Executive Summary

The City of Norfolk, Virginia recently began a program of periodic surveying of the Ocean View shoreline. The study area extends from the western end of Willoughby Spit to the western edge of the Little Creek Inlet in East Ocean View. The periodic surveying data, collected by McKim & Creed, were obtained in September 2005, March 2006, October 2006, and March 2007. In addition, post-fill survey data was obtained for beach nourishment projects that were performed in regions of East Ocean View and Central Ocean View in November 2003 and January-March 2005, respectively. This report documents the data sources, methods, and results of a periodic surveying evaluation performed to compare the March 2007 survey data with previous surveys taken in March 2006 (spring to spring comparison), October 2006 (most recent surveys comparison), and the post-fill surveys from the East Ocean View and Central Ocean View nourishment projects, taken in November 2003 and March 2005, respectively.

Most recently, McKim & Creed conducted beach and bathymetric surveys of the Ocean View shoreline in March 2007. As done for previous surveys of Ocean View, the baseline and set of transects established for the September 2005 survey were used for the most recent survey. The transects were stationed from west to east along the shoreline from Willoughby Spit to Little Creek Inlet.

Linear and volumetric changes were calculated between the most recent survey and the March 2006 survey, the October 2006 survey, and the East Ocean View and Central Ocean View beach nourishment post-fill surveys. Linear changes were calculated at MHW (+0.98 ft NAVD88) and volumetric changes were calculated over two different extents of the profiles to provide a better understanding of the processes occurring both onshore and offshore. The two extents used for volume change comparison included portions of profiles above 0 ft NAVD88 and portions of profiles above the approximate depth of closure, -15 ft NAVD88.

Key statistics were computed for defined regions along Ocean View and the entire shoreline for the time period between both the March 2006 and March 2007 surveys and the October 2006 and March 2007 surveys. These values are discussed in Section 4.2 and Section 4.3.

Comparison	Parameter	Quantity
March 2006 vs. March 2007	Average Shoreline Change Rate at MHW (+0.98 ft NAVD88)	-0.94 ft/yr
	Cumulative Volume Change Rate Above 0 ft NAVD88	-126,800 cy/ft/yr
	Cumulative Volume Change Rate Above -15 ft NAVD88	95,900 cy/ft/yr
October 2006 vs. March 2007	Average Shoreline Change at MHW (+0.98 ft NAVD88)	-2.7 ft
	Cumulative Volume Change Above 0 ft NAVD88	-122,500 cy/ft
	Cumulative Volume Change Above -15 ft NAVD88	60,200 cy/ft

While the Ocean View shoreline saw an overall gain in material above the depth of closure, there were large losses of material above 0 ft NAVD88 and shoreline erosion at MHW, indicating erosion of the dune system and/or subaerial beach. It is important to note that these losses may have a severe impact on the level of storm protection provided by the dune/berm and the width of subaerial beach used for recreational purposes.

In addition, comparison of the March 2007 survey was made against post-fill surveys from the East Ocean View beach nourishment and Willoughby Spit to Central Ocean View dune restoration which took place in November 2003 and January-March 2005 respectively. These values are discussed in Section 4.4 and Section 4.5.

Comparison	Average Shoreline Change	Average Volume Change Above -15 ft NAVD88	Average Volume Change Above 0 ft NAVD88	Cumulative Volume Change Above -15 ft NAVD88	Cumulative Volume Change Above 0 ft NAVD88
East Ocean View Beach Nourishment vs. March 2007 Comparison	-66.56 ft	-23.11 cy/ft	-8.53 cy/ft	-125,916 cy	-45,182 cy
Central Ocean View Dune Restoration vs. March 2007 Comparison	10.45 ft	0.24 cy/ft	-6.27 cy/ft	12,951 cy	-126,615 cy

Approximately 45,200 cy of material has been lost in the East Ocean View area above 0 ft NAVD88 since the nourishment project which took place in November 2003. This is roughly 19% of the original amount of fill placed above the 0 ft contour. The Willoughby Spit to Central Ocean View region has lost approximately 126,600 cy of material from the dune system and/or subaerial beach since the project completion in March 2005. This is approximately 39% of the total material placed above 0 ft NAVD88 during the dune restoration and a large loss of storm protection.

Table of Contents

List of Figures

List of Tables

1.0 Objective

The City of Norfolk, Virginia recently began a program of periodic surveying of the Ocean View shoreline. The periodic surveying data, collected by McKim & Creed, were obtained in September 2005, March 2006, October 2006, and March 2007. This report documents the data sources, methods, and results of a periodic surveying evaluation performed to compare the March 2007 survey data with previous surveys taken in March 2006 (spring to spring comparison) and October 2006 (most recent survey comparison) in the Ocean View Beach area between Willoughby Spit and Little Creek Inlet. In addition, comparison of the most recent survey (March 2007) was made to post-fill surveys from the East Ocean View and Central Ocean View beach nourishment projects, which took place in November 2003 and January-March 2005, respectively.

2.0 Data Sources

Most recently, McKim & Creed conducted a survey of Ocean View Beach in March 2007. The baseline and transects established for the September 2005 survey were used for the most recent survey. **Figure 1** shows the location of the baseline, transects, and the stationing applied by McKim & Creed for the surveying. The established baseline and transects will be used in all future survey periods. As shown, transects were stationed from west to east along the Ocean View shoreline. The survey data was obtained in CAD, xyz, and ISRP (BMAP) formats allowing for compatibility with multiple programs.

McKim & Creed noted that typical survey accuracy along the hydrographic portions of the profiles is approximately ±3 inches. This 'margin of error', if applied over the entire length of the hydrographic profiles can potentially result in significant volumetric differences, in particular on the shallow and long profiles near Willoughby Spit. Therefore, volumetric changes discussed herein are analyzed with regard to potential volumetric margins of error.

Also, in March 2007, the Virginia Institute of Marine Science (VIMS) flew aerial photography of the Ocean View shoreline, georectified these images, and digitized the shoreline position from the images. The March 2007 aerial photos with the digitized shoreline position are presented in **Appendix A**. Since these photos cover a limited portion of area landward and seaward of the shoreline, a previous image (2000) is underlain, for appearance purposes.

In addition, post-fill surveys taken for the East Ocean View beach nourishment and Willoughby Spit to Central Ocean View dune restoration projects in December 2003 and March 2005 respectively were used. This data was available in xyz format from previous studies of these projects by Moffatt & Nichol.

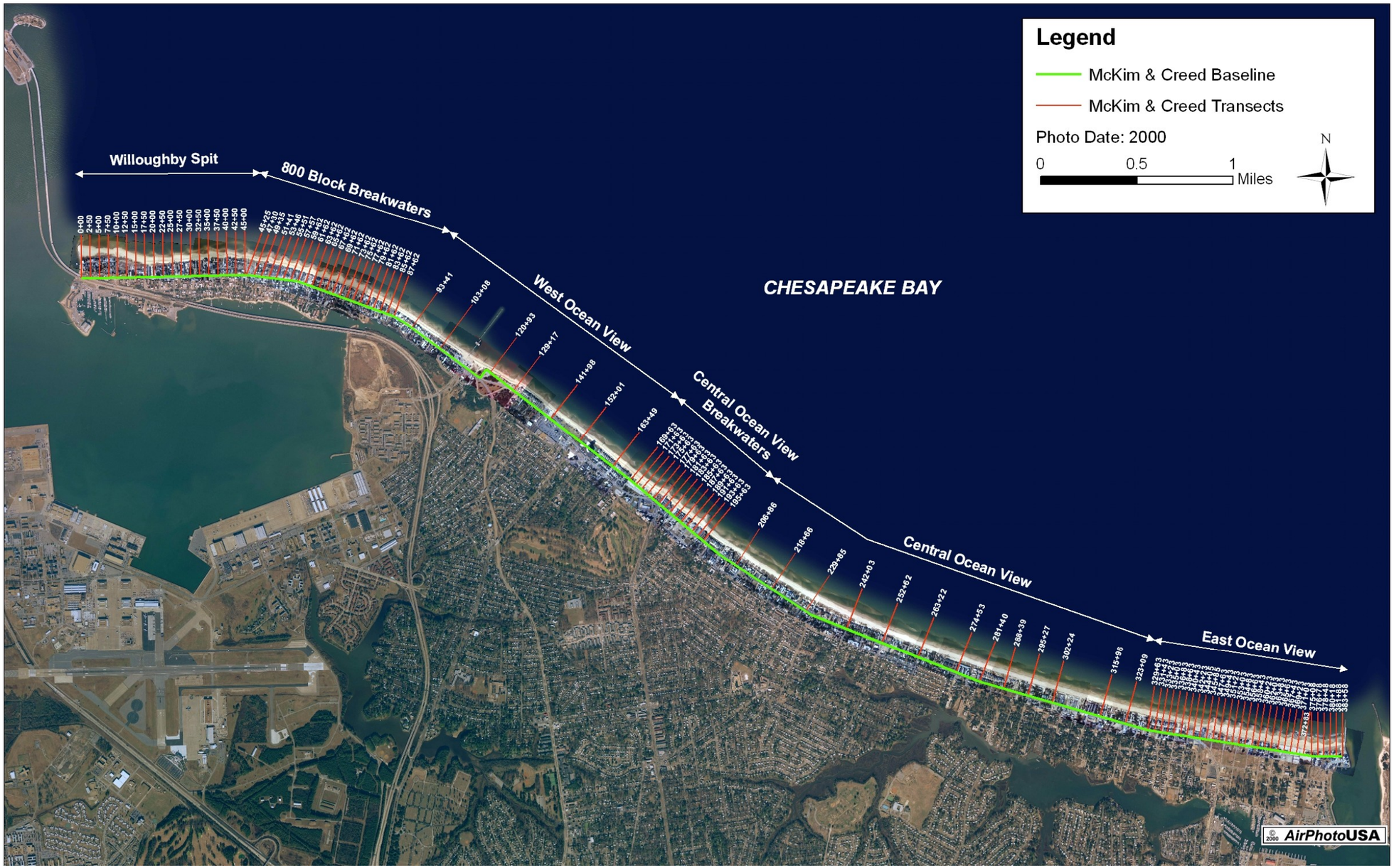


Figure 1. Survey Baseline and Transects

3.0 Methods

Survey comparisons and respective analysis were performed using a combination of Autodesk Civil 3D 2007 (Civil 3D), Autodesk Land Development Desktop 2007 (LDD), Microsoft Excel (Excel), and Beach Morphology Analysis Package (BMAP). Civil 3D and LDD are AutoCAD based programs which allow the user to create and analyze Digital Terrain Models (DTMs). BMAP is a program developed by the USACE to analyze morphologic and dynamic properties of beach profiles.

All pertinent survey data was imported into Civil 3D in xyz format. The horizontal coordinate system used was State Plane NAD 1983 (HARN), US Survey ft with a vertical datum of NAVD88 (ft). Digital Terrain Models (DTMs) were created for each set of survey data. From these surfaces, a beach profile was extracted at each survey transect in station elevation format. Individual profile plates showing the extracted profile at each transect for each date are presented in **Appendix B**. From the profiles, shoreline change and volumetric change were then calculated at each transect for the following time periods:

1. March 2006 to March 2007 (Entire Shoreline)
2. October 2006 to March 2007 (Entire Shoreline)
3. December 2003 (East Ocean View post-fill) to March 2007 (Sta 329+63-Sta 383+58)
4. March 2005 (Central Ocean View post-fill) to March 2007 (Sta 15+00-Sta 195+63)

First, change in shoreline position at mean high water (MHW), which was defined as +0.98 ft NAVD88 (based on NOAA tidal benchmark at Sewell's Point), was calculated at each transect for all four time periods mentioned. The resulting value represents the shoreline change (ft) over the time period between surveys. The shoreline change rate (ft/yr) was then calculated by dividing by the amount of time between survey dates in order to better compare changes between different time periods.

Then, representative volume changes were also calculated at each transect for all four time periods. Volume changes were calculated for two different extents in order to better understand the processes occurring onshore and offshore of the Ocean View beach area. Calculations included volume change above -15 ft NAVD88 and volume change above 0 ft NAVD88. As with the shoreline change, the results represent volume change (cy/ft) over the period of time between surveys. The volume change rate (cy/ft/yr) was then calculated by dividing by the amount of time between survey dates in order to better compare changes between different time periods. In addition, the volume changes were converted to cumulative changes over the entire shoreline. This was done by applying the average end area method to the unit volume changes (cy/ft) and unit volume change rates (cy/ft/yr) computed at each transect and summing the total volume changes over the entire shoreline. The resulting value indicated the total loss or gain of material between surveys based on the applicable profile extents.

Volume changes calculated for portions of the profiles above 0 ft NAVD88 are representative of changes in the amount of material in the dune system and on the subaerial beach. These areas are highly influenced by the performance of coastal structures and the impact of storm activity.

Volume comparisons for portions of the profiles above -15 ft NAVD88, which is an approximate depth of closure, allow for the tracking of sand movement offshore while reducing the amount of error associated with the survey data by eliminating changes beyond this depth related to the vertical margin of error in the hydrographic survey data (±3 inches). This is a comprehensive way to assess the impact of coastal structures and storm activity on the subaerial beach and dune system as well as track the movement of sand offshore and quantify total gains and losses in the entire system.

It should be noted that the most recent survey took place over an extended period of time, from March 27, 2007 to April 21, 2007. Upland, surf zone, and hydrographic surveys often took place on different days for each transect. For this report, shoreline and volume change rates were calculated using the date March 27, 2007 for the most recent survey data.

4.0 Discussion of Periodic Surveying Evaluation

This section will discuss differences observed in the relative surveys, overall shoreline trends, regional shoreline trends, and the East Ocean View and Central Ocean View nourishment projects. The computed shoreline changes and volume changes at each individual transect for the four time periods being covered are tabulated in **Appendix C**.

4.1. Differences in Relative Surveys

Differences in the surveys taken as part of the ongoing program of periodic surveying of the Ocean View shoreline (March 2006, October 2006, and March 2007) were very minimal due to use of the same baseline and transects put in place by McKim & Creed for the initial survey in September 2005. Profile extents and alignment were not an issue when comparing the survey data. The only discrepancy which may have impacted calculations was the vertical margin of error in the hydrographic portion of the survey as mentioned in Section 2.0.

The post-fill surveys taken for the East Ocean View and Central Ocean View nourishment projects did not use the same baseline and transects or cover the same extents as the periodic surveys. Therefore, the profiles extracted from the DTMs in Civil3D at the periodic surveying transects are interpolations between the actual post-fill data points. In addition, the surveys did not extend offshore as far as the periodic surveys do, limiting computations and the ability to track the offshore movement of sand.

4.2. General Shoreline Trends

Key statistics were calculated to describe the average shoreline and volume changes over the entire shoreline as well as for each region of the shoreline as defined in **Figure 1**. The computed statistics include average shoreline change, average volume change, and cumulative volume change (e.g. total volume of material lost or gained along a section of shoreline). A summary of the resulting statistics for the March 2006 to March 2007 comparison are presented in **Table 1**. A summary of the resulting statistics for the October 2006 to March 2007 comparison are presented in **Table 2**. Evaluation of the computed statistics will take into account volume changes computed for portions of the profile above 0 ft NAVD88 and portions of the profile above -15 ft NAVD88 in order to better understand onshore and offshore processes.

Table 1. Regional Shoreline and Volume Change Statistics (March 2006 - March 2007 Comparison)

Region	Average Shoreline Change Rate	Average Volume Change Rate Above -15 ft NAVD88	Average Volume Change Rate Above 0 ft NAVD88	Cumulative Volume Change Rate Above -15 ft NAVD88	Cumulative Volume Change Rate Above 0 ft NAVD88
	(ft/yr)	(cy/ft/yr)	(cy/ft/yr)	(cy/yr)	(cy/yr)
Willoughby Spit (0+00 to 45+00)	19.53	20.8	-3.89	97,221	-18,109
800 Block Breakwaters (45+25 to 87+62)	-3.91	0.82	-3.78	1,094	-17,666
West Ocean View (93+41 to 163+49)	4.85	1.81	-3.05	12,709	-26,020
Central Ocean View Breakwaters (169+63 to 195+63)	-4.83	2.11	-2.15	6,500	-7,792
Central Ocean View (206+86 to 323+09)	-4.52	-0.66	-2.38	-2,186	-26,561
East Ocean View (329+63 to 383+58)	-14.15	-3.42	-5.56	-19,456	-30,607
	WEIGHTED AVERAGE (ft/yr)	WEIGHTED AVERAGE (cy/ft/yr)	WEIGHTED AVERAGE (cy/ft/yr)	TOTAL (cy/yr)	TOTAL (cy/yr)
OVERALL	-0.94	2.32	-3.08	95,883	-126,754

Table 2. Regional Shoreline and Volume Change Statistics (October 2006 – March 2007 Comparison)

Region	Average Shoreline Change Rate	Average Volume Change Above -15 ft NAVD88	Average Volume Change Above 0 ft NAVD88	Cumulative Volume Change Above -15 ft NAVD88	Cumulative Volume Change Above 0 ft NAVD88
	(ft)	(cy/ft)	(cy/ft)	(cy)	(cy)
Willoughby Spit (0+00 to 45+00)	3.88	3.09	-2.95	21,144	-14,653
800 Block Breakwaters (45+25 to 87+62)	-0.15	4.03	-4.59	19,026	-21,883
West Ocean View (93+41 to 163+49)	-0.42	0.64	-2.94	4,877	-25,058
Central Ocean View Breakwaters (169+63 to 195+63)	-4.87	-0.99	-0.82	-6,416	-1,673
Central Ocean View (206+86 to 323+09)	-7.83	1.45	-3.52	14,126	-38,742
East Ocean View (329+63 to 383+58)	-2.55	1.2	-3.8	7,418	-20,534
	WEIGHTED AVERAGE (ft)	WEIGHTED AVERAGE (cy/ft)	WEIGHTED AVERAGE (cy/ft)	TOTAL (cy)	TOTAL (cy)
OVERALL	-2.7	1.45	-3.05	60,174	-122,543

According to **Table 1** and **Table 2**, the Ocean View shoreline has experienced overall erosion at MHW, with the majority of erosion occurring between the October 2006 and March 2007 surveys. Likewise, the volume change above 0 ft NAVD88 is also negative over the entire shoreline with most of the erosion occurring between the October 2006 and March 2007 surveys. A highly active storm period existed between the two most recent surveys with Nor'easters occurring in October and November 2006, likely contributing to this erosion. It is important to note, however, that the volume change above -15 ft NAVD88 shows a net accretion over the entire shoreline. This indicates that while the dune system and/or subaerial beach has lost sand over the past year, it has been shifted offshore and remains within the system between the 0 ft contour and the closure depth. However, the hydrographic error discussed in Section 2.0 may still be responsible for most of this calculated accretion and it should be noted that only the volume above 0 ft NAVD88 is providing storm protection and recreational benefits.

While the overall trends are erosion of the dune system/subaerial beach, patterns vary within each region of shoreline as defined in **Figure 1**. The calculated statistics with respect to each region will be discussed in more detail in the following section.

4.3. Regional Shoreline Trends

Regional shoreline trends are discussed below for the defined regions between Willoughby Spit and Little Creek Inlet (see **Figure 1**). A summary of the information in **Table 1** and **Table 2** has been created for each region of study. **Figure 2** through **Figure 5**, following the discussion of regional shoreline trends, present the shoreline and volume change at each transect within the defined regions.

4.3.1. Willoughby Spit

The Willoughby Spit region (Sta 0+00 to Sta 45+00) includes two offshore breakwaters, timber groins, and has historically been a stable and accreting region. A summary of average shoreline and volume change rates between March 2006 and March 2007 for the Willoughby Spit region along with average shoreline and volume change quantities between October 2006 and March 2007 are presented in **Table 3**.

Table 3. Average Shoreline and Volume Change Rates for Willoughby Spit

Region	Average Shoreline Change	Average Volume Change Above -15 ft NAVD88	Average Volume Change Above 0 ft NAVD88	Cumulative Volume Change Above -15 ft NAVD88	Cumulative Volume Change Above 0 ft NAVD88
March 2006 to March 2007 Comparison					
	(ft/yr)	(cy/ft/yr)	(cy/ft/yr)	(cy/yr)	(cy/yr)
Willoughby Spit (0+00 to 45+00)	19.53	20.8	-3.89	97,221	-18,109
October 2006 to March 2007 Comparison					
	(ft)	(cy/ft)	(cy/ft)	(cy)	(cy)
Willoughby Spit (0+00 to 45+00)	3.88	3.09	-2.95	21,144	-14,653

Table 3 indicates that during the time between the two Spring surveys (March 2006 and March 2007), this region experienced an average shoreline accretion rate of 19.53 ft/yr at MHW. In addition, the region also experienced average volumetric accretion above the -15 ft contour of 20.8 cy/ft/yr. It should be noted that there was some erosion above 0 ft NAVD88 of the dune system and/or subaerial beach. Erosion of beach material may be a result of continued equilibration of the profiles from the Willoughby Spit to Central Ocean View dune restoration project. In addition, Tropical Storm Ernesto and the October and November 2006 nor'easters would account for damage to the dune system and subaerial beach. After examination of the profile plots in **Appendix B**, it appears that the dune material was eroded and deposited along the beach face and below the 0 ft contour, which explains the positive shoreline change and negative volume change above 0 ft NAVD88. Overall, despite the erosion to the dune system and/or subaerial beach, the Willoughby Spit region primarily experienced accretion. **Figure 3** shows the area closest to Willoughby spit (Sta 0+00 to Sta 15+00) continues to accrete at the highest rate, decreasing as distance from the spit increases eastward. This is due to the natural direction of littoral drift and sediment movement from east to west, causing accretion in the direction of the spit. However, it should be reiterated that the dune/berm system has experienced erosion.

4.3.2. 800 Block Breakwaters

The 800 Block Breakwaters region (Sta 45+25 to Sta 87+62) is characterized by a field of 8 breakwaters. The easternmost breakwater was built in February 2006 along with removal of the

pre-existing groin spur and toe extension. This new breakwater was built further offshore as a result of the previous structural configuration causing the beach to fill out and impair natural sediment transport to the west. A summary of average shoreline and volume change rates between March 2006 and March 2007 for the 800 Block Breakwater region along with average shoreline and volume change quantities between October 2006 and March 2007 are presented in **Table 4**.

Table 4. Average Shoreline and Volume Change Rates for 800 Block Breakwaters

Region	Average Shoreline Change	Average Volume Change Above -15 ft NAVD88	Average Volume Change Above 0 ft NAVD88	Cumulative Volume Change Above -15 ft NAVD88	Cumulative Volume Change Above 0 ft NAVD88
March 2006 to March 2007 Comparison					
	(ft/yr)	(cy/ft/yr)	(cy/ft/yr)	(cy/yr)	(cy/yr)
800 Block Breakwaters (45+25 to 87+62)	-3.91	0.82	-3.78	1,094	-17,666
October 2006 to March 2007 Comparison					
	(ft)	(cy/ft)	(cy/ft)	(cy)	(cy)
800 Block Breakwaters (45+25 to 87+62)	-0.15	4.03	-4.59	19,026	-21,883

The comparison between profiles in the 800 Block Breakwater region indicates erosion at MHW and volumetric loss above 0 ft NAVDD88 to the dune and/or subaerial beach. Volume change above -15 ft NAVD88 shows slight accretion indicating that the material lost from the dune system/subaerial beach may be being deposited offshore above the closure depth. **Figure 3** shows that the easternmost portion of the 800 Block breakwater field experienced accretion. Directly west of this, the volume change rates show significant erosion across the remainder of the breakwater field. Upon inspection of aerial photography in **Appendix A**, it seems this trend is, in part, the result of blocking of sediment transport to the west from the second easternmost breakwater. The beach has accreted to the point behind this breakwater where sediment does not appear to be able to be transported between the breakwater and the shore, causing erosion westward. This volume change pattern was also evident in the previous survey analyses. It may be necessary for a storm or other extreme event (with waves from the Northeast) to flush some of the sediment that has built out behind the second easternmost breakwater before natural sediment transport patterns can be established, allowing the western portion of the region to accrete. Again, it should be noted that this area has experienced erosion of the protective dune/berm system.

4.3.3. West Ocean View

The West Ocean View area (Sta 93+41 to Sta 163+49), between the 800 Block and Central Ocean View breakwaters, is characterized by a series of timber groins. A summary of average shoreline and volume change rates between March 2006 and March 2007 for the West Ocean View region along with average shoreline and volume change quantities between October 2006 and March 2007 are presented in **Table 5**.

Table 5. Average Shoreline and Volume Change Rates for West Ocean View

Region	Average Shoreline Change	Average Volume Change Above -15 ft NAVD88	Average Volume Change Above 0 ft NAVD88	Cumulative Volume Change Above -15 ft NAVD88	Cumulative Volume Change Above 0 ft NAVD88
March 2006 to March 2007 Comparison					
	(ft/yr)	(cy/ft/yr)	(cy/ft/yr)	(cy/yr)	(cy/yr)
West Ocean View (93+41 to 163+49)	4.85	1.81	-3.05	12,709	-26,020
October 2006 to March 2007 Comparison					
	(ft)	(cy/ft)	(cy/ft)	(cy)	(cy)
West Ocean View (93+41 to 163+49)	-0.42	0.64	-2.94	4,877	-25,058

The March 2006 to March 2007 comparison showed an average overall accretion of shoreline and overall gain in volume above the closure depth. As with the other regions of shoreline, the volume change above 0 ft NAVD88 was negative. Profile plots in **Appendix B** show that losses from the dune system were partially deposited along the beach face causing accretion of the shoreline at MHW but overall erosion above 0 ft NAVD88. **Figure 3** shows a fairly stable stretch of shoreline over the West Ocean View reach with varying accretion and erosion patterns.

4.3.4. Central Ocean View Breakwaters

The Central Ocean View breakwaters region covers the four offshore breakwaters at Central Ocean View and approximately 800 feet westward (Sta 169+93 to Sta 195+63). A summary of average shoreline and volume change rates between March 2006 and March 2007 for the Central Ocean View Breakwaters region along with average shoreline and volume change quantities between October 2006 and March 2007 are presented in **Table 6**.

Table 6. Average Shoreline and Volume Change Rates for Central Ocean View Breakwaters

Region	Average Shoreline Change	Average Volume Change Above -15 ft NAVD88	Average Volume Change Above 0 ft NAVD88	Cumulative Volume Change Above -15 ft NAVD88	Cumulative Volume Change Above 0 ft NAVD88
March 2006 to March 2007 Comparison					
	(ft/yr)	(cy/ft/yr)	(cy/ft/yr)	(cy/yr)	(cy/yr)
Central Ocean View Breakwaters (169+63 to 195+63)	-4.83	2.11	-2.15	6,500	-7,792
October 2006 to March 2007 Comparison					
	(ft)	(cy/ft)	(cy/ft)	(cy)	(cy)
Central Ocean View Breakwaters (169+63 to 195+63)	-4.87	-0.99	-0.82	-6,416	-1,673

In the Central Ocean View Breakwaters region, the shoreline has experienced erosion at MHW and volumetric loss above the 0 ft contour. As with other regions some of these losses appear to have been captured offshore above the closure depth. Upon inspection of the profile plots in **Appendix B**, it appears that the losses seen from the dunes and subaerial beach west of the breakwater field and in between breakwaters are shifting offshore and getting caught up on a sandbar allowing the material to remain in the system. **Figure 3** shows the expected erosion/accretion pattern that is usually seen behind and in between breakwaters and indicates the Central Ocean View breakwaters are holding the overall shoreline relatively well.

4.3.5. Central Ocean View

Central Ocean View (Sta 206+86 to Sta 323+09) is generally a stable region with slight accretion despite the absence of engineering interventions (e.g. beach fill or structures). A summary of

average shoreline and volume change rates between March 2006 and March 2007 for the Central Ocean View region along with average shoreline and volume change quantities between October 2006 and March 2007 are presented in **Table 7**.

Table 7. Average Shoreline and Volume Change Rates for Central Ocean View

Region	Average Shoreline Change	Average Volume Change Above -15 ft NAVD88	Average Volume Change Above 0 ft NAVD88	Cumulative Volume Change Above -15 ft NAVD88	Cumulative Volume Change Above 0 ft NAVD88
March 2006 to March 2007 Comparison					
	(ft/yr)	(cy/ft/yr)	(cy/ft/yr)	(cy/yr)	(cy/yr)
Central Ocean View (206+86 to 323+09)	-4.52	-0.66	-2.38	-2,186	-26,561
October 2006 to March 2007 Comparison					
	(ft)	(cy/ft)	(cy/ft)	(cy)	(cy)
Central Ocean View (206+86 to 323+09)	-7.83	1.45	-3.52	14,126	-38,742

As seen in Table 7, Central Ocean View has, on average, experienced erosion at MHW and volumetric erosion above 0 ft NAVD88 over the past year. The volume change above the depth of closure is just slightly erosional. The profile plots in **Appendix B** show that the erosion seen at MHW and along the beach face appears to be deposited offshore on the sandbar. Figure 3 shows that Central Ocean View has a similar pattern to West Ocean View, the other unprotected stretch of shoreline, of varying accretion and erosion but overall stability of the shoreline.

4.3.6. East Ocean View

The East Ocean View region (Sta 329+63 to Sta 383+58) is characterized by 10 breakwaters of which the 3 easternmost were built in February of 2006. A summary of average shoreline and volume change rates between March 2006 and March 2007 for the East Ocean View region along with average shoreline and volume change quantities between October 2006 and March 2007 are presented in **Table 8**.

Table 8. Average Shoreline and Volume Change Rates for East Ocean View

Region	Average Shoreline Change	Average Volume Change Above -15 ft NAVD88	Average Volume Change Above 0 ft NAVD88	Cumulative Volume Change Above -15 ft NAVD88	Cumulative Volume Change Above 0 ft NAVD88
March 2006 to March 2007 Comparison					
	(ft/yr)	(cy/ft/yr)	(cy/ft/yr)	(cy/yr)	(cy/yr)
East Ocean View (329+63 to 383+58)	-14.15	-3.42	-5.56	-19,456	-30,607
October 2006 to March 2007 Comparison					
	(ft)	(cy/ft)	(cy/ft)	(cy)	(cy)
East Ocean View (329+63 to 383+58)	-2.55	1.2	-3.8	7,418	-20,534

In the East Ocean View region, shoreline and volume change rates both indicate erosion for the March 2006 to March 2007 comparison. **Figure 3** shows that the portion of the shoreline west of the breakwater field and behind the westernmost breakwaters themselves is experiencing slightly higher erosion than the rest of the field. This trend has been apparent since the December 2003 nourishment project. The eastern portion of the breakwater field is experiencing less erosion and even some accretion behind the easternmost breakwaters added in January 2006. Review of the profile comparison plots in **Appendix B** shows significant loss in the dune area and subaerial beach that isn't being recovered offshore. However, these trends are expected given that there is very little littoral drift entering this area from the east due to the Little River Inlet jetties.

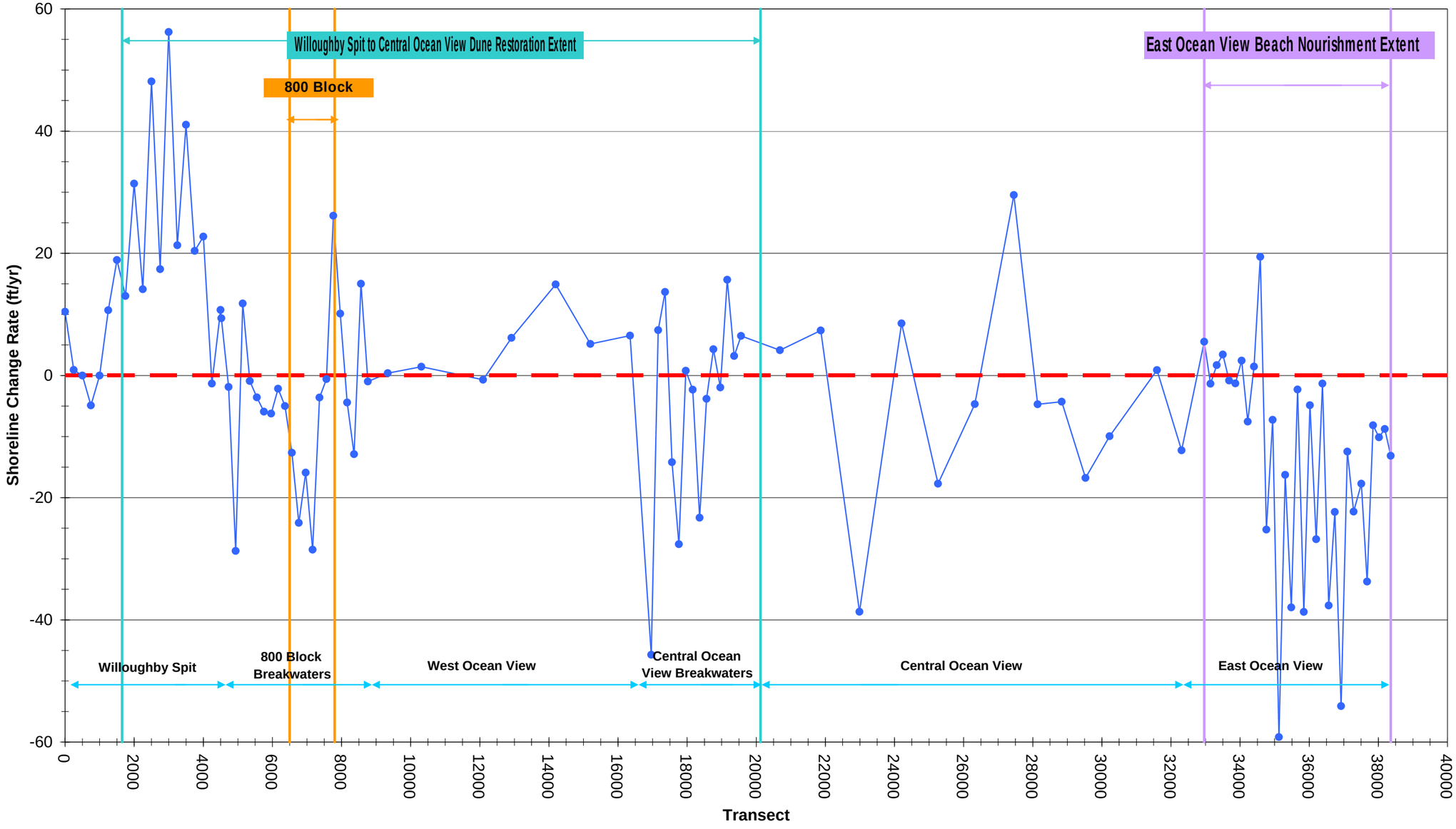


Figure 2. Shoreline Change Rate (ft/yr) At Mean High Water (+0.98 ft NAVD88) For March 2006 to March 2007
(Note: Positive=Accretion, Negative=Erosion)

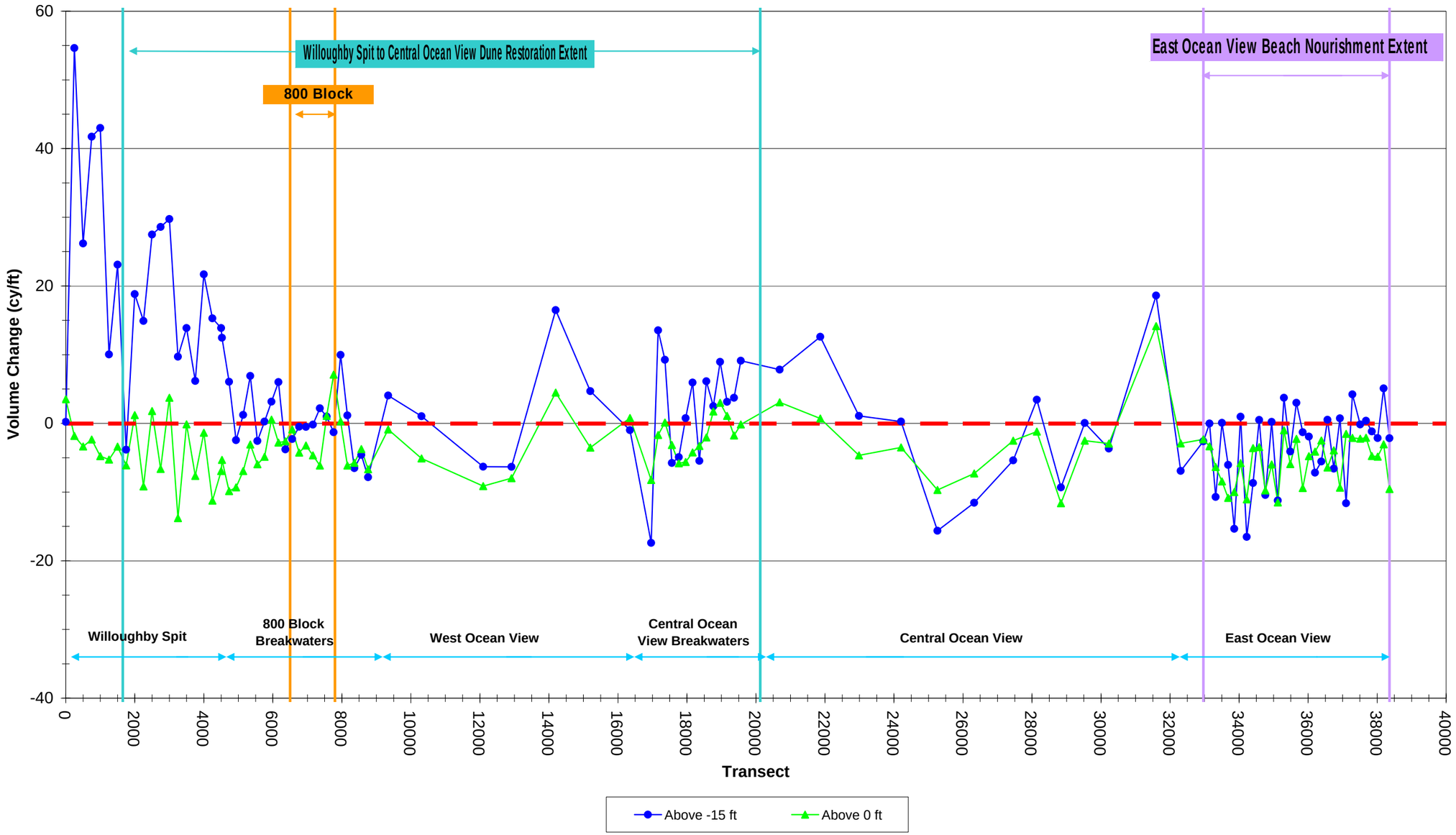


Figure 3. Volume Change Rate (cy/ft/yr) For March 2006 to March 2007

(Note: Positive=Volume Gain, Negative=Volume Loss)

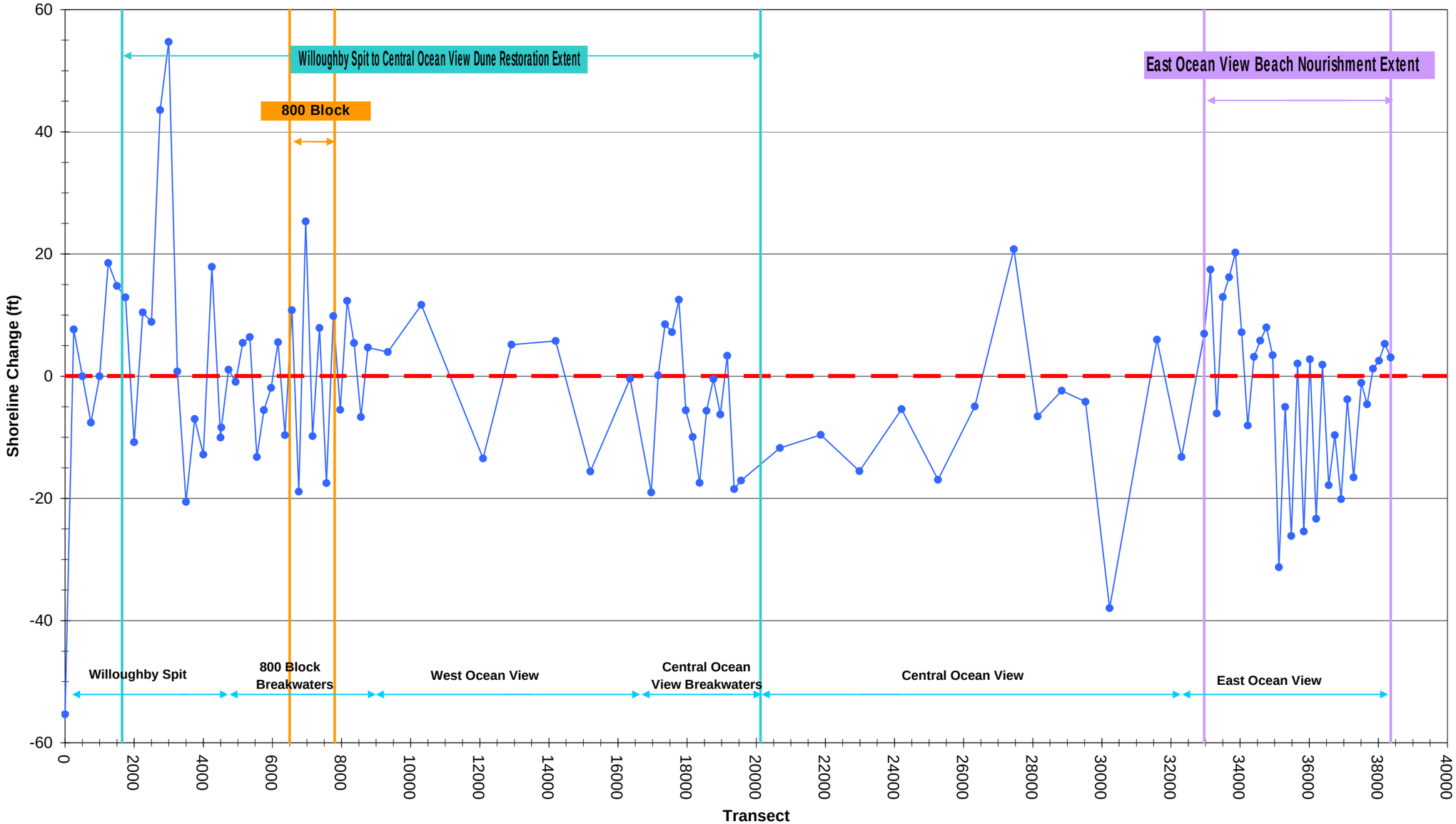


Figure 4. Shoreline Change (ft) At Mean High Water (+0.98 ft NAVD88) For October 2006 to March 2007
(Note: Positive=Accretion, Negative=Erosion)

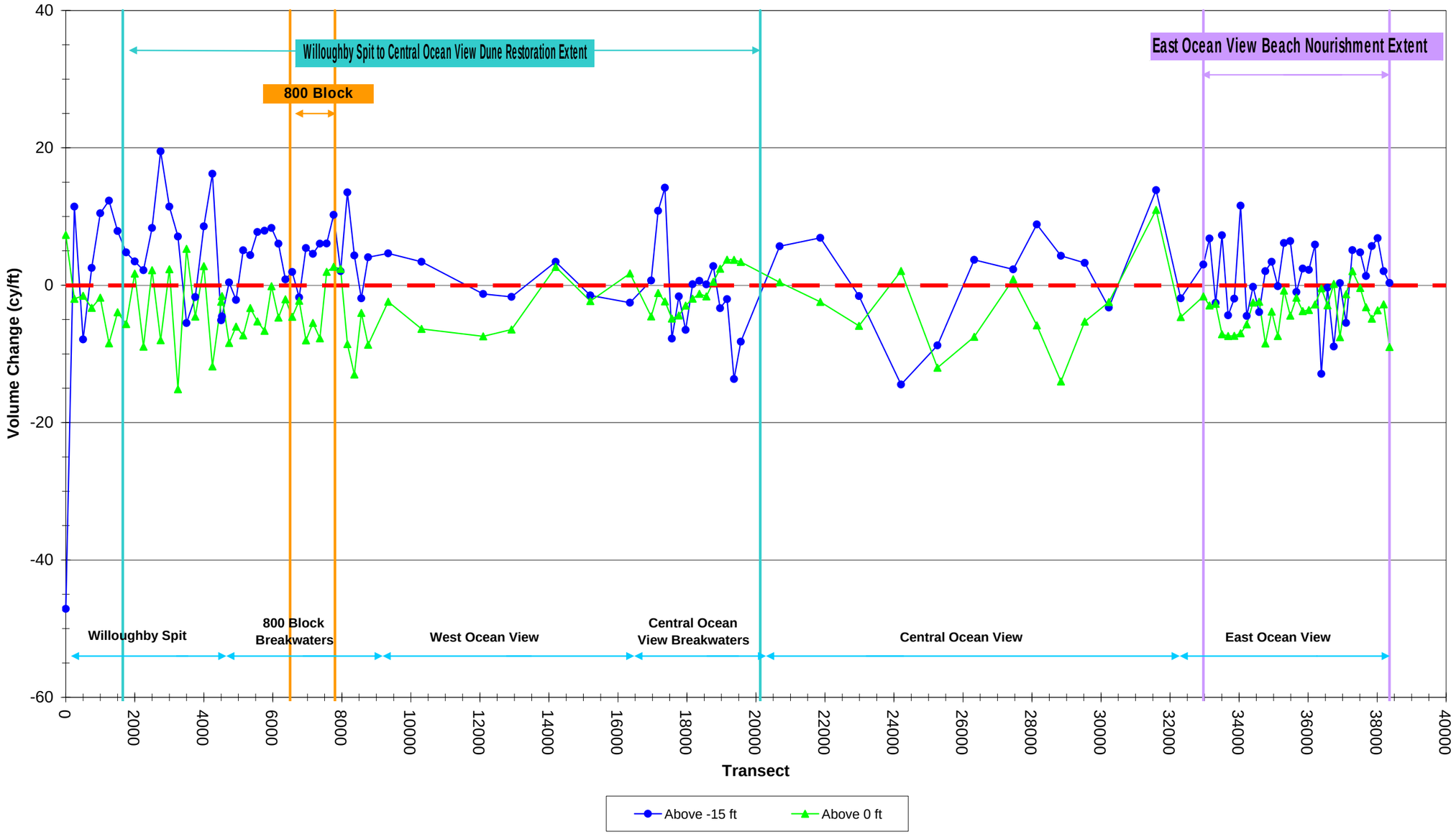


Figure 5. Volume Change (cy/ft) For October 2006 to March 2007
(Note: Positive=Volume Gain, Negative=Volume Loss)

4.4. East Ocean View Beach Nourishment Project (2003)

The most recent periodic survey, taken in March 2007, was compared to the post-fill survey taken in December 2003 after completion of the East Ocean View beach nourishment project. A total of 359,000 cy of sand was placed from Sta 329+63 to Sta 383+58. **Table 9** presents the shoreline and volume change statistics comparing the two surveys.

Table 9. Overall Shoreline and Volume Change Statistics – East Ocean View Nourishment Project (Post-Fill – March 2007 Comparison)

Region		Average Shoreline Change	Average Volume Change Above -15 ft NAVD88	Average Volume Change Above 0 ft NAVD88	Cumulative Volume Change Above -15 ft NAVD88	Cumulative Volume Change Above 0 ft NAVD88
East Ocean View	Rate per year	-19.81 ft/yr	-6.88 cy/ft/yr	-2.54 cy/ft/yr	-37,475 cy/yr	-13,447 cy/yr
(329+63 to 383+58)	Total	-66.56 ft	-23.11 cy/ft	-8.53 cy/ft	-125,916 cy	-45,182 cy

Results indicate that the East Ocean View nourishment project has experienced erosion both linearly at MHW and volumetrically. **Table 9** shows that the East Ocean View area has seen erosion of the dune system and/or subaerial beach as well as offshore since the nourishment project in 2003. Roughly 45,200 cy of material has been lost above 0 ft NAVD88, or approximately 19% of the 236,095 cy originally placed above 0 ft NAVD88. Approximately 125,900 cy of material has been lost above -15 ft NAVD88, leaving only 65% of the original 359,000 cy of fill placed within the East Ocean View project region in the system above the depth of closure. **Figure 6** shows areas of volume gain and volume loss between the post-fill survey and the March 2007 survey. As can be seen in the figure, a considerable amount of the beach face and nearshore sand has been eroded. It is notable that the shoreline behind the breakwaters has less damage to the dunes than the shoreline to the west of the breakwater field. In addition, it appears that the breakwaters have caught some of the sand that was eroded from higher elevations and trapped it offshore, keeping it within the system.

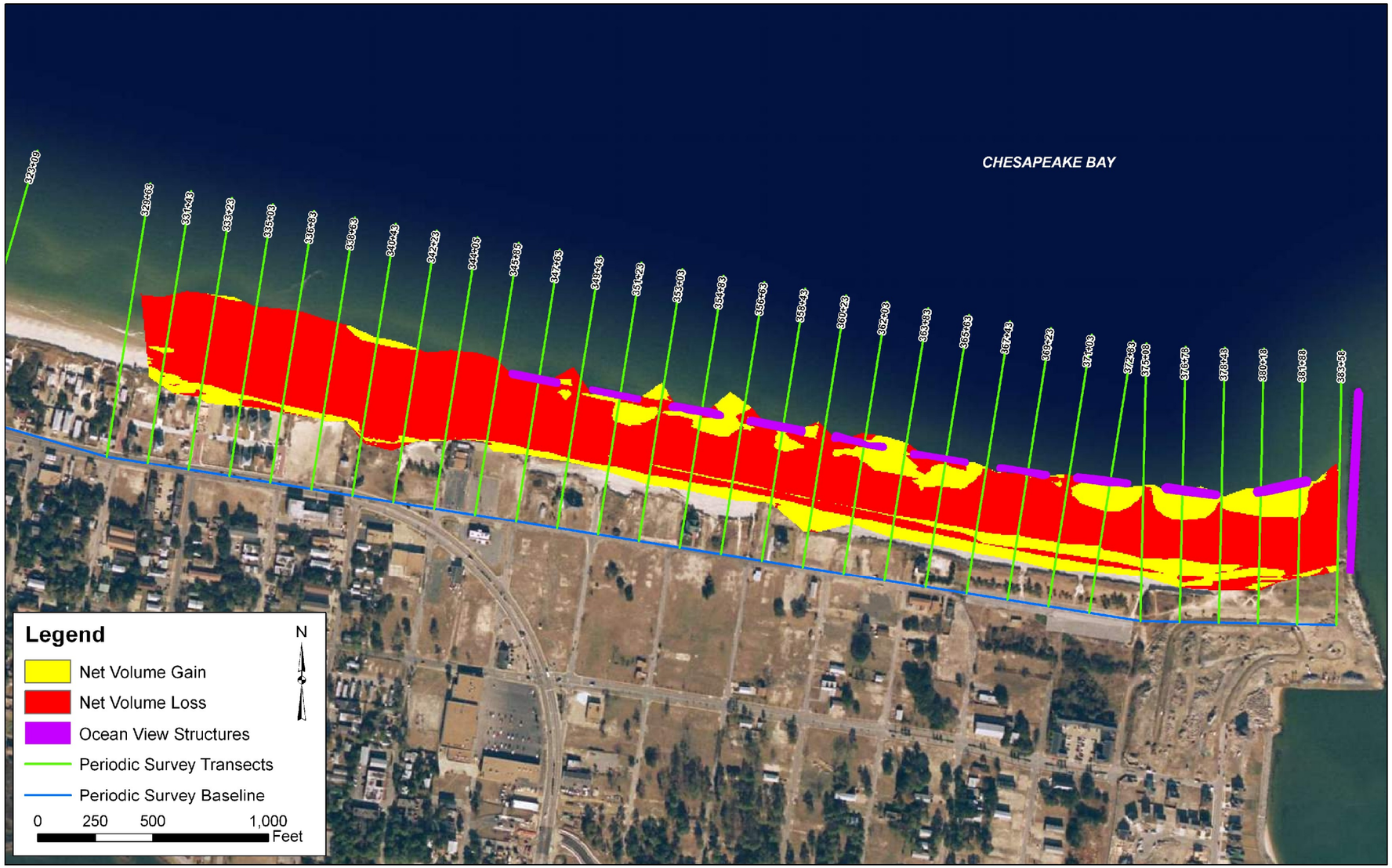


Figure 6. Net Volume Change Since the East Ocean View Nourishment Project

4.5. Central Ocean View Dune Restoration Project (2005)

The most recent periodic survey, taken in March 2007, was also compared to the post-fill survey taken in March 2005 after completion of the Willoughby Spit to Central Ocean View Dune Restoration project. A total of 504,300 cy of sand was placed from Sta 15+00 to Sta 195+63. Table 10 presents the shoreline and volume change statistics comparing the two surveys.

Table 10. Regional and Overall Shoreline and Volume Change Statistics for Central Ocean View Nourishment Project (Post-Fill – March 2007 Comparison)

Region		Average Shoreline Change	Average Volume Change Above -15 ft NAVD88	Average Volume Change Above 0 ft NAVD88	Cumulative Volume Change Above -15 ft NAVD88	Cumulative Volume Change Above 0 ft NAVD88
Willoughby Spit	Rate per year	-7.82 ft/yr	-3.3 cy/ft/yr	-3.5 cy/ft/yr	-10,281 cy/yr	-10,930 cy/yr
(0+00 to 45+00)	Total	-15.87 ft	-6.70 cy/ft	-7.12 cy/ft	-20,870 cy	-22,188 cy
800 Block Breakwaters	Rate per year	13.85 ft/yr	-4.17 cy/ft/yr	-2.41 cy/yr	-18,174 cy/yr	-10,502 cy/yr
(45+25 to 87+62)	Total	28.12 ft	-8.47 cy/ft	-4.89 cy/ft	-36,893 cy	-21,319 cy
West Ocean View	Rate per year	6.91 ft/yr	3.69 cy/ft/yr	-4.36 cy/ft/yr	30,960 cy/yr	-35,459 cy/yr
(93+41 to 163+49)	Total	14.03 ft	7.49 cy/ft	-8.85 cy/ft	62,849 cy	-71,982 cy
Central Ocean View Breakwaters	Rate per year	3.61 ft/yr	1.52 cy/ft/yr	-1.73 cy/ft/yr	3,855 cy/yr	-5,482 cy/yr
(169+63 to 195+63)	Total	7.33 ft	3.09 cy/ft	-3.51 cy/ft	7,826 cy	-11,129 cy
OVERALL		WEIGHTED AVERAGE	WEIGHTED AVERAGE	WEIGHTED AVERAGE	TOTAL	TOTAL
	Rate per year	5.15 ft/yr	0.12 cy/ft/yr	-3.09 cy/ft/yr	6,380 cy/yr	-62,372 cy/yr
	Total	10.45 ft	0.24 cy/ft	-6.27 cy/ft	12,951 cy	-126,615 cy

The beach from Willoughby Spit to Central Ocean view shows a net accretion of material above the depth of closure since the post-fill survey in March 2005. However, it is more important to consider changes above the 0 ft contour since the project was primarily a dune restoration, placing the majority of sand above the water. **Table 10** shows that there has been significant erosion of the dune system and/or subaerial beach above 0 ft NAVD88 since the project was completed. Roughly 126,600 cy of material has been lost above 0 ft NAVD88, or approximately 39% of the 320,733 cy originally placed above 0 ft NAVD88 after two years. **Figure 7** supports the calculated statistics by showing losses to the dunes and subearial beach with mostly accretion offshore. This supports the theory that eroded material from higher elevations is being shifted offshore and, while remaining in the system, storm protection is being lost at a rapid pace.

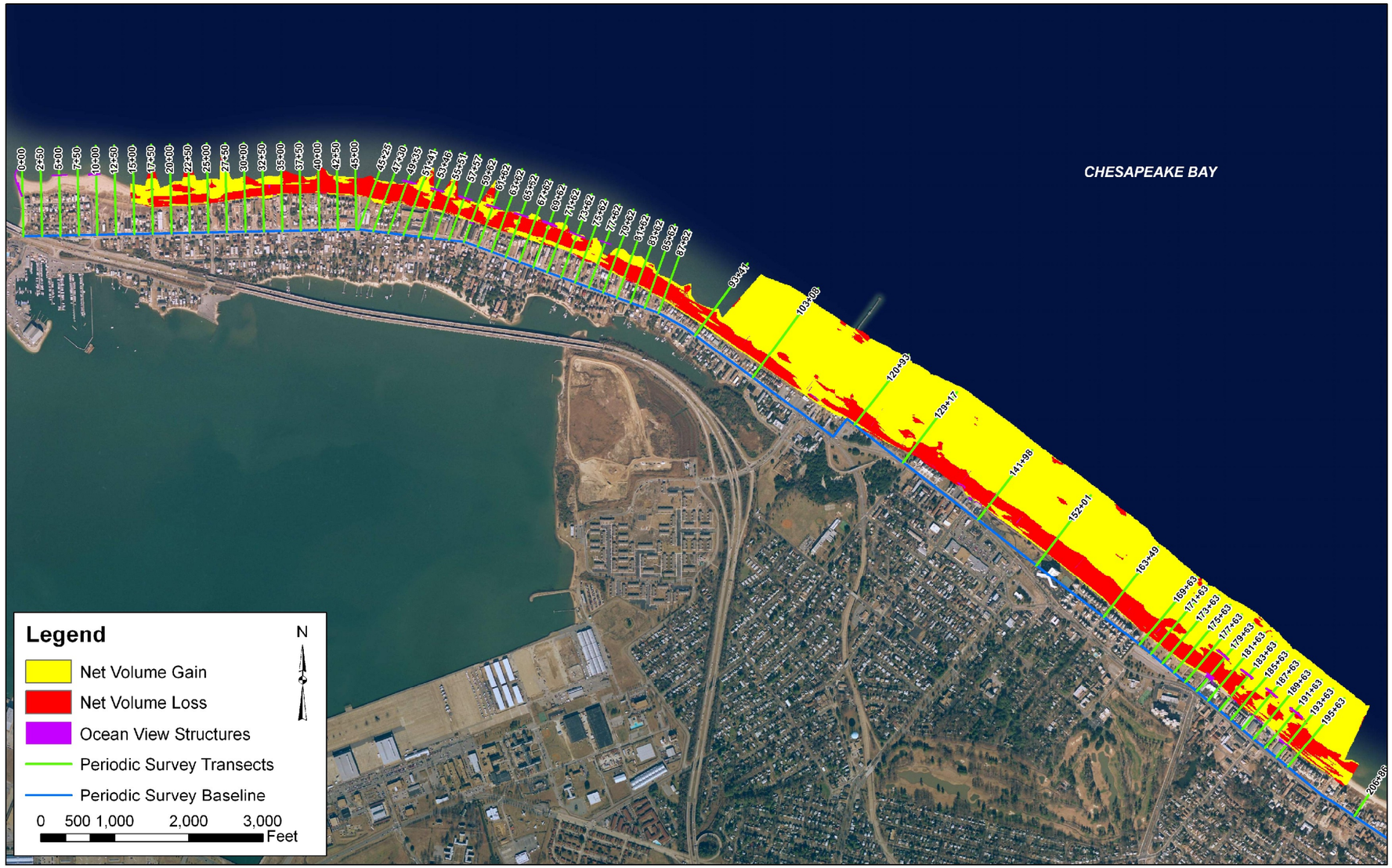


Figure 7. Net Volume Change Since the Willoughby Spit to Central Ocean View Dune Restoration Project

5.0 Summary

Comprehensive periodic surveying of the entire Ocean View shoreline began with an initial survey in September 2005. The most recent survey was completed in March 2007. Subsequent surveys are planned to be conducted and evaluated every six months, in March and September/October. The beach and bathymetric surveys, performed by McKim & Creed, utilized baseline and transect positions established in September 2005 which will be used for all future periodic surveys. For this periodic evaluation, the March 2007 survey was compared with both the March 2006 and October 2006 surveys. The surveys were used to compute shoreline change at MHW and volume change above 0 ft NAVD88 and above -15 ft NAVD88. In addition, the most recent survey in March 2007 was compared to post-fill surveys taken after the East Ocean View beach nourishment and Willoughby Spit to Central Ocean View dune restoration projects in November 2003 and January-March 2005 respectively. This was done to quantify the amount of material loss since the projects were completed.

Key statistics were computed for defined regions along Ocean View and the entire shoreline for the time period between both the March 2006 and March 2007 surveys and the October 2006 and March 2007 surveys.

Comparison	Parameter	Quantity
March 2006 vs. March 2007	Average Shoreline Change Rate at MHW (+0.98 ft NAVD88)	-0.94 ft/yr
	Cumulative Volume Change Rate Above 0 ft NAVD88	-126,800 cy/ft/yr
	Cumulative Volume Change Rate Above -15 ft NAVD88	95,900 cy/ft/yr
October 2006 vs. March 2007	Average Shoreline Change at MHW (+0.98 ft NAVD88)	-2.7 ft
	Cumulative Volume Change Above 0 ft NAVD88	-122,500 cy/ft
	Cumulative Volume Change Above -15 ft NAVD88	60,200 cy/ft

The average shoreline change rate for the entire shoreline at MHW between the March 2006 and March 2007 surveys was -0.94 ft/yr with a slightly larger rate between the October 2006 and March 2007 surveys as a result of an active storm season. The average volume change above 0 ft NAVD88 was approximately -126,800 cy, indicating a volumetric loss to dune system and/or subaerial beach over the past year. An active storm season with two nor'easters was a likely contributor to this loss. It is important to note that losses this large above the 0 ft contour reduce storm protection which is normally provided by the dune/berm. Despite large losses to the dune system and/or subaerial beach, the overall volume change above the depth of closure was positive with a gain of approximately 95,900 cy. This large gain in material for the current report is subject to some hydrographic survey error. However, this value compares well with the gain rate of 88,000 cy/yr as presented in the previous report comparing the Fall 2005 and Fall 2006 surveys. The statistics and profile plots support the idea that the material lost above 0 ft NAVD88 is being transported offshore above the closure depth.

Overall, regional erosion/accretion patterns are becoming more apparent with additional surveys. The Willoughby Spit region is mainly accreting (receiving sand from the 800 Block area) with losses only occurring in the dune/berm area during significant storm events. The 800 block region has shown recession at MHW and is erosional due to its location at the apex of the shoreline, but a portion of the material being transported offshore remains in the system. This region will benefit from periodic nourishment to replace material transported offshore. The West

Ocean View region is mainly accreting both volumetrically and linearly at MHW but has similarly lost material from the dune that has been transported offshore but still within the system. The Central Ocean View Breakwaters region appears to be fairly stable with some highly localized erosion/accretion patterns. Focused nourishments may be required here in the future. The Central Ocean View region is fairly stable with overall erosional trends but areas of accretion as well. Finally, the East Ocean View area is erosional due to the minimal littoral transport reaching this area because of the jetties. This area experienced the largest annual erosional rates and cumulative erosion quantities. Targeted nourishments will continue to be needed for this area.

In addition, comparison of the March 2007 survey was made against post-fill surveys from the East Ocean View beach nourishment and Willoughby Spit to Central Ocean View dune restoration which took place in November 2003 and January-March 2005 respectively.

