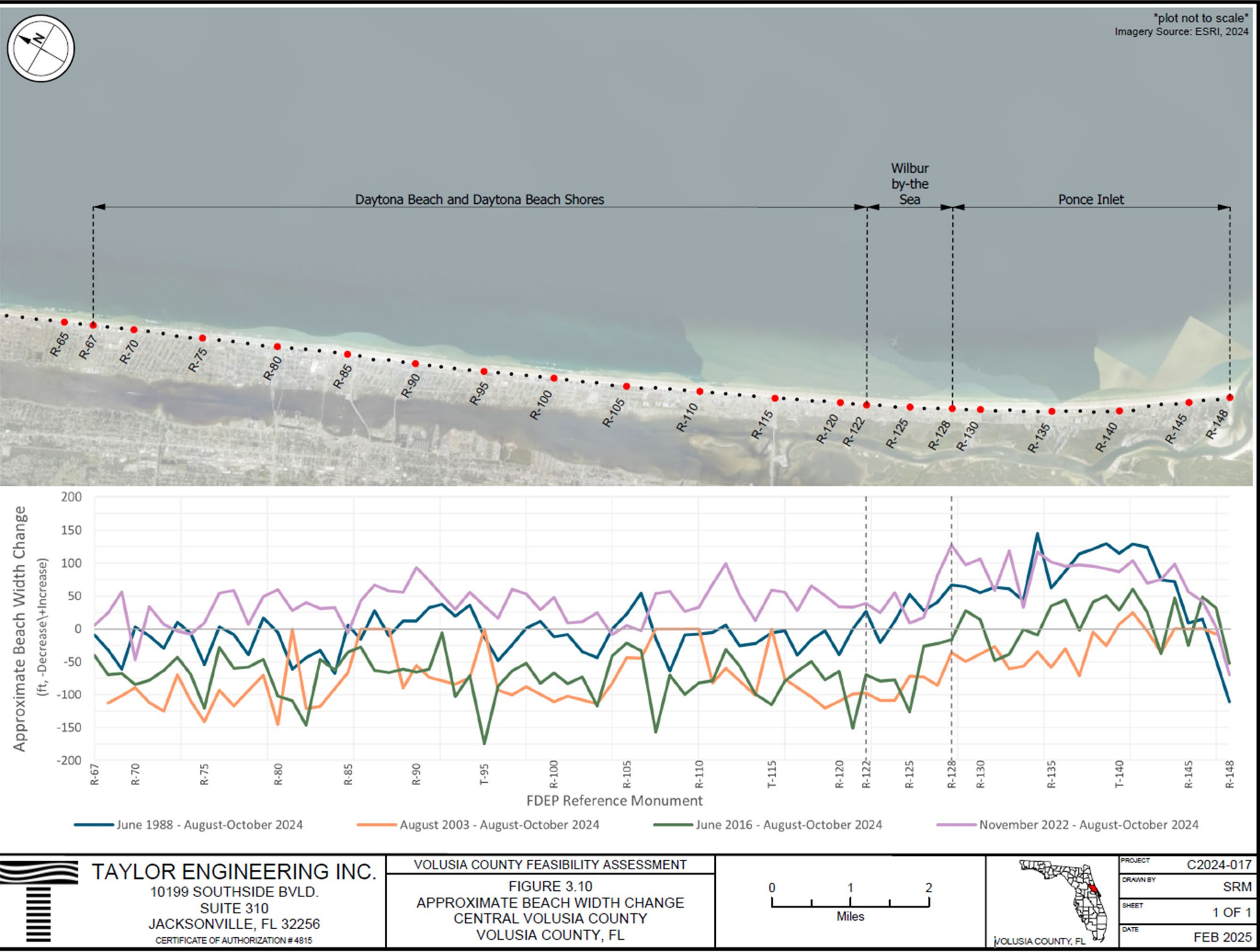
BEACH WIDTH
NORTH



MHW Shoreline Position	1988-2024*	2003-2024*	2016-2024*	2022-2024*	2024-2024 <i>Milton's Impact</i>
North Peninsula	-- -22 ft	- -15 ft	+/- -3 ft	+ 15 ft	Not Analyzed
Ormond-by-the-Sea	--- -43 ft	--- -40 ft	-- -18 ft	+/- 2 ft	Not Analyzed
Ormond Beach	--- -42 ft	--- -110 ft	--- -60 ft	-- -28 ft	Not Analyzed

