Sesuit Harbor Use and Capacity Study

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1.0 INTRODUCTION

Sesuit Harbor (the Harbor), a federally authorized navigation channel and harbor of refuge, is located on the Cape Cod Bay shoreline of the Town of Dennis (the Town) (Figure 1-1).

Throughout its settled history, Sesuit Harbor has been a place where residential, commercial and, later, recreational uses coexist. The areas surrounding Sesuit Harbor, Sesuit Neck and Quivet Neck, were settled in 1639. Between 1776 and 1890, the Salt Works operated on Quivet Neck. Between 1850 and 1863, Shiverick Shipyard operated on Sesuit Neck. Commercial and recreational fishing vessels have historically called Sesuit Harbor home because of its access to Cape Cod Bay. As development expanded across Cape Cod over the past 30 years, residential, commercial, and recreational uses intensified around the Harbor.

After centuries of use as a tidal creek with extensive salt marsh systems, Sesuit Harbor developed formally in the 1950s with construction of jetties and dredging of a channel in the Outer Harbor (1945-1950), dredging a turning basin in 1948, and extension/widening of the entrance channel and dredging the Inner Harbor in 1958 (Louis Berger Group, 2009; Woods Hole Group, 2010). As one of the few harbors of refuge along the north facing shoreline of Cape Cod, Sesuit Harbor was authorized as a federal navigation project by the US Army Corps of Engineers (USACE) in the early 1980s. The USACE maintained the navigation channel from 1982 to 2004. Since 2005, the Town has contracted the Barnstable County Dredge to maintain the channel (Woods Hole Group, 2010).

Presently, Sesuit Harbor is home to two residential communities (Sesuit Neck and Quivet Neck) the municipal marina (slips, moorings, and boat ramps), the Dennis Yacht Club, Northside Marina (slips and rack storage), and the Sesuit Harbor Café. The slips, moorings, boat ramps, and boat racks at Sesuit Harbor support not only recreational users, but also a variety of water-related businesses – including commercial finfishing and shellfishing, sportfishing charter boats, lunch/dinner cruises, a recreational boat rental club, personal watercraft rentals, and parasailing tours.

With land-side and water-side activities intensifying throughout the harbor, aging infrastructure, and concurrent work proceeding to secure a Town-wide Comprehensive Dredging Permit as well as zoning for Sesuit Harbor, the Town commissioned this Sesuit Harbor Use and Capacity Study:

1) To evaluate the current utilization, capacity, maintenance and activity at Sesuit Harbor; and
2) To make recommendations so that this Town asset continues to operate efficiently and effectively.

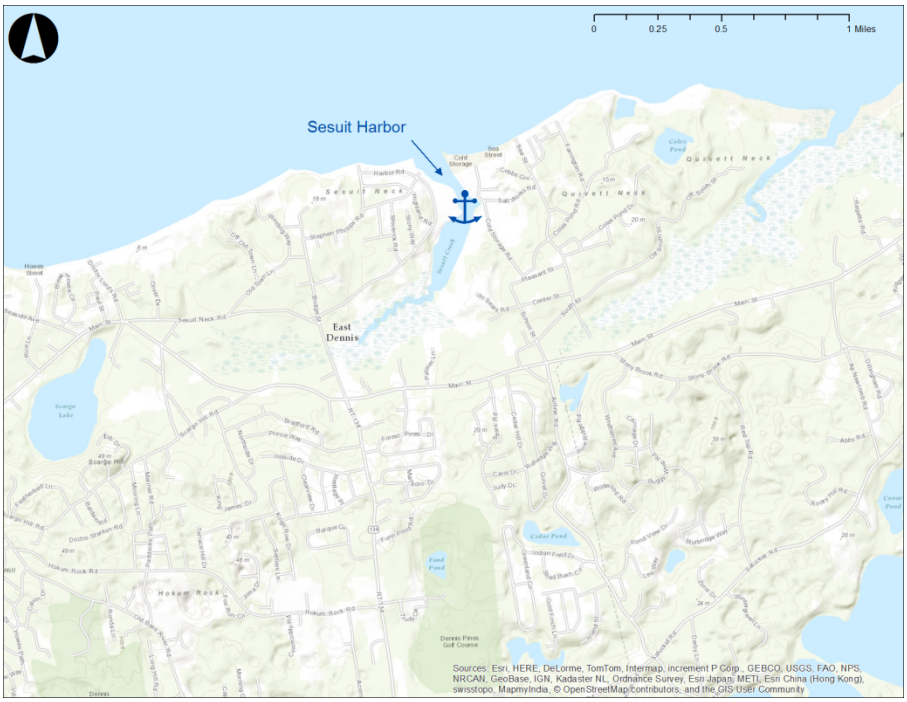

Figure 1-1. Sesuit Harbor Locus Map

To achieve these goals, the Sesuit Harbor Study Committee outlined the following scope of work:

- Evaluate current use of the harbor and access (from land and through the Harbor Channel) to determine whether the current activity level can be maintained safely, effectively and efficiently.
- Make recommendations as to the physical, operational and governance improvements that would be necessary to maintain a safe, effective, and efficient harbor and marina.
- Evaluate current regulations, by-laws and fees and make recommendations for changes that will provide a safe, effective, and efficient harbor and marina.
- Evaluate current allocation and utilization of personnel supporting Harbor operations and make recommendations for changes that will provide a safe, effective, and efficient harbor and marina.
- Evaluate Harbor and Waterway assets to determine if their condition and schedule for replacement/rehabilitation meet current operating standards and allow the Town to maintain, support and properly operate program on and from the facility.
- Evaluate the surrounding parking facilities as to the use demand and make recommendations for changes that will provide a safe, effective, and efficient harbor and marina.
- Evaluate current pedestrian access to the Harbor Marina facility and make recommendations to improve access and safety.
- Evaluate and make recommendation as to the necessary land-side and water-side improvements to provide a safe, effective, and efficient harbor and marina.

- Identify any and all costs associated with any recommendation or alternative identified in the course of this analysis.

The Woods Hole Group Team which conducted this Sesuit Harbor Use and Capacity Study consisted of four consulting firms – Woods Hole Group, Baxter Nye Engineering & Surveying, Marina/Consult, and Shadley Associates.

Woods Hole Group has been providing coastal and marine solutions for 28 years to clients locally and globally. The Coastal Sciences, Engineering & Planning team focuses on:

- Modeling of coastal/oceanographic processes and water resources infrastructure;
- Engineering planning and design for coastal and civil works projects;
- Studies of coastal geology and coastal processes; and
- Habitat restoration overview and experience.

Baxter Nye Engineering & Surveying has 40 years' experience providing licensed Professionals in Engineering, Land Surveying, and Wetland Science to projects throughout the Cape, Islands, and Southeastern Massachusetts. Baxter Nye focuses on:

- Civil Engineering-Land Development;
- Land Surveying;
- Utility & Infrastructure Design;
- Environmental Permitting;
- Planning; and
- Construction Administration Services.

Marina/Consult is recognized as the foremost consulting resource in the marina industry. Marina/Consult provides a complete array of services for every step in a marina's evolution:

- Market analysis and feasibility studies;
- Marina design;
- Marina financing, operations and marketing; and
- Marina appraisals, valuation counseling and brokerage services.

Shadley Associates has provided professional landscape architecture, site planning and urban design services to private and public sector clients for 11 years. Shadley Associates focuses on:

- Urban design, plazas, building entrances, and streetscapes
- Waterfronts, public parks, and economic revitalization
- Campus planning, corporate and mixed-use developments
- Residential estate design.

To complete the requested scope of work for the Sesuit Harbor Use and Capacity Study, the Woods Hole Group Team gathered information from the various Harbor stakeholders and Town officials in the following ways:

- Kickoff meeting and site visit with the Town Planner and the Harbormaster;
- Numerous working meetings with the Harbor Study Committee;
- Stakeholder engagement listening sessions (August 19, 2013) for residential, recreational, and commercial groups;
- Harbor stakeholder engagement survey (online and paper);
- Town of Dennis file research (Building Department, Engineering Department, GIS Department, Harbormaster, Human Resources, Natural Resources, Police Department);
- Meetings, telephone conversations, interviews, and emails with various Town officials (Harbormaster Terry Clen, Deputy Harbormaster Rick Lemont, Town Planner Daniel Fortier AICP, Director of Natural Resources Karen Johnson, Town Engineer Joseph Rodricks P.E., Chief of Police Michael Whalen), Town Committees (Harbor Study Committee, Waterways Commission), and other operators in the Harbor (Joe Buscone and Dan Schadt of Northside Marina/Sesuit Harbor Café/Lobster Roll, Brett Peterson of Freedom Boat Club, Commodore of the Dennis Yacht Club, various commercial boat captains and recreational users).

2.0 ACCESS AND USE

Access to and use of Sesuit Harbor occurs from land and water, and consists of recreational and commercial activities. This section evaluates access to and use of the Harbor to determine whether the current activity level can be maintained safely, effectively and efficiently.

2.1 CURRENT ACCESS

Land access to Sesuit Harbor occurs primarily through the parcels at Sesuit Harbor West, Sesuit Harbor East, Northside Marina, and the Dennis Yacht Club. These facilities provide access to the Harbor through a combination of docks (and moorings), boat ramps, and boat storage/launch services. Sesuit Harbor West, Sesuit Harbor East, and Northside Marina also provide non-water access to the Harbor via benches/picnic tables and outdoor seating at the Sesuit Harbor Café. Some pedestrian access to the Harbor also occurs at the Town Landing (between Northside Marina and the Dennis Yacht Club) and at the overlook area along Salt Works Road.

Although alternatives are possible (and sometimes used), typical routes used by vehicles to access Sesuit Harbor include:

- Sesuit Neck Road
- Bridge Street > Sesuit Neck Road
- School Street > Pleasant Street > Cold Storage Road

Pedestrian and bicycle access to both sides of the Harbor is limited. There are no sidewalks along Sesuit Neck Road, Cold Storage Road, Pleasant Street, and half of School Street. Sidewalks are provided:

- Along the eastern side of Bridge Street up to Sesuit Neck Road;
- Along the northern side of Route 6A between Bridge Street and South Street; and
- Along the western side of School Street between South Street and Center Street.

There are no bicycle paths or bicycle lanes in the vicinity of Sesuit Harbor, but a bicycle/pedestrian path currently runs along the west side of Route 134 between Bob Crowell Road and Hokum Rock Road.

Water access to Sesuit Harbor is via the federally authorized navigation channel from Cape Cod Bay. The outer section of the navigation channel is 100 feet wide, and runs between the jetties from the bay 1610 feet southeast to the base of the west jetty. The inner section of the navigation channel is 60 feet wide, and runs from the base of the west jetty 1118 feet southeast and south narrows to the southeast corner of Northside Marina's bulkhead. Annual dredging maintains the navigation channel at a depth of -6 feet MLW. A series of 9 buoys (5 green, 4 red) mark the navigation channel for vessels. Figure 2-1 provides the location of the current navigation channel and buoys. Navigation within and use of the Harbor is complicated by the 13 foot tide range and current levels of sedimentation within the inner harbor (which has not been dredged in over 50 years). In fact, the Harbormaster reports losing mooring capacity in recent years due to

sedimentation of the inner harbor. Impending loss of interior slips and tender spaces is evident on both sides of the harbor due to protracted sedimentation and bank sloughing.

Figure 2-1. Existing Navigation Channel and Buoys

According to 2013 records provided by the Harbormaster Department and Northside Marina, in-water leasable facilities at Sesuit Harbor (slips and moorings at the municipal and commercial facilities) (Figure 2-2) total 406 leasable spaces:

- 131 Sesuit Harbor West slips (records indicate 133 historically available)
- 125 Sesuit Harbor East slips (records indicate 127 historically available)
- 117 Northside Marina slips
- 21 Sesuit Inner Basin moorings (records indicate 26 historically available)
- 12 Sesuit Outer Basin moorings (records indicate 20 historically available)

Figure 2-2. Existing Municipal and Commercial Berthings

The Town reserves 4 of its 256 slips as permanent transient slips. The remaining 252 slips and 33 moorings are leased seasonally. Additionally, the Town provided leasable spaces for 22 prams (13 on West Side and 9 on East Side); these small boats are generally used for accessing moorings and are tied to the main walkways in areas too shallow for use as slips.

In addition to in-water boat storage, both facilities offer daily access to the Harbor. The Town's two boat ramps provide paved access for trailered boats. Northside Marina provides 172 rack storage spaces, allowing patrons to call ahead for valet service.

Parking lots at Sesuit Harbor West, Sesuit Harbor East, and Northside Marina facilitate use of the slips, moorings, boat ramps, and rack storage. Based on site visits and examination of aerial photography, facilities at Sesuit Harbor provide parking for the various harbor patrons:

- Sesuit Harbor West = 112 vehicles (paved) + ~ 38 trailers (unpaved)
- Sesuit Harbor East = ~ 40 vehicles (unpaved) + 72 trailers
- Northside Marina = ~ 90 vehicles (paved)
- Sesuit Harbor Café = 42 vehicles (unpaved, marked)

2.2 CURRENT USE

Although use of Sesuit Harbor occurs year-round, activity is greatest during the boating season (spring to fall). The Town requires that vessels must occupy their designated slips and moorings by June 15, and must vacate by November 1 to facilitate winterization. Some boats remain in the water at Northside Marina throughout the year. Use of the boat ramps is possible year-round. The various documented seasonal and year-round uses in and from Sesuit Harbor include:

- Recreational boating (motorboats, sailboats, jetskis, kayaks);
- Boat sales and repair;
- Boat rental;
- Boat storage;
- Commercial fishing;
- Chartered sportfishing;
- Chartered (local) cruises;
- Chartered parasailing;
- Dining;
- Yacht Club;
- Sightseeing and picnicking;
- Swimming and fishing (in designated areas);
- Shellfish overwintering (in designated areas);

Levels of use in the Harbor are not well documented, but some translatable (proxy) data is available.

The Town reports 100% occupancy of the 252 slips and 33 moorings available for seasonal lease (acknowledging occasional mid-season turnover that may remain unrented for the remainder of the season). The Town maintains wait lists for slips and moorings at Sesuit Harbor. As of July 2013, the slip waiting list contained 299 names and the mooring waiting list contained 36 names. Since boaters must re-apply and pay a fee annually to remain on the waiting lists, these figures likely represent real demand for access to the Harbor. Similarly, Northside Marina reports 100% occupancy of its 117 slips. The private marina also maintains a waiting list. User interviews confirmed strong preferences for obtaining berthings in Sesuit Harbor. High occupancy rates and long waiting lists demonstrate demand for access to the Harbor, but these data are less useful in demonstrating intensity of use since boat use patterns vary widely. Therefore, other indicators are necessary to approximate Harbor usage.

In 2012, the Town began tracking daily parking use at the West Side parking lot. The parking lot attendant recorded the number of vehicles and vehicles with trailers (daily passes and seasonal stickers) in the West Side lot at five intervals over the course of the day. Figures 2-3 and 2-4 use these data to approximate utilization of the West Side as daily maximums of observed vehicles and trailers (respectively) during the 2012 boating season. Figures 2-5 and 2-6 present similar data for 2013. Although the Town issues parking stickers and collects daily fees for the East Side, it does not keep similar parking records on the East Side.

The West Side data indicate use of Sesuit Harbor is highest on weekends. This trend is evident for vehicles, and amplified for trailers. During the 2012 season, West Side vehicular parking was never more than 80% full but trailer parking exceeded capacity on three Saturdays (May 26, July 14, August 4). Since there was room in the vehicle lot, parking attendants likely directed spillover trailer parking to this area. 2013 data indicate use was lower overall than in 2012, likely attributable to weather. Fourth of July weekend 2013 exhibited exceptionally high use, with both vehicle and trailer parking nearing capacity. Although some users surveyed reported traffic backing up Sesuit Neck Road on busy weekends, consultation with Harbormaster staff indicates this is a rare occurrence and that said backups are short in size and duration, and therefore not an operational or safety concern.

Woods Hole Group Team observations on the East Side suggest that the pattern of use is similar to the West Side trailer data (most use on weekend days with favorable weather conditions), but the intensity of use may be greater since it is the newer and preferred boat ramp. Interviews with Harbormaster staff suggest that the East Side lot provides ample space for trailers and only occasionally fills up. A survey of East Side slip holders indicated that their (small gravel) vehicle parking area tends to fill up on favorable boating days.

Northside Marina reports it has approximately 225 parking spaces (note the discrepancy in reported vs. observed parking capacity may be due to the location of marina rack storage and other operational equipment), but does not track their utilization. Northside does track the number of boats accessed from their 172 boat rack storage system daily. Figure 2-7 presents the Northside boat valet data for the 2013 boating season. Rack storage usage follows similar patterns of use as vehicle and trailer parking at Sesuit Harbor West (more intense use on weekends, and likely weather-dependent). 2013 data indicate that between 30 and 45 boats embark from rack storage per day on a typical weekend. This represents no more than 25% of the total storage capacity.

2.3 HARBOR CAPACITY

There is no industry-standard approach to determining the carrying capacity of a waterway. Although planners and managers have implemented a variety of models and approaches over the years, current theory suggests there that numerical approaches fail to identify all the complex relationships and uses within a waterway and that site-specific user surveys and continued monitoring (adaptive management) typically culminate in the right choices for each waterway (National Water Safety Congress, 1996 and 2004). Numerical approaches to determining waterway carrying capacity have been developed primarily for inland lakes and are not applicable to small coastal harbors such as Sesuit Harbor, which serve as access points to large open waterways. Because of the shortcomings of formulaic approaches and the unique dynamics at all harbors, this assessment of capacity at Sesuit Harbor focuses on interviews with Town officials, local feedback (recreational/commercial/resident user surveys and interviews, public and committee meetings, etc.), and a few physical metrics.

The overwhelming response from local users of Sesuit Harbor is that the Harbor has already reached capacity. While perceptions can be disproportionately influenced by

factors such as noise, smell or specific (and perhaps isolated) experiences of user group incompatibility, the overall impression of the status of the harbor among the various user groups is noteworthy. In a survey of 107 residents, recreational marina users, and commercial marina users (Appendix A), 90% of respondents indicated they believed Sesuit Harbor was operating "at capacity" or "above capacity". Comments in the survey noted a number of contributing factors to this impression that the Harbor is crowded, such as:

- Vehicle and trailer traffic (congestion and speeding) and parking;
- Need for pedestrian amenities;
- Inadequate way finding signage;
- Noise (boats, personal watercraft, marina/dredging equipment, social functions);
- Odors (beach nourishment and café);
- Need for dredging throughout Harbor;
- Blind spots and tight configuration among the docks;
- Congestion at the boat ramps and gas dock on high use days;
- Stacked boat storage;
- Speeding in and around the navigation channel.

A preliminary indicator of Harbor capacity that can be derived from existing data is the ratio of (vehicle) parking spaces to slips and moorings. The West Side provides 112 parking spaces for 129 slips (currently leasable excluding 2 transients) and 20 moorings (estimated 60% of total based on proportion of prams kept on West Side), resulting in a ratio of 0.75 parking spaces per berth (slips and moorings). The East Side provides 40 parking spaces for 123 slips (currently leasable excluding 2 transients) and 13 moorings (estimated 40% of total based on proportion of prams kept on East Side), resulting in a ratio of 0.29 parking spaces per slip. Northside Marina reports it provides 225 parking spaces (see Section 3.2 for a note on the discrepancy between reported and observed parking) for 117 slips and 172 rack spaces, resulting in a ratio of 1.9 parking spaces per slip or 0.8 parking spaces per storage space (slips and racks). Based on the observed number of parking spaces at Northside (90, excluding café parking), the ratio is 0.8 parking spaces per slip or 0.3 parking spaces per storage space (slips and racks). Because rates of boat use are variable among users, marina industry practices generally use a ratio of 0.25 parking spaces per slip (and anticipate possible shortages on Memorial Day, Independence Day and Labor Day weekends); therefore, parking ratios at the Harbor are within the range of normal for the industry.

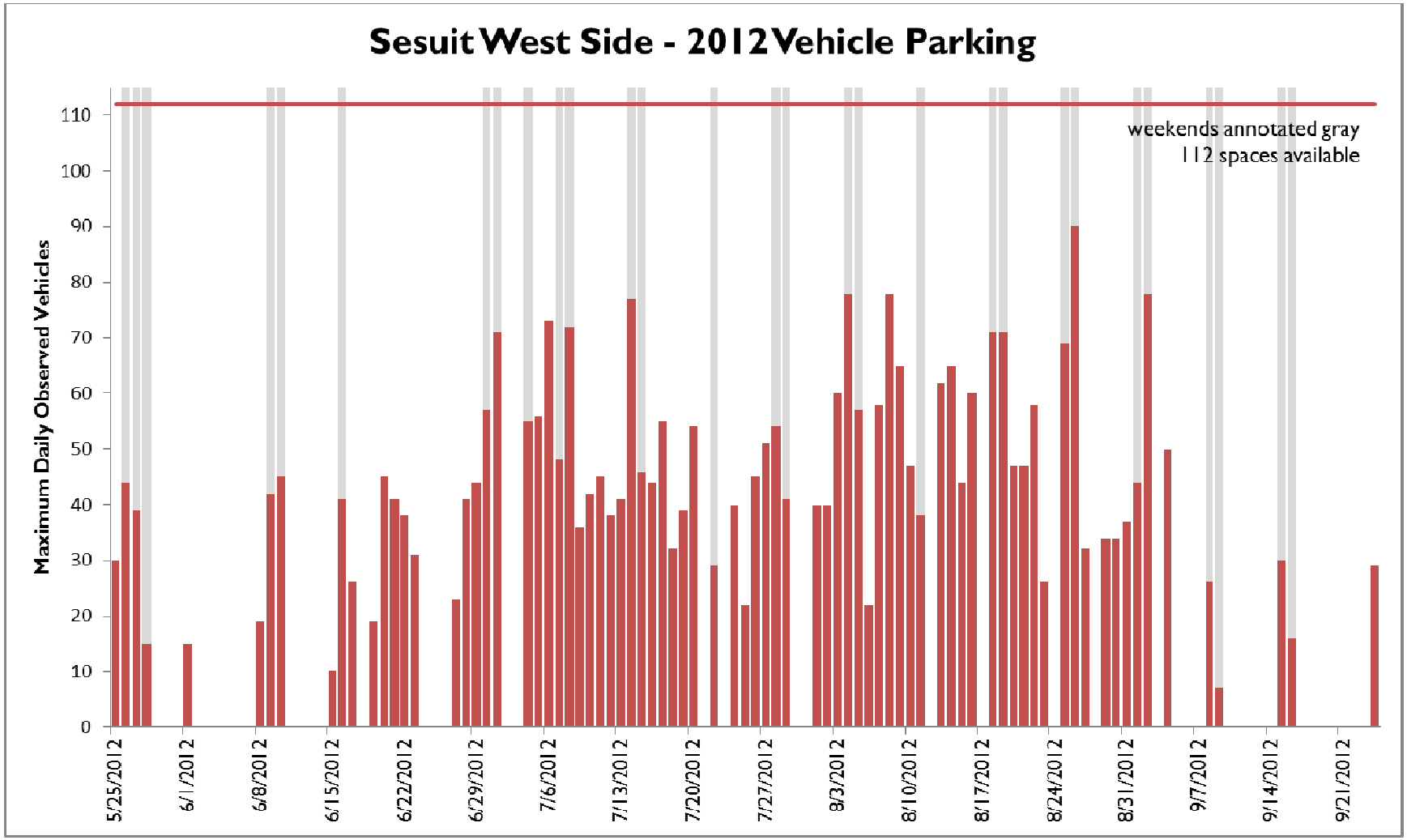

Figure 2-3. West Side Vehicle Parking - 2012

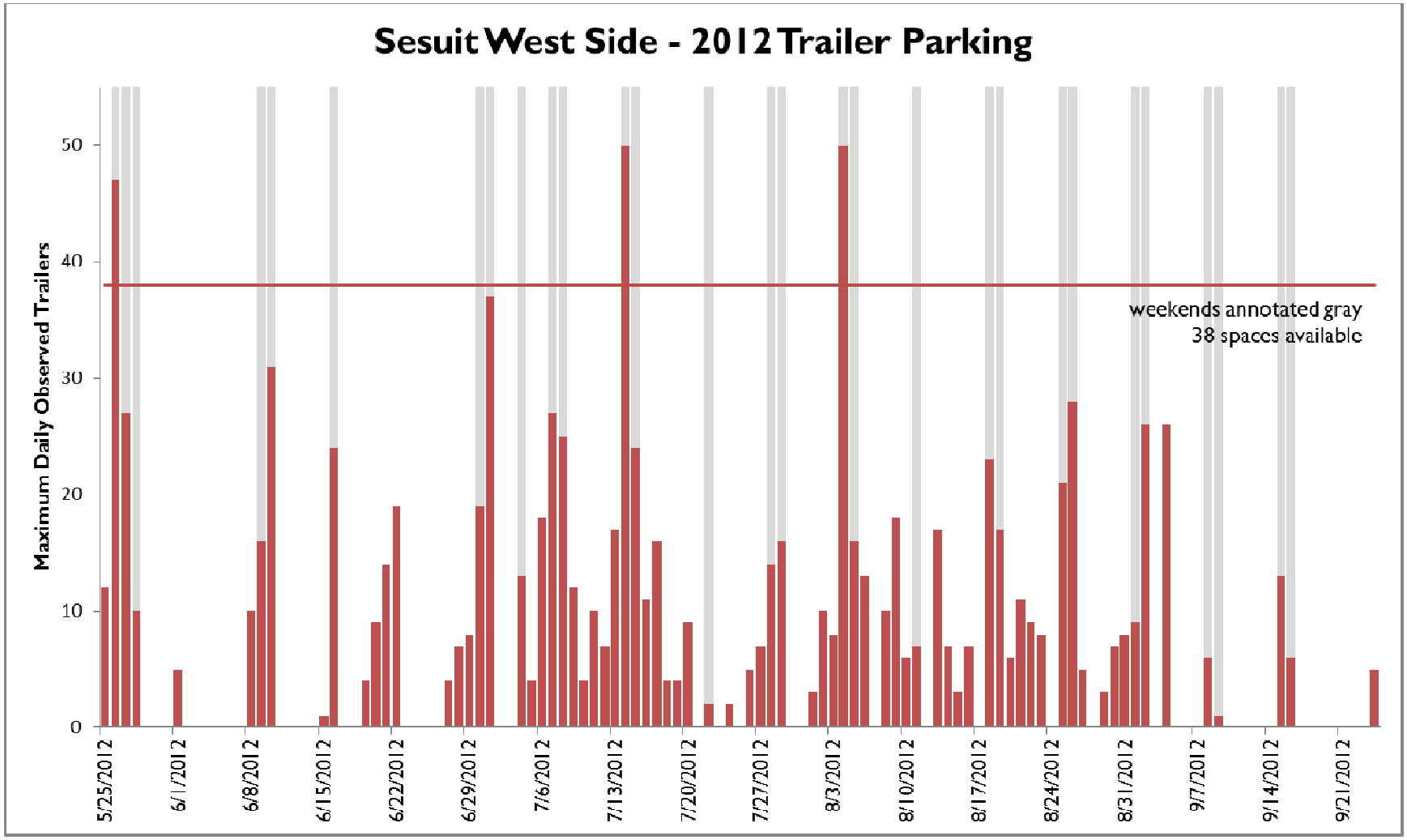

Figure 2-4. West Side Trailer Parking - 2012

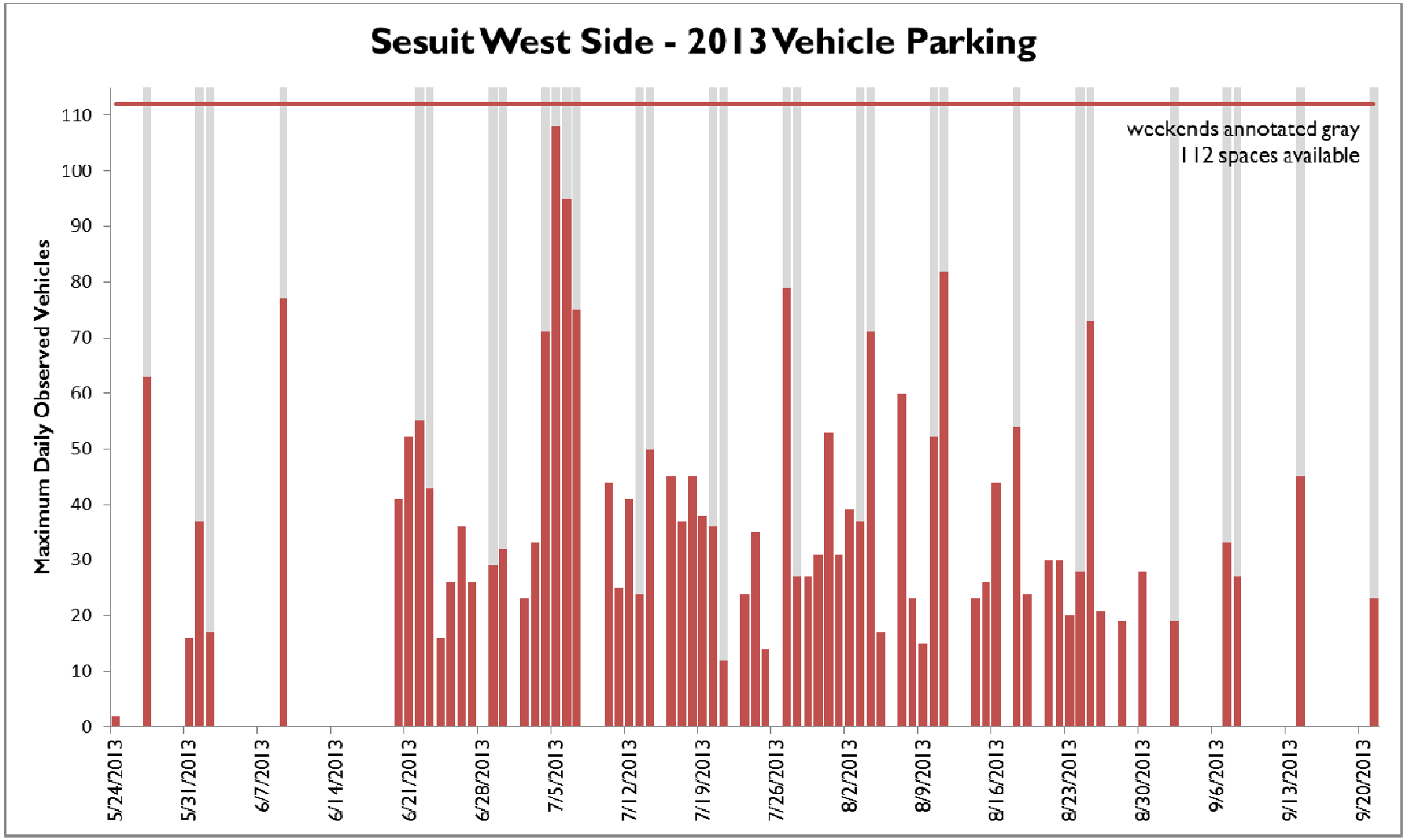

Figure 2-5. West Side Vehicle Parking - 2013

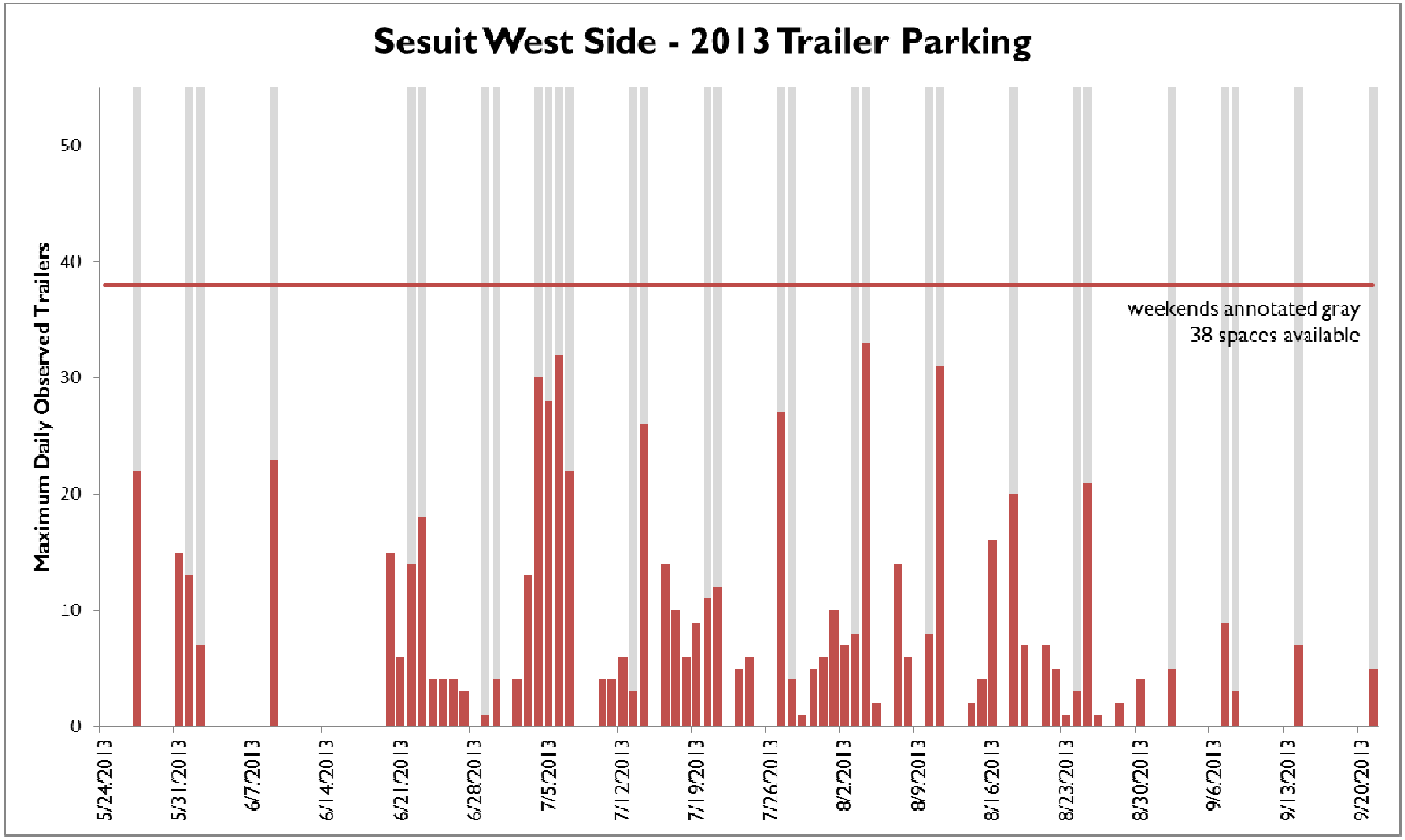

Figure 2-6. West Side Trailer Parking - 2013

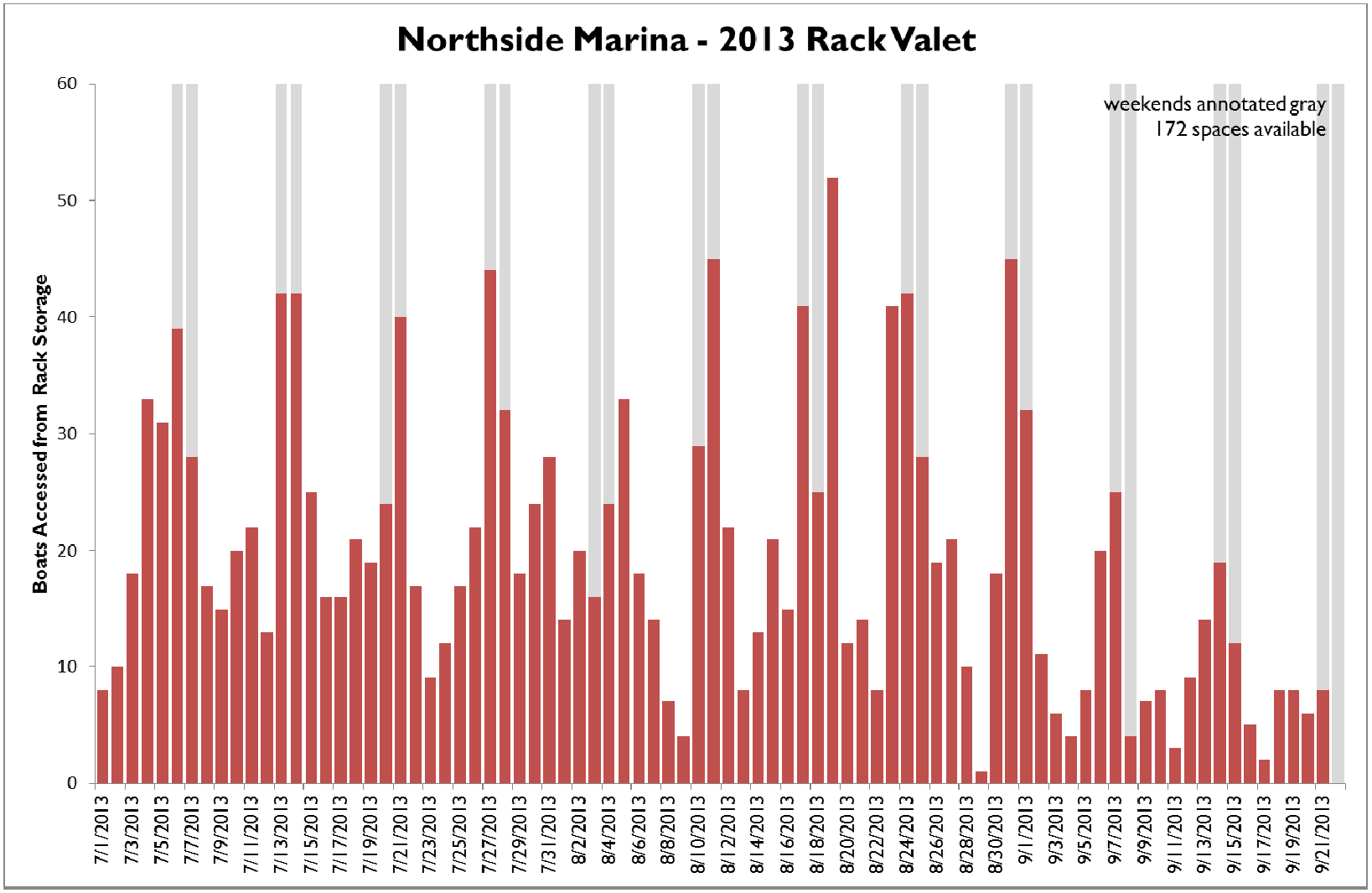

Figure 2-7. Northside Marina Rack Use - 2013

The basic slip/mooring to parking metric analyzed above does not account for the various uses within the Harbor. Operation of commercial fishing boats (with crews), charter fishing boats (with crews and patrons), and cruise/tour boats (with crews and patrons) requires more parking per slip than a recreational berthing. Marina design guidelines (CADBW, 2005) suggest the following parking ratios:

- 0.60 single vehicle parking spaces per recreational berth
- 2.00 parking spaces per commercial fishing boat berth

Based on these planning guidelines and interpretation of the 2013 rent rolls (and assuming an average of approximately three passengers per car for excursion boats), the parking recommended to accommodate the current boat storage infrastructure at the various facilities in Sesuit is:

- West Side = 147 parking spaces
  *((123 rec. slips + 32 rec. moorings) * 0.6) + (9 charters * 2.0)+ ((60 seat Lobster Roll + 49 seat Albatross) * 0.33)*
- East Side = 76 parking spaces
  *(127 rec. slips * 0.6)*
- Northside Marina = 180 parking spaces
  *((112 rec. slips + 172 rack spaces) * 0.6) + (5 com. slips * 2.0)*

This comparison to conservative planning guidelines (which does not consider ramp use or trailer parking) indicates that all three facilities may be deficient in vehicle parking for the level of recreational and commercial use currently generated by the slips, moorings and/or rack storage. While it may appear that in-water and storage facilities at Sesuit exceed the parking capacity of the Harbor, it is worth noting that these guidelines are conservative compared to industry standards and estimates for the cruise boat parking conservatively assume fully booked excursions occurring in the same timeframe. Notwithstanding, it is instructive for planning purposes to note that the current parking at the Harbor likely could not accommodate much in-water expansion (especially commercial), and probably needs expansion in some areas (notably the lot serving the East Side slip area).

Section 7 provides further site-specific analysis of harbor capacity in relation to parking facilities (for planning purposes).

In July of 2013, the Dennis Police Department completed a traffic safety study (Town of Dennis, 2013a) in the area of Sesuit Neck at the request of the Dennis Planning Board. This study reviewed speed survey data (August 2010, April-May 2011, May-June 2011, April 2013, July 2013), vehicle count data (July-August 2011, August 2012), crash history (2010 to 2013), and roadway design along Sesuit Neck Road. The department did not raise any concerns about speeding, traffic, accidents, or roadway design in the report. This finding suggests that there is currently not an issue with roadway capacity on Sesuit Neck Road. The study does, however, note Town efforts to add parking signage, increase patrols, and maintain sightlines, and recommends installation of sidewalks along Sesuit Neck Road. This finding is further discussed in Section 8.

Design criteria for water areas (CADBW, 2005) suggest the following dimensions for safe and efficient use of berthing facilities:

- 75 foot minimum channel width;
- Entrance channel depth (greater of) 3 feet below deepest draft or 5 feet;
- Interior channel and fairway depth (greater of) 2 feet below deepest draft or 4 feet;
- Minimum fairway width
    - Without side-ties 1.75 * length of longest berth perpendicular to fairway, or if boats longer than the berths will be allowed to overhang into fairway 1.75 * length of longest overhanging boat;
    - With side-ties 1.5 * length of longest boat side-tied parallel to fairway.

Section 2.1 provides specific details about the design widths and depths of the Sesuit Harbor navigation channel. The outer channel (100 feet wide) meets the design criteria set forth by CADBW (2005), however the inner channel (60 feet wide) does not. The proposed 10-Year Comprehensive Dredge Program (Town of Dennis, 2013b) would widen the inner channel to an acceptable width of 100 feet.

The bathymetry survey performed by Louis Berger Group (2009) indicated that in 2009, the depth in the navigation channel and the fairway in the outer harbor (to the West Side boat ramp) was between -7.6 and -9.6 feet MLW (-12 to -14 feet NGVD), the result of the continued maintenance dredging of the channel. The 2009 bathymetry survey indicated the fairway depth in the inner harbor (between the West Side and East Side docks) was between -6.6 and -7.6 feet MLW (-11 to -12 feet NGVD). The 2009 bathymetry survey indicated the inner harbor mooring field depth was between -3.6 and -6.6 feet MLW (-8 to -11 feet NGVD). Based on the 2009 bathymetry and CADBW (2005) design criteria, Sesuit Harbor can safely accommodate:

- Up to 6.6 ft. draft in the outer harbor channel;
- Up to 7.6 ft. draft in the outer harbor fairway;
- Up to 5.6 ft. draft in the inner harbor fairway;
- Up to 4.6 ft. draft in the inner harbor mooring field;

The Harbormaster's Office provided slip and mooring data from 2013 which noted vessel draft where available. While most of the boats berthed at the West Side and East Side docks draw less than 5 feet, a handful have listed drafts between 6 and 9 feet – which is greater than design standards deem safe for the current depth of the inner harbor fairway. Similarly, most of the boats moored at Sesuit Harbor draw less than 4 feet, a few have listed drafts between 5 and 7 feet – which is greater than design standards deem safe for the current depth of the inner harbor mooring field (the outer harbor mooring field is even shallower and is only used for small sailboats).

The proposed 10-Year Comprehensive Dredge Program (Town of Dennis, 2013b) would dredge the navigation channel to -8 feet MLW (with an overdredge allowance to -10 feet MLW) and the inner harbor area and mooring field to -8 feet MLW. Compared to these design standards (CADBW, 2005), the newly dredged harbor could safely accommodate

vessels with up to 6 foot drafts at any time. Boats with deeper drafts could be allowed if the Town and boat owners are willing to accept a smaller margin of safety and potential tidal restrictions on use for the largest draft boats.

Examination of the dock plans of the Town Marinas and Northside Marina reveals that Northside does not have side-ties adjacent to the channel (boats berth perpendicular to channel), while Sesuit West and Sesuit East do have side-ties adjacent to the channel (boats berth parallel to channel). Applying the CADBW (2005) design criteria to the longest boat (approximately 56 ft.) in a channel-adjacent perpendicular slip at Northside Marina yields a recommended fairway width of 98 feet. The channel in this area (southwest of the East Side boat ramp) is only 60 feet wide and, although there is inner harbor dredging planned that would widen the dredged area, the East Side boat ramp docks constrict the width of the navigable channel to the existing width. Applying the CADBW (2005) design criteria to the longest boat (approximately 58 ft.) in a channel-adjacent parallel slip at the Town Marina (West and East) yields a recommended fairway width of 87 feet. The fairway between the West Side and East Side docks is only about 75 feet wide, accounting for the width of the side-tied boats.

While setting size limits (if necessary) and arranging berths to ensure safe navigation within the harbor is ultimately the Harbormaster's authority, the aforementioned design criteria could inform any of these decisions. Given the current configuration of the Harbor, reports of blind spots and congestion (around boat ramps and the gas dock), and these CADBW (2005) design guidelines, the Town should consider formalizing limits on boat size based on these metrics (and on available berthing lengths) to ensure safety within the Harbor and to reduce the amount of judgment used in the process (which exposes the Town and the Harbormaster to challenges and, potentially, liability). An example of size limits based on these metrics follows:

- In the vicinity of the 60 ft. wide channel and fairway with channel-perpendicular berths (Northside docks and East Side boat ramp) no vessels longer than 35 feet (60 ft./1.75).
- In the vicinity of the 75 ft. wide fairway with channel-parallel berths (West Side docks/boat ramp and East Side docks) no vessels longer than 50 feet (75 ft./1.5).

General marina layout planning metrics are also available. Table B-8 in the design guidance (CADBW, 2005) provides general metrics for determining the number of boats that can be accommodated in a defined berthing area, given a double berthing layout (like Sesuit West and East) and certain dock and berth dimensions. Most of the berths at the Town's facilities are 20 or 30 feet, with only a handful at 40 feet. In general, berths on the West Side are longer (typically 30 feet) than those on the East Side (typically 20 feet). Considering these dimensions and available planning data, the West Side should be able to berth approximately 50 powerboats per acre, or a total of 125 boats. Considering these dimensions and available planning data, the East Side should be able to berth approximately 80 powerboats per acre, or a total of 128 boats. These estimates of berthing capacity are in agreement with the available quantities of slips on the West Side (133) and the East Side (127), indicating that their layout meets with available guidance. This measure of capacity is purely spatial – an evaluation of the number of boats that

should fit within a given area assuming double berthing – and such measures of storage capacity should not be confused with carrying capacity for an entire waterway. Inclusion of these metrics in the guidance implies that it is safe to maneuver in and around berths designed in this way, but such planning metrics cannot be generalized to the greater waterway since the size, shape, depth and use all play a role in its perceived capacity.

Integrating evidence from user and stakeholder opinion, parking data, and marina design metrics, it is clear that Sesuit Harbor is close to capacity. The Town should prioritize management strategies and infrastructure investments that make the Harbor safer and easier to use. Creating an orderly, efficient, and pleasant atmosphere for all user groups will minimize conflicts, foster a sense of coexistence throughout the harbor, and perhaps (with time and adaptive management) open a few modest opportunities for controlled growth. Sesuit Harbor likely does not have any more capacity (spatially) for additional slips without significant supporting land-side development. A professional dock manufacturer may be able to find ways to add a few slips within the existing footprint, but it is not likely to significantly increase slip capacity. Dredging would likely restore the 13 moorings and 4 slips previously lost to sedimentation (to historically available total of 46 moorings and 260 slips), and could potentially add 12 to 15 new moorings in the Outer Harbor mooring basin. Based on the parking analysis, no more than 20 charter fishing vessels and 3 excursion vessels (one with off-site parking) should be permitted to operate at Sesuit Harbor.

3.0 GOVERNANCE AND OPERATIONS

Governance of the municipal waterway and operation of the municipal marina, under current organizational structures, are responsibilities shared by various Town officials, departments, and commissions. This section explores governance structures and operational concerns that most directly affect the Harbor and Marina on a daily basis, and provides recommendations for improving these management structures.

3.1 SUMMARY OF CURRENT GOVERNANCE

Current municipal by-laws and administrative structures shape the governance of the Harbor. Various municipal departments and elected and appointed boards contribute to the governance of the Harbor.

The Executive Secretary (Town Administrator) regulates marina operations and procedures through authorized representatives of the marina (i.e. the Harbormaster Department). The Town Administrator, in collaboration with the Harbormaster establishes the duties, practices and procedures of municipal marina operation at Sesuit Harbor. The Town Administrator also recommends Harbormaster and Assistant Harbormaster appointments to the Board of Selectmen.

The Harbormaster has the authority to make decisions that directly affect the daily operation of the Harbor, such as (but not limited to) developing operational procedures, assigning slips and moorings, and approving moorings. The Harbormaster and staff are further responsible for enforcing the Town's Waterways Regulations and all applicable state regulations (Massachusetts General Law Chapter 90B; 323 C.M.R.) and Federal Maritime Laws. The Harbormaster is also responsible for developing annual operating budgets, capital budget requests, the five year capital plan, maintenance plans.

The Waterways Commission, a seven member commission appointed by the Board of Selectmen, is composed of full-time residents and registered voters with knowledge of waterways operations. This commission is responsible for the duties detailed in Section 4.2.2.1, which are primarily advisory. The Waterways Commission assists the Harbormaster in preparing budgets, goals, and maintenance plans. The Commission also reviews financial reports of waterways revenue, consults with other Town departments regarding waterways operations, promotes Town waterways, reviews waterways assets, provides annual updates and fee recommendations to the Board of Selectmen, and advises the Town Administrator on operational issues.

The Board of Selectmen has authority over the adoption of Waterways Regulations and fee structures throughout Town. It also votes on Harbormaster and Assistant Harbormaster appointments recommended by the Town Administrator.

3.2 SUMMARY OF CURRENT OPERATIONS

The Harbormaster Department currently operates and oversees slip, mooring, and boat ramp facilities (and associated parking) both on the West Side and on the East Side of Sesuit Harbor, as well as performs Harbormaster duties, including patrols and enforcement, channel marker maintenance, and emergency response (as needed).

The Harbormaster has developed a number of departmental policy and SOP documents for the various operations it performs, including:

- Town of Dennis Harbormaster Department Policies and Procedures
    - Listed duties include: assist boaters and public, maintain waterway facilities, maintain aids to navigation and swim buoys, inspect moorings, search and rescue, enforce boating laws and write citations and perform safety checks as necessary, check docks (slips and boats) frequently, check and clean comfort stations, log all emergencies, accident response, emergency towing, count and check fee collection records, log water meter readings, daily opening and closing checklists
- Dennis Harbormaster Department Gate Attendants Policy and Procedures
- Dennis Harbormaster Department Pump Out Operations Plan

Additionally, the Harbormaster has developed a detailed system of recordkeeping, including:

- Daily log book kept in the Harbormaster's Office
- Daily Harbormaster's Patrol Log
- Cash Turnover form (for parking attendants)
- Dennis Harbormaster Department Boating Safety Inspection form
- Slip and Mooring Wait Lists
- Slip and Mooring Rent Rolls

The Harbormaster also makes available copies of the latest Waterways Fees and Regulations in the Harbormaster's Office.

These are all helpful documents which ensure that the marina and Harbor are run efficiently and safely. Such procedural policies apply largely to in-season operation, and noticeably combine the standard duties of a Harbormaster with the standard duties of a Marina Manager.

In the off-season, Harbormaster Department duties focus on facility maintenance, repair and replacement. These duties include:

- Facility winterization;
- Building new docks for sections in need of replacement (since 2007, the Harbormaster Department and Municipal Building Department has rebuilt 3 of the six feeders/fingers on the West Side and all walkways/feeders/fingers on the East Side) – this includes foam billets, galvanized and stainless steel hardware, and pressure treated lumber
- Channel marker buoy maintenance – this includes defouling, fiberglass and paint work
- Facility pre-season setup

In recent years, the Harbormaster Department and Municipal Building Department also built custom fire suppression systems for the West Side and East Side.

All maintenance and construction operations performed by the Harbormaster Department occur either in the Harbormaster Workshop or at offsite locations such as the Department of Public Works. Section 6.3.2.1 provides a detailed assessment of the poor condition of this facility and concludes that it is unsuitable for carrying out the maintenance and construction tasks currently performed.

3.3 RECOMMENDED CHANGES TO GOVERNANCE AND OPERATIONS

Overall, the current governance model works well for Sesuit Harbor and is generally similar to governance structures in other towns. The system should continue to work and does not need adjustment, provided the various governing bodies and authorities perform their roles as charged.

As noted in Section 4.3.2.1, more clarity is needed in defining the role of the Waterways Commission since the 2012 change to Town Code Section 5-5. The 2012 changes removed from the Waterways Commission the duty "to consider and make recommendations…regarding regulations" (Adopted 5-6-1974 ATM, Art. 51; Superseded 11-13-2012 STM, Art. 12) and described the role of the Commission as largely advisory. Yet, the Waterways Commission recently submitted proposed changes to the Waterways Regulations (separate from those prepared by the Harbormaster and Selectmen) which added review board duties (for water-related businesses and extension of slip-holding time) to the charge of the Waterways Commission. The Town needs to explicitly define the role of the Waterways Commission so that the various governing entities affecting the Harbor are not working in contravention to each other.

Overall, the current operational model works for Sesuit Harbor and is generally similar to Harbor and municipal marina operations in other towns. In-season operations are primarily geared towards ensuring safe use of the Harbor. These procedures are well documented by the Harbormaster, as required by the Waterways Regulations (although all the various policies and procedural documents should be consolidated and edited as necessary), and generally standard practice for Harbormaster departments and marina managers. However, off-season operations, which are rooted in the historical lack of investment in Harbor infrastructure, exhibit notable differences from standard practice. These practices are in need of remedy, primarily by changing the way in which the Town builds and maintains and operates facilities.

If the Town elects to replace the current docks with engineered and manufactured dock systems of the type recommended in Section 9 (Alternatives 3A and 3B), the Town should adopt the recommended inspection and maintenance program provided by the manufacturer. Typically, failure to follow the recommended maintenance program voids the warranty on such a system. Repairs to the frames of such aluminum frame dock systems are typically contracted out. The recommended decking material is composite wood, which requires minimal maintenance or repair. If the Town were to alternatively select wood decking, maintenance and periodic repair could occur comfortably at the proposed workshop and on the docks in place. Finally, the repair and maintenance of channel markers should also be contracted out, as is the practice in other towns in the region. Exclusion of dock construction, dock maintenance, and navigational buoy

maintenance from the list of Harbormaster duties would eliminate the need for larger maintenance facilities and dedicated (and costly) fiberglassing and painting facilities.

If the Town elects to continue building un-engineered dock systems through the Harbormaster Department or marine contractors as described in Section 9 (Alternative 2), it should immediately implement two measures (note that this alternative is not recommended, so the following recommendations are provided only as contingencies…professionally engineered and manufactured dock systems have regular inspection and maintenance protocols pre-established by the manufacturer).

First, all new dock construction performed by the Harbormaster Department should abandon the practice of installing decking parallel to the direction of travel and adopt the standard practice of installing decking perpendicular to the direction of travel. This recommendation, based on marina design guidance (CADBW, 2005) not only is essential for safety and accessibility, but also eliminates torsional twisting of docks which breaks fasteners – creating tripping hazards and weakening the dock structure.