Comparison	Average Shoreline Change	Average Volume Change Above -15 ft NAVD88	Average Volume Change Above 0 ft NAVD88	Cumulative Volume Change Above -15 ft NAVD88	Cumulative Volume Change Above 0 ft NAVD88
East Ocean View Beach Nourishment vs. March 2007 Comparison	-66.56 ft	-23.11 cy/ft	-8.53 cy/ft	-125,916 cy	-45,182 cy
Central Ocean View Dune Restoration vs. March 2007 Comparison	10.45 ft	0.24 cy/ft	-6.27 cy/ft	12,951 cy	-126,615 cy

Approximately 45,200 cy of material has been lost in the East Ocean View area above 0 ft NAVD88 since the nourishment project which took place in November 2003. This is approximately 19% of the original amount of fill placed above the 0 ft contour. The Willoughby Spit to Central Ocean View region has lost approximately 126,600 cy of material from the dune system and/or subaerial beach since the project completion in March 2005. This is approximately 39% of the total material placed above 0 ft NAVD88 during the dune restoration and a large loss of storm protection.

This is the fourth periodic survey report completed to date, and third evaluation of a consistent survey period utilizing beach and bathymetric surveys collected by McKim & Creed. As noted, there are inevitable margins of error associated with the survey data that may reduce the accuracy of volumetric change analyses. Therefore, it is essential to thoroughly review the beach and bathymetric profiles using various analytical techniques and general engineering judgment to assure that results are not falsely interpreted. Comparison of seasonal surveys (i.e. March 2006 to March 2007) improves on previous analysis techniques by eliminating seasonal variation of profiles in volumetric change analyses. It is also useful to continue comparing consecutive surveys to assess the direct impact of extreme events which may occur during the six month period between surveys. Future periodic survey evaluations will continue to improve on analysis techniques so that the rich survey data sets are best utilized.

Appendix A: Aerial Photography and Digitized Shorelines

Figure A-1. March 2007 Aerial Photography and Digitized Shoreline (VIMS) 1 of 8

Figure A-2. March 2007 Aerial Photography and Digitized Shoreline (VIMS) 2 of 8

Figure A-3. March 2007 Aerial Photography and Digitized Shoreline (VIMS) 3 of 8

Figure A-4. March 2007 Aerial Photography and Digitized Shoreline (VIMS) 4 of 8

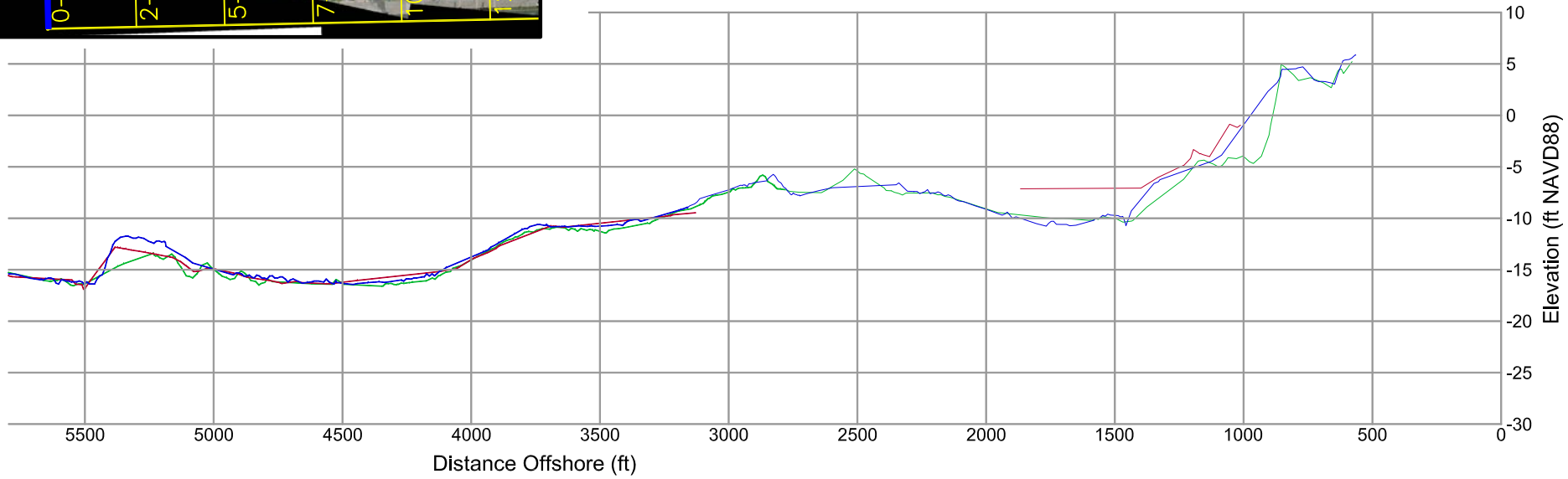
Figure A-5. March 2007 Aerial Photography and Digitized Shoreline (VIMS) 5 of 8

Figure A-6. March 2007 Aerial Photography and Digitized Shoreline (VIMS) 6 of 8

Figure A-7. March 2007 Aerial Photography and Digitized Shoreline (VIMS) 7 of 8

Figure A-8. March 2007 Aerial Photography and Digitized Shoreline (VIMS) 8 of 8

Appendix B: Survey Comparison Plots



Survey Transect 0+00	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	10.43 ft/yr	-55.36 ft
Volume Change Over Extents of Overlapping Profiles	-9.60 cy/ft/yr	-99.37 cy/ft
Volume Change Above -15 ft NAVD88	0.21 cy/ft/yr	-47.11 cy/ft
Volume Change Above 0 ft NAVD88	3.51 cy/ft/yr	7.31 cy/ft

LEGEND:

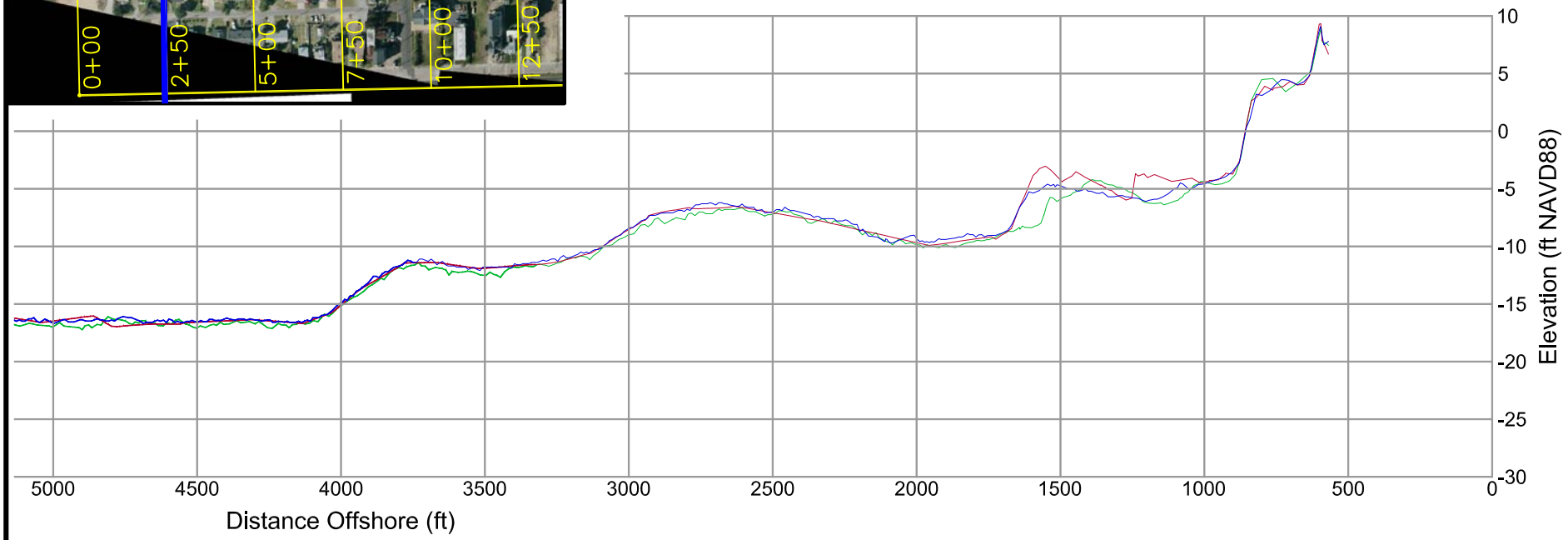
MARCH 2006
OCTOBER 2006
MARCH 2007

Notes:

1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



Survey Transect 2+50	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	0.90 ft/yr	7.67 ft
Volume Change Over Extents of Overlapping Profiles	67.11 cy/ft/yr	-10.36 cy/ft
Volume Change Above -15 ft NAVD88	54.63 cy/ft/yr	11.43 cy/ft
Volume Change Above 0 ft NAVD88	-1.82 cy/ft/yr	-1.98 cy/ft

LEGEND:

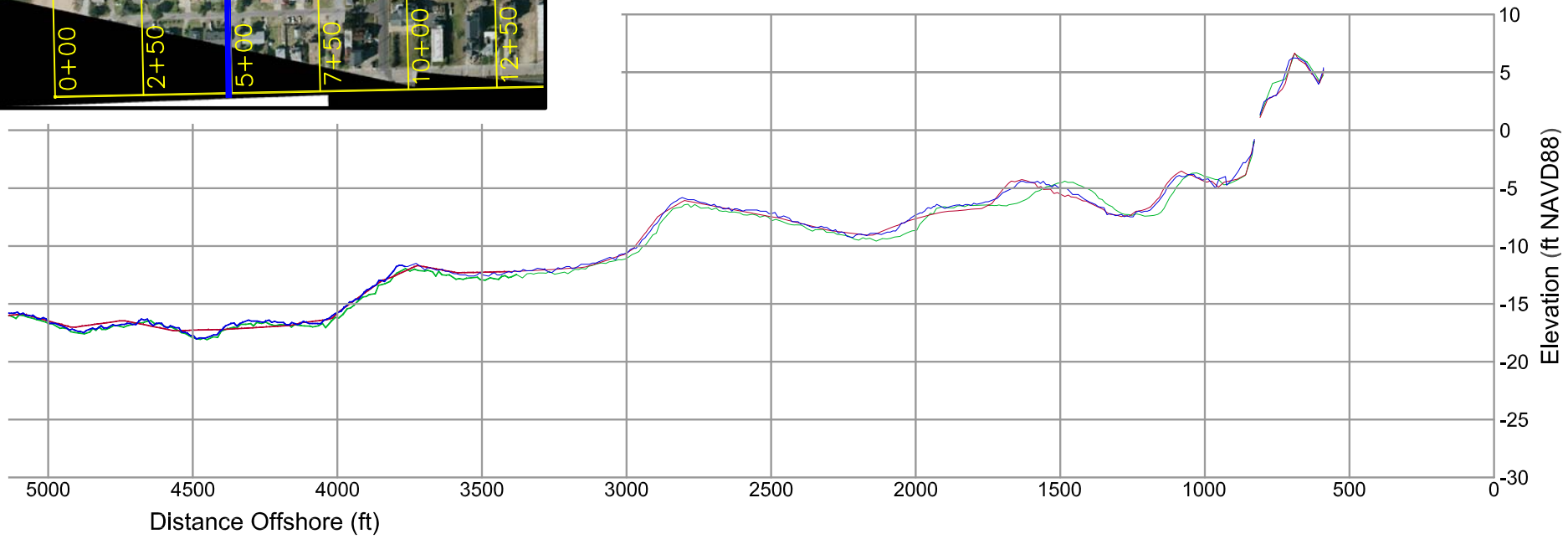
MARCH 2006
OCTOBER 2006
MARCH 2007

Notes:

1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



Survey Transect 5+00	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	Insufficient Survey Data	Insufficient Survey Data
Volume Change Over Extents of Overlapping Profiles	43.34 cy/ft/yr	-19.17 cy/ft
Volume Change Above -15 ft NAVD88	26.20 cy/ft/yr	-7.90 cy/ft
Volume Change Above 0 ft NAVD88	-3.36 cy/ft/yr	-1.54 cy/ft

LEGEND:

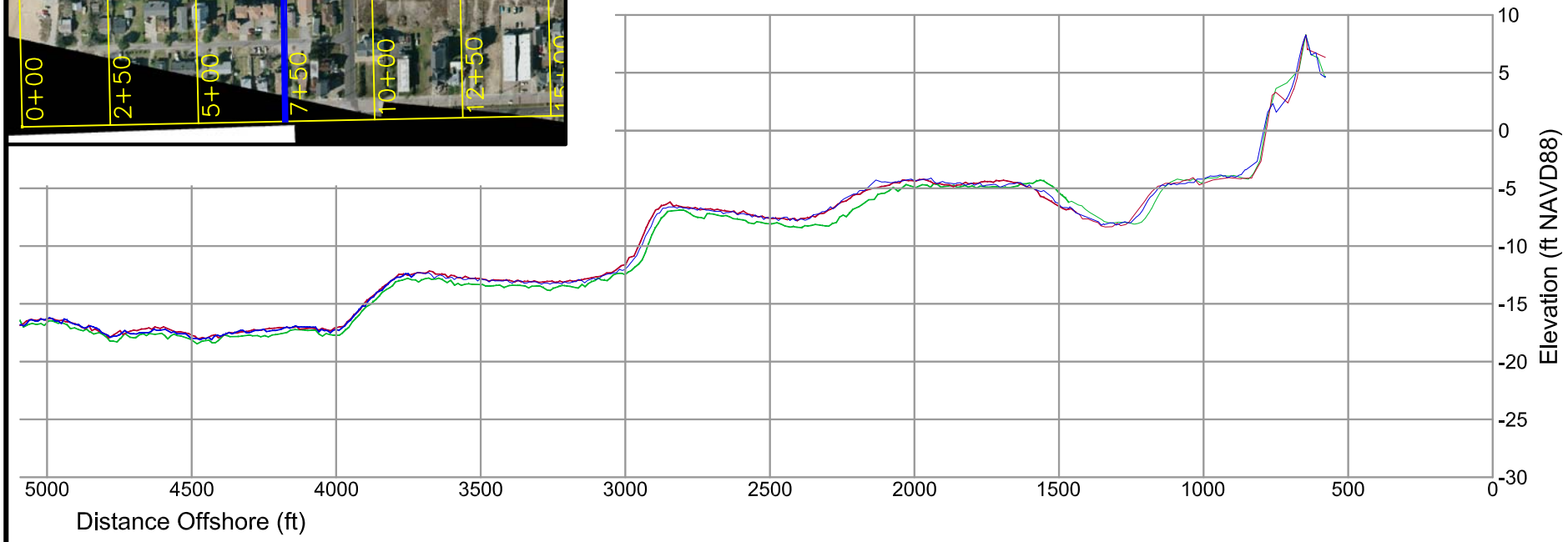
MARCH 2006
OCTOBER 2006
MARCH 2007

Notes:

1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



Survey Transect 7+50	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-4.90 ft/yr	-7.61 ft
Volume Change Over Extents of Overlapping Profiles	79.65 cy/ft/yr	3.51 cy/ft
Volume Change Above -15 ft NAVD88	41.74 cy/ft/yr	2.52 cy/ft
Volume Change Above 0 ft NAVD88	-2.34 cy/ft/yr	-3.31 cy/ft

LEGEND:

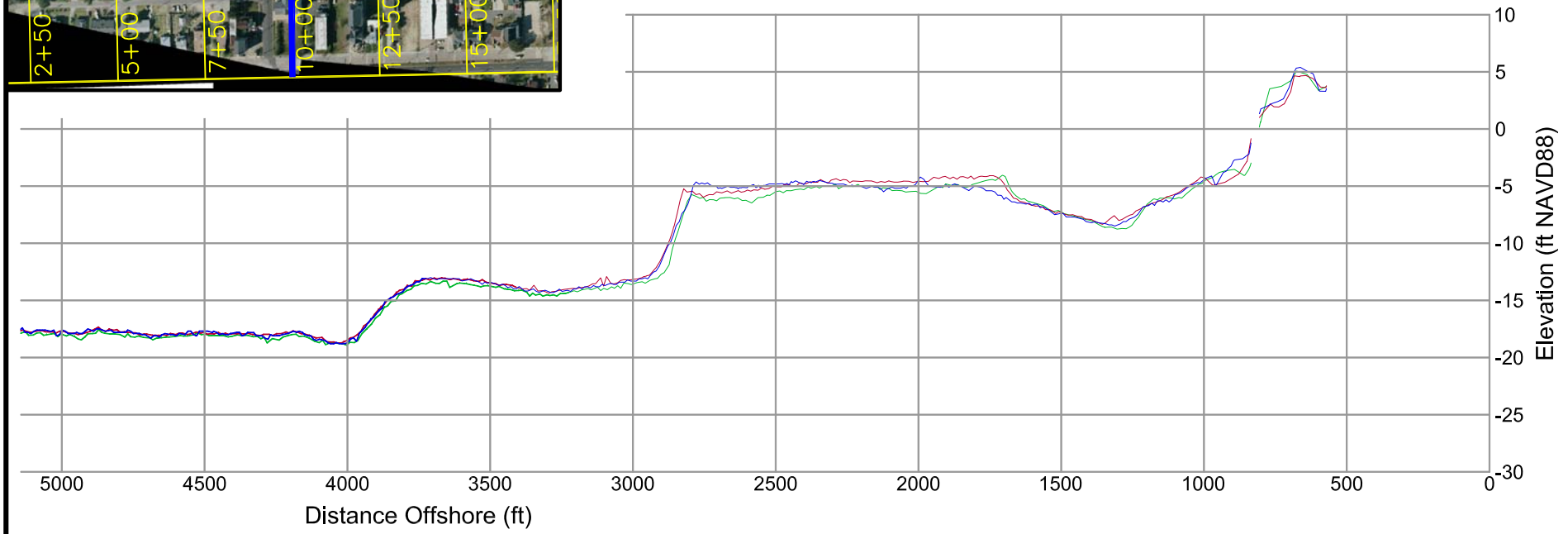
MARCH 2006
OCTOBER 2006
MARCH 2007

Notes:

1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



Survey Transect 10+00	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	Insufficient Survey Data	Insufficient Survey Data
Volume Change Over Extents of Overlapping Profiles	64.05 cy/ft/yr	5.03 cy/ft
Volume Change Above -15 ft NAVD88	43.00 cy/ft/yr	10.46 cy/ft
Volume Change Above 0 ft NAVD88	-4.79 cy/ft/yr	-1.82 cy/ft

LEGEND:

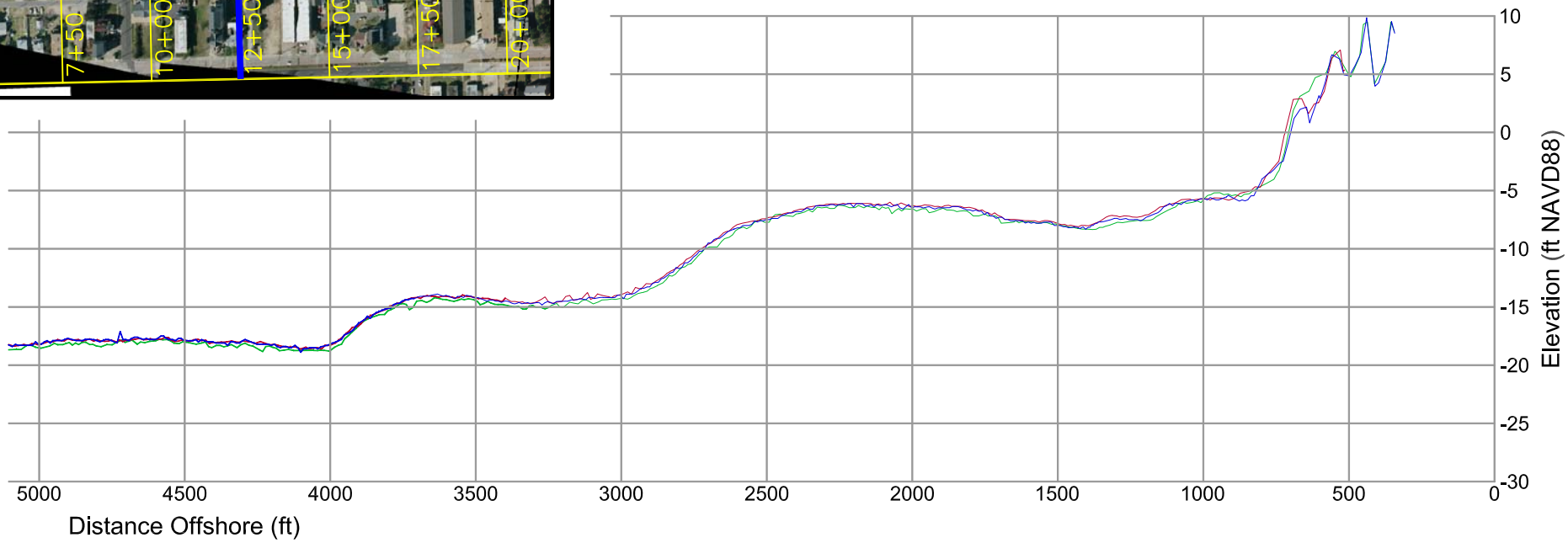
MARCH 2006
OCTOBER 2006
MARCH 2007

Notes:

1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



Survey Transect 12+50	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	10.66 ft/yr	18.54 ft
Volume Change Over Extents of Overlapping Profiles	57.81 cy/ft/yr	10.28 cy/ft
Volume Change Above -15 ft NAVD88	10.04 cy/ft/yr	12.30 cy/ft
Volume Change Above 0 ft NAVD88	-5.28 cy/ft/yr	-8.46 cy/ft

LEGEND:

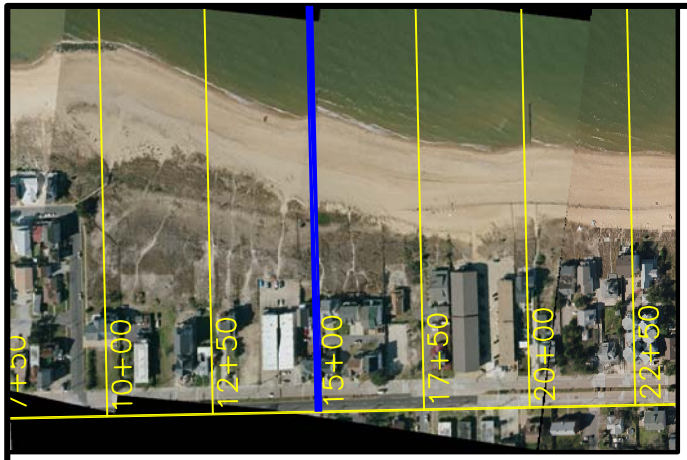
MARCH 2006
OCTOBER 2006
MARCH 2007

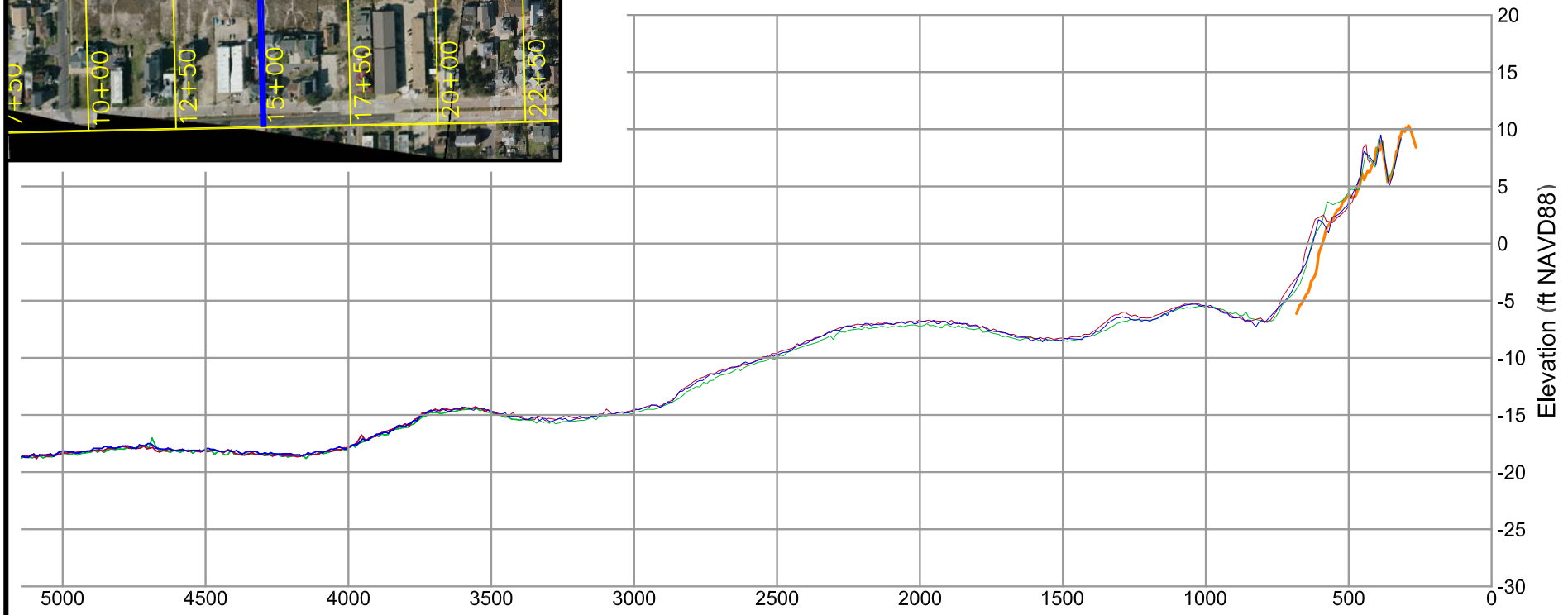
Notes:

1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





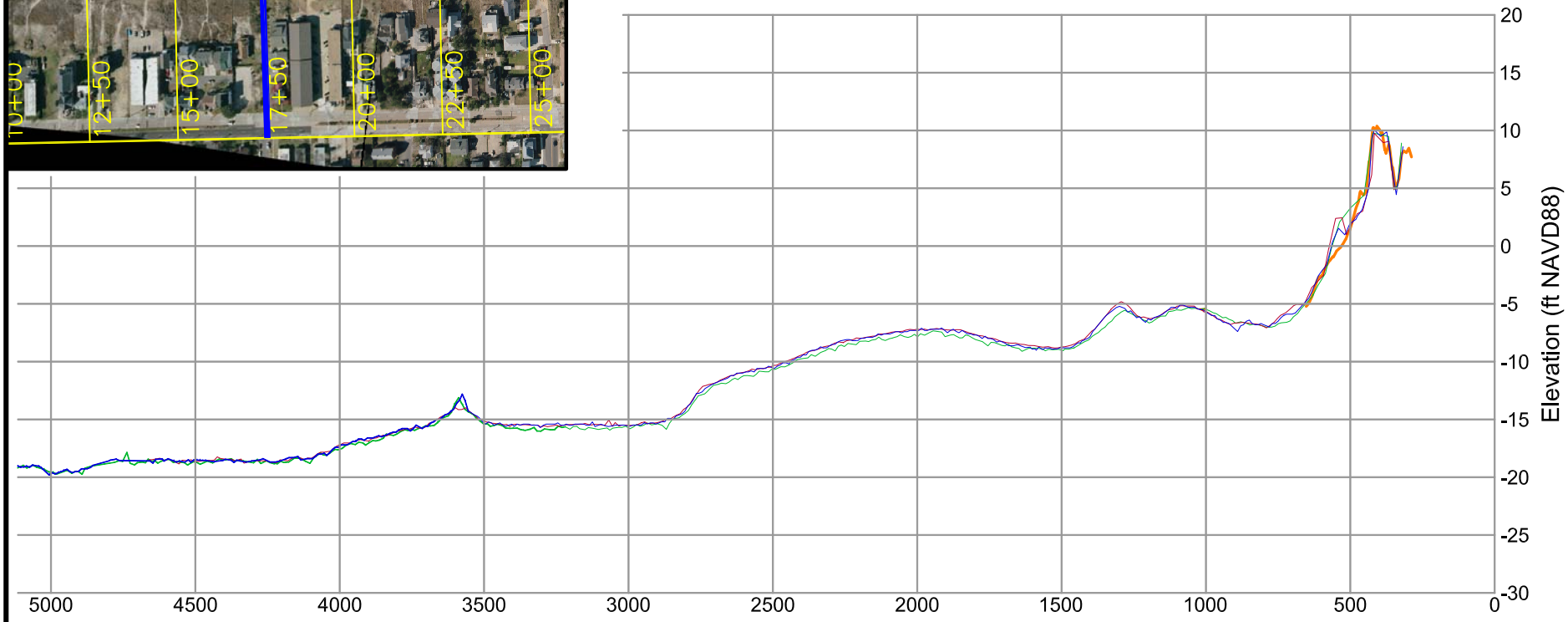
Survey Transect 15+00	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	18.90 ft/yr	14.77 ft
Volume Change Over Extents of Overlapping Profiles	41.19 cy/ft/yr	4.59 cy/ft
Volume Change Above -15 ft NAVD88	23.11 cy/ft/yr	7.87 cy/ft
Volume Change Above 0 ft NAVD88	-3.38 cy/ft/yr	-3.93 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



Survey Transect 17+50	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	13.00 ft/yr	12.90 ft
Volume Change Over Extents of Overlapping Profiles	33.20 cy/ft/yr	5.25 cy/ft
Volume Change Above -15 ft NAVD88	-3.83 cy/ft/yr	4.78 cy/ft
Volume Change Above 0 ft NAVD88	-6.11 cy/ft/yr	-5.65 cy/ft

LEGEND:

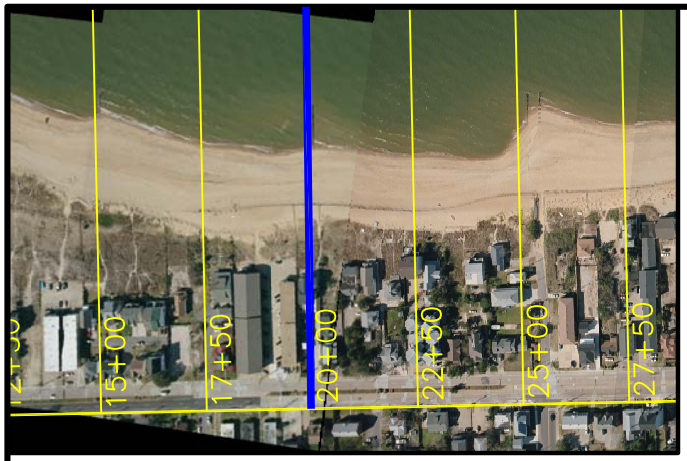
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

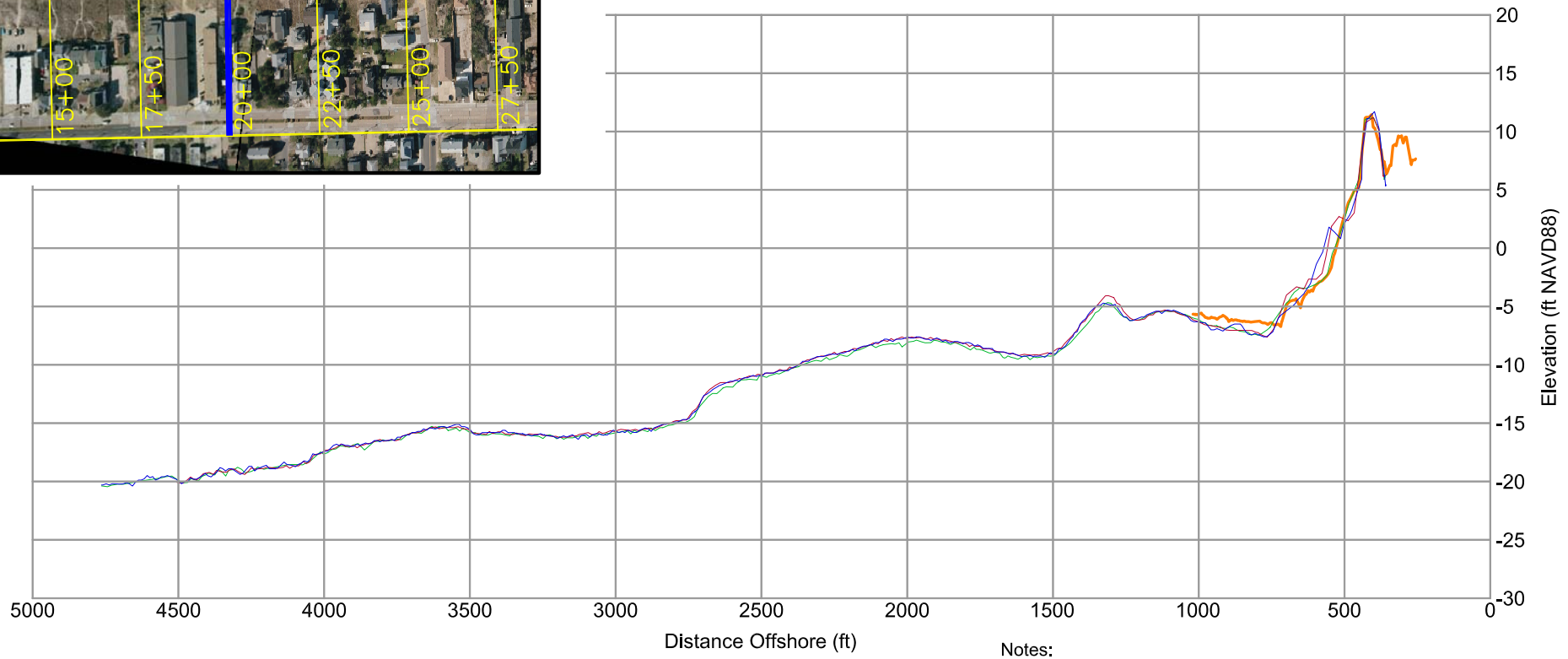
Notes:

1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





Survey Transect 20+00	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	31.39 ft/yr	-10.80 ft
Volume Change Over Extents of Overlapping Profiles	22.56 cy/ft/yr	1.50 cy/ft
Volume Change Above -15 ft NAVD88	18.81 cy/ft/yr	3.46 cy/ft
Volume Change Above 0 ft NAVD88	1.22 cy/ft/yr	1.69 cy/ft

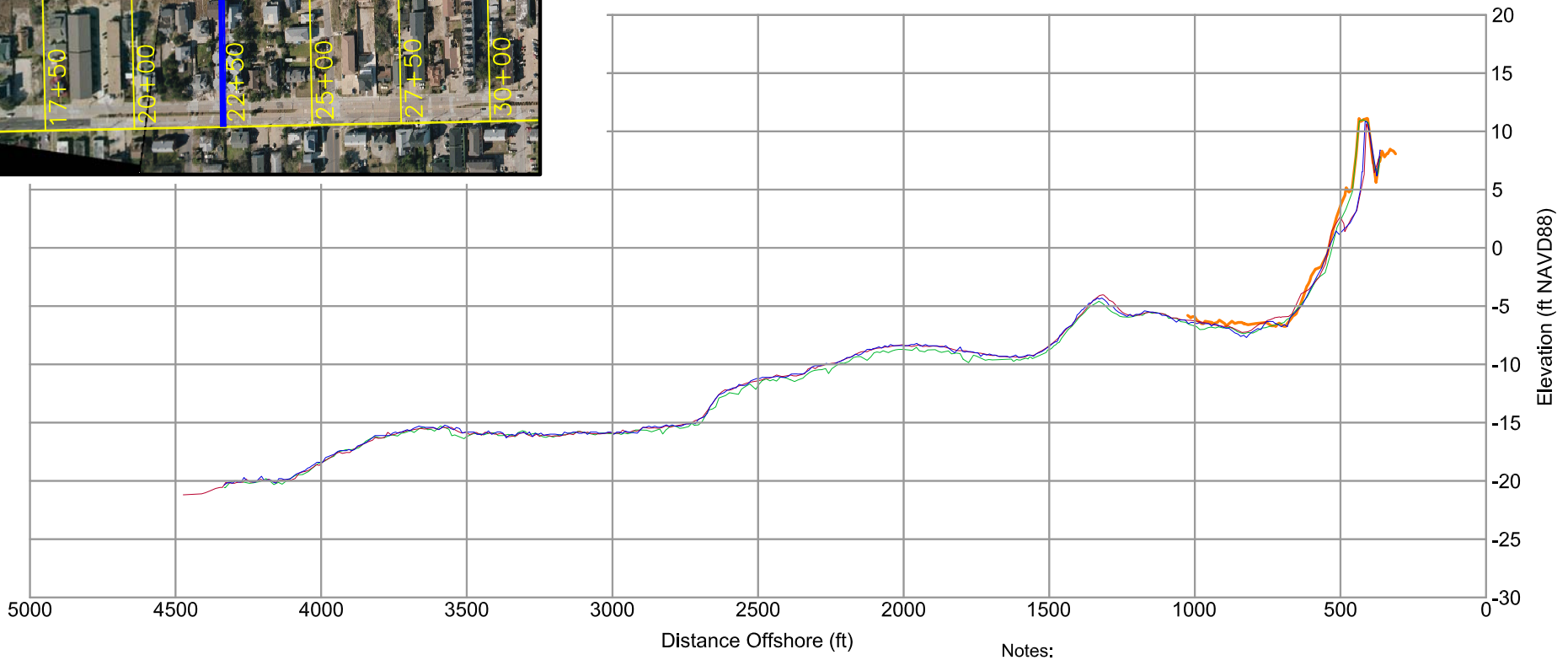
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS

ST 20+00 | Pg 9 OF 106 | SPRING 2007



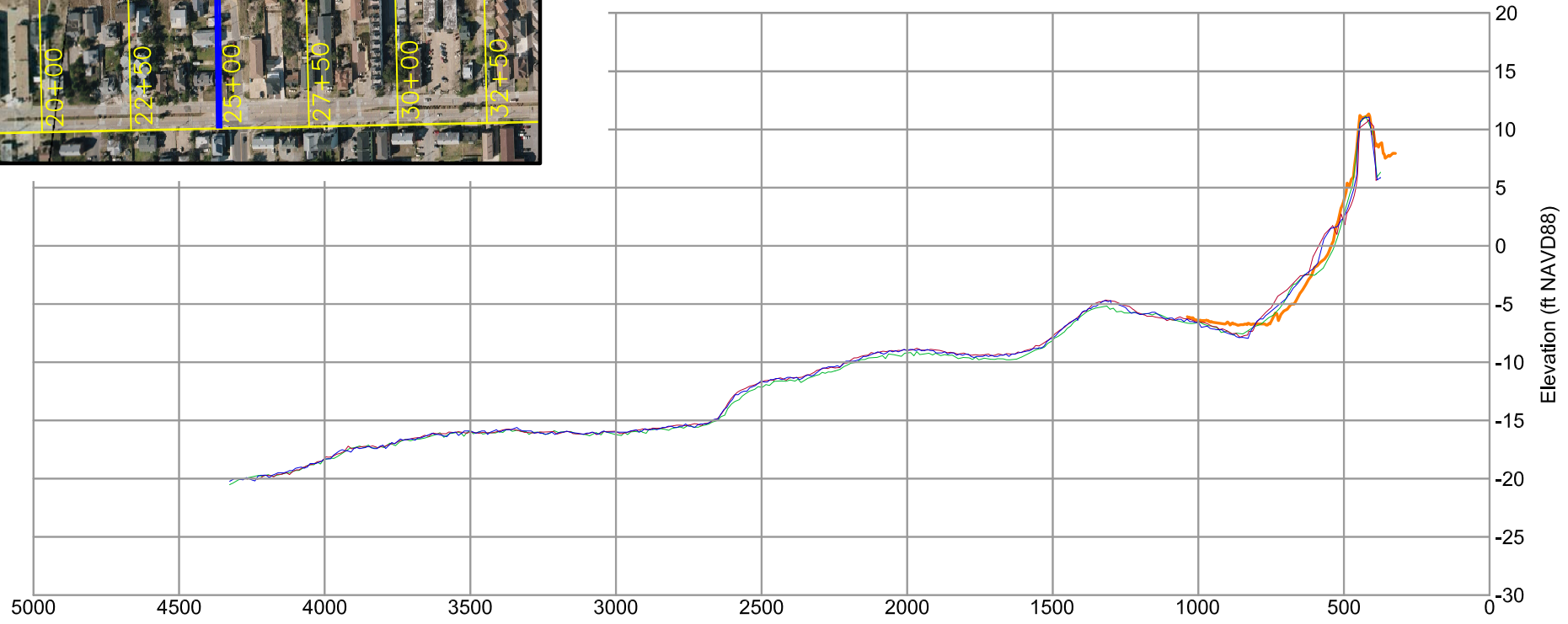
Survey Transect 22+50	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	14.10 ft/yr	10.45 ft
Volume Change Over Extents of Overlapping Profiles	18.27 cy/ft/yr	-2.07 cy/ft
Volume Change Above -15 ft NAVD88	14.91 cy/ft/yr	2.18 cy/ft
Volume Change Above 0 ft NAVD88	-9.19 cy/ft/yr	-8.96 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



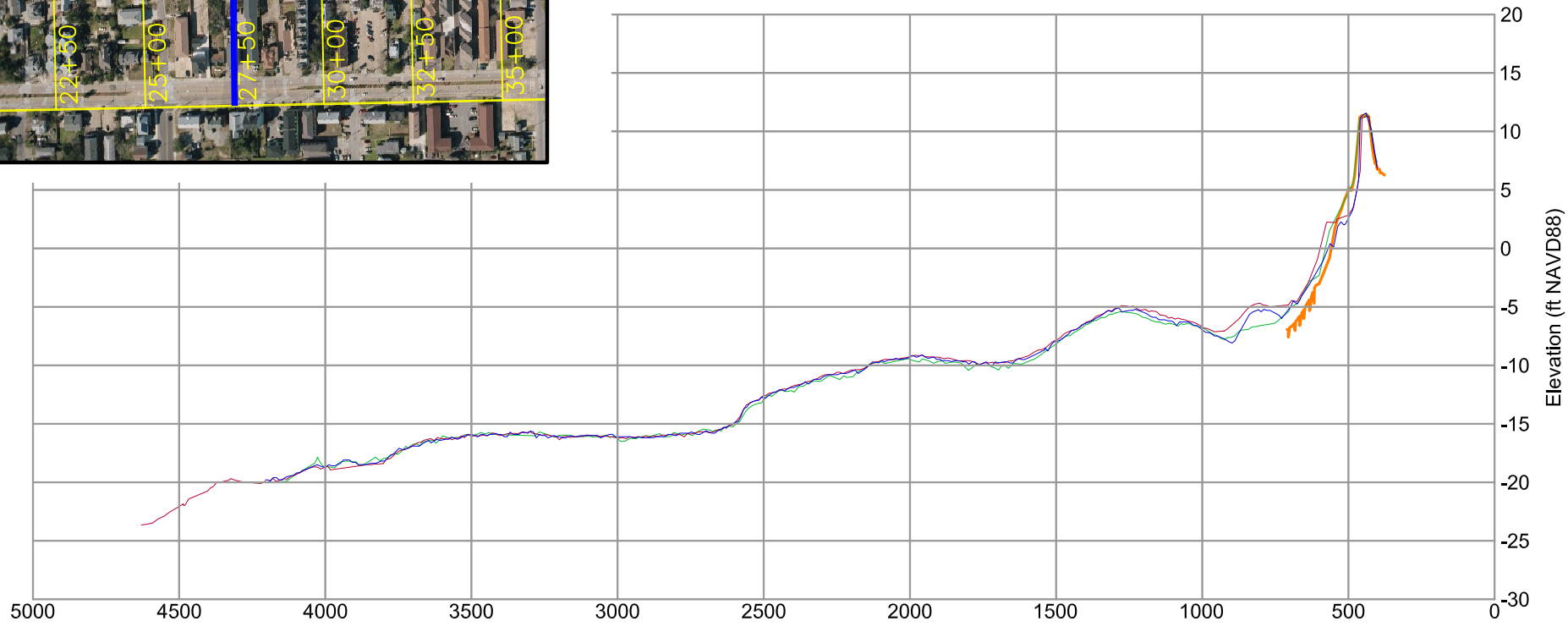
Survey Transect 25+00	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	48.13 ft/yr	8.88 ft
Volume Change Over Extents of Overlapping Profiles	31.19 cy/ft/yr	8.45 cy/ft
Volume Change Above -15 ft NAVD88	27.48 cy/ft/yr	8.32 cy/ft
Volume Change Above 0 ft NAVD88	1.79 cy/ft/yr	2.19 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



Survey Transect 27+50	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	17.39 ft/yr	43.56 ft
Volume Change Over Extents of Overlapping Profiles	25.06 cy/ft/yr	16.39 cy/ft
Volume Change Above -15 ft NAVD88	28.58 cy/ft/yr	19.48 cy/ft
Volume Change Above 0 ft NAVD88	-6.63 cy/ft/yr	-8.02 cy/ft

LEGEND:

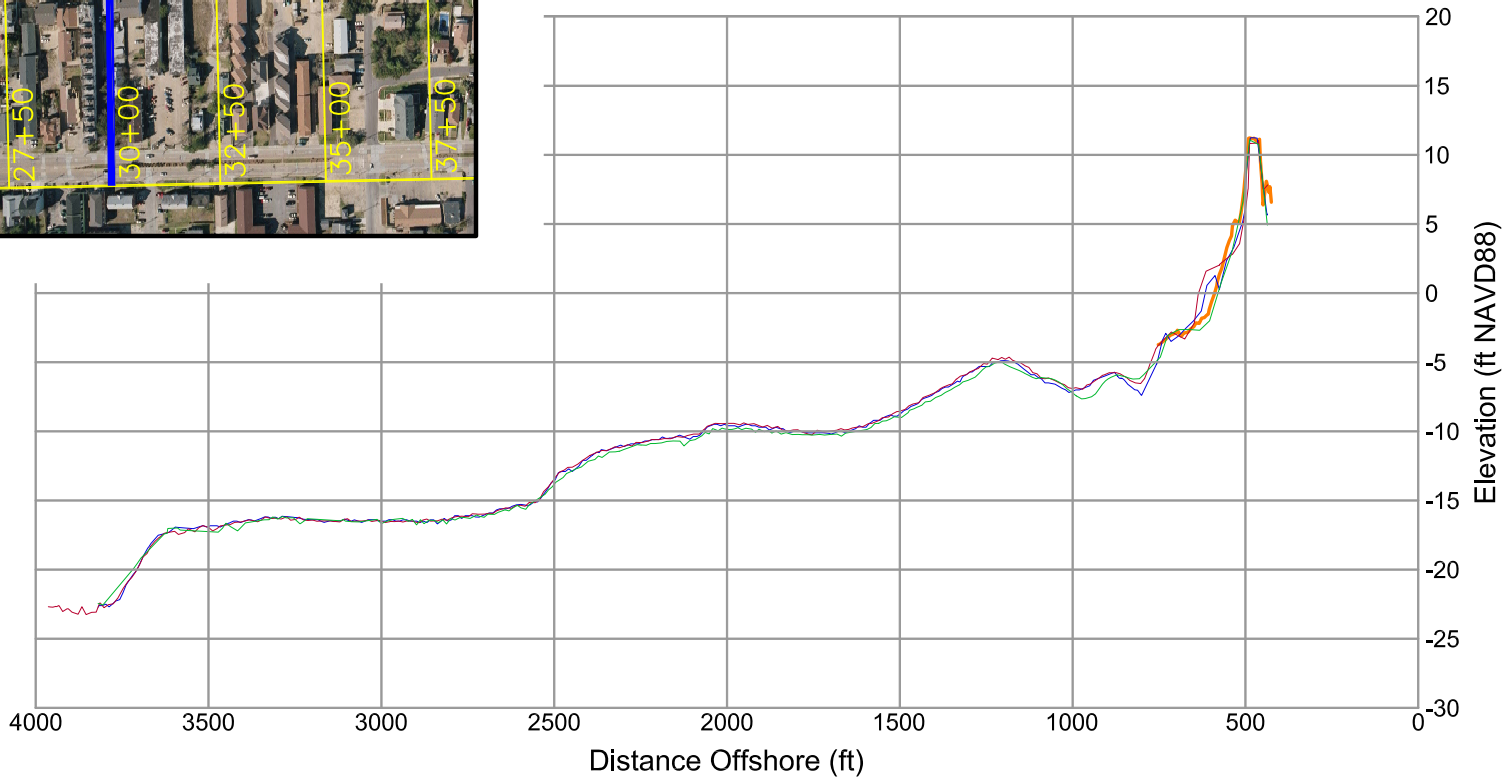
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:

1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



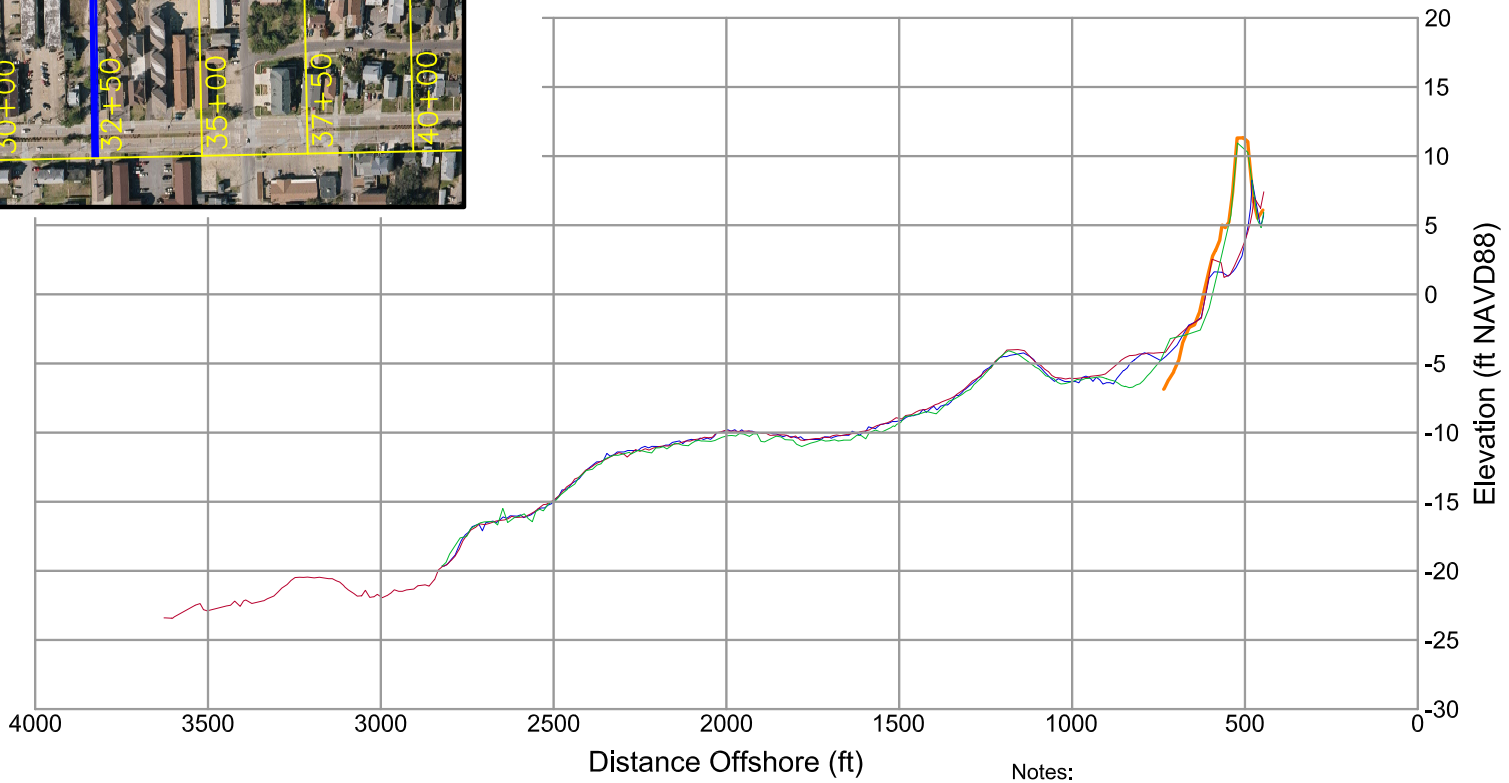
Survey Transect 30+00	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	56.22 ft/yr	54.72 ft
Volume Change Over Extents of Overlapping Profiles	26.15 cy/ft/yr	7.15 cy/ft
Volume Change Above -15 ft NAVD88	29.73 cy/ft/yr	11.43 cy/ft
Volume Change Above 0 ft NAVD88	3.73 cy/ft/yr	2.32 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



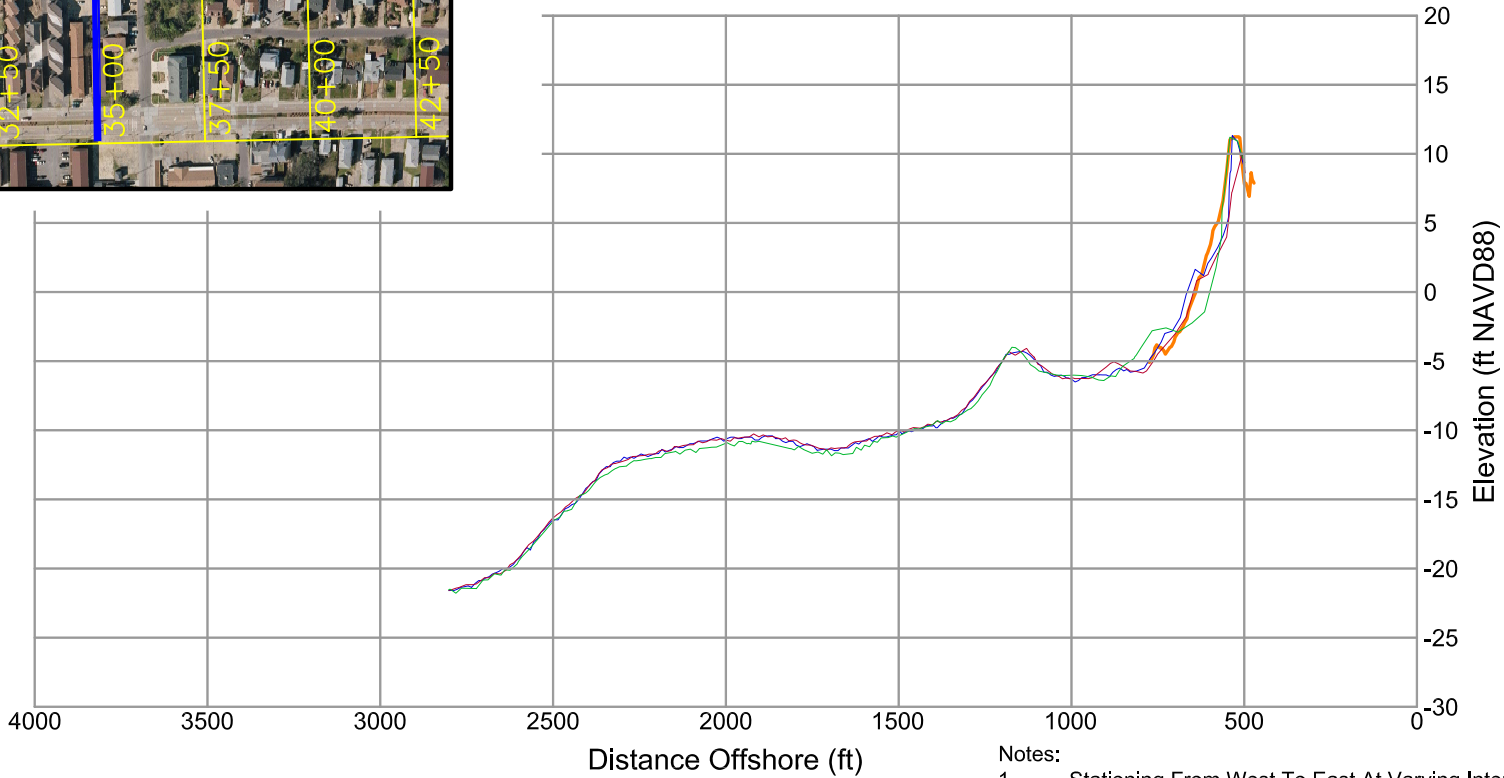
Survey Transect 32+50	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	21.30 ft/yr	0.78 ft
Volume Change Over Extents of Overlapping Profiles	8.32 cy/ft/yr	6.69 cy/ft
Volume Change Above -15 ft NAVD88	9.71 cy/ft/yr	7.07 cy/ft
Volume Change Above 0 ft NAVD88	-13.78 cy/ft/yr	-15.14 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



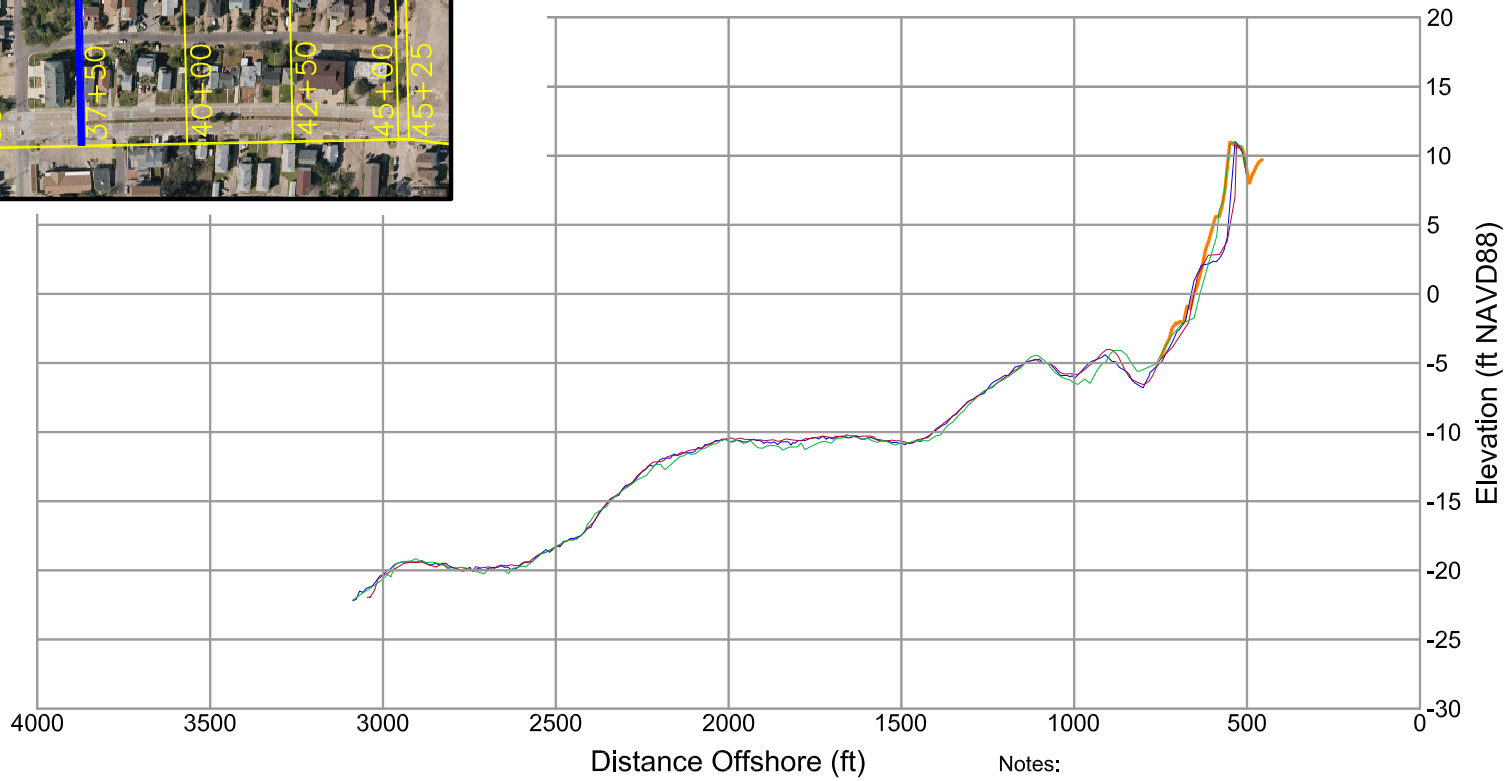
Survey Transect 35+00	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	41.05 ft/yr	-20.58 ft
Volume Change Over Extents of Overlapping Profiles	13.86 cy/ft/yr	-4.46 cy/ft
Volume Change Above -15 ft NAVD88	13.88 cy/ft/yr	-5.52 cy/ft
Volume Change Above 0 ft NAVD88	-0.15 cy/ft/yr	5.30 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



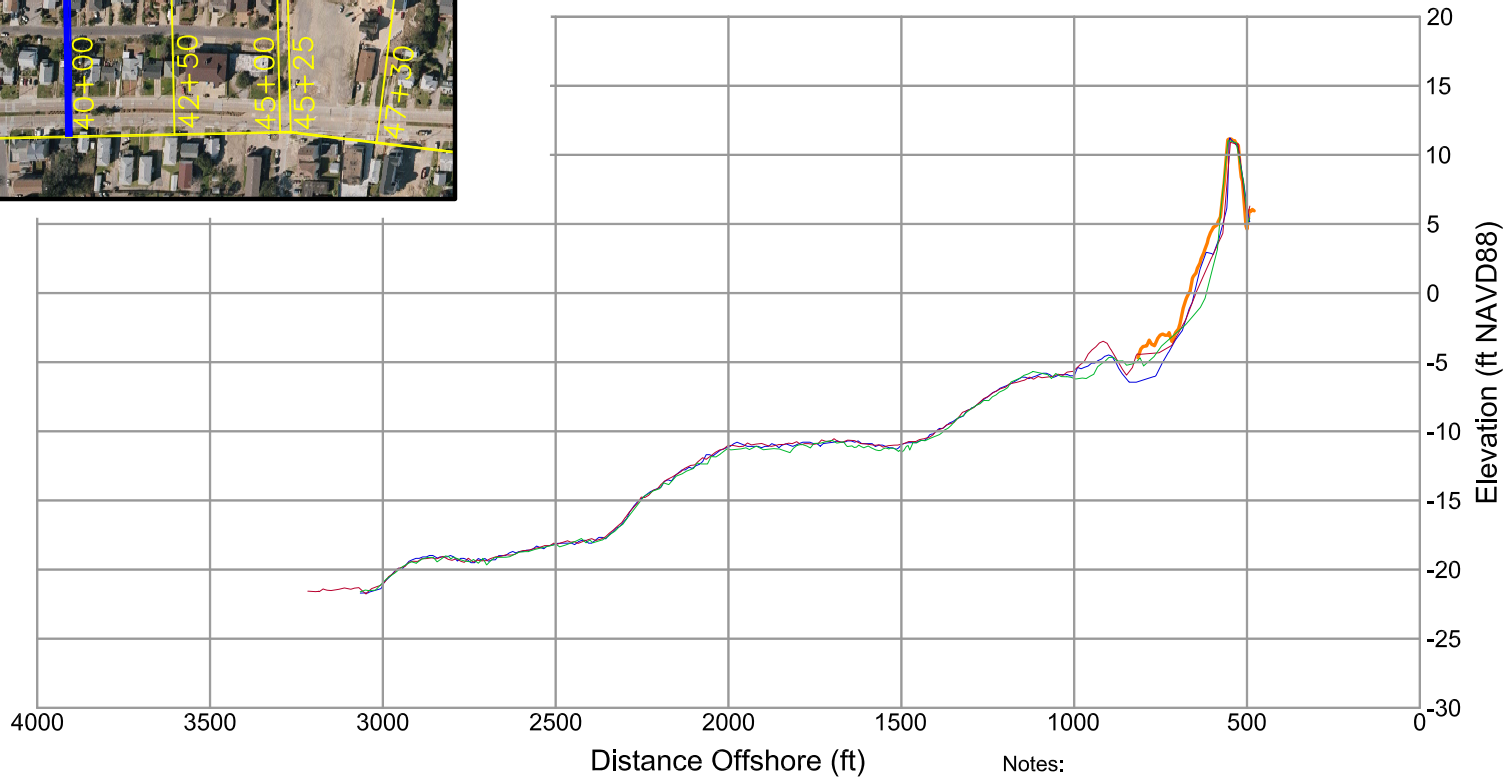
Survey Transect 37+50	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	20.39 ft/yr	-6.99 ft
Volume Change Over Extents of Overlapping Profiles	0.94 cy/ft/yr	-2.37 cy/ft
Volume Change Above -15 ft NAVD88	6.18 cy/ft/yr	-1.74 cy/ft
Volume Change Above 0 ft NAVD88	-7.65 cy/ft/yr	-4.57 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