BEACH TRENDS

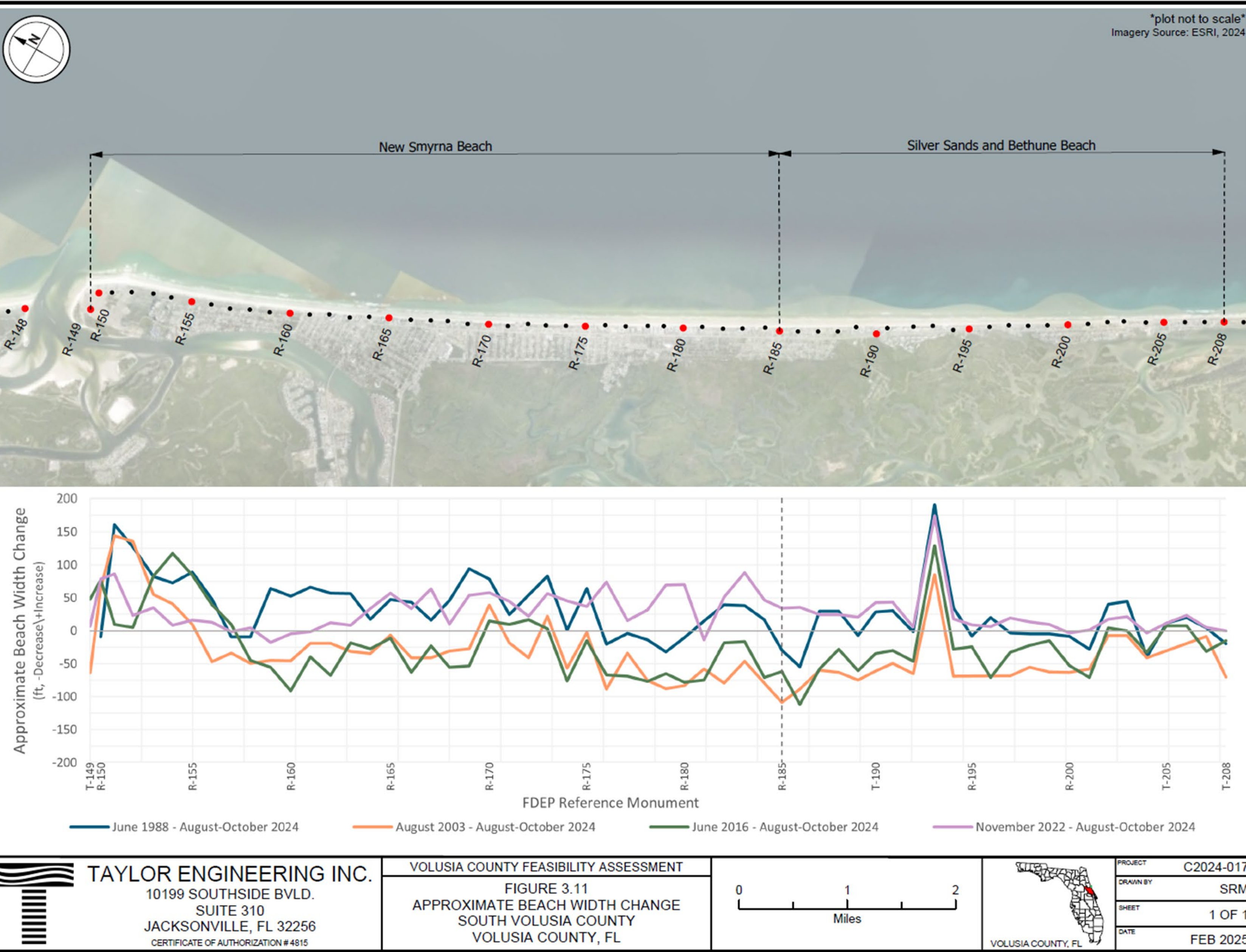
BEACH WIDTH
CENTRAL



MHW Shoreline Position	1988-2024*	2003-2024*	2016-2024*	2022-2024*	2024-2024 <i>Milton's Impact</i>
Daytona Beach and Daytona Beach Shores	- -12 ft	--- -91 ft	--- -74 ft	+++ 36 ft	Not Analyzed
Wilbur-by-the-Sea	++ 26 ft	--- -86 ft	--- -63 ft	+++ 45 ft	Not Analyzed
Ponce Inlet	+++ 67 ft	-- -27 ft	+ 11 ft	+++ 76 ft	Not Analyzed