Second, the Town must establish a rigorous inspection and maintenance plan to mitigate liability concerns. The final details of such a plan likely require input from the Harbormaster, the Town Engineer, and the Town Attorney to balance operational efficiency with engineering rigor and liability concerns. However, critical elements of any routine inspection and maintenance plan (in addition to those daily inspection procedures already practiced by the Harbormaster's staff) include:

- Periodic removal of subset of docks (random sampling of oldest cohort) each off-season to inspect condition of structure, frame integrity, and all connections (hardware, electrical, and water)
- Periodic inspection of docks throughout in-season use to confirm that:
    - frames are not warped and exhibit acceptable stability;
    - freeboard under dead load is between 14 and 24 inches (CADBW, 2005);
    - decking is secured, free of splinters, and free of excessive gaps

If the Town elects to continue servicing navigational aides through the Harbormaster Department, adequate facilities are required to perform this work safely. Fiberglass and paint operations can present health hazards to workers unless designed and ventilated properly. Such facilities are not currently owned by the Town of Dennis, and are expensive to construct.

Other operational recommendations for Sesuit Harbor include:

Dredging

Maintenance dredging of the navigation channel and re-dredging of the Inner Harbor basin are crucial for the viability of the Harbor. Siltation currently threatens the usability of the mooring fields and slips along the periphery of the Harbor. The Town should make every effort to ensure the approval of the proposed 10-Year Comprehensive Dredge Program, and should prioritize dredging in the Inner Harbor.

Marina/Consult also recommends inner harbor bank stabilization (Appendix B1) as a priority for long-term sustainability of the Harbor. While this practice may be common in other parts of the country, it would be difficult to permit in Sesuit Harbor and not necessarily supported by the available scientific and engineering evidence (Louis Berger Group, 2009). The likely driver of draft issues in the inner is the absence of maintenance dredging for over 50 years.

This study retains the bank stabilization recommendation as an "operational preference" and rolls the associated costs into Alternative 3B estimates (for contingency). However, Woods Hole Group does not recommend such measures at this point, based on knowledge of coastal processes in the region, direct observation, coastal engineering expertise and the data developed by Louis Berger Group (2009).

To ensure the effectiveness of dredging, the Town should:

- Repair the eastern jetty as recommended in the waterways assets report (Woods Hole Group, 2010). This report identified an area at the base of the eastern jetty that is compromised, allowing water to pass behind the structure and erode the landward dune. The Louis Berger (2009) bathymetric change analysis shows sedimentation in the channel adjacent to this part of the jetty.
- Coordinate dredging activities with Northside Marina and the Dennis Yacht Club (each holds their own dredging permit) to maximize efficiencies and minimize redistribution.
- Monitor bathymetry in the Harbor semi-annually, preferably in the off-season when docks are pulled back, to detect if there is an accelerated source of sediments that cannot be managed by dredging alone.

If monitoring identifies the banks as an accelerated source, the Town should prepare an alternatives analysis for bank stabilization. A variety of approaches to bank stabilization are feasible. One option is to install sheet pile cutoff walls seaward of the eroding face at an elevation near MHW, backfill with dredged fines and a sand base, and plant with *Spartina alterniflora*. Such an approach has been successful at other harbors on Cape Cod, and would likely be easier to permit than other alternatives because it is considered salt marsh preservation/restoration.

Third-Party Operation

Based on review and evaluation of the Town Marina facilities, the competitive regional marina marketplace, and the operating marinas identified as existing in the Town Marina's immediate competitive market, Marina/Consult concludes that the Town Marina facilities are not of the quality or design necessary to properly service future boating customers nor generate maximum possible financial return and should be repositioned as soon as practicable.

This repositioning and restructuring of the operations of the Town Marina would be designed to remove the responsibilities, liabilities and financial burdens of running a marina from the Town. This could be accomplished in a number of different ways (this list is not all-inclusive):

- Through an RFP process – short-term (less than 10 years) leasing out the facility to an experienced third-party marina operator in exchange for an annual lease fee or PILOT (payment in lieu of taxes). Given the existing condition of the physical facilities this is likely to be impossible without the Town initially completing a full renovation/replacement of the facilities.
- Through an RFQ process - selecting an experienced third-party marina operator to run the facility for a fee (usually a minimum against a percentage of the gross revenues generated). This also assumes that the Town completes a full renovation/replacement of the facilities.
- Through an RFP process - long-term (10 years or more to allow for amortized return of required invested capital) leasing of the existing facility with a requirement that the successful respondent take on the financial responsibility of immediately commencing with facility upgrades and operate the new facility, guaranteeing that it be maintained and improved, and ensuring the Town receives a long-term source of revenue (e.g., rent, PILOT, etc.). This is the method that would effectively remove any financial burden from the Town and result in cash flow to the Town.

Enterprise Fund

The Harbor Study Committee opted not to pursue Third-Party Operation for Sesuit Harbor. Since the Town prefers to maintain control of operations, discussions should begin immediately about how to fund the Harbor in a way that allows for the necessary upgrades (Section 9) to Harbor assets and their continued maintenance. Among the possible alternatives, one model used by other towns is the Enterprise Fund.

Currently, the fees not directed to the Dredge Fund or Waterways Improvement Fund by State or Local laws are deposited to the Town General Fund. In FY2013, this included approximately $514,000:

$7,500 from excise taxes (estimated from Sesuit, not including Northside)

$36,200 from parking fees

$122,500 from non-resident slip fees

$328,800 from resident slip fees

$19,000 from private dock/rack fees

The sustainability of Sesuit Harbor depends on it being run more like a business, with revenues available for reinvestment in Harbor infrastructure. The Waterways Improvement Fund would continue to receive a portion of the Harbor revenues to support overall harbor maintenance (i.e. not related to marina maintenance), such as coastal infrastructure upgrades. Operated as an Enterprise Fund under the cost and revenue assumptions for Alternative 3 (A or B) discussed in Section 9 and 10, Sesuit Harbor would be in a position to self-fund dredging. Therefore, contribution to the Dredge Fund would no longer be necessary.

Phase Out Use of West Side Boat Ramp

In the existing layout of the Town Marina there are two boat ramps - one on the West Side and one on the East Side of the Harbor. The East ramp is relatively new and appears to be in excellent condition. The East Side upland development appears designed for extensive use of the ramp facilities and from all indications it is functioning as-designed. It was observed that the public access roadways leading to the east ramp facility are more than adequate to handle the larger trailers, the vessels they carry and the vehicles hauling them. Discussions held with several operators of these larger trailers/hauling vehicles on a busy weekend in July revealed that accessing the east ramp facilities via the public access roads is no more difficult than maneuvering any other secondary roadway in the region.

The West Side ramp, however, appears to be exhibiting its advanced age, and the Commercial Pier immediately adjacent to it appears to be in poor condition and in need of significant physical repair if not total replacement and reconstruction - including the upland access area. Because the West ramp and the commercial pier effectively cut the West Side upland operations in half, and create an unsafe mixture of pedestrians, cars, trailered vessels along with their hauling vehicle, and dock carts being used to ferry materials to customers' berthed vessels, it is recommended that the West ramp and the commercial pier be permanently closed. The overall vision that follows this recommendation is to consolidate operations at the Harbor to realize efficiencies, such that the East Side would accommodate trailered use of the Harbor and the West Side would accommodate slip and mooring use of the Harbor.

The Harbor Study Committee opted not to pursue this recommendation, citing concerns for uneven distribution of traffic. Therefore the consideration of design alternatives in Section 9 proceeded with boat ramps and dock systems remaining operational on both sides of the Harbor.

In-Harbor blind spots and congestion points

In the current configuration, a number of blind spots and congestion points exist within the Harbor. Boats coming out of the fingers into the channel may be blind to oncoming traffic due to large boats at slips along the fairway. Additionally, users report congestion around the gas dock during busy boating days. Currently, the Harbormaster models the U.S. Coast Guard Rule by sounding a 6-second horn before entering or exiting feeder docks. Some boaters in the Harbor have adopted this practice, but the rule is largely unknown/ignored. We recommend the Harbormaster strategically locate signs along the fairway and the feeder docks alerting users to these blind spots and congestion points and stating the relevant rules of the Harbor regarding speed and notification. To the extent that any of these problem areas can be corrected by rearranging slip assignments at the municipal marina or Northside, the Harbormaster should implement such changes.

Certified Mooring Inspectors

In Dennis, the Harbormaster Department or a certified mooring inspector is responsible for inspecting moorings. Operationally, it is not necessary for the Harbormaster to

perform such inspections and Harbormasters do not perform these duties in a number of other towns in the region. The Harbormaster should continue to make available a list of approved Certified Mooring Inspectors that can perform initial installation inspections as well as the required periodic inspections (currently every three years) and submit reports to the Harbormaster. Use of independent mooring inspectors provides transparency and allows the Harbormaster Department to concentrate on typical Harbomaster duties – waterway administration and safety patrol. The Harbormaster should discontinue performance of mooring inspections and rely instead on the certified inspectors.

4.0 REGULATIONS, BY-LAWS AND FEES

Sesuit Harbor – both the body of water and the adjacent land – is subject to a variety of federal and state laws, including those that regulate wetlands, dredging and navigation. Review of these federal and state laws is beyond the scope of this project, since the Town has no direct ability to change these regulatory landscapes. This section provides a brief review of the relevant state regulations that govern the Harbor. This section then summarizes the relevant local regulations, by-laws and fees, and recommends changes that would benefit the Harbor.

4.1 SUMMARY OF STATE REGULATIONS

Massachusetts General Law (MGL) Chapter 40, Section 5G establishes the "Municipal Waterways Improvement and Maintenance Fund". This fund receives revenues from Chapter 60B Section 2i (50% of vessel excise tax, remainder to Town Treasury) and Chapter 91 Section 10A (100% of mooring fees), which towns may use for:

- Maintenance, dredging, cleaning and improvement of harbors;
- The public access thereto;
- The breakwaters, retaining walls, piers, wharves and moorings thereof; and
- Law enforcement and fire prevention.

Various sections of MGL Chapter 91 apply to maintenance, operations, and development of the Harbor. Notably, Section 10 describes the powers and duties relative to harbors (management of and permits for moorings of floats and rafts [10A], management of and permits for docking of commercial vessels [10C]). Also, Section 11 describes the duties of the MADCR with respect to the development, maintenance and improvement of harbors. Later relevant sections govern structures over tidelands, abandonment of vessels, and discharges into tidal lands.

MGL Chapter 91 Section 59B stipulates all marinas must be licensed annually by the division of water pollution control. A license may be issued only if the marina provides:

- Adequate facilities for the collection, treatment and disposal of sewage or other sanitary waste;
- Adequate and conveniently located dockside toilet facilities for the use of the occupants of watercraft; and
- Adequate and conveniently located trash receptacles or similar devices designed for the disposal of litter and refuse.

Discussions with the Massachusetts Office of Coastal Zone Management's Port and Harbor Planning program indicates that this State law requiring marina licensing has never been implemented (Robin Lacey, MA CZM Marina Technical Assistance Specialist, personal communication, October 2013) and is, therefore, currently irrelevant. Regardless of the status of the licensing program, the Town Marina at Sesuit Harbor currently meets the criteria outlined above. These criteria are also the cornerstones of best practices for the Massachusetts Clean Marinas Program (MACZM, 2001) administered by CZM.

4.2 SUMMARY OF CURRENT LOCAL REGULATIONS, BY-LAWS AND FEES

The Town of Dennis regulates activities at and around Sesuit Harbor via the Waterways Regulations, Town By-laws (including the zoning by-laws), and the Waterways Fees.

4.2.1 Waterways Regulations

The Town adopts Waterways Regulations that apply to all navigable waterways in Dennis, including Sesuit Harbor. Some regulations are specific to Sesuit Harbor. The most recent version of the Dennis Waterways Regulations (Town of Dennis, 2008) is available on the Town's website.

The Regulations enable the Board of Selectmen to establish policy, appoint the Harbormaster and assistants, and to adopt a fee schedule. The Town Administrator regulates waterways operations and procedures under this policy, and establishes "detailed duties and practices" with input from the Harbormaster and the Waterways Commission. The Harbormaster and assistants are charged with enforcing the Regulations.

Appendix C presents the current Waterways Regulations. A brief summary of the Regulations relevant to Sesuit Harbor follows:

- Speed limit in Sesuit Harbor = 6 mph. Vessel passing within 150 feet of the shoreline, designated swim area, channel markers, swim buoy or mooring area must be at steerage speed.
- Personal watercraft prohibited in Sesuit Creek.
- No occupancy of a mooring or slip without permission of the Harbormaster.
- Personal watercraft:
    - No operation within 100 yards of public beaches or swim areas;
    - Maintain steerage speed when crossing the Harbor opening;
    - Maintain a distance of 100 feet from vessels underway.
- No dumping into Town waters.
- No cleaning of fish other than in designated areas.
- No negligent or reckless operation.
- Vessels for hire must maintain proper documentation.
- Captains must keep copy of license with Harbormaster.
- Violations may result in fines or forfeiture of slip or mooring.
- Boaters may not take aboard or discharge at public bathing areas.
- No swimming, diving or waterskiing within Sesuit Harbor (except swimming as permitted at Yacht Club).
- Walkways and floats are for patrons and personnel only – do not obstruct.
- Fueling permitted only at West Side Town Landing Float.
- Prams must be aboard vessels or where directed by Harbormaster.
- No conducting/soliciting business except commercial fishing, charter fishing, aquaculture, sightseeing, head vessels.
- Sailboats using inner harbor basin must be under auxiliary power.
- Only slip holders may retain live fish/lobster/shellfish.

- No fishing from municipal docks or slips (except from East Side Ramp or West Side Commercial Pier).
- No fixed fishing gear within Sesuit Harbor.
- No powerwashing at any Town landing/lot/facility.
- Slip and mooring applications and renewals are administered by the Harbormaster's office.
- Assigments are made with preference to previous year slip/mooring holders who have paid fees, and then other applicants on waiting list.
- Slips/moorings may be transferred to surviving spouses but not to any other person/corporation/trust/LLC.
- Payment for new assignments is due within 7 days of notification.
- Harbormaster must be notified of slip vacancies exceeding 24 hours.
- Assignments must be occupied by June 15th or risk forfeiture.
- Harbormaster may reassign slips for safety reasons.
- Slips/moorings are non-transferable.
- Slip/mooring lessees must produce Certificate of Insurance ($300,000 liability).
- The Harbormaster reassigns vacant slips/moorings to next appropriately sized vessel on the waiting list.
- Moorings in the Outer Sesuit Basin are for small sailboats, sailboats moored in the Inner Sesuit Harbor must have auxiliary power.
- Moorings are inspected and approved by the Harbormaster. Moorings must be moved at the request of the Harbormaster for repair, dredging or navigational improvement.
- All prams must be removed by November 15.
- Fair weather mooring and screw embedment anchor specifications are provided in the Waterways Regulations.
- Board of Selectmen has authority to establish annual service fee for vessels moored/berthed at privately owned slip, dock or marina.
- Dennis real estate tax payer, year round resident, or slip lessee may purchase Blue Harbor sticker for all Sesuit parking lots.
- No overnight parking without Harbormaster permission.

4.2.2 Town of Dennis By-laws

Local by-laws governing Sesuit Harbor and vicinity include the Town Code (accessed at http://ecode360.com/DE1039) and the Town Zoning By-Laws.

4.2.2.1 Town Code

This section summarizes the chapters and articles of the Town Code that are relevant to Sesuit Harbor.

Town Code Chapter 5, Article IV. Waterways Commission

Chapter 5, Article IV of the Dennis Town Code authorizes the Board of Selectmen to appoint the Waterways Commission. The Commission is composed of seven members and two alternates, all of whom are registered voters and full-time residents in Dennis.

Committee members must possess "knowledge of and interest in" the operation of the Town's waterways. The duties of the Commission are to:

- Assist the Harbormaster in providing input to the Department's annual operating budget and capital budget requests. Including the five-year capital plan;
- Assist the Harbormaster in the development of short and long term goals and objectives for the Department;
- Assist the Harbormaster in developing a long range maintenance plan for all waterways and facilities;
- Receive and review monthly and annual financial reports of waterways revenue;
- Seek information, advice, and assistance from various Town departments that are affected by or affect waterways operation;
- Encourage community support of the Town waterways;
- Review and become acquainted with all waterways and their assets;
- Provide annual updates to the Board of Selectmen and the Town Administrator as to the Commission's deliberations and recommendations during the annual fee hearing, review of the Harbormaster's goals and objectives as well as capital and operating budget reviews;
- Advise, consult and confer with the Town Administrator regarding any operational issue affecting the Town's waterways.

Town Code Chapter 55. Boats

Chapter 55 of the Dennis Town Code regulates boats and boating. It gives the Board of Selectmen the authority to set speed limits on all Town waterways, and set rules regarding reckless or negligent operation, mufflers, and ski towing. The maximum fine for violation of these rules is $20. Specific speed limits for Sesuit Harbor are set in Article V, with a maximum fine of $300.

Chapter 55 also authorizes the Board of Selectmen to lease Town slips to Dennis taxpayers and registered voters. The minimum fee designated in the Code is $140 per slip, plus an additional $7 per foot for vessels longer than 20 feet (1973 season fees). Storage of boats on Town-owned property adjacent to Sesuit Harbor is currently prohibited, but may be authorized by Town Meeting vote.

Town Code Chapter 130. Marina

Chapter 130 of the Dennis Town Code requires that all marinas in Dennis be licensed by the Board of Selectmen annually. It authorizes the Selectmen to set the fees for said license.

Town Code Chapter 151. Signs

Chapter 151 of the Dennis Town Code governs signage. No rule set forth in the Town Code is meant to override a more restrictive rule of the Old King's Highway Historic District. Any proposed signage improvements must abide by this bylaw.

Town Code Chapter 154. Stormwater Management

Chapter 154 of the Dennis Town Code regulates stormwater discharge at construction sites and post construction. Any proposed land-side development must abide by this bylaw.

Town Code Chapter 181. Waterways

Chapter 181 of the Dennis Town Code regulates the dredging and filling of tidal waters, meadows and marshes. Any proposed water-side development must abide by this bylaw.

Town Code Chapter 187. Wetlands

Chapter 187 of the Dennis Town Code regulates activities in the foreshore, wetlands and related water resources. Any proposed water-side development must abide by this bylaw.

Town Code Chapter 231. Waterways

Chapter 231 of the Dennis Town Code provides the regulations, as approved by the Board of Selectmen, for the use of and access to the waterways. Generally, the bylaws in Chapter 231 reflect the Town of Dennis Waterways Regulations outlined above (and available on the Town's website).

4.2.2.2 Zoning By-laws

All parcels in the vicinity of Sesuit Harbor are currently zoned Residential, either R40 (Low Density Residential) or R60 (Rural Residential). Figure 4-1 presents the zoning map for the vicinity of Sesuit Harbor.

The stated intent of R40 Low Density Residential is "to provide sites for low density residential development, while respecting the existing character of the neighboring homes and properties, including compatible related home oriented activities, and agricultural pursuits in a rural environment." (Town of Dennis, 2013c)

The stated intent of R60 Rural Residential is "to provide for residential sites while at the same time encouraging open space, preserving or enhancing scenic views, protecting the character of the historic environs, encouraging continuation of or re-establishment of agricultural activities while recognizing site and area limitations for on-site waste water disposal systems in terms of drainage, soil suitability, proximity to surface and sub-surface water resources and slope." (Town of Dennis, 2013c)

The principle uses table in the Town of Dennis Zoning By-laws (Town of Dennis, 2013c) indicates that, among other residential, agricultural, religious, educational, and care facility uses, R40 and R60 allows:

- Bed & Breakfast (by special permit)
- Municipal Use (by special review)
- Public/private Facility/Utilities (by special permit)
- Golf course (by special permit)

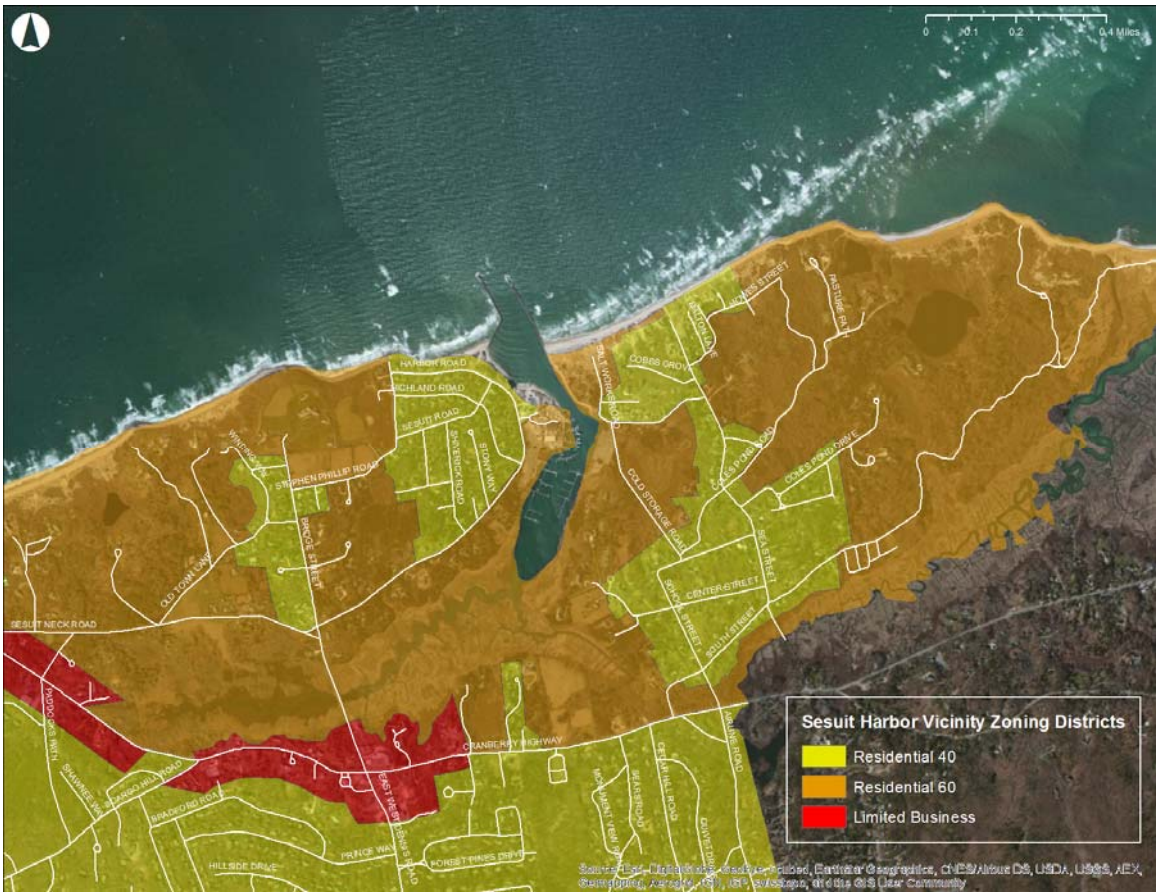

Figure 4-1. Zoning Map

These residential zones do not allow other recreational uses, private clubs, commercial uses, industrial uses, water dependent uses or marine uses by right, but these uses exist around Sesuit Harbor and constitute pre-existing non-conforming uses.

Off street parking and loading requirements for Marina Use under the current zoning by-laws (Town of Dennis, 2013c) set the minimum parking provision at one (1) space per employee, plus one (1) space per two (2) slips.

The current zoning by-laws (Town of Dennis, 2013c) provide an approval process for obtaining a Special Permit for a Marine Use. The Zoning Board of Appeals (ZBA) may grant Special Permit approval if the plans meet the setback requirements and if the ZBA determines that "the use will not be detrimental to the established character of the neighborhood and the use will be in harmony with the general purpose and intent of [the Dennis Zoning] By-law."

Further, current zoning by-laws (Town of Dennis, 2013c) contain special zoning provisions for floodplain areas. Many of the parcels adjacent to Sesuit Harbor fall partially within the floodplain and are subject to these regulations.

4.2.3 Waterways Fees

The Town, with input from the Harbormaster and the Waterways Commission, sets fees for Sesuit Harbor. These fees include daily and seasonal charges for parking, slips and electricity, moorings, a surcharge on slips and rack storage at commercial marinas, and other boating-related fees. Table 4-1 presents the 2014 fees for Sesuit Harbor approved by the Board of Selectmen. The 2014 fees did not change from 2013. Interviews with the Harbormaster indicated that fees have not increased in a number of years, and that the fees at Sesuit Harbor are lower than at other commensurate municipal marinas in the region. Table 4-2 presents a comparison of slip and mooring fees for municipal marinas in the Cape Cod Bay region (includes Cape Cod municipal marinas with direct or reasonable indirect access to Cape Cod Bay).

Town Code Chapter 36 Article VII limits annual fee increases of more than 5% (for fees $100 or higher) or 15% (for fees less than $100) unless approved at Town Meeting.

The various harbor-related fees are distributed in the following way:

Dredge Fund receives:

- 100% of transient fees
- 50% of parking fees
- 7% of the non-resident slip fees
- 6% of the resident slip fees
- 60% of private dock/rack fees

Waterways Improvement Fund receives:

- 50% of boat excise tax
- 100% of mooring fees

Town General Fund receives the remainder of the fees:

- 50% of boat excise tax
- 50% of parking fees
- 93% of the non-resident slip fees
- 94% of the resident slip fees
- 40% of private dock/rack fees

4.3 RECOMMENDED CHANGES TO LOCAL REGULATIONS, BY-LAWS AND FEES

The ability to regulate activities at the Harbor is crucial for safe and efficient use. Collection of appropriate fees and subsequent reinvestment in Harbor infrastructure is critical for the provision of safe and enjoyable facilities. The following are recommendations for changes to regulations, by-laws and fees that are intended to support these goals.

4.3.1 Waterways Regulations

The following are recommendations based on review of the Dennis Waterways Regulations, suggested revisions submitted by the Waterways Committee, and comparison to the regulations of other towns in the region. These regulations as they relate to Sesuit Harbor are generally reasonable and similar to those implemented in other towns in the region.

Personal Watercraft

Current Waterways Regulations allow the use of personal watercraft (jet skis) at steerage speed "throughout Sesuit Creek". This language should be clarified. If the intention is to permit operation of jet skis at steerage speed throughout the Harbor and up into Sesuit Creek, Section 2-4 should make this explicit. However, 2008 approved Waterways Regulations published by the Town prohibit the use of jet skis in Sesuit Creek.

Current regulations also require all personal watercraft (motorized and non-motorized) to launch only from the East Side ramp area. While this requirement makes sense for jet skis and for kayaks heading out to the bay, non-motorized personal watercraft such as kayaks, paddle boats, and stand-up paddleboards accessing Sesuit Creek would have to navigate the busy fairway among the docks. The Harbormaster should consider safer alternative access points for non-motorized approaches to Sesuit Creek and establish them in the Waterways Regulations.

Reimbursement for Damage

The Town should consider adding a section to the Waterways Regulations requiring persons liable for damaging Town-owned docks and associated infrastructure to reimburse the Town for repairs.

Review of Businesses

One of the most pressing issues at Sesuit Harbor concerns the level (and type) of water-dependent businesses operating from the Harbor. One way to control the level of commercial activity is to administratively cap the level of activity and require operators to apply for annual permits. There is a pre-existing mechanism for this type of regulation. MGL Chapter 91 Section 10C states "the harbormaster…may authorize by written permit the stationing of commercial vessels to a public commercial dock, pier, wharf, float, raft or mooring, fixed or otherwise, within the territorial jurisdiction of such city or town upon such terms, conditions and restrictions as he shall deem necessary." The Waterways Regulations (specifically Section 2-6 Vessels for Hire) should be amended to authorize the Harbormaster to issue permits for businesses operating on or from Town waterways. The number and type of businesses permitted is best determined by the Harbormaster, who possesses the best knowledge of the waterway dynamics and patterns, in consultation with various relevant Town officials (such as the Town Administrator, Town Planner, and Director of Natural Resources) and the Waterways Commission. Some towns in the region explicitly limit the type of business conducted from town moorings and docks to charter boats and excursion boats, others also permit

commercial fishing. Section 4.3.3 provides recommendations for fees associated with these water-related business permits.

Mooring and Slip Assignments

The Waterways Commission proposed a number of changes to the Waterways Regulations (Sections 3-5c, 4-1b, 4-1f) related to the assignment, reassignment and arrangement of slips and moorings. The proposed changes could erode the Harbormaster's ability to lay out a safe and efficient Harbor and should not be implemented unless there is agreement from the Harbormaster.

The ability of a lessee to remain at their previously assigned slip with a smaller boat while paying the full length slip fee is a reasonable proposal, however the Harbormaster should have the ability to override this option in case the relocation of the smaller boat to an appropriately sized slip opens the larger slip to the waiting list, or in case there are other safety concerns.

The Town may also consider a program (similar to one currently under consideration in Falmouth) by which long-term mooring vacancies are temporarily occupied (i.e. for the season left vacant by the current lessee) by lessees from the waitlist.

4.3.2 Town of Dennis By-laws

The following are recommendations based on review of the Dennis Town Code and Dennis Zoning By-laws as they apply to Sesuit Harbor.

4.3.2.1 Town Code

Noise Restriction

Town Code Chapter 55 (Article II, Section 55-3) requires all boats to be equipped with underwater exhaust or a muffler. This is a requirement from MGL Chapter 90B Section 6. Some towns in the region have added specific noise limits for boats and inspection procedures to their Waterways Regulations. Since boat noise is already addressed in Chapter 55 of the Town Code, it makes sense to consider a noise restriction amendment here.

Marina Licensing

Chapter 130 of the Town Code (adopted in Article 20 of Annual Town Meeting 5-2-1983) states that no marina may be operated in Town without a license issued by the Board of Selectmen. Said license may be renewed annually and the fees shall be set by the Board of Selectmen. According to Town officials, this by-law was never implemented by the Selectmen. The Board of Selectmen should consider whether to implement such licensing and set fees accordingly, or remove the by-law from the Town Code.

Role of the Waterways Commission

Prior to 2012 Special Town Meeting, the Waterways Commission's charge was "to consider and make recommendations to the Executive Secretary regarding the use, maintenance, regulations, administration and development of all navigable Town waterways." Review of Waterways Regulations and recommending regulatory changes to the Board of Selectmen is no longer an explicit duty of the Waterways Commission according to Town Code (Chapter 5, Article IV, Section 5-5). However, the revised description of the Commission's charge does state that its work is not limited to those explicitly listed in Section 5-5. This lack of clarity lead to the preparation of parallel (and competing) proposals for Waterways Regulations revisions during the 2013-2014 off-season by the Waterways Commission and by the Harbormaster (in collaboration with Selectmen). The Town should clarify in Town Code Section 5-5 whether or not the role of the Waterways Commission is to review and propose revisions to the Waterways Regulations. It appears that this duty was explicitly removed by the 2012 Special Town Meeting vote. If this was the intent, then the language describing the charge of the Waterways Commission should be revised to discourage misinterpretation.

Other towns in the region charge the Waterways Commissions with the duties of protecting, maintaining, developing and improving navigable waterways, and further authorize the Commissions to establish rules, regulations, contracts and fees for the waterways. Thus, there is a regional precedent for giving more authority to the Waterways Commission. It is crucial for the Board of Selectmen to clarify the path forward for the Dennis Waterways Commission.

4.3.2.2 Zoning By-laws

Open space and residential land uses abut Sesuit Harbor at its northern and southern ends. These uses conform to the existing (R40 and R60) zoning. The middle portion of the inner harbor is dominated by pre-existing non-conforming water-dependent uses – specifically the Town Marina, Northside Marina, and the Dennis Yacht Club.

The off street parking requirements for Marina Use under the current zoning by-laws (Town of Dennis, 2013c) of one (1) space per two (2) slips should be revised. This parking ratio is likely too high for recreational slips, slightly low for charter boats, and very low for excursion boats. Parking requirements should be more in line with marina industry and design guidelines as discussed in Section 7.2.

In recent years, the Town integrated water-dependent use zoning into the zoning by-law for Bass River. It created a "Mixed Use Marine Zone" and a "Marine Open Space District", which allow for varying intensities of commercial and water-dependent uses by right or by permit (in addition to residential and agricultural by right). In order to make the existing marine uses around Sesuit Harbor conforming, and to exert more formal planning control on future development (currently decisions are made by the Zoning Board of Appeals as to whether a proposed change, extension or alteration is "not substantially more detrimental) the Town should re-zone the water-dependent parcels surrounding Sesuit Harbor (Sesuit Harbor West, Sesuit Harbor East, Northside Marina, Town Landing, and Dennis Yacht Club) for marine use.

Some towns in the region with relatively large active harbors set in or near business/downtown districts (e.g. Provincetown, Wellfleet, Bourne) have not implemented marine use zoning. Other towns in the region with relatively large active harbors set in or near residential districts (e.g. Falmouth, Sandwich, Barnstable) have successfully implemented marine use or water-dependent zoning districts. In crafting marine use zoning for Sesuit Harbor, the Town should use Falmouth, Sandwich, and Barnstable as models, as well as co-opt its own experience crafting similar zoning for Bass Harbor.

The Falmouth Marine District (Town of Falmouth, 2014) preserves and protects "uses which are dependent on access to marine and tidal waters in accordance with the goals and policies of the Federal Coastal Zone Management Act, the Massachusetts Coastal Zone Management Program and the Comprehensive Plan of Falmouth." It allows public uses such as parks and landings, marinas (boat sale/rental/repair/storage) and associate retail, and marine-related scientific research and equipment manufacture. By special permit it allows non-profit private clubs, restaurants, offices, and non-marine-related retail.

The Sandwich Marine District (Town of Sandwich, 2014) encourages "a mixture of marine, aquaculture, limited commercial, limited industrial and recreational uses that exist in concert with and respect the environs of the Cape Cod Canal, Cape Cod Bay and Sandwich Harbor." The Marine District allows various agriculture uses (including aquaculture operations), marinas, boat sales/storage/building, commercial and charter fishing, marine equipment storage, research laboratories, offices, marine wildlife medical centers, restaurants, ferry terminals, seafood processing facilities, social clubs, municipal uses. Sandwich Marine District also allows by special permit a variety of other commercial, industrial, institutional, and recreational uses. Note that any use approved within the Marine District must abide by more stringent setbacks if it abuts a residential use or zone.

The Town of Barnstable Marine Business Districts (Town of Barnstable, 2014) preserve and protects marine dependent uses such as marinas (boat sale/repair/storage),boating and fishing related retail, commercial fishing, whale watching, and allow restaurants by special permit. The Barnstable Marine Business District zoning is unique in that is provides three types of districts with different use matrices and different intensities.

The intent of creating a "Sesuit Harbor Zoning District" should be to protect water-dependent uses in and around the harbor, ensure the compatibility of the allowed commercial uses with the protected water-dependent uses.

Planning Department / EDC Proposal

Concurrent with this Use and Capacity Study, the Planning Department and Economic Development Committee held a series of public forums to develop a proposal for the Sesuit Harbor Zoning District. The proposed Sesuit Harbor Zoning District (Town of Dennis, 2014) allows the following uses:

- Commercial marina:

  - Slips and layout as approved by the Harbormaster;
  - Docks and layout as approved by the Harbormaster;
  - Ramps and layout as approved by the Harbormaster;
  - Boat Repair;
  - Year round storage of marine related infrastructure;
  - Fuel Service;
  - Travel lift;
  - Containment facility for Power Washing, Bottom Cleaning or Bilge Flushing meeting DEP design standards;
  - Emergency boat sheltering and storage (as a harbor of refuge during weather related events);
  - De-watering pit for off-season dredge spoils;
  - Hauling and launching facilities;
  - Single level boat storage both indoor and outdoor;
  - Commercial marinas may provide for recreational boating and commercial fishing boats as a matter of right;
  - *Accessory uses by special permit: food service, ship supply store, rack boat storage, boat sales and rentals, employee housing, excursion boats, charter fishing boats.*
- Public Marina typically including the following activities and facilities:
  - Slips and layout as approved by the Harbormaster;
  - Moorings as approved by the Harbormaster;
  - Docks and layout as approved by the Harbormaster;
  - Ramps and layout as approved by the Harbormaster;
  - Harbormaster Command Center;
  - Maintenance Facility for waterways equipment;
  - Travel lift;
  - Hauling and launching facilities;
  - Boat storage and marine related infrastructure, year round, for public boats and infrastructure;
  - Commercial Pier;
  - Off-season single level boat storage;
  - De-watering pit for off-season dredge spoils
  - Emergency boat sheltering and storage (as a harbor of refuge during weather related events) as approved by the Harbormaster;
  - Containment facility for Power Washing, Bottom Cleaning or Bilge Flushing meeting DEP design standards;
  - Public marinas may provide for recreational boating and commercial fishing boats as a matter of right;
  - *Accessory uses by special permit: ship supply store, rack boat storage (Labor Day through June 30), excursion boats, charter fishing boats.*
- Private Yacht Club typically including the following facilities and activities:
  - Water Orientation;
  - Social Club;
  - Yachting and Athletic Activities;
  - Educational Activities;
  - Food/bar/restaurant services;

- Meeting rooms;
- Docks;
- Ramps;
- Playground, tennis courts, and athletic facilities; and
- Single level boat storage and racks for canoes, kayaks, small sail boats, etc. capable of being carried by two people.
- *Accessory uses by special permit: rack boat storage (Labor Day through June 30).*

The proposed zoning limits (at the Public Marina) charter fishing boats to 20 and excursion boats to 3, and prevents further expansion (at the Commercial Marina) of rack storage. The draft zoning also provides development standards (for vegetated buffers, setbacks, building heights, maximum total lot coverage, minimum lot area, minimum lot frontage, and minimum lot width) and design considerations. Project review in this zoning district would be the responsibility of the Dennis Planning Board.

Comments on Planning Department / EDC Proposal

The Dennis Planning Department and the Economic Development Committee have devised a strong and fair proposal for the Sesuit Harbor Zoning District. The zoning district would sufficiently protect and preserve water dependent uses immediately surrounding the Harbor, remove subjectivity inherent in the current process of making decisions about changes to pre-existing non-conforming uses, and limiting future growth. These are all important tasks for maintaining the delicate (but critical) mix of recreational, commercial, and residential uses around Sesuit Harbor. Especially important to this balance, given the findings of Section 2 (use and capacity analysis), is setting limits on the number of charter fishing boats and excursion boats that may operate out of the Harbor.

Review of the Sesuit Harbor Zoning District proposal prompted the following recommendations for changes to the proposed by-law:

- If it is the Harbormaster's responsibility to review and issue permits water-related businesses in the Harbor, as proposed in Section 4.3.1 and detailed in Section 4.3.3, then the Harbormaster and the Waterways Commission should have advisory roles to the Dennis Planning Board on development decisions within the district. The Harbormaster and Waterways Commission will be valuable resources in assessing the potential impact of any proposed development within the Harbor on traffic and neighborhood character.
- It is reasonable and proactive to prohibit rack storage use before 8am and after 6pm given the close proximity of residential neighborhoods to the Harbor. In fact, other towns (e.g. Barnstable) have instituted similar controls to reduce noise conflicts. However, there should be some consideration given to the patterns of use by recreational anglers (i.e. some prefer to leave for fishing trip before 8am). There could be a requirement to reserve a few transient slips or otherwise unoccupied berths for boats pulled from the racks the afternoon before for early

morning access. Alternatively, it could be a service offered by rack operators which does not need to be formalized in the zoning.
- Consider specifying hours of operation for marina facilities, restaurants, and social functions.
- Consider specifying on-water noise ordinance (motors and music).

4.3.3 Waterways Fees

This study recognizes that fees at Sesuit Harbor are comparatively low in the regional marketplace (other municipal marinas with direct or indirect access to Cape Cod Bay). However, the evaluation performed by Marina/Consult concluded that fee increases could not be justified without commensurate improvements to facilities. The fee recommendations provided assume that the facilities provided by each alternative are safely constructed and continually maintained in good condition.

Alternative 2

Modest fee increases are recommended if the Town brings the existing dock facilities up to an acceptable standard of safety, maintains them in a reasonable condition, and replaces them according to reasonable design life expectations. Since Alternative 2 does not include inner harbor or mooring field dredging, conditions among the slips and moorings will continue to deteriorate thereby eroding the ability to charge fees appropriate to the market. Because Alternative 2 does not improve mooring conditions, no fee increase is proposed. Because Alternative 2 improves slip conditions, the maximum allowed (without Town Meeting Vote) increase of 15% is proposed.

Resident slip	$78/ft
Non-resident slip	$111/ft
Moorings	$150 + $8ft over 16’
Prams	$125
Resident car sticker	$20/yr
Resident car/trailer sticker	$50/yr
Non-resident car/trailer sticker	$60/yr
Crew sticker	$35/yr
West Side car	$10/day
West Side car/trailer	$15/day
East Side car/trailer (M-Th)	$8/day
East Side car/trailer (F-Su&Hol)	$10/day
Utilities	Same as current
Transient	Same as current

Alternative 3A

If the Town replaces existing facilities with new engineered and manufactured in-water facilities, and updates existing land-side facilities, it could implement a fee structure appropriate to the marketplace. There is a willingness to pay for well-designed and maintained facilities in the regional marketplace, so the Town would be justified in setting fees near the top of the regional market for brand new facilities. Periodic fee increases (annotated on the pro-forma) between 2% and 5% are built into the financial model (Section 10).

Recreational resident slip	$160/ft
Recreational non-resident slip	$180/ft
Commercial resident slip	$150/ft
Commercial non-resident slip	$170/ft
Moorings	$200 + $10/ft over 16’
Prams	$140
Parking	Same as Alternative 2
Utilities	Metered
Transient slip	Summer $4/ft/day Spring/Fall $3/ft/day Offseason $2/ft/day

Alternative 3B

If the Town replaces existing facilities with new engineered and manufactured in-water facilities, and redesigns land-side facilities to create a safer and more enjoyable user experience, it could implement commensurate fee structure. The fees might exceed the regional marketplace fees for municipal marinas, but the facilities provided would also exceed what is currently available in the region. There is a willingness to pay for well-designed and maintained facilities in the regional marketplace, so the Town would be justified in setting appropriate fees to fund the recommended investments in harbor safety. Periodic fee increases (annotated on the pro-forma) between 2% and 5% are built into the financial model (Section 10).

Recreational resident slip	$180/ft
Recreational non-resident slip	$200/ft
Commercial resident slip	$170/ft
Commercial non-resident slip	$190/ft
Moorings	$225 + $12/ft over 16’
Prams	$160
Parking	Same as Alternative 2
Utilities	Metered
Transient slip	Summer $4/ft/day Spring/Fall $3/ft/day Offseason $2/ft/day

Other fees

A permit for commercial operation in Sesuit Harbor. Permits for commercial operators in a harbor are authorized by Chapter 91 Section 10C and addressed in the above recommendation (“Review of businesses using harbor is a duty of Harbormaster”). The Harbormaster has proposed such a permit and fee system to the Board of Selectmen, which would have the additional benefit of enabling the Harbormaster to regulate the volume of commercial activity within the Harbor at a safe level:

Vessels for Hire	
slip/mooring holder	$150/permit
local hailing port	$250/permit
outside hailing port	$300/permit
Commercial Fishing Vessels	
slip/mooring holder	$100/permit
other	$150/permit

5.0 PERSONNEL

The Town charges the Harbormaster Department with the duties of maintaining and operating boating facilities at Sesuit Harbor and Bass River, as well as overseeing safe boater operations along the waterways. The Dennis Harbormaster is also responsible for responding to Coast Guard rescue calls in Cape Cod Bay.

5.1 PERSONNEL EVALUATION

The Harbormaster Department is composed of full-time and seasonal staff. In 2013, Management and oversight of all Town waterways was provided by:

- Terry Clen, Harbormaster (2,080 hours)
- Rick Lemont, Deputy Harbormaster (2,080 hours)
- Joanne Iachetta, Office Manager (728 hours)

In 2013, the Town employed eight Assistant Harbormasters and four Gate Attendants to tend to daily operations in-season, plus an off-season Dock Builder:

- 8 Assistant Harbormasters (120 – 584 hours each)
- 4 Gate Attendants (86 – 503 hours each)
- 1 Dock Builder (1,056 hours)

During the operational season (July 1 through Labor Day), the Harbormaster allocates to Sesuit Harbor:

Monday through Thursday:

- 2 Harbormasters (each working 10-12 hour shifts)
- 2 Gate Attendants (each working 8 hour shifts)

Friday:

- 2 Harbormasters (each working 10-12 hour overlapping shifts)
- 2 Gate Attendants (each working 8 hour shifts)
- 1 Assistant Harbormaster (working 8 hour night shift)

Saturday and Sunday:

- 2 Harbormasters (each working 10-12 hour shifts)
- 2 Gate Attendants (each working 8 hour shifts)
- 2 Assistant Harbormasters (8 hour day shift, 8 hour night shift)

On weekends, the Harbormaster may add additional Assistant Harbormaster shifts if use is expected to be high. Typically during these high use periods, the Harbormaster stations an extra attendant on the East Side and on the West Side (from 2pm to 5pm), and two patrol boats in the channel.

The Harbormaster and Assistant Harbormaster receive safety and rescue training. Part-time and seasonal assistants receive job training from the Harbormaster. Through yearly surveys of the slip and mooring holders, the Harbormaster Department continually receives high marks from the boating community for their efforts to improve facilities and safety. In a survey of Sesuit Harbor stakeholders (Appendix A), 78% of respondents stated that they felt the Harbormaster Department was adequately staffed to maintain safe and efficient operation of the Harbor.

Observation of and interviews with the Harbormaster and staff suggest that, given the current structure for management and operations, the Harbormaster Department is understaffed. There are a variety of reasons for this conclusion, including:

- The department is responsible for overseeing waterways on both Cape Cod Bay (Sesuit Harbor) and Nantucket Sound (Bass River);
- The department is responsible for marina management at Sesuit Harbor, including assigning slips and moorings, building and maintaining docks, and contracting for other services and capital equipment;
- The Harbormaster is responsible for reporting to and working with the Town Administrator and the Waterways Commission on financial and regulatory issues;
- The Harbormaster must share administrative support with two other Town departments.

Coverage for daily in-season operations (lot attendants, patrols, etc.) by the seasonal staff appears to be adequate. The combined administrative, operations, and construction duties of the full-time and part-time (non-seasonal) staff divided between two high-use waterways on opposite sides of Town is cause for concern. The Harbormaster indicated that a full-time dock builder is needed to keep up with maintenance and construction tasks at Sesuit Harbor. Such a personnel addition would allow the Harbormaster and Assistant Harbormaster to concentrate better on their other duties. It was evident from interviews and analysis of staff utilization that the demands of managing multiple Town facilities (Sesuit Harbor and Bass River) require the Harbormaster and Assistant Harbormaster to log additional (and this includes overtime) hours in order to provide the oversight necessary to ensure harbor safety.

Another vulnerability of the Harbormaster Staff was evident during the 2013-2014 offseason, when the Assistant Harbormaster was unable to work due to injury. This prolonged absence, and lack of sufficient coverage, delayed maintenance and construction projects significantly. Having another full time-staff member might have enabled the Harbormaster Department to adapt to these unforeseen circumstances without severe consequences.

5.2 PERSONNEL RECOMMENDATIONS

Compared to industry standards, staffing is generally adequate at Sesuit Harbor for a facility of its size. However, extra duties (such as managing Bass River) and severely limited budgets available for capital investment (forcing Harbormaster staff to source materials and build docks) unduly strain the department and complicate this analysis of Sesuit Harbor in isolation. The alternative management and infrastructure options

suggested to the Town in Sections 3 and 9 (respectively) will ultimately shape the recommendations for personnel.

One of the management recommendations offered in Section 3 was to reposition and restructure operation of the Town Marina to remove the responsibilities, liabilities and financial burdens of running a marina from the Town using a private third-party marina operator. The Harbor Study Committee opted not to pursue this option further, but did express interest in considering the establishment of an Enterprise Fund for the Harbor. Under either model (third-party operator or Enterprise Fund), the Harbormaster Department would have to extricate/differentiate itself from the management and operation of the Harbor. In either of these cases, the operating entity would employ the management and operations staff for Sesuit Harbor (West and East), directed by a Marina Manager, while the Harbormaster Department would concentrate its resources on waterways administration throughout the Town. It is common practice in the industry and in some towns is to employ a marina manager to allow the Harbormaster to focus on waterways safety issues, operations, training, and other administrative matters (such as writing grants for necessary harbor infrastructure).

The recommended design alternatives (3A or 3B) presented in Section 9 assume that all docks, walkways and piers are constructed by professional design/build firms to provide updated facilities and remove liability from the Town. In these scenarios, the Harbormaster Department would cease to operate as the primary dock builder/maintainer. All design, construction, and major maintenance would be subcontracted to qualified professionals with adequate liability insurance. If the Town opts to pursue this option independent of any management decision discussed above, it would likely no longer need the current part-time dock builder or the requested full-time dock builder.

This analysis proceeded on the premise that the Town would not pursue third-party operation, but that the recommendation for separation of the Harbormaster Department from marina operations would be implemented with the establishment of an Enterprise Fund. Under this model, the Harbormaster Department would continue to operate with its current full-time staff and the operational staff of Sesuit Harbor (West and East) would be established separately (both organizationally and financially). Based on standard marina industry practices for a facility of this size, Marina/Consult (see Appendix B2 for descriptions of duties) determined that the recommended staffing for a rehabilitated Sesuit Harbor should be:

- 1 Dockmaster (full-time, 2080 hours)
- 1 Assistant Dockmaster (full-time, 2080 hours)
- 1 Marina Office Manager (full-time, 2080 hours)
- 2 Seasonal Assistant Dockmasters (Fri-Sun, 10 hrs/day, high season, 900 hours)
- 4 Seasonal Dockpersons (daily 8 hrs/day, high season, 3360 hours)
- 2 Seasonal Dockpersons (daily 8 hrs/day, shoulder seasons, 864 hours)
- 2 Seasonal Gate Attendants (daily 10 hrs/day, high season, 1050 hours)

If the Town opts neither to establish an Enterprise Fund nor purchase engineered dock systems from qualified professionals (i.e. continue present levels of management,

operation and investment), then the Town must critically consider how to continue supporting Harbormaster operations and dock building from the same Department. Given the level of reconstruction needed throughout the facility on an annual basis (see Sections 6.4, 9.1, and 9.2), this option would require the addition of (at least) the full-time dock builder suggested by the Harbormaster. The Woods Hole Group Team does not recommend this approach, since it does not significantly improve facility conditions and exposes the Town to significant liability with the use of non-engineered docks.

6.0 ASSETS

The primary objective of the asset evaluation for the Town Marina at Sesuit Harbor (Sesuit) is to provide the Town of Dennis (the Town) with a review of the harbor and waterway assets to determine if their condition and schedule of maintenance/replacement provide for safe and proper operation of the Harbor.

The asset evaluation incorporates information from:

- Woods Hole Group and Marina/Consult site visits;
- Consultations with Harbormaster Terry Clen and staff;
- Consultations with the Harbor Study Committee and the Waterways Commission;
- Stakeholder feedback (from listening sessions and online survey);
- Town/Harbormaster records, letters, and reports; and
- The Department of Conservation and Recreation's "Massachusetts Coastal Infrastructure Inventory and Assessment Project".

6.1 ASSET INVENTORY

The Town Marina at Sesuit Harbor comprises water and land assets at both the West Side and the East Side.

6.1.1 Water-based Assets

Water-based assets at Sesuit include all fixed assets (property, plant, and equipment) providing for access to the water by patrons and by the Harbormaster and Staff. Specifically, water-based assets include all infrastructure and equipment that serves its primary purpose on the watersheet.

6.1.1.1 Inventory

Coastal infrastructure at Sesuit Harbor includes bulkheads, revetments and jetties designed to stabilize the shoreline inside the harbor and at its mouth. These elements include (MADCR, 2013 and Cape Cod Engineering, 2012):

- West Side Town Landing Bulkhead (50' steel sheetpile adjacent to Commercial Pier)
- West Side Timber Bulkhead (100' wood bulkhead under Commercial Pier)
- West Side Shoreline Sheetpile Bulkhead (475' steel sheetpile inshore of main walkway)
- East Side Bulkhead and Revetment (380' wood/stone revetment at East Side parking lot)
- East Side Revetment (435' stone revetment north of boat ramp)
- West Jetty (1020' stone jetty)
- East Jetty (1720' stone jetty)

The Harbormaster maintains 40 navigational buoys in various waterways throughout the Town, 13 of which are located along the approach between Cape Cod Bay and inner

Sesuit Harbor. Figure 6-1 provides the locations of the Harbor's public coastal infrastructure and channel markers. Data sources include the Town of Dennis and MADCR (supplemented by Woods Hole Group).

The dock resources at Sesuit are designed to provide 133 slips on the West Side and 127 slips on the East Side, and are comprised of the following elements (from the 2011 Harbormaster Asset Report):

- 215 dock pilings
- 42 pier pilings
- 5 fixed piers (3,456 ft^2)
- 5 gangways
- 50 docks 20' x 8' (8,000 ft^2)
- 93 docks 20' x 6' (11,160 ft^2)
- 95 docks 20' x 3' (5,700 ft^2)
- 2 docks 20' x 5' (200 ft^2)
- 2 docks 20' x 10' (400 ft^2)

Section 6.3 provides a more detailed description of the arrangement of these elements. Overall, the West Side features one (1) commercial pier/ramp/dock and three (3) piers/ramps serving a system of six (6) feeders and fingers. The East Side features one pier/ramp serving a system of six (6) feeders and fingers. With the exception of the Commercial Pier, piers were constructed (or were rehabilitated) by contractors during the 1999-2000 improvement project. The Town purchased aluminum gangways from Technomarine as part of the improvement project. The Harbormaster Staff constructs docks in-house for Sesuit Harbor. These docks are generally constructed of pressure treated wood, galvanized hardware, and floating billets.

In addition to the (designed) 260 Town slips at Sesuit Harbor (of which 256 are currently useable), the Town provides thirty-three (33) moorings, twelve (12) in the outer basin and twenty-one (21) in the inner basin. Depending on shoaling and dredging, more or less may be available in a given year (note that Sesuit Harbor has lost 13 of the 46 historically available moorings to sedimentation).

Figure 6-2 provides the locations of the Town's piers, docks, and moorings (data provided by the Town of Dennis). Figure 6-3 presents the detailed slip plan prepared by the Harbormaster's Office.

Two boat ramps provide access for trailered boats at Sesuit Harbor. The Town owns and operates the West Side ramp. Based on the Sesuit Harbor Improvement Findings Report (Nucci Vine, 1997), the former 20 foot wide by 160 foot long asphalt ramp with 9.5% slope was replaced (1999-2000) with a 30 foot wide by 140 foot long concrete ramp with 15% slope. The State of Massachusetts owns and maintains the East Side ramp, which the Town operates for the State. The Massachusetts Department of Fish and Game's Office of Fishing and Boating Access built the East Side ramp in 2011. According to the Chapter 91 License Application (Town of Dennis, 2010), the State installed a 30 foot

wide by 120 foot long concrete ramp with 14% slope, along with attendant launching and retrieving floats (6 6’ x 20’).