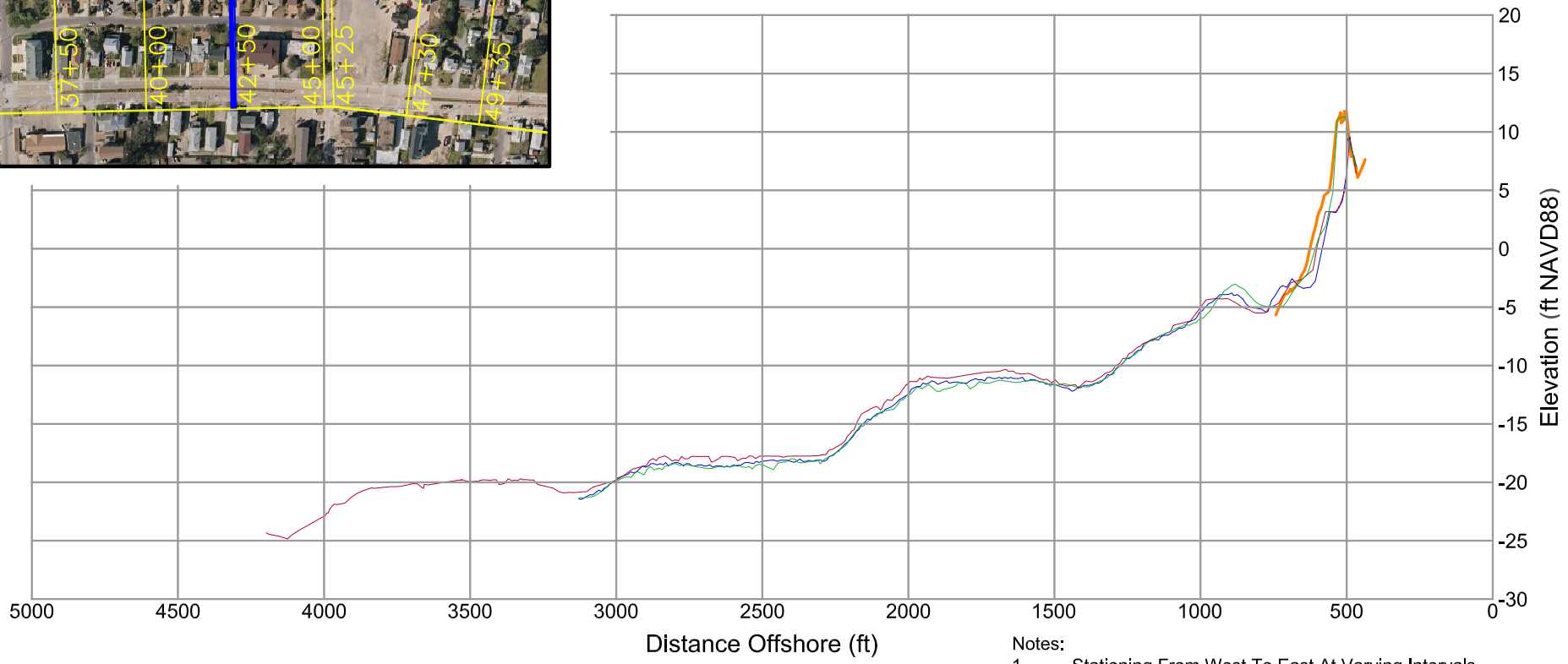
Survey Transect 40+00	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	22.73 ft/yr	-12.82 ft
Volume Change Over Extents of Overlapping Profiles	14.13 cy/ft/yr	7.37 cy/ft
Volume Change Above -15 ft NAVD88	21.70 cy/ft/yr	8.56 cy/ft
Volume Change Above 0 ft NAVD88	-1.37 cy/ft/yr	2.77 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



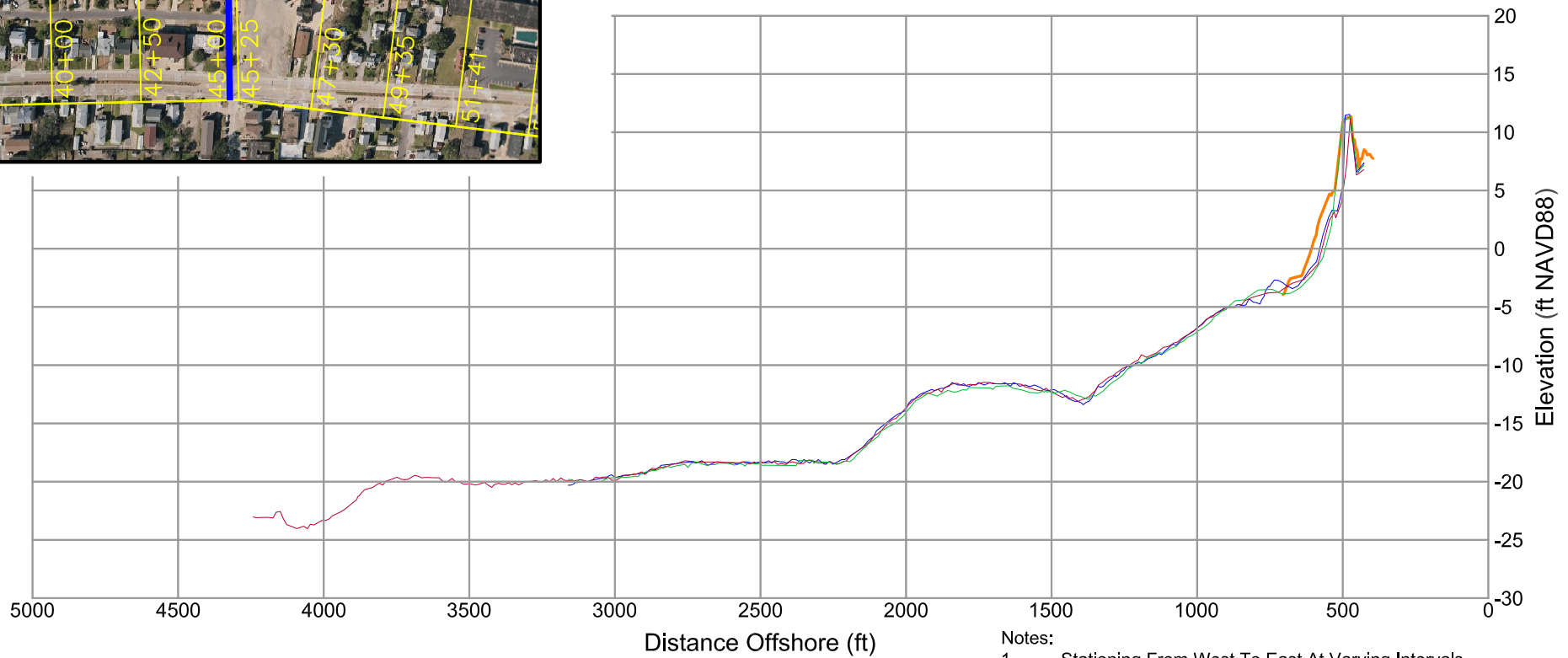
Survey Transect 42+50	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-1.33 ft/yr	17.89 ft
Volume Change Over Extents of Overlapping Profiles	25.72 cy/ft/yr	30.70 cy/ft
Volume Change Above -15 ft NAVD88	15.29 cy/ft/yr	16.21 cy/ft
Volume Change Above 0 ft NAVD88	-11.26 cy/ft/yr	-11.83 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



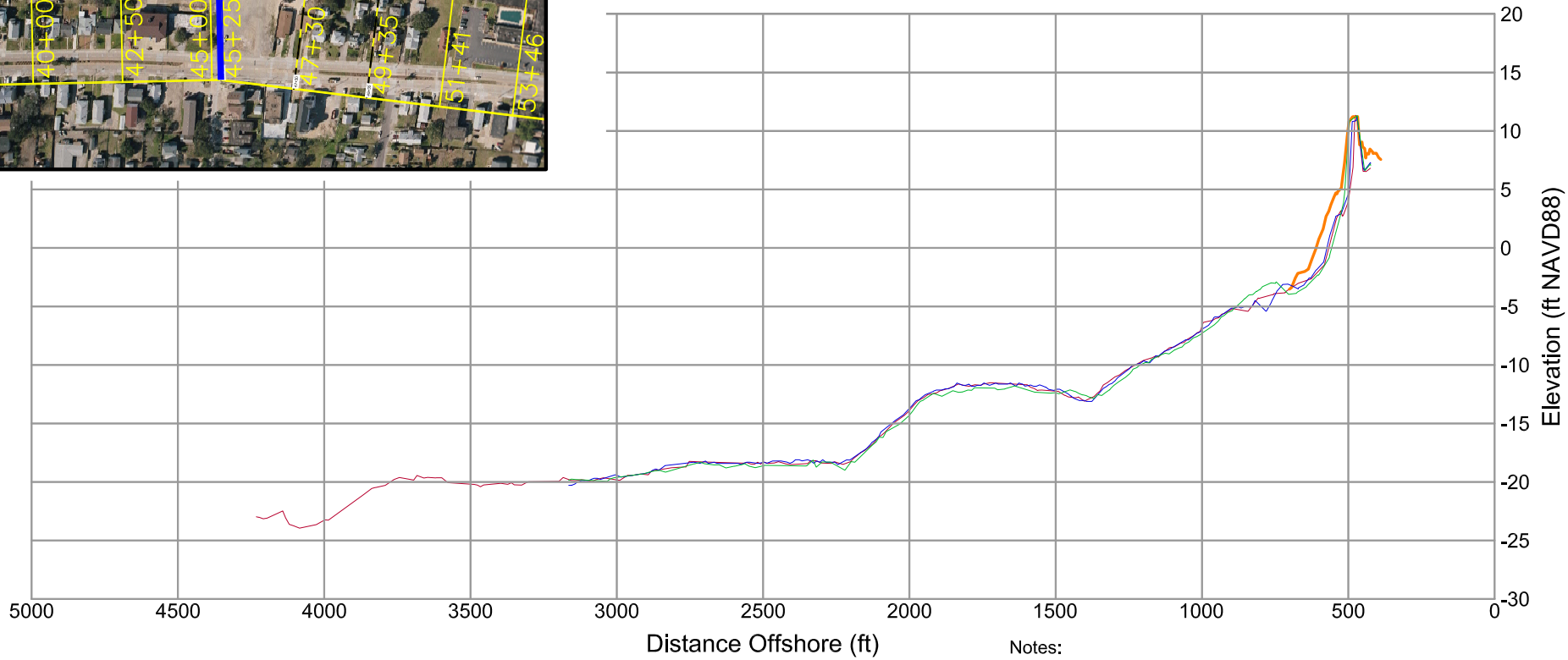
Survey Transect 45+00	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	10.73 ft/yr	-10.05 ft
Volume Change Over Extents of Overlapping Profiles	7.79 cy/ft/yr	-7.37 cy/ft
Volume Change Above -15 ft NAVD88	13.87 cy/ft/yr	-5.11 cy/ft
Volume Change Above 0 ft NAVD88	-6.95 cy/ft/yr	-2.41 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



Survey Transect 45+25	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	9.35 ft/yr	-8.40 ft
Volume Change Over Extents of Overlapping Profiles	7.89 cy/ft/yr	-8.06 cy/ft
Volume Change Above -15 ft NAVD88	12.47 cy/ft/yr	-4.56 cy/ft
Volume Change Above 0 ft NAVD88	-5.33 cy/ft/yr	-1.59 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS

Survey Transect 47+30	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-1.88 ft/yr	1.07 ft
Volume Change Over Extents of Overlapping Profiles	-5.56 cy/ft/yr	1.96 cy/ft
Volume Change Above -15 ft NAVD88	6.06 cy/ft/yr	0.40 cy/ft
Volume Change Above 0 ft NAVD88	-9.86 cy/ft/yr	-8.41 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS

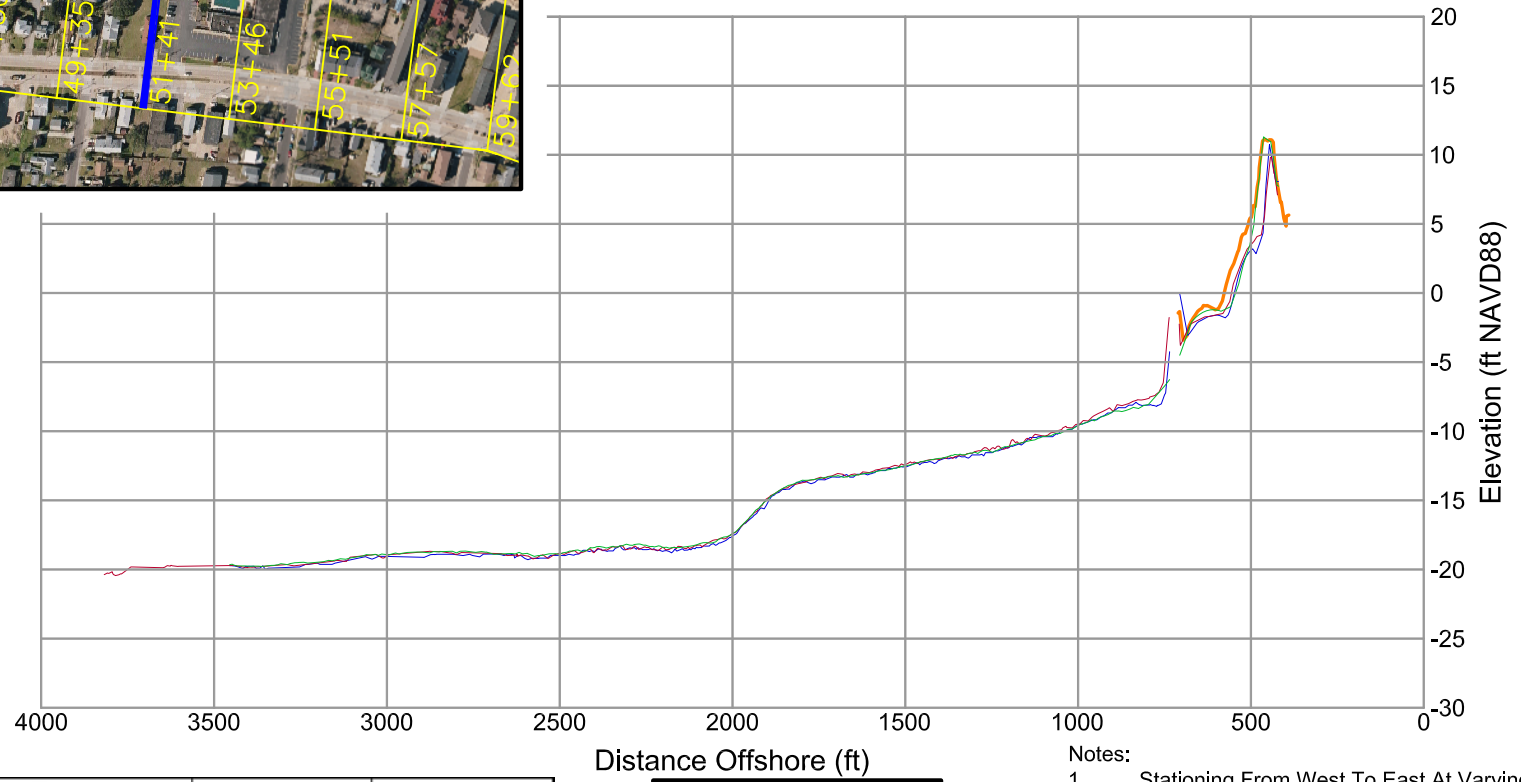
Survey Transect 49+35	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-28.73 ft/yr	-0.93 ft
Volume Change Over Extents of Overlapping Profiles	-10.91 cy/ft/yr	1.82 cy/ft
Volume Change Above -15 ft NAVD88	-2.44 cy/ft/yr	-2.16 cy/ft
Volume Change Above 0 ft NAVD88	-9.32 cy/ft/yr	-6.04 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



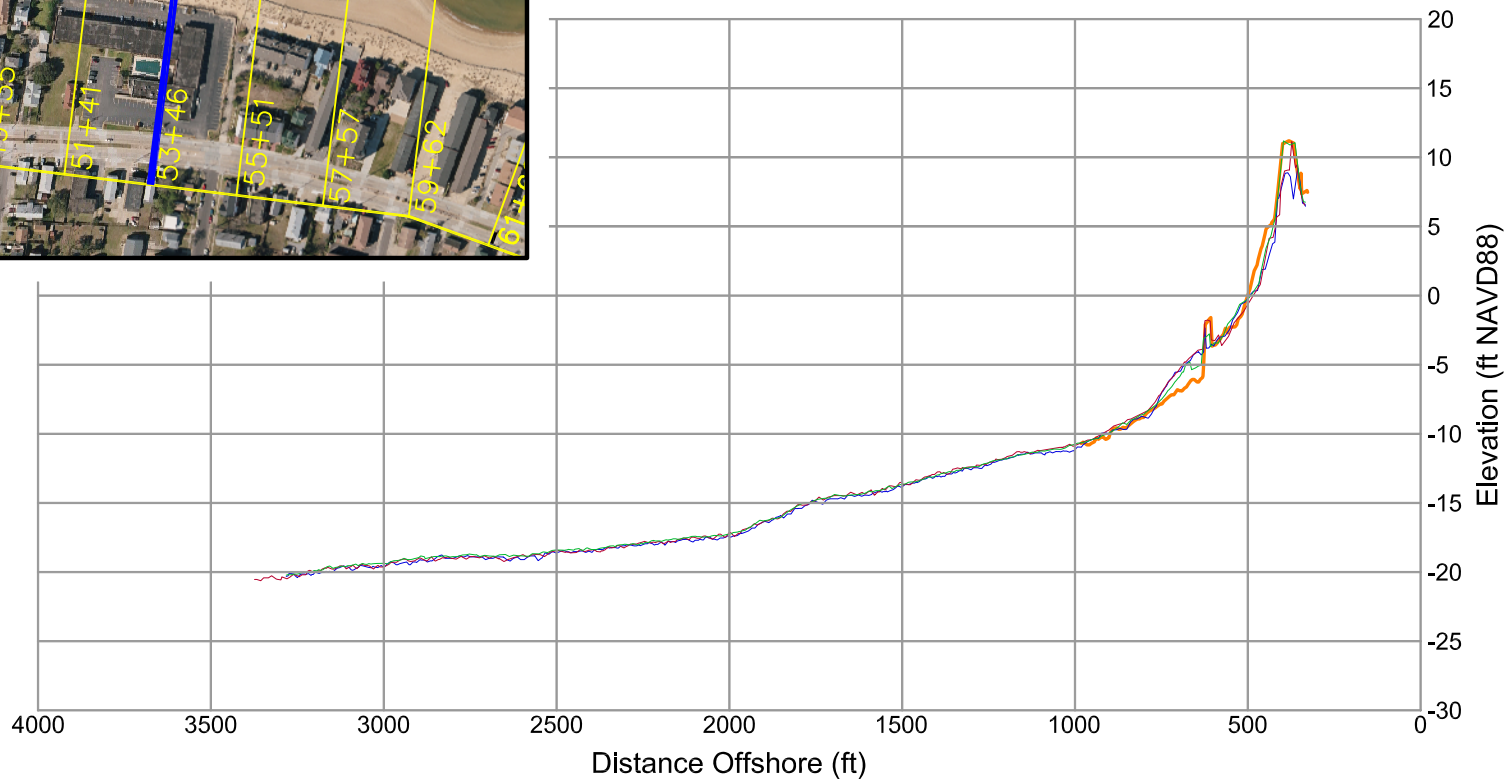
Survey Transect 51+41	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	11.78 ft/yr	5.44 ft
Volume Change Over Extents of Overlapping Profiles	-7.81 cy/ft/yr	12.83 cy/ft
Volume Change Above -15 ft NAVD88	1.22 cy/ft/yr	5.09 cy/ft
Volume Change Above 0 ft NAVD88	-6.94 cy/ft/yr	-7.31 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



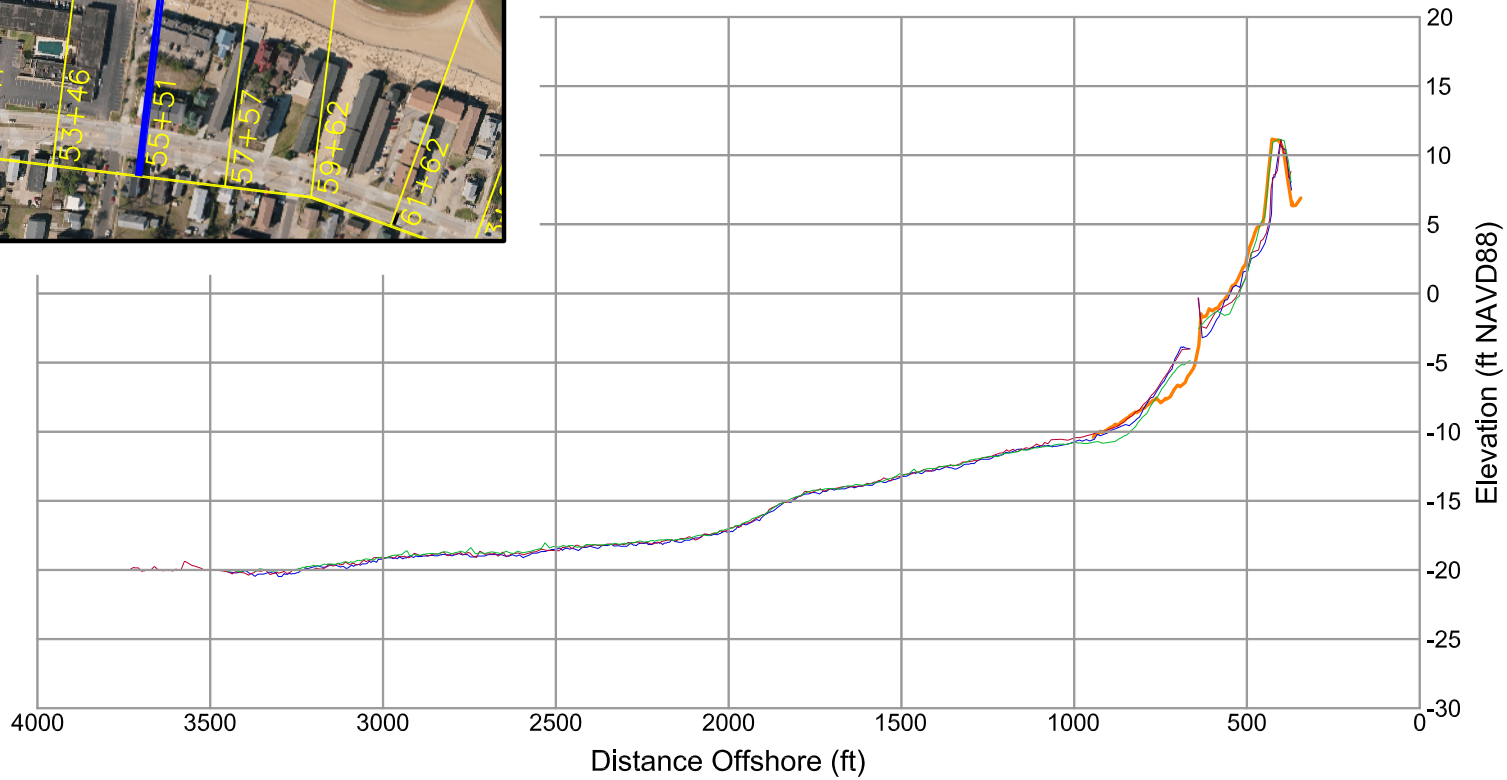
Survey Transect 53+46	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-0.91 ft/yr	6.39 ft
Volume Change Over Extents of Overlapping Profiles	-6.62 cy/ft/yr	9.42 cy/ft
Volume Change Above -15 ft NAVD88	6.90 cy/ft/yr	4.38 cy/ft
Volume Change Above 0 ft NAVD88	-3.07 cy/ft/yr	-3.32 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



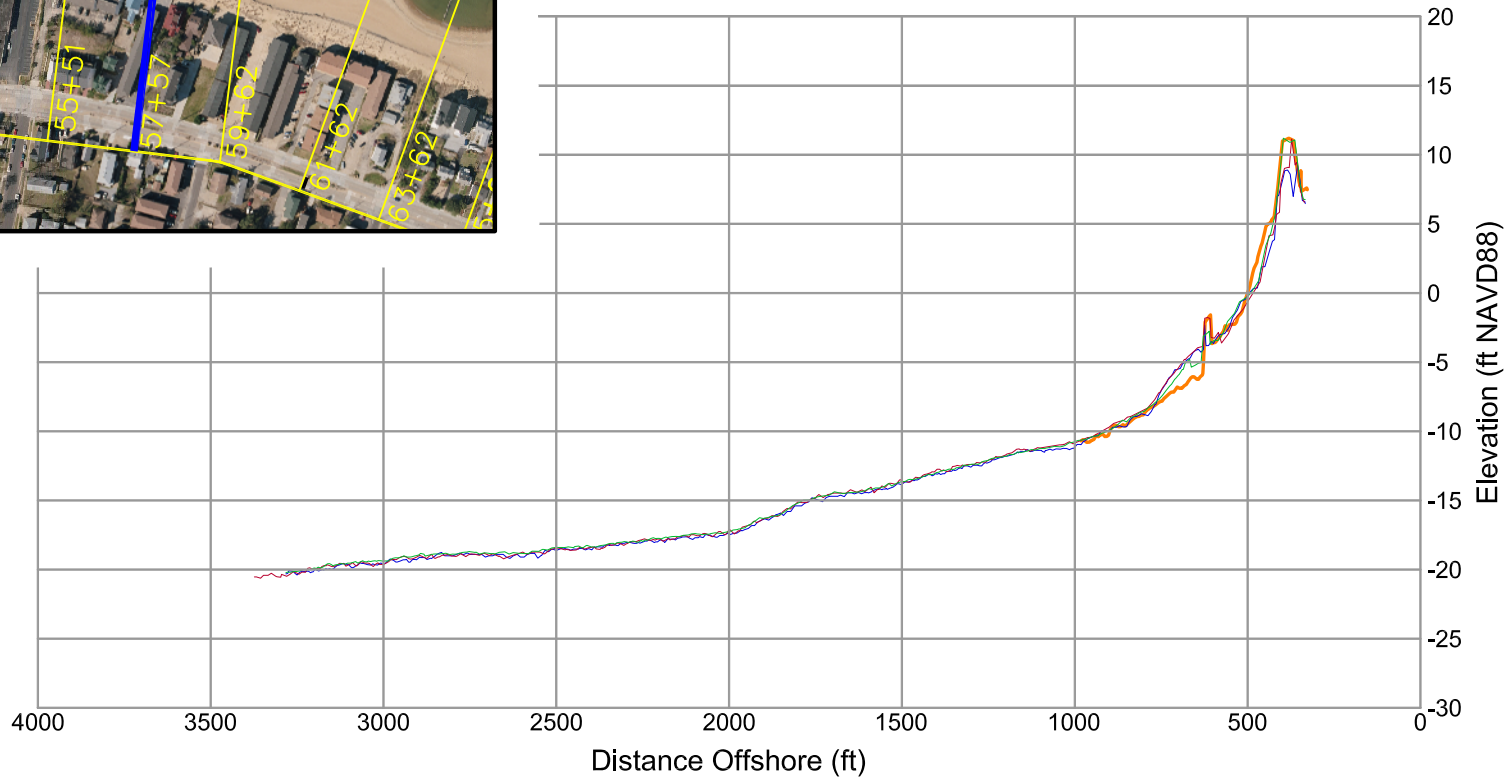
Survey Transect 55+51	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-3.58 ft/yr	-13.22 ft
Volume Change Over Extents of Overlapping Profiles	-12.82 cy/ft/yr	10.80 cy/ft
Volume Change Above -15 ft NAVD88	-2.55 cy/ft/yr	7.75 cy/ft
Volume Change Above 0 ft NAVD88	-5.95 cy/ft/yr	-5.29 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



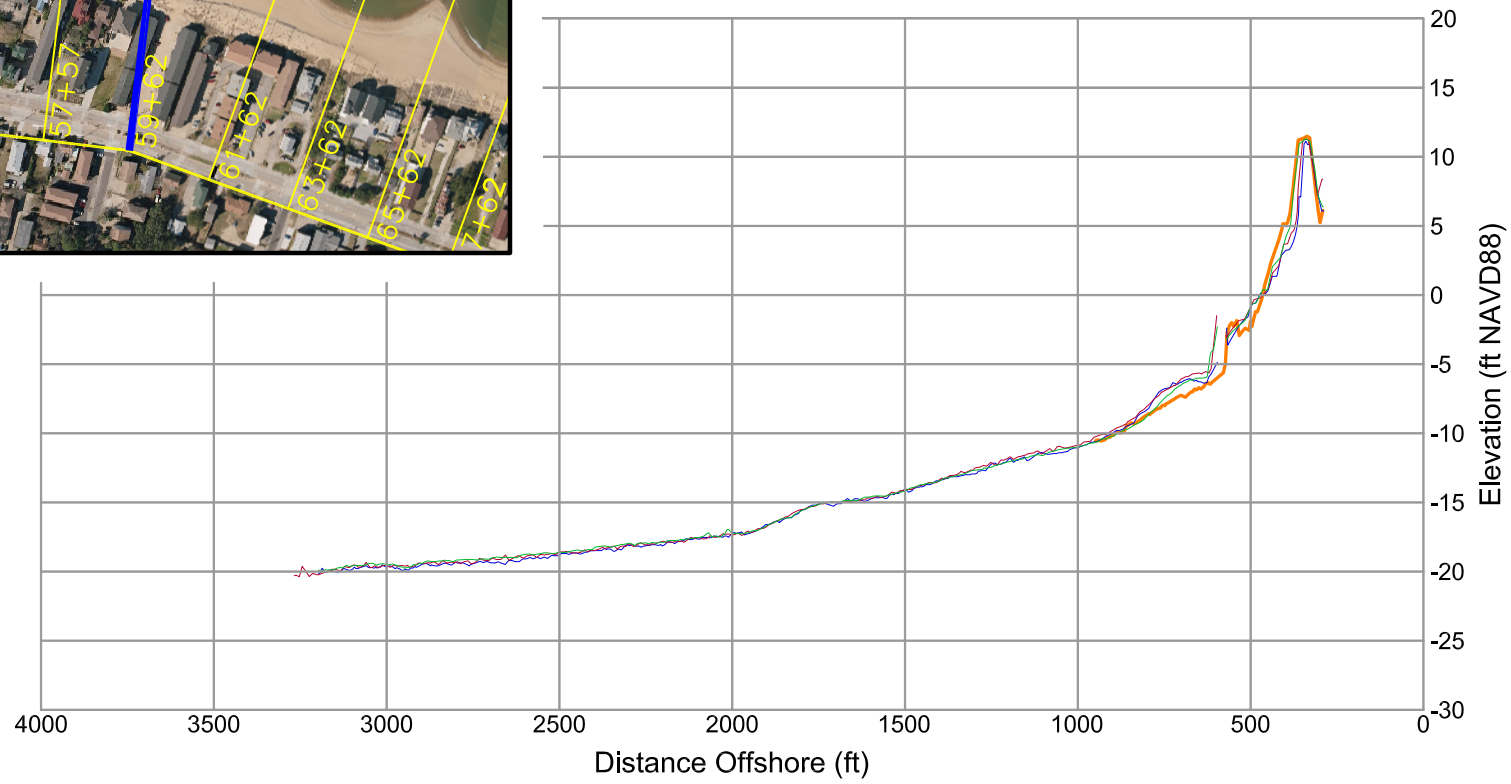
Survey Transect 57+57	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-5.92 ft/yr	-5.55 ft
Volume Change Over Extents of Overlapping Profiles	-6.72 cy/ft/yr	12.41 cy/ft
Volume Change Above -15 ft NAVD88	0.26 cy/ft/yr	7.94 cy/ft
Volume Change Above 0 ft NAVD88	-4.88 cy/ft/yr	-6.65 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



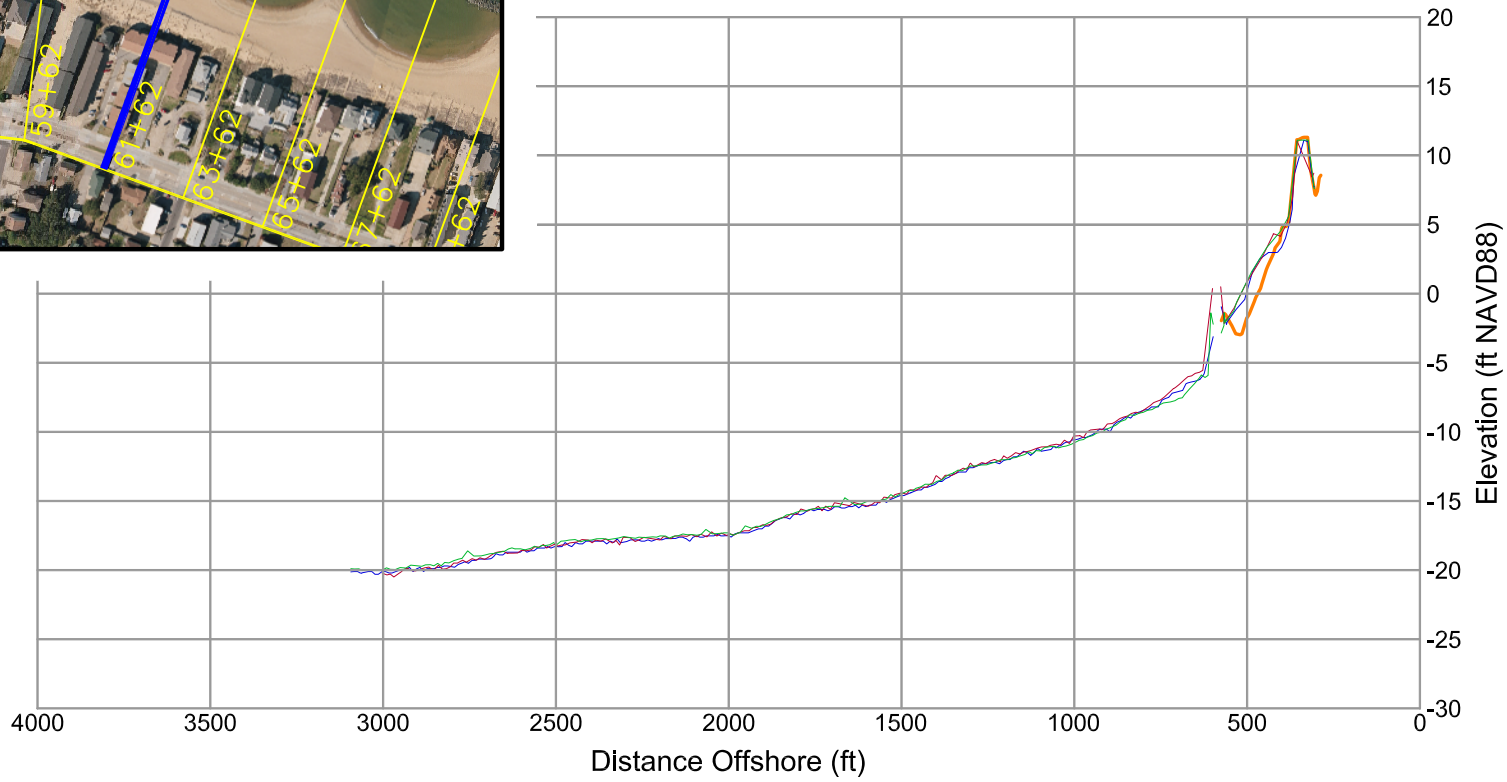
Survey Transect 59+62	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-6.24 ft/yr	-1.91 ft
Volume Change Over Extents of Overlapping Profiles	-2.11 cy/ft/yr	13.12 cy/ft
Volume Change Above -15 ft NAVD88	3.17 cy/ft/yr	8.33 cy/ft
Volume Change Above 0 ft NAVD88	0.55 cy/ft/yr	-0.13 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



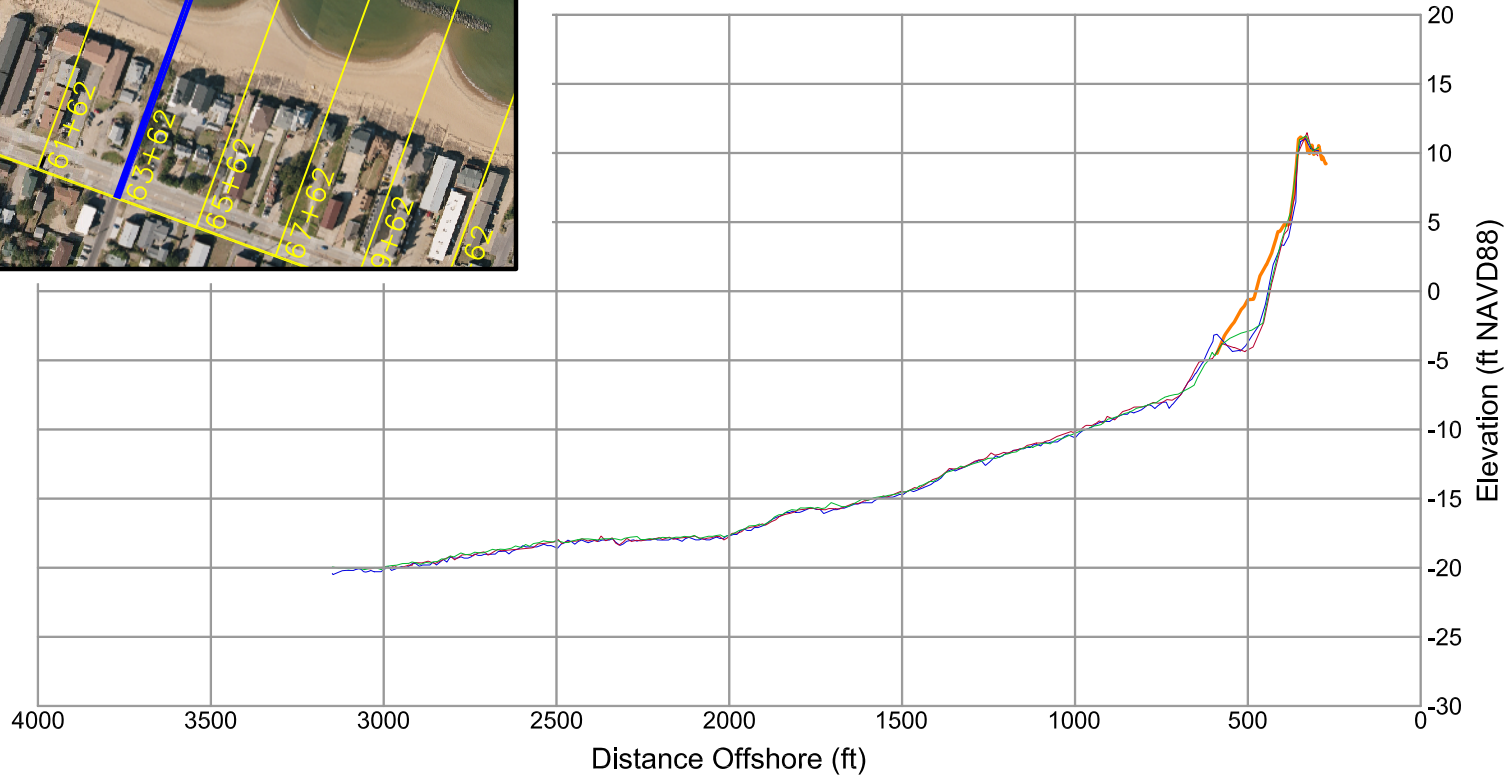
Survey Transect 61+62	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-2.18 ft/yr	5.55 ft
Volume Change Over Extents of Overlapping Profiles	-2.49 cy/ft/yr	10.71 cy/ft
Volume Change Above -15 ft NAVD88	6.00 cy/ft/yr	6.04 cy/ft
Volume Change Above 0 ft NAVD88	-2.79 cy/ft/yr	-4.70 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



Survey Transect 63+62	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-5.01 ft/yr	-9.64 ft
Volume Change Over Extents of Overlapping Profiles	-9.43 cy/ft/yr	4.51 cy/ft
Volume Change Above -15 ft NAVD88	-3.78 cy/ft/yr	0.84 cy/ft
Volume Change Above 0 ft NAVD88	-2.61 cy/ft/yr	-2.05 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS

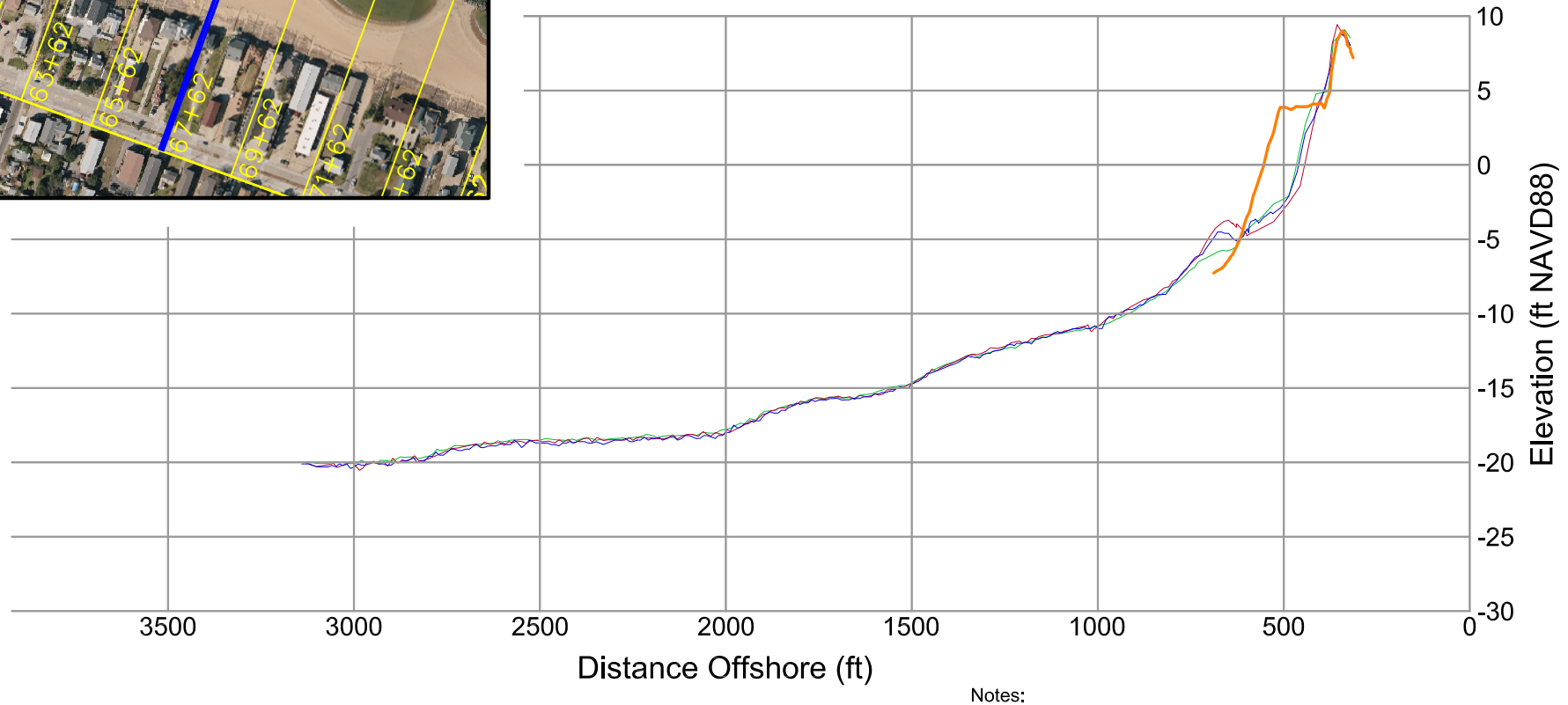
Survey Transect 65+62	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-12.66 ft/yr	10.81 ft
Volume Change Over Extents of Overlapping Profiles	-13.02 cy/ft/yr	8.10 cy/ft
Volume Change Above -15 ft NAVD88	-2.27 cy/ft/yr	1.94 cy/ft
Volume Change Above 0 ft NAVD88	-0.90 cy/ft/yr	-4.61 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



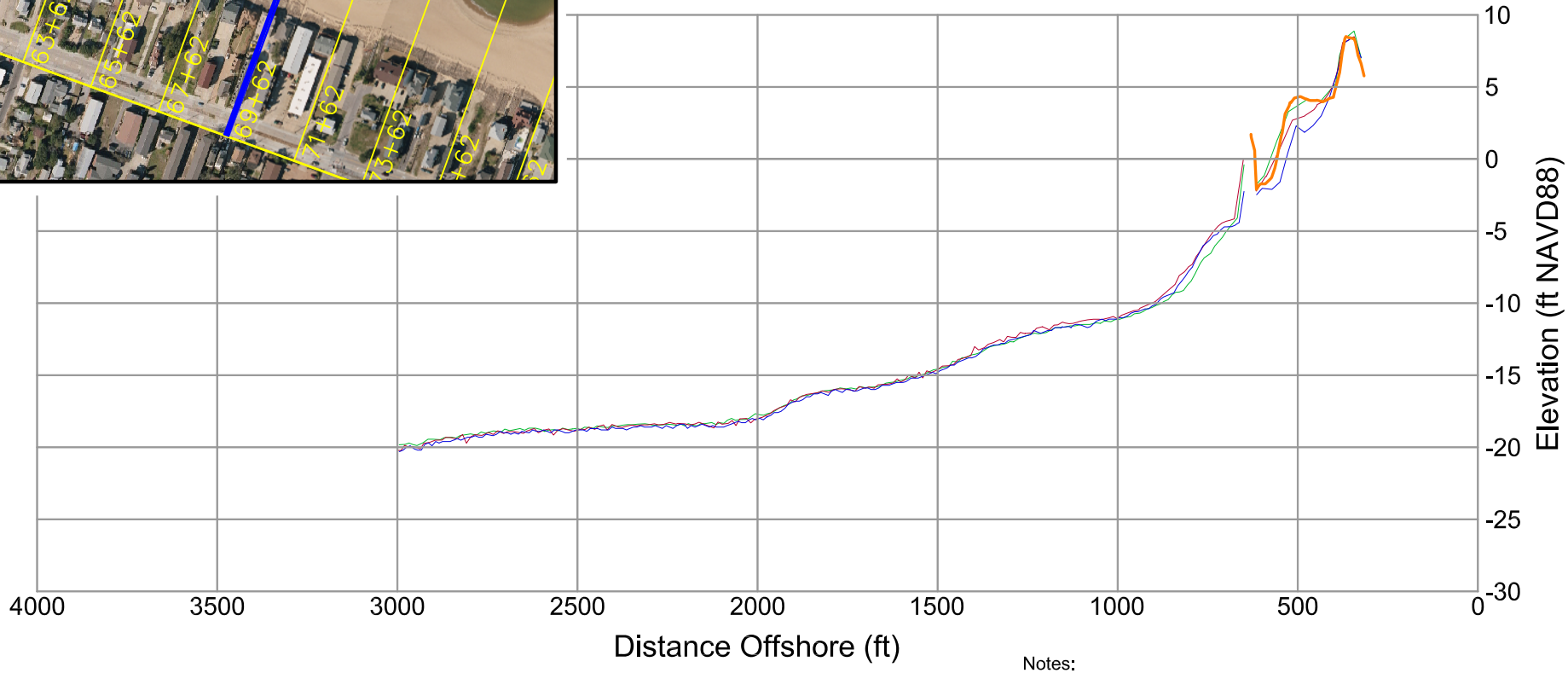
Survey Transect 67+62	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-24.14 ft/yr	-18.89 ft
Volume Change Over Extents of Overlapping Profiles	-6.76 cy/ft/yr	3.09 cy/ft
Volume Change Above -15 ft NAVD88	-0.49 cy/ft/yr	-1.77 cy/ft
Volume Change Above 0 ft NAVD88	-4.25 cy/ft/yr	-2.26 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



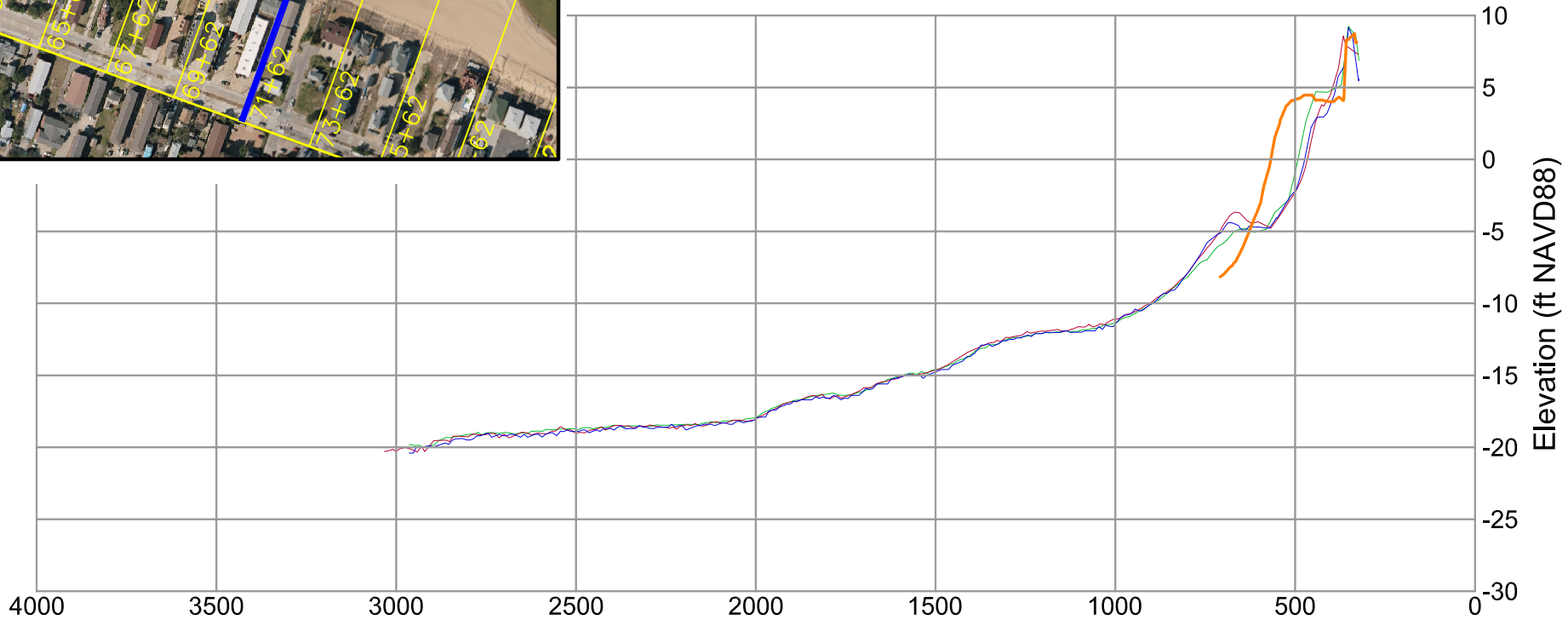
Survey Transect 69+62	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-15.91 ft/yr	25.34 ft
Volume Change Over Extents of Overlapping Profiles	-4.78 cy/ft/yr	10.84 cy/ft
Volume Change Above -15 ft NAVD88	-0.52 cy/ft/yr	5.40 cy/ft
Volume Change Above 0 ft NAVD88	-3.23 cy/ft/yr	-8.03 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



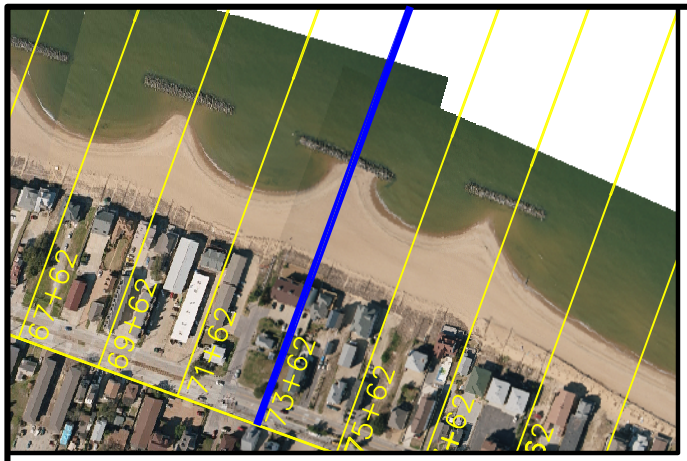
Survey Transect 71+62	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-28.51 ft/yr	-9.82 ft
Volume Change Over Extents of Overlapping Profiles	-4.97 cy/ft/yr	8.68 cy/ft
Volume Change Above -15 ft NAVD88	-0.19 cy/ft/yr	4.57 cy/ft
Volume Change Above 0 ft NAVD88	-4.66 cy/ft/yr	-5.49 cy/ft

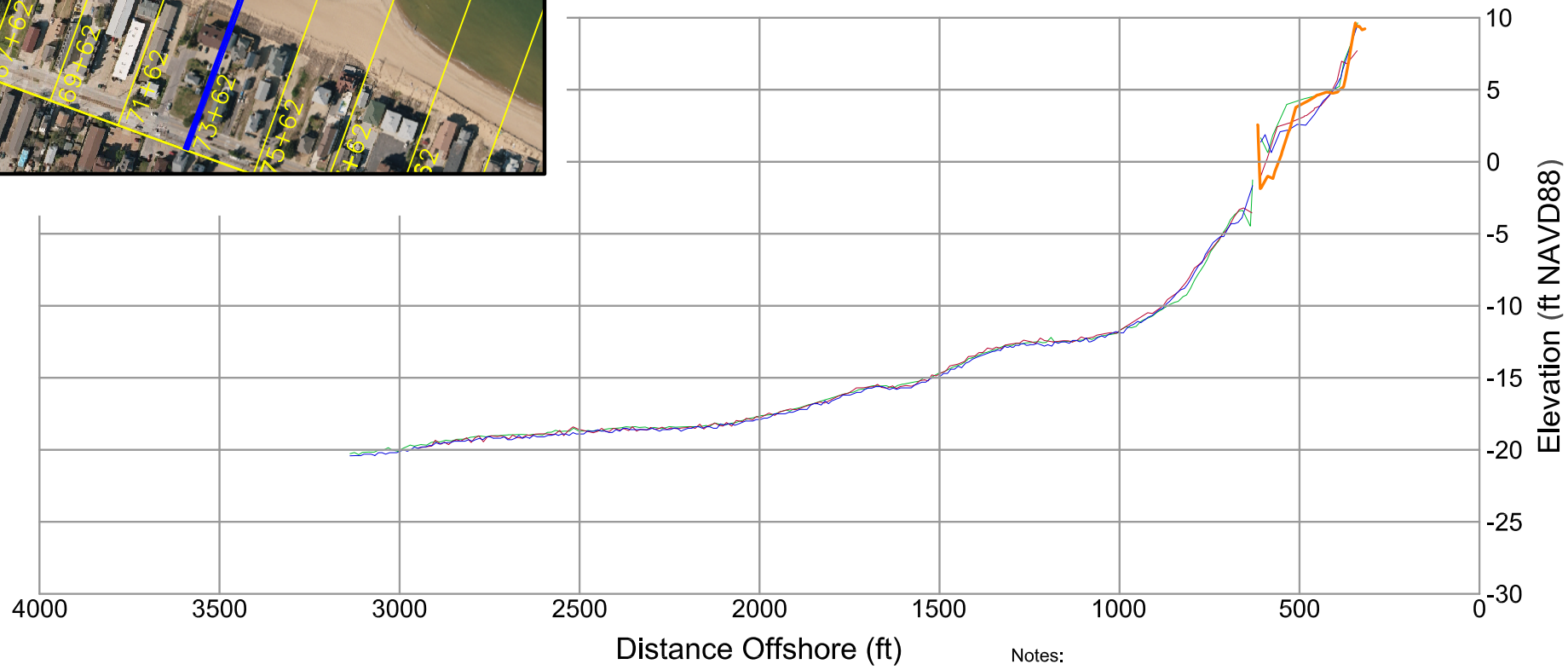
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





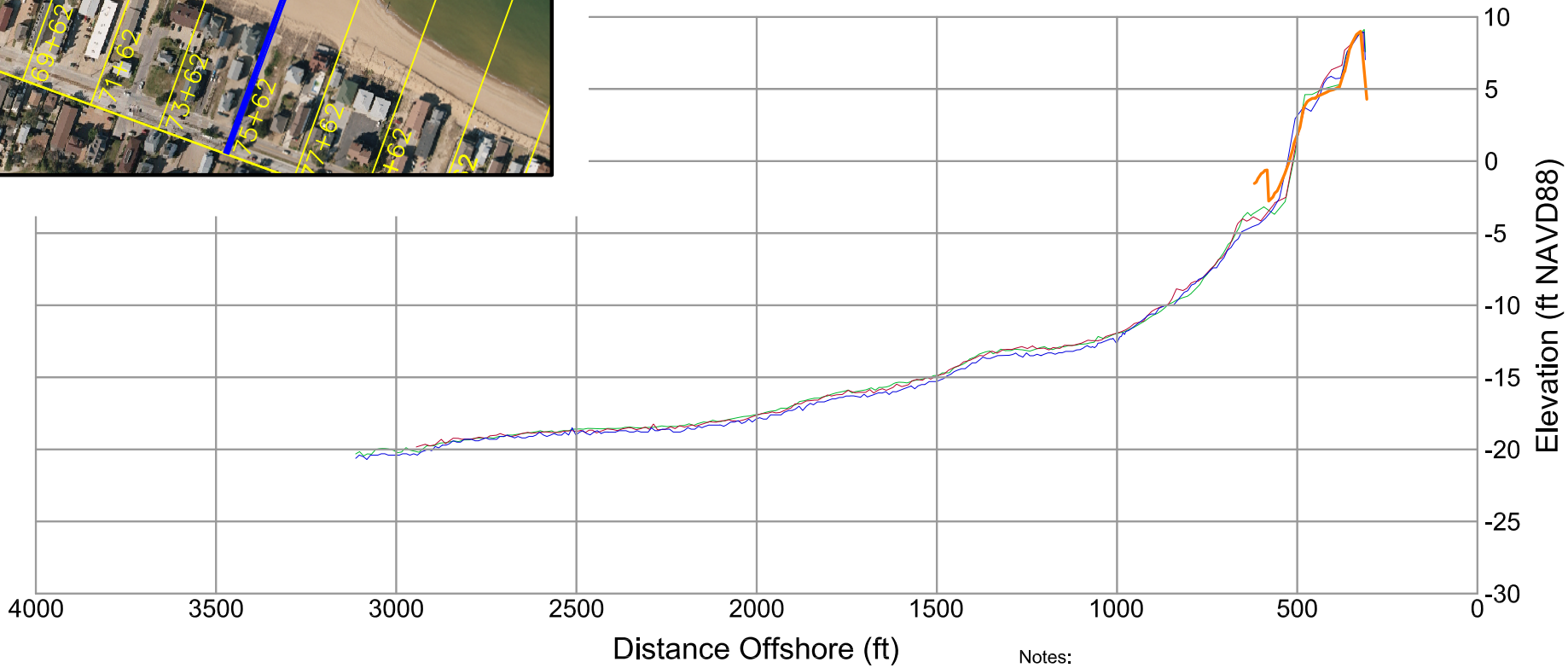
Survey Transect 73+62	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-3.62 ft/yr	7.90 ft
Volume Change Over Extents of Overlapping Profiles	0.05 cy/ft/yr	10.96 cy/ft
Volume Change Above -15 ft NAVD88	2.20 cy/ft/yr	6.05 cy/ft
Volume Change Above 0 ft NAVD88	-6.13 cy/ft/yr	-7.72 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



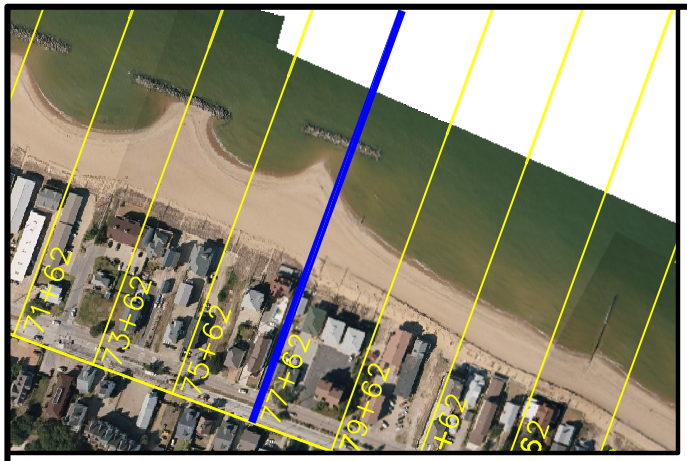
Survey Transect 75+62	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-0.60 ft/yr	-17.50 ft
Volume Change Over Extents of Overlapping Profiles	-2.49 cy/ft/yr	17.64 cy/ft
Volume Change Above -15 ft NAVD88	0.98 cy/ft/yr	1.94 cy/ft
Volume Change Above 0 ft NAVD88	1.10 cy/ft/yr	1.94 cy/ft