BEACH TRENDS

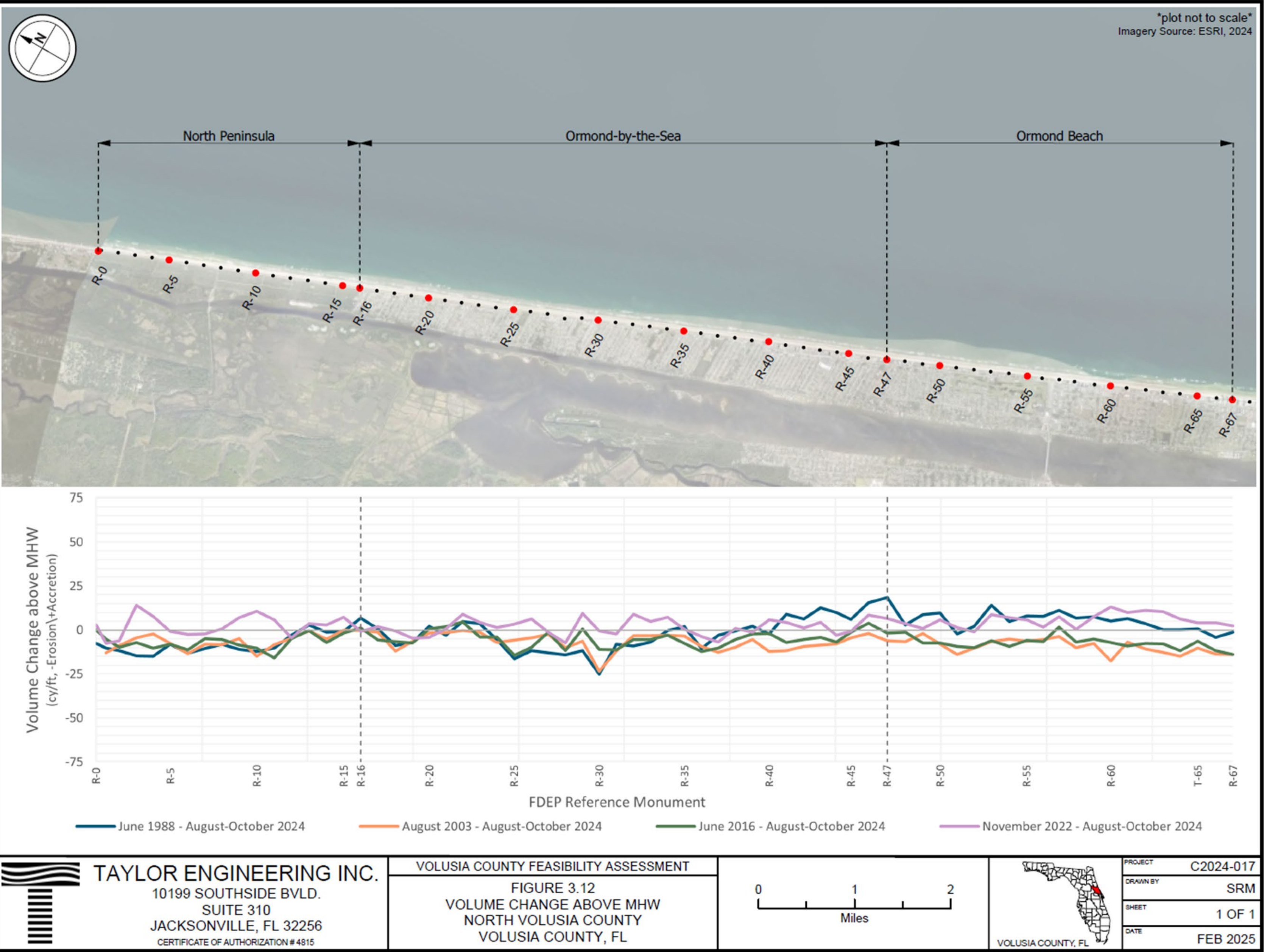
BEACH WIDTH
SOUTH



MHW Shoreline Position	1988-2024*	2003-2024*	2016-2024*	2022-2024*	2024-2024 <i>Milton's Impact</i>
New Smyrna Beach	+++ 40 ft	-- -24 ft	-- -21 ft	+++ 33 ft	Not Analyzed
Silver Sands and Bethune Beach	+ 13 ft	--- -48 ft	-- -28 ft	++ 23 ft	Not Analyzed
Countywide	+/- 0 ft	- -7 ft	--- -36 ft	++ 25 ft	Not Analyzed