Figure 6-1. Existing Coastal Infrastructure and Channel Markers

Figure 6-2. Existing In-Water Facilities

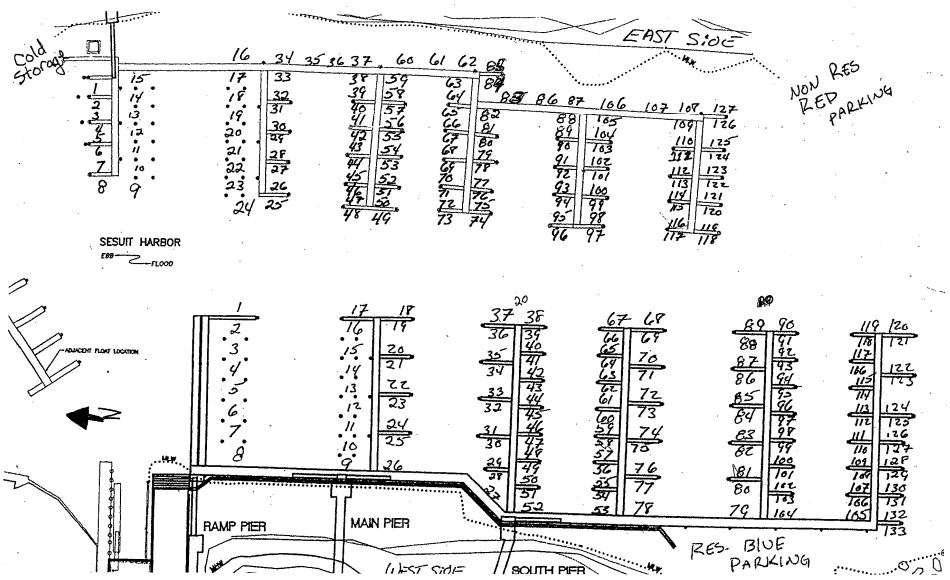

Figure 6-3. Existing Municipal Slip Plan

The Harbormaster utilizes two boats to patrol Sesuit Harbor and Cape Cod Bay and perform on-water marina operations. These vessels include:

- 2006 23' Wellcraft w/ 200hp E-Tec outboard
- 16' Boston Whaler hulled homemade skiff

The Harbormaster staff also performs marina maintenance and construction duties from a:

- 24' x 10' work barge

The Harbormaster's Department does not have an official maintenance and replacement schedule. Instead, availability of funding and staff limits their maintenance to a primarily reactionary approach. Staff inspects the facilities daily and performs maintenance and replacement as needed. A licensed electrician exercises all electrical panels each Spring and Fall, and tests all outlets each Spring. In general, the Harbormaster attempts to repair or reconstruct water-based assets consistent with the following expected serviceable lifespans, which were developed based on prior experience and consultation with local dock builders and engineers:

- Docks = 12-15 years
- Piers = 30 years
- Pilings = 35 years
- Gangways = 20 years

6.1.2 Land-based Assets

Land-based assets at Sesuit include all fixed assets (property, plant, and equipment) supporting marina and Harbormaster operations. Specifically, land-based assets include all infrastructure and equipment that serves its primary purpose on land.

The land-based assets on the West Side are:

- Paved vehicle parking lot (112 spaces)
- Unpaved trailer parking lot (approximately 38 spaces)
- Harbormaster's Office (258 ft2)
- Harbormaster's Workshop (735 ft2)
- Comfort Station (384 ft2)

The land-based assets on the East Side are:

- Paved trailer parking lot (72 spaces)
- Unpaved vehicle parking lot (approximately 40 spaces)
- Comfort Station (160 ft2)

Other land-based assets are:

- 2005 Dodge RAM 2500 (used in Town-wide Harbormaster operations)
- 2012 Ford F-450 Dually (used in Town-wide Harbormaster operations)

6.1.1.2 Maintenance and Replacement Schedule

6.2 REVIEW OF PRIOR EVALUATIONS

The last significant evaluation of Sesuit Harbor occurred in 1997. The "Sesuit Harbor Improvements Findings Report" (Nucci Vine, 1997) resulted in major renovations to the West Side and significant improvements to the East Side. Since the implementation of this improvement plan, the configuration of the Harbor has remained much the same. The improvements implemented from this study, presented in the Sesuit Harbor Improvement Work Plan (Nucci Vine, 1998) included:

West Side

- Bulkheading – Replace failing bulkhead and relocate it 40 ft. shoreward creating a new overflow type bulkhead along bank 400 ft. +/-.
- Dredge – Dredge 6500 cubic yards of material.
- Reconfigure Slips – Change configuration to allow for better dockage. Add 40 new slips.
- Electrical Improvements – New electrical stations, new wiring on docks.
- Fire Protection – Fire hydrants placed at beginning of the two main walkways.
- Walkways – shorten walkways.
- Boat Ramp – Widen and repitched ramp for improved use. Add floats beside ramp for users.

East Side

- New Walkway – Widen and replace for improved access.
- Change Configuration – Caribbean style to the first two sections. Eliminated two slips but provided berths for 11 larger boats.
- Electrical Improvements – New electrical stations, new wiring of docks.
- Fire Protection – Fire hydrant placed at beginning of the walkway.

In the time since this rehabilitation, Harbor infrastructure deteriorated. Harbormaster staff intervened as funding allowed with dock repairs and replacements, among other improvements such as the dock fire suppression system. The Harbormaster has requested independent evaluations of specific Harbor elements on occasion.

In 2012, Cape Cod Engineering provided a cursory engineering evaluation of the commercial pier decking and bulkhead. This engineering inspection produced the following observations:

- Pier support pilings and framing are not degraded and support system remains functionally consistent with its design
- Pier decking is deteriorating (rot, weathering, checking) and due for replacement
- Without design documentation, cannot determine the load capacity of the pier in its current condition

- Wood bulkhead exhibits significant decay in wall components and several structural members are undersized and overstressed. Junction to steel bulkhead allows backfill losses into the dredged basin.

In 2011, two local dock builders (Cape Cod Docks, Inc. and Lemco Marine Construction) inspected the floating docks on the West Side. Concluding that many of the West Side docks have reached the end of their serviceable life and are not worth repairing, one builder observed:

- Main Walkway – decking in poor condition with cracked and checking boards, frames in fair condition with some cracking, hardware in good condition, insufficient floatation.
- Slip Section 27-52 – loose or missing cleats, worn and misaligned connecting hardware in fair condition.
- Slip Section 53-78 – one to two years old, well built, in excellent condition.
- Slip Section 79-104 – loose or missing cleats, misaligned hardware, good condition with continued maintenance.
- Slip Section 105-133 – new and in excellent condition, well designed and well built.

Concluding that the West Side main walkway needed replacement, another builder observed:

- Connecting hardware needed repair or replacement.
- More than 75% of decking fasteners had failed.

In 2014, the electrician who has provided service for Harbor electrical assets submitted a letter to the Waterways Commission to summarize yearly maintenance activities and general condition. The letter states that the yearly removal of docks (and disconnection of power) was causing excessive wear to the electrical system, so the Town installed bubblers to allow the docks to stay in the water year-round. Each Spring and Fall, the electrician exercises all panels; each spring the electrician tests all outlets. The letter also documents replacing some unrated cable on the East Side and replacing pedestal outlets as needed (total of 6). The letter states that some unspecified quantity of pedestals is in poor condition and should be replaced at the discretion of the Harbormaster. The letter makes no other assessment of condition of the electrical system in the Harbor, or the expected serviceable lifespan of electrical wiring in a marine environment. Absent an electrical survey of (at least a subsample of) the facilities, there is no reliable way to determine the safety of the existing system.

The Massachusetts Department of Conservation and Recreation (Office of Waterways) released a statewide coastal infrastructure inventory and evaluation in 2009 and an update (MADCR, 2013) is currently in draft form (MADCR provided updated data to the Dennis Harbormaster). In general, the MADCR study concluded that:

- The East Side (Parking Lot) Bulkhead and Revetment is in "Good" condition (adequate to provide storm protection, only minor/cosmetic problems);
- The Town Landing Bulkhead and the West Jetty are in "Fair" condition (adequate to provide storm protection, structurally sound with minor deterioration);
- The East Jetty and East Side Revetment are in "Poor" condition (inadequate to provide storm protection, advanced levels of deterioration)

Table 6-1 provides the detailed results of this updated coastal infrastructure evaluation for Sesuit Harbor. The results are in concordance with the observations made by Woods Hole Group during Site visits for the Use and Capacity Study, and with conditions noted in the Waterways Assets and Resources Survey (Woods Hole Group, 2010).

6.3 OBSERVATIONS OF FACILITY CONDITIONS

Over the course of the Sesuit Harbor Use and Capacity Study, Woods Hole Group and its consulting team conducted numerous site visits and interviews with Harbor staff and Town officials. Woods Hole Group and the consulting team also reviewed the available documents describing the development, management and operation of the Harbor. These three sources of information form the basis for the evaluation of facility conditions.

The Sesuit Harbor Use and Capacity Study did not provide Scope for structural or electrical engineering surveys, so all observations of facility conditions made here within are limited to that which could be observed from walking/boating the facility, interviews with staff, and review of historical documentation. Woods Hole Group and its consulting team makes no warranties and cannot be held liable for occurrences which belie the following asset evaluation. The Town was not able to furnish any as-built plans for any fixed assets, records of construction and maintenance were generally lacking, and staff knowledge of the history and management (procurement, maintenance, repair, replacement, or expected serviceable lifespan) of harbor assets is generally limited to their tenure of service.

Marina/Consult provided an asset evaluation based on its 2013 Site visit and comparative market study. The Marina/Consult asset evaluation (Appendix B1) informs this evaluation.

6.3.1 Water-based Assets

Since the Town could not furnish as-built plans, survey data, or engineering department evaluations, this evaluation of water-based assets relies on direct observation, review of limited Town, State, and Federal documents, and consultation with Town staff. Since the Sesuit Harbor Use and Capacity Study did not provide Scope for structural or electrical engineering surveys, Woods Hole Group and its consulting team makes no warranties and cannot be held liable.

The Marina/Consult assessment report (Appendix B1) maintains that since the floating dock system at Sesuit is not a professionally engineered system, and lacks a regular maintenance schedule as well as any wind/wave/load analyses, it is impossible to benchmark (short of full – and invasive – structural/electrical engineering surveys) the

expected useable life in a reliable way. For this reason, and at the request of the Harbor Study Committee, Woods Hole Group and Marina/Consult made general observations of the condition of the various facilities and combined those observations with input from the Harbormaster on condition and expected life (given his experience running the Harbor and repairing/rebuilding its assets) to produce a cursory asset evaluation and rehabilitation model.

Appendix B1 provides a comprehensive evaluation of the water-based assets.

Woods Hole Group and Marina/Consult judged the overall condition of the piers and docks at Sesuit Harbor to be "fair". Newer sections, those replaced by the Harbormaster Department in the past few years were typically "good" (giving the impression of stable construction and composed of material exhibiting minimal wear or aging), while the oldest sections presented as "poor" (giving the impression of unstable construction and composed of material exhibiting excessive wear and aging).

Table 6-2 provides the detailed condition assessment and replacement cost estimates. Note that all costs given are for construction labor and materials. Labor for installation and hookup of electrical and water is not included in these figures. The cost of design and permitting is also not included in Table 6-2. Figure 6-4 summarizes the pier and floating dock evaluation. Figure 6-4 also provides the year of construction for each feeder/finger dock group.

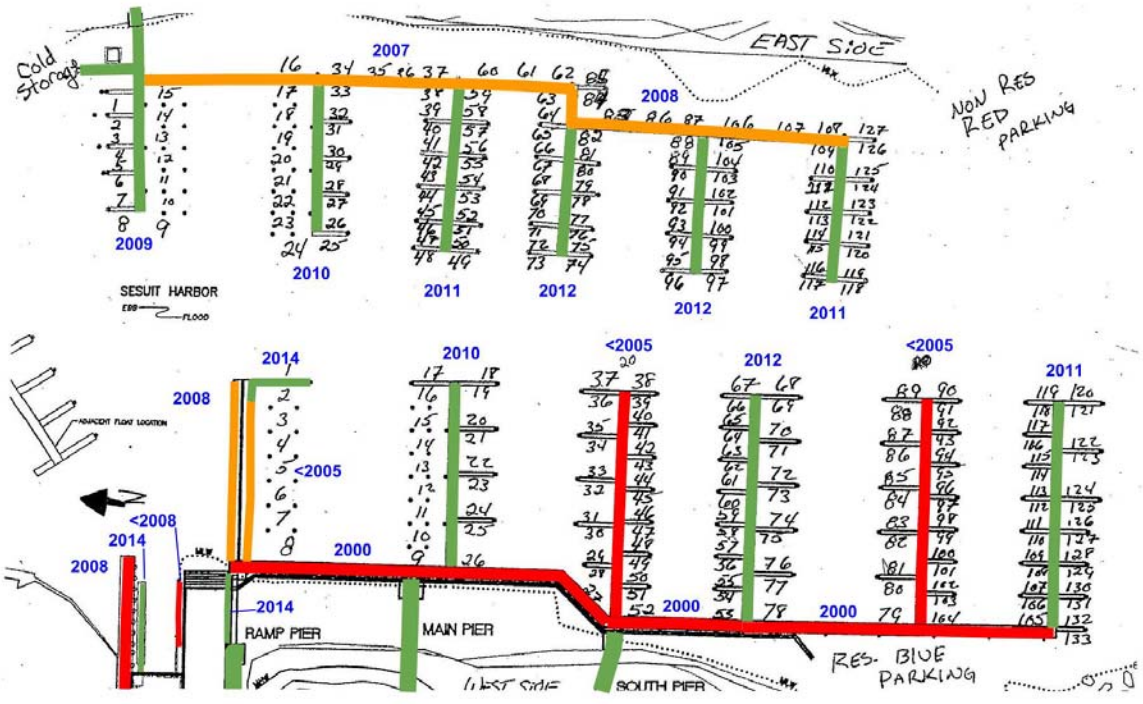

Figure 6-4. Results of In-Water Asset Evaluation

6.3.1.1 West Side

The pilings, piers and docks on the West Side exhibit a wide range of conditions. Older sections exhibit signs of significant wear, while newer sections exhibit very little wear.

The two hundred (200) pilings on the West Side are in fair condition. They are stable and do not show much deterioration. However, the configuration of the pilings causes noticeable misalignments of the docks which, in turn, puts stress on the hardware of the floating elements.

Piers on the West Side are in generally good condition, with the exception of the Commercial Pier. The Commercial Pier was constructed in the early 1980s and received only partial re-decking during 2008 and 2009. It exhibits significant deterioration on the decking, and an engineer (Cape Cod Engineering, 2012) was unable to provide an estimate of condition or load capacity due to the poor condition and lack of documentation. The remaining three piers on the West Side were either newly constructed or received significant rehabilitation during the 1999 Harbor Improvement project, and appear to be in good condition. The Marina/Consult evaluation (Appendix B1) notes that the piers at the Harbor are constructed using double north-south cross-bracing but only single east-west cross-bracing, which provides less lateral stability than double bolting and blocked bracing in both directions.

Docks on the West Side vary in condition based on age. The main walkway and the feeders and fingers for slips 27-52 and 79-104 are in poor condition (unstable, deteriorating decking and hardware) and require immediate replacement. Additionally, the dock to the north of the boat ramp is in poor condition – likely the result of its heavy use and exposure to the full tidal range at the Harbor. The northern most docks (Staging Dock and feeder for slips 1-8) are beginning to show signs of wear to the decking and hardware. These elements are in fair condition, with the exception of the newly constructed feeder section and finger at the end. The remaining feeders and fingers (slips 9-26, 53-78, 105-133) are recently constructed and in good condition. The Harbormaster reports twenty two (22) new power posts are needed on the West Side (4 for Slips 1-8, 6 for Slips 9-26, 6 for Slips 27-52, and 6 for Slips 79-104).

6.3.1.2 East Side

The pilings, piers and docks on the East Side exhibit some variability in condition. Older sections exhibit signs of wear, while newer sections exhibit very little wear.

There are one hundred thirty seven (137) pilings on the East Side. With the exception of the pilings serving the first 24 slips (these were installed new during the 1999 Harbor Improvement), all pilings on the East Side are in poor condition. These pilings (for slips 25-127) were apparently reused from the West Side during the 1999 Harbor Improvement, so they are quite old, undersized, unstable, and exhibit signs of significant deterioration. Again, the configuration of the pilings causes noticeable misalignments of the docks which, in turn, puts stress on the hardware of the floating elements.

The East Side pier is in generally good condition. It was constructed in the early 1980s but received significant rehabilitation during the 1999 Harbor Improvement project. The

Marina/Consult evaluation (Appendix B1) notes that the piers at the Harbor are constructed using double north-south cross-bracing but only single east-west cross-bracing, which provides less lateral stability than double bolting and blocked bracing in both directions.

Docks on the East Side vary in condition based on age. The main walkway was constructed in 2007 and 2008, and exhibits uneven freeboard, minor instability, and some deterioration of decking and hardware. It is in fair condition. The feeders and fingers on the East Side are recently constructed and in good condition. The Harbormaster reports seventeen new power posts are needed on the East Side (6 for Slips 1-15, 6 for Slips 17-33, 5 for Slips 38-84).

6.3.1.3 Other Assets

The Marina/Consult assessment (Appendix B1) notes that the 23-foot Wellcraft used by the Harbormaster and staff is not suitable for use as a patrol/safety/rescue vessel. Although the Town has outfitted it with the necessary electronics and safety gear, it is a sport fishing vessel and inadequate for the safe execution of duties the Harbormaster is regularly called upon (by the Coast Guard, commercial fishermen and recreational boaters) to perform. A typical patrol/safety/rescue vessel is 25 to 30 feet, with a protected cuddy cabin and gunnels designed for a side entry door to enable safe uploading directly from the water onto a solid, flat platform. Such a vessel should also have state-of-the-art electronics and firefighting apparatus to safely respond to vessel emergencies.

Both the work barge and the 16-foot skiff are used in the daily operations within the marina/harbor basin. Both appear to be in good condition, regularly maintained, and appear to adequately serve the needs of the facility.

6.3.2 Land-based Assets

Since the Town could not furnish as-built plans, survey data, building department evaluations, or engineering department evaluations, this evaluation of land-based assets relies entirely on direct observation and consultation with Town staff. Since the Sesuit Harbor Use and Capacity Study did not provide Scope for structural or electrical engineering surveys, Woods Hole Group and its consulting team makes no warranties and cannot be held liable.

Appendix B1 provides a comprehensive evaluation of the land-based assets.

6.3.2.1 West Side

The West Side parking lot was repaved and restriped in the fall of 2012, based on information provided by the Town of Dennis Engineering Department. The paving for this parking lot is currently in excellent condition. This lot is currently paved with an average depth of 4 inches of asphalt. Properly installed parking lots constructed with gravel and 2 courses of asphalt are reasonably expected to last approximately 20 to 25 years for a site fronting on the ocean within a flood zone. Given this expectation, a

repaving project capital expenditure should be evaluated and contemplated in 2032, and repaved by 2037.

Pavement striping (existing 4" white striping lines) should be repainted at least every 5 years. The traffic control gate (between the Town Marina and Northside Marina) should be inspected for rust/spalling at least once per year and lubricated every year. Rust removal and repaint should occur as necessary. The gate should be replaced every twenty (20) years. Traffic, pedestrian, and public informational signs should be inspected yearly, and replaced every ten (10) years. Concrete curb stops should be inspected and adjusted annually, and replaced as necessary. The life expectancy of concrete curb stops is approximately 20 to 25 years. Timber guardrail should be inspected yearly, and wood beams replaced as necessary. Timber guardrails should be replaced every 25 years. Parking lot lights should be inspected yearly and replaced every 20 years. The gravel parking area should be regraded every two years and depressions filled in with additional gravel on a yearly basis.

Stormwater management facilities on the West Side appear to be in excellent condition. The drainage system was installed by the Town in November of 2012. Maintenance to the systems should be performed per the Massachusetts DEP Stormwater Management Policy (SMP) requirements. Catch basins should be inspected at least twice per year and cleaned of debris at least once per year or whenever the depth of sediment is greater than half the depth of the sump. Grass swales should be inspected for sediment buildup and the vegetation should be mowed regularly. Sediment buildup at the bottom of swales should be removed as needed. The drainage discharge channel at the pipe outlet near the southwest corner of the parking lot should be inspected yearly. To keep the riprap functioning as intended, it should be cleaned of sediment and debris. If riprap has moved or broken down it should be replaced and chinked to interlock stones together to keep these areas stabilized. Maintenance should also include removal of sediment at the inlet and outlet of the outlet pipe on an annual basis. All piping should be inspected yearly and checked for evidence of clogging. Any gullies or rilling should be repaired. Vegetation along the channel should be mowed a minimum of once per year. Sediment, debris, and trash should be removed from the drainage channel at least once per year. Reseeding of channel bottom and sideslopes should be done as necessary.

The Harbormaster's Office building year of construction is unknown. The exterior shingles and wood trim need replacing. The concrete block foundation has some blocks missing, and some of the mortar has deteriorated and separated from the blocks. The building should be inspected by a qualified building inspector or structural engineer to determine the integrity of the structure in terms of occupant safety first and foremost, as well as building code compliance. Replacement of the structure should be planned within the next five years.

The maintenance building with attached bathroom building was built in 1985 and is now 29 years old. The building appears to have some structural issues which need assessment and remediation. The building should be inspected by a qualified building inspector or structural engineer to determine the integrity of the structure in terms of occupant safety first and foremost, as well as building code compliance. The exterior wood is dried, cracking, and needs replacing. The building is in poor condition and is near the end of its

useful life. It should be replaced within the next two years. The Harbormaster and staff utilize the Harbormaster's Workshop for a variety of maintenance tasks, including defouling, painting, and fiberglassing. The consulting team observed that the workshop is old, undersized, under lit, under ventilated, and disorganized. The cramped space does not afford the Harbormaster Department adequate room to carry out the necessary harbor maintenance tasks, forcing them to utilize other Town facilities as available. When the Harbormaster Department does utilize the workshop at Sesuit, it is evident that the conditions pose a threat to the health and safety of the staff. The West Side Comfort Station provides washrooms for Harbor patrons and visitors. The Harbormaster contracts for regular cleaning, and users find that the facilities are adequate (though austere).

6.3.2.2 East Side

The East Side parking lot was last reconstructed in 1992, based on information provided by the Town of Dennis Engineering Department. The condition of the pavement within this lot is fair. The lot is currently paved with asphalt to an average depth of 3.5 to 4 inches. At an average life expectancy of 20 to 25 years, a repaving project capital expenditure for this east-side lot should be evaluated and contemplated now, and repaved by 2017.

Pavement striping (existing 4" white striping lines) should be repainted at least every 5 years. Traffic, pedestrian, and public informational signs should be inspected yearly, and replaced every ten (10) years. Concrete curb stops should be inspected and adjusted annually, and replaced as necessary. The life expectancy of concrete curb stops is approximately 20 to 25 years. Timber guardrail should be inspected yearly, and wood beams replaced as necessary. Timber guardrails should be replaced every 25 years. Parking lot lights should be inspected yearly and replaced every 20 years. The gravel parking area should be regraded every two years and depressions filled in with additional gravel on a yearly basis.

The existing stormwater detention basin appears to be functioning as designed. However, the detention basin should be inspected and maintained in accordance with the SMP requirements for detention basins. This includes removal of sediment at the inlet and outlet of the outlet pipe, and at the riprap lined outfall on an annual basis. All piping should be inspected yearly and checked for evidence of clogging. The riprap lined detention basin requires periodic reconstruction. The pond should be pumped down once every five years, and the riprap lining the pond bottom should be inspected. As needed, the riprap should be removed, and the pond cleaned of all accumulated sediment, and reconstructed in accordance with the original design drawings, reestablishing the elevations and depths shown on the original design. Per the SMP requirements, detention basins should be inspected twice yearly and after major storms. The outlet structure should be examined for evidence of clogging or outflow release velocities that are greater than designed for to prevent erosion. Vegetation should be mowed twice per year. Trash and debris should be removed twice a year. Bottom sediment within the basin should be removed at least once every 5 years.

The East Side Comfort Station bathrooms were built in approximately 1987, and rebuilt in approximately 2005. The building is in good condition. The building will need roof

and side shingles within 10 years. The building will likely need replacement by 2035. The East Side comfort station provides washrooms for Harbor patrons and visitors. The Harbormaster contracts for regular cleaning, and users find that the facilities are adequate (though austere).

6.3.2.3 Other Assets

The Marina/Consult assessment (Appendix B1) notes that both trucks appear to be in overall excellent condition and are adequate to serve the needs of marina operations.

6.4 RECOMMENDATIONS

A planning-level inspection of assets such as this one is useful for identifying immediate needs and prioritizing capital investment needs for the future. However, it should not be construed as an engineering survey and provides no assurance as to the integrity of structural and electrical systems at the Harbor. The fact that the docks at Sesuit Harbor are built in-house and not backed by rigorous engineering design (wind and wave load analyses) further complicates this analysis. If these assets were of manufactured/engineered origin and were maintained according to a manufacturer's suggested maintenance schedule, a standard asset evaluation could be performed with confidence. Since this is not the case for Sesuit Harbor, this asset evaluation – particularly the evaluation of water-based assets – relies on general visual inspection and a comparison of asset age to the expected useable lifespan as defined by the Harbormaster (based on direct experience with in-house construction).

For this reason, the consulting team maintains (Appendix B1) that in order to gain a complete understanding of the risks and liabilities related to Harbor conditions, structural and electrical engineering surveys should be performed on the pilings, piers and docks. If a complete survey is not possible, then a representative sample of the assets should be evaluated in this way.

Based on the findings of the Marina/Consult evaluation (in addition to comparisons with other Harbormaster Departments):

- An appropriately sized and outfitted vessel should be purchased for Harbormaster patrolling and rescue operations.

Based on the findings of this planning-level water-based asset evaluation, the immediate needs (within the next 1 to 2 years) at Sesuit Harbor Marina include:

- Replacement of the Commercial Pier ($187,500);
- Replacement of the timber bulkhead at the Commercial Pier ($120,000 - $160,000);
- Replacement of the dock on the north side of the West Side Boat Ramp ($5,500 in-house);
- Replacement of the main walkway on the West Side ($95,300 in-house);
- Replacement of the feeder and fingers for West Side Slips 27-52 ($36,450 in-house);

- Replacement of the feeder and fingers for West Side Slips 79-104 ($34,500 in-house);
- Replacement of approximately ¾ (103) of the pilings on the East Side ($236,900);
- Replacement of approximately 22 power posts on the West Side ($17,600) and 17 power posts on the East Side ($13,600).

Based on the findings of this planning-level water-based asset evaluation, the needs at Sesuit Harbor Marina within the next 3 to 5 years (considering expected serviceable lifespan and current condition) include:

- Replacement of staging dock on the West Side ($14,700 in-house);
- Replacement of the feeder for West Side Slips 1-8, excluding the end which was replaced in 2014 ($18,100 in-house);
- Replacement of the main walkway on the East Side ($63,800 in-house);
- Replacement of transient docks in the Mooring Basin ($4,000 in-house);

Table 6-2 presents the improvement needs beyond the 5-year planning horizon.

The Town should also develop a formalized inspection and maintenance plan for the pilings, piers and docks at the Harbor. Section 3 provides recommendations for the development of this plan.

Based on the results of the MADCR Coastal Infrastructure Inventory and Evaluation, the highest priority for coastal infrastructure is:

- Rehabilitation of the West Jetty ($1.6M for reconstruction/repair, $1.9M for upgrade).

Based on the findings of this planning-level land-based asset evaluation, the immediate needs (within the next 1 to 2 years) at Sesuit Harbor Marina include:

- Replacement of the Harbormaster Workshop with a safe and efficient structure for carrying out Harbor maintenance duties.

7.0 PARKING FACILITIES

Parking facilities support water access on both sides of the Harbor. On the West Side, available parking includes Sesuit Harbor West (slip and mooring holders, boat ramp patrons, other visitors), Northside Marina (slip holders, marina patrons, Sesuit Harbor Café patrons), and the Dennis Yacht Club (members). On the East Side, available parking includes Sesuit Harbor East (slip and mooring holders, boat ramp patrons, other visitors). There are additional municipal lots in the vicinity of Sesuit Harbor at Harbor View Beach and Cold Storage Beach, but since these lots provide beach-only access, they are not considered in this assessment.

7.1 PARKING EVALUATION

Parking for water-related access to Sesuit Harbor is provided at:

- Dennis Yacht Club (members only)
- Northside Marina / Sesuit Harbor Café (patrons only)
- Sesuit Harbor West (public: 112 vehicle / approx. 38 trailer)
- Sesuit Harbor East (public: approx. 40 vehicle / 72 trailer)

The Dennis Yacht Club lot abuts the Town right of way north of the Sesuit Harbor West parcel. Access to Northside Marina and Sesuit Harbor Café is via the same right of way. Discussions with the Town and various stakeholders indicated this is an area of potential safety concern given the in-season concentration of traffic, parking, and pedestrian uses. The Town Engineering Department had the Harbor Landing parcel (with associated right of way) surveyed recently. The survey (Outermost Land Survey, 2013) indicated that some abutting uses and structures (DYC parking, DYC tennis court, Northside boat storage and Café parking) likely infringe on the Town Landing parcel and the right of way.

The unofficial, but frequently used, access to Northside Marina is via the emergency access point south of the boat racks on the eastern edge of the Town gravel parking lot. Direct observation and stakeholder conversations indicated that cutting across the West Side parking lot (in front of the West Side Comfort Station) to get to Northside's parking lot is a common practice which puts Harbormaster staff, pedestrians and other vehicles at risk.

Section 6 (the Asset Evaluation) provides the review of the physical conditions of the (West and East) municipal parking lots. The current section evaluates the safety and efficiency of these municipal parking lots in their current configuration.

The West Side parking lot currently provides 112 vehicle parking spots in the paved area adjacent to the boat ramp and slips. Spaces are distributed along the edges and the center aisle of the lot. Trailer traffic in the current configuration enters from Sesuit Neck Road and is routed north before turning around for launch (green on Figure 7-1). This route has tight turning radii and conflicts with the natural boat ramp retrieval route (red on Figure 7-1). The northern portion of the parcel is a gravel lot, approximately three quarters of an acre, which provides storage for Harbormaster equipment as well as parking for approximately 38 trailers. At the middle of the eastern edge of this gravel lot,

the Harbormaster has recently kept a passage clear for Lobster Roll cruise patrons to access the Northside parking area among the boat storage racks. This allowance contributes traffic to the municipal lot and reduces the trailer capacity of the lot without capitalizing on parking revenues.

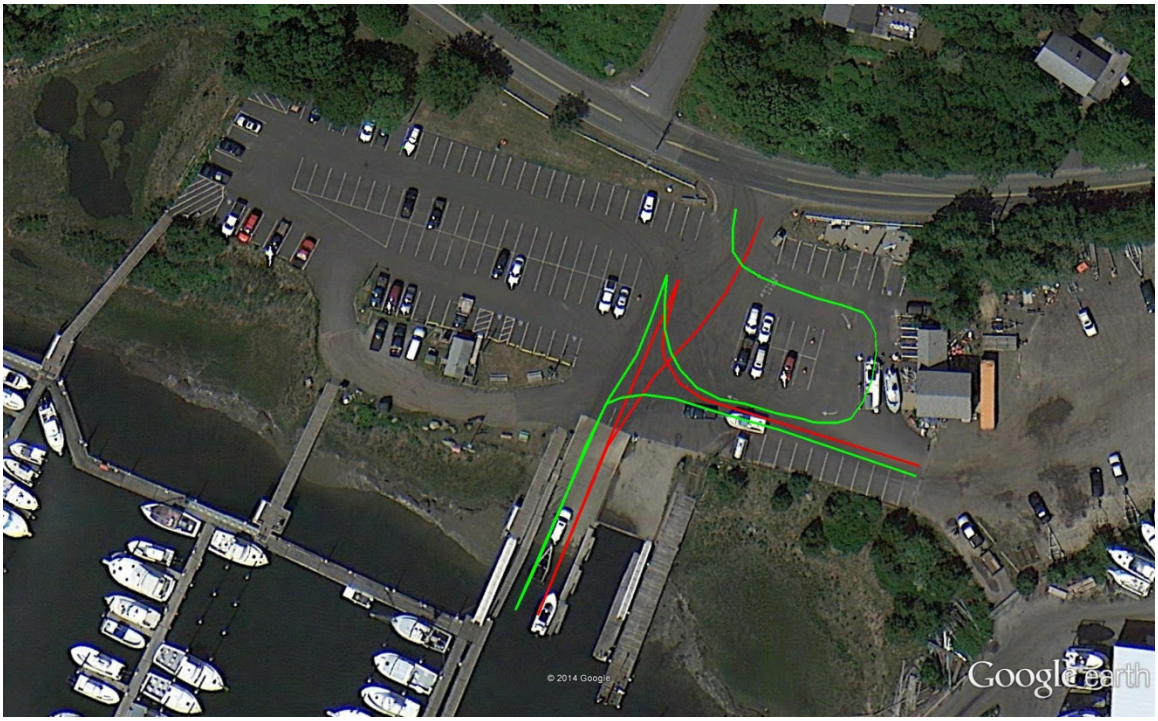

Figure 7-1. Existing West Side Parking Lot Configuration

The East Side parking lot currently provides 72 trailer parking spots in the paved area area adjacent to the boat ramp. Spaces are distributed along the western and eastern edges and the center aisle of the lot. Trailer traffic in the current configuration enters from Cold Storage Road and is routed west and then north before turning around for launch (green on Figure 7-2). The retrieval route (red on Figure 7-2) follows a similar pattern. Users report that the East Side ramp and trailer parking area are easier to use than the West Side, however the four trailer parking spaces at the northern end of the lot encumber boat launch and retrieval traffic. The southern portion of the parcel adjacent to the slips is a gravel lot, approximately one third of an acre, which provides parking for approximately 40 vehicles. A stormwater retention pond separates the paved trailer parking from the gravel vehicle parking. This obstruction constricts traffic flow, decreases visibility between the lots, and occupies an area that could be better used for parking. Additionally, direct observation of the stormwater retention pond indicated that the facility is not performing optimally as southern sections of the paved lot frequently flood.

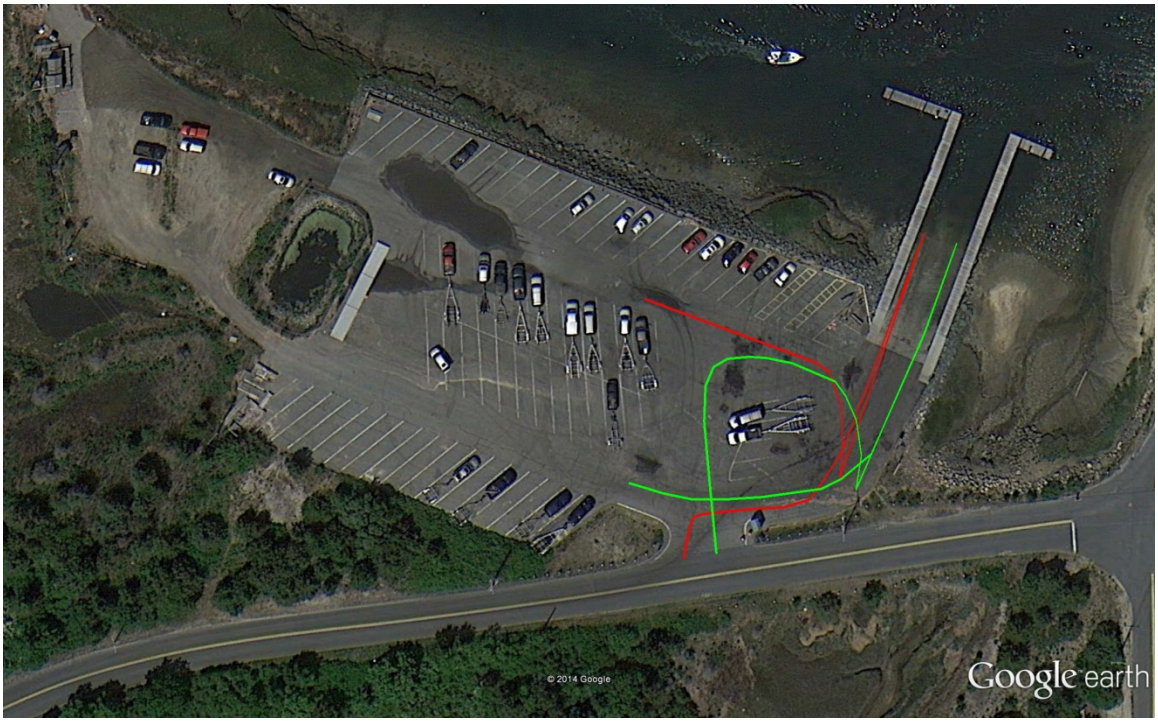

Figure 7-2. Existing East Side Parking Lot Configuration

Section 2 (Use and Access) provides a review of the available parking data.

7.2 PARKING RECOMMENDATIONS

Based on the review of parking facilities condition (Section 6.3.2), use (Section 2), and design (previous section), and on input from stakeholders and Town officials, the Town should consider the following actions to improve the safe and efficient use of parking facilities at Sesuit Harbor:

- Resolve encroachment issues on Harbor Landing parcel and right of way. Work with Northside Marina and Dennis Yacht Club to find engineering solutions to the traffic and encroachment issues at the marina and yacht club entrances. These solutions may require widening the pavement to match the right of way, re-striping the DYC parking lot, and realigning Northside's entrance and egress.
- Install a fire access only gate between the West Side lot and Northside Marina to prevent vehicle crossing and increase safety.
- Re-stripe the West Side and East Side lots to provide adequate turning radii for trailers. Marina design guidelines (NWSC, 2001) recommend a 75-ft diameter turning circle.
- Install Cape Cod berm and/or striped islands within the West Side and East Side lots to direct and calm internal circulation. Mountable Cape Cod berm islands allow boat-trailers to maneuver over the full length of the islands if needed.
- Install a card- or pay-access gate at the West Side lot entrance for controlling evening and overnight access to eliminate loitering and littering, reduce theft, and increase area safety and security.

- Create a parking status monitoring and/or notification system (web-based, mobile app, text or voice status line, programmable road signs along Route 6A, etc.) to enable Harbor users to observe parking conditions remotely (via webcam) or receive Harbormaster staff generated notification when parking lots are full or nearing capacity. Such a system would reduce unnecessary traffic in the neighborhoods during excessively high use days.
- Keep equipment and material stockpiles consolidated and fenced to improve safety and aesthetics.
- Reconfigure the West Side site plan to incorporate the following strategies:
    - Align lot entrance/exit with Highland Road to optimize traffic patterns;
    - Consider separate trailer entrance to maximize within lot queuing and provide safe internal circulation;
    - Add a bus parking space to accommodate tours without undesired neighborhood impacts;
    - Add temporary loading area near slips for user convenience and safety;
    - Relocate Harbormaster Office, Comfort Station, and Maintenance Building to edges of parking lot to maximize parking and circulation efficiency.
- Reconfigure the East Side site plan to incorporate the following strategies:
    - Convert targeted trailer spaces to vehicle spaces to enable appropriate turning radii for trailers;
    - Relocate stormwater retention pond out of main parking lot to optimize internal parking and circulation.

Along with any proposed reconfiguration of the parking lots, due consideration should be given to the quantity and distribution of parking types in the municipal marina lots. While it may not be physically possible to attain the desired quantity and distribution of parking throughout the Harbor, given property and environmental constraints, and understanding of the needs can help guide decision making and planning efforts. This analysis guided decisions by the Harbor Study Committee on design alternatives, and is similar to the analysis conducted by the Town Planner to inform the Sesuit Harbor Zoning Proposal.

The parking needs assessment for Sesuit Harbor considers marina industry standards, demand analysis, and standard planning metrics.

Over the past two years of parking data collection (2012 and 2013 seasons) on the West Side, the average weekend demand for parking has been around 0.37 spaces per slip. Note that during the 2012 season Dennis Parasail and Jetski patrons parked at the West Side lot (demand was slightly greater that year). Note also that during the 2013 season Dennis Parasail and Jetski patrons were shuttled to the Harbor, and weather was a factor in lower than normal Harbor use (demand was slightly lower that year). Neither year of parking data reflects Lobster Roll parking since these patrons previously parked at Northside Marina. Currently, all excursion vessel patrons (Lobster Roll, Albatross, charter fishing boats) must park at the West Side lot. This changes the parking demand significantly, so data from prior years is less relevant, although it gives a reasonable indication of the parking demand from recreational slips.

Based on marina industry standards, professional experience, local observation and consultation with the Town, the Woods Hole Group Team recommends the following targets for quantity and distribution of parking:

West Side Parking for:

- Slips and moorings = 58 (133 slips, 28 restored and 6 new moorings @ 0.35 per)
- Charter boat patrons = 30 (15 potential 6-pack operators @ 2 per)
- Excursion boats = 27 (¾ full 60-psgr. + ¾ full 49-psgr. @ 0.33 per)
- Trailers = 35

East Side Parking for:

- Slips = 52 (127 slips, 18 restored and 4 new moorings @ 0.35 per)
- Trailers = 58
- (Potential) Charter boat patrons = 10 (5 6-pack operators @ 2 per)

The recommended parking for the West Side uses the average historical peak Saturday demand rate calculated by the Town Planner and the Harbormaster for slips and moorings. This analysis assumes that access to 60% of moorings occurs from the West Side (based on current ratio of pram storage), and that dredging will restore all 46 historically available Inner and Outer harbor moorings and potentially add 10 more. This analysis further assumes a maximum of 15 charter fishing vessels operating from the slips (currently only 8 are active) and an additional two parking spaces per charter boat to accommodate 6 passengers. The analysis of excursion boats (Lobster Roll and Albatross) assume that (on average) these vessels are 75% full and patrons arrive three per car. Since the stated schedules of the various commercial activities and the likely hours of recreational use overlap, it is prudent to plan parking to accommodate average in-season concurrent use. The parking recommendation for trailers is based on historical use, which rarely exceeds 35 on weekends. Since more trailer parking is available at the newer East Side boat ramp lot, the provision of trailer parking on the West Side could be further reduced.

The total recommended parking for the West Side is 115 vehicles and 35 trailers.

The recommended parking for the East Side assumes the slip and mooring metric developed for the West Side applies to the East Side. This analysis assumes that access to 40% of moorings occurs from the East Side (based on current ratio of pram storage), and that dredging will restore all 46 historically available Inner and Outer harbor moorings and potentially add 10 more. The trailer parking analysis relies on observations and Harbormaster Staff reports of East Side boat ramp use (parking data is not available) in determining that the current provision of trailer parking is more than adequate. This analysis also allows for five charter fishing vessels to operate from the East Side boat ramp. The parking discussion provided by the Town Planner for the Sesuit Harbor Zoning Proposal places these five additional charter boats on the West Side (operating from the boat ramp and commercial pier), but the Woods Hole Group Team's analysis concluded parking on the West Side for additional trailers and charter patrons was not

physically available. If the Town opts not to allow this use on the East Side, the additional vehicle parking could be utilized for slip owners or for additional recreational passengers at the boat ramp.

The total recommended parking for the East Side is 62 vehicles and 58 trailers.

These recommendations differ slightly in approach from the analysis performed in support of the Economic Development Committee's exploration of harbor zoning, but the conclusions are generally comparable.

8.0 PEDESTRIAN ACCESS

Pedestrian amenities are key to safe and efficient enjoyment of public resources such as Sesuit Harbor. Additionally, pedestrian access to the public and commercial infrastructure at the Harbor can reduce traffic in the vicinity, promote healthy lifestyles and community interaction, and reduce the impacts of vehicle use. While many of the uses at the Harbor necessitate the presence and use of vehicles, the provision of good pedestrian infrastructure can reduce dependence on vehicles and alleviate congestion.

8.1 PEDESTRIAN EVALUATION

As Section 2.1 notes, pedestrian and bicycle access to both sides of the Harbor is limited. There are no sidewalks, bicycle paths or bicycle lanes provided in any of the areas adjacent to the West Side or East Side.

Sidewalks currently exist along the eastern side of Bridge Street up to Sesuit Neck Road, along the northern side of Route 6A between Bridge Street and South Street, and along the western side of School Street between South Street and Center Street. A bicycle/pedestrian path currently exists along Route 134 between Bob Crowell Road and Hokum Rock Road.

The density of the neighborhoods at Sesuit Neck and Quivet Neck makes it possible for a large number of potential users to access the Harbor by foot or bike. In fact, 131 residential properties are within a half mile walking distance from Sesuit Harbor West and 102 residential properties are within a half mile walking distance from Sesuit Harbor East (Figure 8-1). In a survey of stakeholders (Appendix A), 28% responded that they do not use parking lots when using the Harbor; 65% of these respondents reported they walk to the Harbor. However, residents comment that traffic in the neighborhoods is a safety concern for pedestrians. When asked about pedestrian and bicycle access at Sesuit Harbor, 60% responded in favor of improving pedestrian and bicycle infrastructure, and 40% indicated these improvements would likely change the way they access the Harbor (to varying degrees).

Additionally, pedestrian safety within the parking lots of water-access parcels is a concern. Areas where trailered boats, visiting cars (both residents and tourists), and pedestrians cross paths on the way to water are potentially dangerous, since marinas and waterfronts present a variety of distracting sights and sounds. This is particularly true Sesuit Harbor West, Northside Marina, and the Dennis Yacht Club. At Sesuit Harbor West, the location of the comfort station, Harbormaster's Office, boat ramp, trailer parking area, and slips (along with the common practice of vehicles cutting through to Northside) forces cars, trailers and pedestrians to cross paths regularly. At Northside Marina, the forklift used for rack service continually shuttles between racks and launch in an area where cars and pedestrians cut through from the West Side lot. The formal entrance to Northside Marina and the Dennis Yacht Club occurs on a Town right of way and is constricted, making entry/exit at Northside inefficient and Dennis Yacht Club drop off potentially dangerous.

Figure 8-1. Walk-shed of Sesuit Harbor

8.2 PEDESTRIAN RECOMMENDATIONS

Development of effective pedestrian infrastructure should be a priority throughout the Sesuit Harbor area, since conflicts between motorists and pedestrians likely contribute disproportionately to the perception (by 50% of survey respondents) that the Harbor is operating above capacity. Review of the comments provided in the survey (Appendix A) reveals that pedestrians believe vehicles are driving too fast through neighborhoods and that motorists believe pedestrians are taking up too much of the roadway. Review of traffic and pedestrian safety on Sesuit Neck by the Dennis Police Department (Town of Dennis, 2013a) did not conclude there was a speeding issue or observe pedestrians blocking traffic flow, but did recommend the installation of sidewalks on the south side of Sesuit Neck Road as a strategy for reducing these conflicts.

The Road Safety Task Force (Town of Dennis, 2009) also recommended a sidewalk for Sesuit Neck Road from Bridge Street to the Harbor in its Sidewalk Objectives Plan, which was accepted by the Board of Selectmen.

To resolve these issues on the West Side, the Woods Hole Group Team also recommends the Town install a sidewalk along Sesuit Neck Road from Bridge Street to the Harbor. Additionally, the sidewalk should extend along Harbor Road to Harborview Beach, thereby creating a pedestrian friendly "route-to-water" for the Harbor, the way to water

opposite Sesuit Road, and Harborview Beach. The Town should also install crosswalks and speed tables at a number of strategically placed locations along Sesuit Neck Road and Harbor Road (Figure 8-2) to augment pedestrian safety. Installation of sidewalks will likely require alterations to some stone walls and landscape elements that fall within the Town's right of way, and will reduce the width of the right of way accessible to vehicles. If the Town implements the sidewalk project as recommended on Sesuit Neck, it should also consider implementing a no parking/standing zone along Sesuit Neck Road from Bridge Street to the West Side entrance to reduce any further constriction of the roadway by contractor vehicles and trailers. Most residential driveways in this area are long enough to accommodate trucks and trailers. The Town may also consider implementing such a no parking/standing zone independent of the sidewalk project, since it would help reduce vehicle and pedestrian conflicts along this route to the water.

To reduce unnecessary traffic in both Sesuit Neck and Quivet Neck, the Town should install more wayfinding signage (Figure 8-2). In properly directing visitors to their destinations, signage will reduce traffic and improve pedestrian safety. Wayfinding signage directing vehicles to both boat ramps, the Northside Marina, the Sesuit Harbor Café, the Albatross, the Lobster Roll Cruise, the Dennis Yacht Club, and the Dennis public beaches should be installed at several locations in the East Dennis area.

Signs should indicate the location of the Café and the proper driveway access to the Café and the Northside Marina. These signs should be at the driveway entrance to the West Side marina to guide those unfamiliar with the neighborhood to their destinations. Direct observation and consultation with Harbormaster staff indicates that numerous Café patrons do not know how to access the Café's parking lot. Clear and concise signage should improve vehicular access and safety as well as pedestrian safety.

To reduce misdirected traffic on both sides of the Harbor from Route 6A, the Town should install signage:

- on Route 6A at Route 134,
- at the 4-way stop on Bridge Street,
- at the Town-owned Marina for West Side users, and
- on Route 6A at School Street, and Cold Storage Road at Pleasant Street for East Side users.

Signage could also be added at strategic locations in an effort to prohibit tour buses from driving through the Sesuit Neck residential area, particularly on Steven Phillips Road. Pedestrian 'Share the Road' signs would also promote pedestrian safety in areas that do not receive sidewalks. Signs should conform to the federal standards of the Manual of Uniform Traffic Control Devices (brown informational signs).

To improve pedestrian safety at the West Side town marina, the town should consider:

- Installing a fire access gate between West Side lot and Northside Marina to eliminate unsafe vehicle cut-through;

- Installing traffic calming measures, such as Cape Cod berms and striped islands, within the West Side lot to direct and slow traffic;
- Providing internal sidewalks at the West Side lot;
- Rearranging the West Side site plan to more effectively separate pedestrians from vehicles.

The Town should also consider sidewalks for the Quivet Neck area (and connecting the West Side to the East Side with a complete sidewalk along Route 6A), but present levels of activity on this side of the Harbor make this project less urgent than on the West Side.

Paramount to any infrastructural strategy for improving pedestrian safety, an increased police presence – via speed displays and patrols (cruiser and/or bicycle) – will remind motorists and pedestrians to observe the rules of the road, reduce conflicts and increase safety.

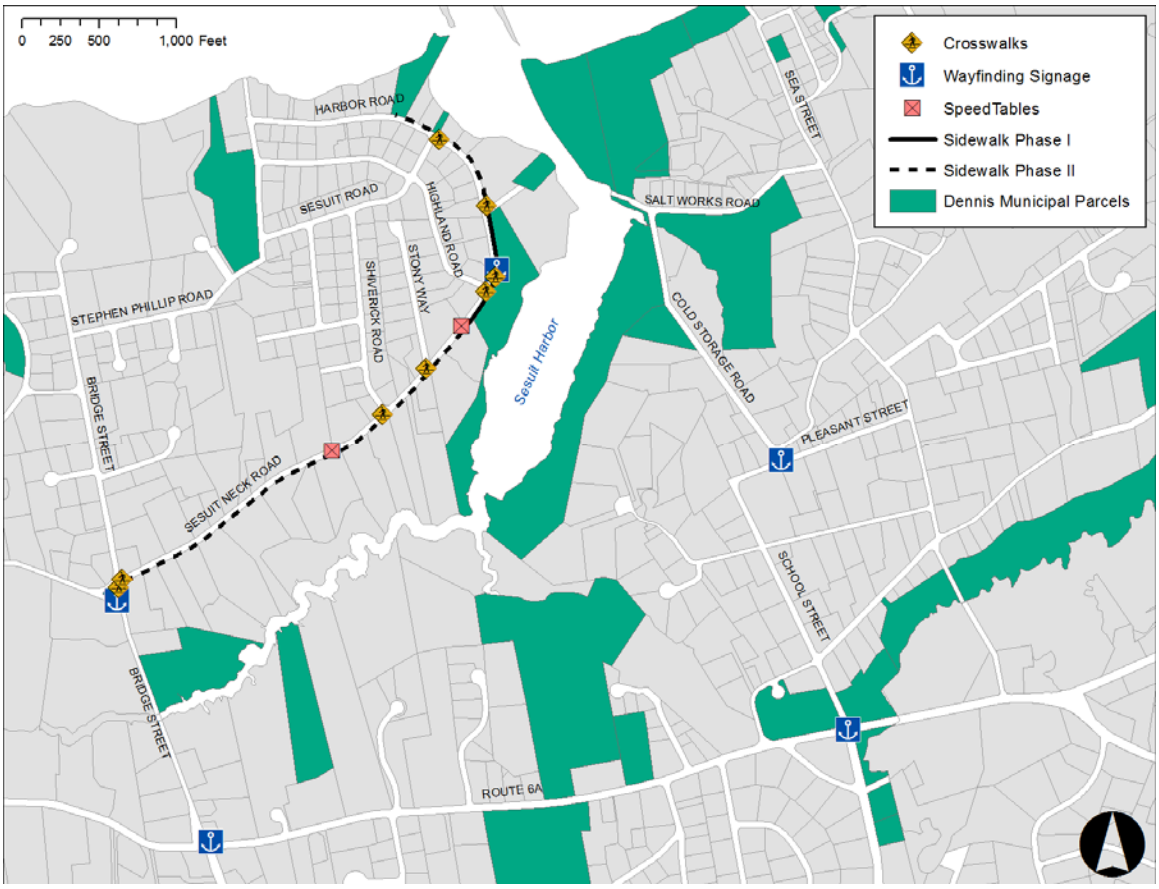

Figure 8-2. Recommended Pedestrian Improvements

9.0 IMPROVEMENTS AND ESTIMATED COSTS

Based on the findings of the asset, parking, and pedestrian evaluations (and incorporating the evaluations of use and access, operations and governance, regulations and fees, and personnel) Woods Hole Group and its team of consultants prepared a summary of the land and water improvements to satisfy four (4) planning alternatives for Sesuit Harbor. Based on our conversations with the Harbor Study Committee (HSC) and the Town Planner, these alternatives include:

> **1** – *Minimum Necessary Water Intervention*: The minimum capital improvements necessary to maintain water-based assets in their current condition, and provide an acceptable level of safety at the harbor (a temporary solution for up to two years while the Town addresses bank stabilization);
> **2** – *Maintain and Replace Existing*: The capital improvements needed over the 20 year planning horizon to maintain water- and land-based assets in the existing Site Plan using the current maintenance and replacement approach (also assumes code compliance for any replacements);
> **3a** – *Full Replacement of Existing Site Plan*: The replacement of all water- and land-based assets in the existing site plan with facilities consistent with current marina industry standards (i.e. engineered docks), with some minor adjustments to improve traffic and pedestrian safety;
> **3b** – *Full Replacement with Revised Site Plan*: The replacement of all water- and land-based assets with facilities consistent with current marina industry standards (i.e. engineered docks), in a new Site Plan which promotes safe and efficient use of the harbor.

A description of the components of each alternative follows – including the assets to be improved, the nature of the improvements, site plans (when necessary), and cost estimates.

9.1 ALTERNATIVE 1 – MINIMUM NECESSARY WATER INTERVENTION

The intent of this alternative is to address the immediate needs of the Town Marina which currently inhibit its safe and efficient operation, so that the Town can focus its resources on dredging in Sesuit Harbor before executing the selected long-term capital improvement plan (Alternative 2, 3a, or 3b). Since no building inspection records were available to direct specific building repairs/improvements, and because the asset evaluation identified building replacement (and potential relocation) as long-term needs, Alternative 1 focuses on water-based assets.

The asset evaluation identifies a number of water-based assets judged to be in poor condition. Among these are the West Side commercial pier and timber bulkhead, and the older/undersized pilings on the East Side. Although these assets are in poor condition, they constitute larger projects not suitable to a minimum needs intervention. The commercial pier is at the end of its useable lifespan, and the Harbormaster limits access due to deteriorating decking. In this case, the immediate need is not reconstruction, but rather re-decking. The timber bulkhead at the commercial pier is failing and allowing sedimentation from the banks. Since the engineering inspection (Cape Cod Engineering,

2012) indicates there is no immediate threat of collapse, it would be best to replace the bulkhead in conjunction with the commercial pier (for access reasons) and in coordination with the shoreline stabilization effort (to follow). Finally, the older pilings on the East Side are undersized and deteriorating. Since replacement of pilings is a major construction effort requiring contractors with specialized equipment, it may make sense to reserve this project for the near-term (but not immediate) improvement plan, unless a complete replacement or reconfiguration is to be undertaken with engineered systems (Alternative 3a or 3b, respectively).

The asset evaluation also indicates that the existing patrol boat (23' Wellcraft) is not suitable for performing Harbormaster patrol/safety/rescue duties. It therefore recommends replacement with a 25' to 30' cuddy cabin vessel with side entry and firefighting apparatus. The 2005 23' Wellcraft should be repurposed at Sesuit Harbor to replace the 1990 23' Sea Way currently serving as the secondary patrol vessel.

