

## Tim Carroll

---

**From:** Tara Marden [tmarden@whgrp.com]  
**Sent:** Monday, January 28, 2013 2:52 PM  
**To:** 'Tim Carroll'; 'pam bunker'  
**Subject:** cost matrix  
**Attachments:** Cost\_Matrix\_Chilmark.pdf

Hi Tim,

Please find attached a cost matrix that I promised, for a number of different types of coastal projects that we have discussed for the beaches in Chilmark.

Although I do not have the Erosion Control Study at Lucy Vincent finished (in progress), I have included some preliminary costs for dune construction and sand fence for the overwash area that we have looked at several times at the eastern end of the beach. Without having a recent survey or existing conditions plan to work from, I was only able to do some "back of the envelope" calculations for a reasonably sized dune that would occupy the overwash area. Assuming a dune that extends along the entire 175' overwash fan, is 50 feet wide, and on average 4' high, I estimated a volume of about 1,200 cubic yards of sand. You can determine from the cost matrix what this will cost based on each source of sand. You can also determine what the dune will cost if we include a biodegradable core within the dune. Estimated costs for permitting, engineering and construction are included in the matrix.

For a 1,200 cubic yard dune, sand being barged to the Island and then trucked to the site, two rows of sand fence, and beach grass planting on the new dune, here is the math using the most conservative numbers:

Site Survey and Existing Conditions Plan- \$5,000

Engineering Design and Drawing- \$5,000

Permitting - \$7,500

Sand - 1,200 x \$40.00 yard = \$48,000

Sand Fence - \$3,500

Beach Grass - \$5,250

TOTAL = \$74,250

You can change the scenario by adding more or less sand, adding a core to the dune etc. You can also assume about \$1.00 per square foot for beach grass.

This is probably a good guide to use as far as budget and what we will likely recommend, but until you get thru the entire process, it will be tough to know what the agencies will allow or what the final design will be. I hope to have the final report to you by the end of next week, although I am still awaiting feedback from the agencies.

Please call me if you have questions.

Best Regards,

Tara.

Woods Hole Group - [www.woodsholegroup.com](http://www.woodsholegroup.com)

**Tara Marden**

Coastal Geologist/Project Manager

Direct: (508) 495-6232

Office: (508) 540-8080

Fax: (508) 540-1001

81 Technology Park Drive

East Falmouth, MA 02536