BEACH TRENDS

VOLUME CHANGE ABOVE MHW
NORTH

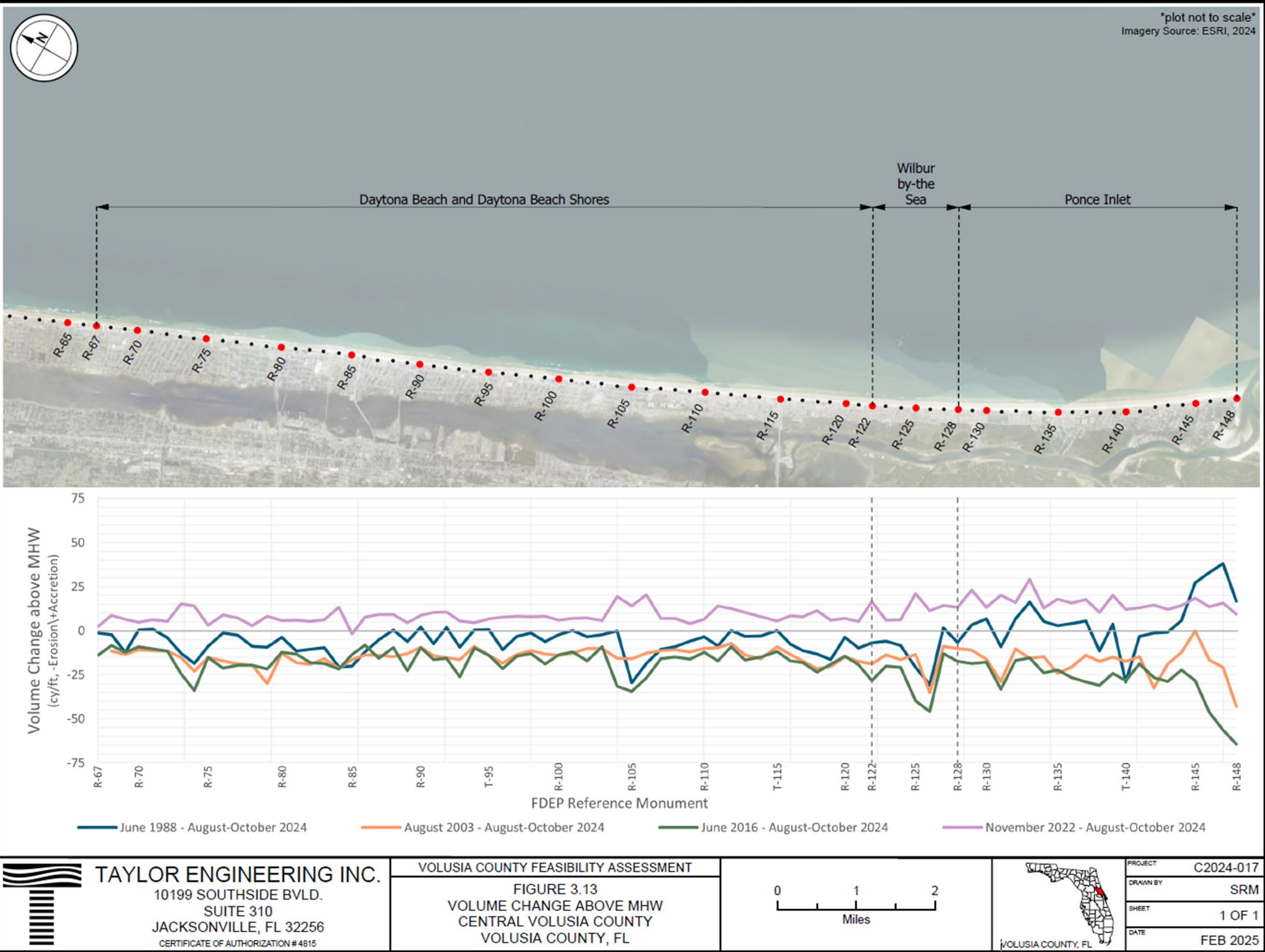


Volume Change Above MHW	1988-2024*	2003-2024*	2016-2024*	2022-2024*	2024-2024 <i>Milton's Impact</i>
North Peninsula	- -8 cy/ft	- -7 cy/ft	- -7 cy/ft	+/- 3 cy/ft	- -5 cy/ft
Ormond-by-the-Sea	+/- -2 cy/ft	- -7 cy/ft	- -5 cy/ft	+/- 2 cy/ft	+/- -2 cy/ft
Ormond Beach	+ 5 cy/ft	- -9 cy/ft	- -7 cy/ft	+ 6 cy/ft	+/- -4 cy/ft