The recommended projects for Alternative 1 (Minimum Necessary Water Intervention) are:

- replacement of the decking on the commercial pier;
- replacement of docks judged to be in poor condition; and
- purchase of a suitable patrol vessel.

The cost estimate for the pier decking is from Cape Cod Engineering (2012); the cost estimates for the docks (feeders and fingers) assume construction by the Harbormaster's Office, and do not include power posts, fire suppression, or connection fees (electrical or water).

Table 9-1 presents the various projected costs for Alternative 1. The projected total planning-level cost estimate for Alternative 1 is $390,000.

9.2 ALTERNATIVE 2 – MAINTAIN AND REPLACE EXISTING

The intent of this alternative is to address the projected needs of the Town Marina over a 20-year planning horizon. This alternative addresses both water- and land-based assets, and anticipates all replacements will be code-compliant. It assumes all buildings will need replacement once over the planning horizon, but that the general program and Site Plan will not change. This alternative also assumes that the current approach to asset maintenance and replacement (i.e. maintenance and replacement only as necessary, construction performed in-house to the greatest extent possible) will persist. Since there is no way to predict when a given asset will begin to fail (and warrant replacement), this alternative uses the expected lifespans stated in the asset evaluation to gauge replacement horizons. Finally, this alternative assumes that the Minimum Necessary Water Interventions (Alternative 1) will be completed prior to implementation of Alternative 2. Alternative 2 prioritizes the remaining capital improvements after the immediate needs are addressed by Alternative 1.

Alternative 2 also recommends the following improvements for site safety, accessibility, and code compliance (universal access):

- West Side Parking Lot: Add one accessible parking space to the West Side lot (ADA requires 5 universally accessible spaces if the total number of parking spaces is 100-150). Create code-compliant access aisles at each accessible parking space and confirm that each parking space has a sign. One space should be van accessible with a wider access aisle and an additional sign.
- West Side Overlook Area: Pave under the picnic table and install an ADA-compliant picnic table. If picnic tables are provided, at least one should be universally accessible.
- Harbormaster's Workshop: Create a fenced/screened area behind workshop to store equipment and materials, removing it from public contact.
- Signage: Clarify, simply and strengthen signage that directs harbor users to the pay station, parking, harbormasters building and exit. Create standardized regulatory signage that is repeated throughout both West Side and East Side. Install new signage in areas that are not open to the public. Where signs are posted for the public, they should be in locations that are universally accessible. Add "No Parking" signs along the road.
- Bicycle Racks: Add bicycle racks to West Side and East Side to encourage access by slipholders (reducing parking demand) and by recreational cyclists.

Table 9-2 presents the various projected costs for Alternative 2, based on the condition and/or projected serviceable lifespan information provided in the asset evaluation. The projected total planning-level cost estimate for Alternative 2 is $3,980,000.

9.3 ALTERNATIVE 3A – FULL REPLACEMENT OF EXISTING SITE PLAN

The intent of this alternative is to implement a full-scale rebuild of the Town Marina with updated and industry-standard facilities. This alternative addresses both water- and land-based assets, and anticipates all replacements will be not only code-compliant, but also commensurate with the current standard practices and technologies in the marina industry. It assumes all buildings will be replaced, but that the general program and Site Plan will not change. Alternative 3a also allows for some minor interventions for traffic and pedestrian improvement.

Alternative 3a assumes:

- Replacement of all buildings, piers, ramps and docks with same in identical configuration, but of a quality consistent with current marina standards. In the case of the floating elements, this includes aluminum ramps and docks with composite decking.
- The Town will follow all recommended maintenance plans specified by the dock manufacturer to satisfy the requirements for warranty coverage.
- Implementation of recommended traffic and pedestrian improvements.
    - West Side: Cape Cod berms, vehicle unloading zone, picnic areas, reworked drainage, signage in Harbor and vicinity, and sidewalks/crosswalks/speed tables along Sesuit Neck Road.
    - East Side: signage in vicinity.

Figures 9-1 and 9-2 provide the proposed land modifications to the West Side and East Side, respectively.

Section 8 describes the recommended pedestrian improvements along Sesuit Neck Road (sidewalks, crosswalks, and speed tables) and the recommended additional signage in the vicinity of the West Side and East Side. Sections 9.3.1, 9.3.2, and 9.3.3 describe the proposed Water, West Side, and East Side improvements that comprise Alternative 3A.

9.3.1 Water (3A)

StructurMarine, an internationally known dock manufacturer with experience in the region (Town of Bourne and Town of Yarmouth), provided a planning-level cost estimate (Appendix D) to replace (current configuration) the existing dock system (ramps, docks, anchoring, water/electrical services) with industry-standard technologies – i.e. an aluminum dock system with composite decking and foam filled plastic floats. The assumptions for this estimate include:

- Docks and Ramps
    - Aluminum docks with composite decking are designed for 35-year lifespan with minimum maintenance
    - Construction/installation budget is typically 15% of material costs
- Anchoring
    - For aluminum dock systems, anchoring occurs only on main docks, fingers are self-standing and do not need piles at the end for boats up to 50'
    - For a design wind speed of 70 mph (first threshold of Category 1 Hurricane), and using coated steel pile of 12" diameter, a total of 92 anchor piles are required for the West and East Sides
    - Average cost per pile of $3,500 (includes piles and installation)
    - Average cost for equipment mobilization/demobilization of $80,000
- Services
    - Given the average boat size at the Town Marina, 35A outlets are sufficient and one pedestal can serve 4 slips
    - Average cost per slip of $1250 (includes pedestals, electrical cables, water taps, water pipes and installation) (excludes supply of the shore electrical panel and additional cost for bringing more power if required)
    - Average cost for pump-out station of $22,000 (includes installation and material)

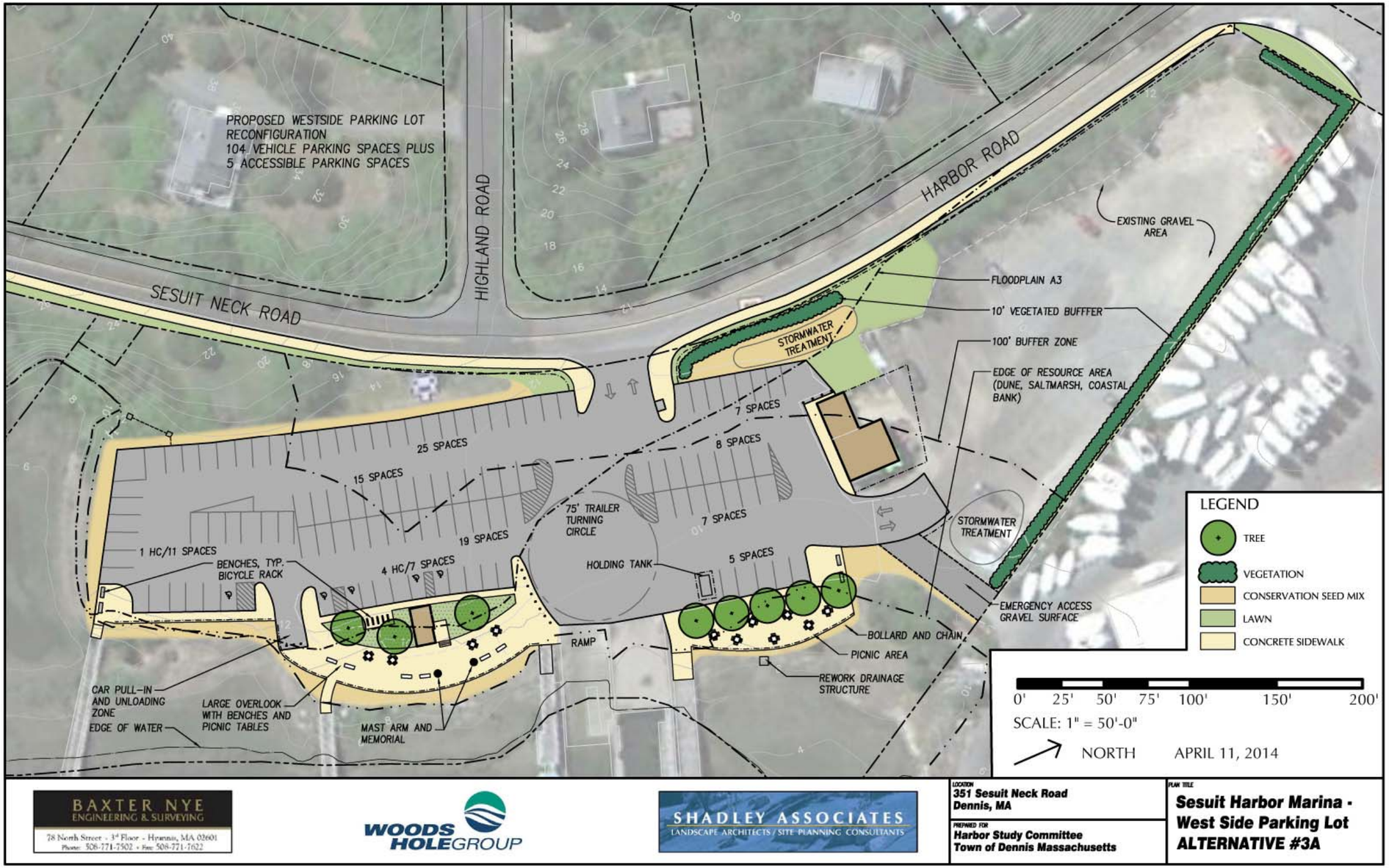

Figure 9-1. Recommended West Side Site Improvements – Alternative 3A

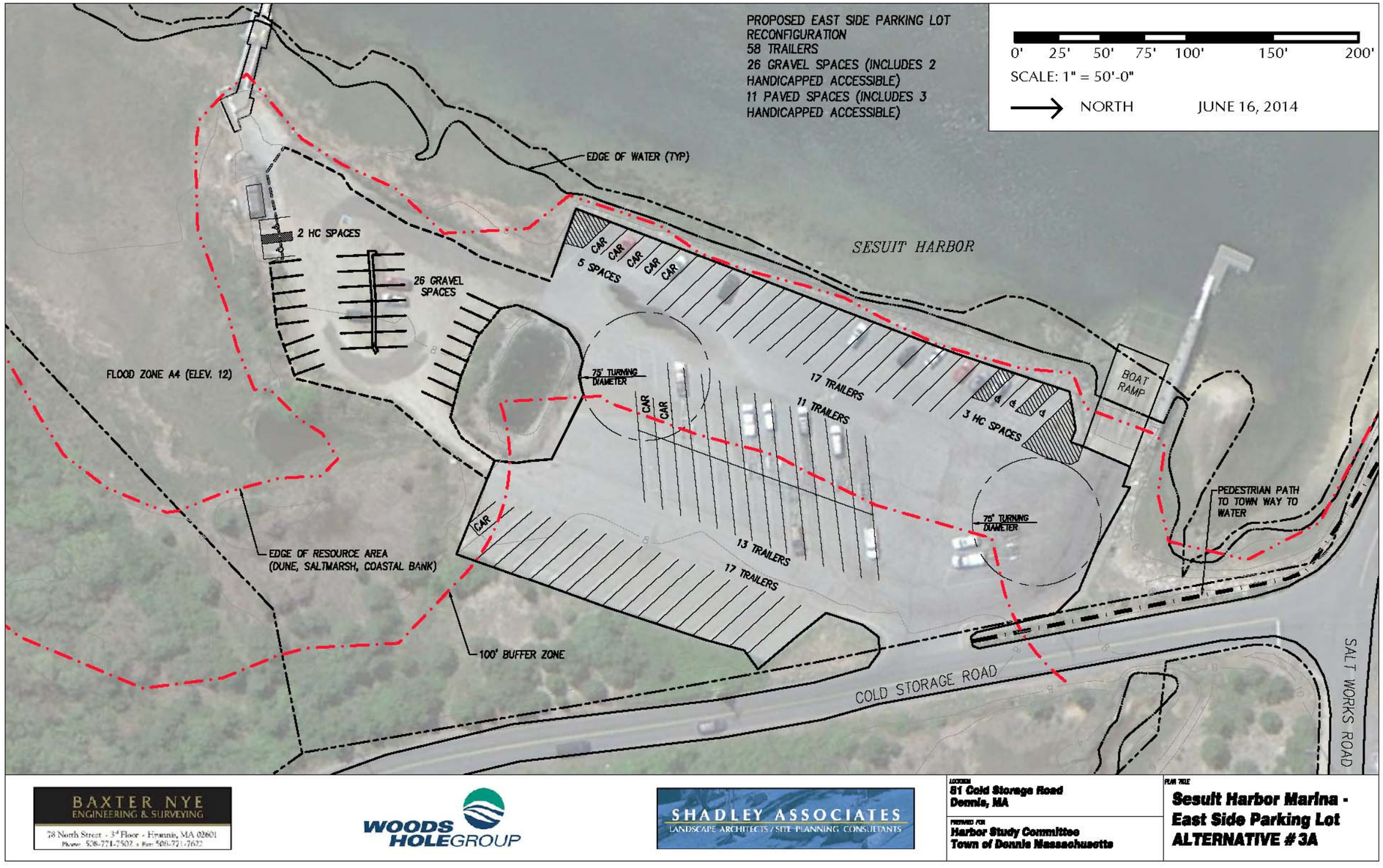

Figure 9-2. Recommended East Side Site Improvements – Alternative 3A

9.3.2 West Side (3A)

The proposed reconfiguration of the West Side for Alternative 3A (Figure 9-1) keeps all major elements (buildings, infrastructure, parking lot entrance and paving) in the existing configuration.

Modifications to the parking lot include:

- Provision of sufficient accessible parking spaces to meet ADA requirements;
- Re-delineation of the paved lot to provide a 75 ft. trailer turning circle;
- Provision of formal pedestrian amenities near the waterfront including picnic areas, overlook with benches, and bicycle racks;
- Provision of a vehicle pull-in for temporary unloading near slips; and
- Provision of fencing behind the Harbormaster's Workshop to accommodate safe storage of Harbor equipment.

The reconfigured West Side parking lot provides:

- 104 paved vehicle spaces
- 5 paved accessible spaces
- 33 unpaved trailer spaces (approximate because unmarked)

9.3.3 East Side (3A)

The proposed reconfiguration of the East Side for Alternative 3A (Figure 9-2) keeps all major elements (buildings, infrastructure, parking lot entrance and paving) in the existing configuration.

Modifications to the parking lot include:

- Re-delineation of the paved lot to provide a 75 ft. trailer turning circle;
- Conversion of eight (8) spaces in the paved lot from trailer to vehicle to improve turning radii and traffic flow;

The reconfigured East Side parking lot provides:

- 58 paved trailer spaces
- 8 paved vehicle spaces
- 3 paved accessible spaces
- 26 unpaved vehicle spaces (approximate because unmarked)

Table 9-3 presents the various projected costs for Alternative 3A, based on industry-accepted construction assumptions. The projected total planning-level cost estimate for Alternative 3A is $6,640,000.

9.4 ALTERNATIVE 3B – FULL REPLACEMENT WITH REVISED SITE PLAN

The intent of this alternative is to implement a full-scale rebuild of the Town Marina with updated and industry-standard facilities. This alternative addresses both water- and land-based assets, and anticipates all replacements will be not only code-compliant, but also commensurate with the current standard practices and technologies in the marina industry. It assumes all buildings will be replaced, and that the general program and Site Plan will change to improve safety and efficiency of operations around the harbor.

Alternative 3b assumes:

- Replacement of all buildings, piers, ramps and docks of a quality consistent with current marina standards. In the case of the floating elements, this includes aluminum ramps and docks with composite decking. Buildings may be relocated and redesigned, parking lots may be redesigned, and dock systems may be redesigned.
- Both boat ramps will remain operational and in their present location (by decision of the Harbor Study Committee).
- The Town will follow all recommended maintenance plans specified by the dock manufacturer to satisfy the requirements for warranty coverage.
- Implementation of recommended traffic and pedestrian improvements.
    - West Side: signage in Harbor and vicinity, and sidewalks/crosswalks/speed tables along Sesuit Neck Road.
    - East Side: signage in vicinity.

Figures 9-3 and 9-4 provide the proposed land modifications to the West Side and East Side, respectively.

Section 8 describes the recommended pedestrian improvements along Sesuit Neck Road (sidewalks, crosswalks, and speed tables) and the recommended additional signage in the vicinity of the West Side and East Side.

9.4.1 Water (3B)

Redesigning the water-based elements of a marina (piers, docks, ramps, anchoring systems) requires detailed wind- and wave-load analyses and other engineering analyses outside the scope of this project. Woods Hole Group obtained a proposal from StructurMarine, an internationally known dock manufacturer with experience in the region (Town of Bourne and Town of Yarmouth), to provide a planning-level design and cost estimate for the Town Marina at Sesuit (Appendix E). Based on input received from the Harbor Study Committee, the planning-level design would observe the following constraints:

- Maintain both boat ramps (West and East) in their present locations;
- Maintain slips on both sides of the harbor;
- Provide for a mix of commercial and recreational slips;
- Avoid aggressive growth; and
- Plan within the metes and bounds of the proposed 10-year Comprehensive Dredging Permit.

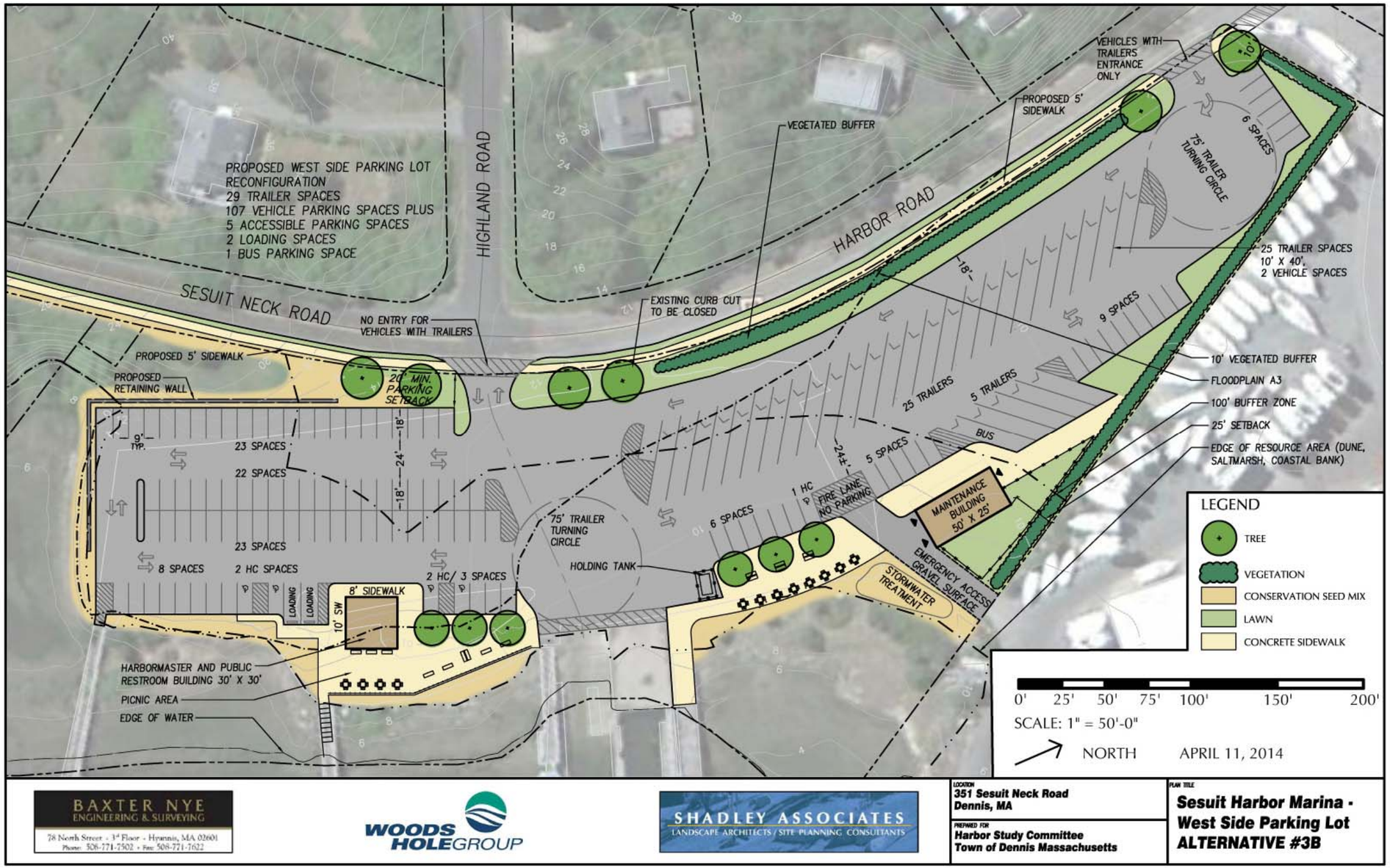

Figure 9-3. Recommended West Side Site Improvements – Alternative 3B

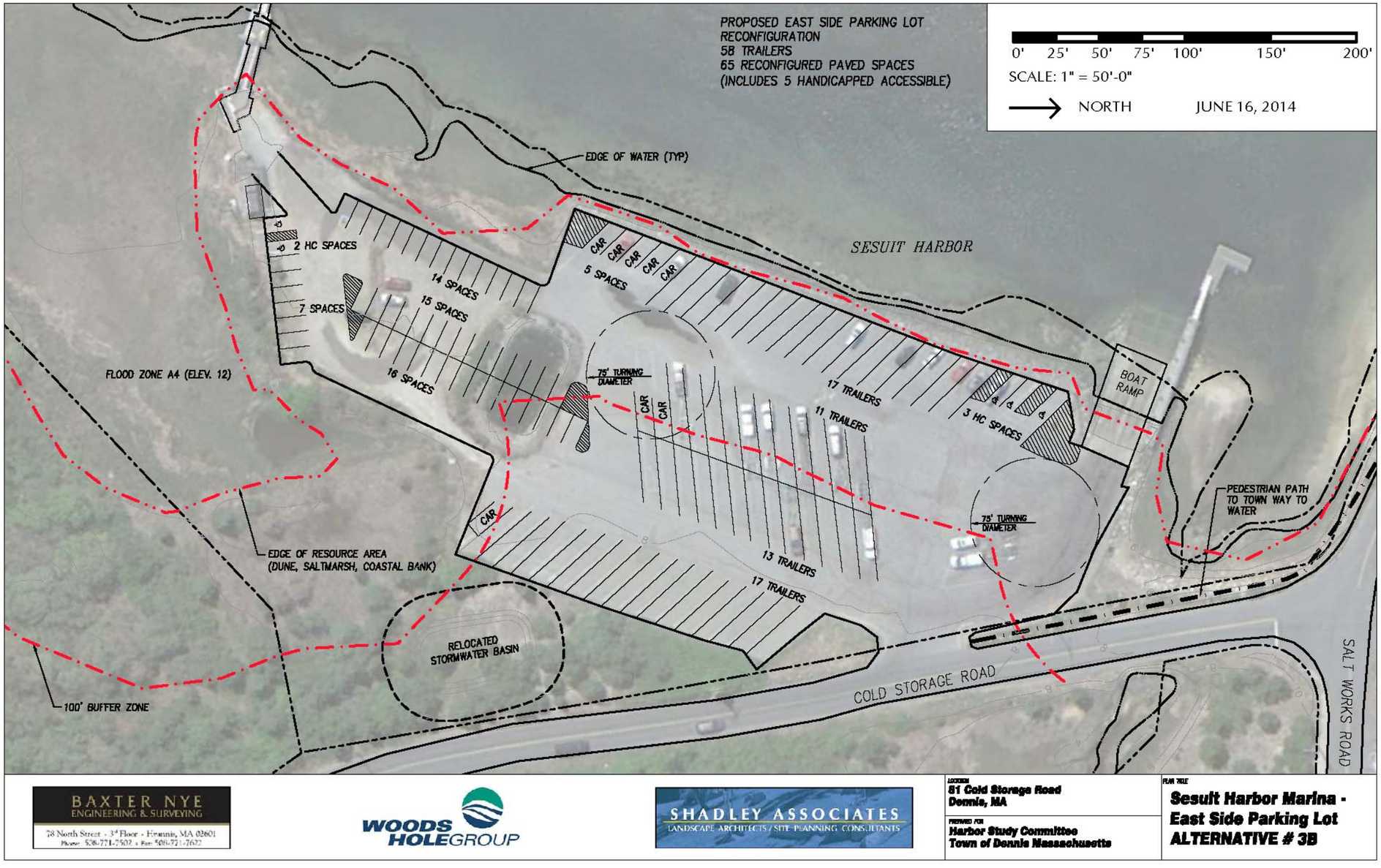

Figure 9-4. Recommended East Side Site Improvements – Alternative 3B

Presented with this proposal during the course of this study, the Town opted to table StructurMarine's proposal until a decision is made on the overall approach to the rehabilitation/redevelopment of the Town's marina. Absent this detailed design work, Woods Hole Group and Marina/Consult offer the following strategies for a redesigned harbor (which may or may not be recommended by StructurMarine if and when they are retained to complete the proposed independent redesign) based on the findings of Sections 2 and 3:

- Consolidate all slips to the West Side, and use East Side exclusively for boat ramp access, pram/tender storage, and mooring access. Such consolidate will achieve infrastructural efficiency and safer traffic patterns within the Harbor. (Note that the Harbor Study Committee rejected this recommendation early in the planning process, so it was not considered further in any land or water design alternatives)
- To the greatest extent feasible, eliminate main walkways to reduce non-leasable infrastructure. This design strategy would have the additional benefit of separating commercial from recreational foot traffic on the docks and piers.
- Assuming continued operation of slips and boat ramps on both sides of the Harbor (as requested by the Harbor Study Committee), the redesign should align fingers on either side of the fairway to reduce blind spots and achieve safer traffic patterns.
- Assuming continued operation of slips and boat ramps on both sides of the Harbor (as requested by the Harbor Study Committee), the redesign should consider eliminating the current East Side slips 1-15 (far northern finger on East Side) to reduce navigational constriction in the vicinity of the West Side boat ramp, Commercial Pier, and Northside Marina's rack service area. The loss of this is northern finger could be offset by expansion of the East Side slips to the south in a newly dredged basin.

In place of a premature redesign of the Sesuit docks, the planning-level cost estimate for Alternative 3B uses the planning-level cost estimate provided for Alternative 3A (Appendix D). Section 9.3.1 provides the description and assumptions for StructurMarine's replacement cost estimate. Given the limitations on footprint and arrangement, and the stated preference for limited or no growth, use of the cost estimate for Alternative 3A is reasonable. It is conservative to assume that any modifications proposed in the Alternative 3B redesign (given the design constraints) would be modest and would focus on improving safety and efficiency of the dock system rather than increased provision of slips. The objective of this redesign would be to optimize the plan, thereby potentially eliminating unnecessary piers/ramps and other non-revenue generating infrastructure. Therefore, the estimated costs to redesign the dock system (3B) should be less than the estimated costs to replicate the existing dock system (3A).

9.4.2 West Side (3B)

The proposed redesign of the West Side for Alternative 3B (Figure 9-3) increases pedestrian safety, re-routes vehicle and trailer traffic for increased safety and efficiency, provides ample waterfront pedestrian amenities, and provides updated and augmented facilities.

Specific redesign strategies include:

- Realignment of vehicle entrance from Sesuit Neck Road to provide optimal alignment with Highland Road;
- Provision of trailers-only entrance at north end of property to optimize traffic flow and internal queing;
- Addition of emergency access gate to eliminate cut-through to Northside Marina parking lot and improve parking lot safety;
- Minor expansion of Harbormaster Office to provide sufficient work space, consolidated with relocated public restrooms to provide optimal location of amenities and efficiency in construction;
- Relocation and 50% expansion of Harbormaster's Workshop to optimize parking layout and provide safe and sufficient work space;
- Provision of sufficient accessible parking spaces to meet ADA requirements;
- Re-delineation of the paved lot to provide 75 ft. trailer turning circles;
- Provision of formal pedestrian amenities near the waterfront including picnic areas, overlook with benches, and bicycle racks;
- Provision of a vehicle pull-in for temporary unloading near slips; and
- Provision of fencing behind the Harbormaster's Workshop to accommodate safe storage of Harbor equipment.

The redesigned West Side provides:

- 29 paved trailer spaces
- 107 paved vehicle spaces
- 5 paved accessible spaces
- 1 paved bus parking space
- 2 loading spaces

9.4.3 East Side (3B)

The proposed redesign of the East Side for Alternative 3B (Figure 9-4) increases pedestrian safety, improves vehicle and trailer circulation, and provides additional vehicle parking for slip holders.

Specific redesign strategies include:

- Relocation of the stormwater retention basin to provide additional parking for slip holders
- Re-delineation of the paved lot to provide 75 ft. trailer turning circles;
- Conversion of eight (8) spaces in the paved lot from trailer to vehicle to improve turning radii and traffic flow; and
- Provision of a pedestrian path from the parking lot to the Town way-to-water to the north along Salt Works Road.

The reconfigured East Side provides:

- 58 paved trailer spaces
- 62 paved vehicle spaces
- 3 paved accessible spaces

Table 9-4 presents the various projected costs for Alternative 3B, based on industry-accepted construction assumptions. The projected total planning-level cost estimate for Alternative 3B is $8,350,000.

9.5 COASTAL INFRASTRUCTURE

The jetties, bulkheads, and revetments in Sesuit Harbor are critical to the maintenance and operation of the Harbor. The Town owned coastal infrastructure in Sesuit Harbor has been evaluated by Woods Hole Group (2010) and the Massachusetts Department of Conservation and Recreation (Office of Waterways) (MADCR, 2013). Section 6.3 presents the inventory and evaluation of these assets, based on review of these documents and observations made over the course of this study. This section prioritizes the necessary repairs and provides cost estimates based on MADCR (2013) evaluation.

MADCR (2013) rated both the physical condition and the priority of action for rehabilitations to Town owned coastal infrastructure in Sesuit Harbor. For the Coastal Infrastructure Inventory and Assessment Project, MADCR prioritized repairs based on the capacity of those structures to resist major coastal storms and prevent storm damage to high value inshore structures. Such a prioritization scheme is not relevant to preserving the efficient operation of the Harbor. Therefore, Woods Hole Group relied on the structure condition evaluation to prioritize infrastructure repairs for Harbor maintenance because these evaluations considered damage to the structure as well as the landform. Erosion of the landform into the Harbor presents an immediate threat to the continued use of the Harbor.

Table 9-5 presents the projected costs for coastal infrastructure repair, based on the MADCR report. It also ranks the priority of those repairs based on the reported structural condition. The projected total planning-level cost estimate for coastal infrastructure repairs is $7,575,000.

9.6 DREDGING

As discussed in Sections 2 and 3, dredging is vital to the continued safe and efficient use of the Sesuit Harbor. The Town spends $100,000 to $150,000 per year to perform maintenance dredging on the navigation channel. Depending on the yearly conditions and level of effort, volumes typically range from 5,000 cubic yards to 15,000 cubic yards. Besides channel maintenance, no other dredging has occurred since inner harbor development in 1958.

Based on current investigations for the 10-Year Comprehensive Dredge Program permit, the Harbormaster, Town Engineer, and permitting consultant estimate that total dredging of Sesuit Harbor will yield approximately 87,000 cubic yards of material (sand or silt, depending on source) and cost approximately $2,200,000. Table 9-6 presents the

projected costs for dredging, based on the current data available to support the 10-Year Comprehensive Dredge Program permit.

10.0 POTENTIAL RETURNS ON INVESTMENT

Investments in the Town Marina facilities at Sesuit Harbor are needed, not only to improve safe and efficient use of the Harbor, but also to reduce liability. Additionally, investments that maintain Sesuit Harbor as a desirable boating destination benefit the local economy. Recent recreational boater surveys in New England (Starbuck and Lipsky, 2013) and Massachusetts (Hellin et al., 2011) demonstrate the significant direct and indirect economic impacts of boating.

As noted in Section 4.3.3, fees should not rise without commensurate improvements in facility conditions and services. However, investments in upgrades to land-based and water-based assets at Sesuit Harbor would allow the Town to collect fees more comparable to other municipal marinas in the region, and thereby pay for the improvements and upgrades without significantly increasing activity in and around the Harbor.

Marina/Consult prepared pro-formas to model revenues, expenses, amortization and capital reserves over a 15 year period (half the expected life of manufactured docks) for each of the Harbor improvement alternatives (3A and 3B). These pro-formas are provided to the Town for future use as harbor planning develops. The financial models make standard industry assumptions and layer in figures specific to Sesuit Harbor (such as proposed fee structures, debt service for dredging / dock systems / siteplan improvements, and continuous provision for capital reserve funds. The financial models do not include the coastal infrastructure repair costs estimated by the state (MADCR, 2013). More detail regarding the assumptions is available within the notes of the models (provided to the Harbor Study Committee electronically).

Based on the assumptions of Alternative 3A (Full Replacement of Existing Site Plan) – an initial investment for reconstruction and dredging totaling $8.84M, the proposed fees, and the assumptions of the pro-forma:

- The 15-year accumulation of the Asset Improvement Reserve = $4.0M
- The 15-year accumulation of the Dredging Reserve = $2.2M
- The 15-year effective net cash flow = $1.3M

Based on the assumptions of Alternative 3B (Full Replacement with Revised Site Plan) – an initial investment for reconstruction and dredging totaling $10.55M, the proposed fees, and the assumptions of the pro-forma:

- The 15-year accumulation of the Asset Improvement Reserve = $5.0M
- The 15-year accumulation of the Dredging Reserve = $2.2M
- The 15-year effective net cash flow = $0.9M

Based on the assumptions of Alternative 3B (Full Replacement with Revised Site Plan) – an initial investment for reconstruction, bank stabilization and dredging totaling $17.15M, the proposed fees, and the assumptions of the pro-forma:

- The 15-year accumulation of the Asset Improvement Reserve = $5.0M

- The 15-year accumulation of the Bank Stabilization Reserve = $3.3M
- The 15-year accumulation of the Dredging Reserve = $2.2M
- The 15-year effective net cash flow = -$8.2M

The asset improvement reserve would accumulate the full replacement cost of the proposed new facilities (land and water) over the 25-year estimated life, to be used as needed for asset renewal. The dredging reserve would accumulate the full cost of the proposed dredging (channel, inner harbor and mooring basins) over the 15-year estimated life. The Town could direct the accumulated effective net cash flow, along with money from other harbor-related revenue (boat excise taxes, private dock/rack fees), toward the priority coastal infrastructure projects. These funds could also help subsidize the (now separate) Harbormaster Department.

Bank stabilization appears to be too costly, so financial analysis of Alternative 3B proceeded in parallel – with stabilization and without stabilization. Since bank stabilization was an "operational preference" and is not supported by the available data, Woods Hole Group recommends consideration of site plan changes without bank stabilization measures. The benefits to public safety provided by the land-side designs for Alternative 3B are worth considering independently.

The design alternatives presented in Section 9 and analyzed in Section 10 are by no means exhaustive or fixed; they are representative of various levels of investment developed in collaboration with the Harbor Study Committee. The Harbor Study Committee and the Town can use the cost estimates and pro-formas to devise intermediate (a-la-carte) alternatives and analyze potential returns of investment, if desired.

11.0 CONCLUSIONS

Sesuit Harbor is an area rich in maritime history, natural resources, scenic vistas, and recreational opportunity. For these reasons, the Harbor and surrounding neighborhoods have experienced significant growth over the last 30 years. Planning and investment are both crucial to maintaining the Harbor in a safe and efficient condition and maintaining acceptable levels of recreational and commercial activity.

The Sesuit Harbor Use and Capacity Study analyzed access, use and capacity, governance and operations, regulations and fees, municipal marina and harbormaster staffing, municipal marina and harbor assets, parking facilities, and pedestrian access. It utilized available data and records, direct observation, interviews, and user surveys to develop an understanding of the Harbor, and integrated this information with professional knowledge of marina management, coastal and civil engineering, and planning in the development of recommendations for changes to management and regulatory structures as well as to the physical plant.

It is evident from the available information that Sesuit Harbor is near capacity in terms of the various water-side and land-side uses. The Town should focus on interventions that reduce user conflicts in order to mitigate the perception (held by some) that the Harbor is above capacity.

Priorities for the Harbor include:

- Limiting future expansion of the charter fishing fleet and excursion boats through a permit system managed by the Harbormaster;
- Implementing water-dependent zoning;
- Separating Harbormaster operations from marina management operations;
- Dredging the inner harbor and mooring basins;
- Discontinuation of in-house dock building;
- Investment in professionally engineered and manufactured harbor infrastructure;
- Making changes to the site plan and neighborhood that promote pedestrian safety, enhance the waterfront experience, and provide sufficient parking;
- Establishing fees commensurate with the regional market and proposed facilities;

Along with the various recommendations provided in Sections 3 through 8, the Woods Hole Group Team recommends Design Alternative 3B (excluding bank stabilization). This design alternative invests in safe and efficient water-related infrastructure, crucial dredging projects, and rearranged land-side facilities providing a high level of pedestrian safety and visitor enjoyment, while financing the necessary improvements through a fee structure commensurate with other regional facilities.

12.0 REFERENCES

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TABLES

Table 4-1. 2014 Sesuit Harbor Fees

		Sesuit Harbor
Parking		
Resident (Blue)	/yr	$ 18.00
Resident sticker (West trailer)	/yr	$ 50.00
Public East (car or car/trailer) (Red)	/yr	$ 60.00
Daily - East (car or car/trailer, M-Th)	/day	$ 8.00
Daily - East (car or car/trailer, F-Su&H	/day	$ 10.00
Daily - West (car, M-Th)	/day	$ 9.00
Daily - West (car, F-Su&Hol)	/day	$ 11.00
Daily - (car / trailer, M-Th)	/day	$ 15.00
Daily - (car / trailer, F-Su&Hol)	/day	$ 15.00
Crew Member sticker	/yr	$ 30.00
Sesuit Harbor Marina		
Slips - resident	/ft (20 min)	$ 68.00
Slips - non-resident	/ft (20 min)	$ 97.00
Moorings - resident	/yr	
Moorings - non-resident	/yr	$ 150.00
Moorings - over 16'	/ft	$ 8.00
Overwintering of shellfish	/cleat	--
Overwintering of shellfish	/float	--
Private Marina		
Private dock storage	/ft (16 min)	$ 4.00
Private rack storage	/ft (16 min)	$ 4.00
Transient Slip		
Summer	/ft/day	$ 2.00
Spring & Fall	/ft/day	$ 1.50
Late Fall - Early Spring	/ft/day	$ 1.00
Temporary	4hr max	--
Shore power	/cord/day	$ 10.00
Transient Mooring		
Summer	/ft/day	--
Spring & Fall	/ft/day	--
Offload Permit		
Light	/yr	$ 75.00
Medium	/yr	$ 150.00
Heavy	/yr	$ 500.00
Pram	/yr	$ 125.00
10A Float	/yr	$ 300.00
Electricity		
Low	/yr	$ 105.00
High	/yr	$ 225.00
Hauler		
Daily	/day	$ 25.00
Seasonal	/yr	$ 100.00
Illegal		
Illegal Mooring		$ 100.00
Illegal Removal		--
Storage of Illegal Removal		--

Notes:

[1] http://www.town.dennis.ma.us/Pages/DennisMA_Harbormaster/fees

Table 4-2. Fee Structure Comparisons

	Dennis		Falmouth	Bourne	Sandwich	Barnstable	Orleans	Wellfleet	Truro	Provincetown
	Sesuit Harbor (Existing)[1]	**Northside Marina**	**Inner Harbor[2]**	**Taylor's Point[3]**	**Sandwich Marina[4]**	**Barnstable Harbor Marina[5]**	**Rock Harbor[6]**	**Wellfleet Marina[7]**	**Pamet Harbor[8]**	**Provincetown Harbor[9,10]**
Slips										
Resident	$68/ft	$200/ft (Pers. Com Dennis Harbormaster)	$154/ft	$105/ft (non-electric, 20' min); $126/ft (electric & water; 30' min)	$100/ft (summer, including utils)	$47/ft up to 16' ($759 flat); $85/ft up to 19' ($1624 flat); $101/ft up to 25' ($2531 flat); $166/ft >25'	$46/ft	$67/ft up to 25' ($1672 flat); $56/ft up to 30' ($1672 flat); $53/ft up to 35' ($1839 flat); $50/ft up to 40' ($2006 flat); $48/ft up to 45' ($2173 flat)	n/a	$150/ft
Non-Resident	$97/ft		$177/ft	n/a	n/a	$55/ft up to 16' ($873 flat); $95/ft up to 19' ($1813 flat); $116/ft up to 25' ($2911 flat); $191/ft >25'	$62/ft	$92/ft up to 25' ($2295 flat); $77/ft up to 30' ($2295 flat); $70/ft up to 35' ($2463 flat); $66/ft up to 40' ($2631 flat); $62/ft up to 45' ($2790 flat)	n/a	$150/ft
Resident Commercial	n/a		$150/ft	n/a	$40/ft (annual, plus utils metered)	n/a	$10/ft	$37/ft	n/a	$59.63/ft (40' min com. fish dockage); $100/ft (charter); $130/ft (other com.)
Non-Resident Commercial	n/a		$173/ft	n/a	n/a	n/a	$12/ft	$44/ft	n/a	$59.63/ft (40' min com. fish dockage); $100/ft (charter); $130/ft (other com.)
Moorings										
Resident/Taxpayer	$150 (+ $8/ft over 16')		$140 (Yacht Club); $225 (Boatyard)	n/a	n/a	n/a	n/a	$219	$240; $360	$50; $100; $125; $175; $200
Non-Resident				n/a	n/a	n/a	n/a	$263	n/a	$50; $100; $125; $175; $200

Notes:

[1] http://www.town.dennis.ma.us/Pages/DennisMA_Harbormaster/fees

[2] http://www.falmouthmass.us/feeview.php?depkey=harbor

[3] http://www.townofbourne.com/Departments/PUBLICSAFETY/NaturalResources/Marinas/tabid/157/Default.aspx

[4] Rate sheet faxed from Sandwich Marina

[5] http://www.townofbarnstable.us/MarineEnvironmental/Fees.asp#Marinas_

[6] http://www.town.orleans.ma.us/Pages/OrleansMA_Shellfish/fee

[7] http://www.wellfleet-ma.gov/sites/wellfleetma/files/file/file/2013-05-23_marina_fee_schedule.pdf

[8] http://www.truro-ma.gov/sites/truroma/files/file/file/2014_pamet_harbor_seasonal_mooring-rack_permit_application.pdf

[9] http://www.provincetown-ma.gov/DocumentCenter/Home/View/815

[10] http://www.provincetown-ma.gov/DocumentCenter/View/218

Table 6-1. MADCR Office of Waterways Coastal Infrastructure Data

Structure	Type	Earliest Structure Record	Length (ft)	Material	Height (ft)	Condition	Rating	Level of Action	Description	Priority	Rating	Action	Description	2013 Structure Assessment	Estimated Reconstruction / Repair Cost
Town Landing Bulkhead	Bulkhead/Seawall	1961	50	Steel	10-15	C	Fair	Moderate	Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scouring. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect the shoreline during a major coastal storm. Actions taken to provide additional material for full protection and extended life.	III	Moderate Priority	Consider for Active Project Improvement Listing	Inshore structures with potential for infrastructure damage and/or limited residential dwellings (<1 dwelling impacted / 100 feet of shoreline)	Condition is similar to what was observed in 2007 (This structure is a bulkhead at the town landing inside Sesuit Harbor. The front and cap are rusted and weathered. There is a small amount of erosion of the fill behind the southeast corner.	$75,264
East Side Bulkhead and Revetment	Bulkhead/Seawall & Revetment	1968	380	Wood / Stone	5-10	B	Good	Minor	Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure/landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent/limit future deterioration and extend life of structure.	III	Moderate Priority	Consider for Active Project Improvement Listing	Inshore structures with potential for infrastructure damage and/or limited residential dwellings (<1 dwelling impacted / 100 feet of shoreline)	Toe of this revetment is in the water. There is a new wood bulkhead in place behind the old, dilapidated wood wall and stone revetment. The secondary revetment is in fair condition, with many dislocated stones.	$50,518
West Jetty	Groin/Jetty	1937	1020	Stone	10-15	C	Fair	Moderate	Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scouring. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect the shoreline during a major coastal storm. Actions taken to provide additional material for full protection and extended life.	IV	High Priority	Consider for Next Project Construction Listing	High value inshore structures with potential for infrastructure damage and/or moderate density residential dwellings (1-10 dwellings impacted / 100 feet of shoreline)	There are at least two sections of major side slope failure, which expose the core of the structure. Generally, the structure has a good profile. There are some displaced armor stones.	$1,608,894
East Jetty	Groin/Jetty	1937	1720	Stone	10-15	D	Poor	Major	Structure exhibits advanced levels of deterioration, section loss, cracking, spalling, undermining, and/or scouring. Structure has strong risk of significant damage and possible failure during a major coastal storm. Structure should be monitored until repairs/reconstruction can be initiated. Actions taken to reconstruct structure to regain full capacity to resist a major coastal storm. Landform eroded, stability threatened. Landform not adequate to provide protections during a major coastal storm. Actions taken to recreate landform to adequate limits for full protection from a major coastal storm.	III	Moderate Priority	Consider for Active Project Improvement Listing	Inshore structures with potential for infrastructure damage and/or limited residential dwellings (<1 dwelling impacted / 100 feet of shoreline)	Along this jetty, there are at least four areas of major stone movement and sideslope failure. Displacement of armor is exposing the underlayer and core of the structure. There are at least two cracked armor stones. The interior harbor section of the jetty is constructed of smaller stone that is not fitted and interlocked like the main trunk of the jetty.	$5,438,916
East Side Revetment	Revetment	1968	435	Stone	10-15	D	Poor	Major	Structure exhibits advanced levels of deterioration, section loss, cracking, spalling, undermining, and/or scouring. Structure has strong risk of significant damage and possible failure during a major coastal storm. Structure should be monitored until repairs/reconstruction can be initiated. Actions taken to reconstruct structure to regain full capacity to resist a major coastal storm. Landform eroded, stability threatened. Landform not adequate to provide protections during a major coastal storm. Actions taken to recreate landform to adequate limits for full protection from a major coastal storm.	III	Low Priority	Future Project Consideration	Inshore structures present with limited potential for significant infrastructure damage	Condition is similar to what was observed in 2007 (This structure is a loosely constructed revetment along the interior of the northeast side of Sesuit Harbor. Most of the stones are just dumped and there is some concrete rubble at the end. There is no appreciable interlocking or side slopes to the structure. The crest elevation varies along the length of the structure.	$398,360

Total: $7,571,952

Table 6-2. In-Water Asset Evaluation

Asset ID	Type	Description	Dimensions (ft)	Area (ft^2)	Date of Construction (or latest major rehab)	Projected End of Service	Time Remaining	General Condition	Notes	Replacement Cost (In-house)			Replacement Cost (Bid)		
										Material & Labor	Billets & Hardware	Total	Material & Labor	Billets & Hardware	Total
West Side															
W-PILE	Pilings	West Side Pilings	200 pilings	n/a	1999	2034	20	Fair	All appear stable and do no exhibit excessive deterioration	n/a	n/a	n/a	$ 460,000	n/a	$ 460,000
W-CP	Pier	West Side Commercial Pier	125 x 12	1500	1983	2015	1	Poor	Partial redecking 2008-2009, but decking deteriorating. Harbormaster limits access to pier because of condition.	n/a	n/a	n/a	$ 187,500	n/a	$ 187,500
W-CPB	Bulkhead	West Side Timber Bulkhead	100		1985	2010	-4	Poor	Significant rotting and deterioration, allowing sediment to pass through structure.	n/a	n/a	n/a	$ 150,000	n/a	$ 150,000
W-CG	Metal Gangway	West Side Commercial Ramp	45	n/a	2000	2020	6	Good	Aluminum ramp by Technomarine	n/a	n/a	n/a	$ 18,000	n/a	$ 18,000
W-CD	Dock	West Side Commercial Dock	(3) 6 x 20	360	2014	2034	20	Good	Newly constructed for 2014 season with composite decking. Plus aluminum sacrificial plate. Decking possibly 2x life expectancy. Use of composite decking increased cost to $11,000 with in-house construction.	$ 4,500	$ 1,800	$ 6,300	$ 11,880	$ 3,600	$ 15,480
W-RN	Dock	West Side Boat Ramp North Dock	(3) 5 x 20	300	<2008	Unknown	0	Poor	Installed 2008 but constructed prior. Dock unstable, boards and nails pulling up, hardware deteriorating.	$ 3,750	$ 1,800	$ 5,550	$ 9,900	$ 3,600	$ 13,500
W-RS	Dock	West Side Boat Ramp South Dock	(5) 4 x 20	400	2014	2026	12	Good	Newly constructed for 2014 season	$ 5,000	$ 3,000	$ 8,000	$ 13,200	$ 6,000	$ 19,200
W-RP	Pier	West Side Ramp Pier	65 x 6-10	500	1999	2029	15	Good	Pier and decking appear in good condition, only minor wear to railings and decking. Major rehabilitation of existing pier occurred in 1999. Only railings replaced since 1999.	n/a	n/a	n/a	$ 62,500	n/a	$ 62,500
W-RPG	Metal Gangway	West Side Ramp Pier Ramp	50	n/a	2000	2020	6	Good	Aluminum ramp by Technomarine	n/a	n/a	n/a	$ 18,000	n/a	$ 18,000
W-MP	Pier	West Side Main Pier	95 x 6-15	730	1999	2029	15	Good	Only railings replaced since original construction. Pier and decking appear in good condition, only minor wear to railings and decking.	n/a	n/a	n/a	$ 91,250	n/a	$ 91,250
W-MPG	Metal Gangway	West Side Main Pier Ramp	45	n/a	2000	2020	6	Good	Aluminum ramp by Technomarine	n/a	n/a	n/a	$ 18,000	n/a	$ 18,000
W-SP	Pier	West Side South Pier	110 x 6-10	790	1999	2029	15	Good	Only railings replaced since original construction. Pier and decking appear in good condition, only minor wear to railings and decking.	n/a	n/a	n/a	$ 187,500	n/a	$ 187,500
W-SPG	Metal Gangway	West Side South Pier Ramp	45	n/a	2000	2020	6	Good	Aluminum ramp by Technomarine	n/a	n/a	n/a	$ 18,000	n/a	$ 18,000
W-MW	Dock	West Side Main Walkway	(36) 8 x 20; (2) 8 x 16; (1) 12 x 14	6184	2000	2012	-2	Poor	Uneven freeboard and moderately unstable. Decking is splitting and rotting with nails pulling out. Connecting hardware is deteriorating.	$ 77,300	$ 18,000	$ 95,300	$ 204,072	$ 36,000	$ 240,072
W-SPB	Bulkhead	West Side Sheet Pile Bulkhead	475	n/a	1999	2024	10	Fair	1963 original construction, extented and rehabbed in 1999. Appears structurally sound, but sediments from sloughing banks may be overtopping and settling into dredge basin under docks.	n/a	n/a	n/a	$ 855,000	n/a	$ 855,000
W-SD	Dock	West Side Staging Dock	(7) 6 x 20	840	2008	2020	6	Fair	High traffic area (boat ramp staging, Lobster Roll loading) takes more abuse than other floats, likely has shorter useable life than private recreational feeders. Mix of new and old hardware, with old hardware showing signs of deterioration.	$ 10,500	$ 4,200	$ 14,700	$ 27,720	$ 8,400	$ 36,120
W-1-8	Dock	West Side Slips 1-8	(7) 6 x 20; (1) 4 x 20; (1) 4 x 24	1016	<2005	2017	3	Fair	Slip 1 finger and partial feeder replaced 2014. Remainder of feeder exhibits some instability and deteriorating hardware.	$ 12,700	$ 5,400	$ 18,100	$ 33,528	$ 10,800	$ 44,328
W-9-26	Dock	West Side Slips 9-26	(7) 6 x 20; (6) 4x30; (1) 4 x 15	1620	2010	2022	8	Good	Solid and stable, decking and hardware in good condition.	$ 20,250	$ 7,000	$ 27,250	$ 53,460	$ 14,000	$ 67,460
W-27-52	Dock	West Side Slips 27-52	(7) 6 x 20; (1) 4 x 6; (1) 4 x 19; (1) 4 x 24; (4) 4 x 30; (7) 4 x 20	2076	<2005	Unknown	0	Poor	Unstable fingers, feeder and finger decking is rotten and splitting, exhibits deteriorating hardware.	$ 25,950	$ 10,500	$ 36,450	$ 68,508	$ 21,000	$ 89,508
W-53-78	Dock	West Side Slips 53-78	(7) 6 x 20; (7) 4 x 20; (5) 4 x 30	2000	2012	2024	10	Good	Solid and stable, decking and hardware in good condition.	$ 25,000	$ 9,500	$ 34,500	$ 66,000	$ 19,000	$ 85,000
W-79-104	Dock	West Side Slips 79-104	(7) 6 x 20; (7) 4 x 20; (5) 4 x 30	2000	<2005	Unknown	0	Poor	Very unstable fingers, feeder and finger decking is rotten and splitting with nails pulling out, exhibits deteriorating hardware.	$ 25,000	$ 9,500	$ 34,500	$ 66,000	$ 19,000	$ 85,000
W-105-133	Dock	West Side Slips 105-133	(7) 6 x 20; (1) 6 x 10; (11) 4 x 20; (3) 4 x 40	2260	2011	2023	9	Good	Solid and stable, decking and hardware in good condition.	$ 28,250	$ 11,000	$ 39,250	$ 74,580	$ 22,000	$ 96,580
East Side															
E-PILE	Pilings	East Side Pilings	137 pilings	n/a	<1980	2015	1	Poor	All pilings south of second finger (E25-E127) appear undersized, and exhibit significant rotting and splitting. Harbormaster states they were used on West Side prior to 1999 improvement project, and relocated to East Side thereafter. Harbormaster states many appear to be creosote-treated pilings that could be more than 40 years old and are not driven to adequate depth. Pilings on the first two feeders (E1-E25) newer and in better condition, likely installed around the same time as (1999) improvement project.	n/a	n/a	n/a	$ 315,100	n/a	$ 315,100
E-P	Pier	East Side Pier	60 x 6-10	580	1999	2029	15	Good	Pier and decking appear in good condition, only minor wear to railings and decking. Major rehabilitation (pilings, bracing, decking) of existing pier occurred in 1999. Only railings replaced since 1999.	n/a	n/a	n/a	$ 72,500	n/a	$ 72,500
E-PG	Metal Gangway	East Side Pier Ramp	50	n/a	2000	2020	6	Good	Aluminum ramp by Technomarine	n/a	n/a	n/a	$ 18,000	n/a	$ 18,000
E-SUP	Dock	East Side Support Docks	(2) 6 x 20; (1) 10 x 20; (1) 6 x 15; (1) 6 x 14	614	2009	2021	7	Good	Solid and stable, decking and hardware in good condition. Includes Load/offload, ramp landing, fire suppression support docks.	$ 7,675	$ 2,500	$ 10,175	$ 20,262	$ 5,000	$ 25,262
E-MW	Dock	East Side Main Walkway	(29) 6 x 20	3480	2007-2008	2019	5	Fair	Mostly solid and stable, with some uneven freeboard. Decking in fair condition with some nails pulling up. Hardware mostly intact.	$ 43,500	$ 20,300	$ 63,800	$ 114,840	$ 40,600	$ 155,440
E-1-15	Dock	East Side Slips 1-15	(5) 6 x 20; (5) 4 x 24; (4) 4 x 15	1320	2009	2021	7	Good	Solid and stable, decking and hardware in good condition.	$ 16,500	$ 7,000	$ 23,500	$ 43,560	$ 14,000	$ 57,560
E-17-33	Dock	East Side Slips 17-33	(5) 6 x 20; (3) 4 x 15; (5) 4 x 25	1280	2010	2022	8	Good	Solid and stable, decking and hardware in good condition.	$ 16,000	$ 6,500	$ 22,500	$ 42,240	$ 13,000	$ 55,240
E-38-59	Dock	East Side Slips 38-59	(6) 6 x 20; (10) 4 x 20	1520	2011	2023	9	Good	Solid and stable, decking and hardware in good condition.	$ 19,000	$ 8,000	$ 27,000	$ 50,160	$ 16,000	$ 66,160
E-64-82	Dock	East Side Slips 64-82	(5) 6 x 20; (9) 4 x 20; (1) 4 x 23	1412	2012	2024	10	Good	Solid and stable, decking and hardware in good condition.	$ 17,650	$ 7,500	$ 25,150	$ 46,596	$ 15,000	$ 61,596
E-88-105	Dock	East Side Slips 88-105	(5) 6 x 20; (8) 4 x 20	1240	2012	2024	10	Good	Solid and stable, decking and hardware in good condition.	$ 15,500	$ 6,500	$ 22,000	$ 40,920	$ 13,000	$ 53,920
E-109-127	Dock	East Side Slips 109-127	(5) 6 x 20; (6) 4 x 22; (3) 4 x 40	1608	2011	2023	9	Good	Solid and stable, decking and hardware in good condition.	$ 20,100	$ 7,000	$ 27,100	$ 53,064	$ 14,000	$ 67,064
Mooring Basin															
M-TR	Dock	Transient Docks - 10A Compliant	(2) 6 x 20	240	2010	2022	8	Fair	Harbormaster states replacement needed within 5 years.	$ 3,000	$ 1,000	$ 4,000	$ 7,920	$ 2,000	$ 9,920