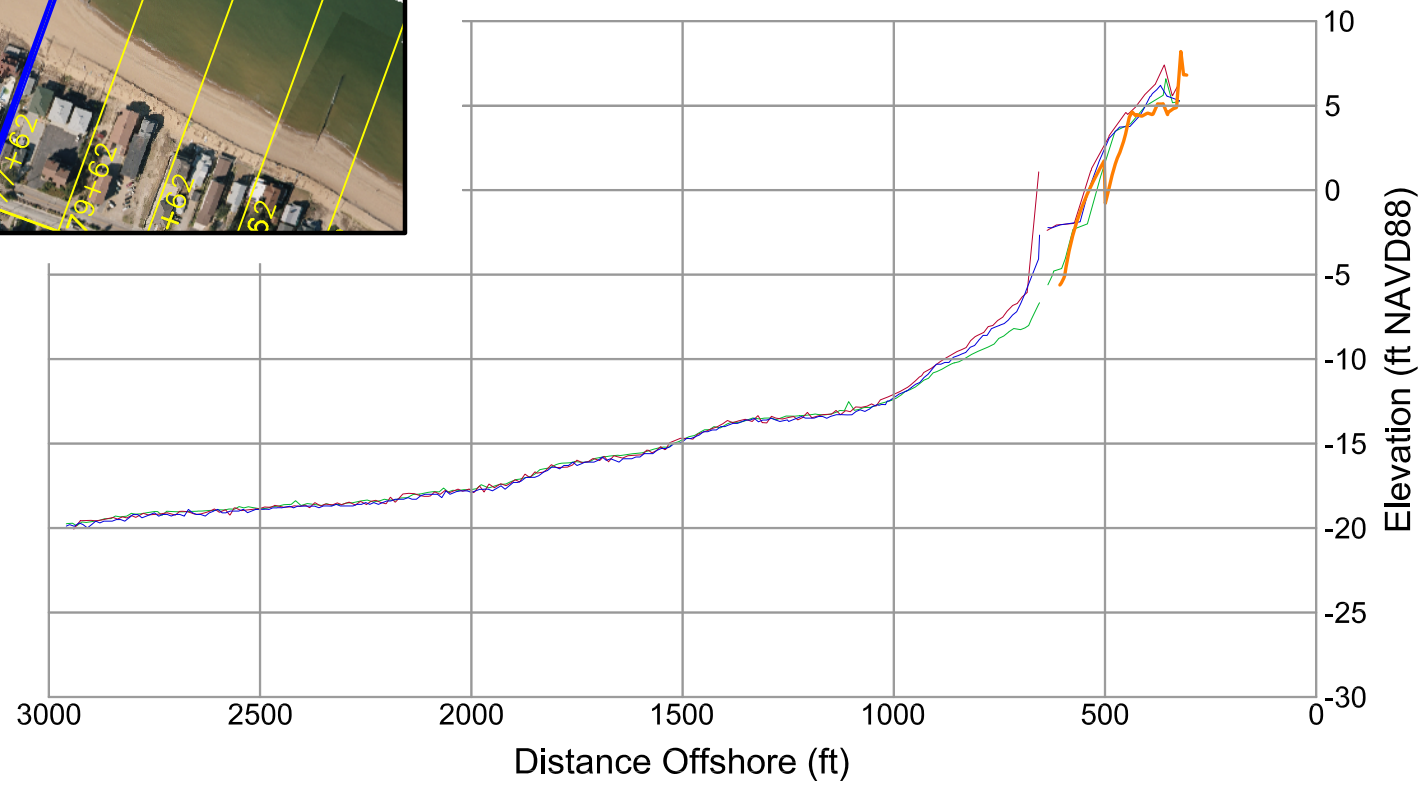
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





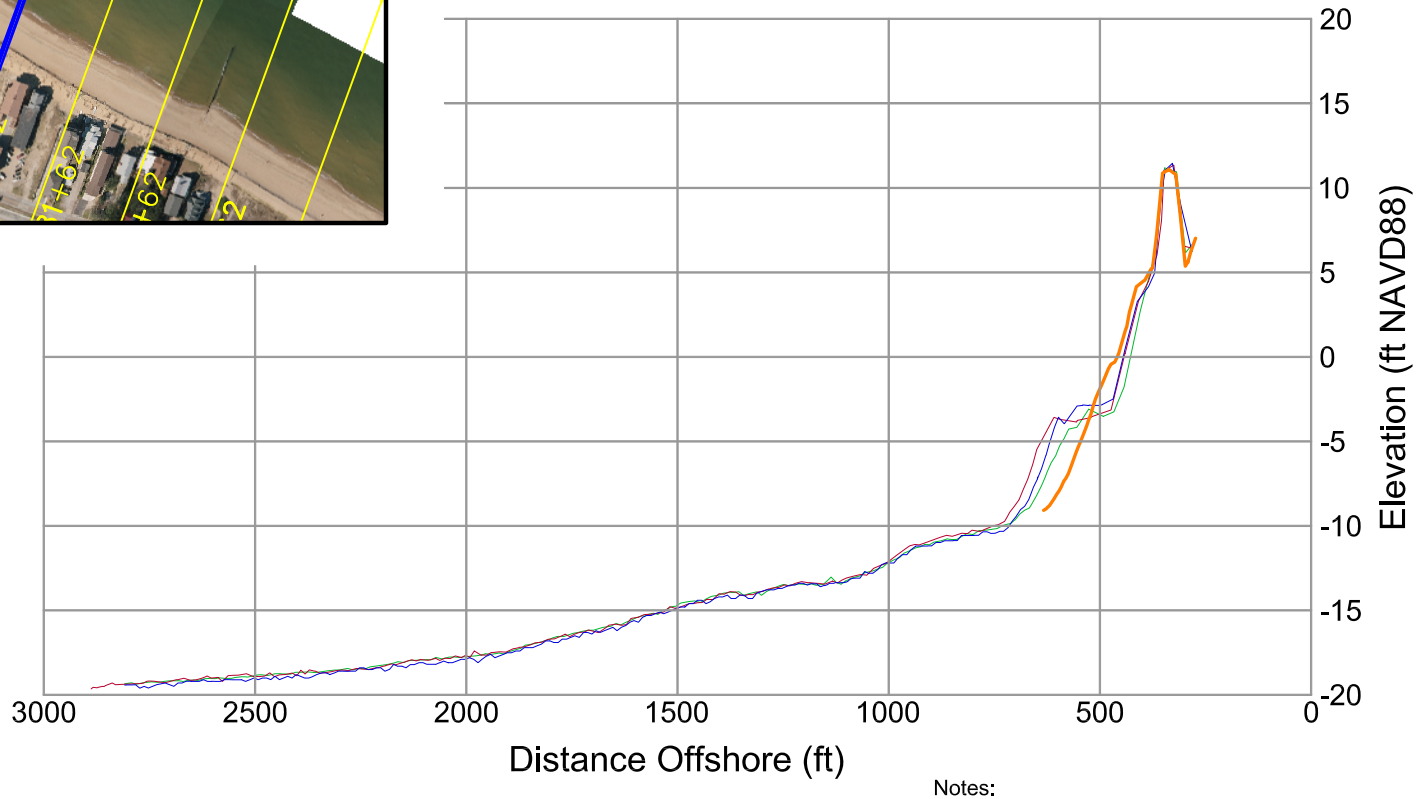
Survey Transect 77+62	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	26.15 ft/yr	9.83 ft
Volume Change Over Extents of Overlapping Profiles	-4.30 cy/ft/yr	14.00 cy/ft
Volume Change Above -15 ft NAVD88	-1.29 cy/ft/yr	10.23 cy/ft
Volume Change Above 0 ft NAVD88	7.09 cy/ft/yr	2.69 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



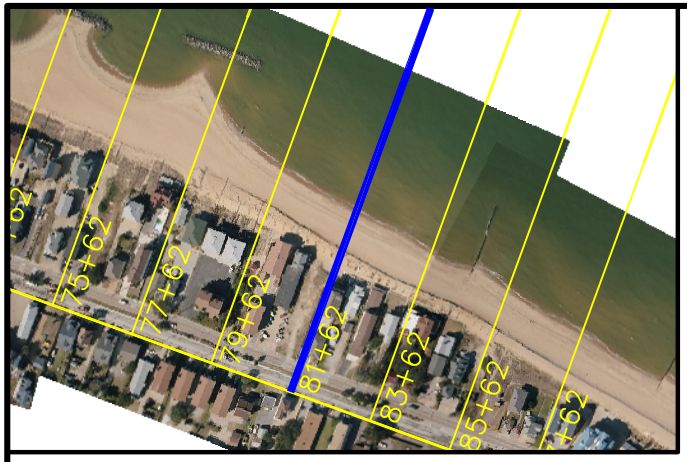
Survey Transect 79+62	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	10.12 ft/yr	-5.51 ft
Volume Change Over Extents of Overlapping Profiles	9.43 cy/ft/yr	9.80 cy/ft
Volume Change Above -15 ft NAVD88	9.97 cy/ft/yr	2.04 cy/ft
Volume Change Above 0 ft NAVD88	0.28 cy/ft/yr	2.37 cy/ft

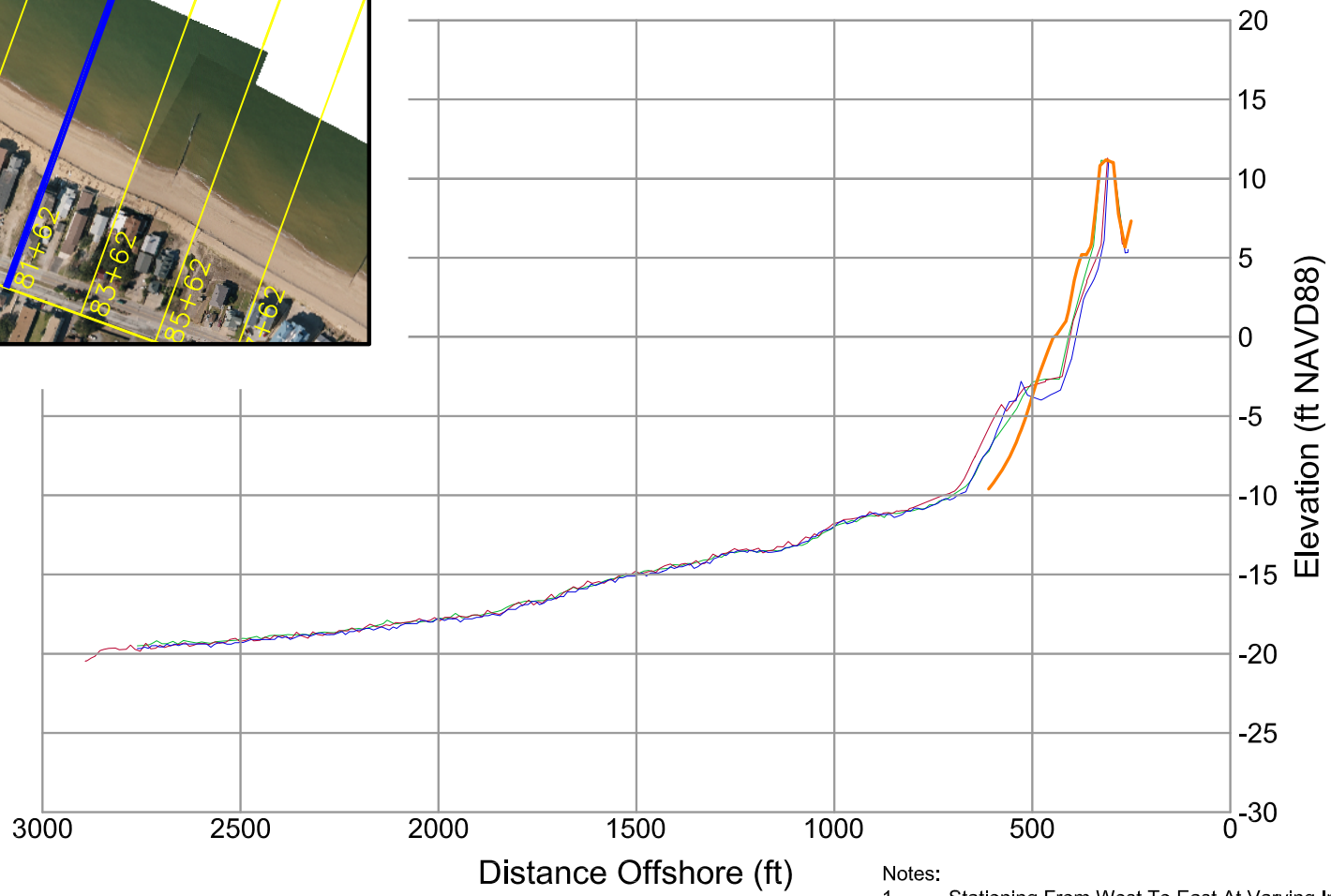
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





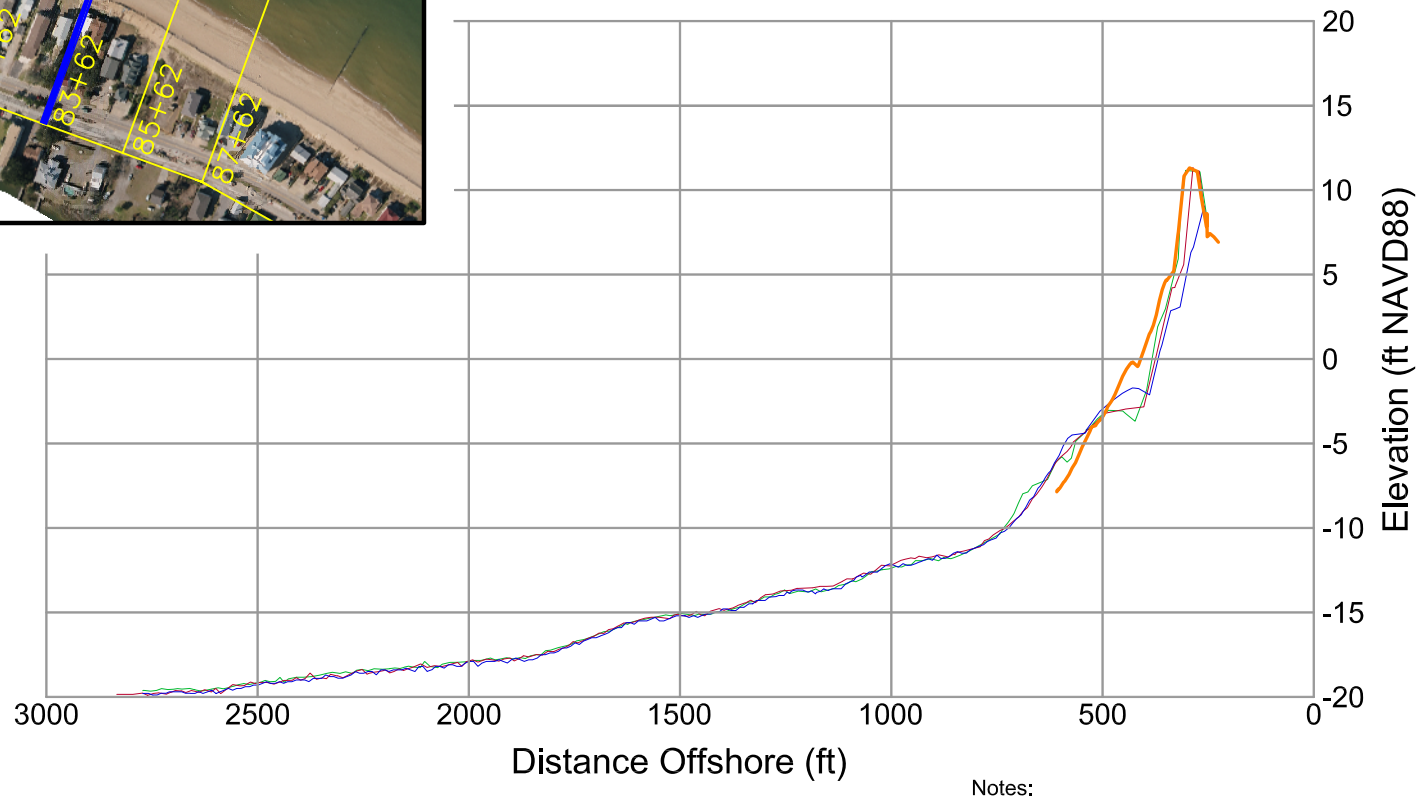
Survey Transect 81+62	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-4.43 ft/yr	12.32 ft
Volume Change Over Extents of Overlapping Profiles	-1.70 cy/ft/yr	17.81 cy/ft
Volume Change Above -15 ft NAVD88	1.17 cy/ft/yr	13.51 cy/ft
Volume Change Above 0 ft NAVD88	-6.13 cy/ft/yr	-8.57 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



Survey Transect 83+62	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-12.88 ft/yr	5.42 ft
Volume Change Over Extents of Overlapping Profiles	-9.70 cy/ft/yr	8.23 cy/ft
Volume Change Above -15 ft NAVD88	-6.52 cy/ft/yr	4.34 cy/ft
Volume Change Above 0 ft NAVD88	-5.74 cy/ft/yr	-12.99 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS

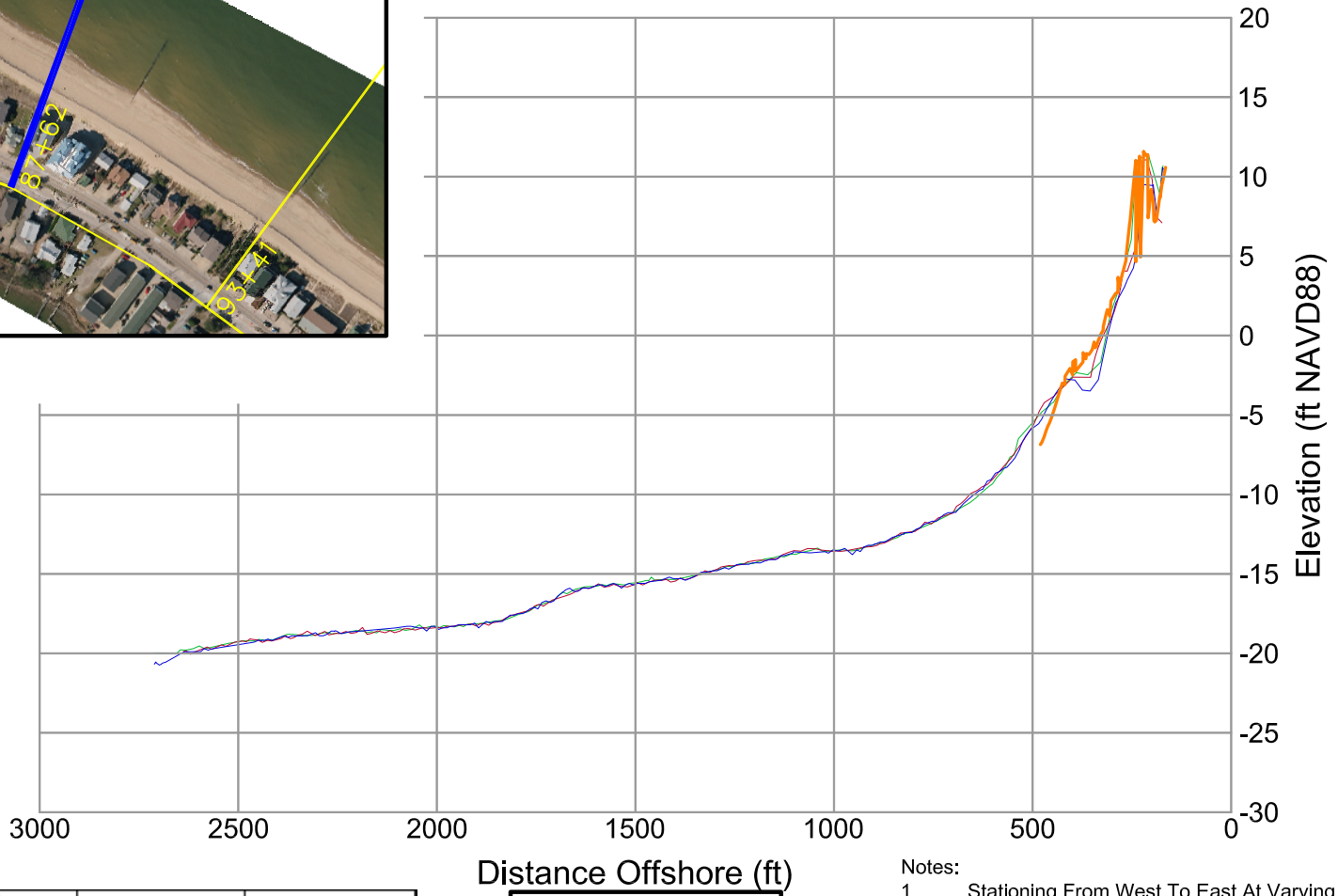
Survey Transect 85+62	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	15.01 ft/yr	-6.69 ft
Volume Change Over Extents of Overlapping Profiles	-5.47 cy/ft/yr	2.11 cy/ft
Volume Change Above -15 ft NAVD88	-4.58 cy/ft/yr	-1.90 cy/ft
Volume Change Above 0 ft NAVD88	-3.74 cy/ft/yr	-4.04 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



Survey Transect 87+62	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-0.98 ft/yr	4.68 ft
Volume Change Over Extents of Overlapping Profiles	-9.11 cy/ft/yr	3.87 cy/ft
Volume Change Above -15 ft NAVD88	-7.83 cy/ft/yr	4.07 cy/ft
Volume Change Above 0 ft NAVD88	-6.69 cy/ft/yr	-8.67 cy/ft

LEGEND:

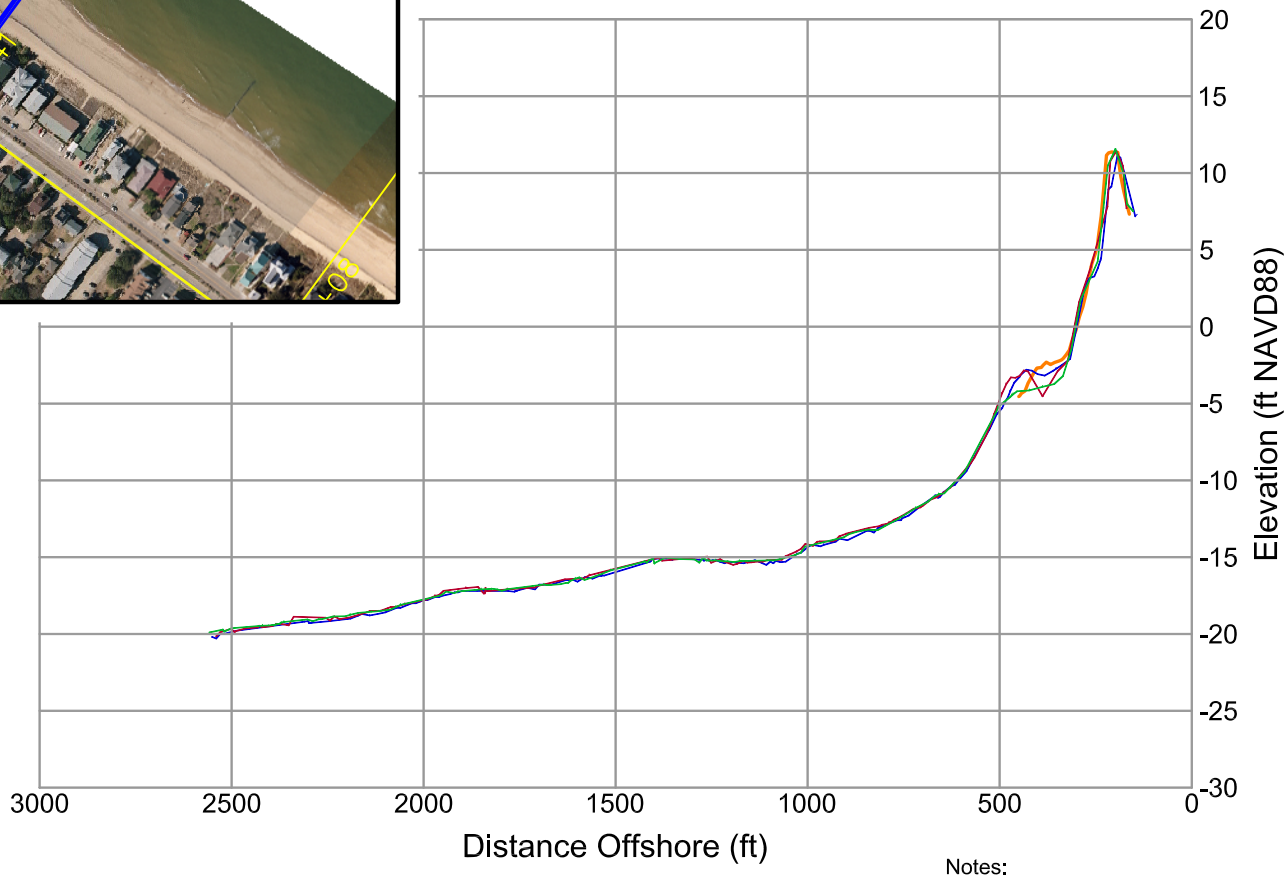
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:

1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



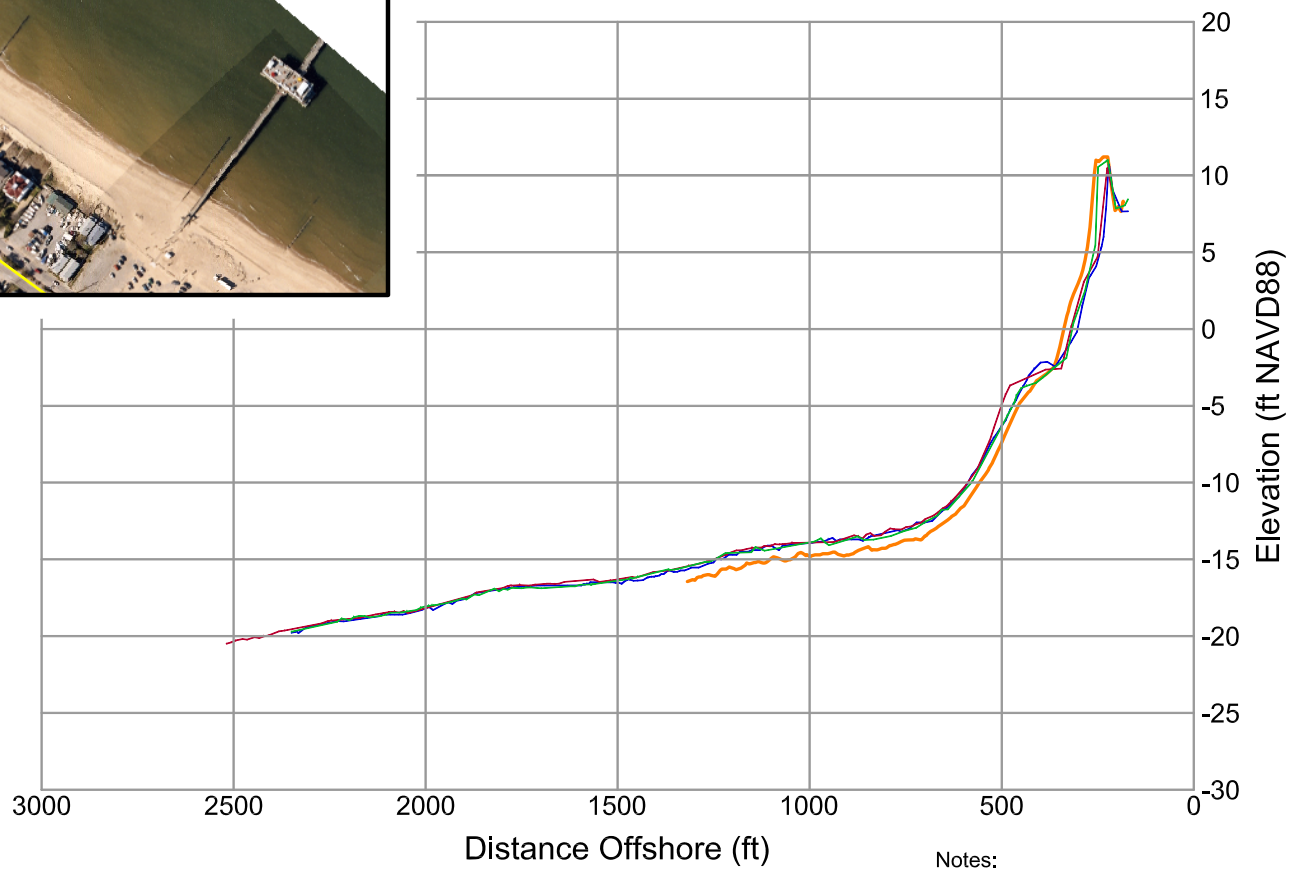
Survey Transect 93+41	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	0.38 ft/yr	3.95 ft
Volume Change Over Extents of Overlapping Profiles	3.60 cy/ft/yr	9.63 cy/ft
Volume Change Above -15 ft NAVD88	4.07 cy/ft/yr	4.64 cy/ft
Volume Change Above 0 ft NAVD88	-0.90 cy/ft/yr	-2.42 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



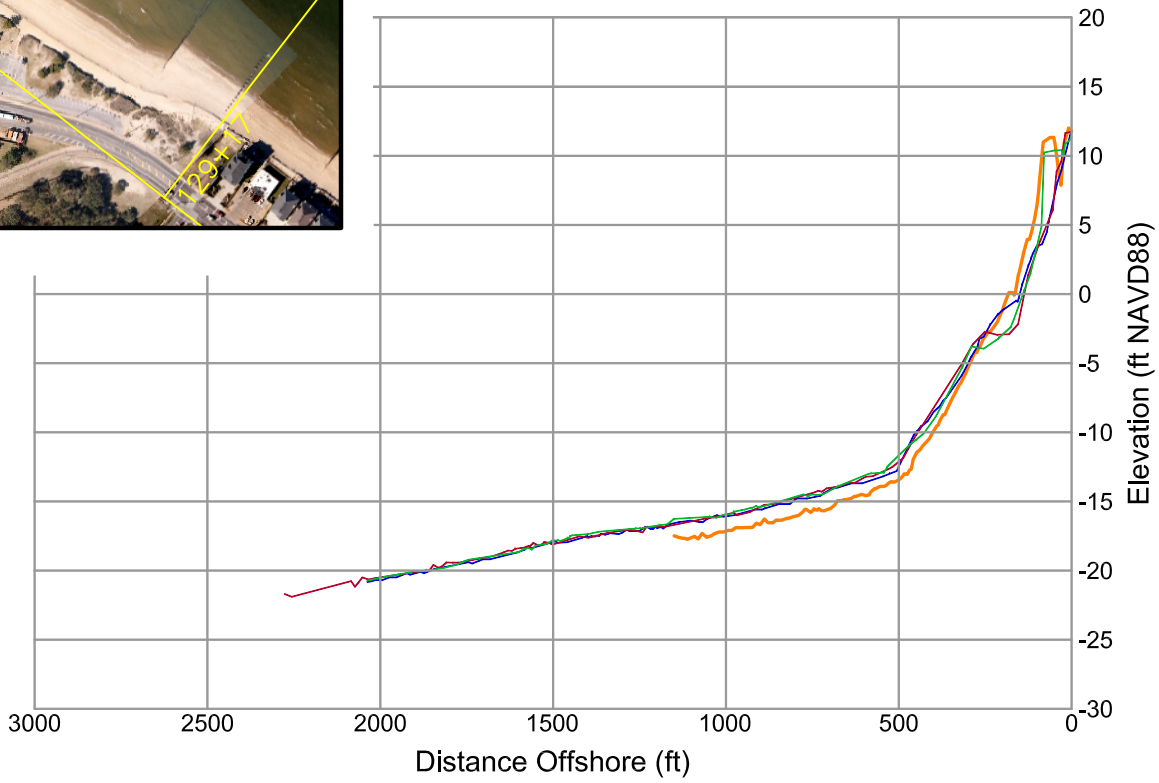
Survey Transect 103+08	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	1.44 ft/yr	11.67 ft
Volume Change Over Extents of Overlapping Profiles	3.87 cy/ft/yr	8.14 cy/ft
Volume Change Above -15 ft NAVD88	1.05 cy/ft/yr	3.42 cy/ft
Volume Change Above 0 ft NAVD88	-5.11 cy/ft/yr	-6.36 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



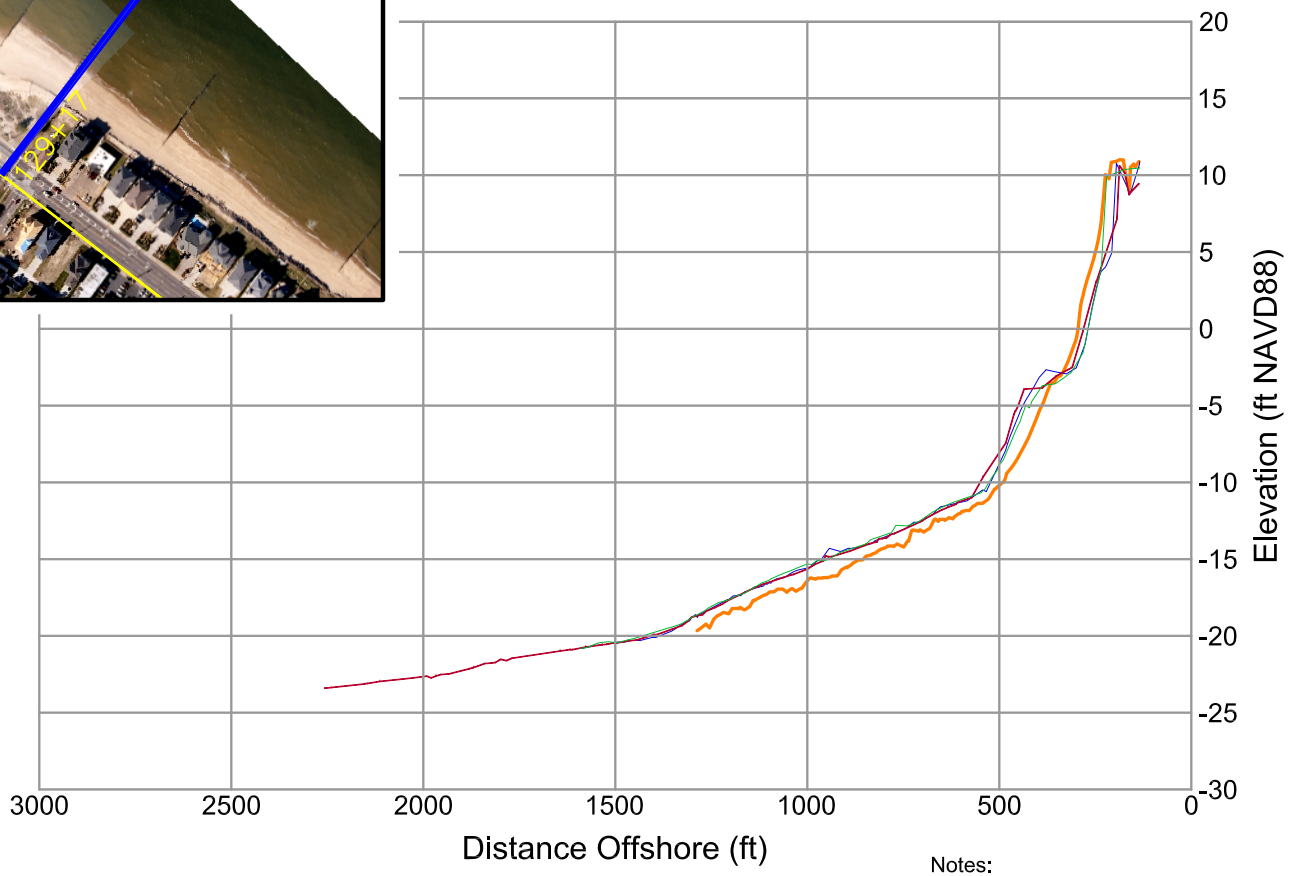
Survey Transect 120+93	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-0.69 ft/yr	-13.47 ft
Volume Change Over Extents of Overlapping Profiles	-9.18 cy/ft/yr	2.58 cy/ft
Volume Change Above -15 ft NAVD88	-6.32 cy/ft/yr	-1.28 cy/ft
Volume Change Above 0 ft NAVD88	-9.12 cy/ft/yr	-7.44 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



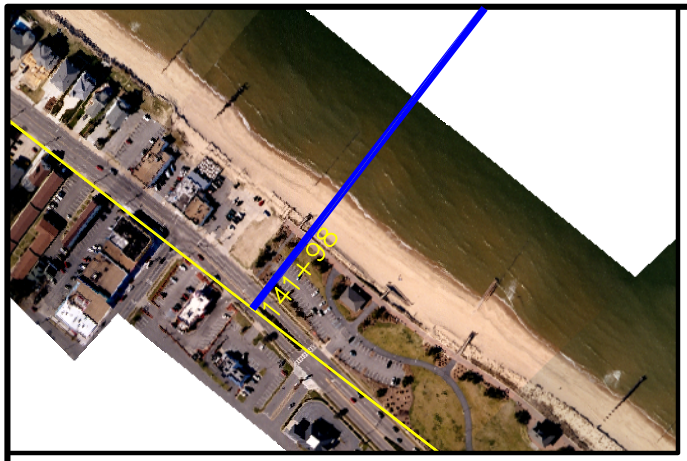
Survey Transect 129+17	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	6.17 ft/yr	5.16 ft
Volume Change Over Extents of Overlapping Profiles	-7.94 cy/ft/yr	-1.82 cy/ft
Volume Change Above -15 ft NAVD88	-6.32 cy/ft/yr	-1.69 cy/ft
Volume Change Above 0 ft NAVD88	-7.98 cy/ft/yr	-6.46 cy/ft

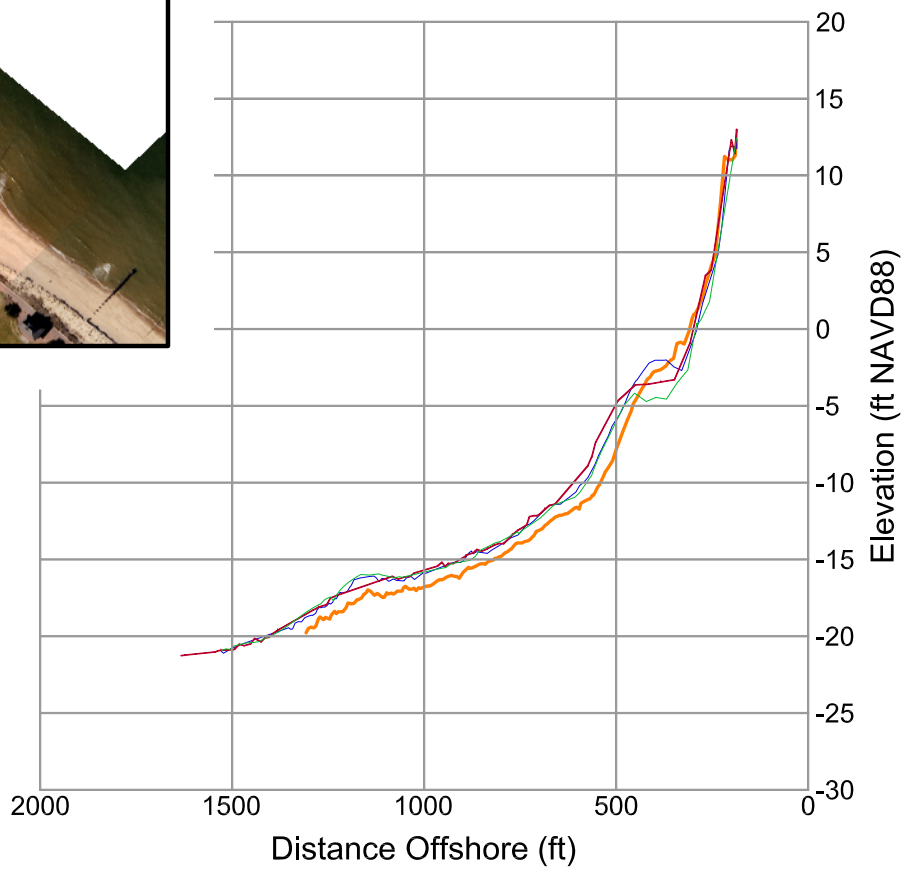
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





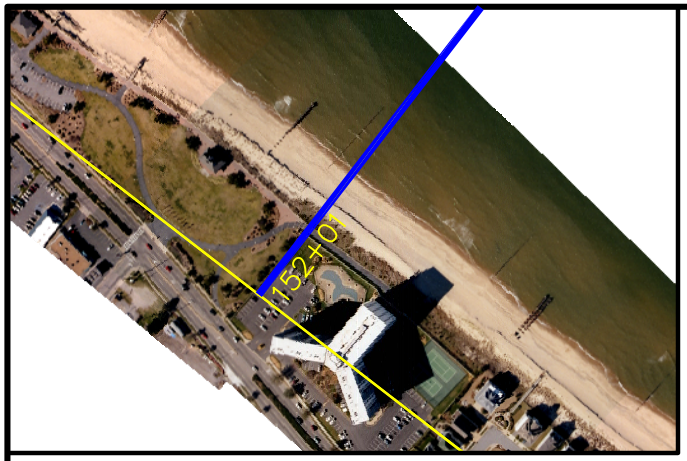
Survey Transect 141+98	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	14.91 ft/yr	5.75 ft
Volume Change Over Extents of Overlapping Profiles	14.02 cy/ft/yr	3.68 cy/ft
Volume Change Above -15 ft NAVD88	16.50 cy/ft/yr	3.40 cy/ft
Volume Change Above 0 ft NAVD88	4.49 cy/ft/yr	2.67 cy/ft

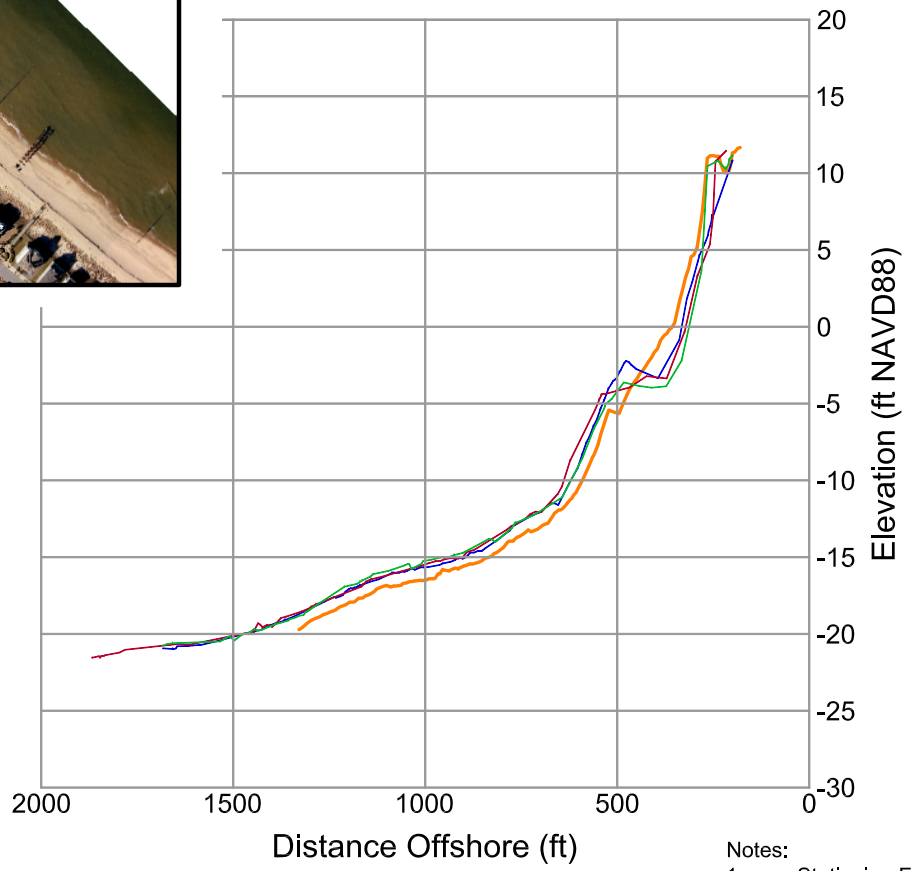
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





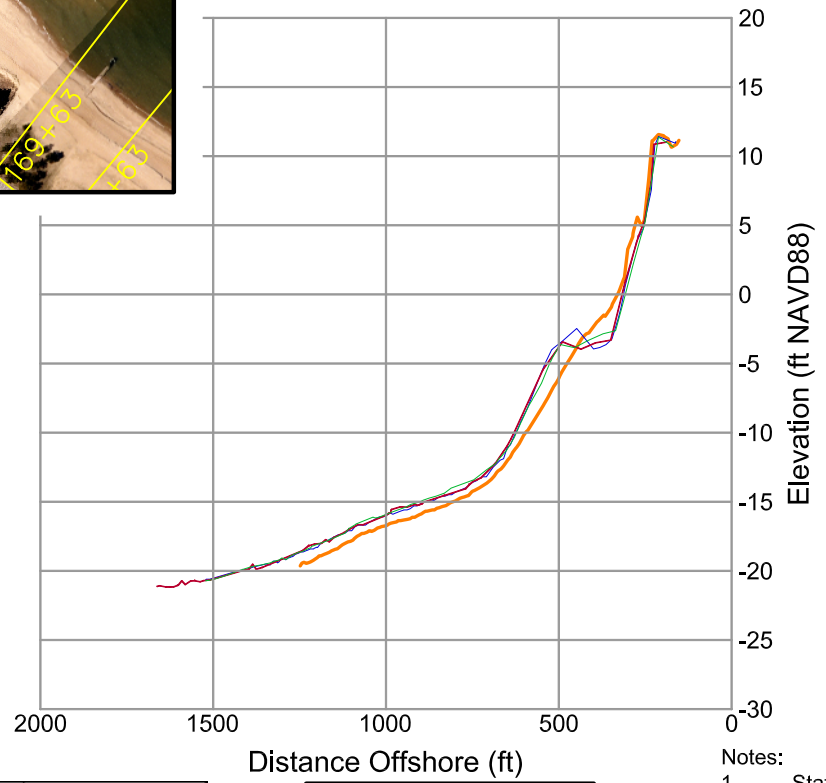
Survey Transect 152+01	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	5.16 ft/yr	-15.60 ft
Volume Change Over Extents of Overlapping Profiles	1.71 cy/ft/yr	0.89 cy/ft
Volume Change Above -15 ft NAVD88	4.70 cy/ft/yr	-1.50 cy/ft
Volume Change Above 0 ft NAVD88	-3.54 cy/ft/yr	-2.31 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



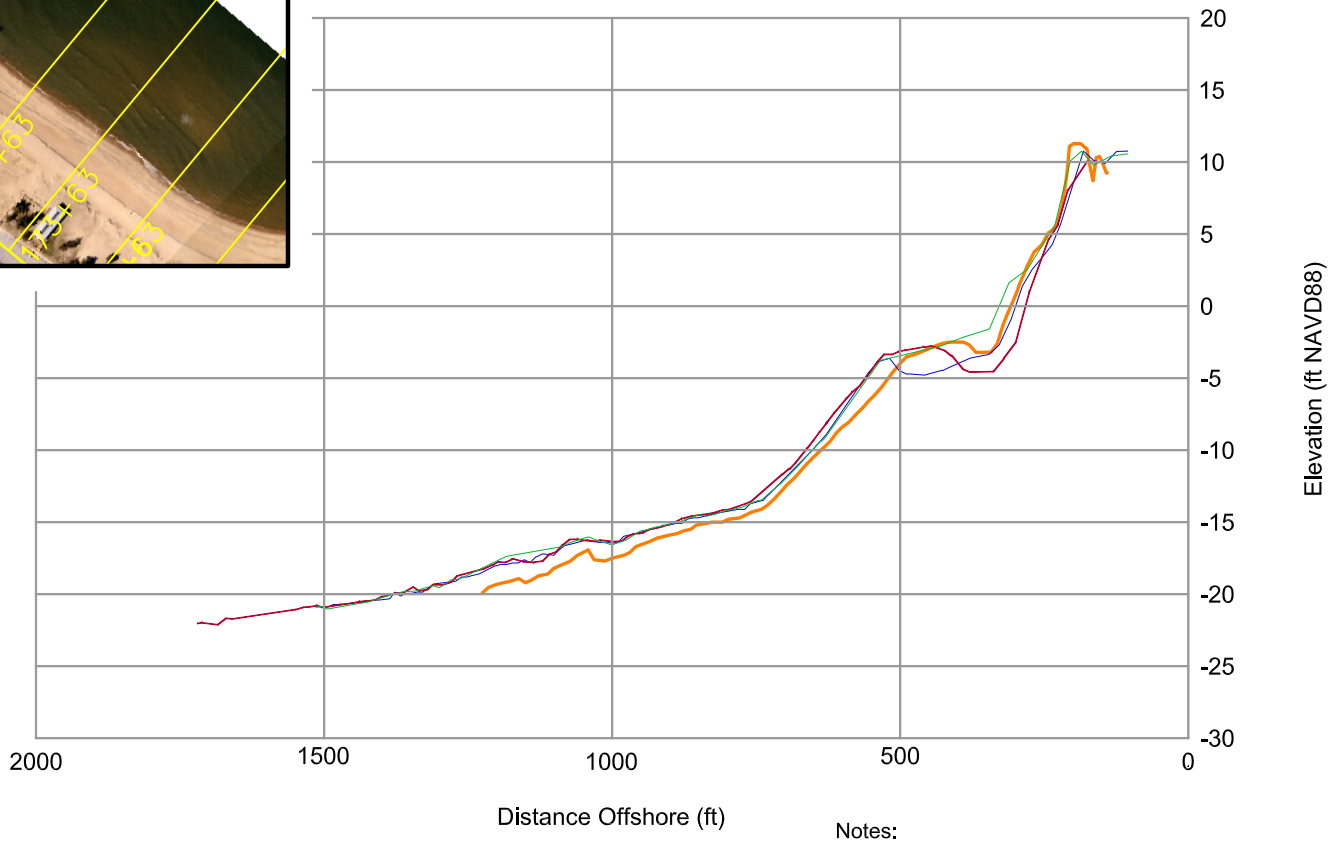
Survey Transect 163+49	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	6.53 ft/yr	-0.40 ft
Volume Change Over Extents of Overlapping Profiles	-2.33 cy/ft/yr	-2.26 cy/ft
Volume Change Above -15 ft NAVD88	-0.99 cy/ft/yr	-2.54 cy/ft
Volume Change Above 0 ft NAVD88	0.79 cy/ft/yr	1.71 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



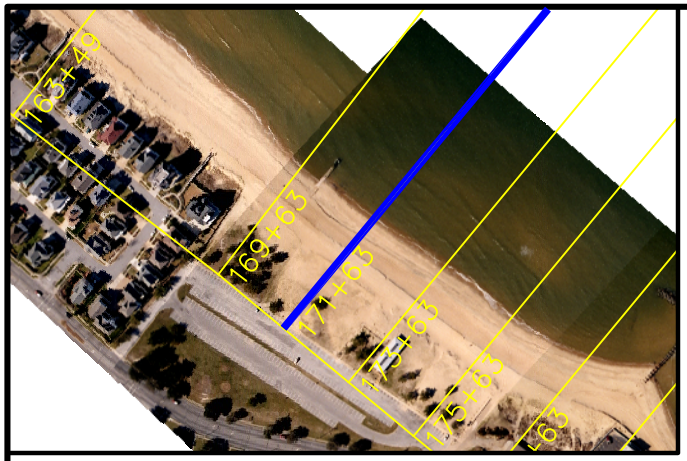
Survey Transect 169+63	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-45.70 ft/yr	-19.03 ft
Volume Change Over Extents of Overlapping Profiles	-19.27 cy/ft/yr	1.39 cy/ft
Volume Change Above -15 ft NAVD88	-17.39 cy/ft/yr	0.68 cy/ft
Volume Change Above 0 ft NAVD88	-8.24 cy/ft/yr	-4.56 cy/ft

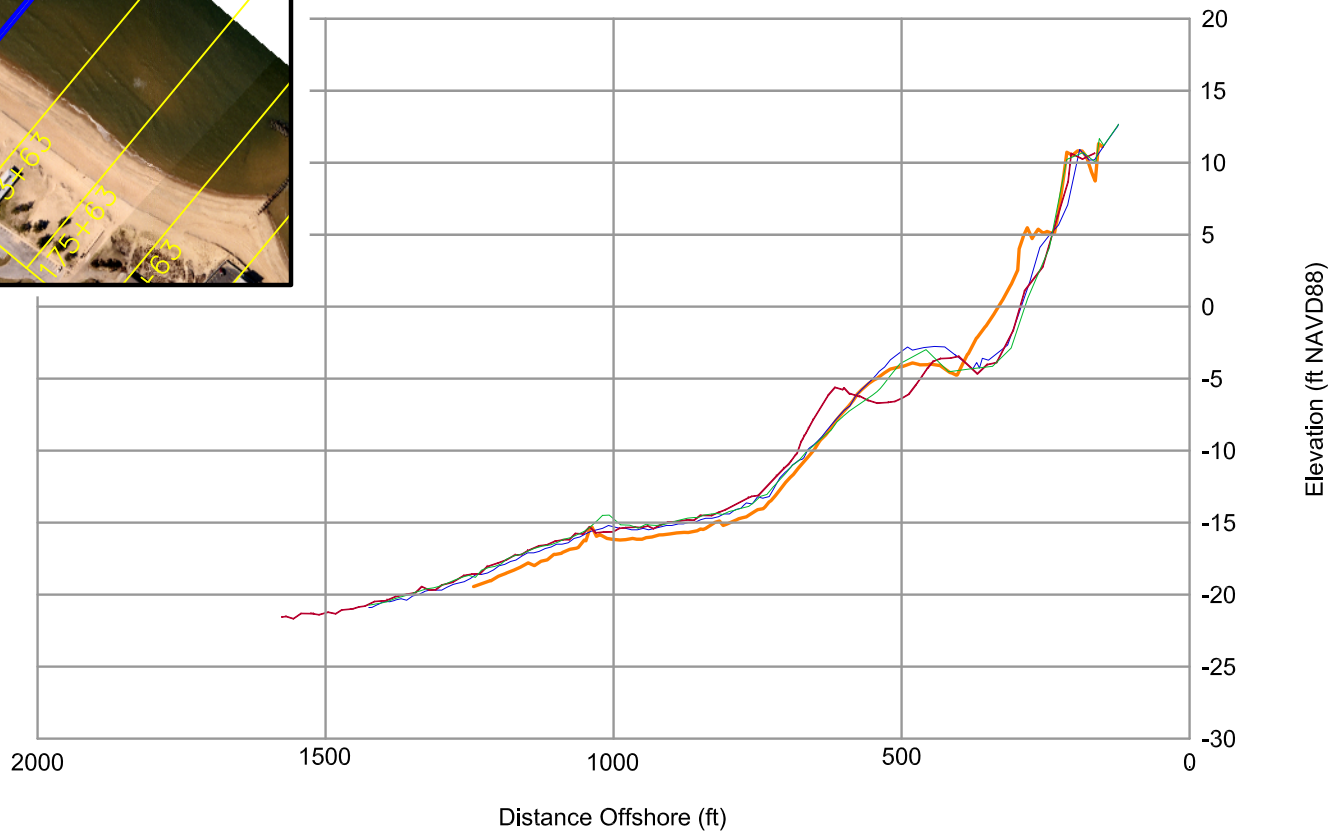
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





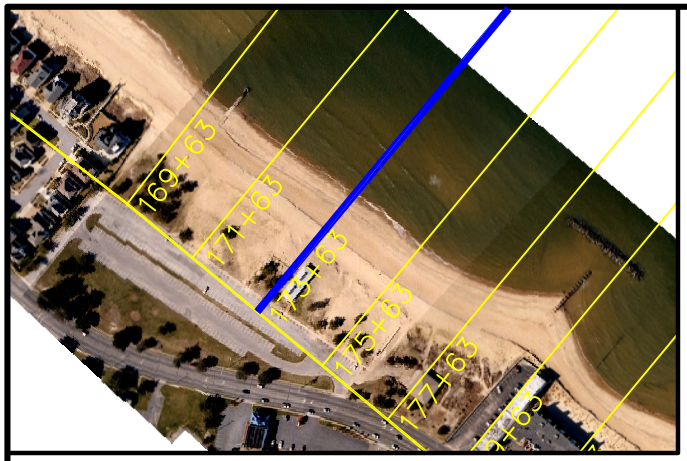
Survey Transect 171+63	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	7.43 ft/yr	0.14 ft
Volume Change Over Extents of Overlapping Profiles	-1.14 cy/ft/yr	-3.48 cy/ft
Volume Change Above -15 ft NAVD88	13.54 cy/ft/yr	10.84 cy/ft
Volume Change Above 0 ft NAVD88	-1.69 cy/ft/yr	-1.13 cy/ft

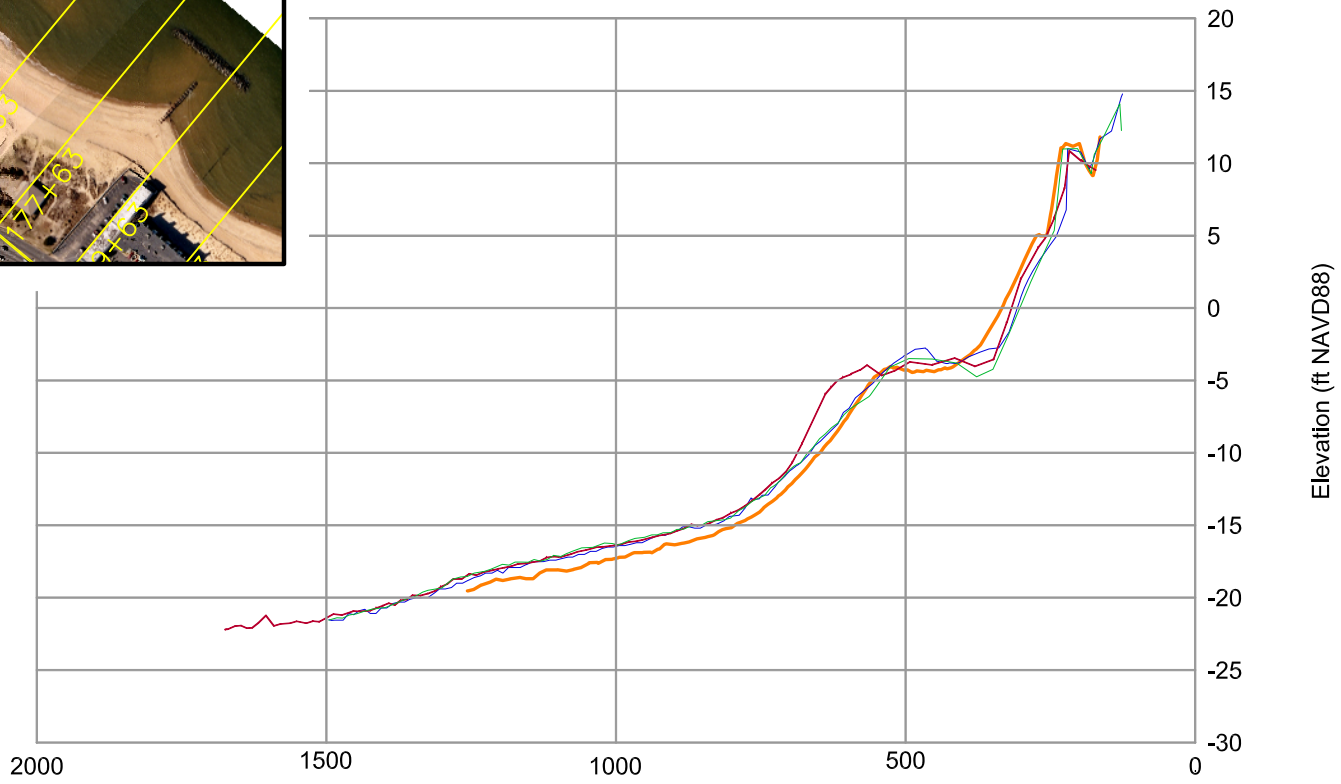
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





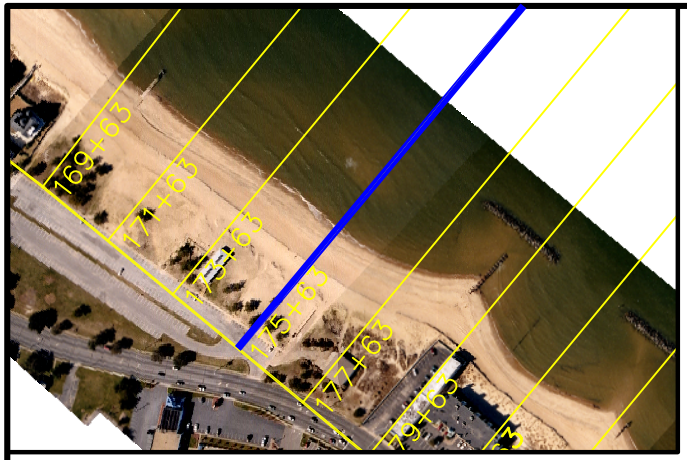
Survey Transect 173+63	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	13.66 ft/yr	8.49 ft
Volume Change Over Extents of Overlapping Profiles	11.59 cy/ft/yr	13.76 cy/ft
Volume Change Above -15 ft NAVD88	9.26 cy/ft/yr	14.20 cy/ft
Volume Change Above 0 ft NAVD88	0.11 cy/ft/yr	-2.35 cy/ft

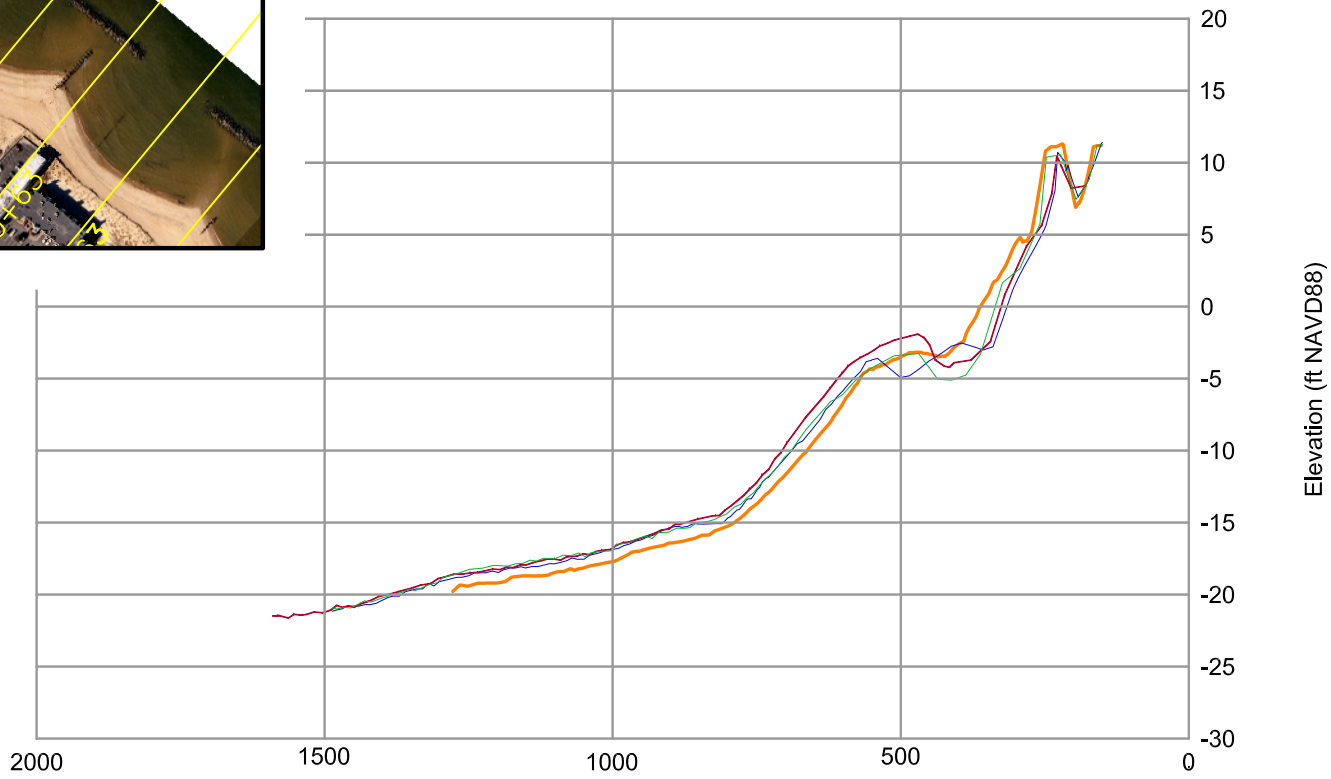
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