BEACH TRENDS

VOLUME CHANGE ABOVE MHW
CENTRAL

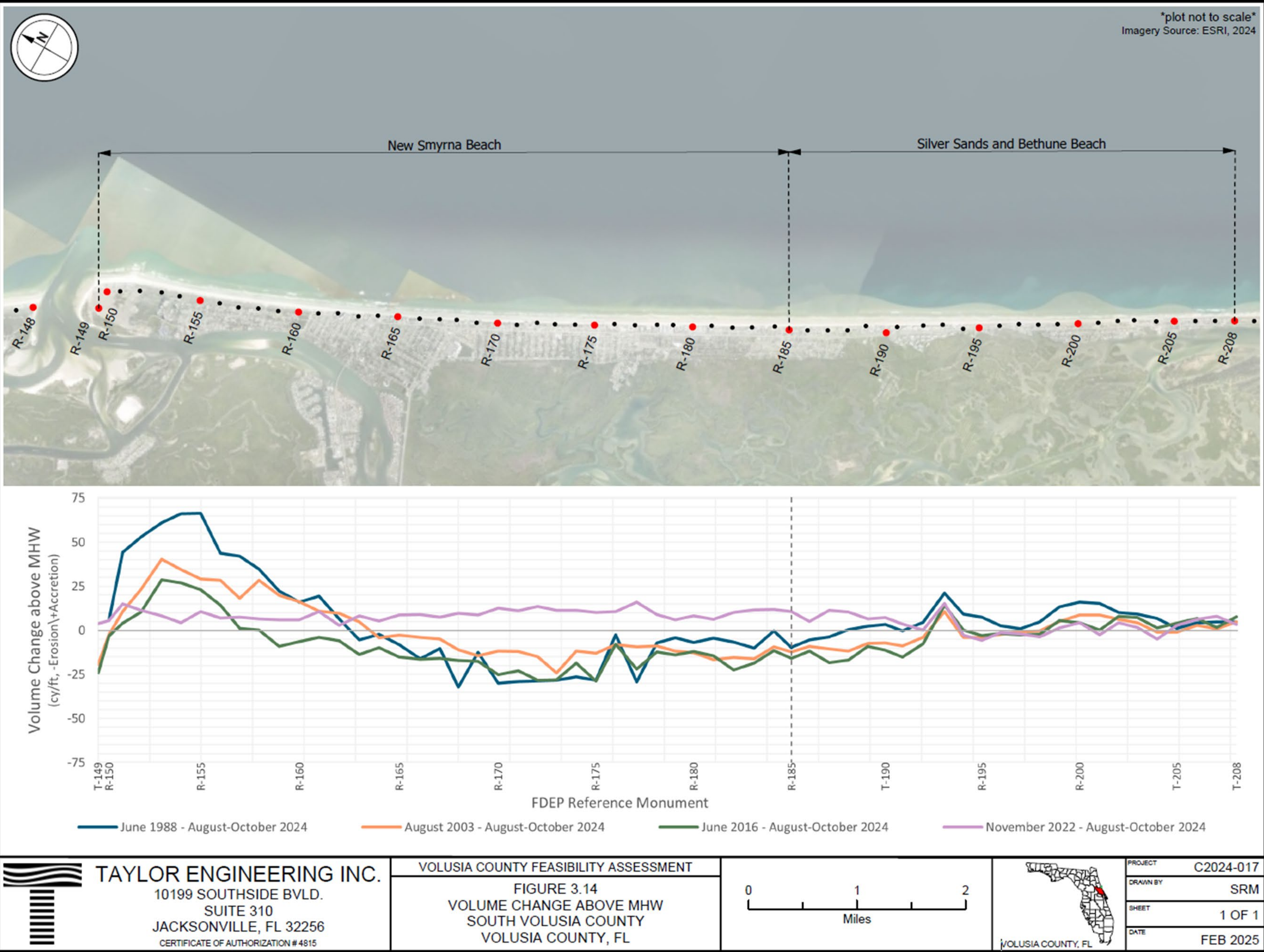


Volume Change Above MHW	1988-2024*	2003-2024*	2016-2024*	2022-2024*	2024-2024 <i>Milton's Impact</i>
Daytona Beach and Daytona Beach Shores	- -7 cy/ft	- -15 cy/ft	- -17 cy/ft	+ 8 cy/ft	- -6 cy/ft
Wilbur-by-the-Sea	- -12 cy/ft	- -17 cy/ft	-- -27 cy/ft	+ 12 cy/ft	- -7 cy/ft
Ponce Inlet	+ 6 cy/ft	- -19 cy/ft	-- -29 cy/ft	+ 16 cy/ft	- -13 cy/ft