Notes:

Expected Serviceable Lifespan (from Dennis Harbormaster's Office)

Docks	12 years
Gangways	20 years
Bulkheads	25 years
Piers	30 years
Pilings	35 years

Construction Costs (from Dennis Harbormaster's Office)

Docks (in-house)	$12.50/sqft not including power posts or fire suppresion, plus $500-$700/dock for floatation (3-6 billets per dock on average, 3-5 additional billets per dock to support electrical and fire suppression systems) and hardware
Docks (bid)	$33.00/sqft not including power posts or fire suppresion, plus $1000-$1400/dock for floatation (3-6 billets per dock on average, 3-5 additional billets per dock to support electrical and fire suppression systems) and hardware
Piers	$125.00/sqft
Ramps	$18,000/unit
Pilings	$2,300/unit
Timber Bulkhead	$1,500/linear ft
Sheetpile Bulkhead	$1,800/linear ft (estimated, based on MADCR upgrade cost for Town Landing Bulkhead)
Fire suppression (West)	$22,000/system
Fire suppression (East)	$18,000/system
Power posts	$800/unit not inlcuding water hookup
Electrician	$1,600/day

Table 9-1. Estimated Costs - Alternative 1

Sesuit Harbor Marina
Water Alternative 1

Element	Unit Cost	Units	Quantity	Cost
Site Prep				
Patrol/Rescue Vessel	$ 160,000	EA	1	$ 160,000
West Side Commercial Pier Decking	$ 58,000.00	SUM	1	$ 58,000
West Side Boat Ramp North Dock	$ 5,550	SUM	1	$ 5,550
West Side Main Walkway	$ 95,300	SUM	1	$ 95,300
West Side Slips 27-52	$ 36,450	SUM	1	$ 36,450
West Side Slips 79-104	$ 34,500	SUM	1	$ 34,500
			Subtotal:	**$ 389,800**

Sum West Alt 1	$	-
Sum East Alt 1	$	-
Sum Water Alt 1	$	389,800
Total:	$	389,800
Planning Level Total:	**$**	**390,000**

*Note: All soft costs for survey, engineering, design and permitting are not included (Alternative assumes Town handles necessary permits and performs construction)

Table 9-2. Estimated Costs - Alternative 2

Sesuit Harbor Marina
West Side Land Alternative 2

Element	Unit Cost	Units	Quantity	Cost
0-2 Year Planning Horizon				
Cleanout stormwater systems	$ 500	LS	2	$ 1,000
Maintenance/Restrooms Building	$ 150	/sqft	1205	$ 180,750
Maintenance Building Fence	$ 45	LF	150	$ 6,750
ADA Compliant picnic table	$ 4,000	EA	1	$ 4,000
Picnic Table Paving (3.5" binder and to	$ 25	SY	22	$ 540
Picnic Table Gravel Borrow	$ 28	CY	37	$ 1,037
Bicycle Parking	$ 900	EA	5	$ 4,500
Trailer for Wellcraft	$ 3,500	EA	1	$ 3,500
Trailer for Skiff	$ 1,500	EA	1	$ 1,500
3-5 Year Planning Horizon				
Harbormaster Office	$ 125	/sqft	260	$ 32,500
Trailer for Buoys	$ 5,000	EA	1	$ 5,000
6-10 Year Planning Horizon				
Cleanout stormwater systems	$ 500	LS	2	$ 1,000
Harbormaster Pickup Truck	$ 40,000	EA	1	$ 40,000
25 ft Flat Bed Trailer for Docks	$ 8,000	EA	1	$ 8,000
11-20 Year Planning Horizon				
Cleanout stormwater systems	$ 500	LS	2	$ 1,000
Harbormaster Flatbed Pickup Truck	$ 60,000	EA	1	$ 60,000
Repaving (1.5" overlay)	$ 9.50	SY	5756	$ 54,682
Handicapped Symbols	$ 57	EA	5	$ 285
No parking zones and arrows paint	$ 1,000	LS	1	$ 1,000
Parking Stall Striping	$ 11	Stall	109	$ 1,199
		Subtotal with 20% contingency:		**$ 489,892**

Sesuit Harbor Marina
East Side Land Alternative 2

Element	Unit Cost	Units	Quantity	Cost
0-2 Years				
Cleanout stormwater systems	$ 500	LS	1	$ 500
Bicycle Parking	$ 900	EA	5	$ 4,500
3-5 Year Planning Horizon				
Repaving (1.5" overlay)	$ 9.50	SY	6942	$ 65,949
Handicapped Symbols	$57	EA	3	$ 171
No parking zones and arrows paint	$750	LS	1	$ 750
Parking Stall Striping	$11	Stall	153	$ 1,683
6-10 Year Planning Horizon				
Cleanout stormwater systems	$ 500	LS	1	$ 500
11-20 Year Planning Horizon				
Cleanout stormwater systems	$ 500	LS	1	$ 500
Rehab Restrooms	$100	/sqft	164	$ 16,400
		Subtotal with 20% contingency:		**$ 109,144**

Table 9-2. Estimated Costs - Alternative 2

Sesuit Harbor Marina
Water Alternative 2

Element	Unit Cost	Units	Quantity	Cost
0-2 Year Planning Horizon				
West Side Commercial Pier	125	SQFT	1500	$ 187,500
West Side Timber Bulkhead	1500	FT	100	$ 150,000
West Side Sheet Pile Bulkhead*	1800	FT	475	$ 855,000
3-5 Year Planning Horizon				
East Side Pilings	2300	EA	137	$ 315,100
West Side Staging Dock	$14,700	SUM	1	$ 14,700
West Side Slips 1-8	$18,100	SUM	1	$ 18,100
East Side Main Walkway	$63,800	SUM	1	$ 63,800
Transient Docks - 10A Compliant	$4,000	SUM	1	$ 4,000
6-10 Year Planning Horizon				
23’ Wellcraft (secondary patrol)	$65,000	EA	1	$ 65,000
24’x10’ Work Barge	$2,000	SUM	1	$ 2,000
West Side Gangways	$18,000	EA	4	$ 72,000
West Side Slips 9-26	$27,250	SUM	1	$ 27,250
West Side Slips 53-78	$34,500	SUM	1	$ 34,500
West Side Slips 105-133	$39,250	SUM	1	$ 39,250
East Side Gangway	$18,000	EA	1	$ 18,000
East Side Support Docks	$10,175	SUM	1	$ 10,175
East Side Slips 1-15	$23,500	SUM	1	$ 23,500
East Side Slips 17-33	$22,500	SUM	1	$ 22,500
East Side Slips 38-59	$27,000	SUM	1	$ 27,000
East Side Slips 64-82	$25,150	SUM	1	$ 25,150
East Side Slips 88-105	$22,000	SUM	1	$ 22,000
East Side Slips 109-127	$27,100	SUM	1	$ 27,100

Table 9-2. Estimated Costs - Alternative 2

Element	Unit Cost	Units	Quantity	Cost
11-20 Year Planning Horizon				
16’ Skiff	$25,000	EA	1	$ 25,000
West Side Pilings	$2,300	EA	200	$ 460,000
West Side Commercial Dock	$6,300	SUM	1	$ 6,300
West Side Boat Ramp South Dock	$8,000	SUM	1	$ 8,000
West Side Ramp Pier	$125	SQFT	500	$ 62,500
West Side Main Pier	$125	SQFT	730	$ 91,250
West Side South Pier	$125	SQFT	790	$ 98,750
East Side Pier	$125	SQFT	580	$ 72,500
+ West Side Staging Dock	$14,700	SUM	1	$ 14,700
+ West Side Slips 1-8	$18,100	SUM	1	$ 18,100
+ East Side Main Walkway	$63,800	SUM	1	$ 63,800
+ Transient Docks - 10A Compliant	$4,000	SUM	1	$ 4,000
+ 24’x10’ Work Barge	$2,000	SUM	1	$ 2,000
+ West Side Slips 9-26	$27,250	SUM	1	$ 27,250
+ West Side Slips 53-78	$34,500	SUM	1	$ 34,500
+ West Side Slips 105-133	$39,250	SUM	1	$ 39,250
+ East Side Support Docks	$10,175	SUM	1	$ 10,175
+ East Side Slips 1-15	$23,500	SUM	1	$ 23,500
+ East Side Slips 17-33	$22,500	SUM	1	$ 22,500
+ East Side Slips 38-59	$27,000	SUM	1	$ 27,000
+ East Side Slips 64-82	$25,150	SUM	1	$ 25,150
+ East Side Slips 88-105	$22,000	SUM	1	$ 22,000
+ East Side Slips 109-127	$27,100	SUM	1	$ 27,100
+ West Side Boat Ramp North Dock	$ 5,550	SUM	1	$ 5,550
+ West Side Main Walkway	$ 95,300	SUM	1	$ 95,300
+ West Side Slips 27-52	$ 36,450	SUM	1	$ 36,450
+ West Side Slips 79-104	$ 34,500	SUM	1	$ 34,500
+ Reconstruct after 12 year expected lifespan			**Subtotal:**	$ 3,380,750

Sum Land West Alt 2	$ 489,892
Sum Land East Alt 2	$ 109,144
Sum Water Alt 2	$ 3,380,750
Total:	$3,979,785
Planning Level Total:	**$3,980,000**

*Note: All soft costs for survey, engineering, design and permitting are not included

Table 9-3. Estimated Costs - Alternative 3A

Sesuit Harbor Marina
West Side Land Alternative 3A

Element	Unit Cost	Units	Quantity	Cost
Vehicles and Trailers				
Harbormaster Pickup Truck	$ 40,000	EA	1	$ 40,000
Harbormaster Flatbed Pickup Truck	$ 60,000	EA	1	$ 60,000
Trailer for Wellcraft	$ 3,500	EA	1	$ 3,500
Trailer for Skiff	$ 1,500	EA	1	$ 1,500
Trailer for Buoys	$ 5,000	EA	1	$ 5,000
Site Prep				
Regrade gravel lot w/4" new gravel	$ 28	CY	448	$12,544
Cleanout stormwater systems	$ 500	LS	2	$1,000
Parking Lot				
Repaving (1.5" overlay)	$ 9.50	SY	5756	$54,682
Emergency Access Gate	$ 2,500	EA	1	$2,500
Lot Signage	$ 100	EA	10	$1,000
Handicapped Symbols	$ 57	EA	5	$285
No parking zones and arrows paint	$ 1,000	LS	1	$1,000
Parking Stall Striping	$ 11	Stall	109	$1,199
Marina Frontage Sidewalk (and Neighborhood Speed Tables and Signage)				
6" Precast Curb	$ 25	LF	650	$16,250
Crosswalks	$ 3.65	LF	564	$2,059
Speed Tables	$ 300	EA	2	$600
Sidewalks(Inc. clrg, grdg, base, pavg)	$ 83	SY	307	$25,453
Utility Relocation	$ 40,000	LS	1	$40,000
Signs	$ 100	EA	10	$1,000
Rebuild Buildings in same locations				
Harbormaster Office	$ 125	/sqft	260	$32,500
Maintenance/Restrooms Building	$ 150	/sqft	1205	$180,750
Maintenance Building Fence	$ 45	LF	150	$6,750
Landscape Elements				
Benches	$ 2,500	EA	10	$25,000
Picnic Tables	$ 4,000	EA	11	$44,000
Bicycle Parking	$ 900	EA	5	$4,500
Railing	$ 150	LF	170	$25,500
Bollards	$ 900	EA	15	$13,500
Site Signage	$ 4,000	LS	1	$4,000
Shade Tree	$ 900	EA	8	$7,200
Shrubs (3'OC - 3600 SF)	$ 50	EA	460	$23,000
Lawn	$ 1.75	SY	450	$788
Conservation mix	$ 3.50	SY	600	$2,100
Concrete Sidewalk - On Property	$ 8	SF	10,180	$81,440
Site lighting - assume 10 lights plus lo	$ 80,000	LS	1	$80,000
Subtotal with 20% contingency + 10% design/permitting:				**$1,007,779**

Table 9-3. Estimated Costs - Alternative 3A

Sesuit Harbor Marina
East Side Land Alternative 3A

Element	Unit Cost	Units	Quantity	Cost
Site Prep				
Grading	$28	CY	182	$5,096
Excavate & Rebuild Drainage Basin	$25,000	LS	1	$25,000
Parking Lot				
Repaving (1.5" overlay)	$ 9.50	SY	6942	$65,949
Lot Signage	$100	EA	8	$800
Handicapped Symbols	$57	EA	3	$171
No parking zones and arrows paint	$750	LS	1	$750
Parking Stall Striping	$11	Stall	153	$1,683
Neighborhood Sidewalk and Signage				
Signs	$100	EA	8	$800
Buildings				
Rehab Restrooms	$100	/sqft	164	$16,400
Landscape Elements				
Bicycle Parking	$ 900	EA	5	$4,500
Signage	$4,000	sum	1	$4,000
Site lighting	$100,000	sum	1	$100,000
Subtotal with 20% contingency + 10% design/permitting:				**$292,694**

Sesuit Harbor Marina
Water Alternative 3A

Element	Unit Cost	Units	Quantity	Cost
Engineered/Manufactured Dock System				
Mobilization	$ 40,000	sum	1	$ 40,000
Demobilization	$ 40,000	sum	1	$ 40,000
Piles	$ 3,500	EA	92	$ 322,000
Docks/Gangways	$ 1,880,250	SUM	1	$ 1,880,250
Pedestals	$ 1,250	EA	260	$ 325,000
Pumpout Facility	$ 22,000	SUM	1	$ 22,000
Piers				
West Side Commercial Pier	125	SQFT	1500	$ 187,500
West Side Timber Bulkhead	1500	FT	100	$ 150,000
West Side Sheet Pile Bulkhead	1800	FT	475	$ 855,000
West Side Ramp Pier	$125	SQFT	500	$ 62,500
West Side Main Pier	$125	SQFT	730	$ 91,250
West Side South Pier	$125	SQFT	790	$ 98,750
East Side Pier	$125	SQFT	580	$ 72,500
Vessels				
23’ Wellcraft (secondary patrol)	$65,000	EA	1	$ 65,000
24’x10’ Work Barge	$2,000	SUM	1	$ 2,000
16’ Skiff	$25,000	EA	1	$ 25,000
Subtotal with 20% contingency + 10% design/permitting:				**$ 5,331,313**

Sum Land West Alt 3a	$1,007,779
Sum Land East Alt 3a	$292,694
Sum Water Alt 3a	$5,331,313
Total:	$6,631,785
Planning Level Total:	**$6,640,000**

*Note: All soft costs for survey, engineering, design and permitting are estimated at 10%

Table 9-4. Estimated Costs - Alternative 3B

Sesuit Harbor Marina
West Side Land Alternative 3B

Element	Unit Cost	Units	Quantity	Cost
Vehicles and Trailers				
Harbormaster Pickup Truck	$ 40,000	EA	1	$ 40,000
Harbormaster Flatbed Pickup Truck	$ 60,000	EA	1	$ 60,000
Trailer for Wellcraft	$ 3,500	EA	1	$ 3,500
Trailer for Skiff	$ 1,500	EA	1	$ 1,500
Trailer for Buoys	$ 5,000	EA	1	$ 5,000
Site Prep				
Grading	$ 6	CY	4025	$24,150
Stormwater Management Facility	$ 30,000	EA	1	$30,000
Stormwater Pre-Treatment	$ 5,000	EA	1	$5,000
New Title 5 Septic Systems	$ 12,000	EA	2	$24,000
Retaining Wall	$ 357	CY	70	$24,990
Parking Lot				
Pavement Milling (surface)	$ 3	SY	5770	$17,310
Pavement Disposal (3.5" course)	$ 15	CY	561	$8,415
Paving (3.5" binder and top)	$ 25	SY	9344	$233,600
Gravel Borrow	$ 28	CY	3115	$87,220
Emergency Access Gate	$ 2,500	EA	1	$2,500
Lot Signage	$ 100	EA	10	$1,000
Handicapped Symbols	$ 57	EA	5	$285
No parking zones and arrows paint	$ 1,000	LS	1	$1,000
Parking Stall Striping	$ 11	Stall	165	$1,815
Neighborhood Sidewalk and Signage				
6" Precast Curb	$ 25	LF	3530	$88,250
Crosswalks	$ 3.65	LF	700	$2,555
Speed Tables	$ 300	EA	2	$600
Stone Wall Relocation	$ 100	LF	1402	$140,200
Sidewalks(Inc. clrg, grdg, base, pavg)	$ 83	SY	1570	$130,310
Utility Relocation	$ 100,000	LS	1	$100,000
Guardrail	$ 60	LF	100	$6,000
Signs	$ 100	EA	10	$1,000
Buildings				
Office/Restrooms	$ 200	/sqft	900	$180,000
Maintenance Building	$ 150	/sqft	1250	$187,500
Landscape Elements				
Benches	$ 2,500	EA	15	$37,500
Picnic Tables	$ 4,000	EA	12	$48,000
Bicycle Parking	$ 900	EA	5	$4,500
Railing	$ 150	LF	122	$18,300
Fencing	$ 45	LF	200	$9,000
Site Signage	$ 4,000	LS	1	$4,000
Shade Tree	$ 900	EA	12	$10,800
Shrubs (3'OC - 5100 SF)	$ 50	EA	650	$32,500
Lawn	$ 1.75	SY	1,600	$2,800
Conservation mix	$ 3.50	SY	1,000	$3,500
Concrete Sidewalk - On Property	$ 8	SF	11,300	$90,400
Site lighting - assume 15 lights plus lo	$ 125,000	LS	1	$125,000
Subtotal with 20% contingency + 10% design/permitting:				**$2,299,200**

Table 9-4. Estimated Costs - Alternative 3B

Sesuit Harbor Marina
East Side Land Alternative 3B

Element	Unit Cost	Units	Quantity	Cost
Site Prep				
Relocate Drainage Basin	$ 75,000	LS	1	$75,000
New Title 5 Septic System	$ 12,000	EA	1	$12,000
Parking Lot				
Pavement Milling (surface)	$ 3	SY	6962	$20,886
Pavement Disposal (3.5" course)	$ 15	CY	677	$10,155
Paving (3.5" binder and top)	$ 25	SY	8820	$220,500
Gravel Borrow	$ 28	CY	2409	$67,452
Lot Signage	$ 100	EA	8	$800
Handicapped Symbols	$ 57	EA	3	$171
No parking zones and arrows paint	$ 1,000	LS	1	$1,000
Parking Stall Striping	$ 11	Stall	181	$1,991
Neighborhood Sidewalk and Signage				
Signs	$ 100	EA	8	$800
Buildings				
Rebuild Restrooms	$ 200	/sqft	164	$32,800
Landscape Elements				
Signage	$ 4,000	sum	1	$4,000
Site lighting	$ 100,000	sum	1	$100,000
Subtotal with 20% contingency + 10% design/permitting:				**$711,822**

Sesuit Harbor Marina
Water Alternative 3B (3A as placeholder)

Element	Unit Cost	Units	Quantity	Cost
Engineered/Manufactured Dock System				
Mobilization	$ 40,000	sum	1	$ 40,000
Demobilization	$ 40,000	sum	1	$ 40,000
Piles	$ 3,500	EA	92	$ 322,000
Docks/Gangways	$ 1,880,250	SUM	1	$ 1,880,250
Pedestals	$ 1,250	EA	260	$ 325,000
Pumpout Facility	$ 22,000	SUM	1	$ 22,000
Piers				
West Side Commercial Pier	125	SQFT	1500	$ 187,500
West Side Timber Bulkhead	1500	FT	100	$ 150,000
West Side Sheet Pile Bulkhead	1800	FT	475	$ 855,000
West Side Ramp Pier	$125	SQFT	500	$ 62,500
West Side Main Pier	$125	SQFT	730	$ 91,250
West Side South Pier	$125	SQFT	790	$ 98,750
East Side Pier	$125	SQFT	580	$ 72,500
Vessels				
23’ Wellcraft (secondary patrol)	$65,000	EA	1	$ 65,000
24’x10’ Work Barge	$2,000	SUM	1	$ 2,000
16’ Skiff	$25,000	EA	1	$ 25,000
Subtotal with 20% contingency + 10% design/permitting:				**$ 5,331,313**

Sum Land West Alt 3b	$2,299,200
Sum Land East Alt 3b	$711,822
Sum Water Alt 3b	$5,331,313
Total:	$8,342,334
Planning Level Total:	**$8,350,000**

*Note: All soft costs for survey, engineering, design and permitting are estimated at 10%

Table 9-5. Estimated Costs - Coastal Infrastructure Repairs

Structure	Type	Priority	Rating	Action	Estimated Reconstruction / Repair Cost
Town Landing Bulkhead	Bulkhead/Seawall	III	Moderate Priority	Consider for Active Project Improvement Listing	$76,000
East Side Bulkhead and Revetment	Bulkhead/Seawall & Revetment	III	Moderate Priority	Consider for Active Project Improvement Listing	$51,000
West Jetty	Groin/Jetty	IV	High Priority	Consider for Next Project Construction Listing	$1,609,000
East Jetty	Groin/Jetty	III	Moderate Priority	Consider for Active Project Improvement Listing	$5,439,000
East Side Revetment	Revetment	III	Low Priority	Future Project Consideration	$400,000

Table 9-6. Estimated Costs - Dredging

Location	Area (acres)	Estimated Volume (cy)	Unit Cost ($/cy)	Estimated Cost ($)
Inner Harbor Mooring Basin	4.7	4667	$100	$466,667
Inner Harbor Navigation Channel	8.64	9333	$100	$933,333
Outer Harbor Navigation Channel	5.8	15000	$11	$165,000
Outer Habor Mooring Basin	4.5	58080	$11	$638,880
Total Harbor	23.64	87080		$2,203,880

APPENDIX A. STAKEHOLDER SURVEY RESULTS AND MEETING NOTES

sesuitharborstudy@gmail.com

Edit this form

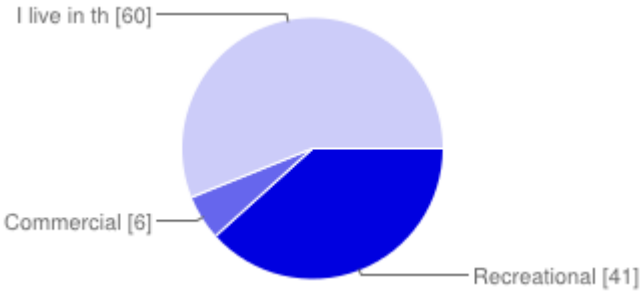
107 responses

View all responses Publish analytics

Summary

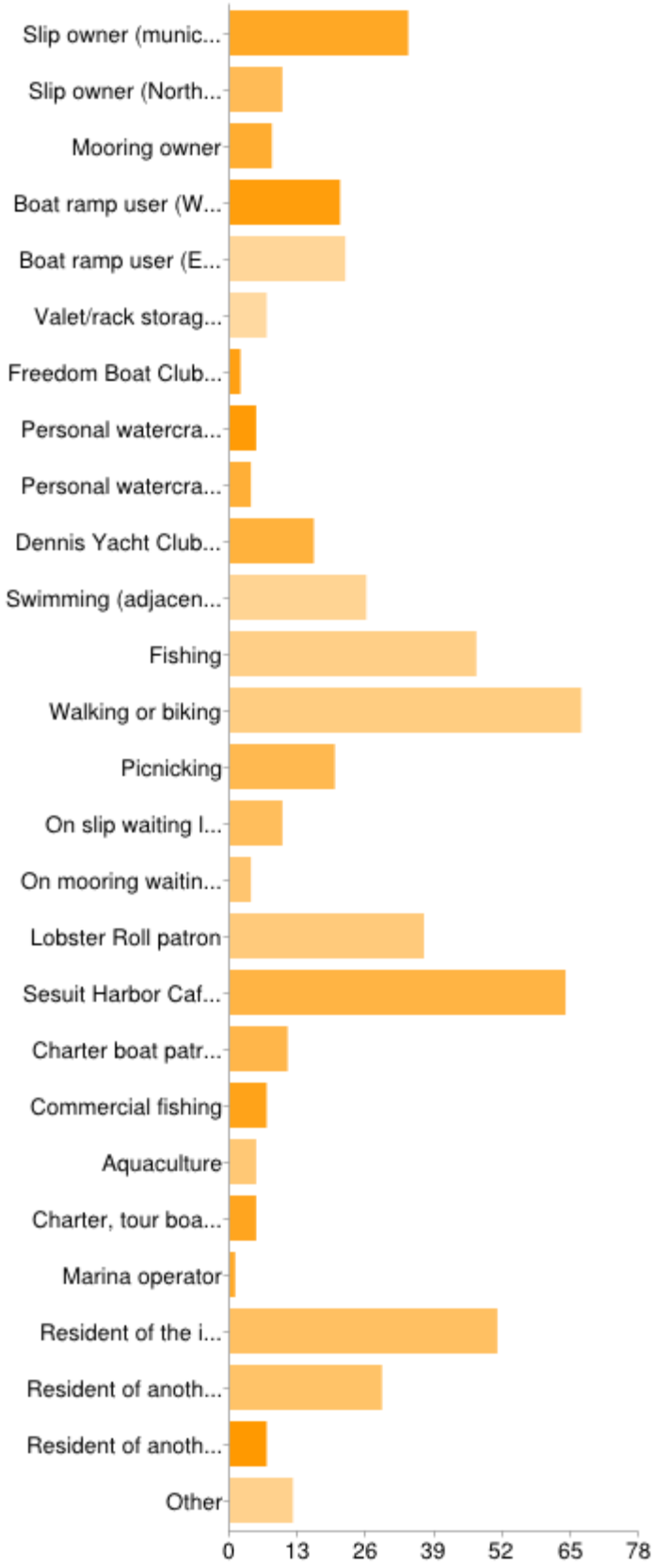
[Image]

Please choose the group that best describes the majority of your use of Sesuit Harbor:



Recreational	**41**	38%
Commercial	**6**	6%
I live in the vicinity of Sesuit Harbor	**60**	56%

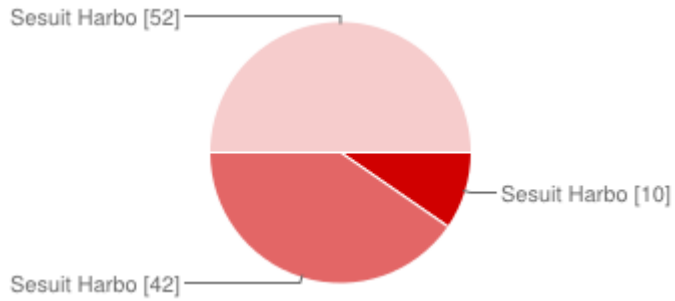
What typed of activities do you engage in at Sesuit Harbor?



Slip owner (municipal)	**34**	6%
Slip owner (Northside)	**10**	2%
Mooring owner	**8**	2%

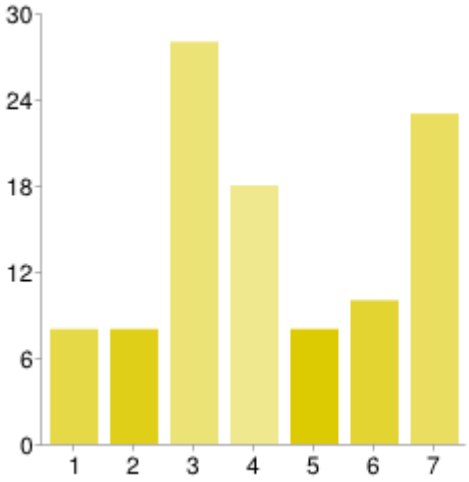
Boat ramp user (West side)	**21**	4%
Boat ramp user (East side)	**22**	4%
Valet/rack storage user (Northside)	**7**	1%
Freedom Boat Club member	**2**	0%
Personal watercraft (own)	**5**	1%
Personal watercraft (rent)	**4**	1%
Dennis Yacht Club member	**16**	3%
Swimming (adjacent to Dennis Yacht Club)	**26**	5%
Fishing	**47**	9%
Walking or biking	**67**	13%
Picnicking	**20**	4%
On slip waiting list (municipal)	**10**	2%
On mooring waiting list (municipal)	**4**	1%
Lobster Roll patron	**37**	7%
Sesuit Harbor Café patron	**64**	12%
Charter boat patron (fishing and other tours)	**11**	2%
Commercial fishing	**7**	1%
Aquaculture	**5**	1%
Charter, tour boat, or vessel rental operator	**5**	1%
Marina operator	**1**	0%
Resident of the immediate vicinity	**51**	10%
Resident of another part of Dennis	**29**	5%
Resident of another town	**7**	1%
Other	**12**	2%

Given your experience using Sesuit Harbor, what is your opinion of the current capacity of Sesuit Harbor (water-side)?



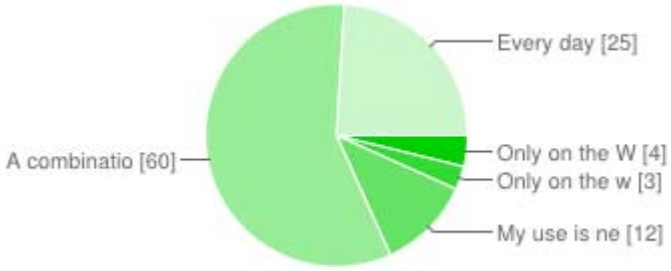
Sesuit Harbor is operating BELOW capacity (there is room for expansion)	**10**	10%
Sesuit Harbor is operating AT capacity (the level of use is about right)	**42**	40%
Sesuit Harbor is operating ABOVE capacity (the harbor is over-crowded)	**52**	50%

How often do you use Sesuit Harbor in-season (May through September)?



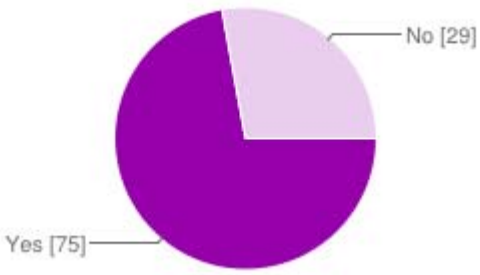
1	**8**	8%
2	**8**	8%
3	**28**	27%
4	**18**	17%
5	**8**	8%
6	**10**	10%
7	**23**	22%

Which days do you typically use Sesuit Harbor?



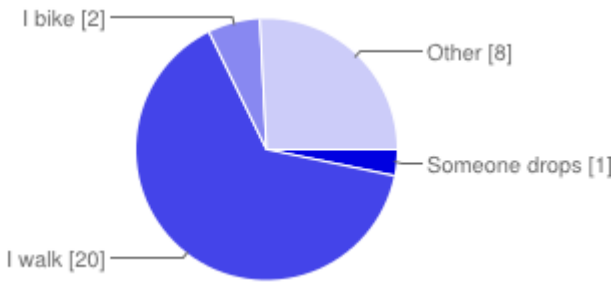
Only on the Weekends	**4**	4%
Only on the weekdays	**3**	3%
My use is never consistant	**12**	12%
A combination of weekends and weekdays	**60**	58%
Every day	**25**	24%

When you use Sesuit Harbor, do you park in one of the parking lots?



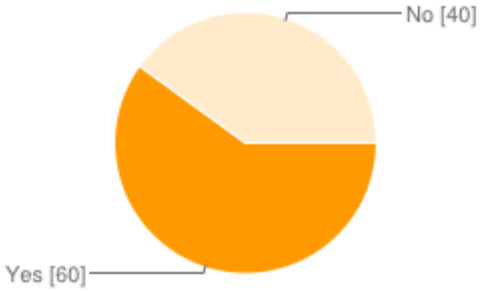
Yes	**75**	72%
No	**29**	28%

If you don't use the Sesuit parking lots, how do you get to the Harbor?



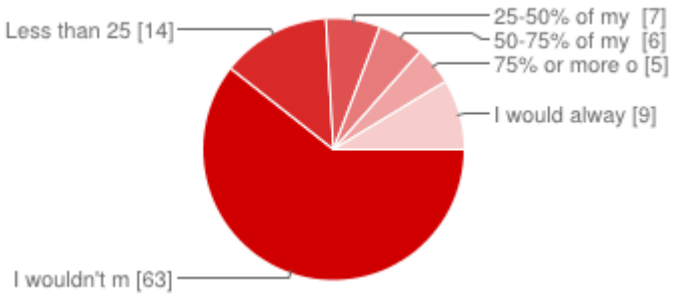
Someone drops me off	**1**	3%
I walk	**20**	65%
I bike	**2**	6%
Other	**8**	26%

Are you in support of increasing pedestrian/bicycle access to Sesuit Harbor?



Yes	**60**	60%
No	**40**	40%

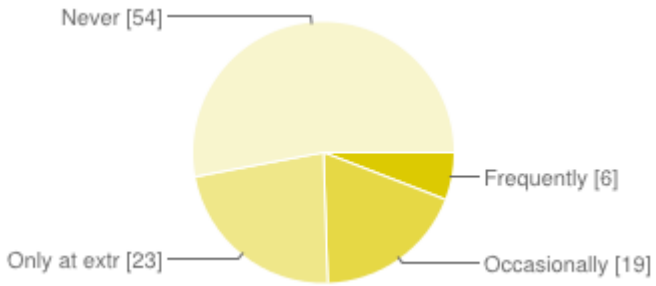
If pedestrian access to Sesuit Harbor were improved, how often would you use it?



I wouldn't make any changes	**63**	61%
Less than 25% of my trips	**14**	13%
25-50% of my trips	**7**	7%
50-75% of my trips	**6**	6%

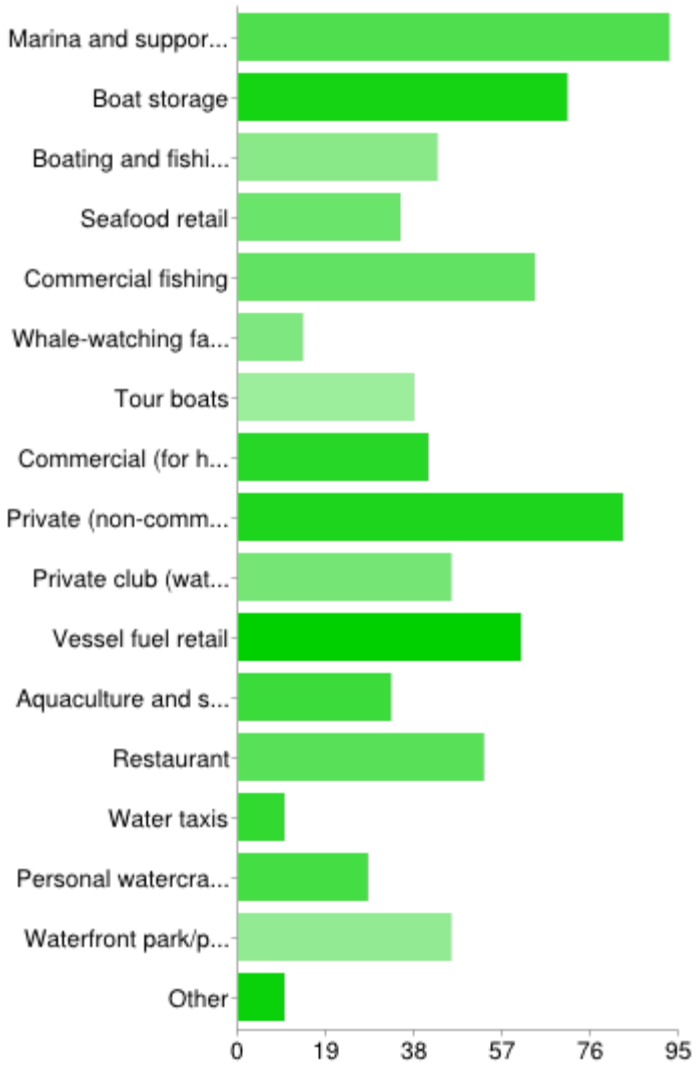
75% or more of my trips	**5**	5%
I would always use alternative means of transportation	**9**	9%

Do tides and/or other navigation issues restrict your use of the harbor?



Frequently	**6**	6%
Occasionally	**19**	19%
Only at extreme low tides	**23**	23%
Never	**54**	53%

What do you think are the appropriate uses (water-side and land-side) of Sesuit Harbor?



Marina and supporting infrastructure (docks, piers, ramps, floats, moorings)	**93**	12%
Boat storage	**71**	9%
Boating and fishing retail	**43**	6%
Seafood retail	**35**	5%
Commercial fishing	**64**	8%
Whale-watching facility	**14**	2%
Tour boats	**38**	5%
Commercial (for hire) recreational boats	**41**	5%
Private (non-commercial) recreational boating	**83**	11%
Private club (water related)	**46**	6%
Vessel fuel retail	**61**	8%
Aquaculture and shellfish propagation	**33**	4%
Restaurant	**53**	7%
Water taxis	**10**	1%
Personal watercraft rental	**28**	4%
Waterfront park/picnic area	**46**	6%

Other	**10**	1%

Do you have any comments on the condition, configuration, or provision of harbor infrastructure and amenities?

Too many navigation aides! harbor has a municipal marina and a private marina that work in unison with each other. Layout of each marina provides ample space for navigation of the harbor. It is nice to have 2 pump out sations in case one is down. The private marina provides a commercial access to fuel which is needed by all boaters. traffic congestion in the harbor is generally caused by boater inexperience. the issue of jet ski's is a real annoyance. However traffic at a fuel dock is the same at ANY harbor location. Sesuit harbor is a gem to be shared by ALL. Lighting at Northside could very easily be positioned down onto the marina so as to minimize light splash. I think the town slips are kept up well.....northside marina could use some freshening up and paint. They have let themselves go. Outer Basin needs to be dredged. the traffic is a problem Town restroom facilities should be improve. Stabalize beaches to reduce shoaling/dredging. Upgrade of some bulkheads and pier/float facilities Put lighting back to reg. lights, not blue lights The town should develop more slips in the inner basin. Do not develop parks, benches, paths, and features that attract non-mature people. no -rest rooms need replacing (west side) -main dock needs replacing (west side) -we won't have a harbor in 5 years if it isn't dredged. I can't run my engines at my slip at low tide. the less the better harbor needs to be dredge, with the new colvert on Bridge Street, it is slowly becoming a swamp. Improve rest rooms needs plan and clean up Having been in boating for over 55 years, we have visited and stayed at many marinas, the rest rooms here (at least on the east side) rank among the worst we have seen and not anything you want guests to use. currently at capacity Maintain natural environment and wildlife. too many cars. disruptive of residential residences, buses appearance on my street, dangerous walking conditions Are records kept measuring how much beach is lost each year? How much channel and harbor have changed? Who keeps these records? the harbor and marina are very well maintained, whether that is northside marina's doing, the town, or a combination. Needs to be dredged every year. excellent Do not allow additional commercial activity to operate from the town marina/town dock Moorings (including mine) are high and dry! Channel is too narrow for current use. The channel markers make it worse. Extreme crowding during peak use and low tide. Lighting is excessive - a blight on the neighborhood, blinding to incoming vessels at night and bad for wildlife. Slip area is silting in - almost aground in my keel/centerboard 34' Aux. sloop. The pumpout facility is very easy to access and user-friendly. Docks are generally in good condition and usability. New launch ramp on east side is very good, except for low tide. Enormous density of boats in a tiny harbor seems not to cause problems --COOL! (based on VERY occasional sampling) Some of the docks are older than others and should be replaced. The harbor is too crowded in terms of parking and pedisterians. The resident westside ramp and piers are in excellent shape. The restrooms available in the lot are a welcome amenity for the three females in my family prior or after launching. Boat storage racks should not be there. Parking and restrooms need improvement on the east side especially both marina docks need attention dredging needs to be done in harbor Overdone. Too much congestion. needs upgrading Get rid of the porta-potties at cafe. How is it even legal to run a restaurant with no sanitary bathrooms? please do not exceed current

capacity Current support for boats should be maintained at a safe level. The Sesuit Cafe is okay as is, but should have bathroom facilities. It should not have a liqueur license and should not expand further. It already draws an enormous number of people, who don't have enough parking. Although the food is good, some have expressed concern about the size of the kitchen area. I am not in favor of additional activities at the harbor that would put a strain on the limited area of Sesuit Neck. Harbormaster department is woefully under-staffed. Their Springtime workload isn't limited to Sesuit Harbor. Even if it was, dock maintenance and repair (and related duties) cannot reasonably be handled by 2 people. The fact that they are under-paid makes it worse. Commercial Dock (Town) needs dredging/digging out. Hoist on Commercial Dock unsafe, should be replaced. (safety issue) Channel dredging should include Federal dredge (Harbor of Refuge) as well as County dredge. County dredge should be allowed to finish needed dredging, not be pulled out according to an arbitrary schedule. The harbor has remarkably improved since the arrival of Harbormaster Clen. A few more parking spaces for slip holders on the east side would be nice.. The extension of the No Wake are beyond the jetty is a great idea. Also prohibit vessels under sail until they are seaward of the jetty. It is a hazard when there are sailboats tacking in the channel especially at low tide. I have expirienced a few near collisions in the past. (some) lighting is directed across the channel and shines directly into front bedrooms of my residence. This should remain a commercial use. Harbors are not intended for private citizens and most of the commercial use was there before they bought their homes the harbor hasn't changed the residents have It is extremely hard to maneuver in and out of packed boat area and into the channel. Even more difficult to maneuver to fuel pumps. And how is it that fuel pumps are located adjacent to Cafe? What does board of health think of this? Dredge out marsh to increase moorings and expand the slips to decrease wait list and generate more revenue. The infrastructure is in deplorable condition. Each year there a significant amount of funds that are generated by slip fees, parking fees, and other fees that town management and leaders siphon off to be used for general fund expenses. There are about $800,000 in annual revenues associated with waterways activities, but the harbormaster's budget is a paultry $270,000 or so. There are little if any capital projects that are undertaken in the harbor. This is an illegal situation because it is quite clear form case law that fees need to be set to cover cost. So if the fees are collected they must remain with the activitiy with which they are associated. See Emerson College versus the City of Boston. We badly need an enterprise fund which essentiallly assures all funds remain in the harbor. Check the towns of Falmouth, Mashpee, Sandich, Scituate, and I'm sure there are others. They all have enterprise funds for their harbors. I wish that the charter boats would reduce their speed while in the harbor. no bath house!!! 3 story racks are fine as is. Restrooms need improvement Please let Sesuit Harbor Cafe continue to function as it does, they are a wonderful restaurant. The owners of the Marshside are making this a personal attack. The patrons of The Sesuit Cafe are not looking for the upscale dining that the Marshside offers. They want to sit in their beach wear at the picnic tables, wave at the Lobster Roll patrons as they leave and/or return and enjoy the delicious food that is offered. I am disgusted with the bullying tactics of Mr. Connors. The Marshdide does just fine, there are enough patrons to go around. STOP being a bully and leave Sesuit Harbor ALONE! The [inner and outer] basin needs to be dredged. • All structures should adhere to historical district standards • I believe they could fill more moorings by putting in chain moorings with less swing. Things could be reorganized and beautified, but it is always a pleasant experience and the area should not be "sanitized'. Channel is over constricted.

The light pollution is unacceptable and not necessary. Both the Town lights and Northside's are much too bright. Culvert to marsh across Cold Storage Rd is causing erosion of creek and silting in of harbor near dock and launching ramp. Municipal dock slips are in very good condition and well maintained. Habormaster needs more resources and new office facilities better situated to oversee harbor. I am bothered by the stacking of boats! There appear to be more every year! I don't feel comfortable walking around boats stacked on top of one another. security Town and Northside Marinas are well run, Sesuit Harbor Cafe an asset to the town's residents and guests who spend $$ in Dennis after visiting cafe. This is all happening legally, on sites accessed by public roads... it is not a gated community from which public should be excluded. Very tight too tight to maneuver especially at Northside No parking At this time I feel that the conditions have improved, maintanance is done regularly and well. i think the town should invest in dredging equipment as long as we are able to afford cost by contracting to the towns fine as is the marina has grown too large and has impacted the availability of slips for those who are on the waiting list for a town slip or moorning. The restaurant, while a nice amenity, cannot support the traffic that is in addition to the marina traffic. Whatever would bring revenue and employment to the town as long as it was within code and safe for everyone. Harbor is at or over capacity -- very crowded The amount of commercialization today is appropriate, and should not be expanded. channel dredging It is operating at capacity currently. This is a HISTORIC as well as working harbor and should be treated as such. Environmentally--birds, fish as well beauty consideration for homeowners and property in the vicinity Sidewalks don't work. People don't use them along Bridge street where they are already or at least 50% of the time. By improving over last year - bridge - new expansion of harbor has only created more problems therefore more headaches - complications and cost to town. Town Marina Sesuit Harbor is for slip holders, Marina is for marine use Not reesturants cruiseboats and other amusements it's a residential neighborhood. From Dri Lords road to brewster town line-crows pasture. Please do the right thing It's resedential. Thank You. over the past 5 years terry and his crew as well as town investment have made significant improvements in ease of use of the town ramps and parking for those of us who trailer, especially those of us getting on in years. the staff is courteous and helpful.

Are there any new uses or amenities (water-side or land-side) you would like to see at Sesuit Harbor? If so, what?

no No. The cafe is way too crowded and is the source of many issues around parking and foot traffic. Too many seats for what the facility can support. Increased traffic on Sesuit Neck road is a real problem and very dangerous for the people who are walking. It's an accident waiting to happen (so is the high rise boat storage). Seafood market and expanded commercial pier access No, there are enough already. Nothing A shower at the bath house would be a nice addition. Think environmentally; do not abuse the natural resources. No, what's there is fine. gift shop, seafood market, rest rooms/showers (i.e. similar to Barnstable Harbor) NO a decent bathhouse like chapin beach has a cafe with reduced (as originally approved) number of seats (31, not 301) an historic museum featuring shiverick shipyards absolutely not. It is operating at over capacity already None I would like to see fewer uses. The harbor and vicinity is to congested now. It is a "zoo"-an accident waiting to happen. more park area restrict usage Being a Northside slip owner I would appreciate more security at the marina. Northside marina provides parking for boat

owners separate from the cafe. I would like to see the road connecting the two marinas better controlled. this would prevent the scarfing of parking spaces at the town and private marina's. More police patrols or higher exposure to issuing tickets for speeding would cure that issue quickly.Need to remember the prime use is late June - mid Sept. I do not see walking paths or bike paths as this would infringe private property owners. better control of speed on the road is needed. NONE - No New Amenities no! NONE No --I feel the land side uses are too much--creating traffic and safety problems A couple nice hotels would be nice could become a beautiful Cape Cod attraction and generate much needed tax revenue No. I would like to see enforcement of existing rules and regulations. No Further expansion None what so ever No. Activities at the harbor have exceeded capacity. More convenience for kayak put-in, E. Side. No, the harbor and land-side area are already over used. A booth for info and tickets to passenger boats. I'd like to see additional seating at Seduit Harbor Cafe, like it was last summer. Full restaurant real camera coverage Too many uses at present. walking paths No, I think there are too many land side amenities competing for a limited amount of available space for the primary users - boaters. No more businesses- I would like to see the porta-potties removed. cafe is extremely tacky- looks like Coney Island. Where is historic society? There should be an area that people have access to use as a picnic or leisure area at the harbor. You cannot park if you don't have a beach or harbor sticker, the marina is private as is the yacht club and a resident taxpayer should have the ability to access beaches and harbors for some quiet enjoyment. Showers in the bath houses for transient boaters would be a plus. restaurant when the sesuit neck people decided to tear down the bait and tackle shop on bridge street, we no longer have a nearby supply of bait and tackle, etc. this is sorely missed. stairs repaired at "overlook" None come to mind. benches and/or table for seating overlooking the harbor no way retail seafood market. Continued use and allow prior expansion of sesuit harbor cafe. no water slide No there are too many amenities now, causing safety problems

Do you have any comments on access to the harbor (via land and/or water)?

Allow a wide variety of users to enjoy the facilities. Water and the access to it should be available to all, not just the privileged few who are able to afford homes. Thirty minutes at the beach is better than thirty minutes any where else. There is a safety issue concerning boat traffic on School Street, Pleasant Street and Cold Storage Road for those walking or riding bikes. no Access in any way shape or form is hideous. NO ONE has enforced existing zoning laws. Looks like plenty a [...] parking is empty. Why? • re: question about increasing pedestrian access: What does this mean? To replace something? To add more problems? To alleviate problems? Better dredging....start earlier. road access on both sides of the harbor is via small narrow roads. more traffic=congestion -channel maintenance by dredging is key -in Sept. 2011 asked for tow of disabled boat from mid CC bay, none available in Sesuit. only vehicles restrict traffic permanent signs indicating speed to slow traffic -traffic congestion is a real problem especially to and from the cafe -businesses have put too many large food trucks and charter buses on what used to be a quiet, safe neighborhood. the parking lot is crowded but only during summer on cape cod. It is "high season" and crowded everywhere. If it wasn't crowded then the businesses and town would not be successful. sidewalks installed there are lines of cars running past the harbor from

the Sesuit cafe access road and there is no access to the neck every day I have heard there were complaints about residents having long back ups to get to their properties. We frequent Sesuit Harbor often and at different times of day...NEVER have I had trouble pulling into the lot and if it is during a "busy" time, there is always someone there to direct you. restrict buses, passice use for beaches and boat users, limit commercial expansion I have rarely hd a problem getting access and that being unavailable parking. Drivers should reduce their speed given the volume of foot and bike traffic. (not in support of increasing pedestrian/bicycle access to harbor because it is at capacity it is a residential neighborhood.) Very busy with traffic, hard to walk or bike, dangerous for children I bicycle to the harbor about 50% of the time, walk 20%, and drive car the rest. We could use a bicycle rack somewhere on the east side -- other than that I see no need for "improvements" to increase access. I think that for residents living near Cold Storage Beach, a sidewalk would be helpful to keep them off the roadway. Walking around the cafe is risky--traffic, stacked boats for example It is fine as it is need sidewalks would like to see sidewalks for pedestrian traffic Conflicts now between pedestrians and boat trailer traffic - Quivet Neck roads too narrow. Intersection of 6A and School St - heavy traffic in summer, poor sight lines, limited turn radius. 90 degree curve on Pleasant St - sight lines and speeding trucks/trailers. Intersection of Pleasant St and Cold Storage Rd - sight lines, narrow roads, speeding trucks/trailers...recommend stop sign. Cold Storage Rd - shadows from trees obscure visibility of pedestrians. Access from the bay is sometimes poor due to shallow channel a better control of where vehicles park for different uses access is a traffic / parking problem As a nearby neighbor there is already too much traffic Hard to walk or bike and dangerous for children with excess traffic. It is a residential neighborhood, I would support more sidewalks. more access need walking paths Boats should not be valeted using heavy machinery where there is high volumes of people. No issues as a slip holder. limit veh Parking re lobster boat As you heard at the residents meeting, there is intense activity during peak times in the summer that places a dangerous strain on our ability to drive, bike, and walk in the area of the neck. since there are only two viable ways to enter the neck, it means that most of our main roads are impacted. At the meeting, there was some concern that comments made by residents were not considered relevant. There were several references to the fact that the study focus is the harbor. I trust that our comments will be given the importance that is deserved. While the study focus is the harbor, access to it is critically important. The packed meeting is clearly an indication that people care. For future planning, it would have been helpful if the meeting moderator had made some closing comments to summarize what had been said. It would have reinforced the fact that Woods Hole Group had heard what was said. On the matter of safety in the area, we can understand totally the residents close to both sides of the harbor and their frustration. There is a desperate need for sidewalks from RT 6 A, down School St. to Pleasant St. to Cold Storage and to the beach area. With cars going to the beach and marina, and boats being towed to the ramp, the area is overwhelmed with traffic and waiting for a serious accident to happen. It seems that in today's world there is a total disregard for the residents in the harbor areas. sidewalk installation would make pedestrian access easier. monitor speed of motor vehicles Would like to see sidewalk and bike access to the harbor. Town should prohibit and enfore against gardeners/landscapers parking trucks and trailers on Sesuit Neck Road. This parking creates an unsafe situation for motor vehicles, bicycles, and pedestrians. Gardeners should be required to pull their vehicles onto the properties they are servicing. police presence to keep speed down. Bike racks would be a

welcome addition . My biggest invconvience is when I go to the pump out station and a commercial boat is picking up passangers. Sesuit Harbor is accessible. Too much traffic for the area Traffic is very high and dangerous to walkers and bicycles. Cars and trucks drive over the speed limit and reckless--not watching the road. Someone is going to get hurt. The businesses at the harbor are operating beyond capacity which causes a real strain on parking. Increased tourism to a residential neighborhood has also caused a real strain (large busses of people and food trucks barrelling down Sesuit Neck Road). Non-residents/tourists are also utilizing the beaches (that are technically for residents only) which causes crowding issues (especially at high tide - no place to sit!) Very difficult to access the commercial dock either for fueling or pump out. There are way too many commercial activities from the municipal marina but more so from outside the municipal marina such as Northside Marina and Rock Harbor using the commercial dock. These activities are incurring substantial cost and not paying anything for these costs. The costs are borne by the slip holders and that is not right. Channel at low tide is marginal for a harbor of refuge. Bridge Street, Sesuit Neck Road and Harbor Road are not able to support the amount of traffic that the harbor generates. Via land the harbor is very easy to get to. I visit by auto often throughout the year and have never experienced any traffic problems. Of course there are some minor delays in July and August, but nothing significant. Parking is occasionally scarce at for 6 weeks in summer, but other than that traffic congestion complaints are much ado about nothing. It's great that we have this popular destination accessible to all. look, all of dennis is getting more crowded, the harbor area isn't any worse than beach street or mayflower beach area. safety is an issue so long as there are no bicycle or walking lanes, but no resident will agree to widening the local roads. those of us who trailer are faced with walkers going two and three abreast in the street as if to challenge our right to bring a boat to the harbor. it is difficult to stop and pull around them when towing. The main channel was in excellent shape this year. Honestly, I was anticipating worse after the terrible winter storms and erosion I saw at the Dennis Yacht Club. The entrance to the harbor is susceptible to shoaling from the nor'easters we have every winter. The new local residents have constructed "McMansions" in vicinity of the harbor and now appear to want to restrict access to the rest of the town's residents. I resent that as a 4th generation tax payer and landowner in Dennis Village. We let them come to Mayflower and Chapin Beach, but they want to restrict our boat use of the harbor? Reciprocate! Every day accident waiting to happen, day or night, Tour buses incoming bring in people. It's a residential zone neighborhood. Not at the moment. Ok to date Parking stickers not well enforced so parking is more limited than it needs to be. West side seems to be more limited than East side due to tour boats. Already major conflict between pedestrians and boat/trailer traffic. Dredging needs to be more extensive I agree that the No Wake zone whould be extended beyond the end of the jetties. We sail a small sailkboat and big wakes are a problem. I think that sidewalks should be installed on Sesuit Neck Road The traffic in the summer is brutal. People hauling boats to and from that are almost oversized for the road. Many people walk and ride bikes on the windy road to Sesuit (west side) and someone is eventually going to get hit. Entering parking lot is dangerous because of high speed traffic and on the "curve"

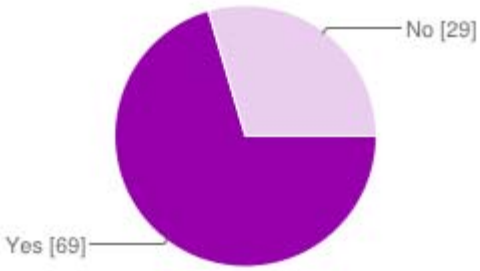
Do you have any comments on parking, boat launching and/or circulation at Sesuit Harbor?

eliminate hours of use Circulation and parking could be improved. no I generally use the east

side and consider parking and ramps ample. What is there is OK but there is not room for more. Large deliveries to the Café could be scheduled for weekdays only. cafe parking-severe problem lobster roll parking and businesses take up boat owner parking Excess of northside Marina seem unsafe as it feeds regal use DYC Parking Lot N/A bad Business users must be vetted, permitted Parking has gotten a lot better now that the "booth" has been eliminated. There is a lost opportunity for revenue in the evening because customers of the lobster roll and the Sesuit Harbor Cafe park in the municipal lot. Their customers incur wear and tear on municipal infrastrure, put trash in the dumpsters, and ultimately the slip holders pay the bills. actually the past three years has seen a decrease in the number of trailering boats and getting a spot in the lot is not a problem. the state ramp improvement was needed and appreciated. The west (town) ramp is very good except at very low tide, but still usable. There is not enough parking for boat owners at Northside dangerous to walk anywhere near Marina. The parking is never an issue, I feel they manage it very well. If the marina owners have parking violators, the violations should swiftly be enacted by law enforcement...don't make the restaurant owners suffer. Conflicts now between pedestrians and boat trailer traffic - Quivet Neck roads too narrow. East Side parking lot entrance - trailers back up into road conflicting with Cold Storage Beach traffic and pedestrians. East side ramp is fantastic. Boating for 40 years and this ramp is in the top five I have used. Circulation of boat launching vehicles could be better directed to avoid head-to-head conflicts. Move the ticket booth in further to prevent backup out onto Cold Storage Rd. Use down-lights only at night! the commercial venues should have alternate means of parking for their patrons. I feel that the additional staff to direct traffic and park cars at the cafe and marina is a huge improvement. Too much "criss crossing" of boats, cars and pedestrians There is not enough parking to have all the businesses operating at the same time I am a Dennis resident. I do not have the pleasure of living in either Quivet Neck or Sesuit Neck, the residents of these areas need to remember that all residents should have access to the public beaches and town facilities. Things change, they do not stay the same and they need to get used to it. Too crowded due to Lobster Roll and cafe (parking) Commercial fishing parties use too many spaces. traffic/parking over capacity now, dangerous particularly to residents Being that the Town of Dennis assesses the same slip fees to both sides of the harbor, it is upsetting to east side slip holders that we lack some very basic services. First the parking lot floods at extreme high tides. This proves really annoying because the lot is sand and gravel which is not very conducive to walking to the dock and your boat with sand imbedded in your boat shoes. If paving the entire lot isn't possible, there needs to be a substantial amount of gravel put down so water can run through it and the sand doesn't keep coming to the surface. Weeds are seldom cut down which could become a fire hazard. While on the subject of parking there is not nearly enough parking spaces compared to the number of slips and no marked spaces which leads to poor use of what's there. Visiting the parking area during the middle of the day on a summer weekend with good weather you will find it almost impossible to find a parking spot. Some boaters are forced into parking in the trailer lot. The new East side launch facilities are terrific. we used to have all kinds of problems, but nine since the opening of the ramp with flloats each side. needs more parking but controlled, concerned about safety issues busy See previous comments. Harbor businesses are operating beyond legal capacity which causes parking issues, among others. Parking facilities should certainly be a factor in considering any future expansion of harbor activities. The parking for recreational boaters is however being negatively impacted by the Lobster Roll tour boat patrons.