Survey Transect 175+63	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-14.19 ft/yr	7.21 ft
Volume Change Over Extents of Overlapping Profiles	8.83 cy/ft/yr	18.27 cy/ft
Volume Change Above -15 ft NAVD88	-5.77 cy/ft/yr	-7.78 cy/ft
Volume Change Above 0 ft NAVD88	-3.15 cy/ft/yr	-4.87 cy/ft

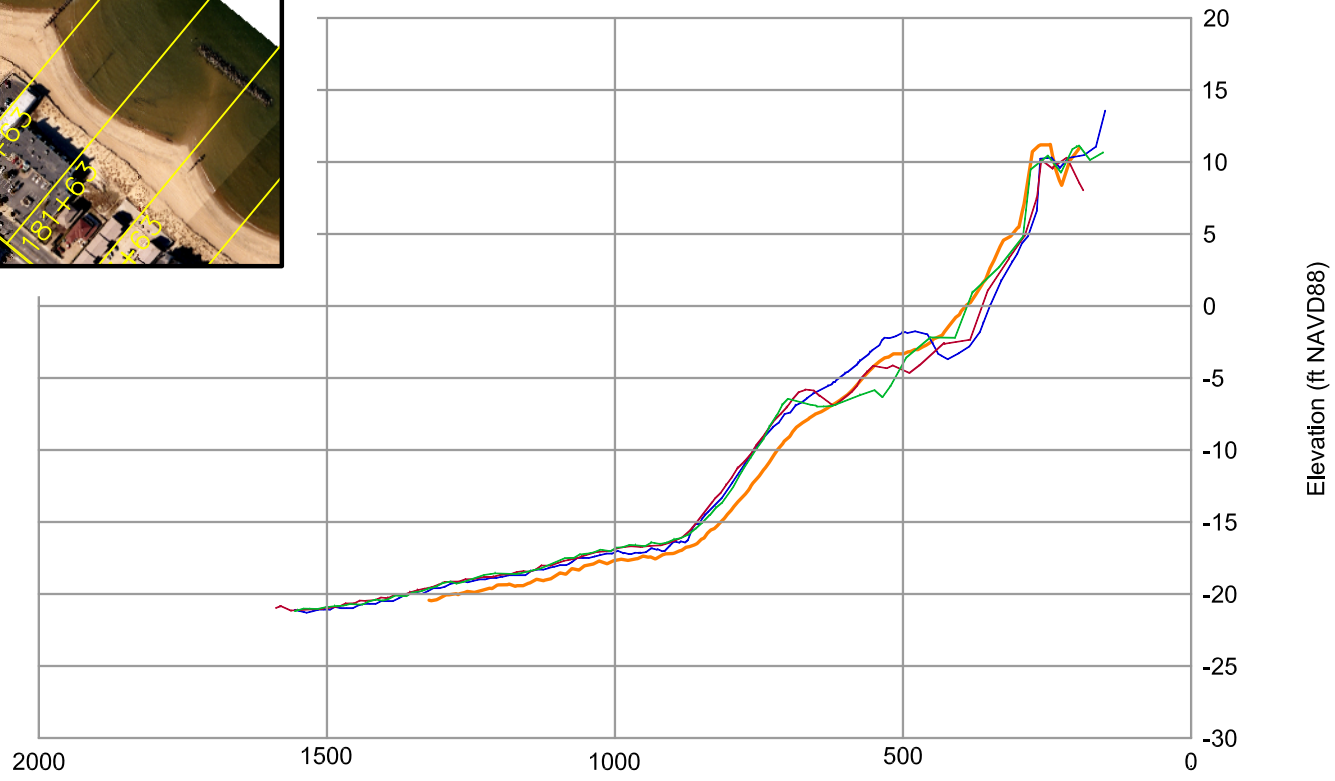
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS

ST 175+63 | Pg 52 OF 106 | SPRING 2007



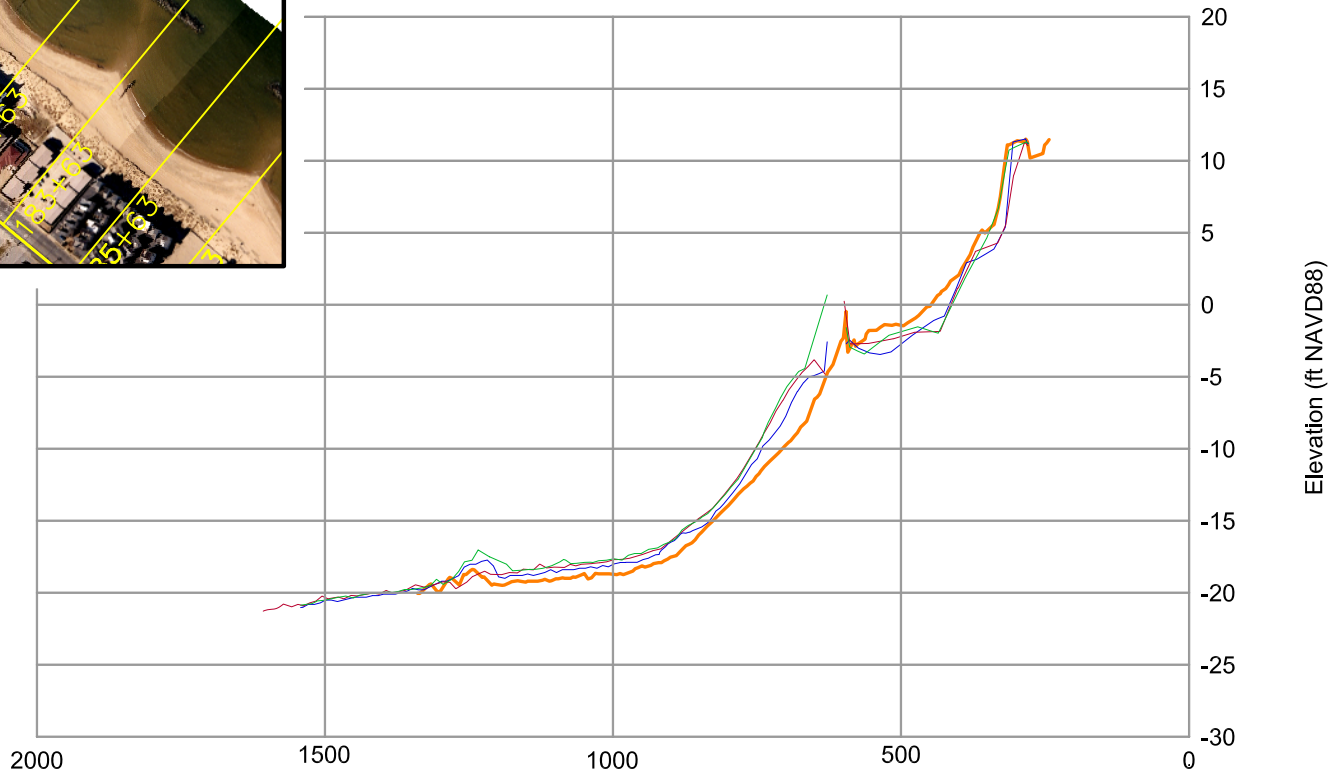
Survey Transect 177+63	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-27.62 ft/yr	12.53 ft
Volume Change Over Extents of Overlapping Profiles	-6.69 cy/ft/yr	-3.32 cy/ft
Volume Change Above -15 ft NAVD88	-4.92 cy/ft/yr	-1.64 cy/ft
Volume Change Above 0 ft NAVD88	-5.82 cy/ft/yr	-4.41 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



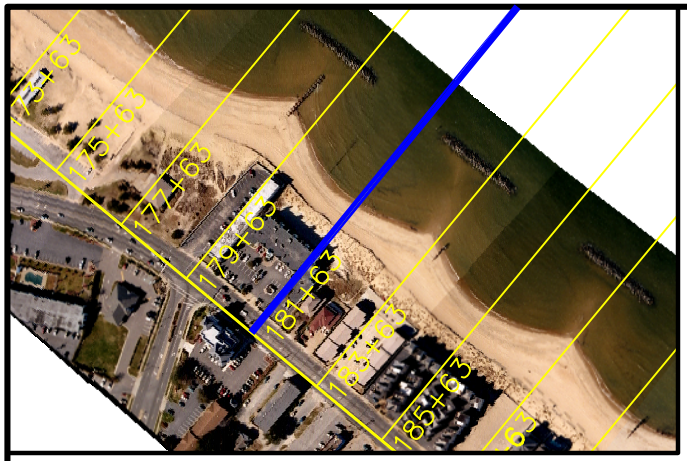
Survey Transect 179+63	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	0.78 ft/yr	-5.59 ft
Volume Change Over Extents of Overlapping Profiles	-11.42 cy/ft/yr	0.21 cy/ft
Volume Change Above -15 ft NAVD88	0.76 cy/ft/yr	-6.50 cy/ft
Volume Change Above 0 ft NAVD88	-5.62 cy/ft/yr	-2.98 cy/ft

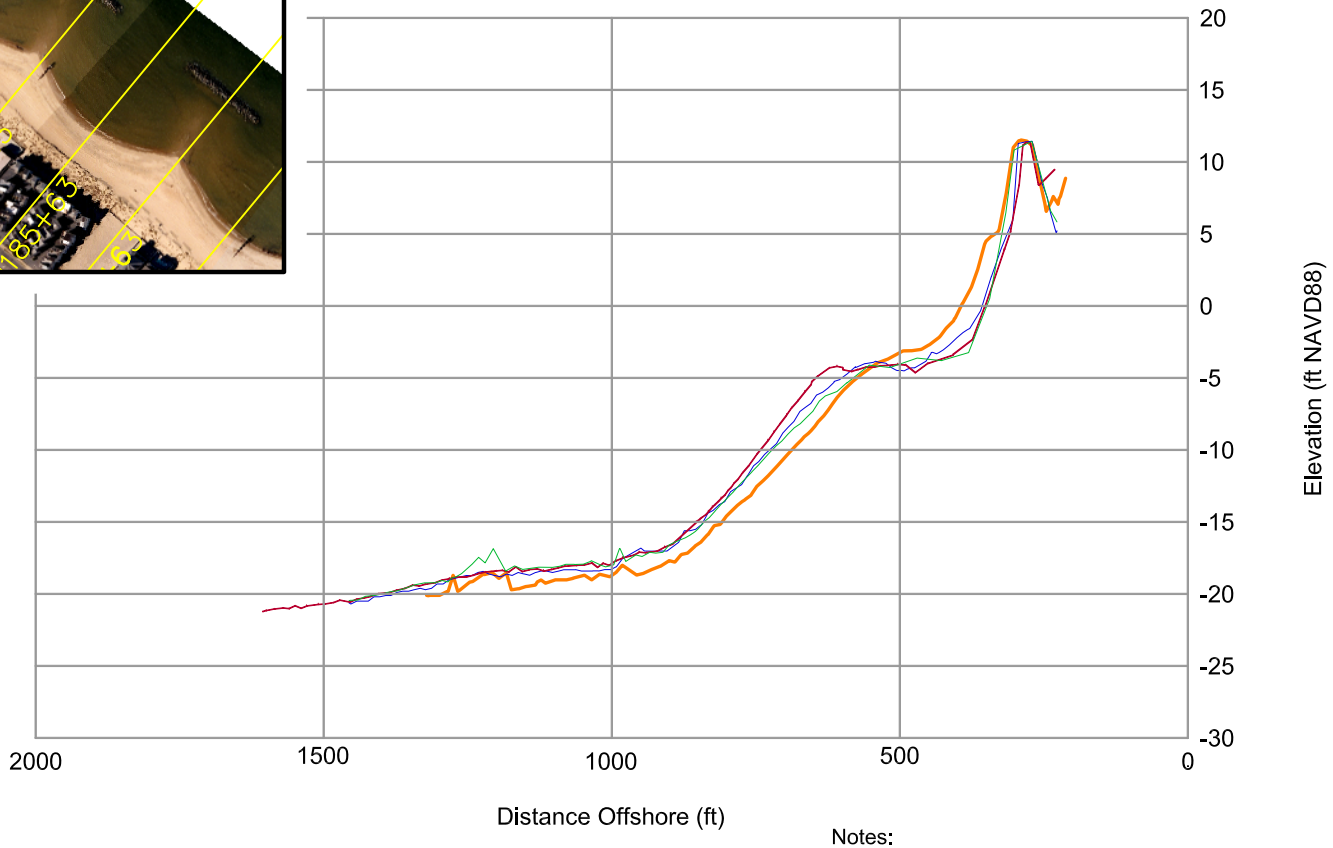
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





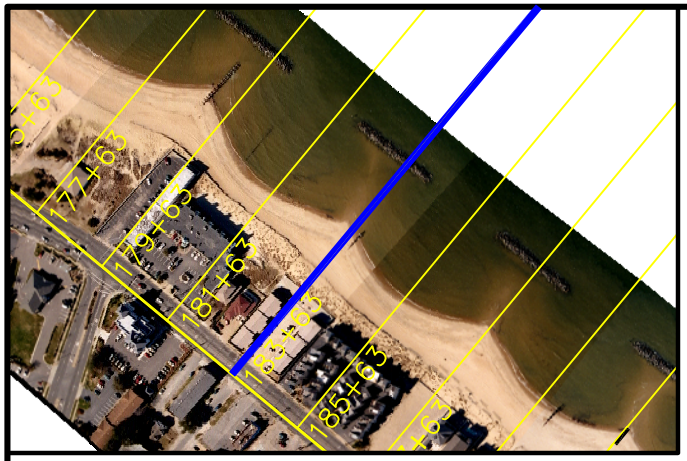
Survey Transect 181+63	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-2.31 ft/yr	-9.94 ft
Volume Change Over Extents of Overlapping Profiles	1.26 cy/ft/yr	2.86 cy/ft
Volume Change Above -15 ft NAVD88	5.93 cy/ft/yr	0.14 cy/ft
Volume Change Above 0 ft NAVD88	-4.23 cy/ft/yr	-1.97 cy/ft

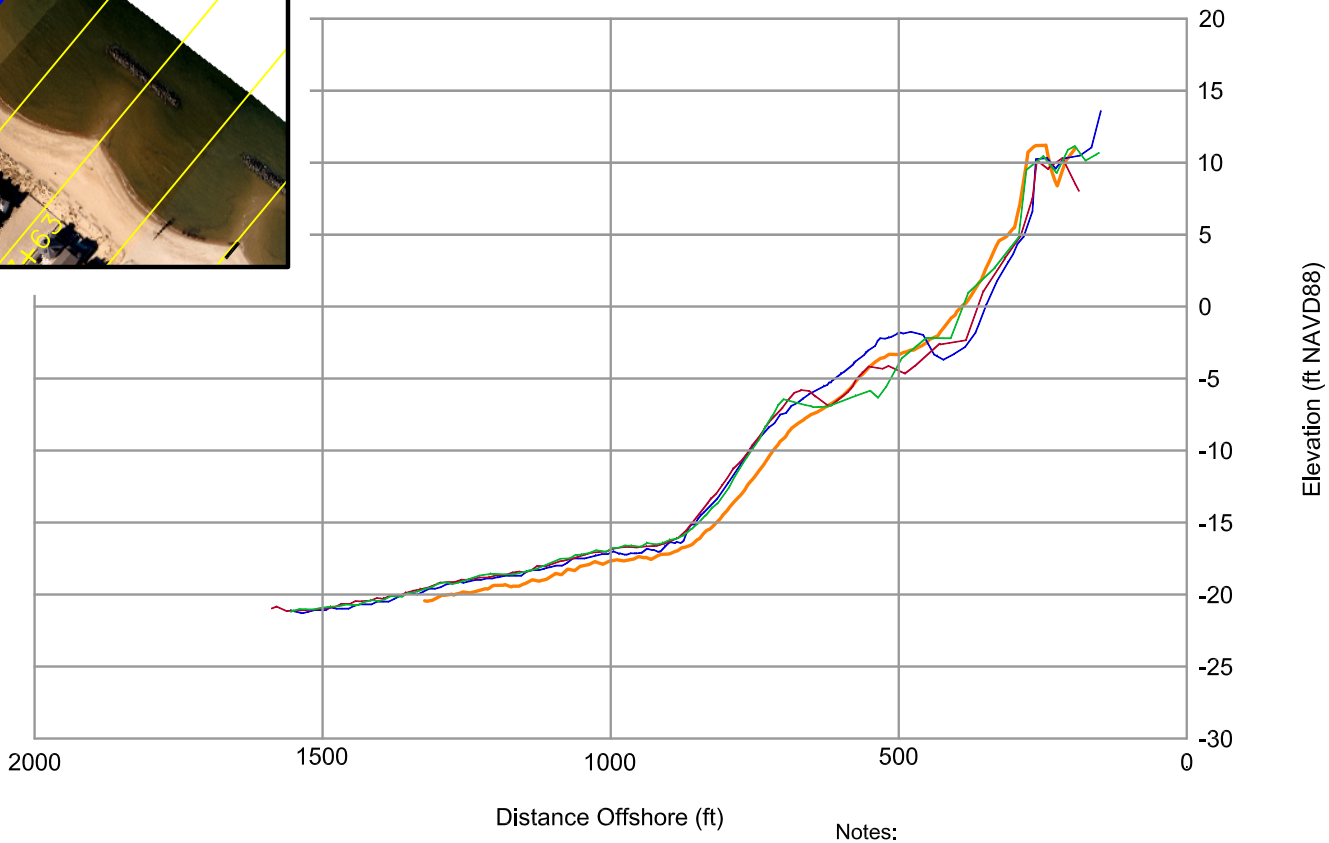
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





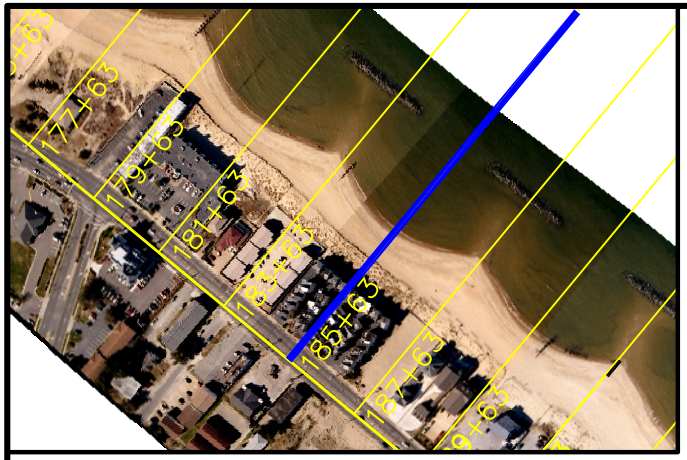
Survey Transect 183+63	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-23.30 ft/yr	-17.46 ft
Volume Change Over Extents of Overlapping Profiles	-9.07 cy/ft/yr	8.14 cy/ft
Volume Change Above -15 ft NAVD88	-5.46 cy/ft/yr	0.63 cy/ft
Volume Change Above 0 ft NAVD88	-3.30 cy/ft/yr	-1.25 cy/ft

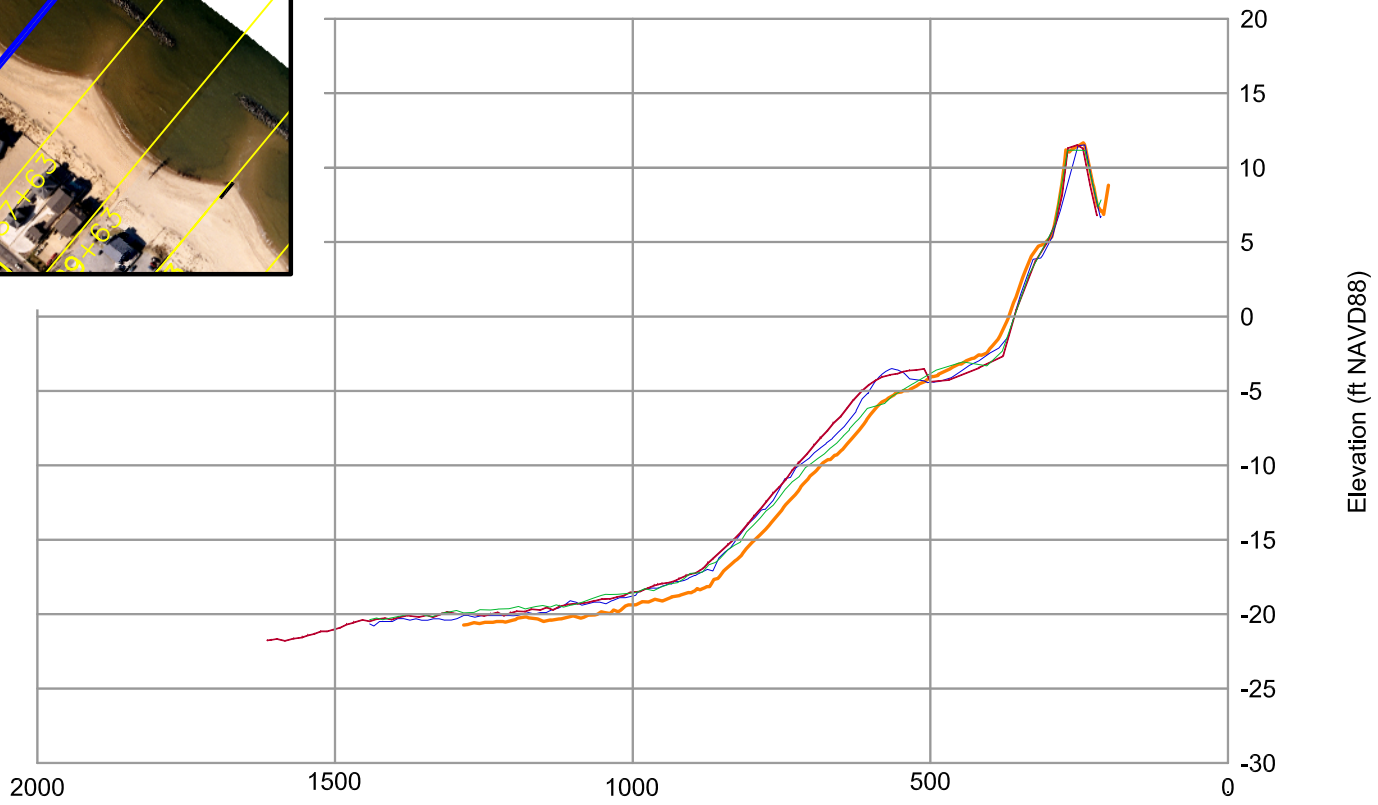
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





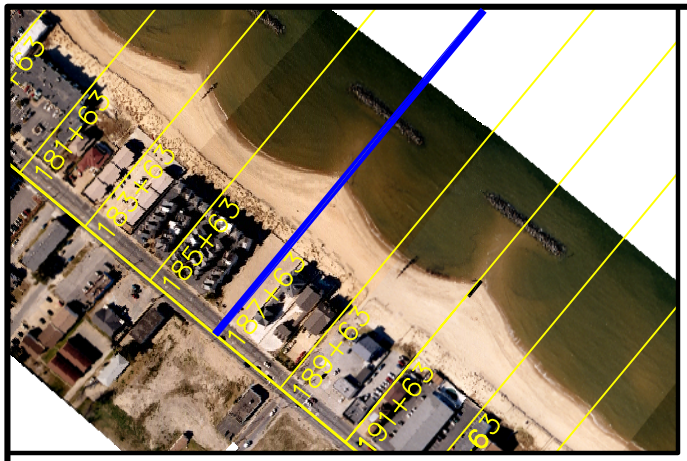
Survey Transect 185+63	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-3.83 ft/yr	-5.67 ft
Volume Change Over Extents of Overlapping Profiles	3.94 cy/ft/yr	3.17 cy/ft
Volume Change Above -15 ft NAVD88	6.13 cy/ft/yr	0.11 cy/ft
Volume Change Above 0 ft NAVD88	-2.05 cy/ft/yr	-1.64 cy/ft

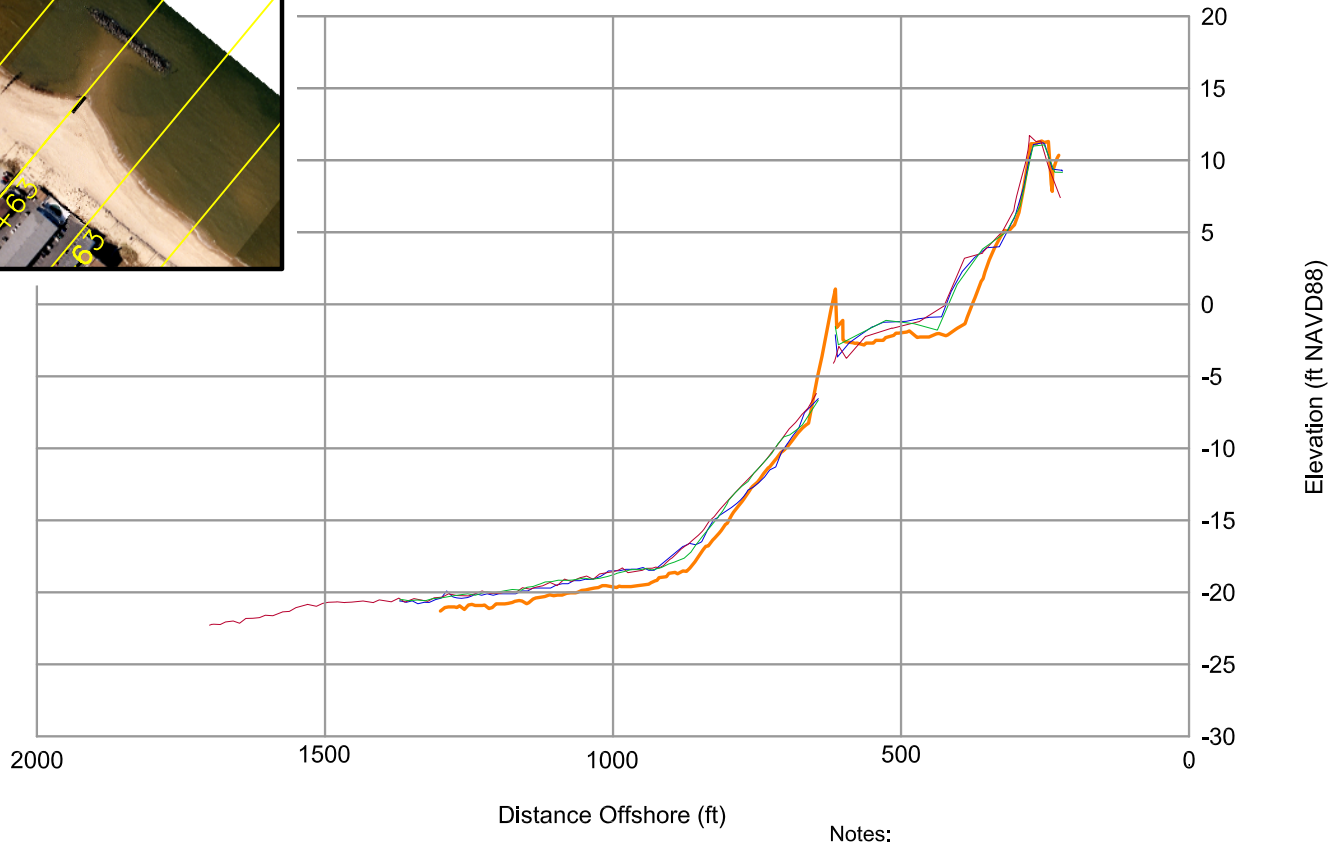
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





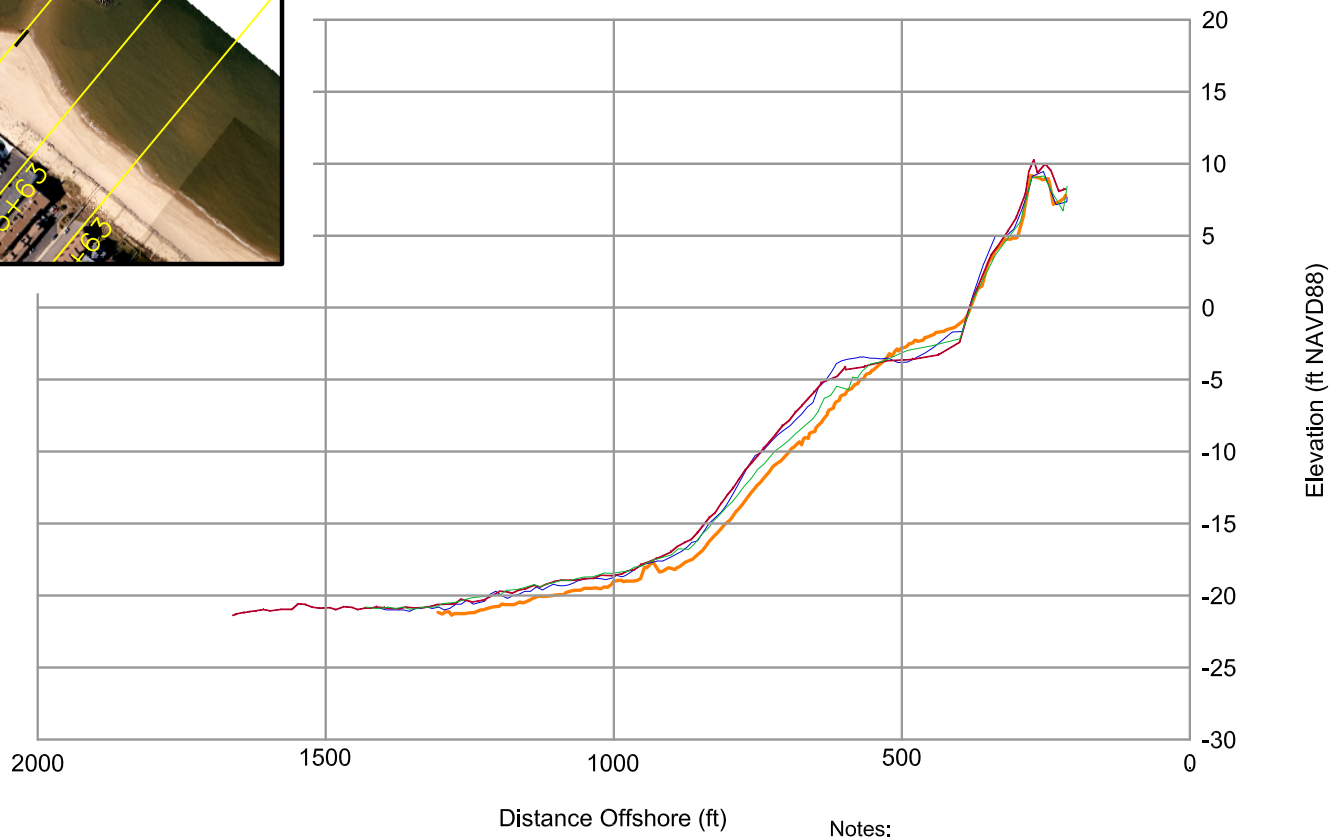
Survey Transect 187+63	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	4.29 ft/yr	-0.46 ft
Volume Change Over Extents of Overlapping Profiles	3.67 cy/ft/yr	4.17 cy/ft
Volume Change Above -15 ft NAVD88	2.50 cy/ft/yr	2.78 cy/ft
Volume Change Above 0 ft NAVD88	1.73 cy/ft/yr	0.48 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



Survey Transect 189+63	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-1.97 ft/yr	-6.25 ft
Volume Change Over Extents of Overlapping Profiles	8.71 cy/ft/yr	0.08 cy/ft
Volume Change Above -15 ft NAVD88	8.95 cy/ft/yr	-3.35 cy/ft
Volume Change Above 0 ft NAVD88	2.99 cy/ft/yr	2.39 cy/ft

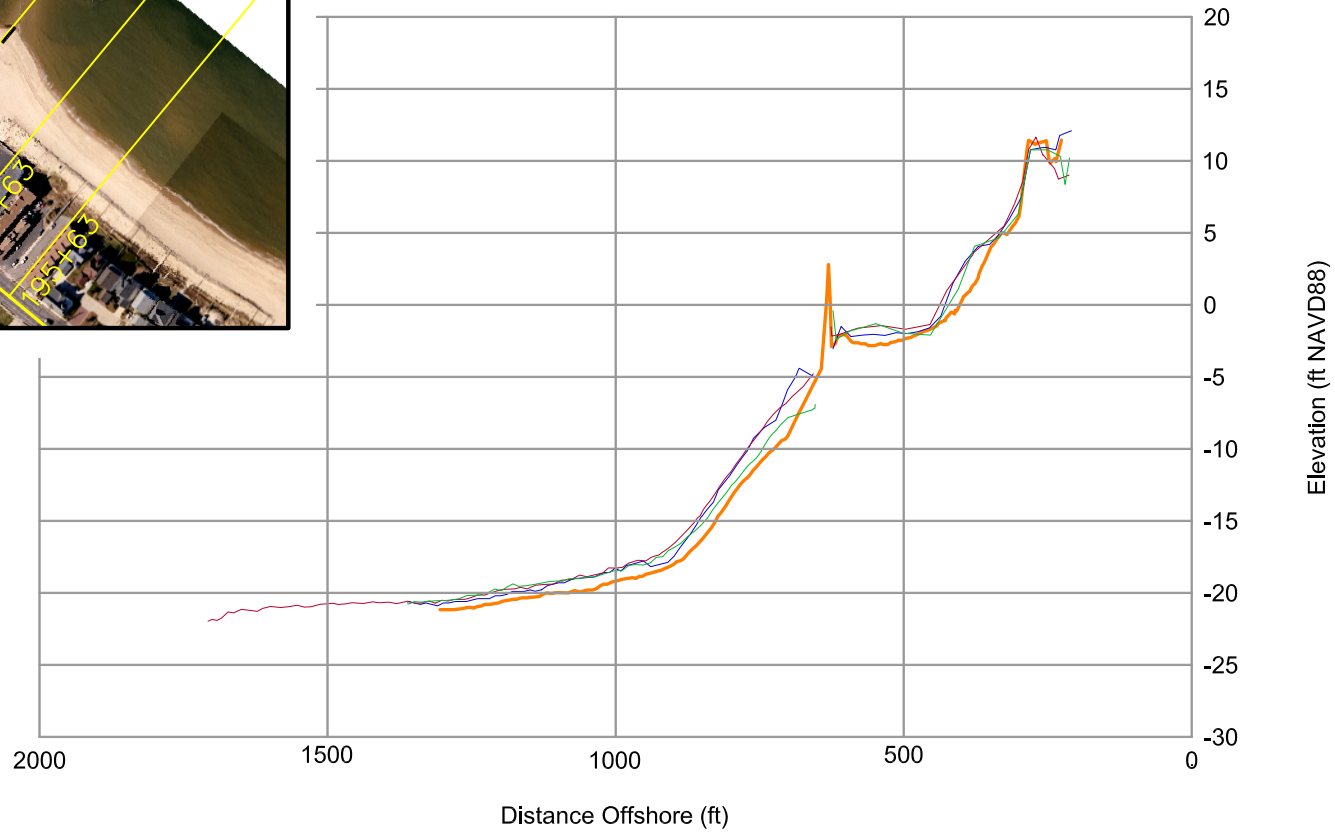
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS

ST 189+63 | **Pg 59 OF 106** | **SPRING 2007**



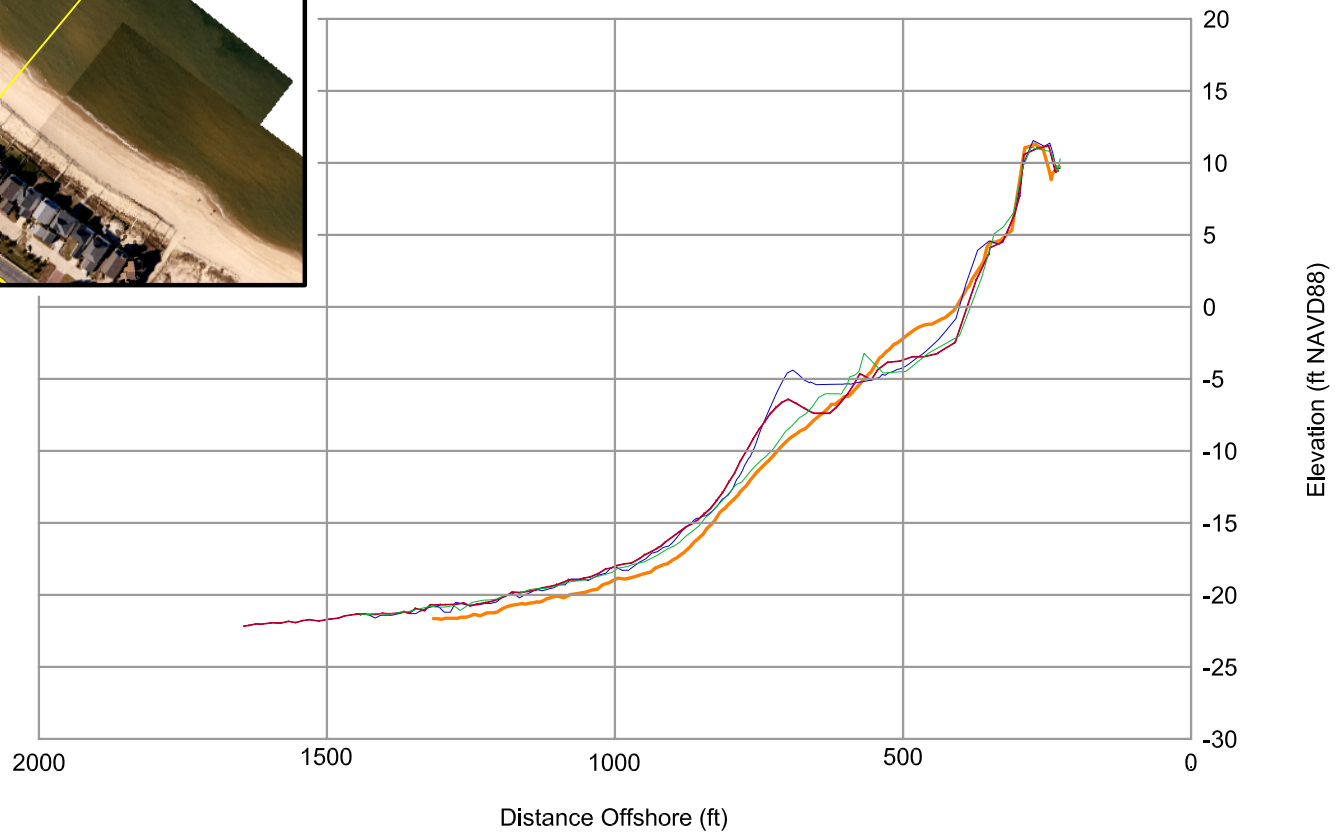
Survey Transect 191+63	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	15.67 ft/yr	3.35 ft
Volume Change Over Extents of Overlapping Profiles	1.95 cy/ft/yr	2.12 cy/ft
Volume Change Above -15 ft NAVD88	3.13 cy/ft/yr	-2.02 cy/ft
Volume Change Above 0 ft NAVD88	1.09 cy/ft/yr	3.72 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



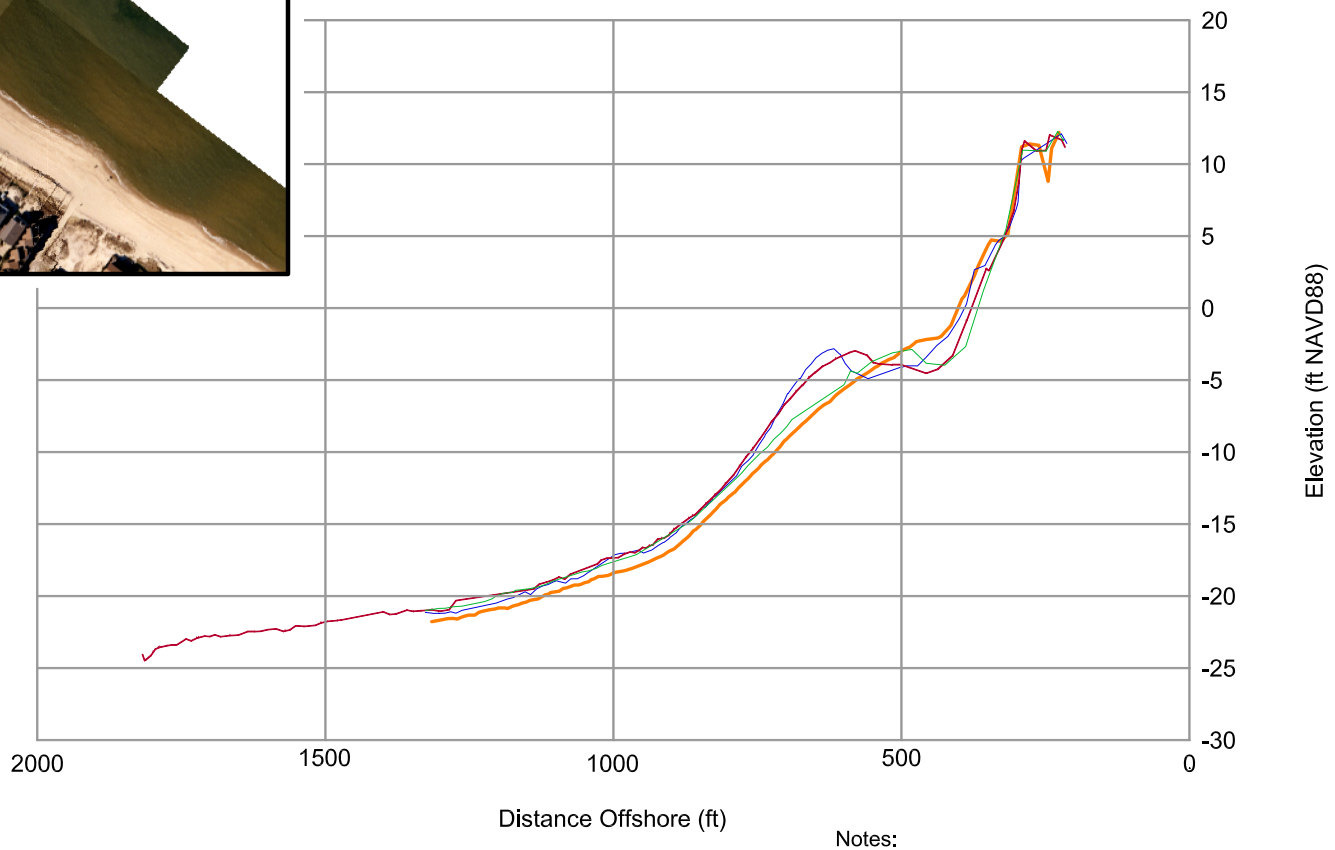
Survey Transect 193+63	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	3.20 ft/yr	-18.47 ft
Volume Change Over Extents of Overlapping Profiles	6.83 cy/ft/yr	-11.02 cy/ft
Volume Change Above -15 ft NAVD88	3.73 cy/ft/yr	-13.66 cy/ft
Volume Change Above 0 ft NAVD88	-1.75 cy/ft/yr	3.69 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



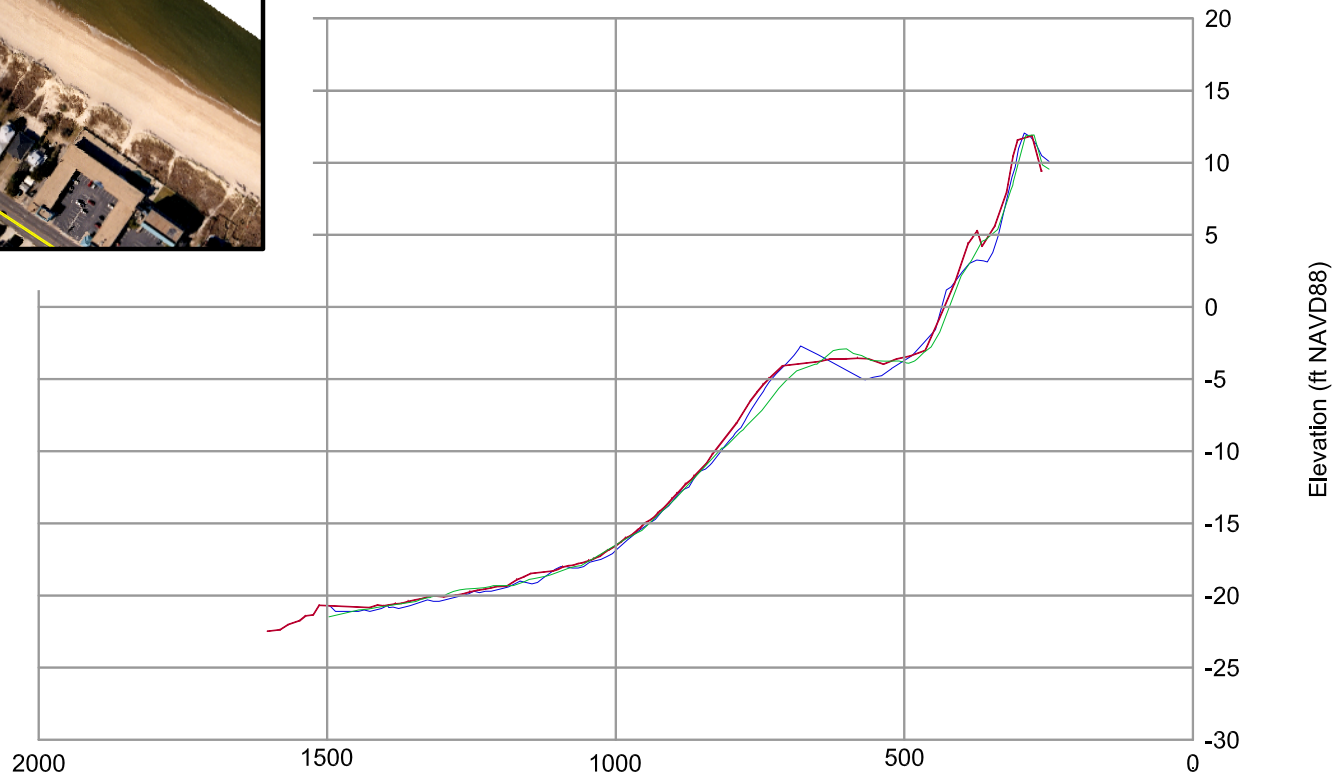
Survey Transect 195+63	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	6.47 ft/yr	-17.08 ft
Volume Change Over Extents of Overlapping Profiles	10.78 cy/ft/yr	-3.68 cy/ft
Volume Change Above -15 ft NAVD88	9.11 cy/ft/yr	-8.22 cy/ft
Volume Change Above 0 ft NAVD88	-0.15 cy/ft/yr	3.39 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



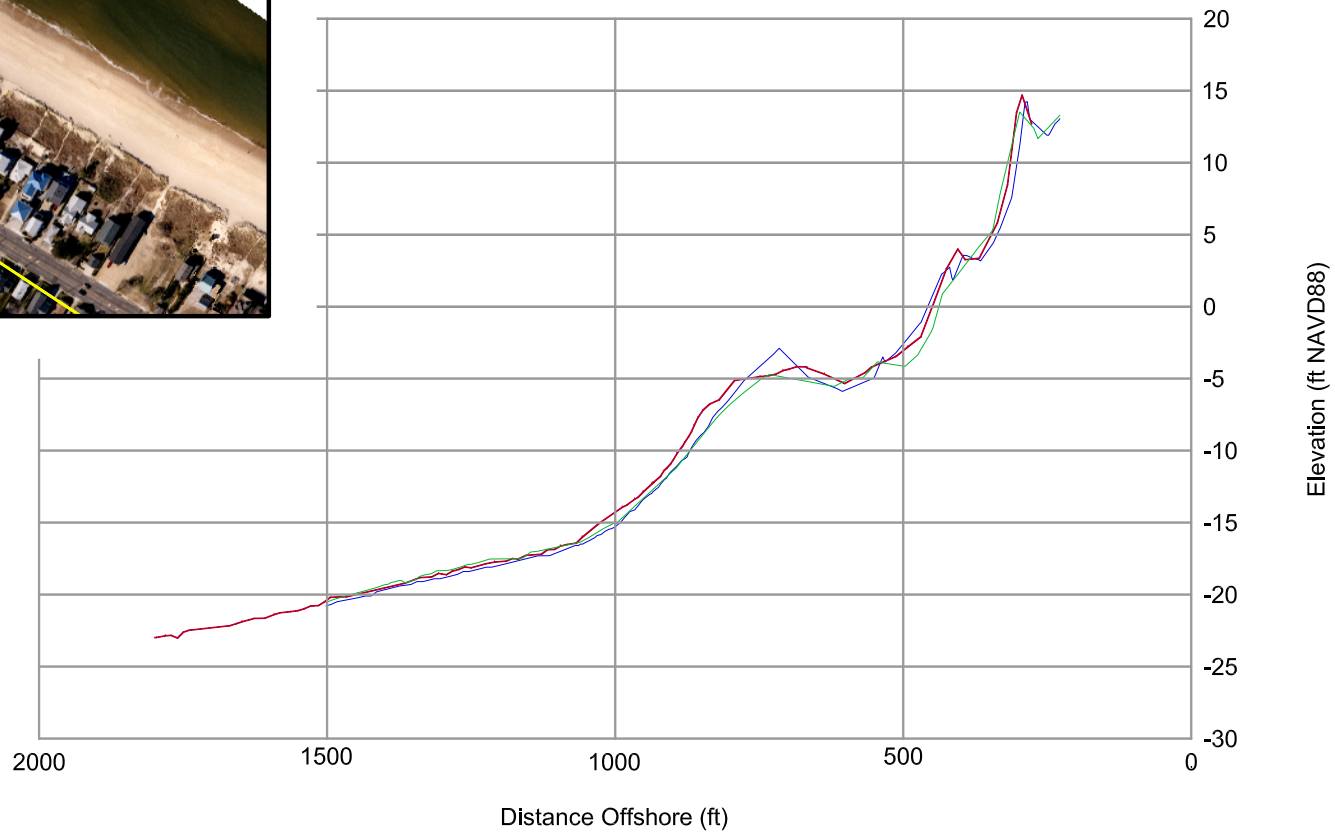
Survey Transect 206+86	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	4.12 ft/yr	-11.75 ft
Volume Change Over Extents of Overlapping Profiles	10.19 cy/ft/yr	10.80 cy/ft
Volume Change Above -15 ft NAVD88	7.83 cy/ft/yr	5.68 cy/ft
Volume Change Above 0 ft NAVD88	3.06 cy/ft/yr	0.41 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



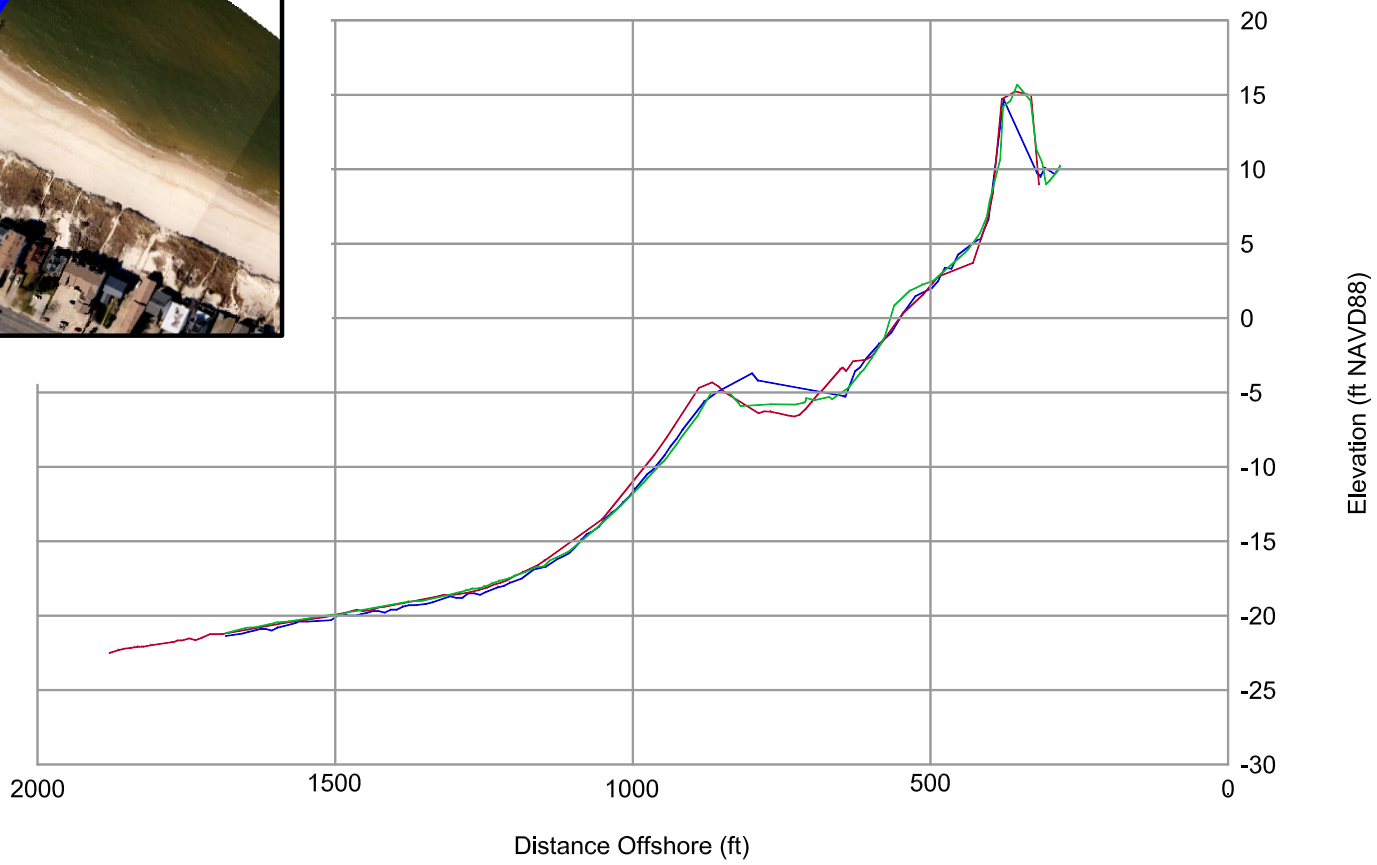
Survey Transect 218+66	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	7.37 ft/yr	-9.59 ft
Volume Change Over Extents of Overlapping Profiles	10.85 cy/ft/yr	11.67 cy/ft
Volume Change Above -15 ft NAVD88	12.59 cy/ft/yr	6.90 cy/ft
Volume Change Above 0 ft NAVD88	0.71 cy/ft/yr	-2.42 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



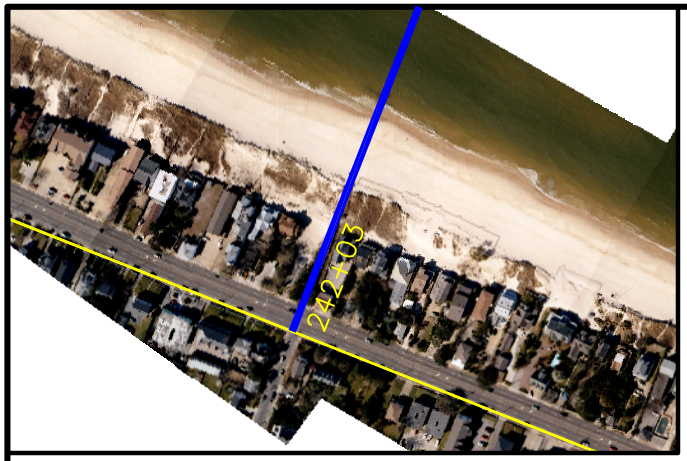
Survey Transect 229+85	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-38.67 ft/yr	-15.54 ft
Volume Change Over Extents of Overlapping Profiles	0.25 cy/ft/yr	3.32 cy/ft
Volume Change Above -15 ft NAVD88	1.08 cy/ft/yr	-1.58 cy/ft
Volume Change Above 0 ft NAVD88	-4.65 cy/ft/yr	-5.90 cy/ft

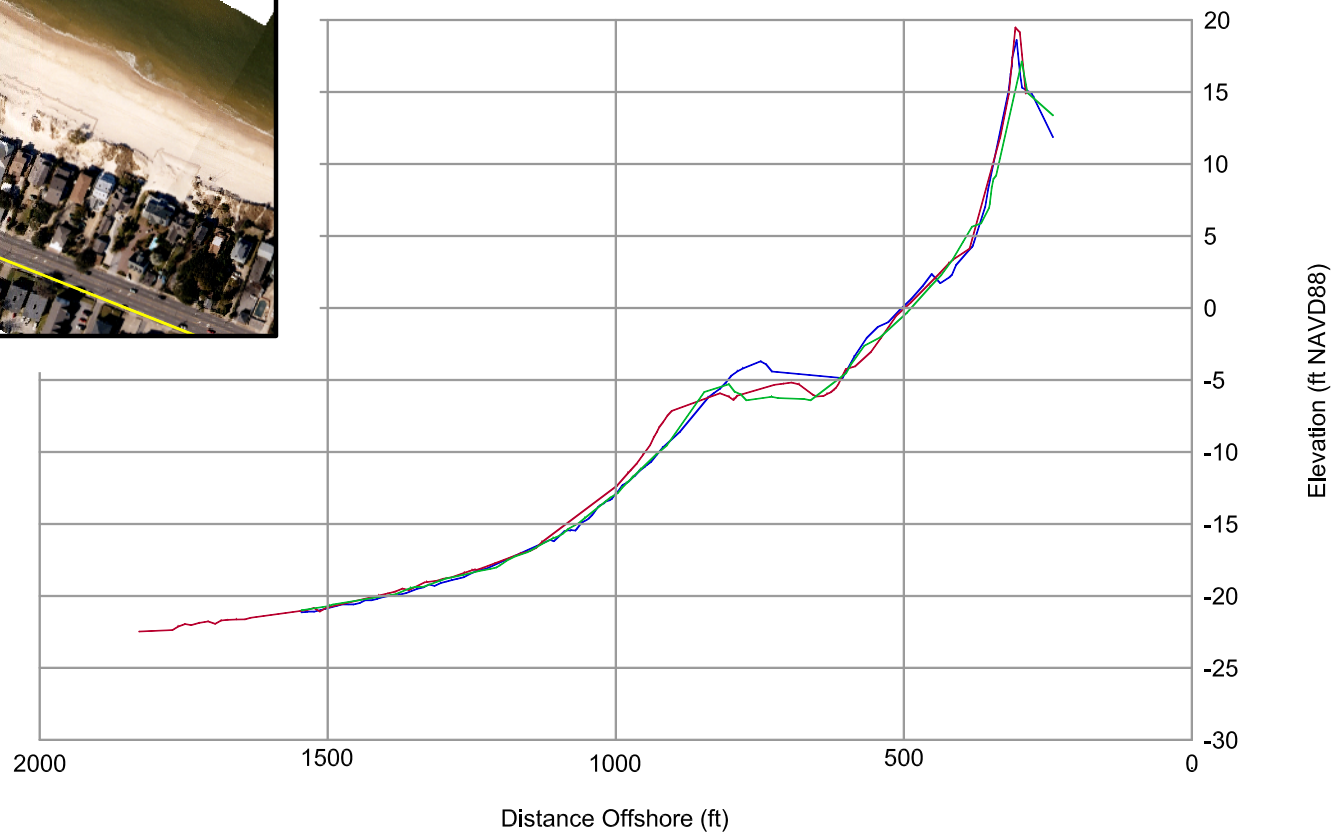
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





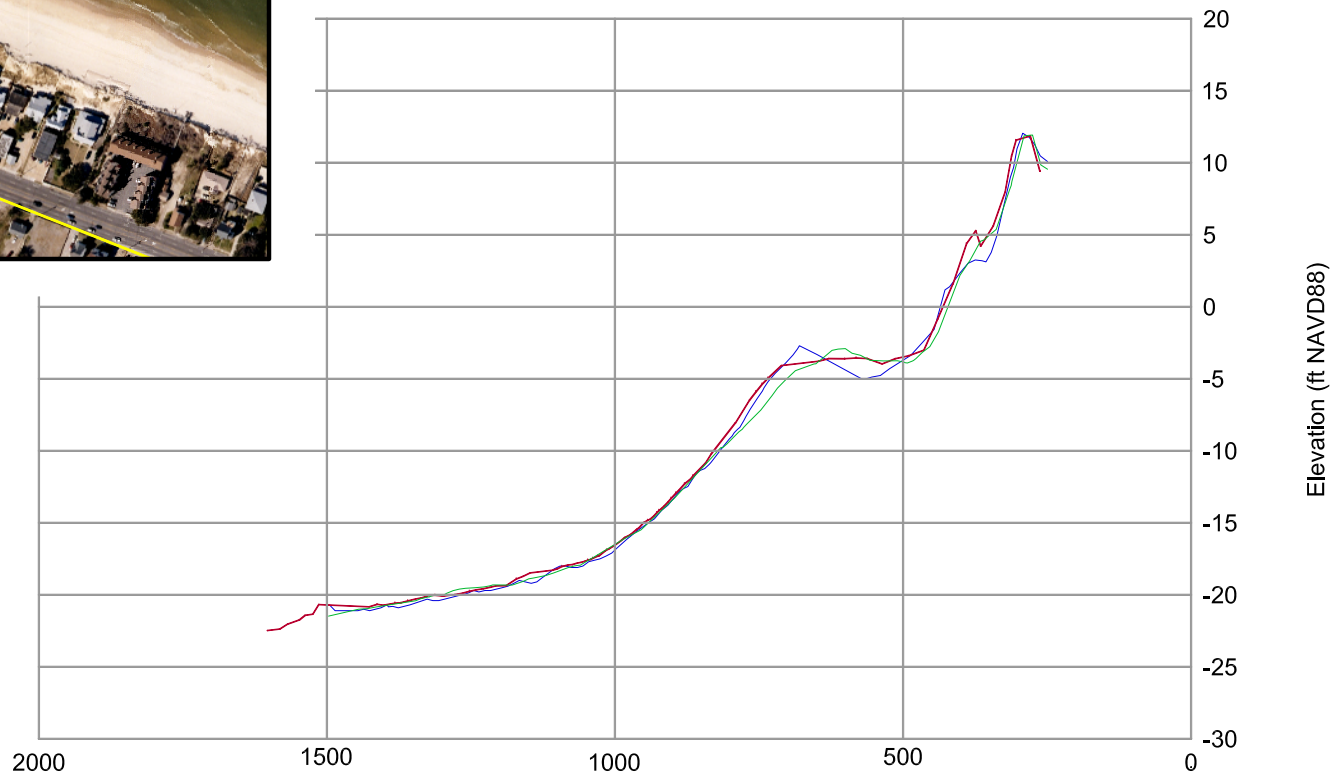
Survey Transect 242+03	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	8.52 ft/yr	-5.40 ft
Volume Change Over Extents of Overlapping Profiles	2.30 cy/ft/yr	-10.96 cy/ft
Volume Change Above -15 ft NAVD88	0.27 cy/ft/yr	-14.46 cy/ft
Volume Change Above 0 ft NAVD88	-3.49 cy/ft/yr	2.07 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