BEACH TRENDS

VOLUME CHANGE ABOVE MHW
SOUTH

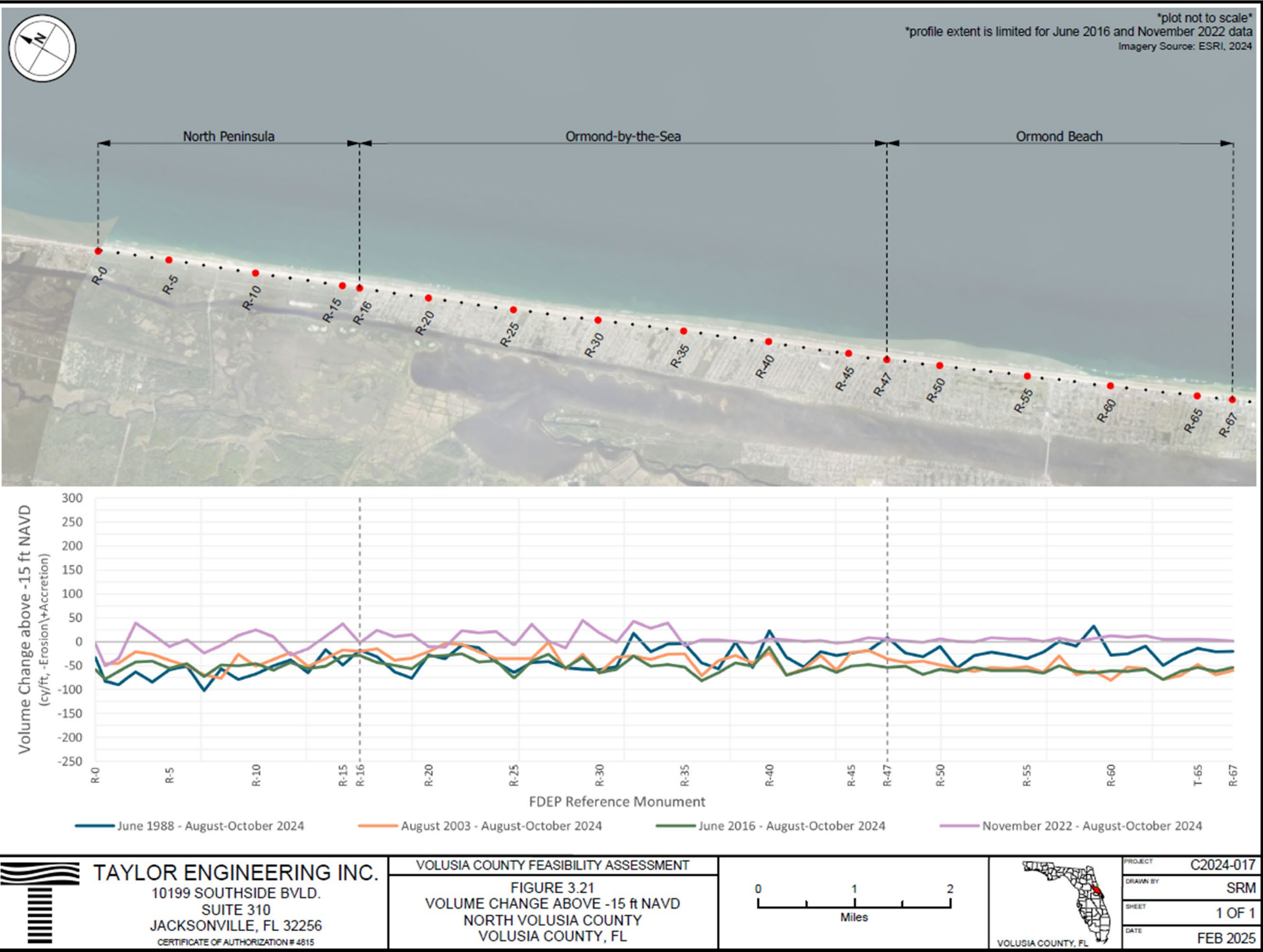


Volume Change Above MHW	1988-2024*	2003-2024*	2016-2024*	2022-2024*	2024-2024 <i>Milton's Impact</i>
New Smyrna Beach	+/- 4 cy/ft	+/- 1 cy/ft	- -9 cy/ft	+ 9 cy/ft	- -6 cy/ft
Silver Sands and Bethune Beach	+ 5 cy/ft	+/- -1 cy/ft	+/- -2 cy/ft	+/- 3 cy/ft	+/- 1 cy/ft
Countywide	+/- -1 cy/ft	- -9 cy/ft	- -12 cy/ft	+ 7 cy/ft	+/- -5 cy/ft