Frequently, I have lined up to back down the ramp and a car for the Lobster Roll boat drives right behind me ignoring the lanes! The one paid parking attendent does nothing to direct or control traffic in the lot. He just checks you have your $50 resident harbor sticker on the bumper. not enough parking for what goes on here works fine as it is now I have video footage of dangerous activities regarding the commercial parasailing launching very close to the end of the jetties where motorboats were also exiting the harbor. Last week, a man operating a lift taking a boat off of the storage was wearing headphones and operating the machinery. Unattended children were playing in the parking near the cafe. This is an accident waiting to happen. The cafe advertises itself as a BYOB restaurant so drinking and driving is becoming a norm in the area. Drinking from the cafe has spilled over onto nearby Harborview beach including people walking with open, glass bottles through residential areas. Increase trash in and around parking and boat launch. The parking lots, porter-potties, and roads simply cannot handle the size of the crowds converging on a small area. With increased crowds, increased drinking, increased drunk drivers, increased traffic, increased pollution (noise and sewage), and increased advertising of illegally operating commercial interests, there is simply increased liability and risk for the town, for the residents, and for all other stakeholders. parking for the cafe is inadequate and dangerous capacity seems fine. I would like to know how many huge boats in the slips belong to Dennis residents. The entire harbor seems to have been arranged to line the pockets of a few. All processes need to be conducted publicly with transparency. It is often over crowded, so is the whole Cape Dredging desperate need Parking activity at the jewelry store at the corner of Sesuit Neck Road and 6A intensifies saftey issues at an already challenging intersection. Busy and crowded. Visitors parking on residential private property. Parking on the East Side isn't adequate for number of slips. Also needs gravel so we aren't walking in dirt. Slip Holders of Sesuit Harbor should have priority for parking, next charter slip boat parking, otherwise stay away East Side town slips need additional parking Parking is much improved this year boat ramps should be for boat use. On the town and Northside marina lots they are burdended by beach users saying they are at the cafe. Northside does a good job on parking but the connecting road to the town marina is used to circumvent this access point. Both "sides" are overloaded in early AM and 4-6 PM too little parking area Increased traffic capacity, both auto and boat, should not be allowed. The west side could stand a bit better traffic pattern for the boats coming out from the ramp. There is no obvious, designated parking spots to allow them time to tie down/secure their boats for travel. This tends to clog up the lot occasionally. Okay as of now Parking capacity w.side is marginal at best--seen by some as inadequate Dislike new exit at Cafe/Northside Marina. The Cafe needs better signage so patrons know where to go. They are too confused driving around looking for it and someone is going to get hit by a car. The launch ramps on both sides of the harbor are more than adequate. A few addtional parking spaces for slip holders would be nice (east side). Use appropriate size spaces for the needs of the use-area. Boat ramp parking should be for those launching and retrieving only. No beach parking. We should remove the signs for launching and retrieval.

Do you feel that you are safe when using Sesuit Harbor?



Yes	**69**	70%
No	**29**	30%

What could be done to improve safety on land and on water within the harbor?

• Limit traffic & speed • Limit parking • Advise @ entry points when lots are full as done for mayflower beach • Have off neck parking & shuttle bus There are times when other boats hog the enterance. Keep on breaking safety and rules of the road need more pedestrian safeways, traffic enforcement, restrict commercial traffic traffic control, access to marina causes safety issues much less traffic Far too much traffic caused by the cafe and lobster roll. Also drunk drivers leaving the lobster roll -dredge the channel -better management of gas dock -no eating facilities near gas dock -boat removal and rack storage is extremely dangerous to pedestrians using cafe Less traffic.... It has become a dangerous neighborhood with all of the increased traffic over the past few years with the harbor cafe. There isn't enough space and parking as it is for the few small operations nevermind expansion. With increasing hig tides we have lost little beach as well and the private beach has no beach at all during high tide. We simply do not have the space for expansion or increased foot, bike or motor traffic. too much traffic and no town involvement complete in action on side of town upholding zoning laws get rid of recreation get rid of cafe get rid of lobster boat Limit the businesses to lawful capacity. Either eliminate the Lobster Roll tour boat conflict with recreational boaters use of the west side ramp or have the Northside Marina owner invest his own profits into constructing a dedicated parking lot for his tour boat patrons. Do not allow tour boat patrons to park in the westside boat ramp parking lot or drop off their passengers there. It is not safe for those ingressing/egressing boat trailers on the boat ramp. Less traffic, most residents walk to the beach and bring the kids in a wagon. People are flying downt he hills and not paying attention to pedestrians. The BYOB also does not help at night, people get liquored up and drive like maniacs at the cafe. You cant win, the cafe has caused sesuit harbor to not be safe for the residents What can be done? take the BYOB away, limit the amount of people...The town needs enforce better patrol from the police on stephen phillips road, its almost like they are drag racing to get the cafe. Have the police park on joyce circle and they will ticket half the people that go bye. As the operator of a large sailboat with a very small engine I have limited ability to stop. I carry my freon horn in my hand as I attempt to navigate through the crowds around the launch areas and fuel dock. Widen the harbor channel through dredging, reduce number of transient users and rack stored boats to eliminate crowding around launch areas and docks. Ban all jet skis, both rental and private. Pedestrian traffic is awful installation of sidewalks is necessary and should be mandatory eliminate hours of use. Keep Cafe as take-out place as it is currently zoned. Cut down traffic, put an officer with speed trap before and after Dennis Yacht Club. Also very few stop at 4 way stop at Bridge Street. Installation of the Northside rack, jet skis, etc. have increased the amount of boat traffic beyond the safety margin. Cut down on the number of high use commercial activities in the habor. Some of them use the channel 15-20 times daily. Eliminate the personal watercraft. It is only a matter of time before these inexperienced users cause a major accident. They go back an forth

immediately outside the harbor creating many hazards. Not walking on Sesuit Neck Road. Safe walking on main road. Stacking boats no more than two boats on top of eachother. Enforce current zoning, current rules, and current regulations. Immediately cease all BYOB activities at the Sesuit Harbor Cafe. Encouraging patrons to bring and consume alcohol is illegal and irresponsible. Areas where boats are being valeted should be completely off limits for the general public to walk/park. Fire lanes should never be used for boat storage or for parking. Immediately reduce the number of seats in the harborside cafe and reduce allowed parking spots. Do not permit Cafe Patrons to flop onto the beach all day! Time limits are needed on those parking spots Full Dock There are 4 businesses run off the dock (fuel) At low tide it is dangerous! eliminate some of the businesses Land - control harbor uses and development restrict trucks and buses (see #14 and #15) Lower or remove the stacked boats. There has already been a serious fire at the marina.

Are there areas in Sesuit Harbor where the uses conflict or need more space?

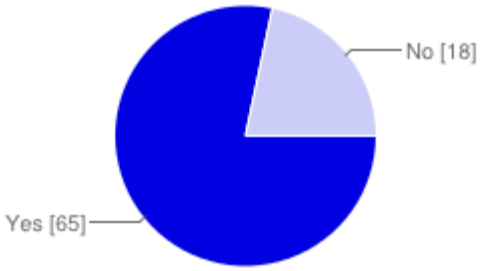
Sesuit Cafe has grown too large The town should focus on encouraging the existing maritime-related facilities and services including the cafe. The town should avoid creating facilities that attract other-picnickers, walkers, bikers, sight-seers, who don't need to be here no No. Harbor seems safe Parking can be an issue to boat owners. too many boat moorings Additional parking and seating at the Cafe I think that this past season it was addressed and handled. Parking Vicinity of East launching ramp / gas dock and Northside Marina B dock; mouth of harbor where power boats gun engines and throw heavy wakes. By the DYC and the cafe. It is a parking mess. Cafe creates too much traffic; has not been paid attention to existing zoning regulations. Harbor entrance, in front of launching areas, especially at low tide. No beach parking in harbor area No conflict, but ingress, egress and parking could all be improved. Yes at northside marina, jet ski, parasailing, boat club Personal watercraft use has expanded dramatically, and often conflicts with other craft -- users typically inconsiderate of other (especially small) boats -- e.g., yacht club sailors. . The trailer situation on the west side creates traffic havoc. I sometimes have difficulty getting out or in to the parking lot becaus the trailers are stacked up in the lot. Occasionally boats waiting to get fuel @ Northside Marina block the channel. (this usually is limited to inexperienced boaters who are afraid to move in closer to dock) The refueling dock at Northside Marina should not also be used for rentals of jet skies. Another matter of concern is that the harbor is too busy for the safe use of jet skies period. There are boats coming and going from private and municipal marinas plus ramps on each side for loading and unloading boats. storage of boats on lifts The fuel dock at northside should be a fuel dock and not a launch zone for Jet ski's. I would like to see a longer staging dock for the fuel dock. this would keep someone waiting to fuel out of the harbor drifting and waiting to come in. The Sesuit Harbor Cafe is in conflict. Whenever I drive to Northside Marine to use the retail store or go to the sailmaker's loft, the lane is overburdened with parked cars for the restaurant. It's a safety hazard for vehicular traffic and pedestrians walking to their slips. the town slips need expansion. No As noted above, the expansion of Sesuit Cafe should be monitored. In addition, there should not be additional commercial activities allowed. There is clearly a parking/ramp storage conflict. There is not enough parking for boaters who use

Northsde recreationally. There is no way to increase land. need more seating at the café. parking at the marina was a problem but they have increased the parking area and added attendants. all public areas near beach areas in dennis fill up to capacity in the summer. the ability to eat next to the channel and experience cape cod is an attraction that brings people and their money to our area, the way to the café is a public road with water access. tourist traffic would be a problem with or without the cafe No, every time I have been there, whether for parasailing, jet skiing, Lobster Roll tour, or Sesuit Harbor, I've been directed as to where to park. The Cafe has become too large, making parking difficult for boaters, compounding traffic and safety issue Boat storage/valeting and the patrons of the cafe mix everyday. Placing the general public in the same vicinity as heavy machinery is a direct, dangerous conflict of use. There was a violent explosion at the gas dock about 10 years ago. Seating at the cafe should be a safe distance from the gas dock. access to the cafe is hazardous, children are near the enterance and it is not safe Yes, the beach next to The Sesuit Cafe use to be a place where town residents could come and enjoy sitting and watching the boats go in and out of the harbor! No more, the whole area is full of tourists waiting for a seat at the Cafe to eat! Not that that is bad but it has gotten out of control for the area provided. The Cafe. The Cafe. The Cafe. It's breaking the law, has caused many of these headaches. Rude and shellfish. AND why does the city allow patrons to BYOB? --Think drinking and sun and safety. Please. Please do not dredge to create more water space. 4th of July traffic is so bad now, that we no longer come down to Sesuit Harbor for what was an annual family event for 40+ years Parking- too much can be taken up by lobster roll patrons More space isn't the issue. The issue is that the businesses down there have been operating beyond legal capacity limits. These businesses should be put in check, then the harmony of the harbor will be restored. Parking Slip Owner vs. commercial I do think that the marina could maximize their space if they continue to clean up their area. The restaurant needs more seating. Pedestrian traffic needs control i.e.--sidewalks jet skis present problems no increase in add space harbor beach - is for residents tour buses Limos dropping OFF people Where Do they go to the bathroom Corporation Beach just built a 9 million Bath house to accomodate these Needs??? the outside dining area at sesuit harbor - the additional tables were welcome and now that they were removed have limited their ability to serve the public who wants to patronize their business. Northside Marina management is doing their best to manage traffic flow in and out but again it is summer on cape cod and it's busy everywhere. Try navigating main st chatham any day of july/august, or getting to dennis public market or mayflower beach early on a sunny saturday in july/august. Sometimes difficult to access the pump-out at this town dock due to commercial vessels marina and cafe are operating above reasonable capacity More seats for the restaurant!! -channel -no swimming near gas dock and adjoining beach should be strictly inforced also jet ski rentals should require licensing-they are a menance to boats in the channel Around the Cafe

Do you think there is adequate staff to efficiently operate Sesuit Harbor?

Do you have any comments on the Town’s management/operations/staffing of Sesuit Harbor?

no dredging is an issue. Regulation of new businesses like Jet Ski rentals, para-sailing, Lobster



Yes	**65**	78%
No	**18**	22%

Boat bring people who do not know the rules and regulations of the harbor. Respect for the surrounding residential neighborhood. The town has acted irresponsibly by allowing the intensive use at Sesuit Harbor by high use commercial activitie without the proper public input and zoning review. It has also acted irresponsbily by allowing the number of seats at the Cafe to swell to 300 when a take out operation allows only 49. Harbor Master needs additional help There needs to be more regulation on businesses. Our little neighborhood and beach can't handle more people. The town does not enforce rules and regulations. The Harbor Master is Fine! Harbor Master and Staff do a wonderful job. The present Harbormaster was appointed by the Selectmen after, I believe, a recommendation by the Waterways Commission. Since then he has had a target on his back. That is not right. The Harbormaster's department patrols frequently and rates highly with its cooperation and skill level. As commented earlier, 2 fulltime staff during the "off-season" are not enough, especially if either one gets ill or is unavailable. Yes, I believe revenue generated in the harbor should primarily stay in the harbor Town does good job operating Sesuit Harbor. Harbormaster can sometimes be overbearing. So far so good enforce jay walking laws Seems fine. The towns involvement has been embarrasing, its sad that the town cant protect its residents and let a business break so many rules and let them get away with it The town seems to ignore all zoning in regard to marina, boat storage, and cafe management. This mismanagement of existing business directly effects the quality of life in surrounding neighborhood and has created many dangerous situations which can result in injury. any contact theat I have had over the past 20 years has been positive. I think the Town needs to consider the "little" business owners and not be bullied by the Marshside and Mr. Conners. yes, town management ignores and/or doesn't enforce existing regulations & hours by laws, health regulations, zoning enforcement, historic district over-sighted almost totally absent--I give Dennis very low marks on this. Town does not manage or control rules and regulations There is little town control of northside marina creating ton of traffic at cafe I think they have done a great job. I think Harbormaster Terry Clen has done a wonderful job of keeping it safe. We need a better, friendlier approach The parking lot attendant in the Westside boat ramp lot is understaffed and ineffective. He never directs traffic inside the lot and is easily distracted at peak usage hours. I blame the Town management as they seem only interested in getting my $50 for a season harbor sticker and enforcing it rather than safety and traffic flow at the ramp. Don't change zoning laws to meet needs of cafe. Enforce current regulations. Any expansion should be plan, but plane should kep current environment. Agree that ZBA is over their head in harbor MGT--Defer to harbormaster's understanding! Excellent Harbor Master and staff Complete denial of residents objections -indifference to the town -no action on part of our town officials to support the residents and taxpayers in safety issues They do a good job now. Generally quite satisfactory. They often seem to have nothing to do, but I suppose some "standing by" is necessary. Our public officials

MUST put residents on equal level to fishermen, boaters, and so on. Selectmen need to CORRECT the zoning issues & ENFORCE the law. Their oversight, or lack of oversight has resulted in the current distrust and unhappiness. No, very adequate. Our harbor masters are the best most qualified individuals I have ever encountered Good job! Considering the revenue the Harbor generates, the town should be willing to spend more. -Need full 24/7 harbormaster coverage -Why does this town get so much of our revenue? dredging is not sufficient. the town tries but some of the commercial activities (jet skis) example have people not familiar with boating, harbor use, rules (maritime) could certainly be an accident waiting to happen The staff is doing OK--do they need additional help, perhaps. Town is not doing it's job--re: rules/regs--growth--the area is residential and yet growth of marina/cafe/(etc) has taken more without town approval. I personally have not encountered any problems They do not comply with town regulations I don't know if [there is adequate staff to efficiently operate Sesuit Harbor] let the businesses be succesful, as they say a rising tide lifts all boats. We did not appreciate their sudden reassignment of us and all the sailboats to the far back of the harbor where we are the most exposed to wind, tidal debris, etc. It was done in an underhanded way, and supposedly based on a "safety study" which no one has ever produced. If cormorants are the problem, just say so. But the "sailboat ghetto" didn't have to be in the most inconvenient far reaches of the harbor. Power boaters have way too much priority. The rules requiring notice if we are going out for even one night are ridiculous. If for more than 3 days it would make sense. But sometimes one likes to go on the spur of the moment. my understanding is that the Town has not adequately enforced current zoning laws I think the town needs to insure that zoning laws are followed by everyone. When people bought houses in these areas there was already a marina and public beaches---they need to adjust not sure, verdict is still out I have been coming to Sesuit since 1987. I see the increase in the Harbormaster's staff and presence as a positive this year. i wish they were a bit more resolved on enforcement of a no - wake speed in the harbor. there is no consistancy. Once dredged they should open the harbor up wider to better support entry and exit. Below par on staffing It it is well managed. see earlier comment. the town does a great job managing the resource and keeping it affordable for its residents More patrol of harbor to monitor speed of boats coming in and going out. Many are too fast and leave large wakes Be sure to have an appropriate number of employees when there are customers. Many beaches are understaffed for too many hours during the summer, and that includes beach sticker checkers. Do not let that happen at Sesuit Harbor. Think about the elder population as workers. Waterways Commission should be listened to The harbormaster spends too much time on the harbormaster boat sitting outside the jetty to Sesuit Harbor - an area where he has no juristiction. The harbormaster should patrol those town areas within the harbor. I think they have good responsive staff Private Enterprise -- Let it be I don't know (if there is adequate staff to efficiently operate Sesuit Harbor) More people more problems This is a residential zone area it's the only place like it on the North Side. Aren't There those who want to preserve it or all will be lost.

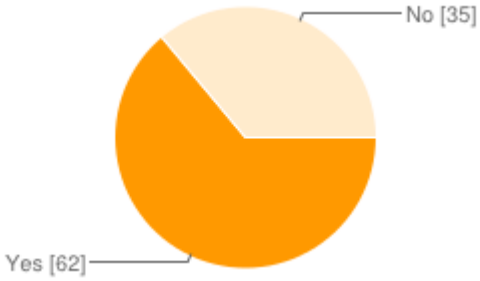
Do you have any comments about noise in and around Sesuit Harbor?

No, works fine for me I frequent the harbor both during the day and night hours. No problems with noise. The only time there is any noise is for a wedding or big event at the Cafe, and that is infrequent. I personally don't liked piped music on Lobster Roll inside the harbor. Early morning

boat launching creates noise--boat owners need to cool it. no The Cafe is a source of noise--Also delivery trucks to ramp. It serves breakfast, lunch and dinner-and it's take-out--all in a residential ares. Far less than at other commercial locations right here in Dennis, no drunks, no rowdy behavior. Too many people at the cafe. Noise has increased significantly as commercial interests have illegally expanded. I read the article in the paper on back up beepers for the rack storage . A safety issue on any vehicle over 1 ton. All of the businesses are well run to serve the public with respect to the neighbors! No, it's a marina in a harbor on Cape Cod. Parties, weddings generate music heard on the east side of the harbor. Walking and biking has become very dangerous with the cafe traffic. I have spent 38 years in the neighborhood and am sad to say I wouldn't let my kids bike around at this point with all the traffic. Very loud and noisy. In 23 years the traffic and noise has increased to unbelievable level. We live here. when there were functions at the cafe--very noisy Jet ski noise The amount of traffic and people now using the harbor has certainly generated more noise. There is no town control of noise at northside marina Yes - the lift trucks for rack storage are exceptionally loud, much of which occurs early AM and after 4PM. Also, loud music at night. Weddings--Bands--After 5pm I live about a mile away, But I sympathize with uneasy residents--witness of "party" noises. Regular marina noises are not a concern for me. I am too far away from harbor to be bothered by noise but I can't imagine how noisy it must be for people living in the area with boats, yacht club and cafe activities! the jet skis are a problem/noise Early before 6:00 backup noises of loading boats off and on lifts Blowing off sand off tennis courts no, i have been there many times, morning noon and night and never thought it was too noisy. No noise problems No Too Much! Given that it is Summer on Cape Cod and that a great deal of boating is centered around family activities (children) a certain level of noise is expected. There are a few boats that are pretty loud but I'm not sure that can be regulated. I'm sure that residents abutting the harbor might have a different view and I would defer to them. It's fine....still a quiet harbor which is nice. The town should consider some way to celebrate July Fourth as it is our Nation's birthday and it only happens once a year. I do not think there is a noise problem If I was an immediate landowner abutting the marina, I would be annoyed with the rack storage forklift backward hazard beeping. I have boated in Sesuit Harbor for 40 years and I can remember a time when there was no rack storage. Party noises affect us on East side, not too often. Backup alarms at NS Marina - sometimes before sun up! Some restrictions on time of operations would benefit us. It is a wonderful place for all people to enjoy, and the season lis relatively short. I feel that the opportunity to enjoy these recreational facilities, Including restaurants, etc. should be available to all and that the peripheral owners should not have the clout to prevent it. truck traffic early in morning none. It is appropriate as is; no additional restaurant/alcohol consumption facilities should be allowed. OK with me It is acceptable except when too many cars drive past back and fourth and use my driveway to turn around looking for sesuit cafe yes, there are residential properties that generate a lot of party noise as well as local kids roaming at night that can be loud well beyond the noise curfew of the town Outside events (auctions, weddings, etc.) especially with live music are disruptive to peceful and quiet enjoyment of residents of Quivet Neck the only noise and lights come from the yacht club. all other activities at the harbor stop at sunset. Very little noise most if not all operation in the harbor is over by 10 pm Marina operations start too early especially on Sundays. More traffic Party boats, drunken Patrons & large groups @ sesuit Cafe town bases, trucks and innumerable cars I actually think its a pretty

quiet operation. As far as the back up alarm on the fork lift, I believe that is required by the insurance company. I'd rather hear that then having someone get injured or killed. will the homeowners assoc. just shut up the harbor was here first The lifts in the boat racks are very noisy and hours should be restricted in early mornings and evenings. The noise does carry over the water. For instance, I can hear music from the Sesuit Cafe at my house many blocks away in Quivet Neck. other than increase in traffic, nothing out of the ordinary It is awful, so are lights late at night start up of boats (engine noise) too early in am I haven't ever been aware of excessive noise. Obviously boats, other vehicles and people make noise, Gee wheez, it's summer! I haven't noticed any issues with noise. Water skis abundant and a problem. I've lived in proximity to the harbor for 30 years. The noise @ night is awful--Smells (food) is just as much a problem, not to be overlooked. There is no worse noise at the harbor than anywhere there is public access to the beach areas elsewhere in town. no suitable for residential community The noise level is a function of the many activities currently going on in the harbor. More activities would definitely have a negative impact. Weddings and Private parties cause noise on weekend nights. Bands, large crowds etc... Noise level is not a significant issue The noise level is better than many areas of Dennis so why worry. Do not allow the area to become exclusive to the wealthy. Weddings at yacht club are too loud Enforce current zoning regulations and keep cafe from expanding illegally. -over commercialized by current businesses that expand beyond their zoning usages -weddings and outdoor music provided by cafe are insensitive to surrounding neighbors

Is there adequate signage in and around the harbor to direct visitors easily to their destination?



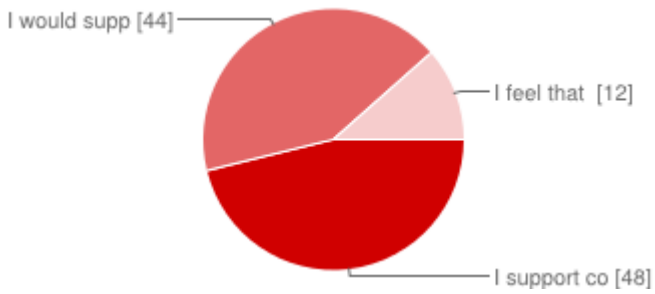
Yes	**62**	64%
No	**35**	36%

What signage needs to be improved?

During our daily walks, we are constantly asked for directions to the cafe and notice vehicles wondering into the Town's parking lot looking for the cafe. Signage to the cafe could be improved. A sign for the Cafe would help traffic move. Too many lost people asking questions. make all signage consistant and post on internet a pdf map showing usage areas Clear and concise signage showing where to park for which purpose Directions to sesuit harbor public facilities would be better than the signs restricting drivers currently more signs tell drivers where they can't go than where they should go No swimming or wading in the channel! for marina and parking for marina Minimal signage for the Sesuit Cafe, but residents do not want it to become overly

commercialized. We would like to maintain the integrity of this historic harbor. Private ownership signage - town signage is fine Directing towards the marina, cafe, and tour boats The signage for the harbor and the cafe need to be improved--although in keeping with the norms set by the Old Kings Highway group. see # 17 cafe needs a sign The cafe....love the cafe but it needs to be better marked. Bigger signs for Cafe so Directions to harbor parking from rt 6 A Traffic flow sign at four corners directing visitors to turn right to go to harbor. A permanent sign on street showing drivers their speed vs. limit Directional signage, parking rules. not sure Signs to the cafe Make signs point to the cafe on sign of Sesuit and harbor roads bigger. I'm sick of giving directions to people in my neck of the woods. "Cafe next driveway" at town marina entrance Not really (adequate signage) why are people driving around heighborhood before 6:00 in morning signs not needed this is a residential neighborhood Directing boats to skips especially as a transient The cafe and marina need to have better signage all Parking for Sesuit Cafe patrons I would add a stop sign at the intersection of Pleasant St and Cold Storage Rd to slow down traffic where there is high pedestrian use and poor visibility. confusing for the cafe---don't want large commercial signs it is a residential neighborhood Clear sign on Sesuit Neck road for the Municipal Marina. Clear sign on Sesuit Neck road for Northside Marina.

At what level do you think the Town should invest in Sesuit Harbor?



I support continual funding for current maintenance and operations	**48**	46%
I would support greater investment by the Town to make improvements	**44**	42%
I feel that the current level of investment in Sesuit Harbor should be scaled back	**12**	12%

Additional Comments

Could save a lot of money by reducing light wattage. Lobster Roll is a community asset and also party fishing boats, but Parachute boat is a pain and contributes to nothing but a lot of noise. No additional tour boats, no whale watching or anything else that would increase the parking problem. I support investments by the town that make improvements that benefit Dennis residents. [Town should] give up what it already gets from the harbor No more commercial!! Safety Big Issue Any improvements to infrastructure are required for the commercial business interests. They should pay for the infrastructure improvements not taxpayers that use the harbor recreationally. My $50/sticker

pays for the ramp maintenance already. I liken this situation to the Kraft family and Gillette Stadium. The Krafts paid for a new football stadium, not the Town of Foxboro or the Commonwealth of MA. Bergeron and Northside can pay the bill!

Number of daily responses

RECREATIONAL USERS SIGN-IN

WOODS HOLE GROUP

Name	Town/Village of Residence	Primary Usage of Harbor
Dan Smith	Dennis	Boat Owner
Louise ARMSTRONG	"	Boat owner
Dick Armstrong	"	Boat owner
Richard + Alene Dowd	Dennis	Boat Owner
Russell Tomasetti	Dennis	Boat owner
George Mastin	Dennis	Boat owner
R. CORSINI	East Dennis	Boat owner
Paul Walsh	East Dennis	Boat Owner.
Deborah Niessink	East Dennis	Recreation
Jr Burns	Dennis	
PAULA + DAVID Miller	E. Dennis	Slip holder
Frank Crocetti	E. Dennis	" "
Pete McCarthy / N. DENNIS		" "
KEN MOFFATT	HUDSON, MA	SLIP HOLDER
HUGH BLAIR-SMITH	DENNIS	BOAT VISITOR
Joseph Palino	Dennis	Slipholder/rec.
Jerry Kellett	E Dennis	Slipholder
Irene Cuoco	E. Dennis	recreation
Bill Conway	E Dennis	R+C
Mary Lee	E. Dennis	
Robert Lee	E. Dennis	Slip - resident Nock
Bill Burton	E. Dennis	Coach - Visit.
Cliff Adams	Dennis	Slip Holder.
Lester J. Murphy	E. Dennis	Slip Holder
Terry Clem	Hyannisport	Work
H Aldrich	E Dennis	Rec
John + Eileen Connors	E. Dennis	Boating
Kristin Niessink	East Dennis	Recreation
Patty Hislop	East Dennis	Neighbor

RECREATIONAL USERS SIGN-IN

WOODS HOLE GROUP

Name	Town/Village of Residence	Primary Usage of Harbor
Jon Robertson	B. Dennis	Boat Owner
Sue Sutton	E. Dennis	recreational
Mark Cahill	E. Dennis	Recreation
Bob Sutton	E. Dennis	recreational/resident
Bob Tolley	Yarmouth Port	Ramp / Slip
Jo Ann Cechetto	Dennis	rec.
Steve + Nancy O'Leary	E Dennis	All
Gayle Weekes	E Dennis	Rec.
David Kaplan	Dennis	Rec. + Dennis EDC
Jim Heavey	Dennis	Rec. / owner
Jo Bisbano	E. Dennis	Rec Boat owner / Res
Peters Family Trust	E Dennis	Transient Slip
Peters Fisheries Inc	E Dennis	Transient Slip
Peter L. McDonald	Dennis	Slip Holder
Rita Kelly	E Dennis	rec.
Carrie Backheuch	E Dennis	Slip Holder
Bob Backheuch	"	"
Pat Sagasser	E Dennis	rec.
John Demers	Dennis	Rec.
[illegible]	Yarmouth Port	rec.
Tim Wheeler	Brewster	Rec.
Chris Edwards	E Dennis	Rec
Deborah Hedrington	E Dennis	
Marcia Livada	E. Dennis	Rec.
Nate Olsen	E. Dennis	Rec
Tom Olsen	E. Dennis	Rec
Carl Howard	Dennis	Commercial
Jonathan Smith	Dennis	Commercial, some Rec.

COMMERCIAL USERS SIGN-IN

WOODS HOLE GROUP

Name	Town/Village of Residence	Primary Usage of Harbor
Shawnen Carroll	Dennis	Head Boat
Peters Fisheries Inc	E Dennis	pleasure + commercial
Cecil Baker	E Dennis	Resident
	E. Dennis	resident
	E Dennis	Resident
	E. DENNIS	resident
	Abby Bon Secours Resp Oncology Assoc	
David McCarthy	N. Dennis	recreation
Dennis	Corcoran	Resident
Marie	Corcoran	Resident
Steve Drouin	E. Dennis	Pleasure
Janet Robertson	E. DENNIS	RESIDENT
Peter Lomenzo	DENNIS	Pleasure
JOEL BOIS	YARMOUTHPORT	LOBSTERMAN

RESIDENTS SIGN-IN

WOODS HOLE GROUP

Name	Town/Village of Residence	Primary Usage of Harbor
Peters Family Trust	E Dennis	Resident
Robyn Traves	East Dennis	resident
Martha Spaulding	" "	Resident
Jean Sheridan	" "	"
Bob Sheridan	" "	Resident
Al Andrews	E Dennis	
CYNTHIA HARPER	"	RESIDENT
JOHN HARPER	"	"
EDWIN J. HAYES	"	"
BRENDAN SI HAYE	"	
George Hempstead	Dennis	Resident
Paul Welch	East Dennis	BOATING
Glenn Lavenberg	23 Sesuit RD	Resident
Linda Fennell	185 BRIDGE ST	Resident
JEANNE Ellison	58 Sesuit Neck Rd	RESIDENT
Beth Crowell	270 Sesuit Neck Rd	Resident
Joel Crowell	" " " "	"
Patti Poor	47 Sesuit Rd	Resident
Ben Fuller	352 Main St. Dennis	Resident
Patricia Campbell	352 Main St. Dennis	Resident
Barbara Hessen	2 Hopkins Rd E Dennis	Resident
James + Lois Pistorio	83 Old Town Lane	Residents
Joe + Sandi Buscemi	34 Delaware Rd	Resident
Donald Lee	137 Sea St	Residency
John + Filma Olson	27 Stony Way	Resident
Paul + Irene Crow	4 Cranberry Rd	Resident
Dudley Miller	50 Salt Works Rd	Boater + Resident
Ruth E. Phillips	East Dennis	Canoe/Swimming
Patricia + James Cahill	156 Bridge St. E. Dennis	Resident
Elisabeth Lwick	49 Harbor Rd	Summer Resident
Nancy Lwick Bryan	49 Harbor Rd	Summer Resident

RESIDENTS SIGN-IN

Name	Town/Village of Residence	Primary Usage of Harbor
Deborah Kelly	Dennis	Boat owner / home Owner
BB JUTTON	E. Dennis	Resident/Recreation E. Denni
Louise Nitzman	E. Dennis	
[illegible]	E. Dennis	
Mary TROPEKA	E. DENNIS	
JOHN [illegible]	27 STONY E Dennis	RESIDENT
Deborah Anderson	E. Dennis	
Carol Hurley	18 Wendy E. Dennis	Resident
Regis Worobe	94 Old Town Ln E Dennis	Resident
George Holbrook	E. Dennis	Recreational
Marianne Holland	"	Recreation
Dave & Mary Bell	E. Dennis	Resident
Peter Schimmel	Dennis	Resident
Lynn Kellett	E. Dennis	
Jerry Kellett	E. Dennis	
[illegible]	E Dennis	
[illegible]	E Dennis	
Christ Sullivan	E Dennis	resident
David Sullivan	E Dennis	resident

Sesuit Harbor Use and Capacity Study
Stakeholder Meetings
August 19, 2013
Recreational Users (3:30-4:30)

- zoning a cumbersome way to manage harbor, 40A focused on land use, not water use. Growth plan should be through harbor rules and regulations. Zoning variance not ideal. If zoning approach is taken, special permit authority should be with Harbormaster or relevant committees. More cooperation between Waterways and Town administration is needed.
- Sunday afternoon at low tide, safety issues at mouth of harbor
- traffic issues at corners of residential roads (east side)
- parking lots too small, hard to find parking (especially on Sat/Sun)
- Is there a model that represents best practices for harbor management? Would be helpful to see these as references.
- What input/communication with other committees (ie historic)?
- only organizations/committees pertinent to the harbor should have input in the process
- this is an historic harbor within an historical district, any structures should be built with historic sensitivity, additional plaques recognizing shipyard. Have to grow in a way that is operationally efficient, but also enhances everyone's use
- safety and usability issue – dredging. Marshland restoration, tailings are depositing in harbor. Making moorings and slips difficult to use.
- Jetskis and kayakers a part of review of safety.
- Long waiting list. If Northside stacks too tall, should be scaled back. At same time need the access. Other residents not in the immediate vicinity don't have as good access as those close by.
- Can't run engines an hour on either side of a normal low tide. Without dredging, no harbor in 5 yrs.
- Communicate with summer residents. Important to maintain character of the Neck. Safety also an issue. Some development bursting at seams in some areas. Need a parking space for each slip. Need to plan visits to harbor due to parking availability.
- Prevailing winds from west to east. Stronger in winter. Wind blows sand into harbor. Abundance of sand on Cold storage, not much updrift. Backpassing a consideration?
- Another dredge to service harbor. Current projection 12-24 months to get permit for inner harbor.
- 1950s dredging of back basin, front basin mostly sand disposal not an issue. Front basin could take 30 boats...what are the implications?
- powerboats creating large wakes at top of harbor . Move no wake zone further out to protect sailboats, kayaks, etc.
- parking of trucks and trailers (landscaping contractors) on residential streets creates conflict with pedestrians/bicycles...a safety issue.

Sesuit Harbor Use and Capacity Study
Stakeholder Meetings
August 19, 2013
Commercial Users (5:00-6:00)

- in evaluating comments,consider the relative numbers of residential vs commercial
- use of channel 3-4 times a day. Safety concern. Jetskis and boat rentals. Low tide magnifies safety issues throughout harbor, around fuel dock. Larger commercial boats, smaller ones are coming out of docks
- charter boat at municipal marina. Boats are getting bigger, Jockey for position at boat ramp, blind boats coming out of Northside. Narrow channel makes it more difficult.
- Harbor of refuge. USACE used to dredge...can they return 1x per year? Can't leave harbor early in morning on minus tides
- issue of zoning, uses of the harbor predate zoning (commercial harbor 1800s)
- Saltworks in upper marsh. Fish freezing, lumber yard, shipyard, commercial fishing since 1850s. Historically commercial harbor
- pleasure boat users 50/350 commercial boats. Going to state for harbor improvement $, the consideration is commercial usage.
- Can the roads support the existing commercial volume, any room for more?
- Traffic study? (Police Dept. recently completed study, has several years of data)
- compare traffic data with data across the rest of town – similar increases.
- Are there any uses that are not permitted?
- Issue of what happens if the harbor is rezoned commercial...what are implications for the study?
- Looking at traffic related to beach users?
- Informative to know where the discharges from commercial operations go?
- Peat banks – safety and environment. Losing and sloughing, interfering with moorings and navigation. Saving peat banks is critical to environmental protection and operation. Dredging annually is critical, responsibility lies with Town, hope it is addressed.
- Issue of landscaping trucks in the middle of residential roads, also rolling stop signs.
- Pedestrian access. What would that look like?
- Trailer. Boats getting bigger. Like sidewalks to keep people out of road, but large granite sidewalks damage trailers (eg. Smugglers)
- kids and families walking along edge of road back from beach, safety
- walking community. Trailers, charter buses, food trucks. Not enough room for heavy traffic. Dangerous.
- Increasing revenue for the harbor. Why not charging for parking at night?
- Look at types of commercial uses. Some new, some significant generators of traffic. Change from small commercial and six pack, to three large tour boats. Increased traffic and safety concerns on roads. Inadequate parking and infrastructure for land and water uses. Excursion boats part of problem. Capacity of residential neighborhood to accommodate this traffic.
- Revenue. Harbor makes a lot of money. Little re-investment into harbor from Town. Not proportional.
- Don't lose harbor of refuge status
- Is there a formula for getting federal money and dredge assistance? 10% commercial on slips and boats in the water

Sesuit Harbor Use and Capacity Study
Stakeholder Meetings
August 19, 2013
Residents and Abutters (6:30-7:30)

- traffic
- residents have problems with traffic. People have trouble finding cafe. Should be more and larger signage to keep traffic off of residential streets.
- Safety first in a residential neighborhood
- weekends 8-11am. 50-80 people biking, walking and tour buses, boat trailers Steven Philips Rd.
- quivet neck. Not as impacted by traffic, but sign directing jetski traffic to quivet area. Boats/trailers are too big. Quiet neighborhood prior to fireworks.. Exponential growth at marina in past 10 yrs. Any receptions with live music are disruptive to west side. Noise ordinance not early enough. Lighting, leaf off condition there is light flooding to residences on Salt Works Rd. Shoulder season is expanding. Exponential development on quivet neck.
- Size of the boats makes walking difficult/dangerous. Smell from restaurant.
- Dredging, renourishment not acceptable, smells and unpleasant beaches.
- Perspective on what it was,
- historical commission regulates homes, but boat racks were exempt.
- Question of how to weight the input from user groups
- other people in town pay taxes and have an interest in the resources of Sesuit. Clear about what zoning should be allowed.
- Balance was lost years ago, tour bus and marina, inability to bike.
- People don't stop at stop signs. Safety issue, was not solved
- Traffic. Studies
- traffic backed up beyond entrance to harbor, couldn't go around because one way street. Police presence if the traffic is going to be there.
- Have the town abide by the “no growth” regulation
- Historic commission investigation – no record of application for marina construction
- beach next to harbor is a big traffic generator
- residential area, has been forgotten. Mayflower beach residences can't get out of their driveway, can see that happening here
- private marina existed in 40s, but public use followed channel. Zoning is relevant to harbor
- MA looks at waters w/o political boundaries. Commercial interest can appeal harbormaster. Whalewatch would be detrimental. Look at case history
- Parking. Sign for no parking where trailers are. Other commercial uses would not be able to be accommodated by parking
- mitigation. If Town chooses to expand commercial, town needs to mitigate – traffic, sidewalks etc, but a difficult issue with existing terrain and stone walls.
- Conflict of interest in those allowing commercial uses. No resistance to illegal use. Jetski and parasailing is illegal.
- Missing element of trust, need more transparency. Distrust within neighborhood.
- Traffic is dangerous.
- Coming out of shiverick road, accident 5 yrs ago. With buses and food trucks, much worse

- Cape Cod is a tourist area. Traffic is an issue everywhere.
- Historic area. Actions of harbor don't seem to be applicable. OKH should be applicable to all in area. Historic quality of area is important, more commercialization is a detriment.
- Late 40s documents establish this area as residential.
- Tour buses. Homeowners went to Town 15 yrs ago. Selectmen concluded no tour buses or brown bagging on Sesuit Neck
- Bass River is a different situation, no residential
- concern with how the survey data will be used.
- East side, large parking lots for beaches and boats

APPENDIX B1. ASSET EVALUATION

INVENTORY

The Sesuit Harbor Town Marina is operated utilizing both in-water and land-based assets. The primary focus of Marina Consult's assessment has been on the in-water facilities comprised of the floating dock system - including anchoring components, flotation devices, utility components, and bulkheading and access ramps/gangway facilities - and the key land-based support components including the Harbormaster's Office, bathrooms and the Work Shack.

In performing an evaluation of in-water marina facility assets, there are essentially three comparisons that are made: local, regional, and "currently customary." The first two are relatively straight forward and generally involve a visual assessment of what other, similar facilities in the immediate competitive market and the larger regional environment look like. The third comparison is somewhat more difficult since, as an industry, floating dock design and manufacturing is constantly evolving and improving, but such improvements must be weighed against the pace of local and regional market evolution. What may be typical and/or market-acceptable in one region may be unacceptable or even unnecessary in another. "Currently customary" may ultimately refer to "state-of-the-art" but certain regions may either not be economically structured for it, or demand may not exist to support it. Either way, in the end, the market - both supply side and demand side - determines whether certain facilities are 'up to snuff' so long as no measurable deficiencies exist with respect to safety and security.

In the case of the Sesuit Harbor Town Marina, there is no way that a substantiatable evaluation of the floating docks - including the flotation system, the electrical wiring from source to powerposts, the water lines and the anchoring system - can be conducted without an invasive level of expert engineering and electrical investigation, analysis and evaluation. The Town Marina's docks are, essentially, 'homemade', and not engineered and manufactured using generally accepted construction methodology for floating dock structures - e.g., using wind, wave and load studies to develop a properly designed, engineered and manufactured and installed system that, at a minimum, includes adequate anchoring, freeboard/flotation, utility design and accommodation, and a detailed maintenance and repair/replacement program. Engineered dock systems typically have a warranty/guaranty period that mirrors their expected minimum useful life. The range can typically be from 10 to 25 years, with the product expected to last beyond that provided the manufacturer's recommended maintenance program is diligently followed from date of service placement. Adequate and necessary maintenance must be performed not only to keep the warranty/guaranty in effect but to ensure that the dock system performs as-designed. This is key to protecting both the manufacturers and the facility owners/operators from liability should a failure result in property, or worse, human loss. What this really means is that if the purchaser/operator can't or won't afford to maintain the facility the designer/manufacturer assumes no liability. A program of deferred maintenance - or worse, no maintenance - is, therefore, a recipe for potential catastrophe.

When it comes to homemade dock systems, there is no 'typical' life expectancy. The myriad of materials available/used, the quality of workmanship, the level of maintenance and repair/or lack thereof, and the constant effects of the elements attacking the structures makes it impossible quantify. In the specific case of the Town Marina, without taking sections of dock out of the water, taking them apart piece by piece and inspecting - and in certain cases, such as attaching hardware and structural timbers, by sending samples out for independent lab analysis - there is no way to estimate how long they will last in their present use, nor if they are even adequate/safe for continued use. To further illustrate: Will a particular section of main walkway support the wind and wave load against the 38' Sea Ray attached to it when next week's 'noreaster hits? Will a particular section of dock support the weight of the owner, his wife and two kids standing on it when the bow line frays and breaks and a gust of wind swings his 40' Hatteras out and the stern line yanks on the only cleat holding it to the dock system? We have absolutely no idea because, without adequate analysis, there is no way to determine the structural capacity of any components of a homemade system. Even if either proposed situation has already occurred once and nothing bad happened, will the system perform the same way the next time? There is no way to know that either because, apparently, no qualified, professional engineering design was incorporated into the product's design or manufacture. That is why we recommend that for continued safety and security a thorough engineering and electrical analysis be performed. Until such an analysis is completed it would not be appropriate to apply non-definitive poor/fair/good/excellent ratings to specific sections or components of the facilities. Globally, in our

opinion, after walking and visually inspecting thousands of miles of floating docks on two continents over the past 30+ years, the Town Marina in-water facilities would, at best, be classified in the generally non-definitive 'fair' category, with some sections likely 'poor' and others possibly 'good' with absolutely no defensible evidence to back up such classifications other than our opinion as to their visual appearance and feeling underfoot during the time we spent walking on them for a weekend in July of 2013. We did not tear sections apart and send samples of hardware and structural lumber to testing labs as we have done on occasion in the past when such evidence was necessary for court proceedings to remove opinion and replace it with fact. We also did not turn off the power feeding specific sections and take the attendant powerposts apart to remove sections of wiring and connections and send them to testing labs as we have done on occasion in the past when such evidence was necessary for court proceedings to remove opinion and replace it with fact. Such action was not specified, is not ordinary and customary in performing an assessment such as this, and should be performed by qualified professionals if continued operational safety is of concern. The inherent risks to the public of using in-water floating and fully electrified facilities is already significant before adding the 'homemade' element.

If this assessment had been for a facility with professionally engineered and manufactured docks along with professionally designed and installed utilities, we would have consulted with the manufacturer and likely been able to establish a baseline from which expected remaining usefulness of the facilities could be estimated. In the dock industry manufacturers regularly examine their previously sold and installed products to ensure their client is properly maintaining the facility, to update their database and 'learn' from their experiences, and to ensure that their product 'shows' in the best possible light so that potential clients can see the quality of the product. This information is invaluable when assessing performance and designing improvements, and provides the aforementioned baseline necessary for an informed analysis. Unfortunately, given the Town Marina's docks are of the homemade variety, we are unable to establish this baseline and cannot provide any assurances with respect to either suitability of purpose or expected remaining useful life.

LAND-BASED SUPPORT FACILITIES

The land-based support facilities, with the exception of the Work Shack, appear to be in overall 'good' condition. The West Restroom facility (Exhibit 1) and the East Restroom Facility (Exhibit 2), although 'Spartan' in appearance, are, according to marina customers, adequate, well stocked and kept in reasonably clean condition. The Harbormaster's Office (Exhibit 3), although also on the small side, appears to function as required to service the needs of the facility's customers. The Work Shack (Exhibit 4), on the other hand, appears to be in relatively 'poor' overall condition, with the interior quite disorganized and not at all inviting for the safe performance of routine maintenance functions. It was observed that, among other issues, exposed electrical wiring exists in the structure, there appears to be no formal ventilation system to remove harmful vapors from activities such as painting, fiberglassing, etc., and, for the most part, the structure's exterior and its related clutter is aesthetically unattractive and does not compliment the overall appearance of the facility in any positive way. In order to provide a safe and secure workspace for carrying out necessary maintenance and repair activities for the facility it is recommended that the existing building be demolished and either a new permanent facility be erected to replace it or a trailer be rented or purchased and utilized for the purpose.

Exhibit 1 - West Restrooms

Exhibit 2 - East Restrooms

Exhibit 3 - Harbormaster's Office

Exhibit 4 - Work Shack

IN-WATER FACILITIES

The dock facilities are of a type and construction that can only be classified as 'homemade' and, as a result, of questionable suitability - existing or continued. Although the facility has apparently been servicing the boating public for quite a number of years, the overall boating experience of its customers has clearly been negatively impacted. A number of slip customers and charter walk-on customers were randomly selected and interviewed during a three day weekend period in July of 2013, and asked rather broad questions to elicit honest positive and negative feedback on a number of operational-issue topics. The single most mentioned positive was the constant efforts of the Harbormaster and staff to make customer's experiences at the facility as enjoyable and trouble-free as possible. The single most mentioned negative was the overall impression of facility obsolescence that these customers felt whenever they visited. Quite a few went on to elaborate, mentioning - in many cases word-for-word - the perceived lack of interest that the Town - as the facility's owner - seemed to have "to bring the place into the 21st Century." In response to follow-up questioning on this negative perception the overwhelming feeling was that the physical facility was being allowed to deteriorate at a rapid pace, and the level of overall maintenance was inadequate. Many respondents specifically mentioned the overall condition of the main walkways on the west dock system, the severe lack of adequate draught in the basin at low tides, the constant silting of the basin due to lack of shoreline erosion containment, and the unpleasant smell that permeates the facility at low tide (as a result of deteriorating shoreline conditions). Several of these issues will be discussed in additional detail.

In walking the docks and visually examining the structures it is quite apparent that the facility is suffering from a lack of quality design/manufacture and adequate/necessary maintenance. Homemade systems like those used at the Town Marina are inherently fraught with maintenance issues that are directly attributable to their manufacture. Currently in the marina industry, engineered systems - those designed by experienced, professional engineers factoring data from wind, wave and load analyses performed at the facility location - are the accepted 'norm' with homemade systems rapidly disappearing and typically only found at the proverbial 'Mom and Pop' marinas where capital is in short supply and hands-on reactive maintenance is the only type applied. Marine insurers have, for the past fifteen or so years, been paying very close attention to the condition of the facilities where their insureds berth their vessels, such that the operational side of the marina business has changed dramatically in response. As vessels get wider, longer, heavier and more expensive to purchase and maintain, dock system design has become more complex and facility renewal and replacement more expensive in order to provide the safety necessary and demanded by customers and their insurance companies. Liability for both property and, more importantly, human losses make the safety and security of the physical facility all that more critical. Floating dock systems by their very nature are dangerous. Wind, waves, temperature and the unpredictability of Mother Nature can combined to create a very dangerous and unstable environment. The best way to limit liability is to employ the best methodology currently available. When an engineered system is utilized, the best defense is continued maintenance of the components according to the manufacturer's recommendations. When a homemade system is used, the best defense is having it initially examined by independent professionals (i.e., structural and electrical engineers) and to be proactive - rather than reactive - in its ongoing maintenance. Although we have been supplied with several 'inspection reports' concerning the floating

docks submitted by local marine contractors, we conclude that these were conducted in a strictly informal manner, did not include any invasive or measurable evaluative analyses of the structures, and were performed by contractors essentially looking for future contract work; therefore, there appears to have been no real independent, professional review of the components and their suitability for intended purpose - vis-a-vis expected wind, wave and load stresses - nor the implementation of a sustained and comprehensive preventive maintenance program. As a result, our cursory examination found significant obvious physical deficiencies with the dock system, and we expect that a thorough and invasive examination of the system will uncover additional issues that require immediate attention.

Although reportedly replaced seven years ago, the east side docks are exhibiting signs of significant wear and excessive movement and, in some areas, uneven freeboard, and can, at best, only be categorized as 'good' in general evaluative terms. No opinion on expected useful life - or, for that matter, current suitability for use - can be provided without further, significant and invasive examination and (possibly independent testing laboratory) evaluation of their structural integrity, sectional connection component capacity, flotation capacity and condition, anchoring component capacity and integrity, and capacity and integrity of the electrical system supplying the powerposts. Given the general industry - and in many locales, BOCA/NEC compliance - use of watertight conduit (e.g., SealTite®) for all electrical lines from shore source to powerpost termination to ensure the utmost level of electrical safety, it is critical to inspect the overall condition of the electrical lines serving the docks (particularly at all flexible connection areas) to evaluate its continued functionality and safety.

The east ramp, tie-up docks and pedestrian access walkways were visually inspected and found to be in 'very good' (in general terms) overall condition. The tie-up docks generally appear to have been manufactured with better materials than those found in the main basin structures, particularly in the use of polyethylene (commonly known as 'suitcase') flotation, wider whalers and the installation of rubrail on the whalers (Exhibits 5 & 6). With proper preventive maintenance as would be recommended by an engineered system manufacturer these components should provide years of serviceability.