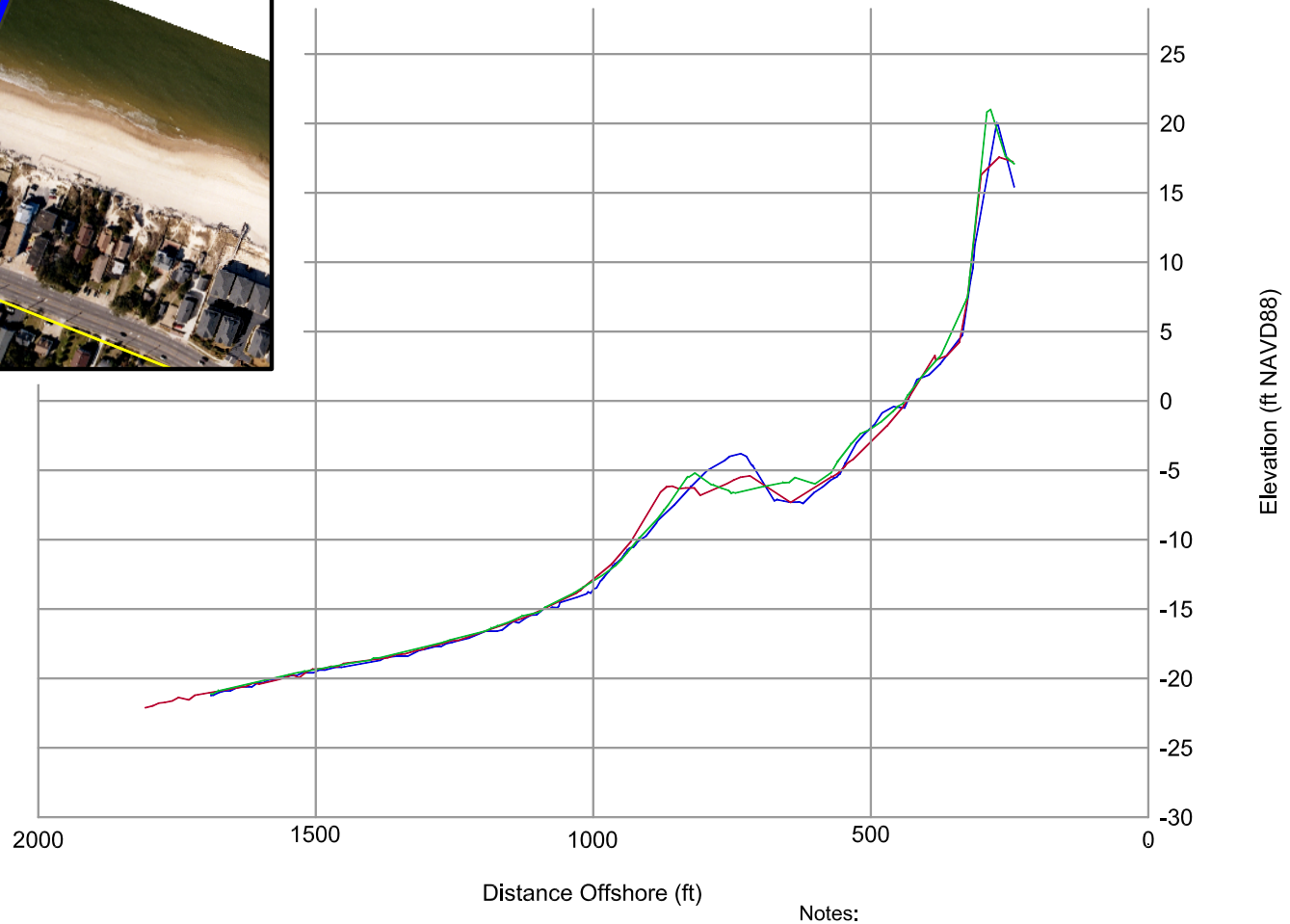
Survey Transect 252+62	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-17.71 ft/yr	-16.94 ft
Volume Change Over Extents of Overlapping Profiles	-18.29 cy/ft/yr	-6.97 cy/ft
Volume Change Above -15 ft NAVD88	-15.63 cy/ft/yr	-8.76 cy/ft
Volume Change Above 0 ft NAVD88	-9.71 cy/ft/yr	-12.02 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



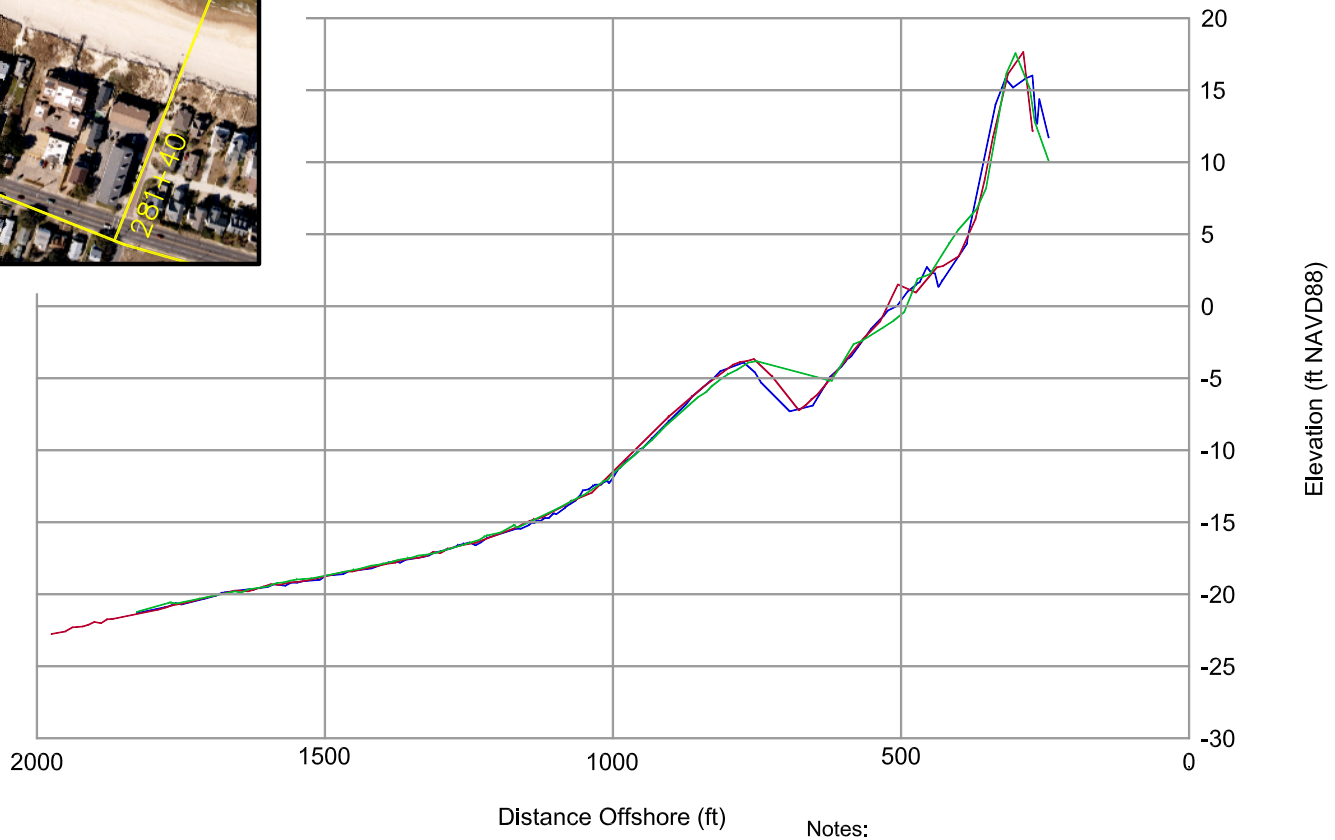
Survey Transect 263+22	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-4.69 ft/yr	-4.95 ft
Volume Change Over Extents of Overlapping Profiles	-13.78 cy/ft/yr	-0.30 cy/ft
Volume Change Above -15 ft NAVD88	-11.56 cy/ft/yr	3.69 cy/ft
Volume Change Above 0 ft NAVD88	-7.30 cy/ft/yr	-7.51 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



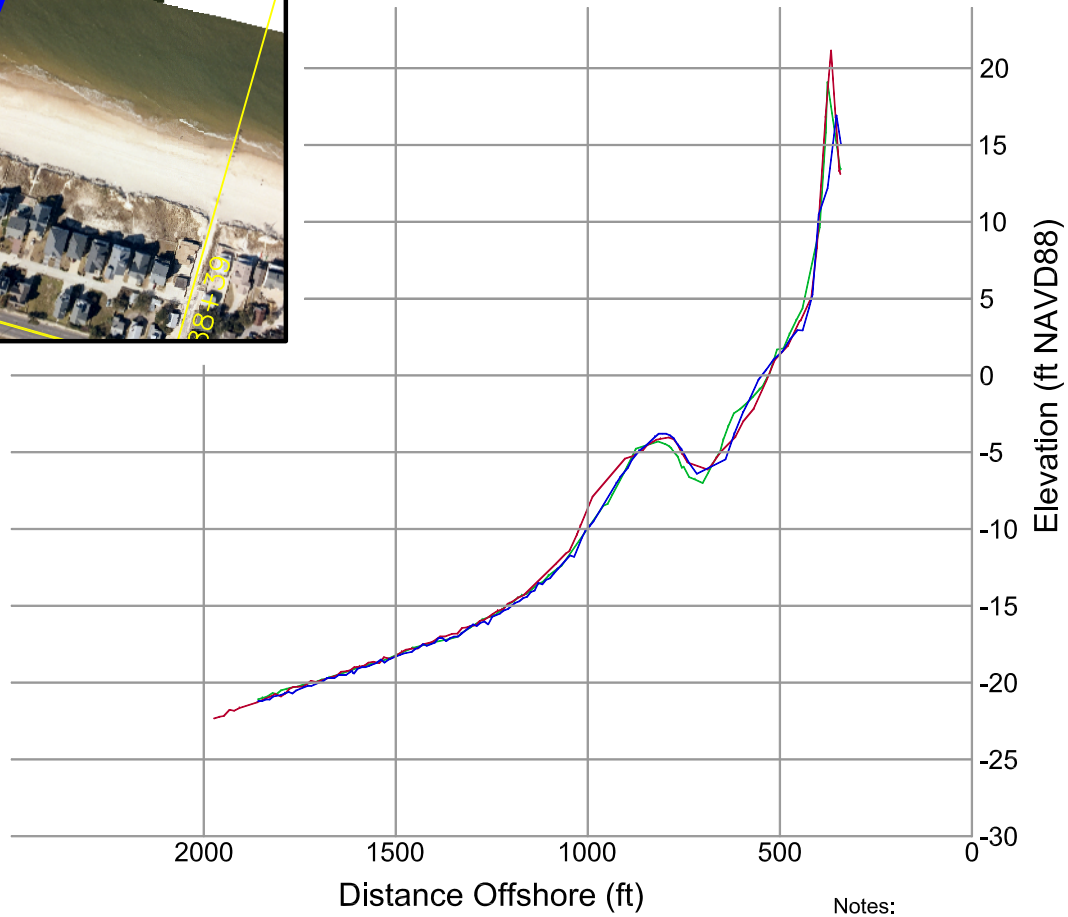
Survey Transect 274+53	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	29.53 ft/yr	20.79 ft
Volume Change Over Extents of Overlapping Profiles	-7.96 cy/ft/yr	2.18 cy/ft
Volume Change Above -15 ft NAVD88	-5.38 cy/ft/yr	2.29 cy/ft
Volume Change Above 0 ft NAVD88	-2.51 cy/ft/yr	0.87 cy/ft

LEGEND:
MARCH 2006
OCTOBER 2006
MARCH 2007

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



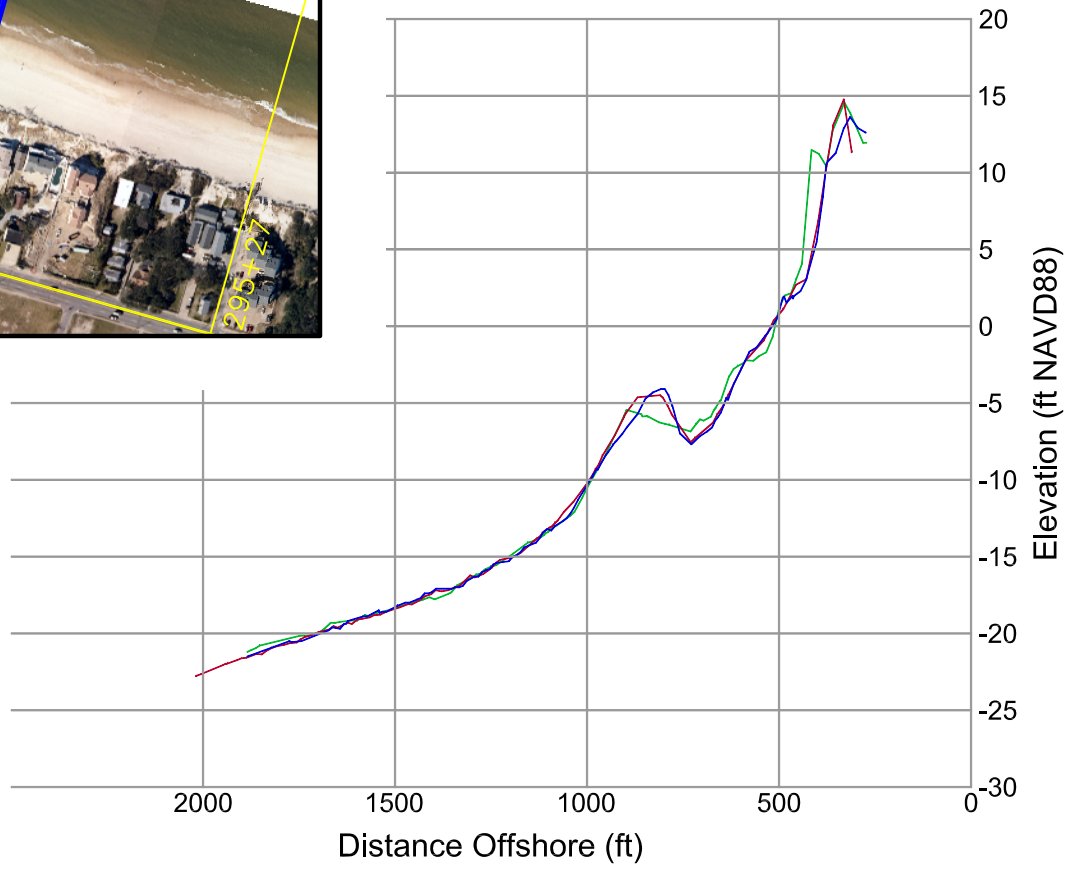
Survey Transect 281+40	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-4.71 ft/yr	-6.59 ft
Volume Change Over Extents of Overlapping Profiles	4.37 cy/ft/yr	12.66 cy/ft
Volume Change Above -15 ft NAVD88	3.45 cy/ft/yr	8.85 cy/ft
Volume Change Above 0 ft NAVD88	-1.19 cy/ft/yr	-5.84 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



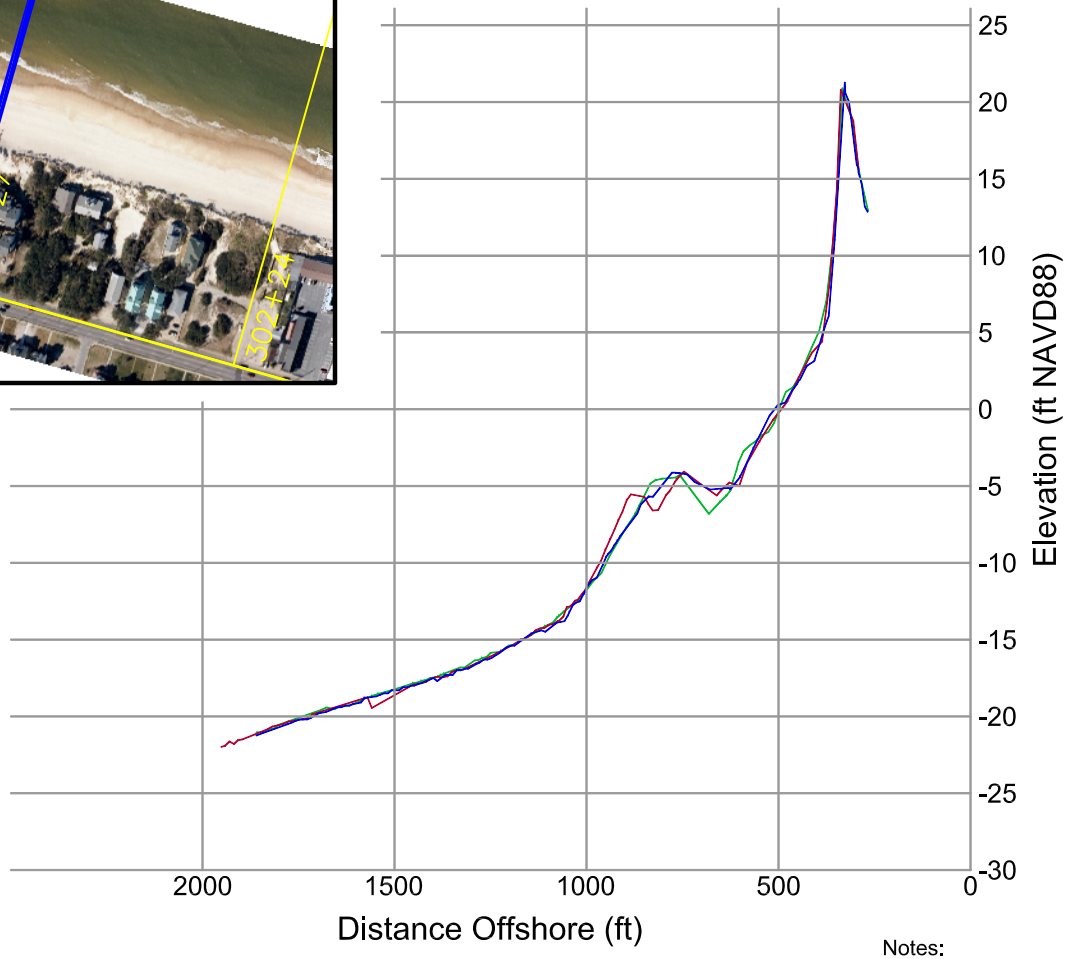
Survey Transect 288+39	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-4.30 ft/yr	-2.39 ft
Volume Change Over Extents of Overlapping Profiles	-12.26 cy/ft/yr	2.91 cy/ft
Volume Change Above -15 ft NAVD88	-9.31 cy/ft/yr	4.28 cy/ft
Volume Change Above 0 ft NAVD88	-11.63 cy/ft/yr	-14.02 cy/ft

LEGEND:
MARCH 2006
OCTOBER 2006
MARCH 2007

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



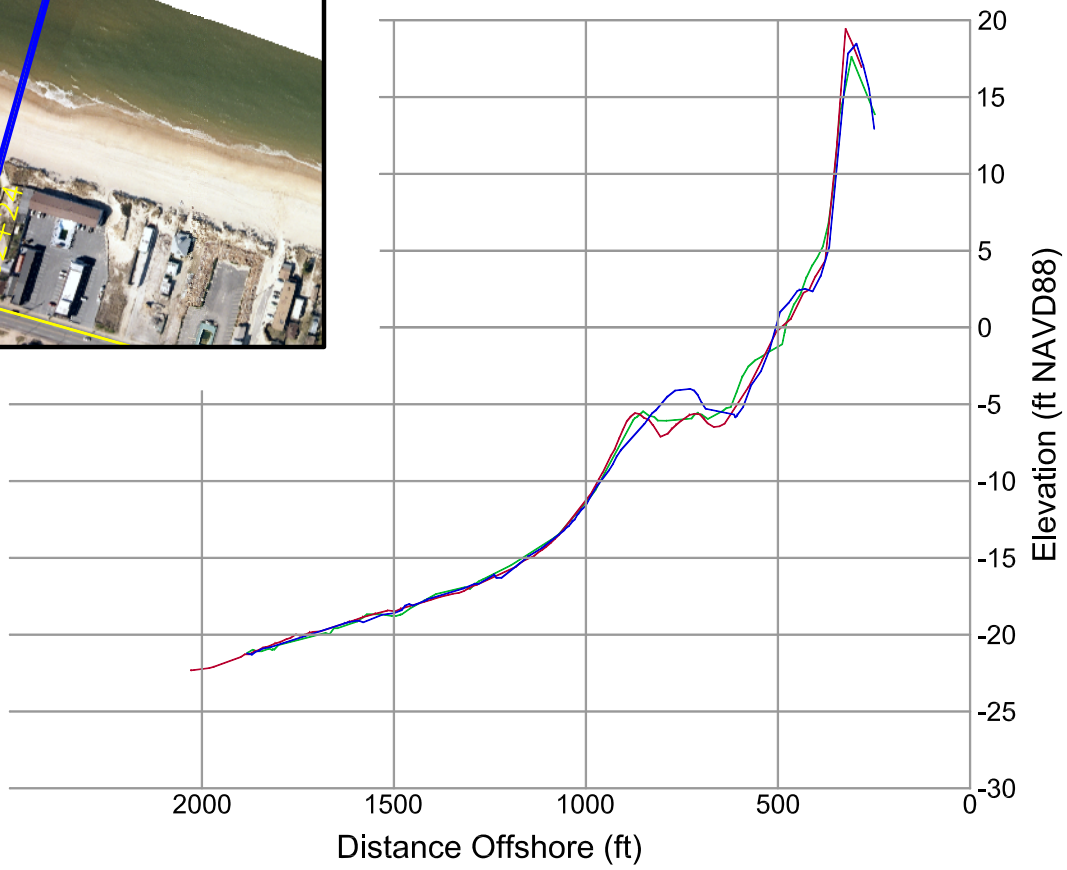
Survey Transect 295+27	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-16.77 ft/yr	-4.20 ft
Volume Change Over Extents of Overlapping Profiles	-3.04 cy/ft/yr	3.50 cy/ft
Volume Change Above -15 ft NAVD88	0.05 cy/ft/yr	3.24 cy/ft
Volume Change Above 0 ft NAVD88	-2.52 cy/ft/yr	-5.30 cy/ft

LEGEND:
MARCH 2006
OCTOBER 2006
MARCH 2007

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



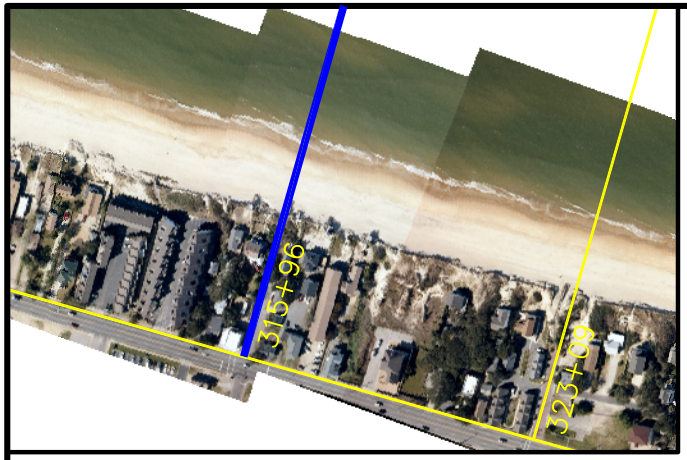
Survey Transect 302+24	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-9.94 ft/yr	-37.97 ft
Volume Change Over Extents of Overlapping Profiles	-6.86 cy/ft/yr	-2.72 cy/ft
Volume Change Above -15 ft NAVD88	-3.66 cy/ft/yr	-3.24 cy/ft
Volume Change Above 0 ft NAVD88	-2.94 cy/ft/yr	-2.45 cy/ft

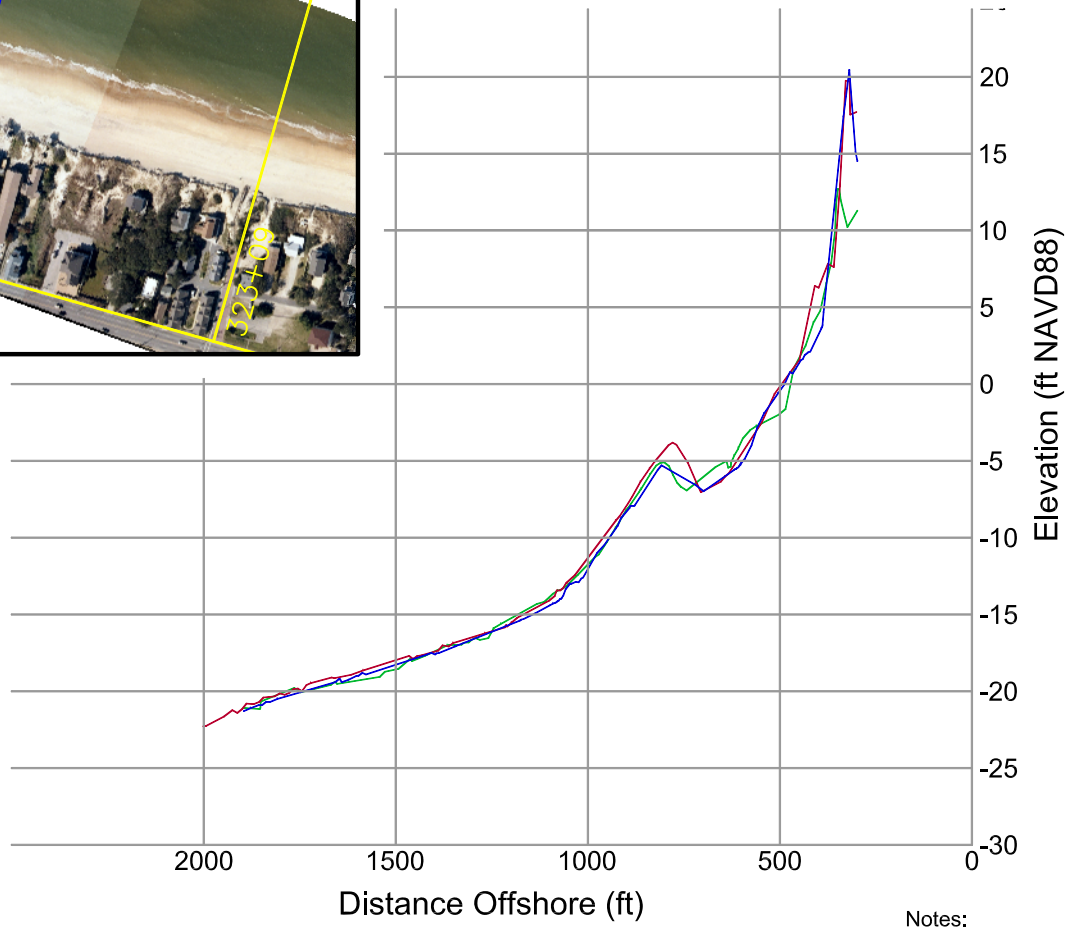
LEGEND:
MARCH 2006
OCTOBER 2006
MARCH 2007

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





Survey Transect 315+96	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	0.87 ft/yr	5.98 ft
Volume Change Over Extents of Overlapping Profiles	23.62 cy/ft/yr	19.09 cy/ft
Volume Change Above -15 ft NAVD88	18.61 cy/ft/yr	13.85 cy/ft
Volume Change Above 0 ft NAVD88	14.16 cy/ft/yr	10.96 cy/ft

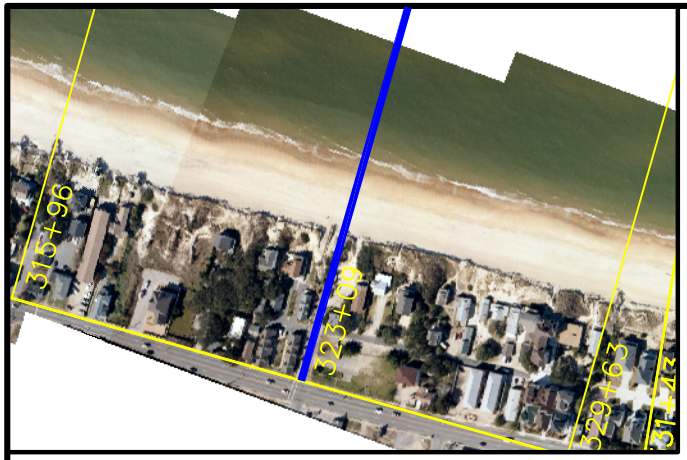
LEGEND:
MARCH 2006
OCTOBER 2006
MARCH 2007

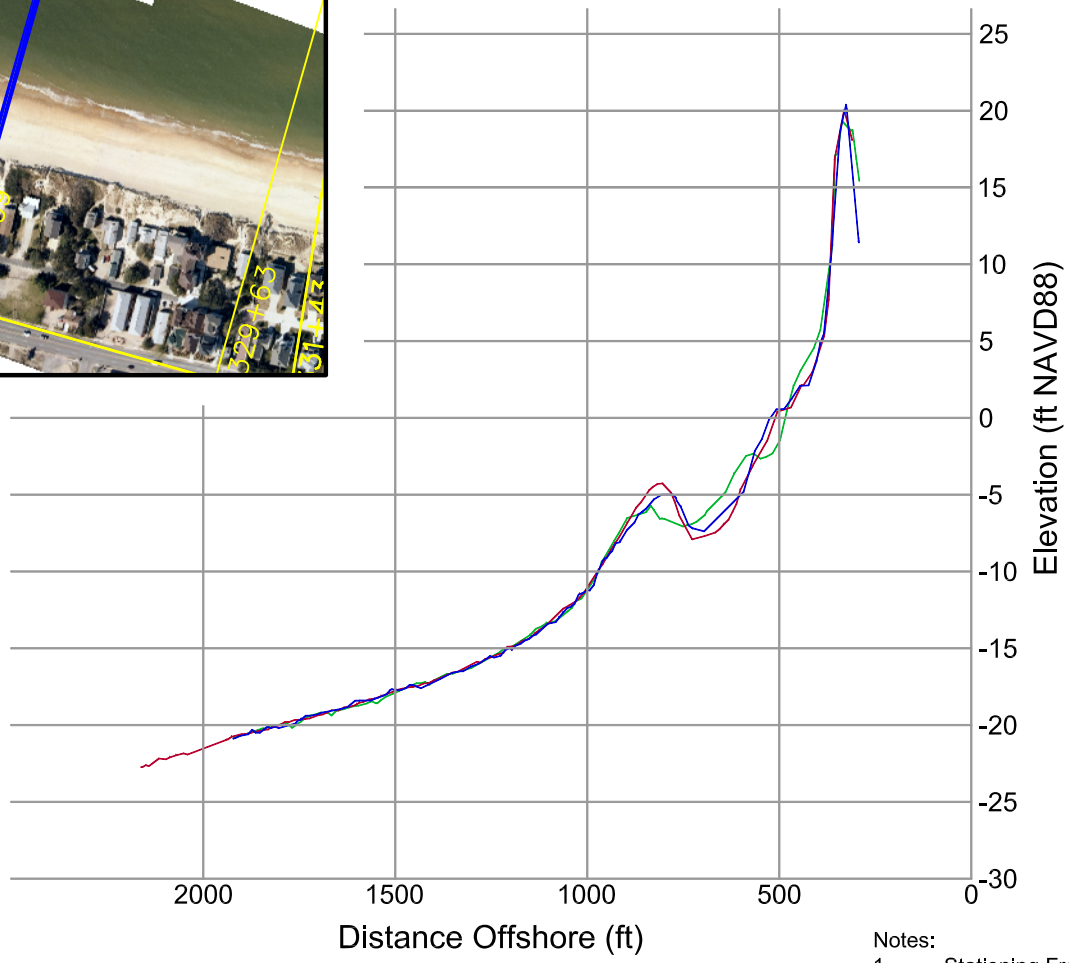
Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS

ST 315+96 | Pg 74 OF 106 | SPRING 2007





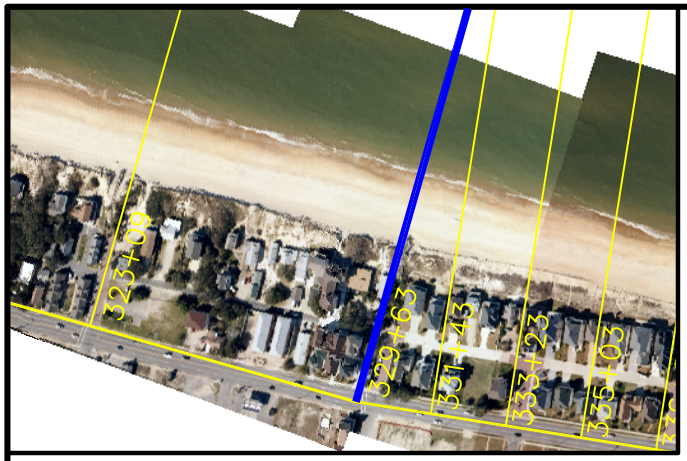
Survey Transect 323+09	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-12.24 ft/yr	-13.22 ft
Volume Change Over Extents of Overlapping Profiles	-5.99 cy/ft/yr	-1.38 cy/ft
Volume Change Above -15 ft NAVD88	-6.91 cy/ft/yr	-1.91 cy/ft
Volume Change Above 0 ft NAVD88	-2.92 cy/ft/yr	-4.64 cy/ft

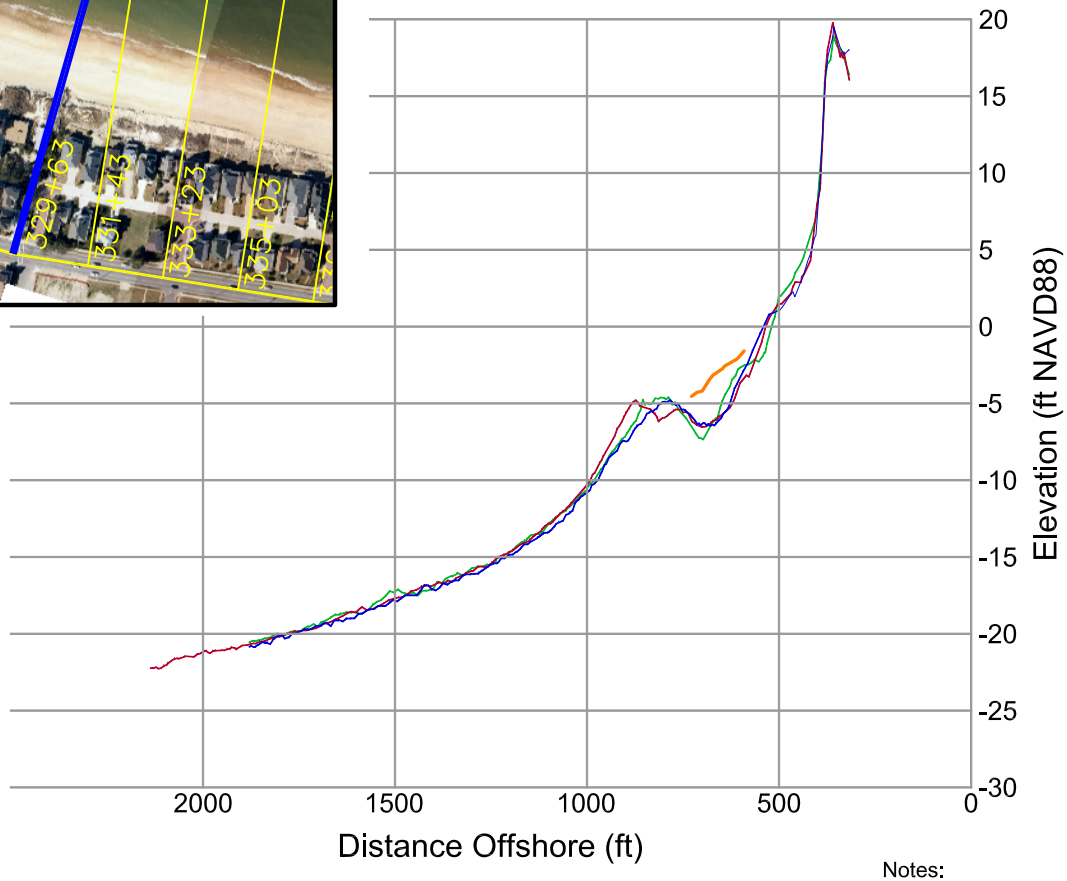
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





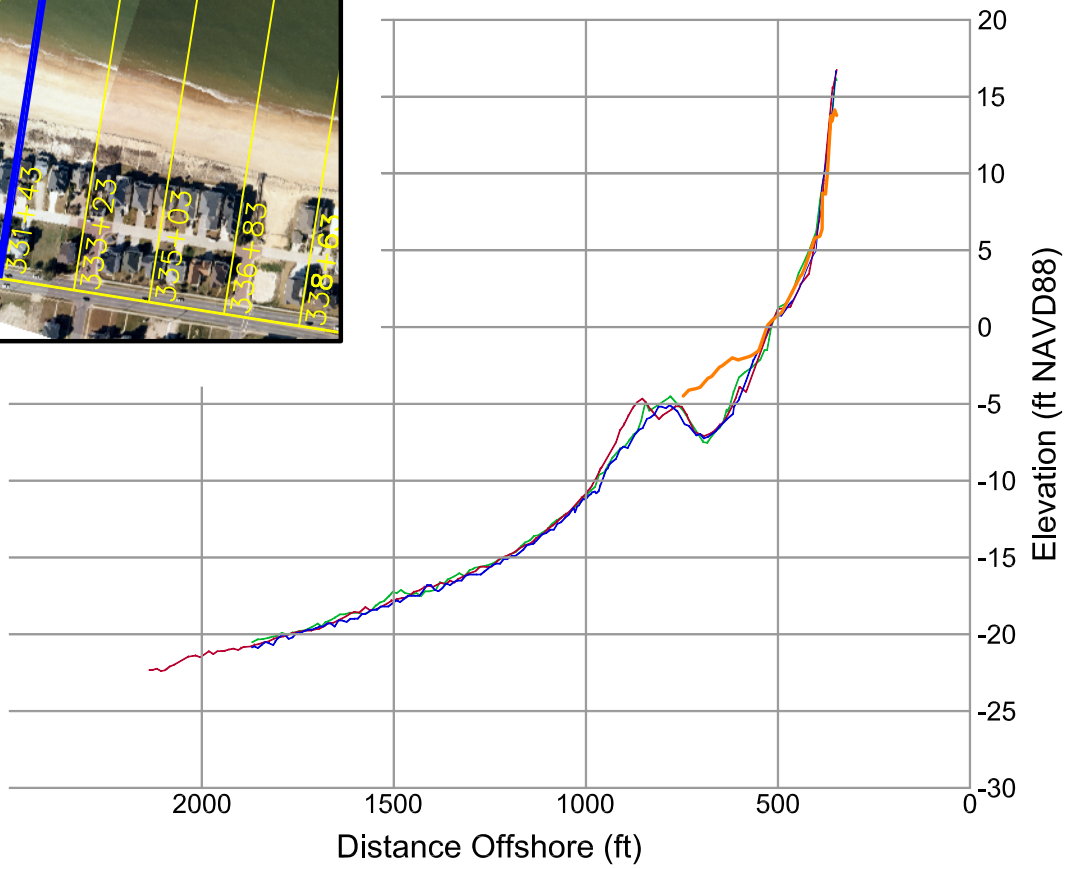
Survey Transect 329+63	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	5.52 ft/yr	6.95 ft
Volume Change Over Extents of Overlapping Profiles	-5.00 cy/ft/yr	7.05 cy/ft
Volume Change Above -15 ft NAVD88	-2.62 cy/ft/yr	3.00 cy/ft
Volume Change Above 0 ft NAVD88	-2.32 cy/ft/yr	-1.63 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



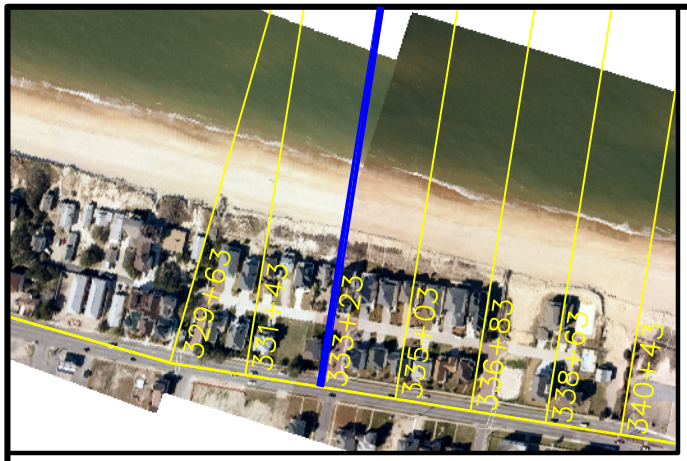
Survey Transect 331+43	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-1.36 ft/yr	17.45 ft
Volume Change Over Extents of Overlapping Profiles	-5.20 cy/ft/yr	10.56 cy/ft
Volume Change Above -15 ft NAVD88	-0.01 cy/ft/yr	6.80 cy/ft
Volume Change Above 0 ft NAVD88	-3.35 cy/ft/yr	-2.94 cy/ft

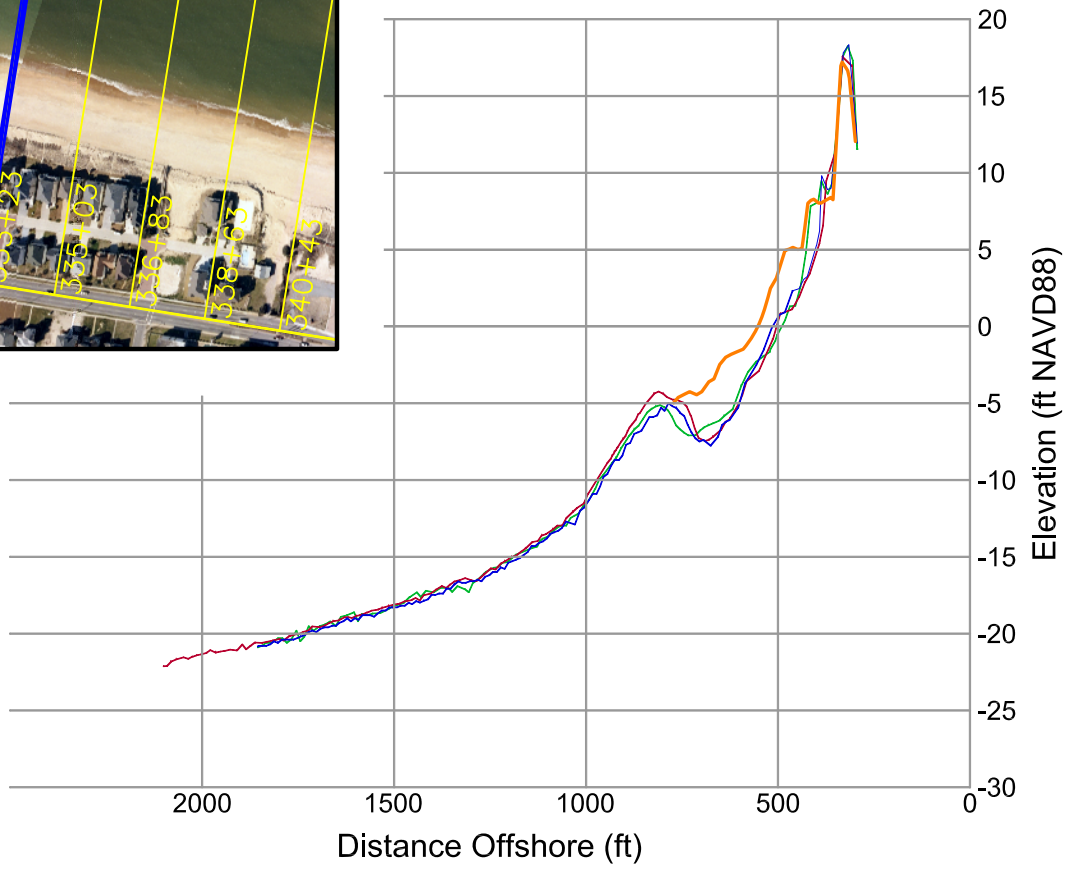
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





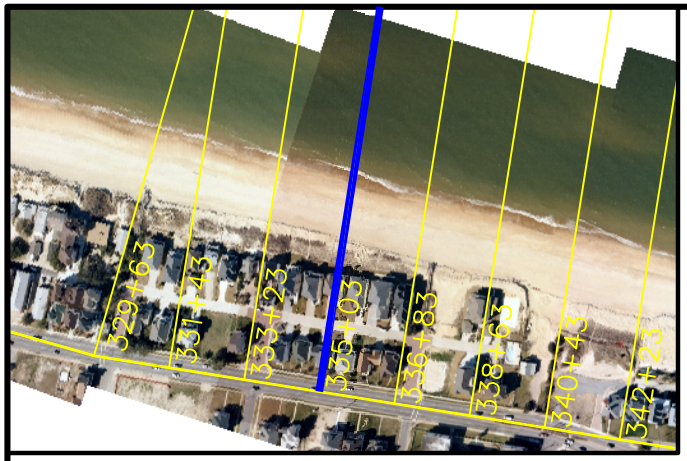
Survey Transect 333+23	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	1.69 ft/yr	-6.11 ft
Volume Change Over Extents of Overlapping Profiles	-0.52 cy/ft/yr	10.18 cy/ft
Volume Change Above -15 ft NAVD88	-10.70 cy/ft/yr	-2.56 cy/ft
Volume Change Above 0 ft NAVD88	-6.35 cy/ft/yr	-2.70 cy/ft

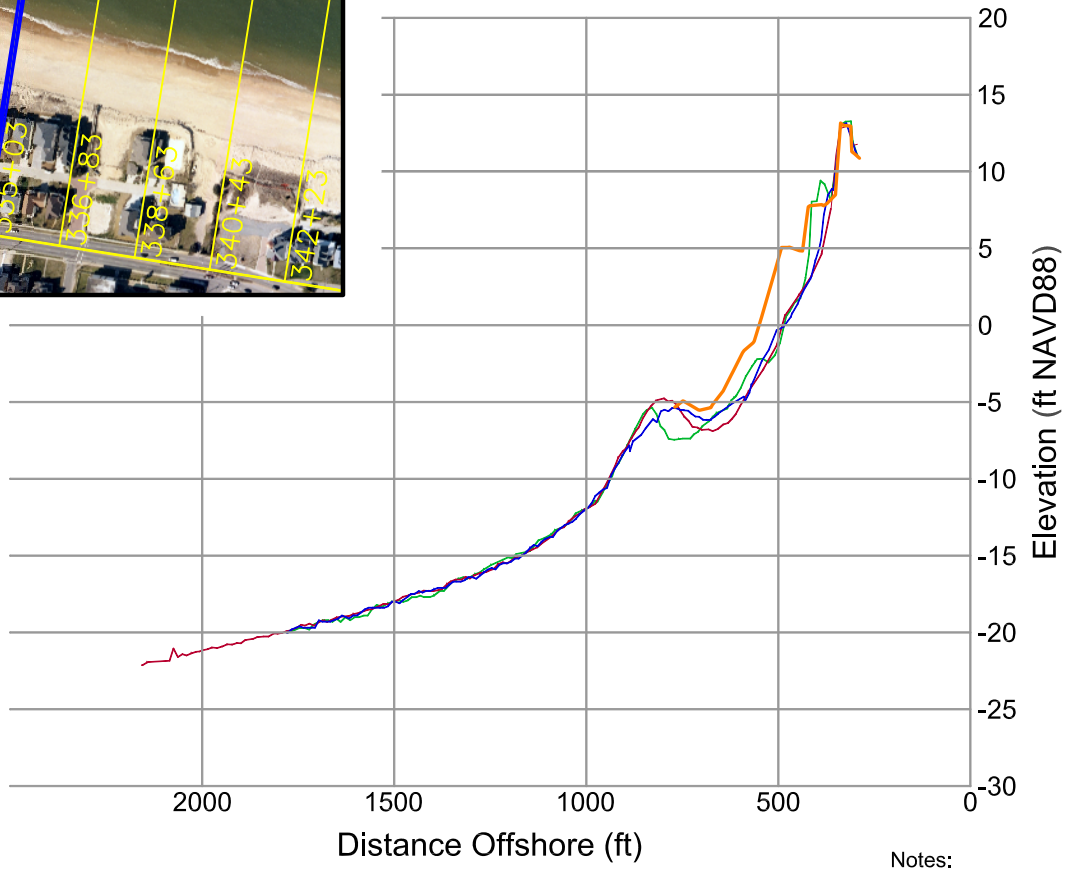
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





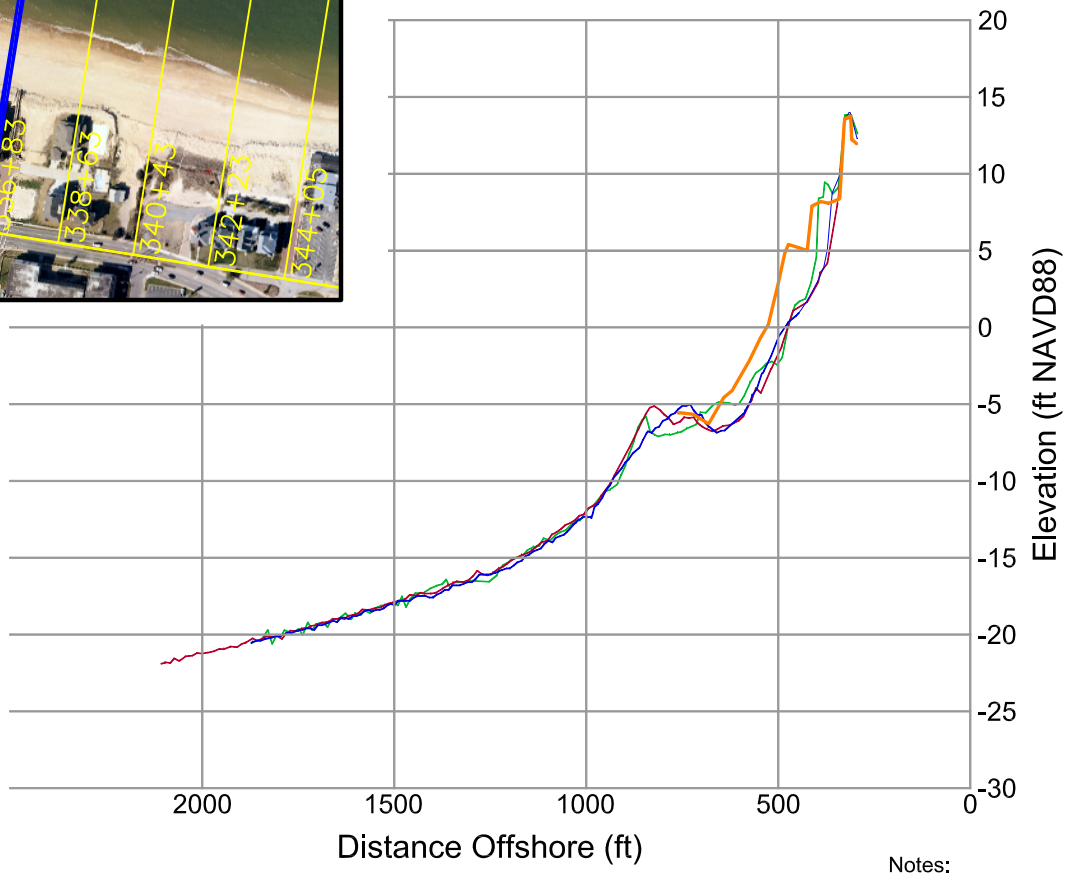
Survey Transect 335+03	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	3.43 ft/yr	12.95 ft
Volume Change Over Extents of Overlapping Profiles	-7.79 cy/ft/yr	-3.84 cy/ft
Volume Change Above -15 ft NAVD88	0.07 cy/ft/yr	7.26 cy/ft
Volume Change Above 0 ft NAVD88	-8.46 cy/ft/yr	-7.15 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



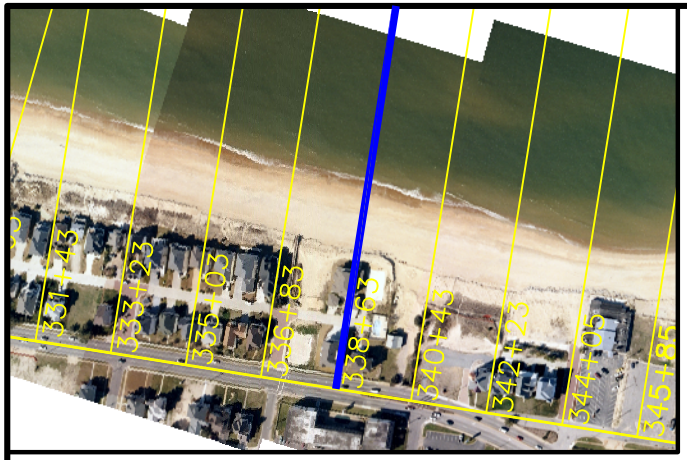
Survey Transect 336+83	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-0.82 ft/yr	16.18 ft
Volume Change Over Extents of Overlapping Profiles	-12.53 cy/ft/yr	1.15 cy/ft
Volume Change Above -15 ft NAVD88	-6.04 cy/ft/yr	-4.39 cy/ft
Volume Change Above 0 ft NAVD88	-10.85 cy/ft/yr	-7.40 cy/ft

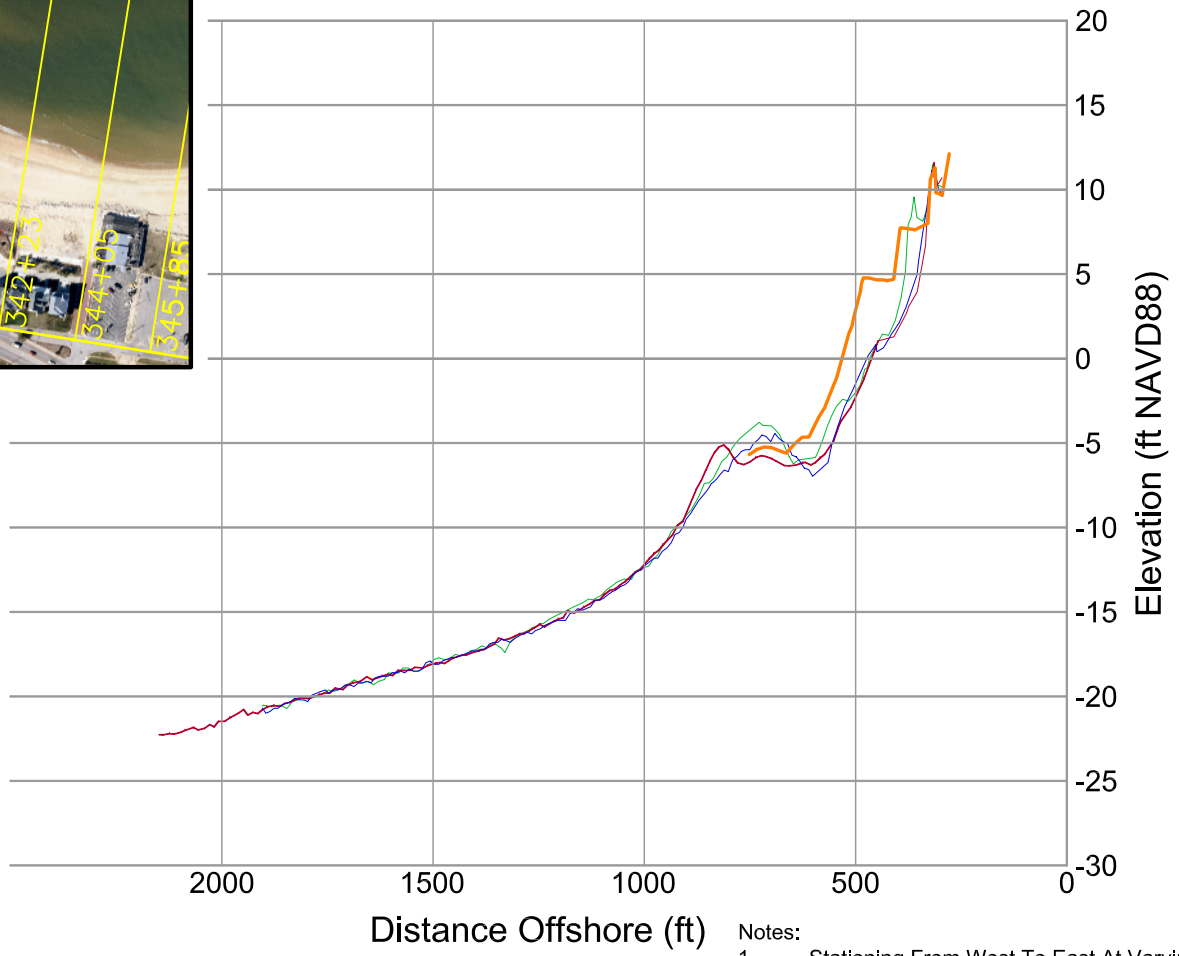
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





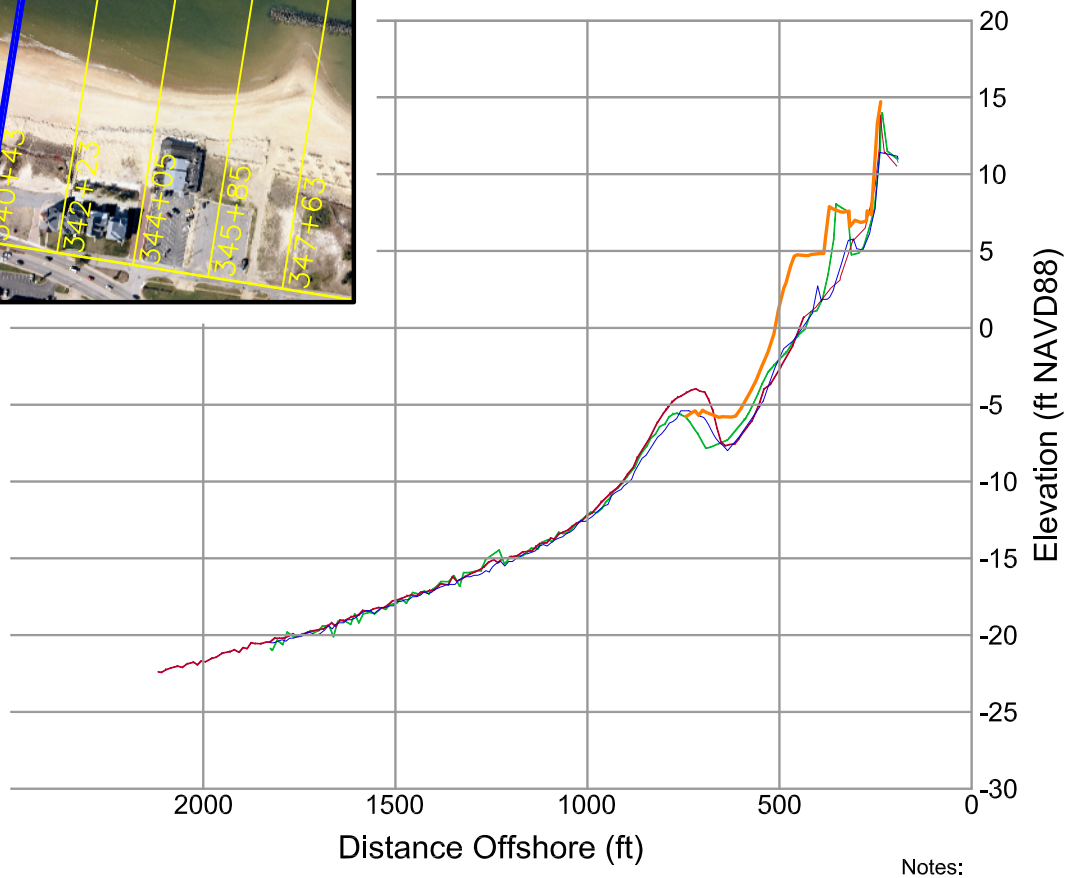
Survey Transect 338+63	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-1.31 ft/yr	20.24 ft
Volume Change Over Extents of Overlapping Profiles	-22.02 cy/ft/yr	-2.27 cy/ft
Volume Change Above -15 ft NAVD88	-15.34 cy/ft/yr	-1.96 cy/ft
Volume Change Above 0 ft NAVD88	-10.01 cy/ft/yr	-7.37 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



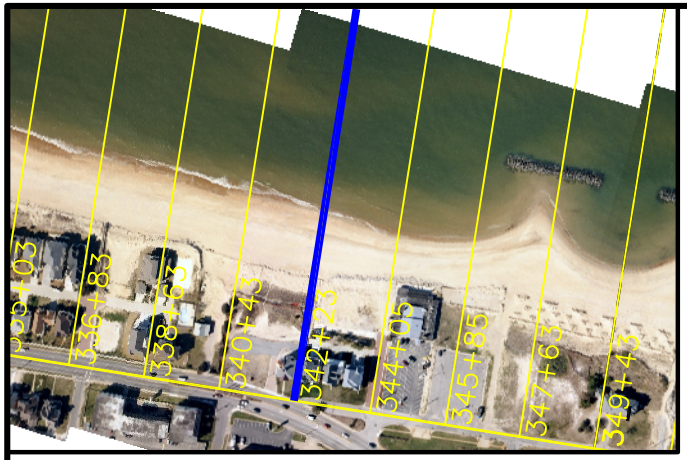
Survey Transect 340+43	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	2.44 ft/yr	7.18 ft
Volume Change Over Extents of Overlapping Profiles	1.77 cy/ft/yr	15.30 cy/ft
Volume Change Above -15 ft NAVD88	0.96 cy/ft/yr	11.58 cy/ft
Volume Change Above 0 ft NAVD88	-5.80 cy/ft/yr	-6.99 cy/ft

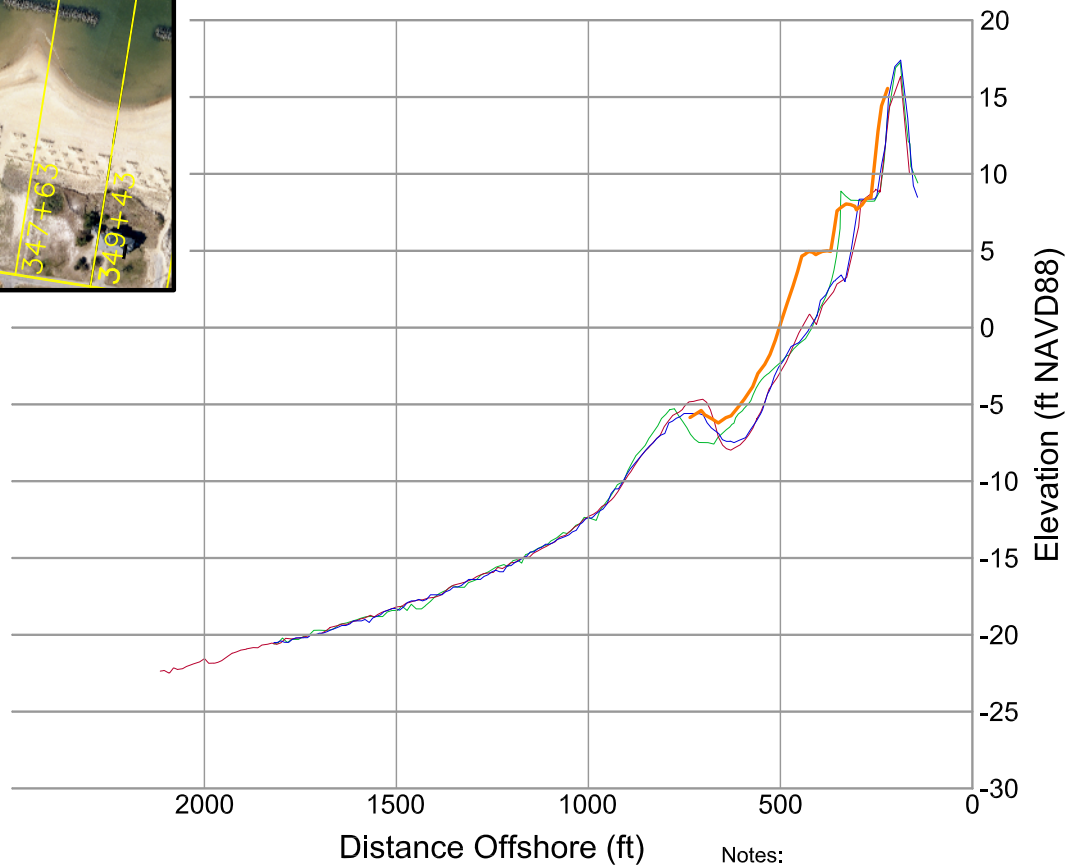
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