BEACH TRENDS

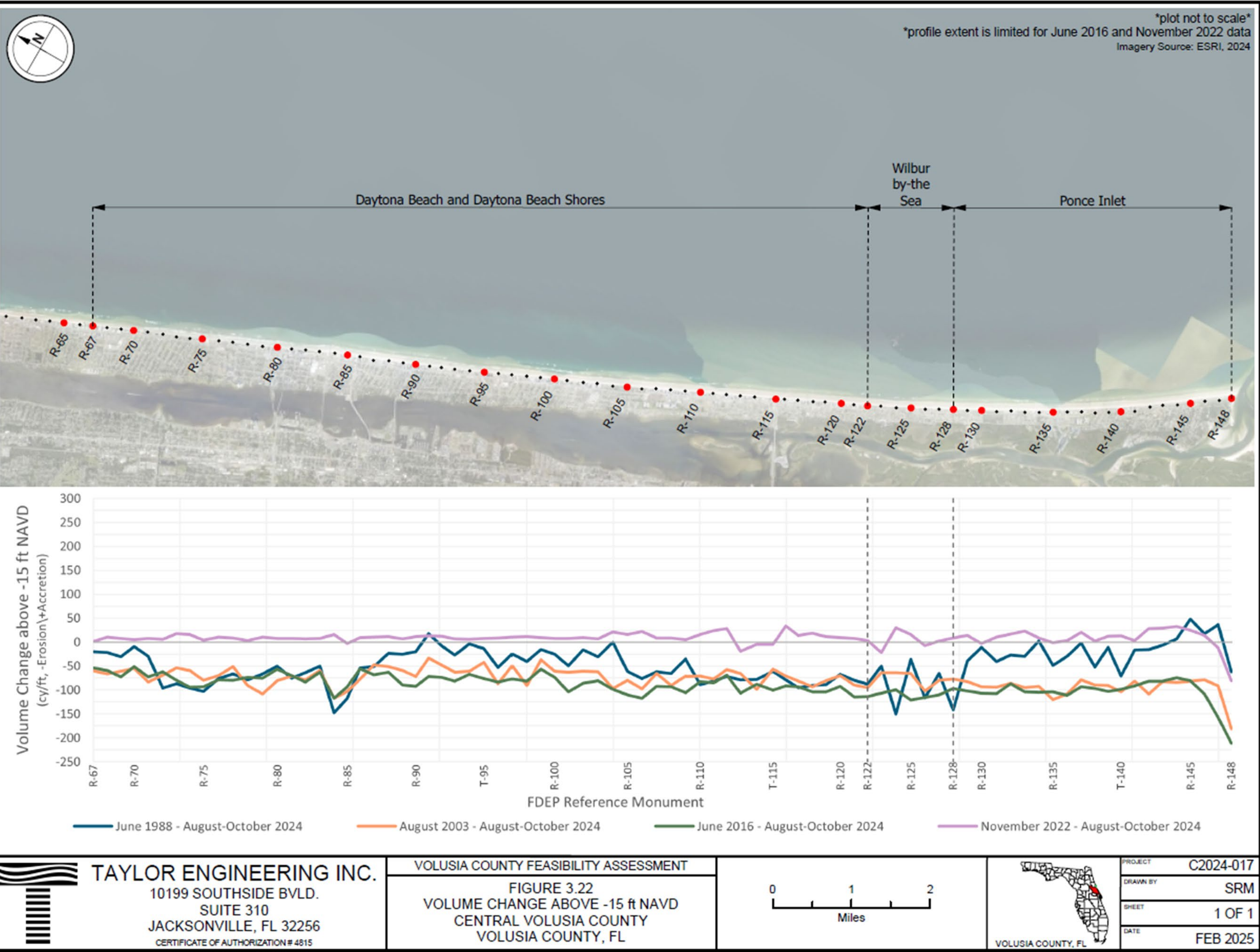
VOLUME CHANGE ABOVE -15 FT-NAVD88
NORTH



Volume Change Above -15 ft-NAVD88	1988-2024*	2003-2024*	2016-2024*	2022-2024*	2024-2024 <i>Milton's Impact</i>
North Peninsula	-	- - -	- - -	+/-	-
	-60 cy/ft	-40 cy/ft	-51 cy/ft	0 cy/ft	-5 cy/ft
Ormond-by-the-Sea	- - -	- - -	- - -	+	+/-
	-32 cy/ft	-33 cy/ft	-48 cy/ft	10 cy/ft	-3 cy/ft
Ormond Beach	- - -	- - -	- - -	+/-	-
	-20 cy/ft	-57 cy/ft	-60 cy/ft	5 cy/ft	-10 cy/ft