Exhibit 5 - East Ramp Facilities

Exhibit 6 - East Ramp Tie-up Docks
Note Level Freeboard and Flotation

It was observed that the pilings in a number of locations on both the east and west sides of the basin either were not installed utilizing currently-employed GPS plotting methods, generally suffer from excessive lateral loads that effectively 'rack' them relative to each other, or were not driven to appropriate depth to ensure solid attachment and minimal movement, resulting in uneven alignment and/or punch depth. Uneven piling alignment is not only evident when looking down rows of the pilings, but also when viewing main walkways from a straight-on vantage point (Exhibits 7, 8 & 9).

Exhibit 7 - East Docks Main Walkway
Note Evidence of Uneven Alignment

Exhibit 8 - West Docks Main Walkway
Note Significant Uneven Alignment

Exhibit 9 - West Docks Main Walkway Looking South From South Pier Gangway
Note Misalignment of Walkway Sections, Leaning Powerposts, Uneven Freeboard

The uneven alignment of the main walkways can create excessive stress on the main walkway connectors, the finger connectors, the piling collars (excessively loose chain collars are employed at the Town Marina) and, ultimately, on the cleats to which the individual vessels are secured. This environment of constantly opposing stress is what creates an unsafe condition overall and eventually causes the failure of individual components of the system. In contrast to the homemade type of system employed at the Town Marina,

engineered systems are designed to accommodate these forces such that they do not act in opposition promoting failures, but, rather, in concert to ensure maximum overall rigidity and stability.

Where the east side docks appear to be in overall 'good' condition, the west side docks clearly exhibit a deficiency in adequate, routine maintenance, and can only at best be described as being in 'poor' condition. Main walkway decking is, in many areas, coming apart at the proverbial seams, with deck boards either improperly sized - resulting in the need to employ "sister" joists to attach them to the structure (Exhibit 10) - or so past their usefulness that excessive amounts of fasteners are needed to hold them down (Exhibit 11).

Exhibit 10 - West Dock - Note Use of "Sister" Joist to Attach Deck Board

Exhibit 11 - West Dock - Note Use of Excessive Fasteners in Deck Boards

The use of nails rather than screws (preferably stainless steel) to attach decking to the walkway structures is also of significant concern. Given the limited gripping power of nails compared to screws, and the constant swelling and shrinking of decking lumber constantly exposed to moisture - not to mention the (structural) moisture effects on the joist materials underneath the decking - screws are the accepted standard for attachment in the industry. Engineered dock manufacturers generally specify that two screws per joist is more than sufficient to hold the typical 1"x6" deck board - whether natural wood (e.g., Southern Yellow Pine or Ipe) or composite material (e.g., Trex® or Azek®). As can be seen in Exhibits 10 and 11 there seems to be no standard of attachment - either location or quantity - being followed at the Town Marina, other than the exclusive use of nails. Not only do nails not provide the holding power demanded by structures that are in constant stressful motion, but they pose a safety hazard to pedestrians as nails typically work their way above the decking once they come loose, creating a tripping hazard.

Overall, the west walkway connecting hardware (as can be seen in Exhibit 11, which is typical) appears to be experiencing excessive stress, with a number of the 90° angle brackets evidencing excessive load causing them to bend, and the metal thru-rods showing significant deterioration. With no available data on stress capacity and useful life expectancy, visual inspection appears to indicate that this hardware has, at best, reached the end of its usefulness. So, too, have the pile collar chains appeared to have reached the end of their usefulness. As can be seen in Exhibit 12, rather than pile collars comprised of rollers/pads that keep the walkway and the pile in constant and aligned contact, the Town Marina pile collars are lengths of chain that appear to be merely secured to the walkway whalers with eyebolts, and are subject to constant corrosion from the seawater and unregulated stress from overall dock and pile movement. Their eyebolt connections show similar signs of corrosion as the chain and appear to be in overall 'poor' condition, as well. As can be seen in Exhibit 12, the chain collars provide virtually no structural support for the walkways, and actually appear to be fostering wear and tear on the face of the piling and the surface of the whaler.

Exhibit 12 - Typical Loose Chain Pile Collar

The pilings themselves appeared to be in various states of condition, from poor to very good, and excellent in the case of recently installed units. There are a number of pilings that appear to be wearing faster than others due to excessive movement of the walkways and fingers. There are also a number of pilings that evidence excessive cracking and splitting, and others that, at low tide, exhibit excessive rot. Without the anchoring system having been properly engineered and installed it is impossible to determine whether individual pilings are performing as-required and whether the number/location of pilings is proper/adequate.

Inconsistent (uneven) freeboard on the west side docks - with, as previously reported, similar uneven freeboard seen on the east docks - is also an issue that was evident during our inspection (Exhibit 13). Since freeboard is a function of the design capacity and performance of the flotation material used, we can only conclude that there is either an imbalance in the type, quality/quantity or placement of the polystyrene foam (Styrofoam™) billets from section to section, finger to finger, or there is sufficient loss of billet buoyancy, or billet mass, to create an uneven balance of flotation in individual walkway sections and finger piers. Again, without available data on the specific material used, engineering calculations on quantity required and locational need (within the footprint of the particular section of walkway), expected loads and installation methodology, there is no way to determine the suitability or expected continued usefulness of the flotation. Since there is ample visual evidence of flotation insufficiency or, possibly, damage/failure, we are left to conclude that the flotation system is in 'poor' condition and in need of immediate evaluation and correction.

Exhibit 13 - West Dock Main Walkway Between Ramp Pier and Main Pier
Note that Walkway is Under NO Load but Freeboard is Uneven

There are four piers and gangways (ramps) servicing the west docks and ramp from the west side uplands, and one gangway servicing the east docks from the east side uplands. The piers are fabricated from treated lumber attached to pilings. The Gangways are Technomarine® 6061-T6 aluminum (Exhibit 14), and were found to be in 'very good' to 'excellent' condition. These gangways have an expected useful life in excess of 20 years if properly maintained (including connecting hardware to the landside and roller hardware to the floating walkways), and are likely serviceable for many years. It is important to note here that the main walkways onto which these aluminum gangways empty (the "receiver walkways") carry the full load of the ramp plus the weight of personnel and materials traveling down from the landside. A discussion with the Technomarine representative who originally sold the gangways confirmed that the gangways were sold to the Town Marina but no flotation analysis was requested nor conducted on the receiver walkways, so there is no data available indicating that the receiver walkways have sufficient flotation to safely handle the gangway loads. While visiting the facility in July, 2013 a number of observations were made of, primarily, the Ramp Pier gangway and the South Pier gangway, under heavy pedestrian and equipment loads - more than five persons and/or filled dockcart(s). As previously reported, it was noted that the already uneven freeboard on the main walkways was exacerbated by the loading of the receiver walkways, and the receiver walkways themselves were seen to angle and rock in excess of expected amounts. Based on these observations it is recommended that the adequacy of flotation of the receiver walkways be independently evaluated by buoyancy experts. See Exhibit 15 and note the appearance of overloading/under flotation at the offshore end that the receiver walkway has in comparison to the other walkways in the section.

Exhibit 14 - Aluminum Gangway - typical

Exhibit 15 - West Ramp Gangway Loading

During our examination of the piers and gangways it was observed that the double north-south crossbracing - but only single east-west crossbracing - which is installed to prevent lateral movement of the pilings supporting the pier structure above, was connected to the pilings by means of a single through bolt with washers and a nut (all galvanized), and the crossbraces themselves were unattached at the center, where they cross (Exhibit 16). These types of connections - or lack thereof - would appear to be less secure than double north-south and east-west crossbracing, double bolting the bracing to the pilings and, using a filler block, bolting the crossbraces to each other in the center where they cross to further strengthen the structure and limit possible lateral movement. Other, similar pier structures at other facilities that we have inspected over the years have been so constructed (using double bolting and blocked bracing); therefore, we recommend that the pier structures be inspected by a structural engineer to determine their adequacy.

Exhibit 16 - Pier Structure - Typical

The west side fixed commercial pier, next to and to the north of the west launch ramp, and the sheetpile bulkheading and piling/timber support structure (Exhibit 15) were all found to be in overall 'poor' condition. The decking of the pier was found to have cracked, loose and missing sections, the pilings and support members had connecting hardware that, in some cases, was broken or missing, and the sheetpiling shows significant rusting all across its surface, with some areas appearing to be in total metal failure. We were advised by the Harbormaster that the pier structure is not being used as customer safety is of concern. Given its overall condition, we recommend that it be permanently fenced to prevent inadvertent access until the structure is either removed and replaced or the area is repurposed in a revised basin configuration. Since the sheetpiling referenced above also provides the bulkhead protection for the west ramp tie-up dock area, we recommend that west ramp activities cease, with all ramp services shifted to the east ramp, and the area be permanently fenced to prevent access until the bulkheading is either removed and replaced or the area is repurposed in a revised basin configuration. We were furnished with a copy of a three-page report on the condition of the commercial pier, the bulkhead and the sheet piling, prepared by *Cape Cod Engineering, Inc.*, and dated October 29, 2012, that essentially mirrors our findings of deterioration and recommends further engineering analysis prior to modification/reconstruction.

OTHER MARINA ASSETS

The Town Marina utilizes two trucks, and three vessels in its daily operations. The two trucks - a 2005 Dodge RAM 2500 (Exhibit 17) and a 2012 Ford F-450 Dually (Exhibit 18) - appear to be in overall excellent condition and appear adequate to service the needs of the operations.

Exhibit 17 - 2005 Dodge RAM 2500

Exhibit 18 - 2012 Ford F-450 Dually

The three vessels are used by the Harbormaster and staff to perform all necessary on-water functions required by both the marina operations in and around the harbor as well as the Coast Guard and commercial fishermen operating in Cape Cod Bay. These vessels include: a 2006 23' Wellcraft w/200HP E-Tec Outboard operated as the Harbormaster's Patrol Boat; a 24' x 10' work barge; and a 16' Boston-Whaler-hulled homemade skiff.

The 23' Wellcraft (Exhibit 19) was neither designed as, nor practical for use as, a patrol/safety/rescue vessel. Although the Harbormaster and staff have outfitted the boat with the necessary electronics and safety gear, it is a sport fishing vessel and inadequate for the safe execution of duties it is regularly called on to perform. The Coast Guard and commercial fishermen routinely call on the Harbormaster to assist with towing and rescue activities as - in the area between Sandwich and Provincetown - Sesuit Town Marina has the fastest and easiest access into Cape Cod Bay. A 'typical' patrol/safety/rescue vessel would be in the 25' to 30' length class, with a protected - "cuddy" - cabin and gunnels designed for a side entry door to enable safe uploading directly from the water onto a solid, flat platform. Such a vessel would also have state-of-the-art electronics and firefighting apparatus to safely respond to vessel emergencies. Vessels fitting this description generally cost in the neighborhood of $150,000 properly outfitted.

Both the 24' x 10' work barge (Exhibit 20) and the 16' skiff are used in the day-to-day operations within the marina/harbor basin. Both appear to be in good condition, regularly maintained, and appear to adequately serve the needs of the facility.

Exhibit 19 - 23' Wellcraft Patrol Boat

Exhibit 20 - 24' x 10' Work Barge (w/tower)

SHORELINE STABILIZATION AND DREDGING

Overshadowing the deficiencies in the dock structures is the issue of basin draught and shoreline degradation. The Sesuit basin is, at best, marginally useable, with an overwhelming number of boaters randomly canvassed voicing concern that any further silting of the basin will guarantee them drawing mud into their outdrives and potentially causing significant and expensive damage to their vessels. As evidenced in Exhibits 21 - 26, both the east and west shorelines are in a continual state of decay, with additional silt filling the basin with every change of the tide. Constant silting and the need to regularly maintenance dredge is not an uncommon problem for Cape Cod marinas. It is an ongoing complication that is not only very expense to treat, but is becoming increasingly difficult to perform given the lack of available spoils disposal sites. Although clean sand that comes in with the tide from the bay can often be pumped directly onto the banks to replenish beach areas, silt from inland flows and spoils from unknown sites up river, in most cases, must first be tested and, if then determined suitable, be removed to an approved offsite repository. For this reason, those facilities that can take steps to secure their shoreline and prevent the continued deterioration of the shoreline and the attendant silting of their facilities, do just that. Many facilities on the Cape have made shoreline improvements that range from rip-rap to sheetpiling with tie-backs. These measures secure the shoreline and, in some cases, have virtually eliminated future shoreline erosion and silting. Unfortunately for the Town Marina, Sesuit Creek feeds into the marina basin and that can't be altered. What can be eliminated, however, is the continued erosion of the basin's shoreline so that silting from that source is halted. We recommend that the Town immediately begin the process to design, permit and install as comprehensive a system of shoreline stabilization as can be approved in order to create a basin in which boaters can safely berth their vessels without fear of running aground - or worse - due to silting. Once such a system is in place the entire basin should be dredged to a depth suitable to handle draught needs of all expected future boat traffic at low tide.

Exhibit 21 - West Shoreline Looking North

Exhibit 22 - West Shoreline Looking South

Exhibit 23 - East Shoreline Looking South

Exhibit 24 - East Shoreline Looking North

Exhibit 25 - East Shoreline - Looking North

Exhibit 26 - East Shoreline - Looking South

RECOMMENDATIONS

Based on our assessment of the critical operating marina assets, both land-based and in-water, and depending on the overall plans of the Town whether to maintain the existing facility or replace it with state-of-the-art facilities, we offer the following recommendations:

Maintain Existing Facilities

If the existing facilities are to be maintained, even if temporarily (a season or two), our recommendations are as follows:

Land-based Assets

The bathrooms, both east and west, and the Harbormaster's Office should continue to receive the necessary level of maintenance, as determined by the Harbormaster and the Town, to ensure that they are safe and secure for the purposes to which they are dedicated. The Work Shack should be removed and, at a minimum, replaced with a temporary structure that provides a safe, secure and appropriate workspace environment for maintenance and repair activities requiring such facilities.

In-water Assets

East Dock System - The east docks should be examined by both independent structural and electrical engineers, as well as a floating structure buoyancy expert, to evaluate the structures' continued use as berthing facilities for the vessels that most recently have and will in the future occupy the slips. The examination should include a comprehensive analysis of the sufficiency of the anchoring system used (pilings and hardware), the structural capacity and integrity of the main walkways and finger piers, the capacity and continued functioning of the Styrofoam™ billet flotation throughout (with added emphasis on the flotation supporting the receiver walkways), and the sufficiency and continued functionality of the electrical system from shore supply up to and including all powerpost outlets.

West Dock System - The west docks (of necessity requiring examination in greater detail to that of the east docks) are in much worse overall condition such that we recommend that they either be totally removed and replaced with new, or removed and completely rebuilt to bring them up to a safe and secure level - including an engineered design of the anchoring system - if that is even possible. The degree of degradation of the vast majority of the west docks leads us to generally conclude that the cost to remove, reengineer and repair/replace them - after a thorough professional examination and repair requirement report preparation - would likely not be economically beneficial. Although we did note that there are certain components (e.g., walkway sections, finger piers, connecting hardware) of the west docks that have been recently replaced as part of an ongoing effort to upgrade and improve the facilities, we believe the overall condition of the west docks are such that piecemeal replacement is insufficient to overcome the need to upgrade, improve and ensure suitability of purpose of the facilities overall.

Piers and Gangways - As previously indicated, the aluminum gangways appear to be in very good to excellent condition and should require little in the way of maintenance other than a periodic check and - if deemed necessary - repair of their walkway surfaces. The gangway connecting hardware at the pierhead as well as down on the receiver walkway should, at a minimum, be inspected by a representative of the gangway manufacturer to ensure it all meets minimum safe operating standards. The piers from the uplands leading out to the gangway connections, however, should be examined by an independent structural engineer to ensure that they have been constructed properly and will function as expected ensuring customer safety.

Other Marina Assets - As heretofore described, the Harbormaster's Patrol Boat is inadequate to properly perform the duties on which it is regularly called. We recommend that the current vessel be sold and a properly designed/sized/outfitted vessel be procured.

Shoreline and Dredging - As has previously been stated, we recommend that the Town immediately begin the process to design, permit and install as comprehensive a system of shoreline stabilization as can reasonably be approved and, once installation is completed the entire basin should be

dredged to a depth suitable to handle draught needs of all expected boat traffic at low tide. Since Northside Marina also operates in the basin and they have a maintenance dredging permit in-hand, the projects should be coordinated such that the area under Northside's floating dock system is dredged at the same time to the same minimum depth to prevent the silt under their docks from shifting and spreading over the dredged area under the Town's docks.

Ramp Facilities and Commercial Pier - As reported, the east ramp facilities appear to be in overall very good condition and so long as a comprehensive program of preventive maintenance is pursued should provide years of serviceability. The west ramp facilities, on the other hand, exhibit evidence of deferred maintenance, particularly in the tie-up dock area next to the concrete ramp. The Commercial Pier adjacent to it exhibits serious physical deficiencies such that we have recommended that it be isolated from public access and either totally reconstructed or, preferably, removed and the area repurposed. We recommend that the west ramp facility be permanently closed and removed, and the basin area repurposed, thus expanding the useable area of the harbor and significantly improving the vehicular and pedestrian interaction/flow on the west side uplands. As a result all future ramp activities will be served by the east ramp facilities.

Total Upgrade of Facilities

If, as we have previously recommended, the decision is made to convert the Town Marina into a state-of-the-art facility by installing an engineered system of docks, and/or engaging the services of experienced third-party marina developers/operators to oversee the conversion, then our recommendations as to the land-based and in-water assets would be as follows:

Land-based Assets

Any decisions concerning the bathrooms, Harbormaster's Office, and replacement Work Shack should be made in consultation with an identified/selected developer/operator. It is likely that a totally upgraded facility would demand larger, more modern bathrooms, a larger, more efficient/comfortable and more easily-accessible Harbormaster's Office, and a product-specific protected work area, including possible alternate locations for each of these facilities.

In-water Assets

As with the land-based assets, the in-water dock system - including overall layout east/west, possible reconfiguration/expansion, possible dedicated commercial vessel berthing area, and dedicated mooring field - location and quantity of access piers and gangways, location and capacity of upland utility feeders and dockside powerposts, and type of system (i.e., wood, aluminum, composite, concrete, etc.) will all be the subject of further investigation and decision-making. We recommend that the customary (for engineered systems) wind, wave and expected load analyses be conducted to ensure that the dock system ultimately employed will adequately service the demands of the boating public for decades to come. Given typical northeast weather conditions and their deteriorating effects on various dock materials, we recommend that an aluminum-framed, wood or composite decked engineered system utilizing polyethylene 'suitcase' flotation and dedicated utility chases be specified. There are several very reputable North American floating dock companies that specialize in the design and manufacture of this type of system such that competitive bidding will not be an issue.

As part of the overall redesign of the basin, we again recommend that the west ramp system and Commercial Dock be eliminated, with the basin area previously occupied by these facilities configured and utilized for vessel berthing in the overall redesign process. The initial thought is that if commercial "six pack" vessels (currently reported to total 13) are to continue operating out of the Town Marina it might make better sense to dedicate the area currently occupied by the west ramp and Commercial Dock to facilities servicing only these operations. By doing so, no interaction between commercial vessel customers and private vessel owners would occur on the floating docks, thus eliminating any potential security or liability issues.

Other Marina Assets

As discussed in the section above entitled ***"Maintain Existing Facilities"*** we found the Harbormaster's Patrol Boat to be inadequate and, regardless of the scenario the Town ultimately decides to pursue, we recommend it be replaced with a more appropriate vessel.

Shoreline and Dredging

As discussed in the section above entitled ***"Maintain Existing Facilities"*** we found that the effects of continual shoreline erosion on basin usability has created a need to begin dredging operations as soon as the harbor's shoreline can be permanently stabilized. Regardless of the scenario the Town ultimately decides to pursue, stabilizing the basin's shoreline and totally dredging the then-stabilized basin remain the first order of business.

APPENDIX B2. PERSONNEL DUTIES

Sesuit Harbor Personnel Duties

This document provides a summary of the duties for each of the proposed operational staff at Sesuit Harbor, as proposed by Marina/Consult (assuming separation of the Dennis Harbormaster department from marina operations/maintenance staff).

Most marina employees are multi-functional and perform many varied tasks. This is particularly true in small facilities where each staff member performs a number of job tasks during most working days. During emergencies (storms, fires, floods, etc.) or peak holiday periods, marina employees will be called upon to perform duties in the facility that may be quite different from their normal daily tasks. In other words, every marina employee must be adequately trained and be prepared to perform any and all tasks asked when there is an "All hands on deck!" requirement.

Dockmaster

The Dockmaster is essentially in charge of the entire day-to-day marina operation and is the one employee to whom all operational inquiries can be made. This key employee is responsible for setting the overall operational tone of the facility and is responsible for policies, management, regulations, compliance, budgets, operations, labor relations, training, maintenance, expansion, short and long range planning, reporting to ownership, marketing, and overall administrative/supervisory direction of all marina activities.

Examples of Key Responsibilities:

- Oversee the performance of and coordinate the completion of duties of all marina employees to ensure safe, smooth and effective operation of the marina, including the marina office, all slip docking, boat ramp use, upland facility operation, facility maintenance and housekeeping;
- Oversee maintenance of grounds, equipment and buildings in such a manner that they are aesthetically and operationally at best and within all legal requirements;
- Maintain all necessary accurate check lists of operations, ensuring compliance with approved methods and budgets;
- Coordinate all daily operations, ensuring adequate staffing is present when required;
- Assign all slips to ensure facility is operated at peak efficiency;
- Be intimately familiar with all federal, state and local regulations and contractual provisions and enforcement policies;
- Establish and maintain good working relationship with Coast Guard and other municipal authorities with marina facility oversight and jurisdiction;
- Review delinquent accounts with Marina Office Manager and assist in collection efforts;
- Enforce Marina Rules and Regulations;
- First line of communication with marina customers;

- Conduct ongoing review of marina rates and charges by being familiar with competitive operations in order to perform required budgetary preparation and recommendation to ownership.

Assistant Dockmaster

The Assistant Dockmaster is the facility's "second in command" and reports directly to the Dockmaster. The Assistant Dockmaster assumes the daily operational duties of Dockmaster on the two weekdays each week that the Dockmaster is off duty, such that there is a high level employee performing Dockmaster duties 7 days a week, year round. When the Assistant Dockmaster is on duty along with the Dockmaster then the Assistant Dockmaster performs the majority of operational oversight activities so that the Dockmaster can "walk the docks" performing an up close examination of the facilities, personally interacting with customers, and generally "putting a face to the operations" so that customers feel at ease in the facility. During the weekends from Memorial Day through Labor Day the Assistant Dockmaster staffs the Marina Office and keeps it open to customers while the Seasonal Assistant Dockmasters assume his/her role assisting the Dockmaster out in the facility.

Examples of Key Responsibilities:

- Assist Dockmaster with daily operational oversight of the Marina;
- Supervise Marina Office Manager;
- Operate the Marina Office on Saturdays and Sundays during the typical boating season from Memorial Day through Labor Day;
- Keeping adequate records on weekend activity and handing such records over to Marina Office Manager for processing;
- Train and supervise Seasonal Assistant Dockmasters to ensure weekend demands are adequately met;
- Train Seasonal Dockpersons and Seasonal Gate Attendants;
- Assist the Dockmaster with any and all operational needs as required;
- Any other duties as assigned by Marina ownership/Dockmaster.

Seasonal Assistant Dockmasters

Seasonal Assistant Dockmasters are necessary during the Friday-Sunday weekends during the typical boating season from Memorial Day through Labor Day. They perform the same duties as the full-time Assistant Dockmaster - allowing the Assistant Dockmaster to staff the Marina Office - supporting the Dockmaster and providing extra pairs of eyes and hands during the peak boating weekends.

Marina Office Manager

The Marina Office Manager is responsible for operating the Marina Office during the week, including answering phones and providing rate and storage availability information to the public. For all intents and purposes she/he is the first contact that prospective marina customers have with the facility, so she/he must have strong "people skills" and be comfortable in a public relations environment, as well as be able to work independently and with a high degree of accuracy and attention to detail. In addition, the Marina Office Manager is responsible for the management of the marina's financial and operational records so she/he must be proficient in accounting, be knowledgeable in marina operating procedures, be proficient in computerized financial recordkeeping, and have strong analytical abilities.

Examples of Key Responsibilities:

- Work closely with Dockmaster and Assistant Dockmaster in supporting daily operation of the facility, including providing financial, managerial, and secretarial support as and when necessary;
- Create and maintain accurate customer records;
- Setting up and maintaining all office filing;
- Management of the marina's records including personnel, Workers Compensation and Insurance, Unemployment Benefit Claims, Inventory control, and Budgetary control;
- Complete periodic reports and maintenance records for marina operations, including rentals, billing, payment transactions, and budget tracking;
- Compile periodic revenue and expense information;
- Open and close out business each weekday and perform daily accounting duties and prepare daily deposits;
- Coordinate License/Permit renewals and comply with any and all license posting requirements;
- Any other duties as assigned by Marina ownership/Dockmaster.

Seasonal Dockpersons

Dockpersons, who all report to the Dockmaster, are the marina's support staff who regularly attend to the needs of the customers, and who perform all the tasks required of everyday marina operations. During busy weekend and holiday periods they may be called upon to assist with launching and tie-up, assisting slip customers with loading/unloading of supplies, or even procuring ice. Dockpersons also clean the marina restrooms, police the grounds for trash and other debris, and overall perform whatever is necessary to assure the smooth, uninterrupted operation of the facility. In bad weather they are a necessary and invaluable source of extra hands to assist in securing the facility.

Examples of Key Responsibilities:

- Assist with docking and undocking of vessels in all weather conditions;

- Secure water and electrical supply to vessels, as required;
- Check dock lines and utility lines on a regular basis and, as necessary, during changing weather conditions;
- Assisting customers with taking on of supplies;
- Maintaining marina docks, equipment and grounds;
- Providing assistance, as required, with general marina maintenance and repair;
- Assistance, as required, with storm preparation and clean up;
- Familiarity with marina rates and fees and Rules and Regulations;
- Clean and restock marina restrooms;
- Required to work weekends and holidays during the boating season as well as overtime in the case of unusual weather or other high employee demand activities.

Seasonal Gate Attendants

Because of the unique layout of the Town Marina at Sesuit Harbor, there are two pay-parking/ramp areas that must be staffed during peak operating hours. Although we have specifically identified two part-time employees as "Seasonal Gate Attendants" these employees are essentially Seasonal Dockpersons who are specifically charged with controlling access in and out of the parking/ramp lots and collecting the fees associated with usage. Since the lots do not necessarily require continual coverage every day, these Attendants will occasionally be required to perform the duties of Seasonal Dockpersons, as well. As with the Seasonal Dockpersons they will report directly to the Dockmaster.

APPENDIX C. TOWN OF DENNIS WATERWAYS REGULATIONS

Regulations as outlined in the Waterways Regulations.

L. All transfers of Embedment Anchors must be approved by the Harbormaster.

TABLE 1

size (less than)	Installation Torque	Heavy chain	Light chain	Pennant	total scope
16' x 7'	400-500 ft.lbs.	3/8" -(10 ft)	5/16" - (10 ft)	1/2"	30'
20' x 8'	600-700 ft.lbs.	1/2" - (10 ft)	3/8" - (15 ft)	1/2"	40'
25' x 9'	800-1000 ft.lbs.	3/4" - (10ft)	1/2" - (15 ft)	5/8"	40'
30' x 10'	1200-1500 ft.lbs	1" - (10 ft)	5/8" - (15 ft)	3/4"	40'
35' x 13'	1600-2000 ft.lbs.	1" - (10 ft)	3/4" - (15 ft)	1"	40'

Note: Pennant can be sized to provide holding power = to 10 times installation torque.

7. PRIVATE FACILITIES

The Board of Selectmen shall have the authority to establish an annual service fee for vessels moored or berthed at a privately owned slip, dock or marina within the boundaries of the Town of Dennis. No vessel shall moor or berth at a privately owned slip, dock or marina within the boundaries of the Town of Dennis unless the applicable annual service fee has been paid for the current season. The provisions of Section 7 shall not apply to a vessel moored or berthed at privately owned slips, docks or marinas defined as transient by the Harbormaster.

8. PARKING REGULATIONS SECTION 231-7

A Dennis real estate tax payer, year-round resident, or slip lessee in the Town of Dennis may purchase a Blue Harbor sticker at the Town Office for each motor vehicle registered in his/her name, a spouse's name or a minor dependent's name, which shall be valid in each Sesuit Harbor parking lot, except the public access area. All vehicles parking in the West Side and East Side parking lots of Sesuit Harbor lots must have a harbor sticker on the front bumper of the vehicle or pay the daily parking fee. Harbor parking areas shall not be used for beach parking. Overnight living in house trailers, campers or other vehicles in any Marina parking area is prohibited. Overnight parking of vehicles is such areas while boating is permitted only with the prior permission of the Harbormaster.

9. SPECIAL CONDITIONS SECTION 231-2

Special conditions are to be determined by the Harbormaster.

DENNIS BOARD OF SELECTMEN

Sheryl A. McMahon, Chairman — Date 6/12/2008

Charles F. Crowell — Date

Paul R. McCormick — Date 6/10/08

Wayne A. Bergeron — Date

Heidi S. Schadt — Date 6/10/08

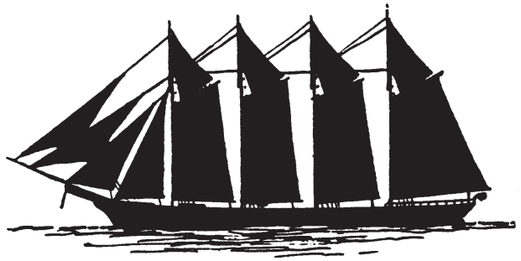
Terry Clen, Harbormaster — Date 6/13/08

Attested by Town Clerk — Date 6/13/08

Updated: 04/09/08

COMMONWEALTH OF MASSACHUSETTS

Town *of* Dennis
WATERWAYS REGULATIONS



CONTENTS

These Waterways Regulations are adopted under the Commonwealth of Massachusetts General Law and the By-Laws of the Town of Dennis.

The Town of Dennis owns and operates a Marina at Sesuit Harbor and Bass River Park, which includes all Town-owned property and facilities including the parking areas provided for boating at Sesuit Harbor and the use of all harbor waters to the Fairway Buoy in Cape Cod Bay. Mooring spaces, specified by the Harbormaster, are available in Bass River and Sesuit Harbor.

The Board of Selectmen shall establish policy, appoint a Harbormaster and his assistants and annually adopt a fee schedule. The Town Administrator shall regulate waterways operations and procedures under this policy and establish detailed duties and practices after consultation with the Waterways Commission and the Harbormaster. The Harbormaster and assistants shall enforce Waterways Regulations and the policy for the Town of Dennis. The term "Harbormaster" used in these regulations shall include an Assistant Harbormaster, where designated by the Harbormaster.

All persons who use waterways under the jurisdiction of the Town of Dennis or any facility in or related to said waterways shall comply with these regulations, with applicable Town By-Laws, and with applicable laws of the Commonwealth of Massachusetts.

The Town assumes no responsibility in the event of fire, theft, or the damage of any nature to any boat or property connected therewith, nor for personal injury to any person, arising out of the use of waterways under the jurisdiction of the Town of Dennis or any facility in or related to said waterways. If the Harbormaster, Assistant Harbormaster, or agents of the Harbormaster, have to move or transport any vessel for any reason deemed necessary, the Harbormaster, his agent, or the Town of Dennis shall not be held responsible for any damage that may occur from that move.

to other applicants in the same order by which completed applications were received. The surviving spouse of a decedent to whom a slip or mooring space was assigned at the time of death or on October 31st of the preceding year shall have all rights respecting the use and assignment of the slip or mooring space that the decedent would have had. No assignment can be held or transferred to a Corporation, LLC, or Trust. The application must remain in the name originally granted or in the surviving spouse's name.

C. **Identification Decals**

Moored Vessels

Decals shall be affixed on the port side bow, one space after the current registration sticker, or on the port side bow or cabin or window of a documented vessel.

Vessels in Slips

The decal shall be positioned in such a location so as to be easily seen from the walkway when the vessel in its normal position in its slip. This might include the transom, cabin window or port side bow.

D. The fee for new assignments for slips or mooring spaces after March 1st shall be due and payable within seven (7) days from notification of assignment. If the fee is not paid when due, the assignment shall be then cancelled, the application fee forfeited to the Town and the slip space or mooring space in question shall then be assigned to the next person on the waiting list.

E. For any slip vacancy exceeding 24 hours, the Harbormaster shall be advised in order to permit temporary use of the space for transients. Any transient fees will accrue to the Town.

F. Any vessel owner to whom a slip/mooring space is assigned must have his vessel in his slip/mooring space not later than June 15th of each calendar year. If the owner does not have his vessel in his slip/mooring space by June 15th of each calendar year, and if no written notification is received and approved by the Harbormaster by that date, the vessel owner shall forfeit his slip/mooring space.

G. In the interest of safety and orderly operation of the Marina, the Harbormaster may, upon written notice to the slip occupants, reassign slips.

H. Neither slips nor mooring spaces are transferable. No vessel owner to whom a slip or mooring space is assigned shall sublet such slip or mooring space. No vessel owner to whom a slip or mooring space is assigned shall allow any other vessel owner to use his slip or mooring space without permission of the Harbormaster.

I. The slip or mooring space lessee shall submit to the Town of Dennis Harbormaster's Department a Certificate of Insurance for his or her vessel. The insurance shall be the minimum of $300,000 liability. The Town of Dennis Harbormaster's Department shall receive the Certificate prior to the vessel being placed in the slip/mooring space. Failure to produce such Certificate shall result in the surrender of slip/mooring space. Transients for thirty (30) days or more, in one (1) calendar year, must produce such Certificate of Insurance. **Exemption:** Vessels not requiring State Registration or Federal Documentation are not required to produce a Certificate of Insurance.

J. Unassigned slip/mooring Spaces will be assigned to the next person on the wait list with a suitably sized vessel appropriate to the slip or mooring space size as determined by the Harbormaster.

6. MOORINGS AND SPECIFICATIONS SECTION 231-2

Mooring spaces, specified by the Harbormaster, are available in Bass River and Sesuit Harbor. The outer basin at Sesuit Harbor shall be used for small sailboats. Sailboats moored in the inner basin at Sesuit Harbor shall have auxiliary motor power.

All mooring spaces and screw embedment anchors shall be inspected and approved by the Harbormaster or his designee as per the time frame as determined by the Harbormaster. All mooring spaces that are removed annually shall be inspected by the Harbormaster before being returned to the

authorized to make arrests in the Town of Dennis.

Any infraction of the above rules shall be termed "Poor Seamanship" and violations or citations will be designated as such. Violation of the above rules and regulations shall be fined pursuant to the non-criminal disposition fine structure of the Town.

JET-SKI/ PERSONAL WATERCRAFT BY-LAW SECTION 231-1

No person shall operate a jet-ski or personal watercraft on Swan Pond River, Swan Pond, Quivet Creek and Sesuit Creek or any fresh water pond within the Town of Dennis. Any persons violating this by-law shall be fined pursuant to the non-criminal disposition fine structure of the Town.

2. GENERAL REGULATION SECTION 231-1

A. A vessel must be registered, identified, marked, equipped, operated and maintained as required by-law.

B. No vessel may tie up at any mooring space or Town owned facilities or enter a Town slip other than that assigned, except with the permission of the Harbormaster. Slips will be available for transients on a daily basis.

C. **Water Skiing**

Permitted only in Bass River Salt Box area and Follins Pond and other unrestricted Speed areas.

D. **Speeds**

Speed limit will be steerage speed only, not to exceed 6 MPH, except in designated water ski and unrestricted areas.

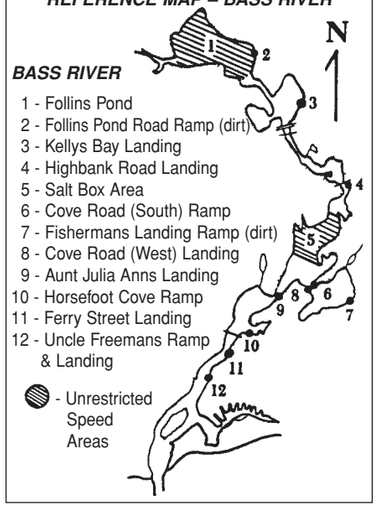
E. **Jet Skis or Personal Watercraft**

Jet Skis shall not be permitted within 100 yards of public beaches, or within designated swim areas. They shall not cross harbor, river or estuary openings at more than steerage speed, and must maintain a minimum distance of 100 feet from other vessels underway. They must cross only at the stern of other vessels.

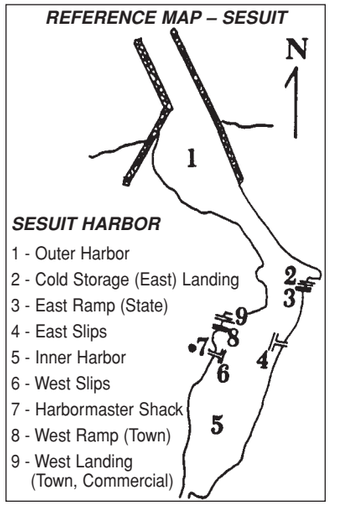
F. **Pollution**

No oil, petroleum products, untreated sewage, rubbish, debris, garbage, or dead fish shall be disposed of into Dennis waters. No cleaning of fish is permitted on Town facilities other than at desig-

REFERENCE MAP – BASS RIVER



REFERENCE MAP – SESUIT



nated cleaning stations.

G. **Negligent Operation**

No person shall operate any motorboat or any other vessel (including wind surfers, kite surfers, kayakers and canoes) in a reckless or negligent manner so as to endanger the life, safety or property of any person.

H. **Conduct**

All persons shall conduct themselves at all times on any waterways of the Town of Dennis, or at any facility in or related to the waterways in the Town of Dennis, in a peaceful and orderly manner. Any conduct that is determined to be verbally threatening or physical can result in that person or persons forfeiting their slip or mooring space in the Town of Dennis.

I. **Vessels for hire**

All vessels for hire using Town of Dennis facilities shall maintain, on the vessel all the documentation pertinent to that operation and outfit the boat per the Code of Federal Regulations applicable to that size vessel. All licensed Captains must maintain a copy of their license with the Harbormaster.

J. **Violation of Regulations**

Violation of any Regulation may, in addition to any penalties provided by law, be just cause for the cancellation of the lease for a slip or the assignment of a mooring space and the removal of such violator and any vessel owned by such violator at the expense of the violator. Nothing in this section is intended to prevent the Harbormaster from pursuing any rights or remedies available under law.

K. Boat owners shall not take aboard or discharge passengers (including, without limitation, boaters, water skiers, divers or fishermen) at any public bathing area.

3. SESUIT HARBOR AND BASS RIVER REGULATIONS SECTION 231-5

A. **Swimming in the Harbor**

Swimming, diving (skin or scuba) and water skiing are prohibited in the Harbor unless specifically authorized in advance by the Harbormaster. Swimming is authorized in the area adjacent to the Dennis Yacht Club. The Yacht club will install and maintain a swim buoy area. Swimming between, or diving off the jetties is prohibited. There will be no scuba diving or snorkeling between the jetties or within the Harbor without the Harbormaster's written authorization. This would include diving for boat maintenance.

B. The use of walkways and floats is restricted to lessees, their guests, or authorized personnel. The boarding of any vessel without permission is trespassing. Walkways, floats and ramps shall not be obstructed.

C. **Fueling**

Fueling is prohibited when tied to a Town slip. Fueling is permitted at the West Side Town Landing Float. Smoking is prohibited in any area where re-fueling is permitted.

D. **All Small Vessels**

Tenders, skiffs, dinghies and other small vessels shall be aboard vessels or placed where the Harbormaster directs. All such small vessels shall carry identification number, marks, names or other such activities as authorized by the Town.

E. No part of the marinas, ashore or afloat nor any vessel therein, shall be used for conducting or solicitation of business of any kind except for normal operation of commercial fishing, charter fishing, aquaculture, sightseeing, or head vessels.

F. Sailboats not under auxiliary power are prohibited from using the inner Harbor basin.

G. The retaining of live fish, lobster, and shellfish in pens, holding tanks, or cars is restricted to slip holders only, sharing is not allowed at Town owned facilities. Partnerships, co-ops or guests are not allowed to use

the facilities to retain pens, holding tanks, or cars.

H. Fishing from Sesuit Municipal Docks and slips is prohibited with the exception of the east side boat ramp (except when boats are being launched, retrieved or on an inbound tack to the float) and the so-called west side commercial pier.

I. Fixed fishing gear with buoys will not be allowed to hinder navigation inside Sesuit Harbor including the head of the jetties, or within any other marked channel.

J. No swimming or fishing from Town of Dennis docks, slips or landings associated with Bass River Park. There shall be no swimming, jumping or diving off any other Town of Dennis landings including bridges that span Bass or Swan River.

K. There shall be no power washing of any boat or vessel in any Town landing, parking lot, or facility.

4. APPLICATIONS SECTION 231-5

A. Applications for Town slips and mooring spaces must be filed with the Harbormaster Department. All sections on the application must be filled in correctly with the appropriate information. The length of the vessel is the "overall length" which includes pulpit, swim platforms, outboard bracket, and trimmed up outboards. These dimensions will be used as the basis of the slip fee. This data will be checked, and any erroneous data will be billed to the slip lessee for the actual length. Failure to pay the difference will result in forfeiture of the slip or mooring space.

B. Renewal applications are to be submitted or postmarked by March 1st. They must be accompanied by the established fee in full and a copy of the vessel registration in the same name as the applicant. Current slip and mooring space assignments are based upon current boat size. Any changes requiring a larger slip or mooring space must be approved by the Harbormaster. A request for this type of change must be submitted to the Harbormaster in a separate letter, over and above the normal application. Approval for this type of a change will be dependent upon availability.

C. New applications must be accompanied by a non-refundable application fee. Ownership of boat is not required at the time of application.

D. The Harbormaster Department shall maintain a chronological waiting list for slips in Sesuit Harbor and Bass River Park, and mooring spaces in Sesuit Harbor or Bass River. Applications on a waiting list on October 1st of each year shall be renewed upon receipt of an annual maintenance fee as established by the Board of Selectmen.

E. Applicants shall have the right to substitute the name of their spouse without prejudice to such application providing the boat registration has been changed to the same name.

F. The Harbormaster may refuse to accept the application of any person who has been found previously to have violated any Waterways Regulation.

G. Any person that is awarded a slip or mooring space from the Town of Dennis whose vessel has been found to have been used to transport, store, or sell controlled substances or stolen property shall forfeit that slip or mooring space.

H. No more than two applications for a slip or mooring space will be accepted per household. A household may have both a slip and mooring space application or assignment.

5. ASSIGNMENTS SECTION 231-5

A. No mooring space or slip will be assigned until the excise tax, if applicable, is paid. No vessels may be placed in a slip or on a mooring space until all payments are received, and the vessel owner's application is approved by the Harbormaster.

B. Each year the Harbormaster shall approve applications, duly made, for Town slips and mooring spaces in this order: first, to those applicants to whom a slip or mooring space was assigned on October 31st of the preceding year, and who have paid the required fee; and then second,

1. BY-LAWS

The Following By-Laws applicable to waterways, adopted by vote of Town Meeting, are set forth in these regulations for the information of the public.

NON-CRIMINAL DISPOSITION SECTION 231-1

Whoever violates any provision of the Town of Dennis By-Laws, the violation of which is subject to a specific penalty, may be penalized by a non-criminal disposition as provided in Massachusetts General Laws Chapter 40, Section 21D. The non-criminal method of disposition may also be used for violations of any rule or regulation of any municipal officer, board, commission or department which is subject to a specific penalty.

Police officers and selectmen of the Town of Dennis shall in all cases be enforcing persons for purposes of this provision. In addition, the Building Inspector and his designees, the Natural Resource Officer and his designees, the Shellfish Constable and his designees, the Health Agent and his designees, the Licensing Agent and Sealer of Weights and Measures and his designees, and such other officials as the Board of Selectmen may from time to time designate enforcing persons for the purposes of this provision, each with respect to violation of By-Laws, rules or regulations within their respective jurisdictions. If more than one person has jurisdiction in a particular case, each such official may be an enforcing person with respect thereto.

For the purposes of this section, each violation of a By-Law, rule or regulation shall be fined pursuant to the non-criminal disposition fine structure of the Town. Each day that such violation continues shall constitute a separate offense.

WATERWAYS RULES AND REGULATION SECTION 231-7

The Board of Selectmen may, after a duly called public hearing, adopt rules and regulations for the public safety, protection and health of persons using the waterways, mooring spaces, mooring space areas, docks, marinas or other related facilities under the jurisdiction of the Town of Dennis, and such rules and regulations shall be fined pursuant to the non-criminal disposition fine structure of the Town promulgated by the Board of Selectmen under this authority and the Home Rules Procedure Act.

WATERWAYS SPEED LIMIT BY-LAW SECTION 231-1

1. Any vessel propelled by power in Bass River, Follins Pond, or tributaries thereof shall travel at steerage speed not to exceed 6 MPH, whichever is less except in the following areas:
   a. Follins Pond northerly from upper narrows.
   b. Bass River from buoy 30 to buoy 33.
2. Any vessel propelled by power in Sesuit Harbor, Swan River and connected waterways shall not exceed a speed of 6 miles per hour.
3. Whoever violates any term of this section shall be fined pursuant to the non-criminal disposition fine structure of the Town.

The use of outboard motors on Scargo Lake and Swan Pond is limited to motors of not more than seven and one-half (7 1/2) horsepower and on Fresh Pond in South Dennis, to motors of not more than five (5) horsepower.

Whoever operates upon the waters within the boundaries of the Town of Dennis, a vessel propelled by an internal combustion engine recklessly or negligently, so that the lives or safety of the public might be endangered, shall be fined pursuant to the non-criminal disposition fine structure of the Town. No motorboat shall be operated unless the motor has an underwater exhaust or is equipped with a muffler. No motorboat shall be used to tow persons or water skis or aquaplanes unless such motorboat shall be occupied by two persons, one of whom shall give his full attention to the operation of the motorboat and the other of whom shall give his full attention to the person or persons being towed. Any vessel passing within 150 feet of the shoreline, designated swim area, channel markers, swim buoys, or mooring space areas shall only proceed at steerage speed. Any vessel passing within 150 feet of the shoreline on any inland waterway except in a location where the shore is undeveloped and unimproved and where no dwelling exists shall not exceed a speed of six miles per hour. The above rules and regulations are to be enforced by the Dennis Harbormaster or assistants or any police officer

water for the next boating season.

Mooring spaces shall be moved by the person to whom assigned upon order of the Harbormaster, for reasons such as repair, dredging or navigational hazard.

Mooring space buoys shall be white with a blue horizontal band and marked with the Town of Dennis permit number and name of the permit holder which shall be so marked and maintained as to be visible at all times.

Where winter spars or buoys are permitted by the Harbormaster, they shall be clearly marked as stated above.

All prams or dinghies used for moored boats must be removed from Town Landings by November 15th of each year. Any damage caused by a pram or dingy is the responsibility of the mooring space holder. All prams or dinghies must be labeled with their mooring space number and last name. All prams or dinghies are required to obtain a pram sticker available at the Town Hall offices.

FAIR WEATHER - MOORING SPECIFICATIONS MINIMUM REQUIREMENTS

vessel	wt. mush	heavy chain	light chain	pennant	total scope
under 16	75	3/8" - (10')	5/16" - (10')	1/2 "	30'
16 - 20	100	1/2" - (10')	3/8" - (15')	1/2"	40'
20 -26	L x B	3/4" - (10')	1/2" - (15")	5/8"	40'
26 - 32	L x B	1" - (10")	5/8" -(15')	3/4"	40'
32 & over	see HM				

Note A. Calculation to determine weight of mushroom, length over all of the vessel multiplied by the vessel beam at its widest point equals the weight of the anchor. Always round up the closest mushroom weight.

Note B. Manufacturers of mushroom and similar design anchor systems state that the anchor must be buried vertically. If buried vertically, the anchor has maximum holding power in all directions.

MINIMUM SCREW EMBEDMENT ANCHOR SPECIFICATIONS SECTION 231-2

A. The shaft must be a minimum of 1 1/4' thick and at least 5.5 feet in length.

B. The shaft and screw embedment anchor must be of galvanized or other non-corrosive metal.

C. The shaft must be designed to allow the bottom chain to swivel around the shaft and not wrap or foul.

D. The installation of the screw embedment anchor must be done by a certified mooring space contractor approved by the manufacturer or his representative. It shall be the responsibility of the installer to assure that the proper size and length screw embedment anchor is used according to subsoil within a given mooring space area and for the vessel to be moored. Refer to Table 1.

E. The installer shall record the position of the screw embedment anchor mooring space by a DGPS fix and record all the mooring space specifications including the length of the shaft, depth of mean high water, torque reading at installation, and all sized of and lengths of ground tackle. All information shall be filed with the Harbormaster's Department within 48 hours of installation.

F. All screw embedment anchors shall be installed as close to flush with the bottom surface as possible with no more than 6" protruding above the bottom surface. The top screw must be as least 3 times the diameter of the largest screw below the bottom of the mooring space area.

G. Two (2) pennants shall be required – one to meet minimum requirement, the other to be oversized.

H. All connecting bolts must be distressed and/or double nutted.

I. All ground tackle must be inspected prior to installation.

J. The minimum torque as outlined in Table 1 must be held for the last 3 feet of the installation.

K. Embedment anchor must meet other applicable Mooring space

APPENDIX D. PLANNING-LEVEL DOCK REPLACEMENT COST ESTIMATE

Structurmarine®
MARINAS TAILORED TO YOUR DREAMS

SESUIT HARBOR
Town of Dennis, MA

REFERENCE No. : 7247

SUBJECT : Floating dock replacement proposal

DATE : 13/03/2014

A. REFERENCE DRAWINGS AND INFORMATION

- Information provided by Woods Hole Group
- Typical drawing – TPMD-0040 - Main dock and connecting hardware – Structure 40
- Typical drawing – TPFD-0001 & 0002 Finger dock and connecting hardware – Series 1 & 2
- Typical drawing – TPAG-0001 - Access Gangway and connecting hardware – Serie 55
- Typical drawing – APG-000041 – Round Pile-guide with pads
- Typical drawing – TPDC-0001 – Dock components

B. MATERIAL SPECIFICATIONS

MAIN DOCK

Model	:	**Structure-40**
Structure	:	Marine grade aluminum alloy Series 6000
Freeboard	:	406mm (16") nominal
Net reserve of buoyancy:		147kg/m^2 (30psf) nominal
Decking	:	Timbertech composite x 25mm thick (1")
Fender	:	Timbertech fender 3" high
Floats	:	Polyethylene floats filled with expanded polystyrene (EPS)

12645, RUE APRIL, MONTRÉAL QC CANADA H1B 5P6 | | T 514 645 4000 | | F 514 645 6396 | | + 1 877 645 4001
WWW.STRUCTURMARINE.COM

FINGER DOCKS

Model	:	**SERIES 1 and 2**
Structure	:	Marine grade aluminum alloy Series 6000
Freeboard	:	406mm (16") nominal
Net reserve of buoyancy	:	147kg/m^2 (30psf) nominal
Decking	:	Timbertech composite x 25mm thick (1")
Fender	:	Timbertech fender 3" high
Floats	:	Polyethylene floats filled with expanded polystyrene (EPS)

ACCESS GANGWAY

Model	:	**SERIE 55**
Structure	:	Marine grade aluminum alloy Series 6000
Capacity	:	2.5 kN/m^2 (50 psf)
Decking	:	Non-slip aluminium decking

MOORING CLEATS AND BOLLARDS

Model ST-40	:	14" aluminum mooring cleat, fully adjustable with s/s hardware

ANCHORING SYSTEM

Proposed method	:	Pile guides with pads

C. LIST OF MATERIAL

SECTION A

Main docks	:	568'-0"	MD-250 (8'-0" wide)	*Structure 40*
Finger Docks	:	1 unit	FD-600 (20'-0" long)	
		1 unit	FD-1100 (36'-0" long)	
Pile guides	:	8 units		

SECTION B

Main docks	:	109'-0"	MD-200 (6'-0" wide)	*Structure 40*
Finger Docks	:	4 units	FD-800 (26'-0" long)	
		1 unit	FD-900 (30'-0" long)	
		1 unit	FD-1100 (36'-0" long)	
Pile guides	:	20 units		

SECTION C

Main docks	:	115'-0"	MD-200 (6'-0" wide)	*Structure 40*
Finger Docks	:	4 units	FD-800 (26'-0" long)	
Pile guides	:	21 units		

SECTION D

Main docks	:	120'-0"	MD-200 (6'-0" wide)	*Structure 40*
Finger Docks	:	10 units	FD-600 (20'-0" long)	
Pile guides	:	10 units		

SECTION E

Main docks	:	95'-0"	MD-200 (6'-0" wide)	*Structure 40*
Finger Docks	:	7 units	FD-600 (20'-0" long)	
		2 units	FD-800 (26'-0" long)	
Pile guides	:	9 units		

SECTION F

Main docks	:	100'-0"	MD-200 (6'-0" wide)	*Structure 40*
Finger Docks	:	6 units	FD-600 (20'-0" long)	
		2 units	FD-800 (26'-0" long)	
Pile guides	:	8 units		

SECTION G

Main docks	:	100’-0”	MD-200 (6’-0” wide)	*Structure 40*
Finger Docks	:	6 units	FD-600 (20’-0” long)	
		2 units	FD-800 (26’-0” long)	
Pile guides	:	8 units		

SECTION H

Main docks	:	60’-0”	MD-250 (8’-0” wide)	*Structure 40*
Pile guides	:	3 units		

SECTION I

Main docks	:	665’-0”	MD-250 (8’-0” wide)	*Structure 40*
Finger Docks	:	1 unit	FD-800 (26’-0” long)	
Pile guides	:	7 units		

SECTION J

Main docks	:	137’-0”	MD-350 (12’-0” wide)	*Structure 40*
Finger Docks	:	1 unit	FD-1600 (52’-0” long)	
Pile guides	:	16 units		

SECTION K

Main docks	:	137’-0”	MD-200 (6’-0” wide)	*Structure 40*
Finger Docks	:	5 units	FD-900 (30’-0” long)	
Pile guides	:	22 units		

SECTION L

Main docks	:	167’-0”	MD-200 (6’-0” wide)	*Structure 40*
Finger Docks	:	10 units	FD-600 (20’-0” long)	
		2 units	FD-800 (26’-0” long)	
Pile guides	:	12 units		

SECTION M

Main docks	:	167'-0"	MD-200 (6'-0" wide)	*Structure 40*
Finger Docks	:	10 units	FD-600 (20'-0" long)	
		2 units	FD-800 (26'-0" long)	
Pile guides	:	12 units		

SECTION N

Main docks	:	167'-0"	MD-200 (6'-0" wide)	*Structure 40*
Finger Docks	:	10 units	FD-600 (20'-0" long)	
		2 units	FD-800 (26'-0" long)	
Pile guides	:	12 units		

SECTION O

Main docks	:	167'-0"	MD-200 (6'-0" wide)	*Structure 40*
Finger Docks	:	11 units	FD-600 (20'-0" long)	
		2 units	FD-800 (26'-0" long)	
Pile guides	:	13 units		

Accessories

Mooring cleat ST-40:	1050 units	Adjustable on a track system	
Aluminium Gangways	:	5 units	5' wide x 50' long

D. INSTALLATION & TECHNICAL SUPPORT

Structurmarine will provide a site technician for the installation of the floating docks, piles guides and accessories.

E. SHIPPING & DELIVERY SCHEDULE

- Material delivered F.O.B site Town of Dennis, MA;
- Delivery schedule attached to this proposal.