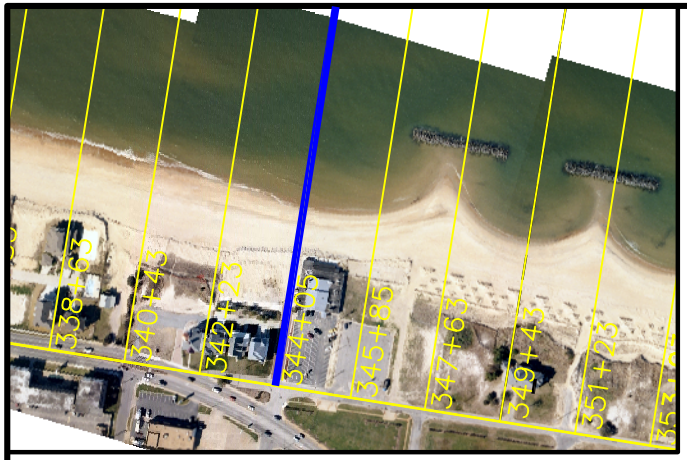
Survey Transect 342+23	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-7.56 ft/yr	-8.09 ft
Volume Change Over Extents of Overlapping Profiles	-15.60 cy/ft/yr	-3.35 cy/ft
Volume Change Above -15 ft NAVD88	-16.52 cy/ft/yr	-4.48 cy/ft
Volume Change Above 0 ft NAVD88	-11.05 cy/ft/yr	-5.70 cy/ft

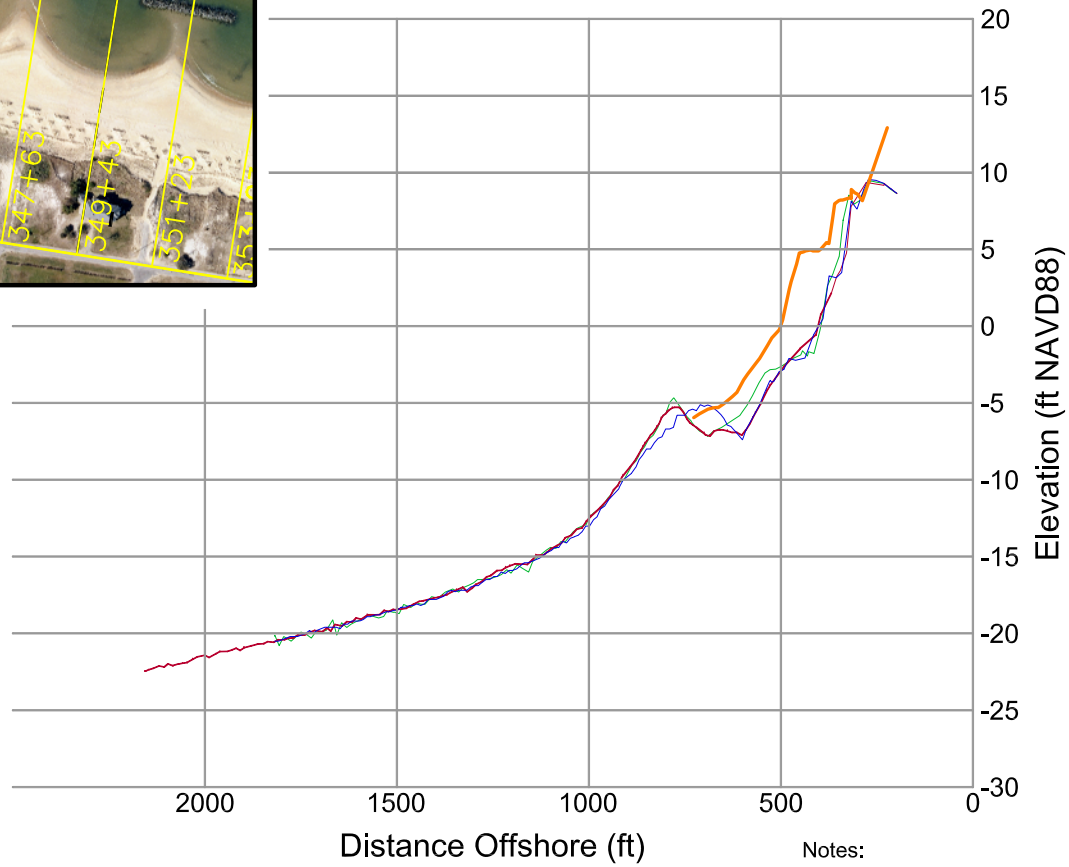
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





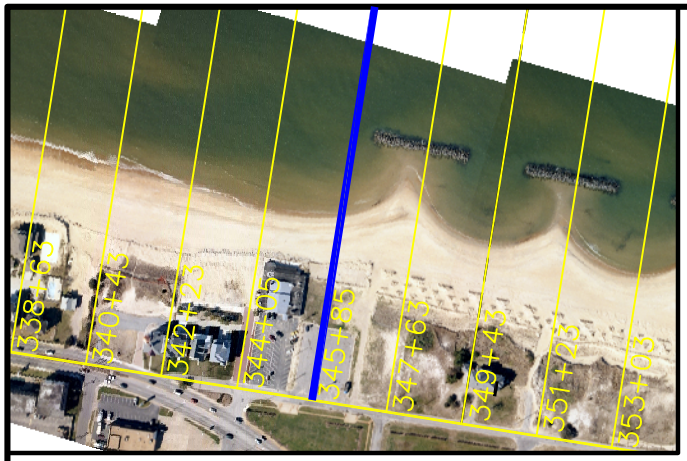
Survey Transect 344+05	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	1.46 ft/yr	3.17 ft
Volume Change Over Extents of Overlapping Profiles	-7.60 cy/ft/yr	1.06 cy/ft
Volume Change Above -15 ft NAVD88	-8.69 cy/ft/yr	-0.23 cy/ft
Volume Change Above 0 ft NAVD88	-3.60 cy/ft/yr	-2.53 cy/ft

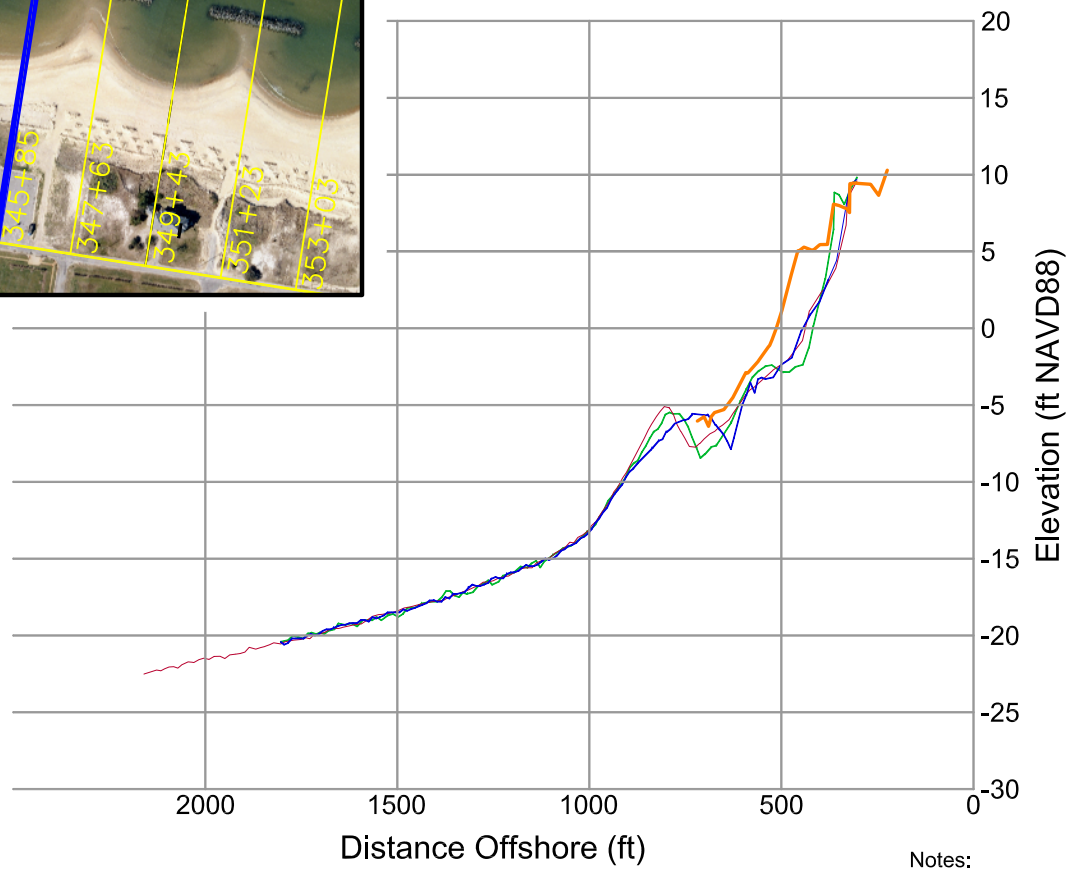
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





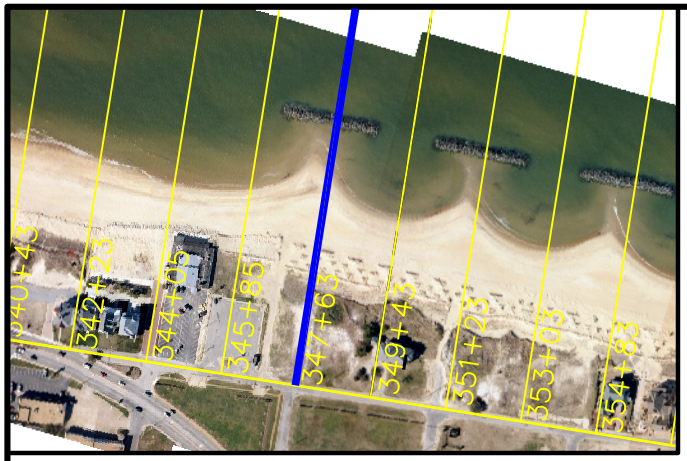
Survey Transect 345+85	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	19.43 ft/yr	5.82 ft
Volume Change Over Extents of Overlapping Profiles	0.38 cy/ft/yr	1.89 cy/ft
Volume Change Above -15 ft NAVD88	0.49 cy/ft/yr	-3.92 cy/ft
Volume Change Above 0 ft NAVD88	-3.46 cy/ft/yr	-2.41 cy/ft

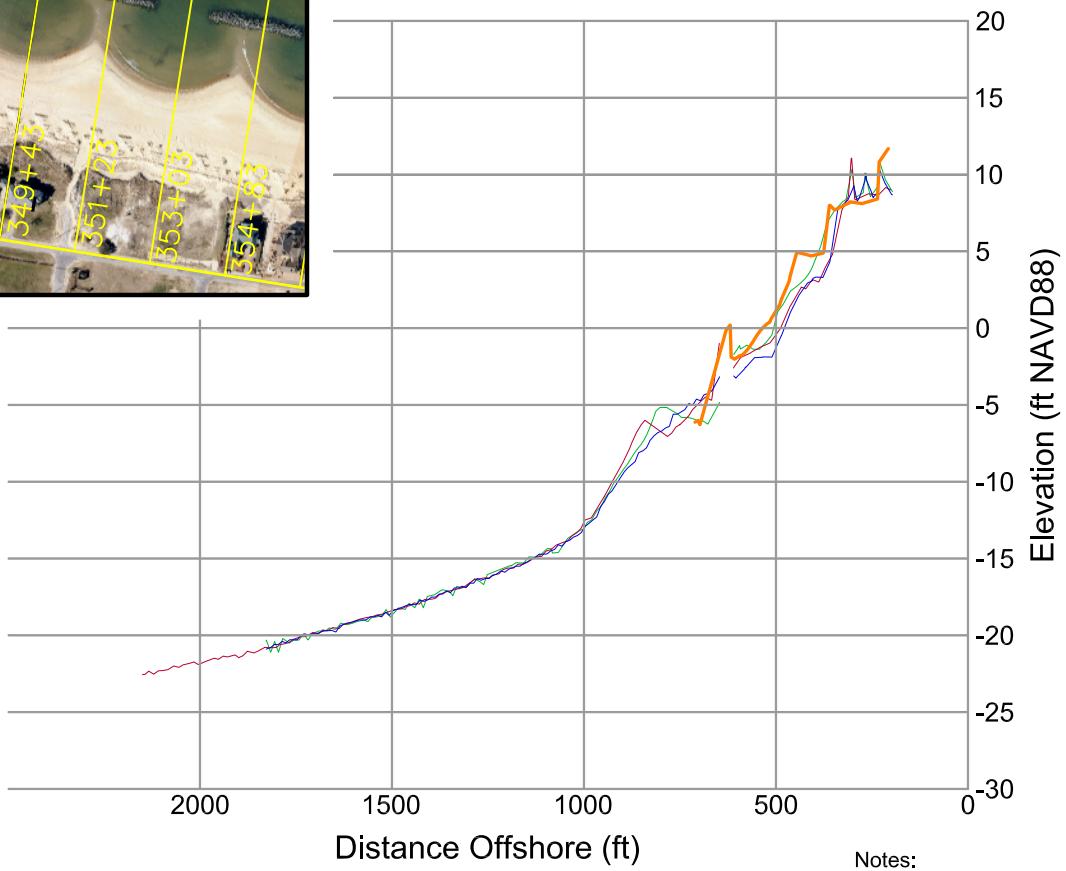
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





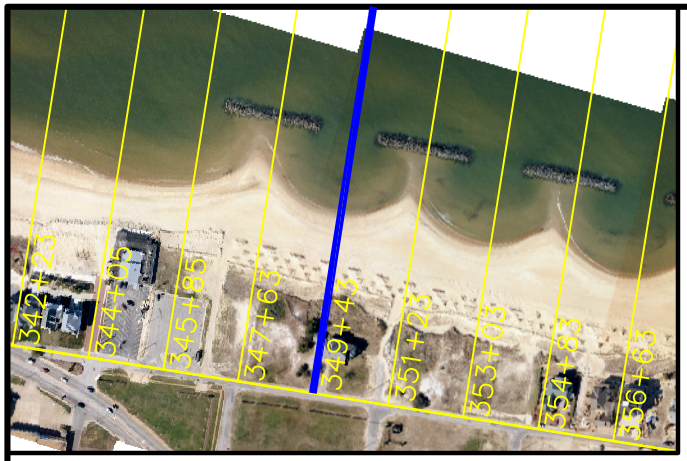
Survey Transect 347+63	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-25.24 ft/yr	7.98 ft
Volume Change Over Extents of Overlapping Profiles	-11.77 cy/ft/yr	1.77 cy/ft
Volume Change Above -15 ft NAVD88	-10.44 cy/ft/yr	2.04 cy/ft
Volume Change Above 0 ft NAVD88	-9.77 cy/ft/yr	-8.49 cy/ft

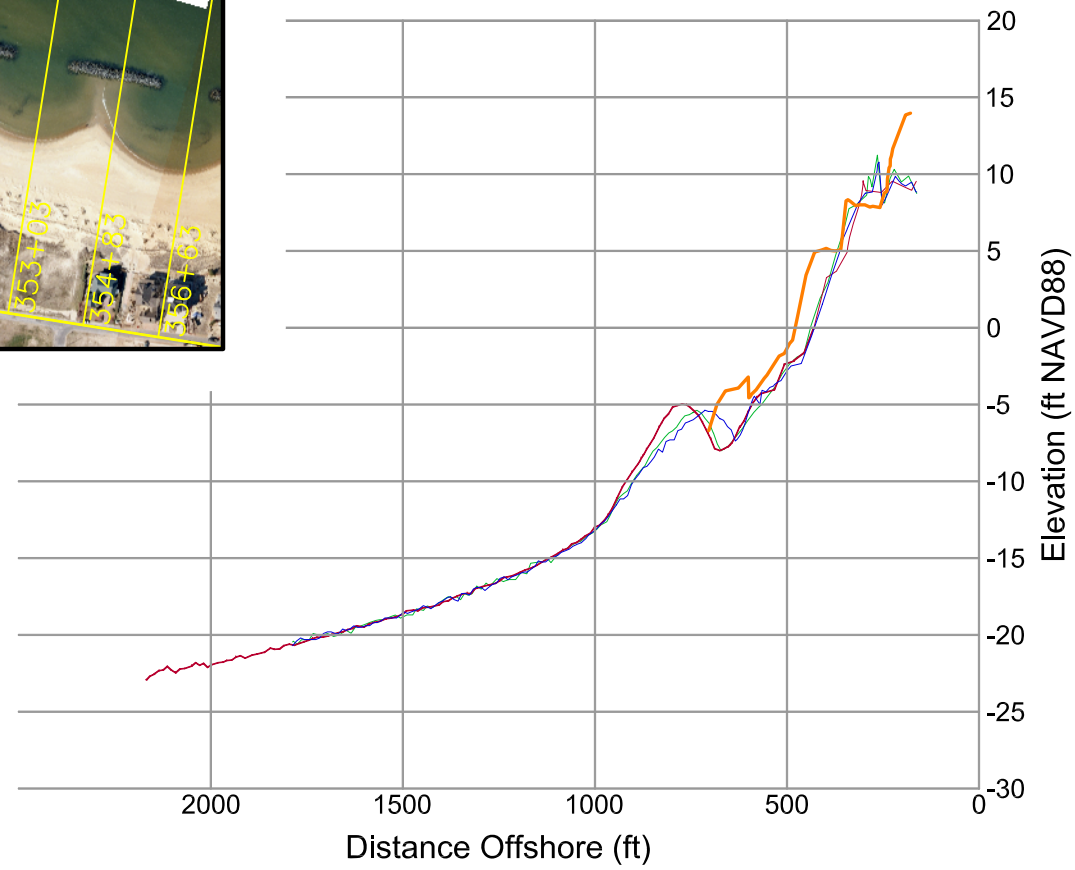
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





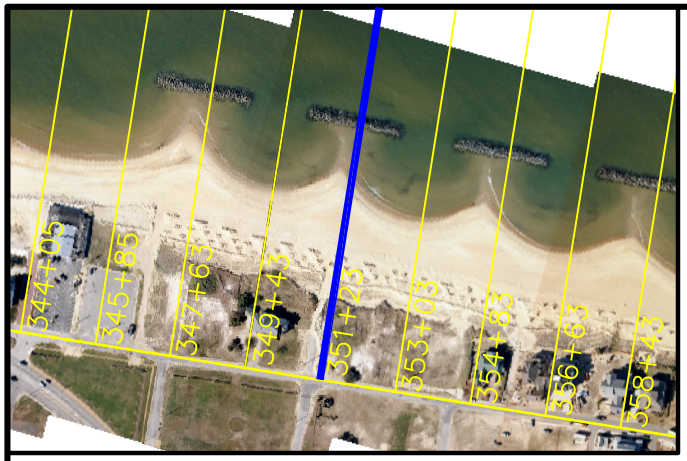
Survey Transect 349+43	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-7.25 ft/yr	3.43 ft
Volume Change Over Extents of Overlapping Profiles	-0.29 cy/ft/yr	2.70 cy/ft
Volume Change Above -15 ft NAVD88	0.21 cy/ft/yr	3.40 cy/ft
Volume Change Above 0 ft NAVD88	-5.98 cy/ft/yr	-3.84 cy/ft

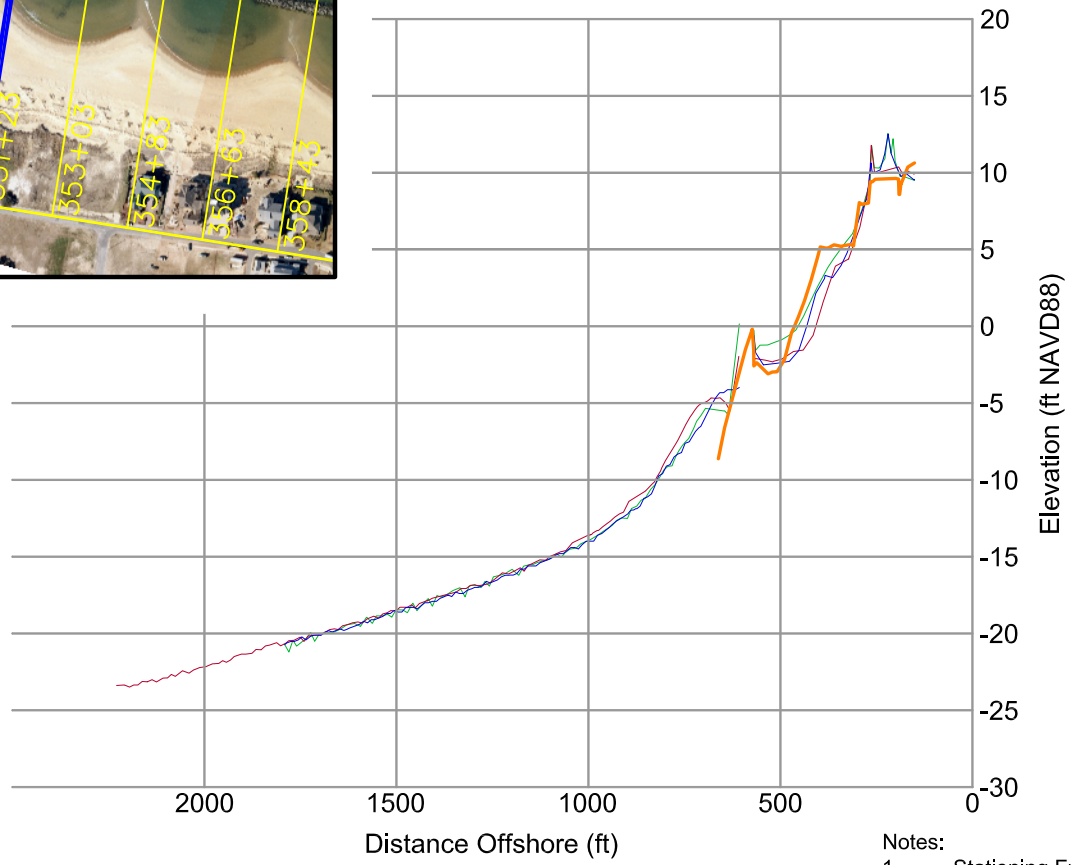
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





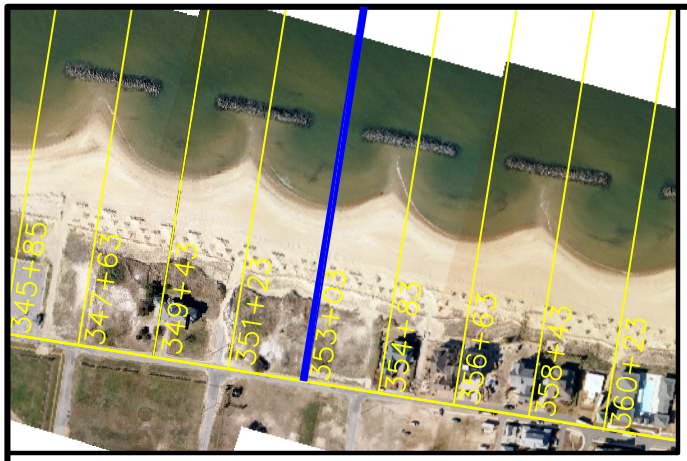
Survey Transect 351+23	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-59.19 ft/yr	-31.28 ft
Volume Change Over Extents of Overlapping Profiles	-11.35 cy/ft/yr	3.98 cy/ft
Volume Change Above -15 ft NAVD88	-11.23 cy/ft/yr	-0.15 cy/ft
Volume Change Above 0 ft NAVD88	-11.50 cy/ft/yr	-7.39 cy/ft

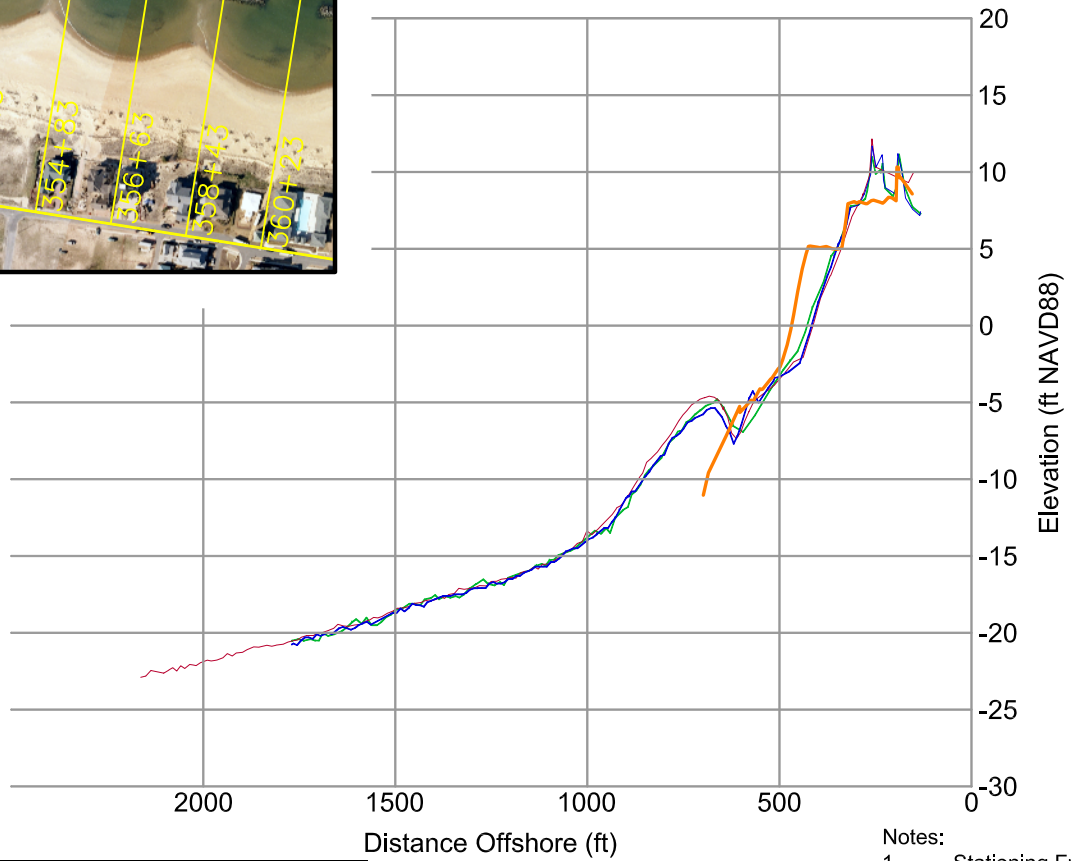
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





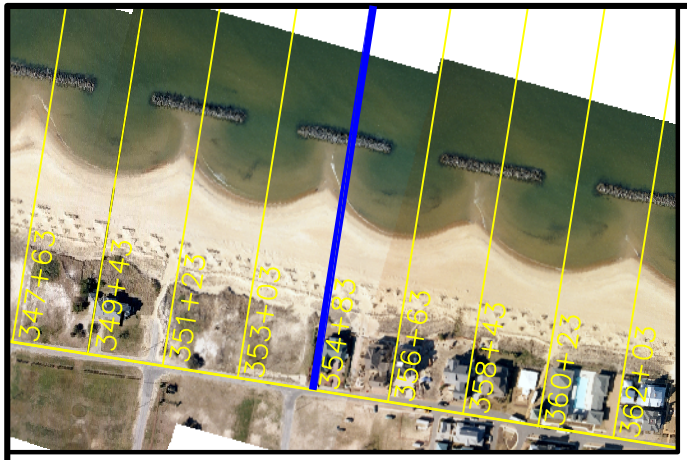
Survey Transect 353+03	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-16.26 ft/yr	-5.04 ft
Volume Change Over Extents of Overlapping Profiles	5.48 cy/ft/yr	9.36 cy/ft
Volume Change Above -15 ft NAVD88	3.72 cy/ft/yr	6.14 cy/ft
Volume Change Above 0 ft NAVD88	-1.02 cy/ft/yr	-0.78 cy/ft

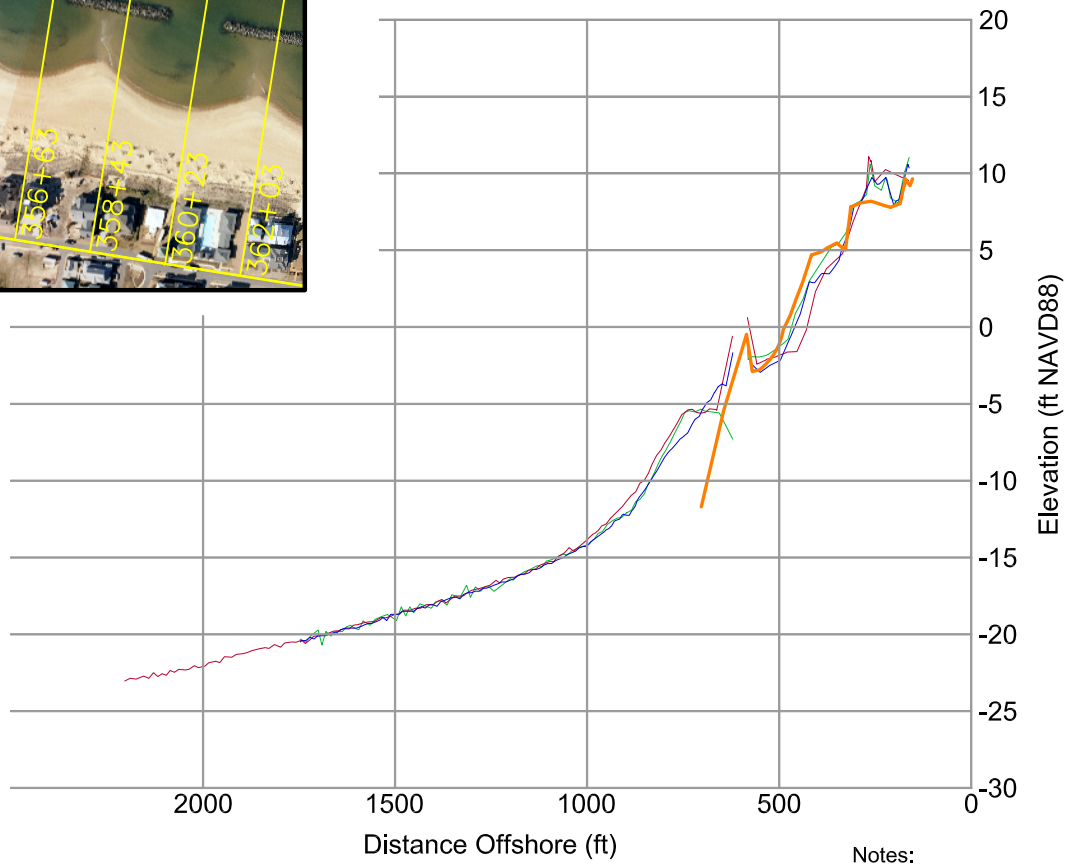
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





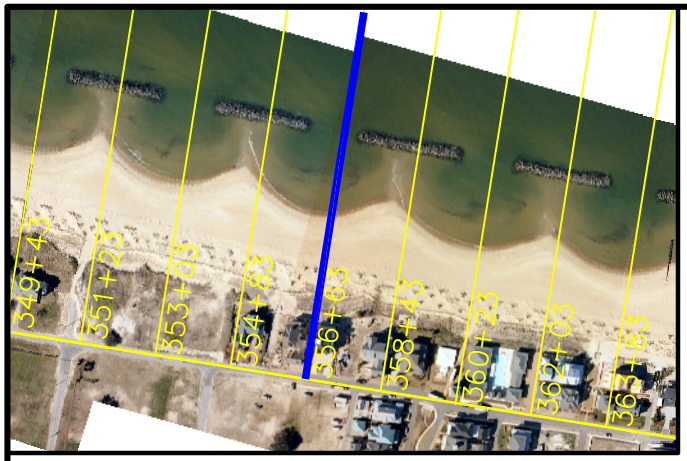
Survey Transect 354+83	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-37.97 ft/yr	-26.13 ft
Volume Change Over Extents of Overlapping Profiles	-2.88 cy/ft/yr	8.24 cy/ft
Volume Change Above -15 ft NAVD88	-4.10 cy/ft/yr	6.42 cy/ft
Volume Change Above 0 ft NAVD88	-5.92 cy/ft/yr	-4.43 cy/ft

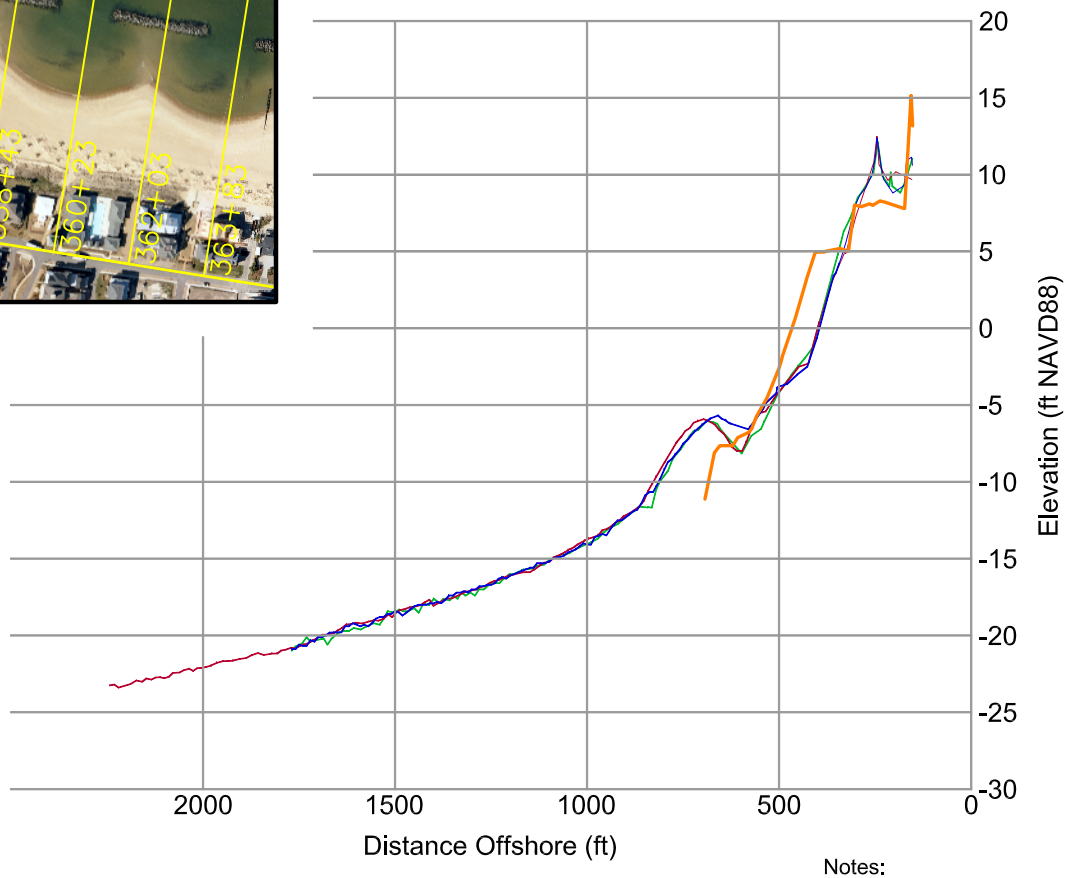
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





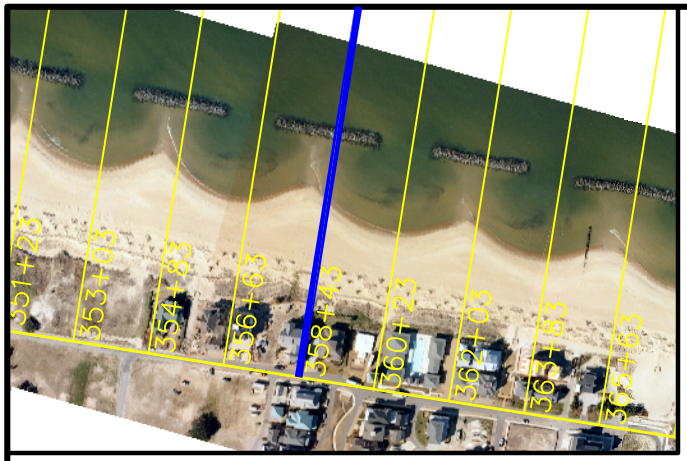
Survey Transect 356+63	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-2.30 ft/yr	2.07 ft
Volume Change Over Extents of Overlapping Profiles	5.53 cy/ft/yr	-0.94 cy/ft
Volume Change Above -15 ft NAVD88	3.00 cy/ft/yr	-1.00 cy/ft
Volume Change Above 0 ft NAVD88	-2.25 cy/ft/yr	-1.82 cy/ft

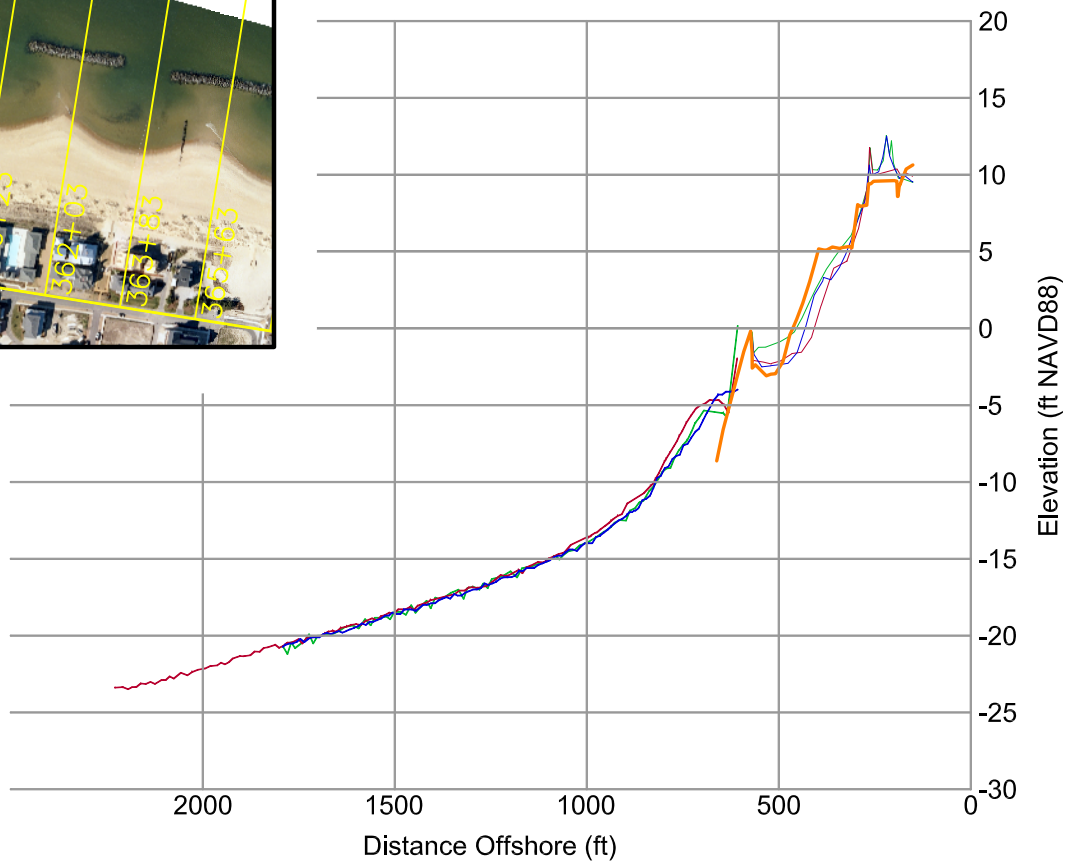
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





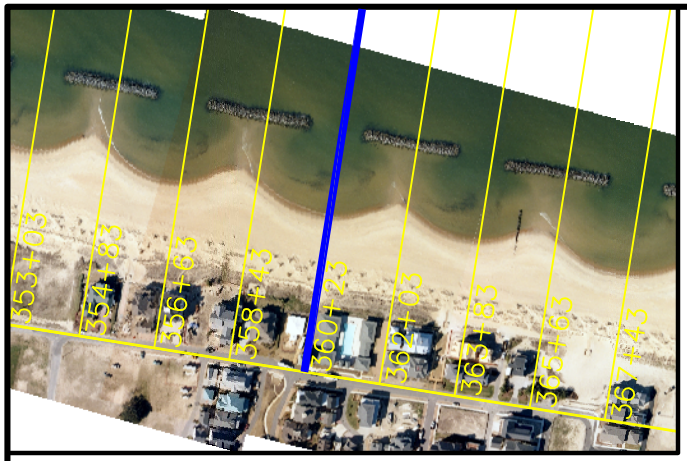
Survey Transect 358+43	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-38.69 ft/yr	-25.41 ft
Volume Change Over Extents of Overlapping Profiles	8.95 cy/ft/yr	5.59 cy/ft
Volume Change Above -15 ft NAVD88	-1.28 cy/ft/yr	2.42 cy/ft
Volume Change Above 0 ft NAVD88	-9.41 cy/ft/yr	-3.76 cy/ft

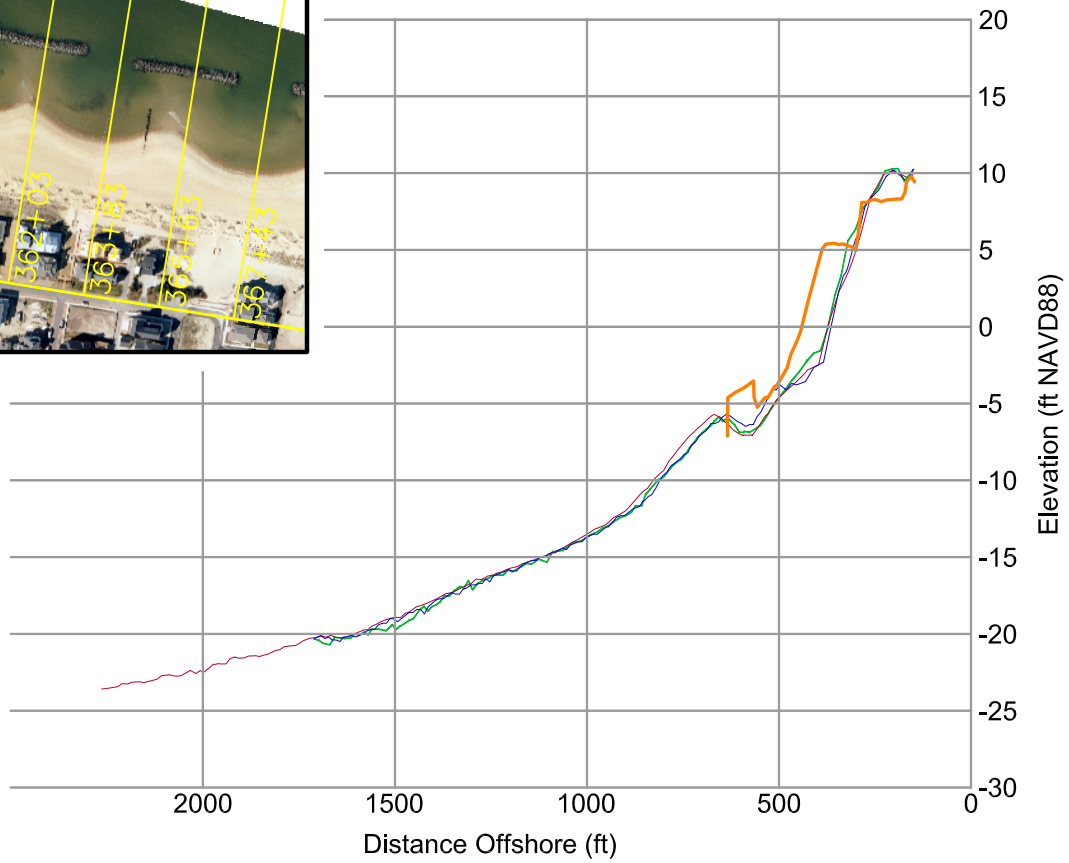
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





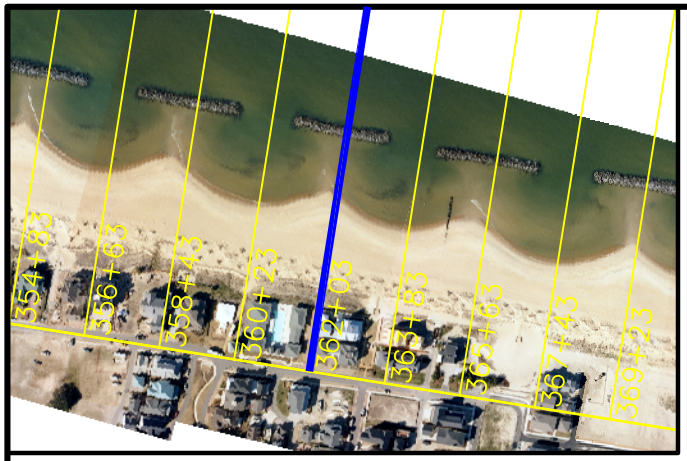
Survey Transect 360+23	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-4.88 ft/yr	2.77 ft
Volume Change Over Extents of Overlapping Profiles	3.73 cy/ft/yr	5.42 cy/ft
Volume Change Above -15 ft NAVD88	-1.92 cy/ft/yr	2.23 cy/ft
Volume Change Above 0 ft NAVD88	-4.77 cy/ft/yr	-3.62 cy/ft

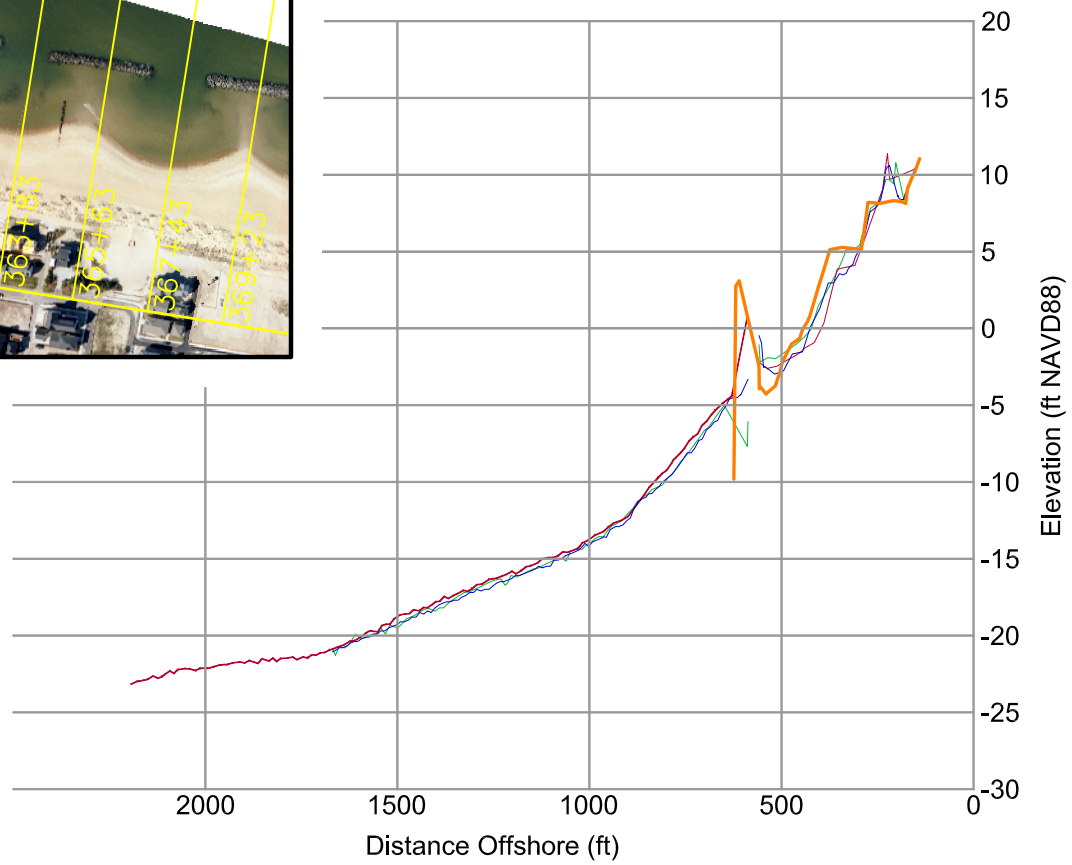
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





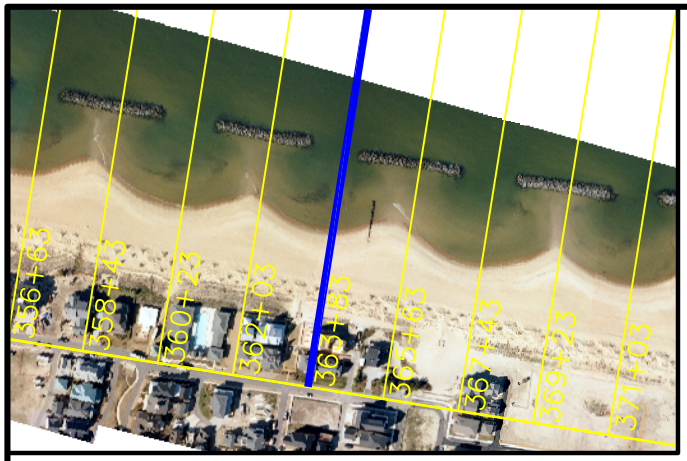
Survey Transect 362+03	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-26.79 ft/yr	-23.33 ft
Volume Change Over Extents of Overlapping Profiles	-0.43 cy/ft/yr	12.81 cy/ft
Volume Change Above -15 ft NAVD88	-7.17 cy/ft/yr	5.90 cy/ft
Volume Change Above 0 ft NAVD88	-4.11 cy/ft/yr	-2.81 cy/ft

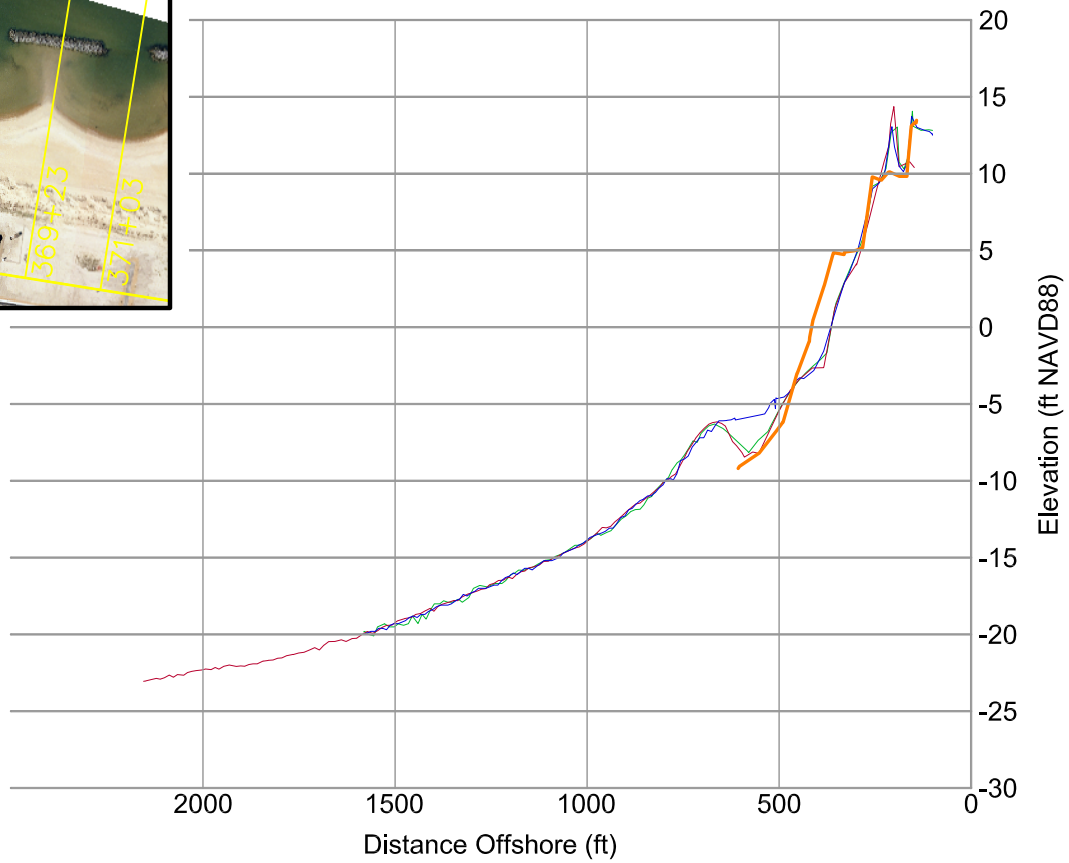
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





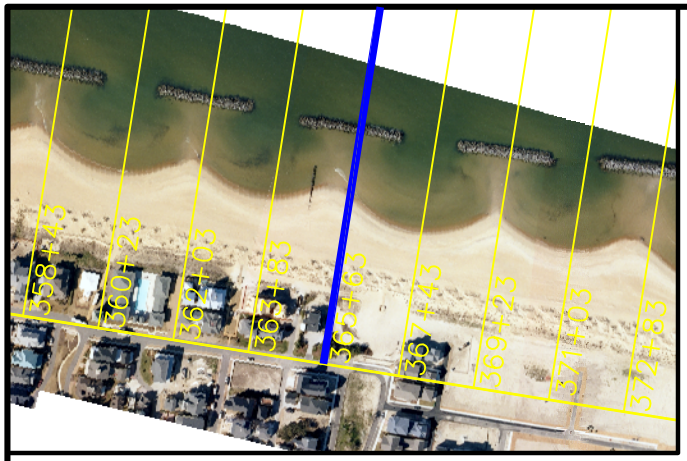
Survey Transect 363+83	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-1.32 ft/yr	1.87 ft
Volume Change Over Extents of Overlapping Profiles	-5.25 cy/ft/yr	-12.62 cy/ft
Volume Change Above -15 ft NAVD88	-5.55 cy/ft/yr	-12.91 cy/ft
Volume Change Above 0 ft NAVD88	-2.49 cy/ft/yr	-0.46 cy/ft

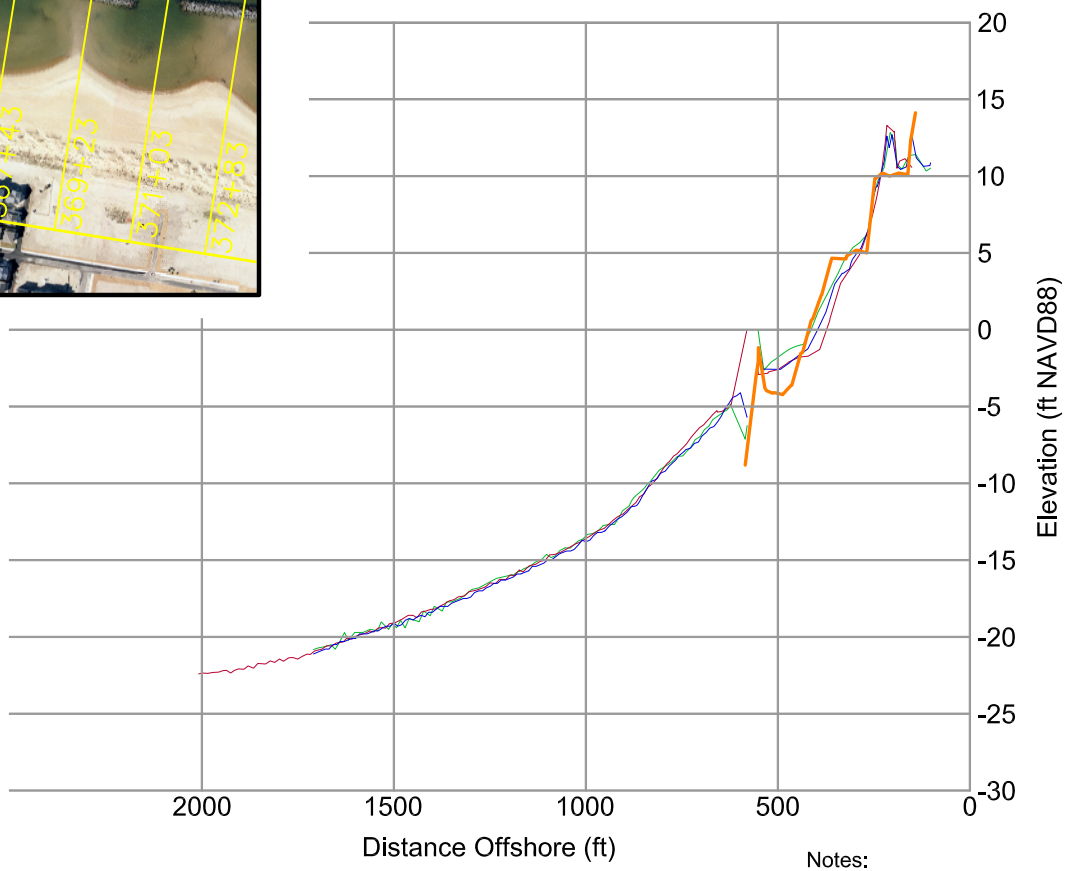
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





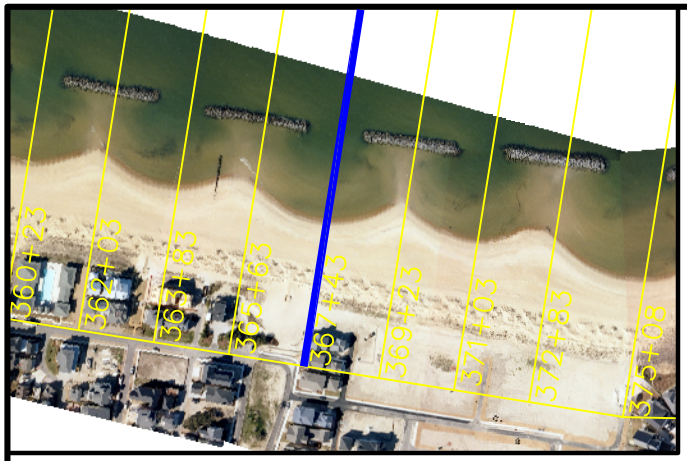
Survey Transect 365+63	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-37.66 ft/yr	-17.84 ft
Volume Change Over Extents of Overlapping Profiles	0.36 cy/ft/yr	2.66 cy/ft
Volume Change Above -15 ft NAVD88	0.53 cy/ft/yr	-0.37 cy/ft
Volume Change Above 0 ft NAVD88	-6.43 cy/ft/yr	-2.92 cy/ft

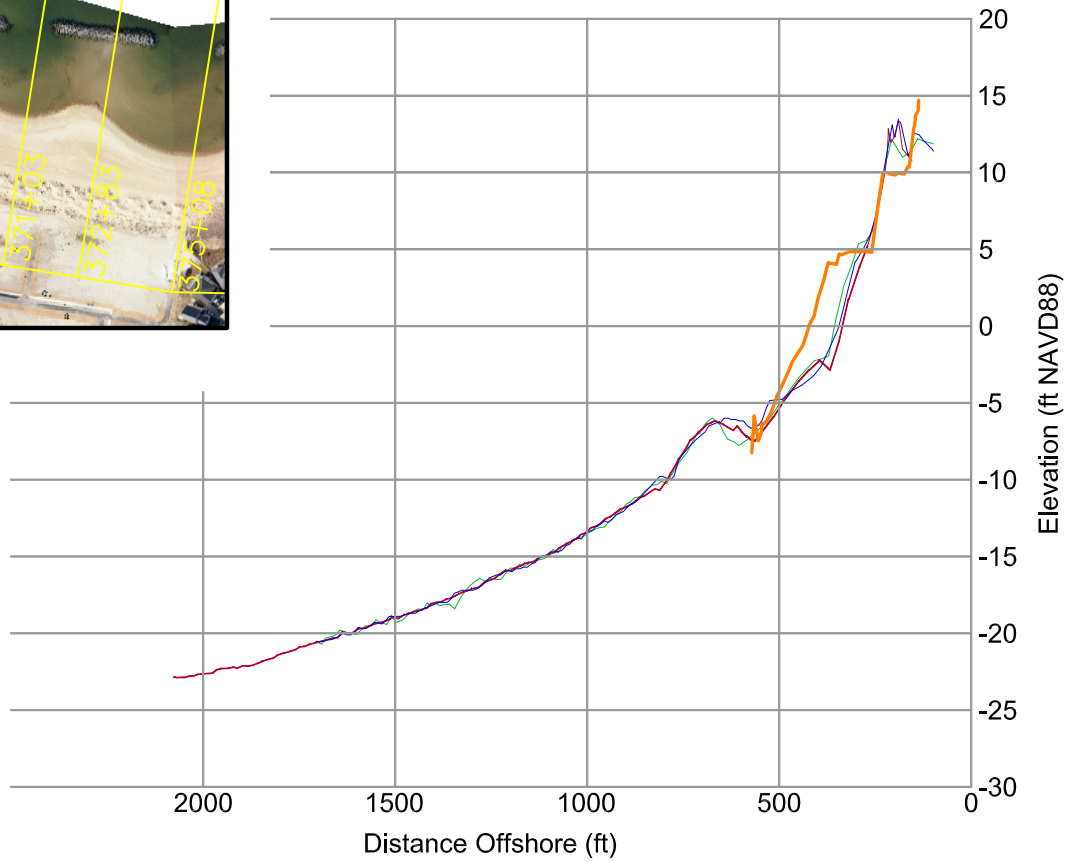
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





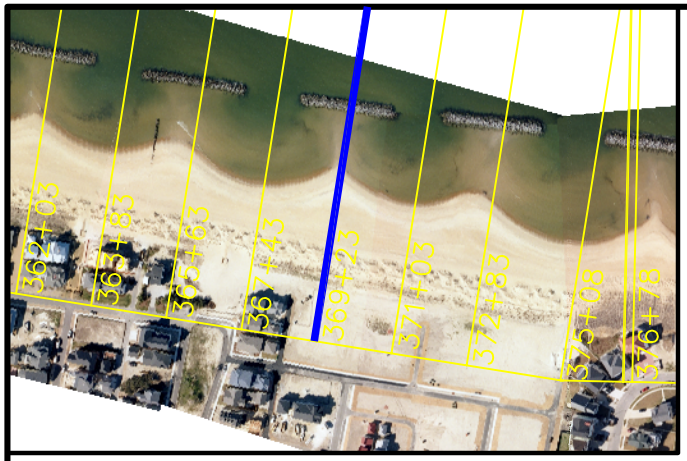
Survey Transect 367+43	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-22.34 ft/yr	-9.65 ft
Volume Change Over Extents of Overlapping Profiles	-5.85 cy/ft/yr	-8.54 cy/ft
Volume Change Above -15 ft NAVD88	-6.58 cy/ft/yr	-8.92 cy/ft
Volume Change Above 0 ft NAVD88	-3.92 cy/ft/yr	0.18 cy/ft