BEACH TRENDS

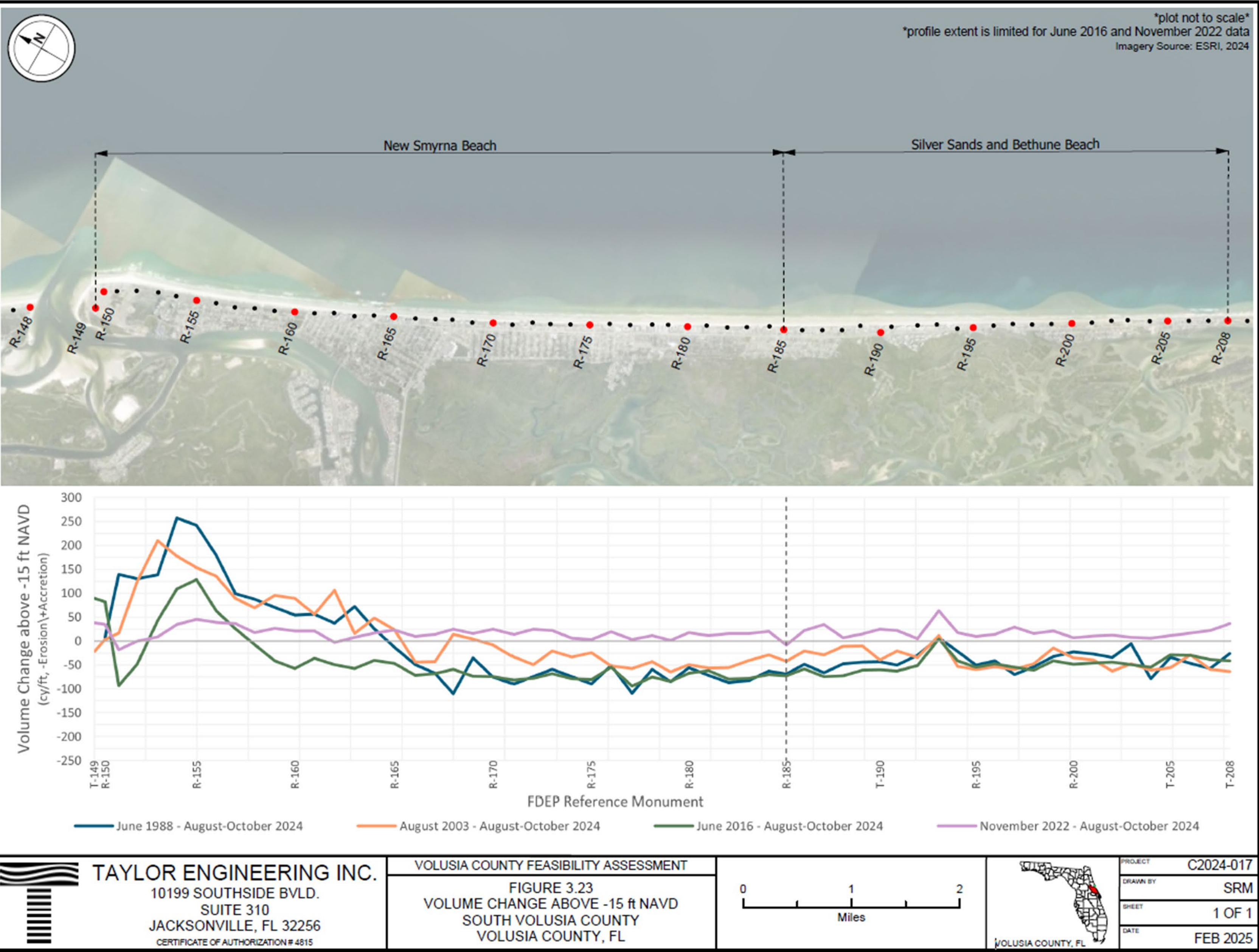
VOLUME CHANGE ABOVE -15 FT-NAVD88
CENTRAL



Volume Change Above -15 ft-NAVD88	1988-2024*	2003-2024*	2016-2024*	2022-2024*	2024-2024 <i>Milton's Impact</i>
Daytona Beach and Daytona Beach Shores	- - -	- - -	- - -	+	-
	-56 cy/ft	-71 cy/ft	-84 cy/ft	9 cy/ft	-14 cy/ft
Wilbur-by-the-Sea	- - -	- - -	- - -	+/-	-
	-89 cy/ft	-76 cy/ft	-110 cy/ft	4 cy/ft	-9 cy/ft
Ponce Inlet	- - -	- - -	- - -	+	-
	-21 cy/ft	-96 cy/ft	-105 cy/ft	8 cy/ft	-13 cy/ft

BEACH TRENDS

VOLUME CHANGE ABOVE -15 FT-NAVD88
SOUTH



Volume Change Above -15 ft-NAVD88	1988-2024*	2003-2024*	2016-2024*	2022-2024*	2024-2024 <i>Milton's Impact</i>
New Smyrna Beach	+/-	+	- - -	+	-
	4 cy/ft	20 cy/ft	-41 cy/ft	17 cy/ft	-15 cy/ft
Silver Sands and Bethune Beach	- - -	- - -	- - -	+	+/-
	-41 cy/ft	-38 cy/ft	-49 cy/ft	18 cy/ft	-1 cy/ft
Countywide	- - -	- - -	- - -	+	-
	-35 cy/ft	-45 cy/ft	-65 cy/ft	10 cy/ft	-10 cy/ft

BEACH TRENDS- COUNTYWIDE



	1988-2024*	2003-2024*	2016-2024*	2022-2024*	2024-2024 <i>Milton's Impact</i>
Dune Toe	+/- -2 ft	-- -11 ft	--- -25 ft	++ 12 ft	Not Analyzed
MHW Shoreline Position	+/- -1 ft	--- -68 ft	--- -61 ft	+++ 37 ft	--- -31 ft
Beach Width	+/- 0 ft	--- -68 ft	--- -36 ft	++ 25 ft	Not Analyzed
Volume Above MHW	+/- -1 cy/ft	- -9 cy/ft	- -12 cy/ft	+ 7 cy/ft	+/- -5 cy/ft
Volume Above -15 ft-NAVD88	-- -35 cy/ft	--- -45 cy/ft	--- -65 cy/ft	+ 10 cy/ft	- -10 cy/ft

**Impacts of Hurricane Milton (October 2024) not represented*