Village of Southampton
Coastal Erosion Management
Post Sandy Considerations
March 14, 2013

August 23, 2012

November 4, 2012
Village of Southampton
Coastal Erosion Management Reaches
Reach 1 - Shinnecock Inlet to Halsey Neck Lane
Village of Southampton Reach 1

August 23, 2012
Village of Southampton Reach 1

Post Sandy Aerials
November 4, 2012
Village of Southampton Reach 1

Post Sandy Aerials
November 4, 2012
Village of Southampton
Coastal Erosion Management Reaches
Reach 2 - Halsey Neck Lane to Wickapogue
Village of Southampton Reach 2

Village of Southampton

Coastal Erosion Management

March 14, 2013

August 23, 2012
Village of Southampton Reach 2

Post Sandy Aerials
November 4, 2012
Village of Southampton Reach 3

Post Sandy Aerials
November 4, 2012
Village of Southampton Coastal Erosion Management
Three Coastal Reaches – Three Integrated Strategies

Reach 1 – Shinnecock Inlet to Halsey Neck Road
Condition - Generally wide beaches and high dunes
Recommend – Aggressive sand fence and beach grass to restore and enhance dunes

Reach 2 – Halsey Neck Road to Wickapogue
Condition - Substantial beaches and dune with 95% of the area protected with seawalls.
Recommend – Complete seawalls to form consistent protection. Enhance dunes by adding dune compatible sand and maintain with sand fence and beach grass.

Reach 3 – Wickapogue to Jule Pond
Condition – Subject to increasing erosion by sand waves. Dunes not rebuilding naturally after storms. Apparent sand deficit.
Recommend – Interim measures to protect homes, ponds and infrastructure. Long term beach restoration.
The Path Forward

1. Conduct a Shoreline Analysis to determine the causes and amounts of shoreline erosion and accretion, including a flooding vulnerability analysis under varying beach and dune protection scenarios.

2. Prepare a Coastal Erosion Management Plan that integrates the existing Land Use programs found in the Village Code (e.g. Coastal Erosion Hazard Areas – Chapter 49, Beach and Erosion Protection – Chapter 37, Flood Damage Prevention – Chapter 62) with a beach and dune restoration and enhancement program, including sand fence beach grass, seawalls, and beach nourishment.

3. Implement the Coastal Erosion Management through a combination of regulatory guidance documents for coastal protection structures and activities and consider undertaking beach restoration similar to the Bridgehampton-Water Mill and Sagaponack areas.
Application To Sagaponack & Bridgehampton-Water Mill Beach

Beach Profile Volume Analysis

1. Cross sectional area of lens 1: property to +10 ft NGVD
2. Cross sectional area of lens 2: +10 ft to +5 ft NGVD
3. Cross sectional area of lens 3: +5 ft to -5 ft NGVD
4. Cross sectional area of lens 4: -5 ft to -10 ft NGVD
5. Cross sectional area of lens 5: -10 ft to -18 ft NGVD

"Profile Volume"

Elevation (ft NGVD)

MLW

Distance from Baseline (ft)

Offshore Bar

Village of Southampton

Southampton, NY
Recommended Plans

Sagaponack Beach – 2.7 miles

Reach 1

- Bridgehampton/Water Mill – 6.0 miles
- Net Sand Movement

- 10 Year Volume (Middle Scenario)
- 420,000 cy
- Project Totals
- 1,035,000 cubic yards*
- 10-Year Cost Estimate
- $11.5 million
- Net Cost per ft Estimate
- ~ $743/ft
- Net Cost/ft/yr
- ~ $75/ft/yr

*Upper range +15%

Sagaponack - 2.7 miles

- Reach 2

Bridgehampton-Water Mill Beach – 3.0 miles

Reach 3

- Bridgehampton/Water Mill – 6.0 miles
- Net Sand Movement

- 10 Year Volume (Middle Scenario)
- 500,000 cy
- Project Totals
- 950,000 cubic yards
- 10-Year Cost Estimate
- $10.9 million
- Net Cost per ft Estimate
- ~ $696/ft
- Net Cost/ft/yr
- ~ $70/ft/yr

*Upper range +15%

“Beach Nourishment Longevity Is Proportional to the Square of the Project Length”

“Double the Length and You Quadruple the Design Life”

“Sand Moves East and West According to Wind and Wave Direction. But On Average More Sand Moves West Over Time”
ARAM V. TERCHUNIATION, M. Sc.
Curriculum Vitae

Areas of Expertise

* Geomorphology, coastal processes, coastal hazard and erosion analysis
* Wetlands delineation, permitting and erosion control construction
* Environmental science and resource management
* Endangered species monitoring and management
* Zoning analysis and interpretation

Timothy W. Kana, PhD

Founder and president, registered professional geologist (NC, SC)
Degrees: The Johns Hopkins University (BA), University of South Carolina (MS, PhD)
Specialties: beach erosion, coastal geomorphology and processes, sediment budgets, beach restoration planning and design, tidal inlet sediment dynamics