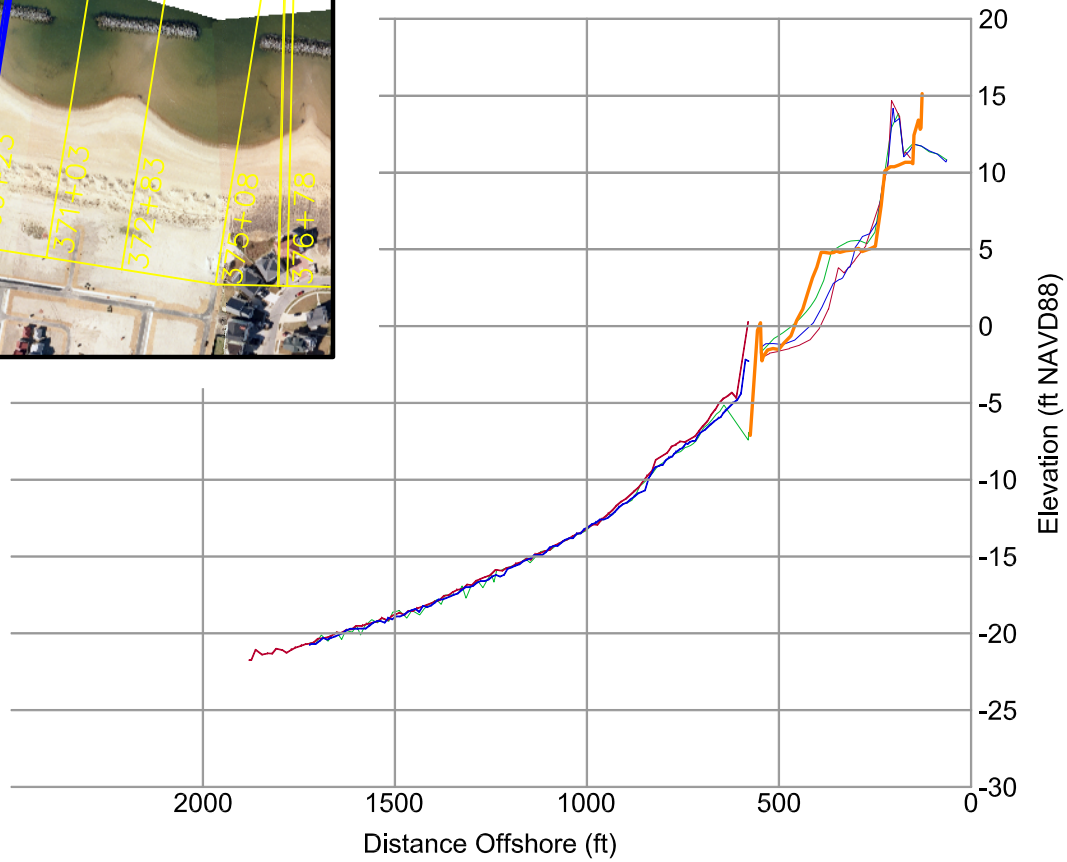
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





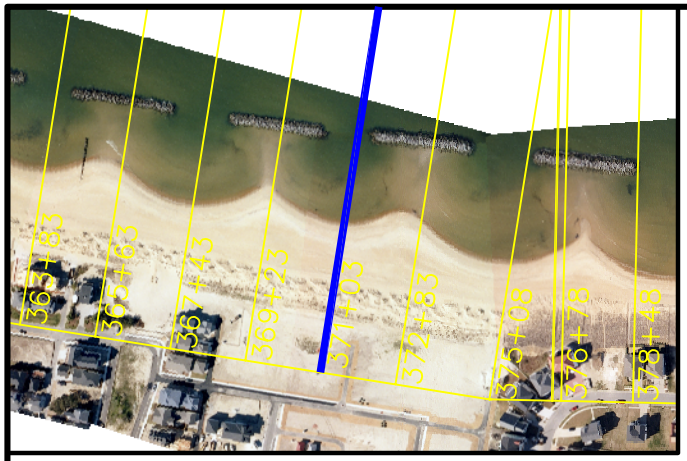
Survey Transect 369+23	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-54.11 ft/yr	-20.13 ft
Volume Change Over Extents of Overlapping Profiles	2.95 cy/ft/yr	2.86 cy/ft
Volume Change Above -15 ft NAVD88	0.72 cy/ft/yr	0.31 cy/ft
Volume Change Above 0 ft NAVD88	-9.37 cy/ft/yr	-7.57 cy/ft

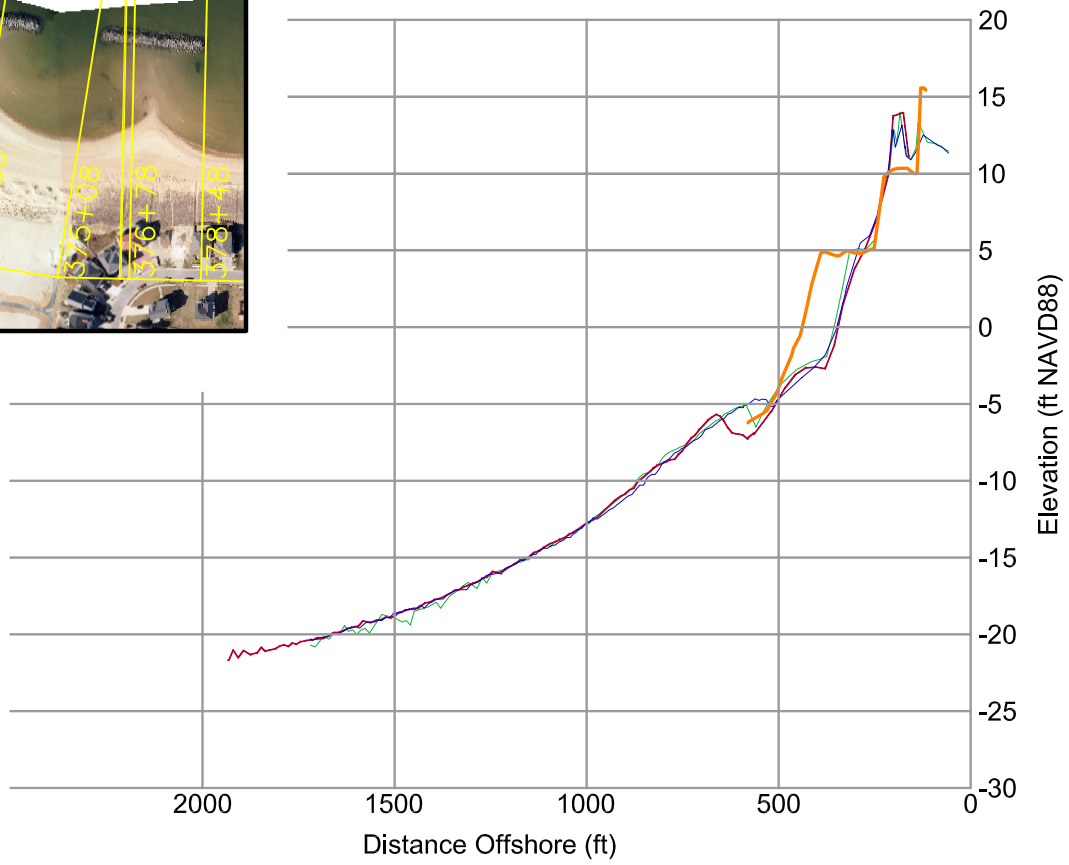
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





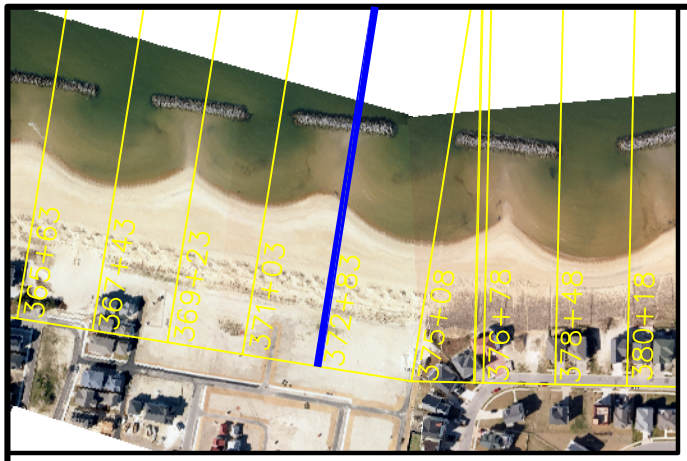
Survey Transect 371+03	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-12.47 ft/yr	-3.80 ft
Volume Change Over Extents of Overlapping Profiles	-7.85 cy/ft/yr	-5.04 cy/ft
Volume Change Above -15 ft NAVD88	-11.63 cy/ft/yr	-5.48 cy/ft
Volume Change Above 0 ft NAVD88	-1.52 cy/ft/yr	-1.32 cy/ft

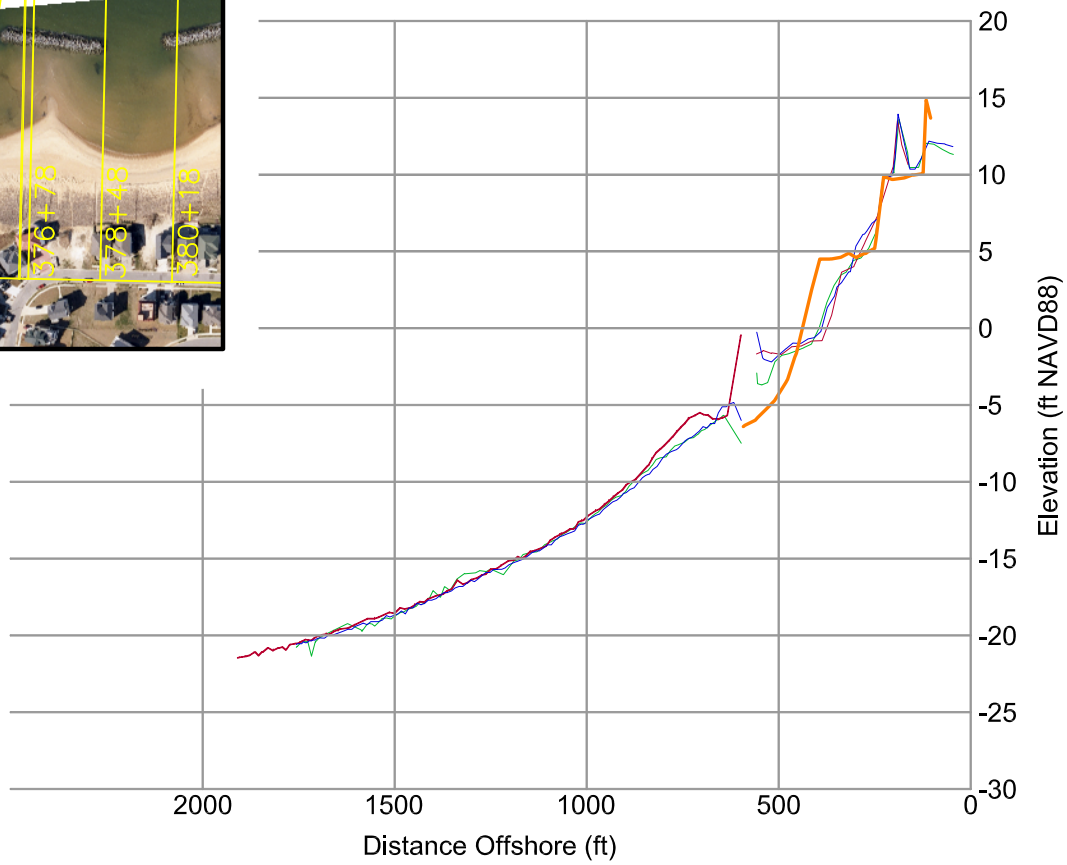
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





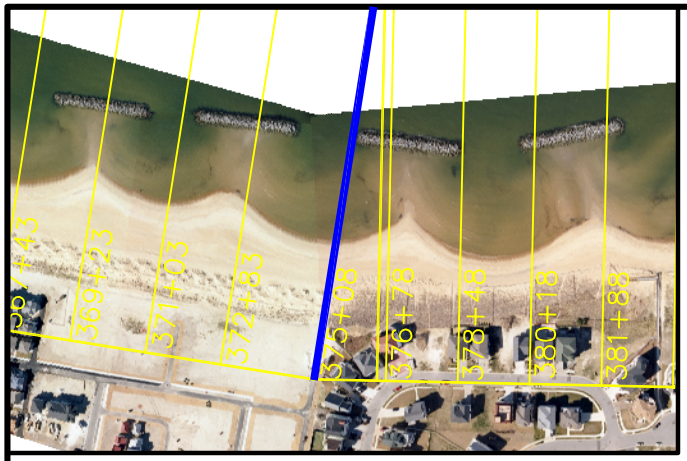
Survey Transect 372+83	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-22.29 ft/yr	-16.56 ft
Volume Change Over Extents of Overlapping Profiles	5.65 cy/ft/yr	8.44 cy/ft
Volume Change Above -15 ft NAVD88	4.21 cy/ft/yr	5.10 cy/ft
Volume Change Above 0 ft NAVD88	-2.12 cy/ft/yr	2.05 cy/ft

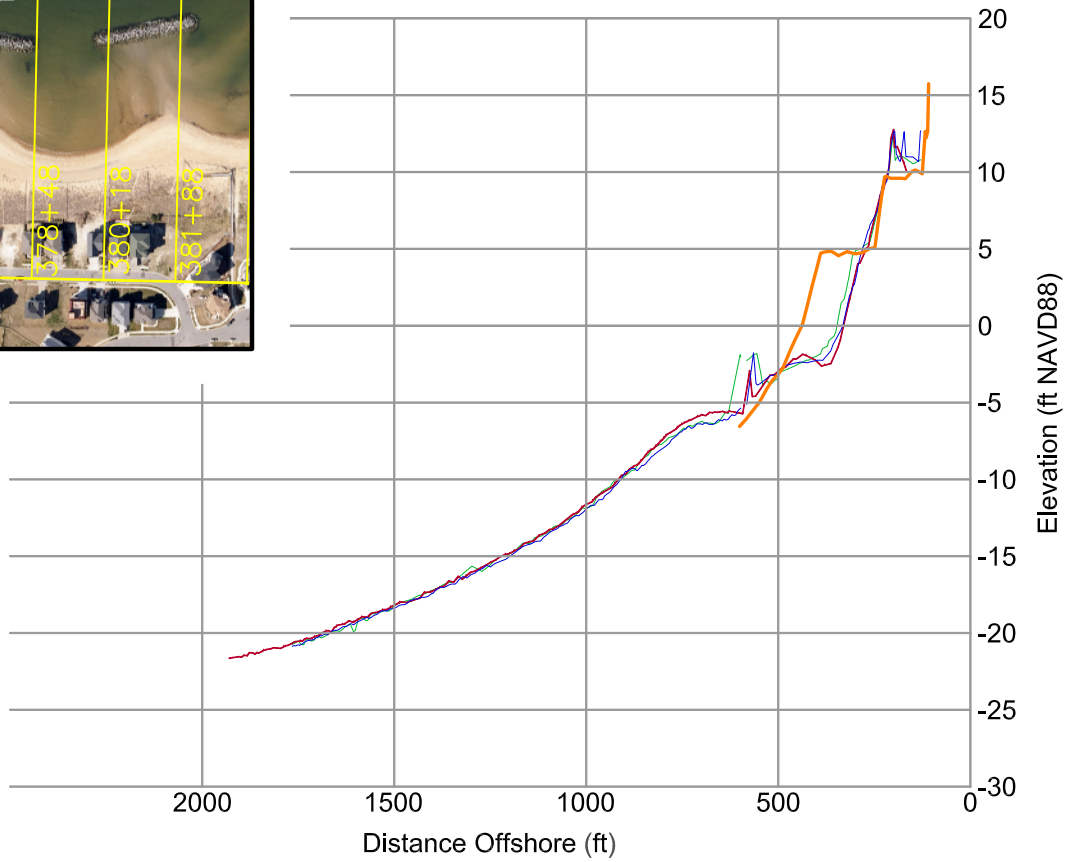
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





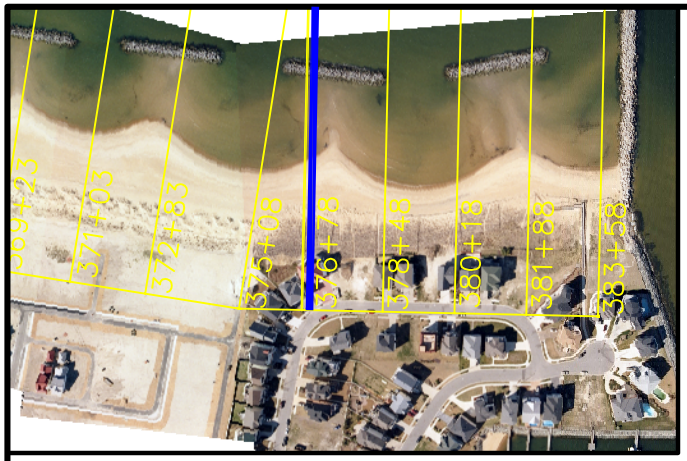
Survey Transect 375+08	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-17.72 ft/yr	-1.09 ft
Volume Change Over Extents of Overlapping Profiles	0.93 cy/ft/yr	7.73 cy/ft
Volume Change Above -15 ft NAVD88	-0.16 cy/ft/yr	4.78 cy/ft
Volume Change Above 0 ft NAVD88	-2.23 cy/ft/yr	-0.41 cy/ft

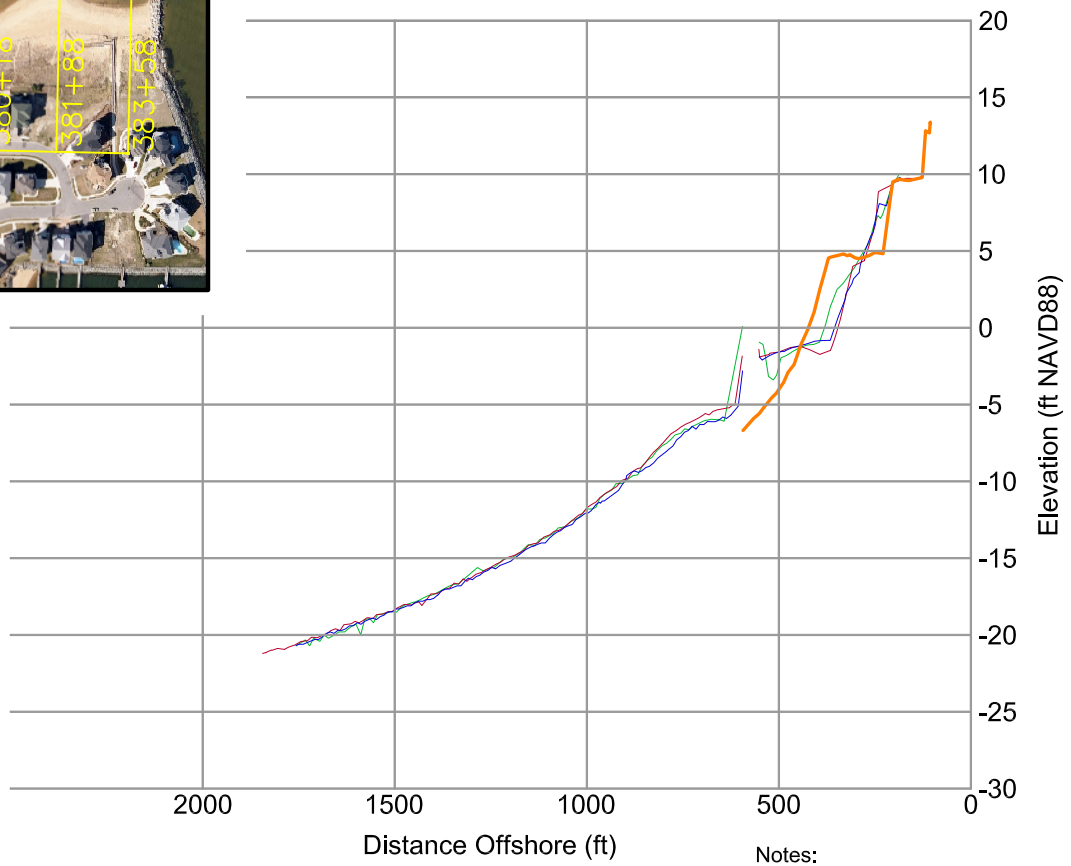
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





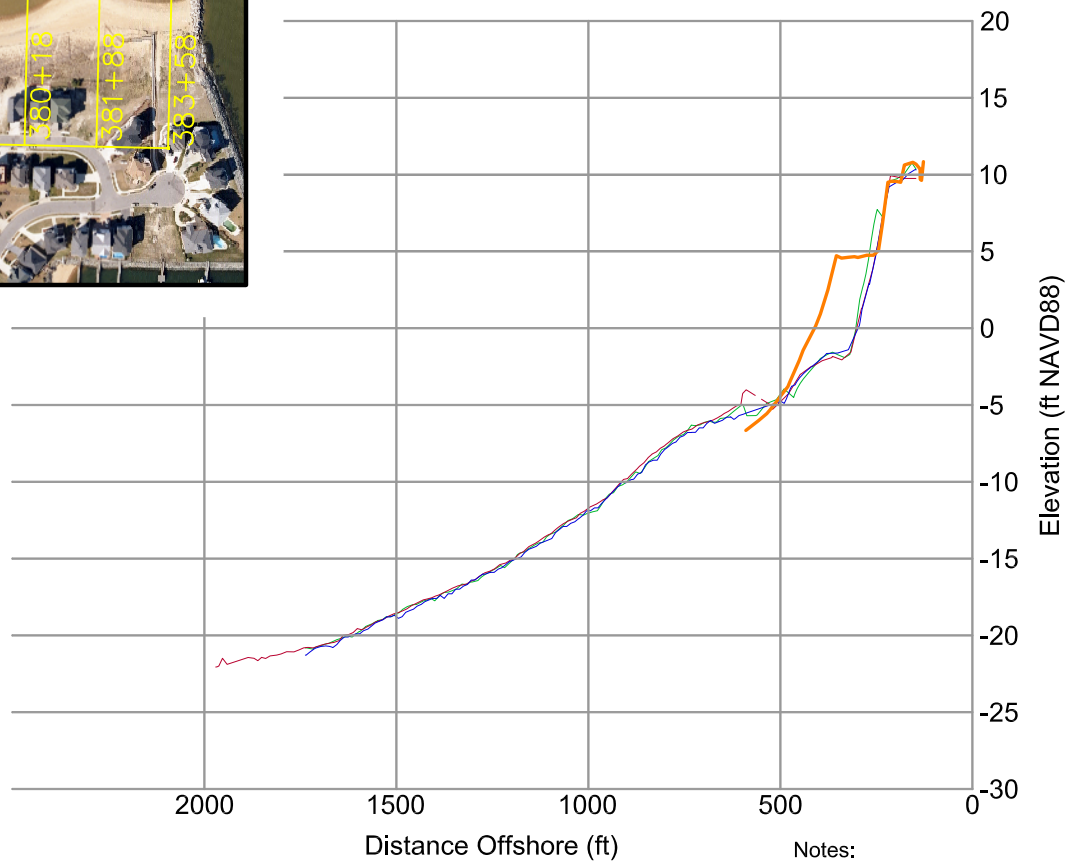
Survey Transect 376+78	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-33.73 ft/yr	-4.62 ft
Volume Change Over Extents of Overlapping Profiles	1.47 cy/ft/yr	3.85 cy/ft
Volume Change Above -15 ft NAVD88	0.38 cy/ft/yr	1.34 cy/ft
Volume Change Above 0 ft NAVD88	-2.10 cy/ft/yr	-3.22 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



Survey Transect 378+48	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-8.16 ft/yr	1.22 ft
Volume Change Over Extents of Overlapping Profiles	-0.15 cy/ft/yr	8.80 cy/ft
Volume Change Above -15 ft NAVD88	-1.18 cy/ft/yr	5.69 cy/ft
Volume Change Above 0 ft NAVD88	-4.76 cy/ft/yr	-4.87 cy/ft

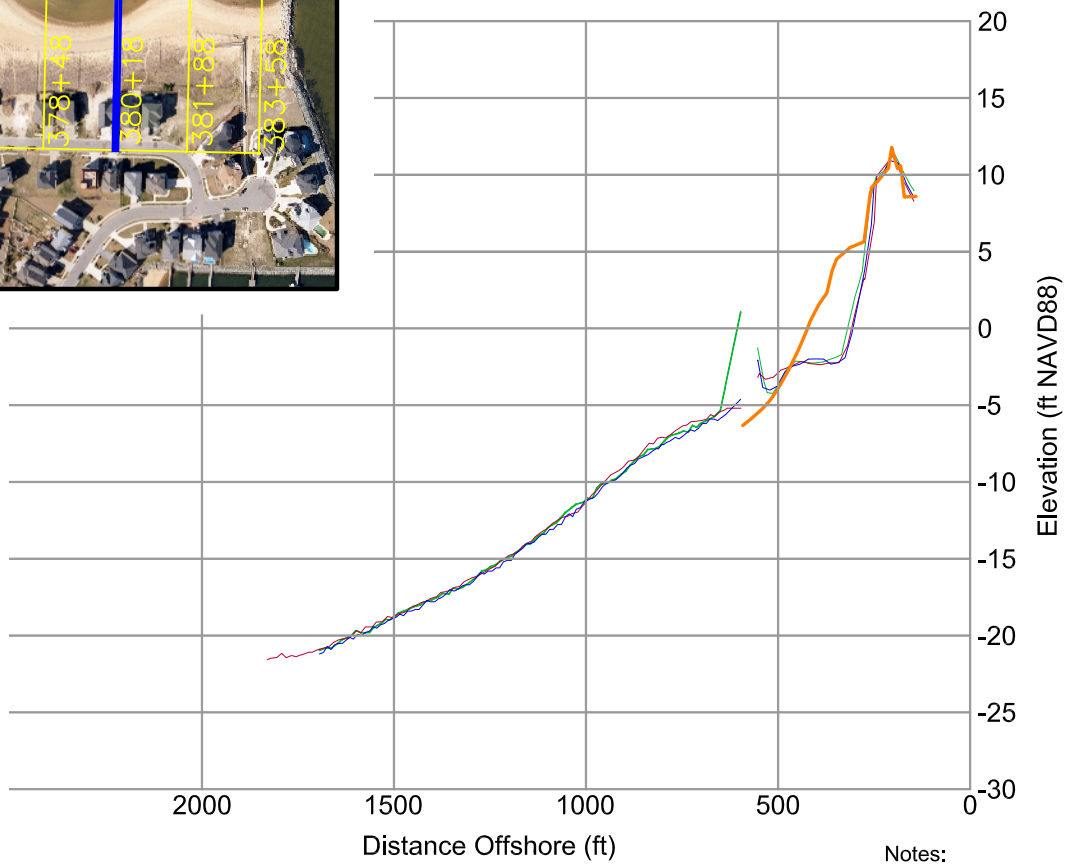
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS

ST 378+48 | Pg 103 OF 106 | SPRING 2007



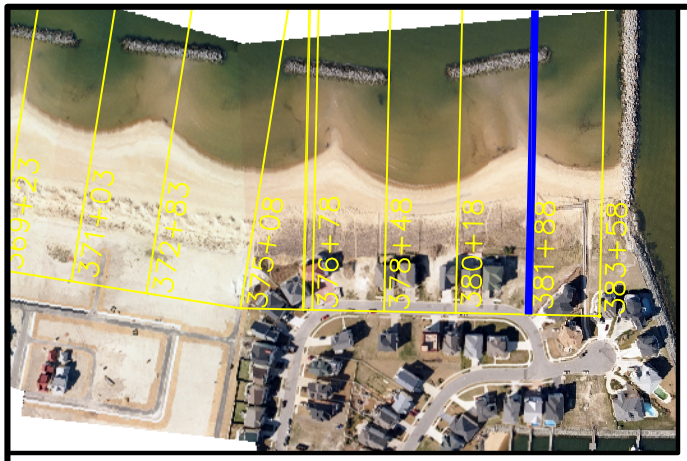
Survey Transect 380+18	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-10.13 ft/yr	2.53 ft
Volume Change Over Extents of Overlapping Profiles	-0.75 cy/ft/yr	10.41 cy/ft
Volume Change Above -15 ft NAVD88	-2.13 cy/ft/yr	6.84 cy/ft
Volume Change Above 0 ft NAVD88	-4.84 cy/ft/yr	-3.66 cy/ft

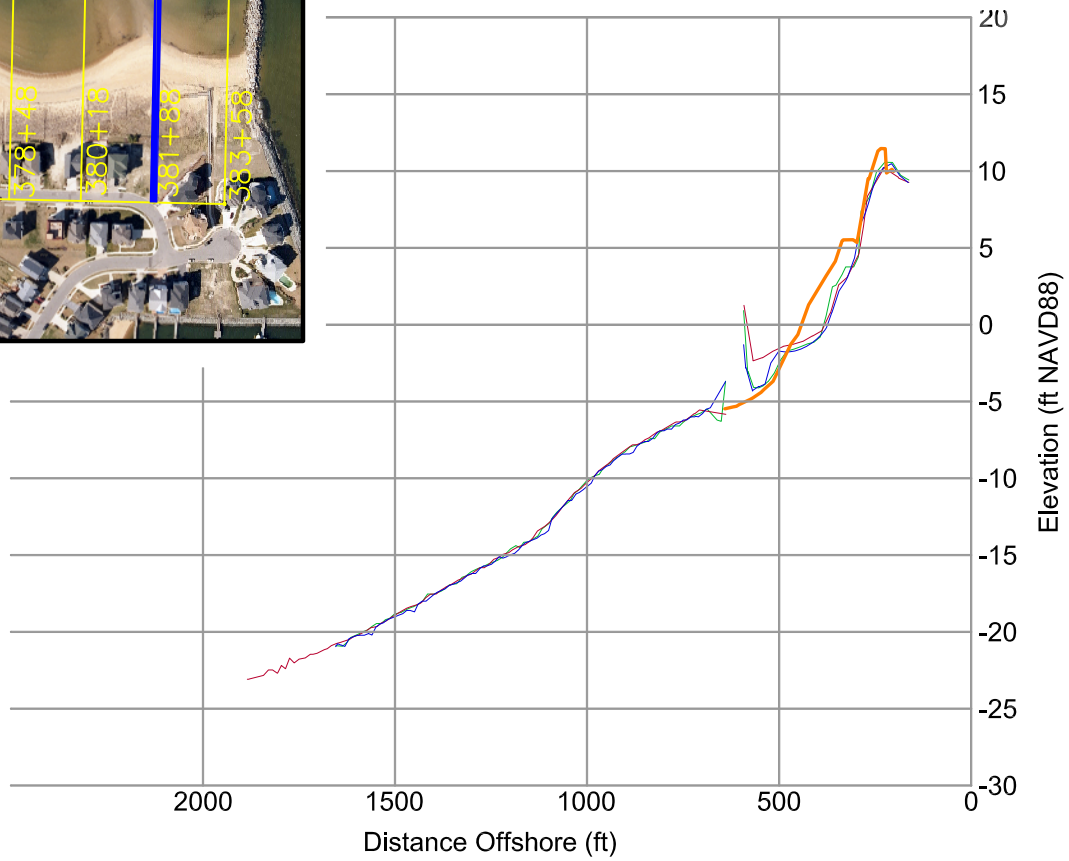
LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS





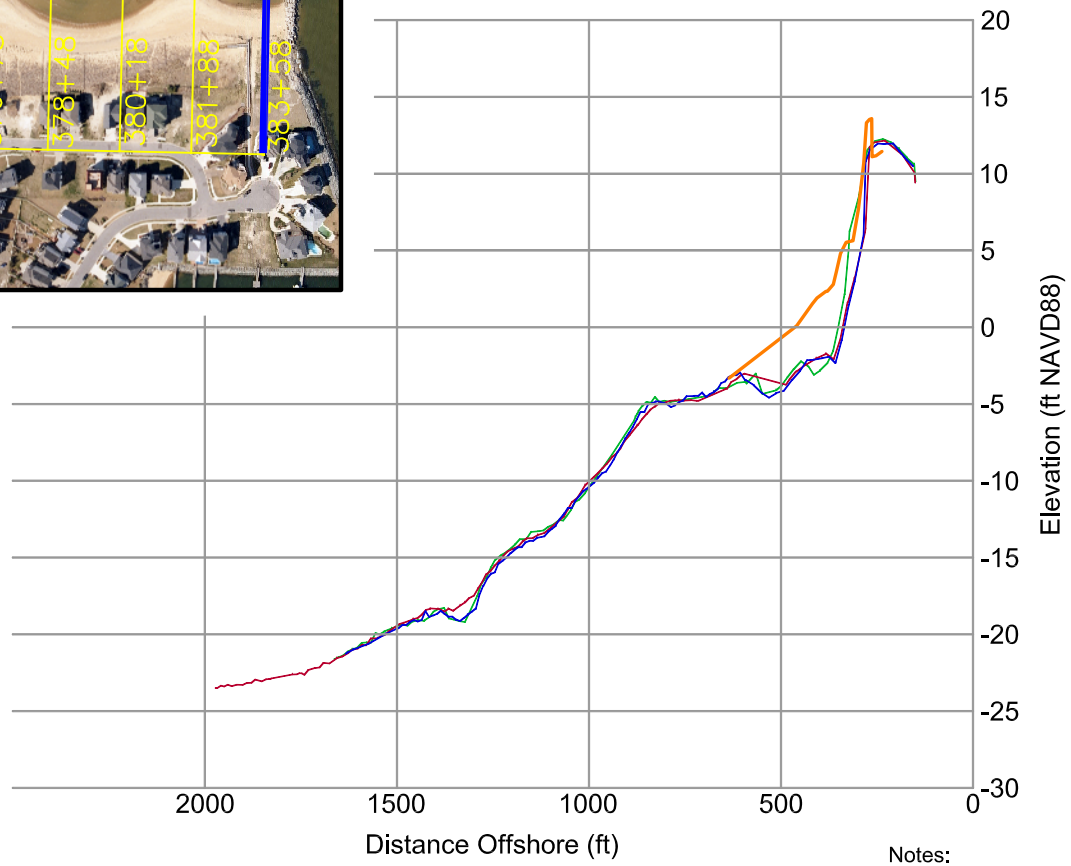
Survey Transect 381+88	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-8.77 ft/yr	5.28 ft
Volume Change Over Extents of Overlapping Profiles	5.04 cy/ft/yr	3.52 cy/ft
Volume Change Above -15 ft NAVD88	5.09 cy/ft/yr	2.03 cy/ft
Volume Change Above 0 ft NAVD88	-3.05 cy/ft/yr	-2.77 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS



Survey Transect 383+58	March 2006 - March 2007	October 2006 - March 2007
Shoreline Change at MHW (0.98 ft NAVD88)	-13.14 ft/yr	3.07 ft
Volume Change Over Extents of Overlapping Profiles	0.23 cy/ft/yr	4.29 cy/ft
Volume Change Above -15 ft NAVD88	-2.16 cy/ft/yr	0.32 cy/ft
Volume Change Above 0 ft NAVD88	-9.56 cy/ft/yr	-9.01 cy/ft

LEGEND:
- MARCH 2006
- OCTOBER 2006
- MARCH 2007
- POST-FILL

Notes:
1. Stationing From West To East At Varying Intervals.
2. Sections Are Viewed Toward Increasing Stationing.
3. All Survey Elevations In Feet Referenced to NAVD88.
4. Survey Comparison Made To March 2006 and October 2006.
5. For Transects With Offshore Breakwaters, Volume Change Calculations Were Limited To The Portions Of The Profiles Both Landward And Seaward Of The Breakwater.

City of Norfolk

OCEAN VIEW PERIODIC SURVEYING DATA & ANALYSIS

ST 383+58 | Pg 106 OF 106 | SPRING 2007

Appendix C: Summary of Shoreline Change and Volume Change Tables

Table C-1. Summary of Shoreline Change and Volume Change (March 2006 to March 2007)

1. Positive changes indicate accretion or gain in volume along the profile and negative changes indicate erosion or loss of volume along the profile.

2. MHW assumed at +0.98 ft-NAVD88.

3. Shoreline Change and Volume Change is calculated for the period between surveys from March 28, 2006 to March 27, 2007.

Transect Number (Station)	Old Survey Date	New Survey Date	Shoreline Change Rate at MHW (ft/yr)	Volume Change Rate Above -15 ft NAVD 88 (cy/ft/yr)	Volume Change Rate Above 0 ft NAVD88 (cy/ft/yr)
0+00	3/28/06	3/27/07	10.43	0.21	3.51
2+50	3/28/06	3/27/07	0.90	54.63	-1.82
5+00	3/28/06	3/27/07	0.00	26.20	-3.36
7+50	3/28/06	3/27/07	-4.90	41.74	-2.34
10+00	3/28/06	3/27/07	0.00	43.00	-4.79
12+50	3/28/06	3/27/07	10.66	10.04	-5.28
15+00	3/28/06	3/27/07	18.90	23.11	-3.38
17+50	3/28/06	3/27/07	13.00	-3.83	-6.11
20+00	3/28/06	3/27/07	31.39	18.81	1.22
22+50	3/28/06	3/27/07	14.10	14.91	-9.19
25+00	3/28/06	3/27/07	48.13	27.48	1.79
27+50	3/28/06	3/27/07	17.39	28.58	-6.63
30+00	3/28/06	3/27/07	56.22	29.73	3.73
32+50	3/28/06	3/27/07	21.30	9.71	-13.78
35+00	3/28/06	3/27/07	41.05	13.88	-0.15
37+50	3/28/06	3/27/07	20.39	6.18	-7.65
40+00	3/28/06	3/27/07	22.73	21.70	-1.37
42+50	3/28/06	3/27/07	-1.33	15.29	-11.26
45+00	3/28/06	3/27/07	10.73	13.87	-6.95
45+25	3/28/06	3/27/07	9.35	12.47	-5.33
47+30	3/28/06	3/27/07	-1.88	6.06	-9.86
49+35	3/28/06	3/27/07	-28.73	-2.44	-9.32
51+41	3/28/06	3/27/07	11.78	1.22	-6.94
53+46	3/28/06	3/27/07	-0.91	6.90	-3.07
55+51	3/28/06	3/27/07	-3.58	-2.55	-5.95
57+57	3/28/06	3/27/07	-5.92	0.26	-4.88
59+62	3/28/06	3/27/07	-6.24	3.17	0.55
61+62	3/28/06	3/27/07	-2.18	6.00	-2.79
63+62	3/28/06	3/27/07	-5.01	-3.78	-2.61
65+62	3/28/06	3/27/07	-12.66	-2.27	-0.90
67+62	3/28/06	3/27/07	-24.14	-0.49	-4.25
69+62	3/28/06	3/27/07	-15.91	-0.52	-3.23
71+62	3/28/06	3/27/07	-28.51	-0.19	-4.66
73+62	3/28/06	3/27/07	-3.62	2.20	-6.13
75+62	3/28/06	3/27/07	-0.60	0.98	1.10
77+62	3/28/06	3/27/07	26.15	-1.29	7.09
79+62	3/28/06	3/27/07	10.12	9.97	0.28
81+62	3/28/06	3/27/07	-4.43	1.17	-6.13
83+62	3/28/06	3/27/07	-12.88	-6.52	-5.74
85+62	3/28/06	3/27/07	15.01	-4.58	-3.74
87+62	3/28/06	3/27/07	-0.98	-7.83	-6.69

Table C-1. Summary of Shoreline Change and Volume Change (March 2006 to March 2007) Cont.

1. Positive changes indicate accretion or gain in volume along the profile and negative changes indicate erosion or loss of volume along the profile.

2. MHW assumed at +0.98 ft-NAVD88.

3. Shoreline Change and Volume Change is calculated for the period between surveys from March 28, 2006 to March 27, 2007.

Transect Number (Station)	Old Survey Date	New Survey Date	Shoreline Change Rate at MHW (ft/yr)	Volume Change Rate Above -15 ft NAVD 88 (cy/ft/yr)	Volume Change Rate Above 0 ft NAVD88 (cy/ft/yr)
93+41	3/28/06	3/27/07	0.38	4.07	-0.90
103+08	3/28/06	3/27/07	1.44	1.05	-5.11
120+93	3/28/06	3/27/07	-0.69	-6.32	-9.12
129+17	3/28/06	3/27/07	6.17	-6.32	-7.98
141+98	3/28/06	3/27/07	14.91	16.50	4.49
152+01	3/28/06	3/27/07	5.16	4.70	-3.54
163+49	3/28/06	3/27/07	6.53	-0.99	0.79
169+63	3/28/06	3/27/07	-45.70	-17.39	-8.24
171+63	3/28/06	3/27/07	7.43	13.54	-1.69
173+63	3/28/06	3/27/07	13.66	9.26	0.11
175+63	3/28/06	3/27/07	-14.19	-5.77	-3.15
177+63	3/28/06	3/27/07	-27.62	-4.92	-5.82
179+63	3/28/06	3/27/07	0.78	0.76	-5.62
181+63	3/28/06	3/27/07	-2.31	5.93	-4.23
183+63	3/28/06	3/27/07	-23.30	-5.46	-3.30
185+63	3/28/06	3/27/07	-3.83	6.13	-2.05
187+63	3/28/06	3/27/07	4.29	2.50	1.73
189+63	3/28/06	3/27/07	-1.97	8.95	2.99
191+63	3/28/06	3/27/07	15.67	3.13	1.09
193+63	3/28/06	3/27/07	3.20	3.73	-1.75
195+63	3/28/06	3/27/07	6.47	9.11	-0.15
206+86	3/28/06	3/27/07	4.12	7.83	3.06
218+66	3/28/06	3/27/07	7.37	12.59	0.71
229+85	3/28/06	3/27/07	-38.67	1.08	-4.65
242+03	3/28/06	3/27/07	8.52	0.27	-3.49
252+62	3/28/06	3/27/07	-17.71	-15.63	-9.71
263+22	3/28/06	3/27/07	-4.69	-11.56	-7.30
274+53	3/28/06	3/27/07	29.53	-5.38	-2.51
281+40	3/28/06	3/27/07	-4.71	3.45	-1.19
288+39	3/28/06	3/27/07	-4.30	-9.31	-11.63
295+27	3/28/06	3/27/07	-16.77	0.05	-2.52
302+24	3/28/06	3/27/07	-9.94	-3.66	-2.94
315+96	3/28/06	3/27/07	0.87	18.61	14.16
323+09	3/28/06	3/27/07	-12.24	-6.91	-2.92

Table C-1. Summary of Shoreline Change and Volume Change (March 2006 to March 2007) Cont.

1. Positive changes indicate accretion or gain in volume along the profile and negative changes indicate erosion or loss of volume along the profile.

2. MHW assumed at +0.98 ft-NAVD88.

3. Shoreline Change and Volume Change is calculated for the period between surveys from March 28, 2006 to March 27, 2007.

Transect Number (Station)	Old Survey Date	New Survey Date	Shoreline Change Rate at MHW (ft/yr)	Volume Change Rate Above -15 ft NAVD 88 (cy/ft/yr)	Volume Change Rate Above 0 ft NAVD88 (cy/ft/yr)
329+63	3/28/06	3/27/07	5.52	-2.62	-2.32
331+43	3/28/06	3/27/07	-1.36	-0.01	-3.35
333+23	3/28/06	3/27/07	1.69	-10.70	-6.35
335+03	3/28/06	3/27/07	3.43	0.07	-8.46
336+83	3/28/06	3/27/07	-0.82	-6.04	-10.85
338+63	3/28/06	3/27/07	-1.31	-15.34	-10.01
340+43	3/28/06	3/27/07	2.44	0.96	-5.80
342+23	3/28/06	3/27/07	-7.56	-16.52	-11.05
344+05	3/28/06	3/27/07	1.46	-8.69	-3.60
345+85	3/28/06	3/27/07	19.43	0.49	-3.46
347+63	3/28/06	3/27/07	-25.24	-10.44	-9.77
349+43	3/28/06	3/27/07	-7.25	0.21	-5.98
351+23	3/28/06	3/27/07	-59.19	-11.23	-11.50
353+03	3/28/06	3/27/07	-16.26	3.72	-1.02
354+83	3/28/06	3/27/07	-37.97	-4.10	-5.92
356+63	3/28/06	3/27/07	-2.30	3.00	-2.25
358+43	3/28/06	3/27/07	-38.69	-1.28	-9.41
360+23	3/28/06	3/27/07	-4.88	-1.92	-4.77
362+03	3/28/06	3/27/07	-26.79	-7.17	-4.11
363+83	3/28/06	3/27/07	-1.32	-5.55	-2.49
365+63	3/28/06	3/27/07	-37.66	0.53	-6.43
367+43	3/28/06	3/27/07	-22.34	-6.58	-3.92
369+23	3/28/06	3/27/07	-54.11	0.72	-9.37
371+03	3/28/06	3/27/07	-12.47	-11.63	-1.52
372+83	3/28/06	3/27/07	-22.29	4.21	-2.12
375+08	3/28/06	3/27/07	-17.72	-0.16	-2.23
376+78	3/28/06	3/27/07	-33.73	0.38	-2.10
378+48	3/28/06	3/27/07	-8.16	-1.18	-4.76
380+18	3/28/06	3/27/07	-10.13	-2.13	-4.84
381+88	3/28/06	3/27/07	-8.77	5.09	-3.05
383+58	3/28/06	3/27/07	-13.14	-2.16	-9.56

Table C-2. Summary of Shoreline Change and Volume Change (October 2006 to March 2007)

1. Positive changes indicate accretion or gain in volume along the profile and negative changes indicate erosion or loss of volume along the profile.

2. MHW assumed at +0.98 ft-NAVD88.

3. Shoreline Change and Volume Change is calculated for the period between surveys from October 10, 2006 to March 27,2007.

Transect Number (Station)	Old Survey Date	New Survey Date	Shoreline Change at MHW (ft)	Volume Change Above -15 ft NAVD 88 (cy/ft)	Volume Change Above 0 ft NAVD88 (cy/ft)
0+00	10/10/06	3/27/07	-55.36	-47.11	7.31
2+50	10/10/06	3/27/07	7.67	11.43	-1.98
5+00	10/10/06	3/27/07	0.00	-7.90	-1.54
7+50	10/10/06	3/27/07	-7.61	2.52	-3.31
10+00	10/10/06	3/27/07	0.00	10.46	-1.82
12+50	10/10/06	3/27/07	18.54	12.30	-8.46
15+00	10/10/06	3/27/07	14.77	7.87	-3.93
17+50	10/10/06	3/27/07	12.90	4.78	-5.65
20+00	10/10/06	3/27/07	-10.80	3.46	1.69
22+50	10/10/06	3/27/07	10.45	2.18	-8.96
25+00	10/10/06	3/27/07	8.88	8.32	2.19
27+50	10/10/06	3/27/07	43.56	19.48	-8.02
30+00	10/10/06	3/27/07	54.72	11.43	2.32
32+50	10/10/06	3/27/07	0.78	7.07	-15.14
35+00	10/10/06	3/27/07	-20.58	-5.52	5.30
37+50	10/10/06	3/27/07	-6.99	-1.74	-4.57
40+00	10/10/06	3/27/07	-12.82	8.56	2.77
42+50	10/10/06	3/27/07	17.89	16.21	-11.83
45+00	10/10/06	3/27/07	-10.05	-5.11	-2.41
45+25	10/10/06	3/27/07	-8.40	-4.56	-1.59
47+30	10/10/06	3/27/07	1.07	0.40	-8.41
49+35	10/10/06	3/27/07	-0.93	-2.16	-6.04
51+41	10/10/06	3/27/07	5.44	5.09	-7.31
53+46	10/10/06	3/27/07	6.39	4.38	-3.32
55+51	10/10/06	3/27/07	-13.22	7.75	-5.29
57+57	10/10/06	3/27/07	-5.55	7.94	-6.65
59+62	10/10/06	3/27/07	-1.91	8.33	-0.13
61+62	10/10/06	3/27/07	5.55	6.04	-4.70
63+62	10/10/06	3/27/07	-9.64	0.84	-2.05
65+62	10/10/06	3/27/07	10.81	1.94	-4.61
67+62	10/10/06	3/27/07	-18.89	-1.77	-2.26
69+62	10/10/06	3/27/07	25.34	5.40	-8.03
71+62	10/10/06	3/27/07	-9.82	4.57	-5.49
73+62	10/10/06	3/27/07	7.90	6.05	-7.72
75+62	10/10/06	3/27/07	-17.50	6.08	1.94
77+62	10/10/06	3/27/07	9.83	10.23	2.69
79+62	10/10/06	3/27/07	-5.51	2.04	2.37
81+62	10/10/06	3/27/07	12.32	13.51	-8.57
83+62	10/10/06	3/27/07	5.42	4.34	-12.99
85+62	10/10/06	3/27/07	-6.69	-1.90	-4.04
87+62	10/10/06	3/27/07	4.68	4.07	-8.67

Table C-2. Summary of Shoreline Change and Volume Change (October 2006 to March 2007) Cont.

1. Positive changes indicate accretion or gain in volume along the profile and negative changes indicate erosion or loss of volume along the profile.

2. MHW assumed at +0.98 ft-NAVD88.

3. Shoreline Change and Volume Change is calculated for the period between surveys from October 10, 2006 to March 27,2007.

Transect Number (Station)	Old Survey Date	New Survey Date	Shoreline Change at MHW (ft)	Volume Change Above -15 ft NAVD 88 (cy/ft)	Volume Change Above 0 ft NAVD88 (cy/ft)
93+41	10/10/06	3/27/07	3.95	4.64	-2.42
103+08	10/10/06	3/27/07	11.67	3.42	-6.36
120+93	10/10/06	3/27/07	-13.47	-1.28	-7.44
129+17	10/10/06	3/27/07	5.16	-1.69	-6.46
141+98	10/10/06	3/27/07	5.75	3.40	2.67
152+01	10/10/06	3/27/07	-15.60	-1.50	-2.31
163+49	10/10/06	3/27/07	-0.40	-2.54	1.71
169+63	10/10/06	3/27/07	-19.03	0.68	-4.56
171+63	10/10/06	3/27/07	0.14	10.84	-1.13
173+63	10/10/06	3/27/07	8.49	14.20	-2.35
175+63	10/10/06	3/27/07	7.21	-7.78	-4.87
177+63	10/10/06	3/27/07	12.53	-1.64	-4.41
179+63	10/10/06	3/27/07	-5.59	-6.50	-2.98
181+63	10/10/06	3/27/07	-9.94	0.14	-1.97
183+63	10/10/06	3/27/07	-17.46	0.63	-1.25
185+63	10/10/06	3/27/07	-5.67	0.11	-1.64
187+63	10/10/06	3/27/07	-0.46	2.78	0.48
189+63	10/10/06	3/27/07	-6.25	-3.35	2.39
191+63	10/10/06	3/27/07	3.35	-2.02	3.72
193+63	10/10/06	3/27/07	-18.47	-13.66	3.69
195+63	10/10/06	3/27/07	-17.08	-8.22	3.39
206+86	10/10/06	3/27/07	-11.75	5.68	0.41
218+66	10/10/06	3/27/07	-9.59	6.90	-2.42
229+85	10/10/06	3/27/07	-15.54	-1.58	-5.90
242+03	10/10/06	3/27/07	-5.40	-14.46	2.07
252+62	10/10/06	3/27/07	-16.94	-8.76	-12.02
263+22	10/10/06	3/27/07	-4.95	3.69	-7.51
274+53	10/10/06	3/27/07	20.79	2.29	0.87
281+40	10/10/06	3/27/07	-6.59	8.85	-5.84
288+39	10/10/06	3/27/07	-2.39	4.28	-14.02
295+27	10/10/06	3/27/07	-4.20	3.24	-5.30
302+24	10/10/06	3/27/07	-37.97	-3.24	-2.45
315+96	10/10/06	3/27/07	5.98	13.85	10.96
323+09	10/10/06	3/27/07	-13.22	-1.91	-4.64

Table C-2. Summary of Shoreline Change and Volume Change (October 2006 to March 2007) Cont.

1. Positive changes indicate accretion or gain in volume along the profile and negative changes indicate erosion or loss of volume along the profile.

2. MHW assumed at +0.98 ft-NAVD88.

3. Shoreline Change and Volume Change is calculated for the period between surveys from October 10, 2006 to March 27,2007.

Transect Number (Station)	Old Survey Date	New Survey Date	Shoreline Change at MHW (ft)	Volume Change Above -15 ft NAVD 88 (cy/ft)	Volume Change Above 0 ft NAVD88 (cy/ft)
329+63	10/10/06	3/27/07	6.95	3.00	-1.63
331+43	10/10/06	3/27/07	17.45	6.80	-2.94
333+23	10/10/06	3/27/07	-6.11	-2.56	-2.70
335+03	10/10/06	3/27/07	12.95	7.26	-7.15
336+83	10/10/06	3/27/07	16.18	-4.39	-7.40
338+63	10/10/06	3/27/07	20.24	-1.96	-7.37
340+43	10/10/06	3/27/07	7.18	11.58	-6.99
342+23	10/10/06	3/27/07	-8.09	-4.48	-5.70
344+05	10/10/06	3/27/07	3.17	-0.23	-2.53
345+85	10/10/06	3/27/07	5.82	-3.92	-2.41
347+63	10/10/06	3/27/07	7.98	2.04	-8.49
349+43	10/10/06	3/27/07	3.43	3.40	-3.84
351+23	10/10/06	3/27/07	-31.28	-0.15	-7.39
353+03	10/10/06	3/27/07	-5.04	6.14	-0.78
354+83	10/10/06	3/27/07	-26.13	6.42	-4.43
356+63	10/10/06	3/27/07	2.07	-1.00	-1.82
358+43	10/10/06	3/27/07	-25.41	2.42	-3.76
360+23	10/10/06	3/27/07	2.77	2.23	-3.62
362+03	10/10/06	3/27/07	-23.33	5.90	-2.81
363+83	10/10/06	3/27/07	1.87	-12.91	-0.46
365+63	10/10/06	3/27/07	-17.84	-0.37	-2.92
367+43	10/10/06	3/27/07	-9.65	-8.92	0.18
369+23	10/10/06	3/27/07	-20.13	0.31	-7.57
371+03	10/10/06	3/27/07	-3.80	-5.48	-1.32
372+83	10/10/06	3/27/07	-16.56	5.10	2.05
375+08	10/10/06	3/27/07	-1.09	4.78	-0.41
376+78	10/10/06	3/27/07	-4.62	1.34	-3.22
378+48	10/10/06	3/27/07	1.22	5.69	-4.87
380+18	10/10/06	3/27/07	2.53	6.84	-3.66
381+88	10/10/06	3/27/07	5.28	2.03	-2.77
383+58	10/10/06	3/27/07	3.07	0.32	-9.01

Table C-3. Summary of Shoreline Change and Volume Change from East Ocean View Nourishment (November 2003-March 2007)

1. Positive changes indicate accretion or gain in volume along the profile and negative changes indicate erosion or loss of volume along the profile.

2. Volume Change is calculated for the period between surveys from November 15, 2003 to March 27, 2007.

Transect Number (Station)	Old Survey Date	New Survey Date	Shoreline Change Rate at MHW (ft/yr)	Volume Change Rate Above -15 ft NAVD 88 (cy/ft/yr)	Volume Change Rate Above 0 ft NAVD88 (cy/ft/yr)
329+63	11/15/2003	3/27/2007	-	-3.89	-
331+43	11/15/2003	3/27/2007	4.09	-6.04	-0.02
333+23	11/15/2003	3/27/2007	-18.02	-12.82	-4.47
335+03	11/15/2003	3/27/2007	-19.60	-12.56	-4.29
336+83	11/15/2003	3/27/2007	-16.38	-12.85	-6.17
338+63	11/15/2003	3/27/2007	-22.09	-13.31	-6.16
340+43	11/15/2003	3/27/2007	-24.44	-12.63	-6.49
342+23	11/15/2003	3/27/2007	-28.05	-14.33	-6.85
344+05	11/15/2003	3/27/2007	-29.44	-16.48	-4.76
345+85	11/15/2003	3/27/2007	-21.42	-11.13	-4.33
347+63	11/15/2003	3/27/2007	-9.70	0.10	-3.43
349+43	11/15/2003	3/27/2007	-14.97	-11.43	-4.32
351+23	11/15/2003	3/27/2007	-10.26	-2.07	-2.69
353+03	11/15/2003	3/27/2007	-17.75	-2.66	-0.71
354+83	11/15/2003	3/27/2007	-14.88	-1.92	-1.27
356+63	11/15/2003	3/27/2007	-19.58	-4.03	0.29
358+43	11/15/2003	3/27/2007	-15.44	-3.35	-2.88
360+23	11/15/2003	3/27/2007	-20.90	-9.64	-0.79
362+03	11/15/2003	3/27/2007	-12.04	-3.76	-1.91
363+83	11/15/2003	3/27/2007	-14.15	-4.00	-1.39
365+63	11/15/2003	3/27/2007	-13.14	-0.91	-1.54
367+43	11/15/2003	3/27/2007	-23.70	-7.14	-0.51
369+23	11/15/2003	3/27/2007	-19.80	-2.92	-1.58
371+03	11/15/2003	3/27/2007	-27.62	-8.04	0.01
372+83	11/15/2003	3/27/2007	-20.18	-2.97	-1.03
375+08	11/15/2003	3/27/2007	-31.63	-7.13	0.01
376+78	11/15/2003	3/27/2007	-21.59	-3.51	-0.21
378+48	11/15/2003	3/27/2007	-30.70	-8.34	-1.41
380+18	11/15/2003	3/27/2007	-31.59	-8.96	-1.91
381+88	11/15/2003	3/27/2007	-19.05	-4.83	-2.88
383+58	11/15/2003	3/27/2007	-30.34	0.27	-2.63

Table C-4. Summary of Shoreline Change and Volume Change from Central Ocean View Nourishment (March 2005-March 2007)

1. Positive changes indicate accretion or gain in volume along the profile and negative changes indicate erosion or loss of volume along the profile.

2. Volume Change is calculated for the period between surveys from March 15, 2005 to March 27, 2007.

Transect Number (Station)	Old Survey Date	New Survey Date	Shoreline Change Rate at MHW (ft/yr)	Volume Change Rate Above -15 ft NAVD 88 (cy/ft/yr)	Volume Change Rate Above 0 ft NAVD88 (cy/ft/yr)
15+00	3/15/2005	3/27/2007	-26.46	5.63	2.83
17+50	3/15/2005	3/27/2007	-24.50	0.03	-0.19
20+00	3/15/2005	3/27/2007	-15.32	-0.67	1.23
22+50	3/15/2005	3/27/2007	-1.09	-7.78	-6.18
25+00	3/15/2005	3/27/2007	-16.51	1.65	-1.48
27+50	3/15/2005	3/27/2007	-17.38	3.58	-2.11
30+00	3/15/2005	3/27/2007	-20.98	0.82	-0.38
32+50	3/15/2005	3/27/2007	2.12	-7.82	-9.77
35+00	3/15/2005	3/27/2007	2.42	-4.55	-4.77
37+50	3/15/2005	3/27/2007	-2.75	-7.93	-5.80
40+00	3/15/2005	3/27/2007	13.63	-6.40	-4.28
42+50	3/15/2005	3/27/2007	-11.55	-9.29	-7.50
45+00	3/15/2005	3/27/2007	16.66	-10.10	-7.10
45+25	3/15/2005	3/27/2007	19.94	-11.40	-7.23
47+30	3/15/2005	3/27/2007	20.76	-12.09	-7.67
49+35	3/15/2005	3/27/2007	27.79	-11.73	-8.41
51+41	3/15/2005	3/27/2007	10.44	-7.95	-5.91
53+46	3/15/2005	3/27/2007	9.65	1.87	-3.59
55+51	3/15/2005	3/27/2007	10.34	-4.13	-4.20
57+57	3/15/2005	3/27/2007	13.12	0.36	-4.14
59+62	3/15/2005	3/27/2007	6.61	-2.81	0.82
61+62	3/15/2005	3/27/2007	-21.28	4.32	2.00
63+62	3/15/2005	3/27/2007	19.64	-9.24	-2.33
65+62	3/15/2005	3/27/2007	-9.60	0.86	0.84
67+62	3/15/2005	3/27/2007	53.65	-12.21	-2.01
69+62	3/15/2005	3/27/2007	2.57	-1.09	-1.21
71+62	3/15/2005	3/27/2007	50.35	-10.33	-1.31
73+62	3/15/2005	3/27/2007	17.41	-1.81	0.99
75+62	3/15/2005	3/27/2007	3.16	-2.24	1.14
77+62	3/15/2005	3/27/2007	26.40	7.06	5.22
79+62	3/15/2005	3/27/2007	7.04	1.01	-1.79
81+62	3/15/2005	3/27/2007	9.07	-2.18	-4.18
83+62	3/15/2005	3/27/2007	14.91	-7.31	-3.63
85+62	3/15/2005	3/27/2007	7.91	-7.46	-4.67
87+62	3/15/2005	3/27/2007	4.75	-3.21	-1.77

Table C-4. Summary of Shoreline Change and Volume Change from Central Ocean View Nourishment (March 2005-March 2007) Cont.

1. Positive changes indicate accretion or gain in volume along the profile and negative changes indicate erosion or loss of volume along the profile.

2. Volume Change is calculated for the period between surveys from March 15, 2005 to March 27, 2007.

Transect Number (Station)	Old Survey Date	New Survey Date	Shoreline Change Rate at MHW (ft/yr)	Volume Change Rate Above -15 ft NAVD 88 (cy/ft/yr)	Volume Change Rate Above 0 ft NAVD88 (cy/ft/yr)
93+41	3/15/2005	3/27/2007	-5.10	-1.46	-0.84
103+08	3/15/2005	3/27/2007	9.37	8.19	-5.18
120+93	3/15/2005	3/27/2007	13.67	1.51	-8.65
129+17	3/15/2005	3/27/2007	9.64	4.20	-6.57
141+98	3/15/2005	3/27/2007	1.83	9.35	-0.53
152+01	3/15/2005	3/27/2007	15.50	1.14	-5.95
163+49	3/15/2005	3/27/2007	3.50	2.90	-2.82
169+63	3/15/2005	3/27/2007	10.94	-0.15	-4.26
171+63	3/15/2005	3/27/2007	14.90	-5.10	-3.56
173+63	3/15/2005	3/27/2007	6.39	4.80	-2.81
175+63	3/15/2005	3/27/2007	14.06	3.02	-3.83
177+63	3/15/2005	3/27/2007	8.37	-0.70	-4.17
179+63	3/15/2005	3/27/2007	11.87	-8.02	-4.44
181+63	3/15/2005	3/27/2007	18.06	-0.08	-4.51
183+63	3/15/2005	3/27/2007	-10.73	0.95	0.73
185+63	3/15/2005	3/27/2007	4.59	5.12	-1.94
187+63	3/15/2005	3/27/2007	-23.17	9.72	4.51
189+63	3/15/2005	3/27/2007	-0.62	7.81	1.49
191+63	3/15/2005	3/27/2007	-20.08	-0.69	2.60
193+63	3/15/2005	3/27/2007	6.29	0.96	-1.59
195+63	3/15/2005	3/27/2007	9.65	3.62	-2.40