F. BUDGET PROPOSAL INCLUSIVE OF:

- Design of the floating dock, pile guides and accessories;
- Supply of drawings for approval;
- Supply of material as indicated in Item C;
- Delivery of the material F.O.B Site, Town of Dennis, MA.;

PRICE FOR ITEM : 1,635,000.00$ USDUSD

THE ABOVE PROPOSAL DOES NOT INCLUDE THE FOLLOWING:

- Unloading of truck loads;
- Any custom & duty fees or sales tax, if applicable;
- Anchoring piles;
- Necessary equipment and labour to install the marina & anchoring system;
- Supply and installation of utility services;
- Permits and any other incidentals.

G. PAYMENT TERMS

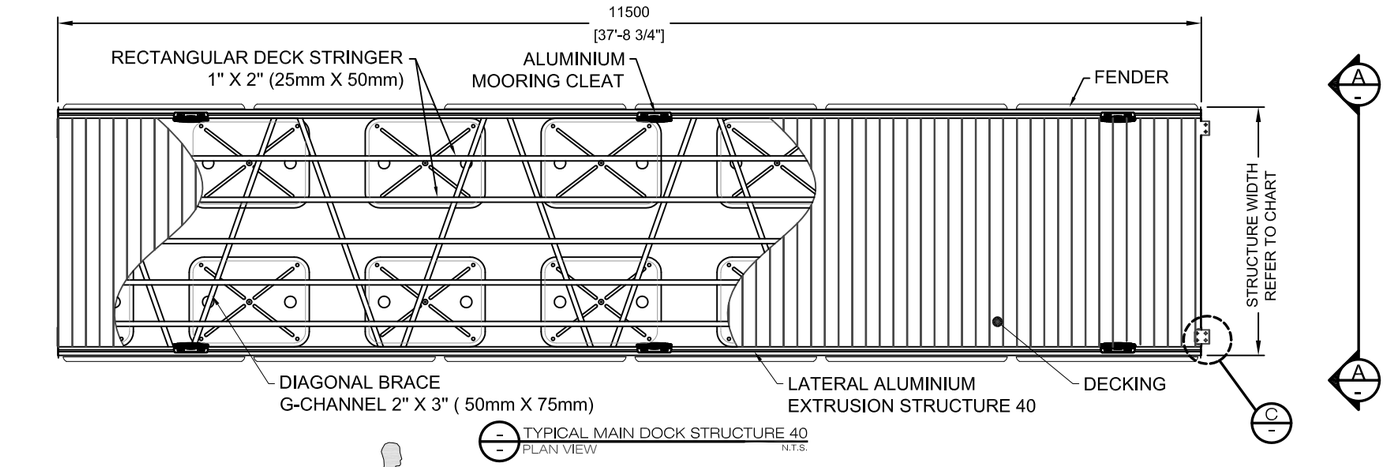
- 15% of total contract at down-payment at the signature of the contract
- 15% of total contract at approval of drawings authorized the fabrication of the materials
- 70% progressive payments prior to delivery of materials upon presentation of invoice

Trusting the above will be to your satisfaction. We remain available for any further information you may need. Looking forward to working with you on this challenging project. Please rest assured of our entire collaboration throughout.

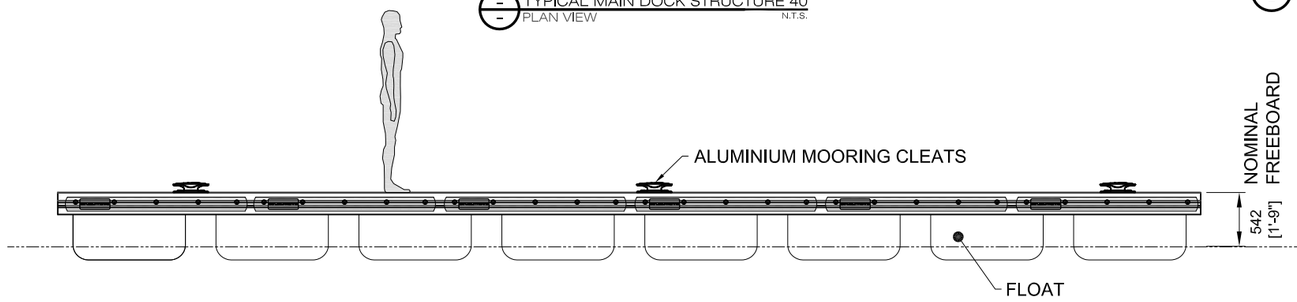
On behalf of STRUCTURMARINE, I would like to take this opportunity to thank you very much for the interest placed in our company.

Very truly yours,

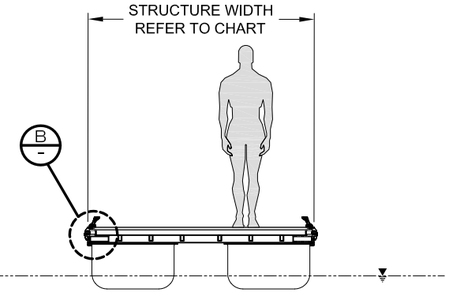
KARL GIROUX, Naval Arch. Tech.
Technical Sales Director



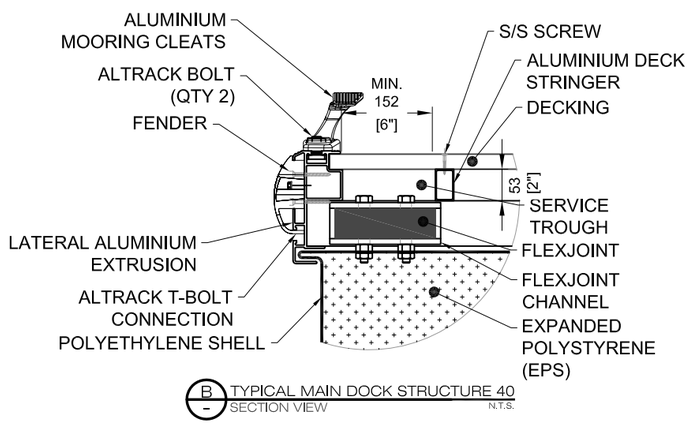
A - TYPICAL MAIN DOCK STRUCTURE 40
PLAN VIEW
N.T.S.



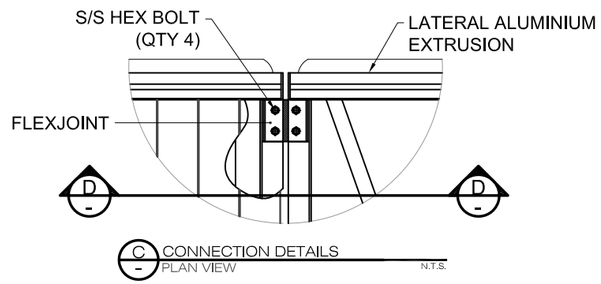
A - TYPICAL MAIN DOCK STRUCTURE 40
ELEVATION VIEW
N.T.S.



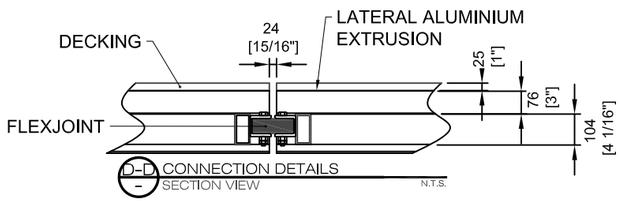
A-A TYPICAL MAIN DOCK STRUCTURE 40
SECTION VIEW
N.T.S.



B - TYPICAL MAIN DOCK STRUCTURE 40
SECTION VIEW
N.T.S.



C - CONNECTION DETAILS
PLAN VIEW
N.T.S.



D-D CONNECTION DETAILS
SECTION VIEW
N.T.S.

SPECIFICATIONS:

STRUCTURE :
WELDED FRAME 6000 ALUMINIUM ALLOY EXTRUSION

WELDING :
MIG WELDS CONFORM TO CSA-W-47.2 & ANSI/AWS D1.2 STANDARDS

DECKING :
COMPOSITE WOOD DECKING
5/4" X 6" (25 mm X 140 mm)

FLOATS :
POLYETHYLENE SHELL 5 mm (3/16")
FILLED WITH EPS AT 16 Kg/m^3
(1 LB/FT^3) DENSITY.
QUANTITY ACCORDING TO RESERVE OF BUOYANCY.

FENDER :
COMPOSITE WOOD

CONNECTION :
NOISE-FREE RUBBER BLOCK CONNECTION

BOLLARDS :
CASTING -
ALUMINIUM ALLOY AA356

SERVICE TROUGH :
UNDER DECK
OPTION: ALUMINIUM TROUGH COVER

FEATURE : S/S *ALTRACK* "T" BOLT TO SECURE ACCESSORIES

WIDTH

MODELS	IMPERIAL	METRIC
MD-120	4'-0"	1.2m
MD-150	5'-0"	1.5m
MD-180	6'-0"	1.8m
MD-200	6'-7"	2.0m
MD-250	8'-3"	2.5m
MD-300	9'-10"	3.0m

NOTE:
- TYPICAL DRAWING.
- DIMENSIONS SHOWN ARE NOMINAL AND MAY VARY ACCORDING TO THE APPLICATION.
- FLOATS QUANTITY IS FOR REPRESENTATION ONLY.

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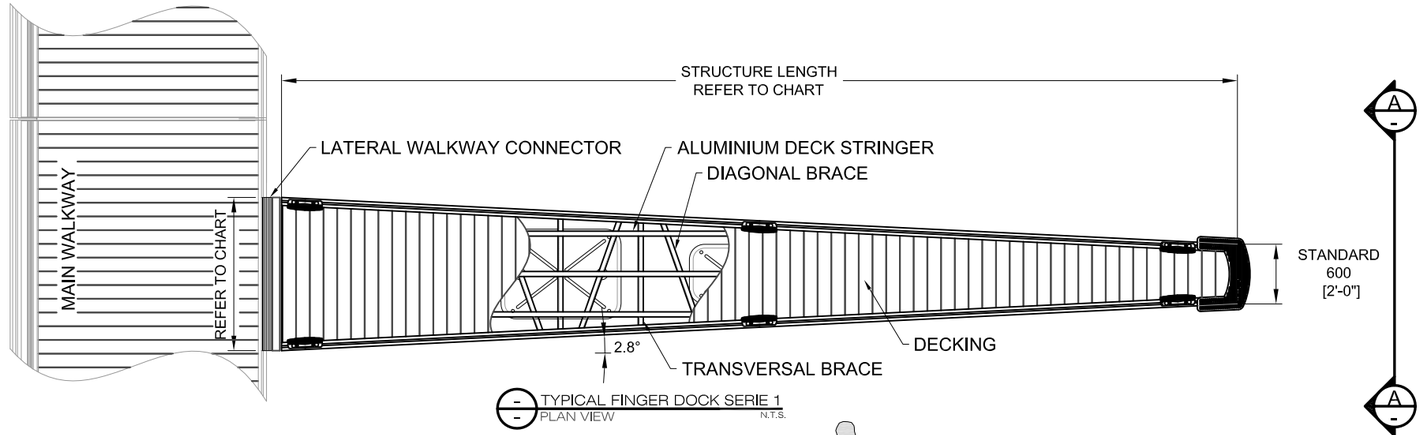
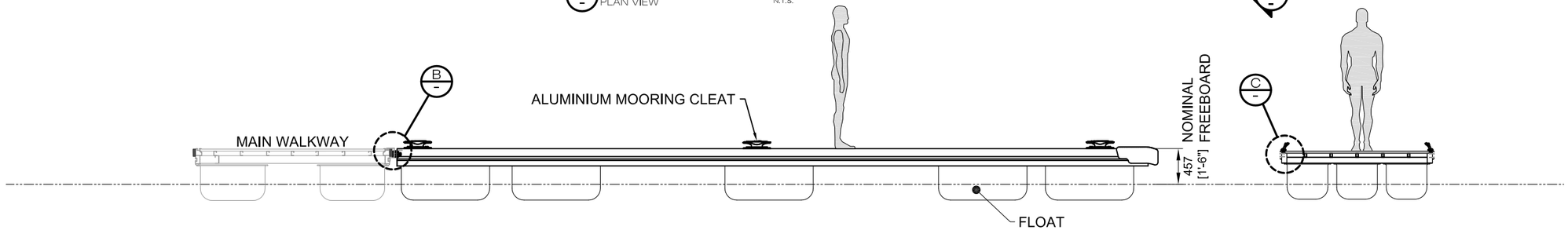
REVISION #	DATE	DESCRIPTION	DRAWN BY	APPR. BY

PROJECT: -	SCALE: N.T.S	NO. DRAWING: TPMD-0040	
NO. PROJECT: -	DRAWN BY: M.-A.M.	DATE: 25/04/2012	SHEET: 1 / 1
TITLE: TECHNICAL PLAN - TYPICAL MAIN DOCK - STRUCTURE 40	APPROVED BY:	DRAWING REF: -	

V:\Plans De Ventes\PLAN TECHNIQUE\FICHES TECHNIQUES (REV. 2012)\POUR INGÉNIERIE (CAD)\2- MAIN DOCK\TPMD-0040.dwg
Plotted : 2012-04-25

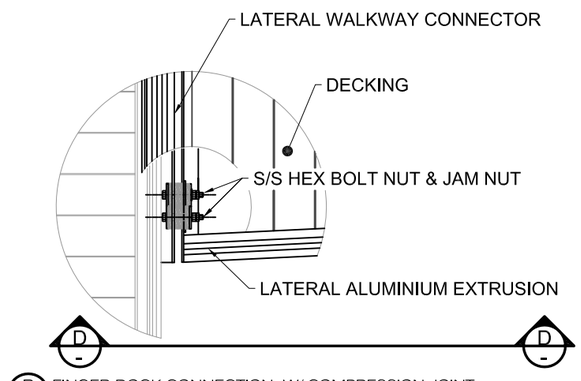


TYPICAL FINGER DOCK SERIE 1
PLAN VIEW
N.T.S.

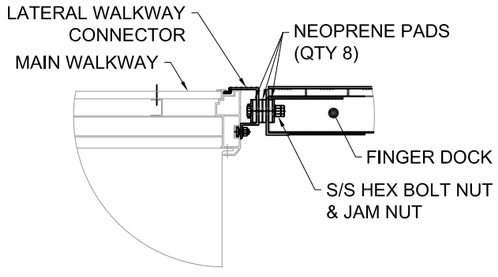


TYPICAL FINGER DOCK SERIE 1
ELEVATION VIEW
N.T.S.

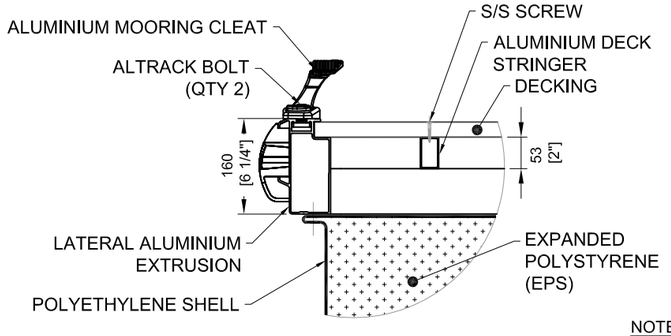
A-A TYPICAL FINGER DOCK SERIE 1
SECTION VIEW
N.T.S.



B FINGER DOCK CONNECTION W/ COMPRESSION JOINT
PLAN VIEW
N.T.S.



D-D FINGER DOCK CONNECTION BY COMPRESSION JOINT
PLAN VIEW
N.T.S.



C TYPICAL FINGER DOCK SERIE 1
SECTION VIEW
N.T.S.

SPECIFICATIONS:

STRUCTURE :
WELDED FRAME 6000 ALUMINIUM ALLOY EXTRUSION

WELDING :
MIG WELDS CONFORM TO CSA-W-47.2 & ANSI/AWS D1.2 STANDARDS

DECKING :
WOOD OR COMPOSITE DECKING
5/4" X 6" (25 mm X 140 mm)

FLOATS :
POLYETHYLENE SHELL 5 mm (3/16") FILLED WITH EPS AT 16 Kg/m^3 (1 LB/FT^3) DENSITY.
QUANTITY ACCORDING TO RESERVE OF BUOYANCY.

FENDER :
POLYETHYLENE

CONNECTION :
NOISE-FREE RUBBER BLOCK CONNECTION

CLEATS :
CASTING -
ALUMINIUM ALLOY AA356

SERVICE TROUGH :
UNDER DECK
OPTION: ALUMINIUM TROUGH COVER

FEATURE : S/S *ALTRACK* "T" BOLT TO SECURE ACCESSORIES

MODELS	LENGTH	BASE WIDTH (AT WALKWAY) STANDARD	BASE WIDTH (AT WALKWAY) WIDE
FD-500	5.0m 16.4'	1.0m 3'-4"	-
FD-600	6.0m 19.6'	1.1m 3'-8"	-
FD-700	7.0m 23.0'	1.2m 4'-0"	-
FD-800	8.0m 26.2'	1.3m 4'-4"	-

NOTE:
-TYPICAL DRAWING.
-DIMENSIONS SHOWN ARE NOMINAL AND MAY VARY ACCORDING TO THE APPLICATION.
-FLOATS QUANTITY IS FOR REPRESENTATION ONLY.

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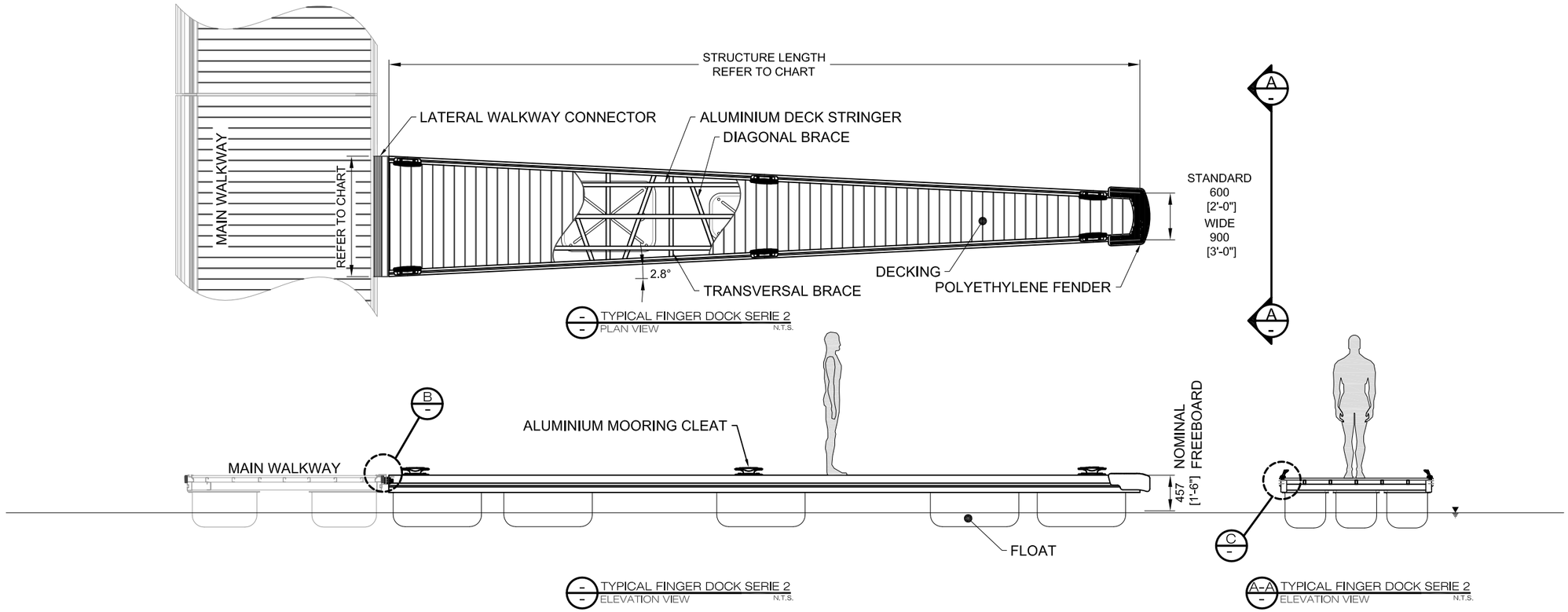
REVISION #	DATE	DESCRIPTION	DRAWN BY	APPR. BY

PROJECT -
NO. PROJECT -
TITLE TECHNICAL PLAN - FINGER DOCK - SERIE 1

SCALE N.T.S
DRAWN BY M.-A.M.
APPROVED BY

NO. DRAWING TPFD-0001
DATE 25/04/2012
DRAWING REF -
SHEET 1 / 1

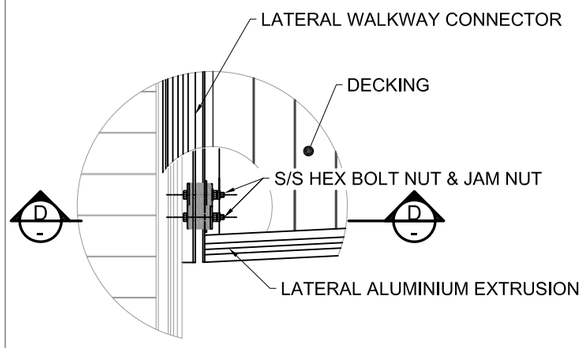
V:\Plans De Ventes\PLAN TECHNIQUE\FICHES TECHNIQUES (REV. 2012)\POUR INGÉNIERIE (CAD)\3. FINGER DOCK\TPFD-0001.dwg
Plotted : 2012-04-25



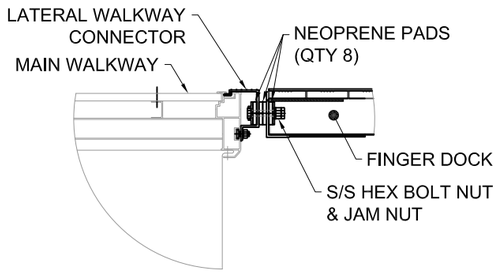
TYPICAL FINGER DOCK SERIE 2
PLAN VIEW N.T.S.

TYPICAL FINGER DOCK SERIE 2
ELEVATION VIEW N.T.S.

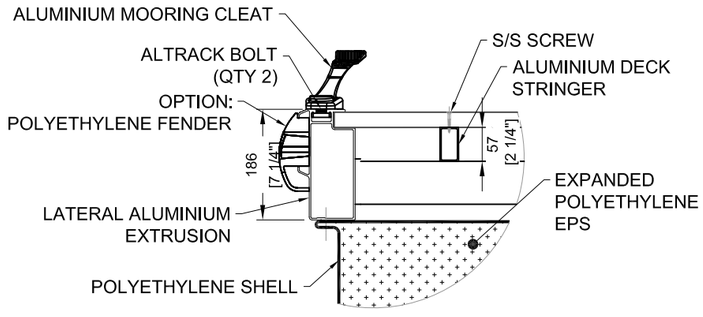
A-A TYPICAL FINGER DOCK SERIE 2
ELEVATION VIEW N.T.S.



B FINGER DOCK CONNECTION W/ COMPRESSION JOINT
PLAN VIEW N.T.S.



D-D FINGER DOCK CONNECTION BY COMPRESSION JOINT
ELEVATION VIEW N.T.S.



C TYPICAL FINGER DOCK SERIE 2
SECTION VIEW N.T.S.

SPECIFICATIONS:

STRUCTURE :
WELDED FRAME 6000 ALUMINIUM ALLOY EXTRUSION

WELDING :
MIG WELDS CONFORM TO CSA-W-47.2 & ANSI/AWS D1.2 STANDARDS

DECKING :
COMPOSITE WOOD DECKING
5/4" X 6" (25 mm X 140 mm)

FLOATS :
POLYETHYLENE SHELL 5 mm (3/16") FILLED WITH EPS AT 16 Kg/m³ (1 LB/FT³) DENSITY.
QUANTITY ACCORDING TO RESERVE OF BUOYANCY.

FENDER :
OPTION: POLYETHYLENE

CONNECTION :
NOISE-FREE RUBBER BLOCK CONNECTION

CLEATS :
CASTING -
ALUMINIUM ALLOY AA356

SERVICE TROUGH :
UNDER DECK
OPTION: ALUMINIUM TROUGH COVER

FEATURE : S/S *ALTRACK* "T" BOLT TO SECURE ACCESSORIES

MODELS	LENGTH	BASE WIDTH (AT WALKWAY) STANDARD	BASE WIDTH (AT WALKWAY) WIDE
FD-900	9.0m 29.5'	1.4m 4'-8"	1.7m 5'-8"
FD-1000	10.0m 32.8'	1.5m 5'-0"	1.8m 5'-11"
FD-1100	11.0m 36.0'	1.6m 5'-3"	1.9m 6'-3"
FD-1200	12.0m 39.4'	1.7m 5'-7"	2.0m 6'-7"

NOTE:
-TYPICAL DRAWING.
-DIMENSIONS SHOWN ARE NOMINAL AND MAY VARY ACCORDING TO THE APPLICATION.
-FLOATS QUANTITY IS FOR REPRESENTATION ONLY.

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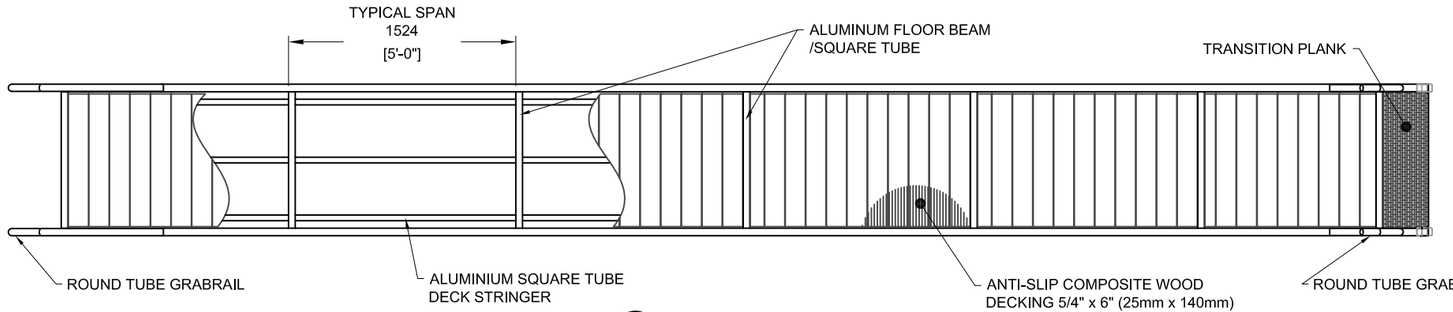
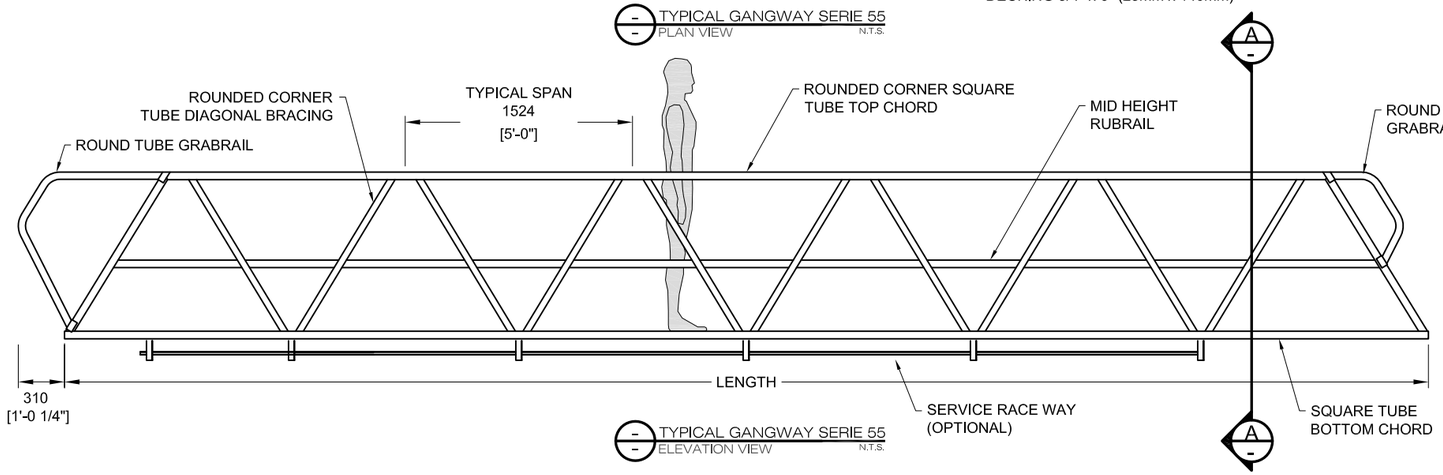
REVISION #	DATE	DESCRIPTION	DRAWN BY	APPR. BY

PROJECT: -	SCALE: N.T.S	NO. DRAWING: TPFD-0002	
NO. PROJECT: -	DRAWN BY: M.-A.M.	DATE: 25/04/2012	SHEET: 1 / 1
TITLE: TECHNICAL PLAN - FINGER DOCK - SERIE 2	APPROVED BY:	DRAWING REF: -	

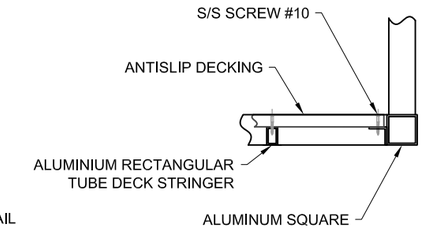
V:\Plans De Ventes\PLAN TECHNIQUE\FICHES TECHNIQUES (REV. 2012)\POUR INGÉNIERIE (CAD)\3- FINGER DOCK\TPFD-0002.dwg
Plotted : 2012-05-28



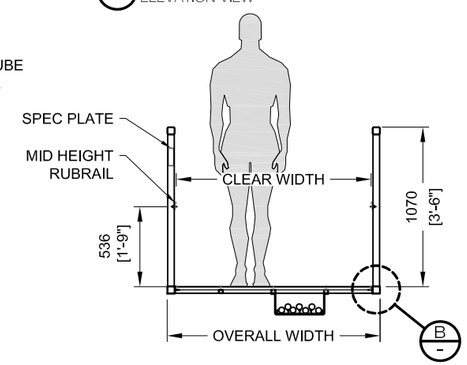
TYPICAL GANGWAY SERIE 55
PLAN VIEW
N.T.S.



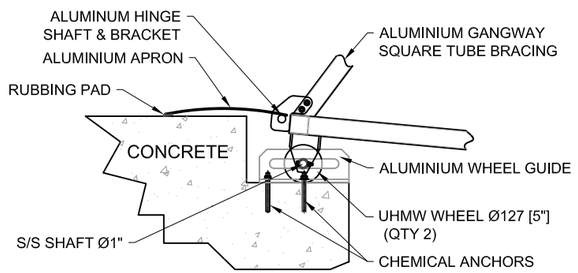
TYPICAL GANGWAY SERIE 55
ELEVATION VIEW
N.T.S.



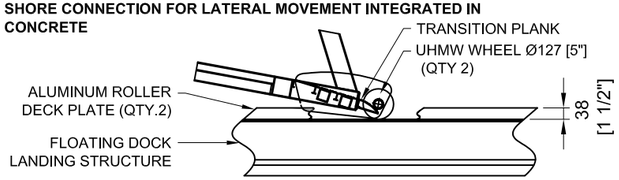
B DECKING - TYPICAL FASTENER
ELEVATION VIEW
N.T.S.



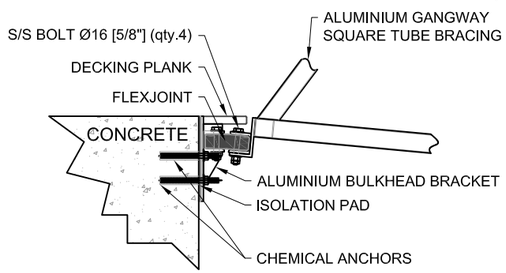
A-A TYPICAL GANGWAY SERIE 55
SECTION VIEW
N.T.S.



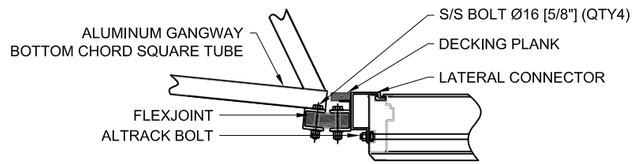
SHORE CONNECTION FOR LATERAL MOVEMENT INTEGRATED IN CONCRETE



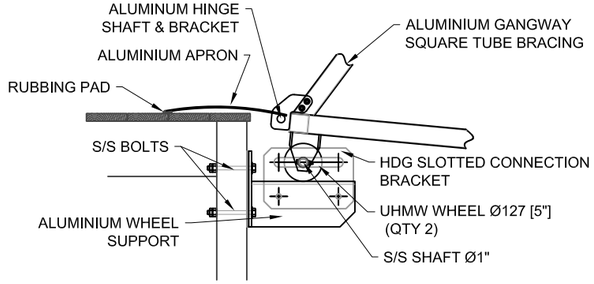
DOCK LANDING - ON WHEEL



SHORE CONNECTION STANDARD WITH FLEXJOINT



INTEGRATED TO THE LANDING DOCK WITH FLEXJOINT



SHORE CONNECTION FOR LATERAL MOVEMENT W/BOLTED WHEEL ON CANTILEVER SUPPORT

SPECIFICATIONS:

STRUCTURE :
WELDED FRAME
6000 ALUMINIUM
ALLOY EXTRUSION

WELDING :
MIG WELDS
CONFORM
TO CSA-W-47.2 &
ANSI/AWS
D1.2 STANDARDS

DECKING :
GROOVED PLANK
COMPOSITE WOOD
5/4" X 6"
(25 mm X 140 mm)
WITH S/S SCREW

CAPACITY :
30 TO 60 PSF
146 to 292 kg/m²
VERTICAL LOAD

LENGTH	
IMPERIAL	METRIC
15'	4.6m
20'	6.1m
25'	7.6m
30'	9.1m
35'	10.7m
38'	11.5m
45'	13.7m
50'	15.2m
55'	16.8m
60'	18.3m

OVERALL WIDTH (WITHOUT WHEELS)		CLEAR WIDTH	
IMPERIAL	METRIC	IMPERIAL	METRIC
2'-5"	0.7m	2'	0.6m
3'-5"	1.0m	3'	0.9m
4'-5"	1.3m	4'	1.2m
5'-5"	1.7m	5'	1.5m
6'-5"	2.0m	6'	1.8m

NOTE:

TYPICAL DRAWING.

DIMENSIONS SHOWN ARE NOMINAL AND MAY VARY ACCORDING TO THE APPLICATION

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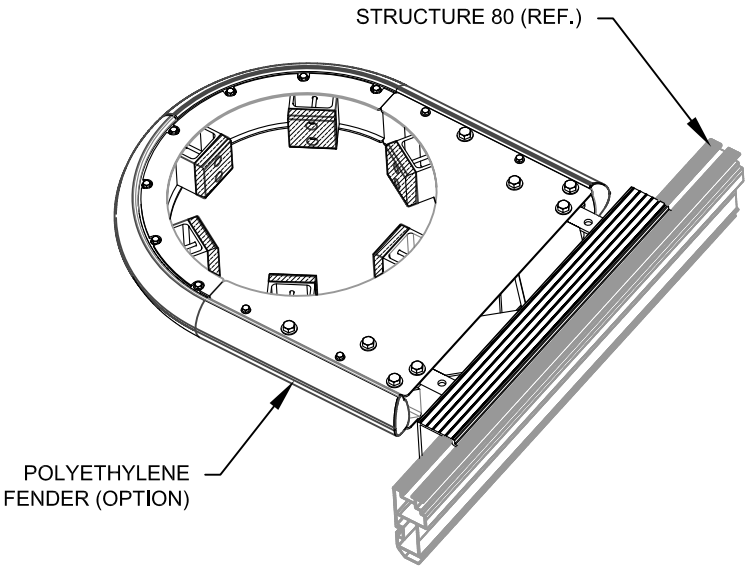
REVISION #	DATE	DESCRIPTION	DRAWN BY	APPR. BY

PROJECT: -
NO. PROJECT: -
TITLE: TECHNICAL PLAN - GANGWAY SERIE 55

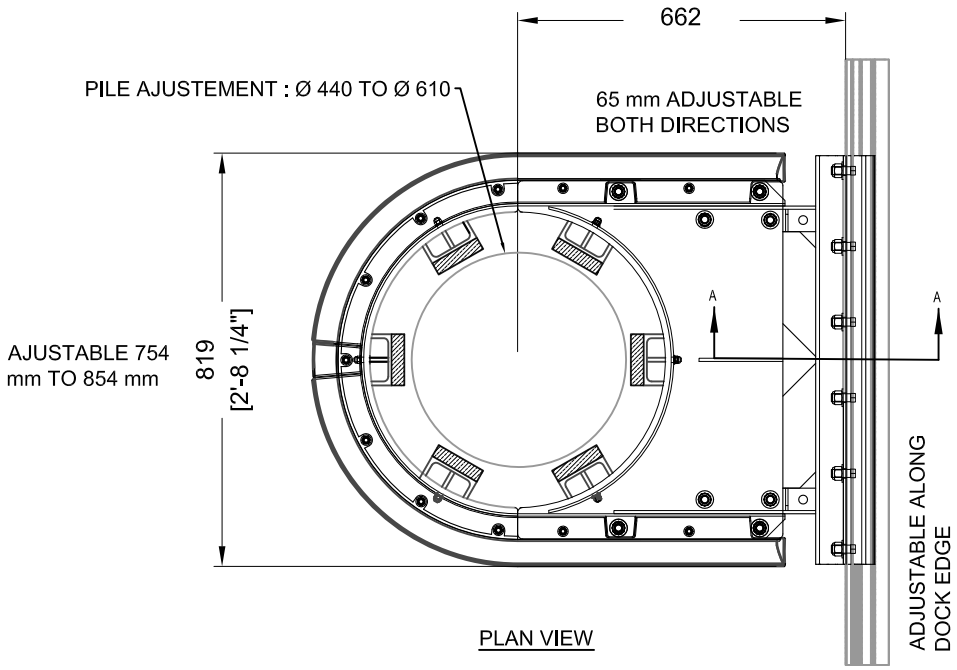
SCALE: N.T.S
DRAWN BY: T.L
APPROVED BY:

NO. DRAWING: TPAG-0001
DATE: 25/04/2012
DRAWING REF: -
SHEET: 1 / 1

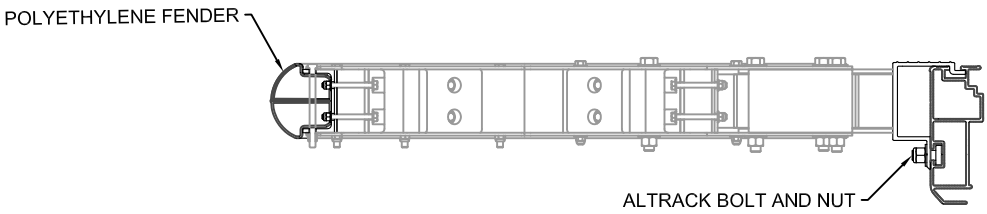
V:\Plans De Ventes\PLAN TECHNIQUE\FICHES TECHNIQUES (REV. 2012)\POUR INGENIERIE (CAD)\1. GANGWAY\TPAG-0001 SERIE 55.dwg
Plotted : 2012-04-25



ISOMETRIC VIEW



PLAN VIEW



SECTION VIEW (A-A)

SPECIFICATIONS:

MATERIAL:
6000 MARINE GRADE ALUMINIUM

WELDING:
MIG WELD CONFORM TO
CSA.W47.2 & ANSI/AWS D1.2

FEATURE:
FIT ANYWHERE IN ALTRACK RAIL
ALONG THE DOCK

HARDWARE:
S/S 304 BOLTS AND NUTS

PADS:
UHMW

OPTION:
POLYETHYLENE FENDER

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TITLE: PILE-GUIDE ASSEMBLY

DATE: 2012-06-04

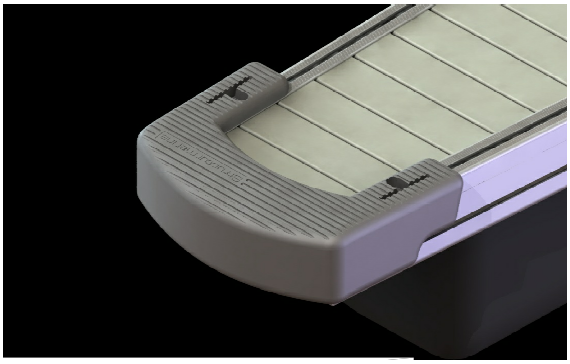
REVISION #	DATE	DESCRIPTION	DRAWN BY	APPR. BY

DRAWN BY: T.L.

DOCUMENT NO.: APG-000041

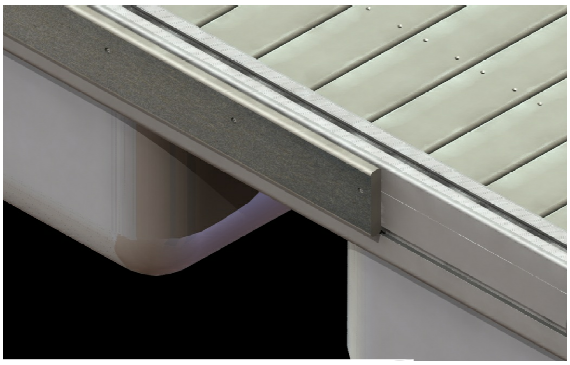
SHEET 1/1

V:\Plans De Ventes\PLAN TECHNIQUE\FICHES TECHNIQUES (REV. 2012)\POUR INGÉNIERIE (CAD)\5. ANCHORING COMPONENTS\APG-000041 (ROUND PILE GUIDE WITH PADS).dwg
Plotted : 2013-08-30

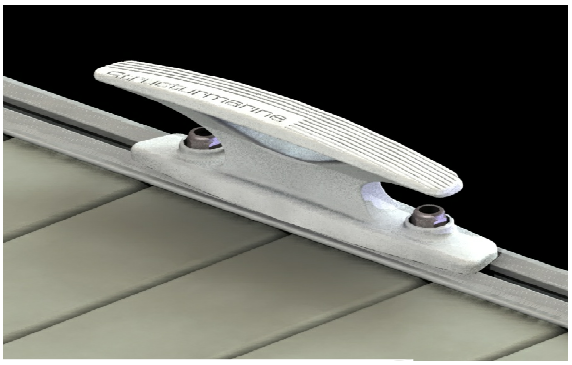


POLYFENDER 2

POLYFENDER 6

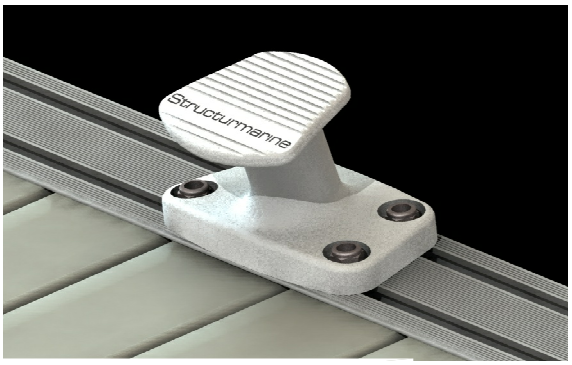


COMPOSITE WOOD FENDER

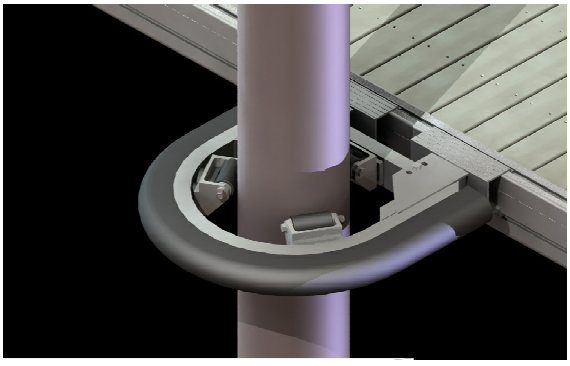


CLEAT 40

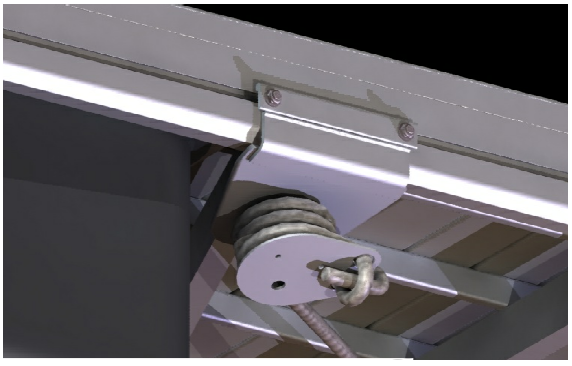
BOLLARD 80



BOLLARD 100



PILE GUIDE



ROPE CONNECTOR

Structurmarine®

WWW.STRUCTURMARINE.COM

TITLE: DOCK COMPONENTS

DOCUMENT NO.: TPDC-0001

SHEET: 1 / 1

DRAWN BY: M.-A.M.

DATE: 2010-03-31

V:\Plans De Ventes\PLAN TECHNIQUE\TPDC-0001.DOCK COMPONENTS (SMA).dwg
Plotted : 2011-03-28

APPENDIX E. PROPOSAL FOR PLANNING-LEVEL DOCK REDESIGN AND COST ESTIMATE

Structurmarine®

MARINAS TAILORED TO YOUR DREAMS

TOWN OF DENNIS MARINA
Massachusetts

REFERENCE No.	:	N°7247
SUBJECT	:	Marina design proposal
DATE	:	May 01, 2014

Dear Mr. Famely,

We are pleased to submit our proposal with respect to the above-mentioned subject.

Our proposal addresses:

1. Understanding of the mandate;
2. The tasks to allow your management team to make sound decisions;
3. Summary tasks description and number of working hours;
4. Studying schedule;
5. Price and payment terms.

12645, RUE APRIL, MONTRÉAL QC CANADA H1B 5P6 | | T 514 645 4000 | | F 514 645 6396 | | + 1 877 645 4001
WWW.STRUCTURMARINE.COM

UNDERSTANDING OF THE MANDATE

We understand that Woods Hole Group is working with the Town of Dennis on a potential marina refurbishing and/or layout improvement. Woods Hole Group intends to select ***STRUCTURMARINE*** for the planning, technical support and recommendations on the floating marina layout and organization.

1. TASKS DESCRIPTION

We have identified 3 tasks to be completed for the realization of the mandate:

TASK 1: START-UP MEETING (Conference Call)

The objective is to have good understanding of the project with the technical and social constraints. Examples of questions:

- Confirm the town expectations and project description for the marina;
- Confirm the boating clientele the marina intends to attract;
- Boat schedule, if any (sizes & types of boats);
- Corporate structure of the marina within the project;
- Master plan of the site (restaurants, parks, boat ramps, etc.);
- Building and environmental constraints (Ex: Dredging, beaches, etc.);
- As-built construction drawings of the shore construction, if any;
- Permits in hand and others permit requirements, if any;
- Any readily available marina layouts or sketches showing also the limits of the land;
- Social constraints;
- Site conditions: wind and waves studies, bathymetry, currents, water level variation;
- Any heavy weather history on the river on 50 years period;
- Sea state photos during adverse conditions;
- Nautical book & navigation charts of the area;
- Photos, google maps, etc.;
- Any documents you have regarding the development of the site;
- Marketing study for the marina needs.

TASK 2: SITE ANALYSIS

Schedule: 2 working days period duration

Objective: Further to the conference call and taking into account the client's vision and land use context (Existing master plan), analysis of all conditions influencing the location, size and type of the future marina pontoons;

Output:

- Analysis the potential marina orientation identified (pros & cons);
- Access to the pier from the shore:
- Analysis of confirmed site data, including, but not limited to:
  - Site characteristics: limits, site protection, shoreline and other environment constraints;
  - Expected number & quantity of boats, other;
  - Main use of the marina: transient, permanent users, fishing fleet, etc.;
  - Water levels & tides;
  - Wind load on a 50-year basis including the prevailing wind direction;
  - Maximum wave height and direction;
  - Current speed;

Provide the following marina related information (indicative only);

- Parking area;
- Service centers (minimum needs): fuel dock, pump out;
- Related service blocks: offices, shower, WC, laundry, etc.
- Review of pleasure boating business in the market area, marinas, size, targeted market;

TASK 3: RECOMMENDATIONS ON THE LAYOUT CONFIGURATION

Schedule: 5 working days period duration

Objective: Provide marina layout with construction budgets

Output:

- Conclusion on best orientation and configuration of the marina pontoons;
- Submittal of the recommended general layout with comments (pros & cons).
- Recommendations on pontoon material specifications;
- Construction budgets and marina installation details;
- Marina construction schedule.

BY WOODS HOLE GROUP: FEEDBACK FOLLOWING THE RECEPTION OF THE RECOMMENDED LAYOUT AND CORRECTIONS IF NEEDED

Schedule: 5 working days period duration

Objective: Review the information received and make sure that all elements are clear and understood.

No more than four (4) days after the submittal of the report, WHG will have a telephone meeting with Structurmarine to clarify any questions and finalize the layout.

STRUCTURMARINE will provide a layout meeting the last and final corrections if any.

2. SCHEDULE

Upon the signature of this proposal, its realization will take 13 working days:

- TASK 1: Start-up meeting — 1 working day
- TAKS 2: Site analysis — 2 working days
- TASK 3: Recommendation of the layout — 5 working days
- Feed back from WHG and final adjustments — 5 working days

It is important to note that this schedule is subject to be revised according to the information received and Client's schedule.

3. PROPOSAL - PAYMENT TERMS - METHOD OF PAYMENT

TOTAL LUMP SUM – Study and drawing : USD 2,300.00$

- The proposal <u>does not</u> include the following expenses if needed:

  - Traveling expenses (plane, etc), lodging and transportation to Town of Dennis.
    Payable by client: cost plus 15% of administration fees.

All prices are stated in US funds and shall exclude any and all applicable sales taxes, ad valorem taxes, withholding taxes and any permits fees.

PAYMENT TERMS:

- 40% At the signature of the contract;
- 60% At completion of work;

METHOD OF PAYMENT.

By wire transfer to:

Beneficiary:	STRUCTURE MARINE AMARCO INC.
Bank:	National Bank of Canada SWIFT **BNDCCAMMINT** 6250 boul. Cousineau, bureau 500 St-Hubert, Québec Canada J3Y 8X9
Branch:	006
US Account #:	00-066-60
Transit:	10131
U.S. Corresponding: Bank	JP Morgan Chase Bank New York ABA# 021000021
Swift Code:	CHASUS33

Structurmarine

Structure Marine Amarco Inc.
12645, rue April
Montréal, Qc
Canada, H1B 5P6

_____

Sales Manager, North America
Bruno Nolet

Date:

Client

Woods Hole Group
81 Technology Park drive
East Falmouth, MA
United States, 02536

_____

Environmental Scientist
Joseph Famely

Date:

16-May-14

TOWN MARINA - OPERATING PROFORMA - Replacement Facility

	Year 2xx1	2xx2	2xx3	2xx4	2xx5	2xx6	2xx7	2xx8	2xx9	2x10	2x11	2x12	2x13	2x14	2x15
REVENUES															
Slip Fees	$474,840	$759,744	$949,680	$978,170	$1,007,516	$1,037,741	$1,068,873	$1,100,939	$1,100,939	$1,100,939	$1,100,939	$1,100,939	$1,100,939	$1,100,939	$1,100,939
Mooring & Pram Fees	22,660	22,660	23,340	23,340	24,040	24,040	24,761	24,761	25,504	25,504	26,269	26,269	27,057	27,057	27,869
Transient Fees	53,820	53,820	55,435	55,435	57,098	57,098	58,811	58,811	60,575	60,575	62,392	62,392	64,264	64,264	66,192
Wait List Fees	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
Commercial Slip Fees	120,440	120,440	120,440	$124,053	$127,775	$131,608	$135,556	$139,623	$139,623	$139,623	$139,623	$139,623	$139,623	$139,623	$139,623
Commercial Permits	4,360	4,360	4,360	4,360	4,360	4,360	4,360	4,360	4,360	4,360	4,360	4,360	4,360	4,360	4,360
Utility Revenue	11,600	18,560	23,200	23,896	24,613	25,351	26,112	26,895	27,702	28,533	29,389	30,271	31,179	32,114	33,078
Ramp Parking Fees															
West @ $8	12,353	12,600	12,852	13,109	13,371	13,639	13,911	14,190	14,474	14,763	15,058	15,359	15,667	15,980	16,300
West @ $10	16,829	17,166	17,509	17,859	18,216	18,581	18,952	19,331	19,718	20,112	20,514	20,925	21,343	21,770	22,206
West @ $15	8,925	9,104	9,286	9,471	9,661	9,854	10,051	10,252	10,457	10,666	10,880	11,097	11,319	11,545	11,776
East @ $8	3,660	3,733	3,808	3,884	3,962	4,041	4,122	4,204	4,288	4,374	4,462	4,551	4,642	4,735	4,829
East @ $10	10,970	11,189	11,413	11,641	11,874	12,112	12,354	12,601	12,853	13,110	13,372	13,640	13,913	14,191	14,475
Total Operating Revenues	740,657	1,033,576	1,231,522	1,265,419	1,302,685	1,338,624	1,378,063	1,416,168	1,420,693	1,422,760	1,427,459	1,429,626	1,434,506	1,436,779	1,441,846
EXPENSES															
Wages and Benefits	236,181	240,905	245,723	250,637	255,650	260,763	265,978	271,298	276,724	282,258	287,903	293,661	299,535	305,525	311,636
Electric	7,250	7,323	7,396	7,470	7,544	7,620	7,696	7,773	7,851	7,929	8,009	8,089	8,169	8,251	8,334
Water and Sewer	2,900	2,929	2,958	2,988	3,018	3,048	3,078	3,109	3,140	3,172	3,203	3,235	3,268	3,300	3,333
Communications	4,200	4,242	4,284	4,327	4,371	4,414	4,458	4,503	4,548	4,593	4,639	4,686	4,733	4,780	4,828
Advertising and Marketing	2,500	2,500	1,000	1,010	1,020	1,030	1,041	1,051	1,062	1,072	1,083	1,094	1,105	1,116	1,127
Office Supplies	1,000	1,010	1,020	1,030	1,041	1,051	1,062	1,072	1,083	1,094	1,105	1,116	1,127	1,138	1,149
Vehicles	2,500	2,525	2,550	2,576	2,602	2,628	2,654	2,680	2,707	2,734	2,762	2,789	2,817	2,845	2,874
Dues and Subscriptions	2,000	2,020	2,040	2,061	2,081	2,102	2,123	2,144	2,166	2,187	2,209	2,231	2,254	2,276	2,299
Operating Supplies	3,000	3,030	3,060	3,091	3,122	3,153	3,185	3,216	3,249	3,281	3,314	3,347	3,380	3,414	3,448
Miscellaneous	2,500	2,525	2,550	2,576	2,602	2,628	2,654	2,680	2,707	2,734	2,762	2,789	2,817	2,845	2,874
Total Operating Expenses	264,031	269,008	272,582	277,765	283,049	288,436	293,928	299,527	305,236	311,055	316,988	323,037	329,204	335,492	341,902
EBITDA & Reserves - Earnings Before Interest, Taxes, Depreciation and Amortization AND RESERVES	$476,626	$764,568	$958,940	$987,654	$1,019,636	$1,050,188	$1,084,135	$1,116,640	$1,115,457	$1,111,705	$1,110,470	$1,106,589	$1,105,301	$1,101,287	$1,099,944
R&R Reserve - Land/Water Impmt's *See Key Assumptions # 6 Est. @ $6.64M, Est. Life - 25 yrs*	(265,600)	(265,600)	(265,600)	(265,600)	(265,600)	(265,600)	(265,600)	(265,600)	(265,600)	(265,600)	(265,600)	(265,600)	(265,600)	(265,600)	(265,600)
R&R Reserve - Dredging *See Key Assumptions # 7 Est. @ $2.2M, Est. Life - 15 yrs*	(146,667)	(146,667)	(146,667)	(146,667)	(146,667)	(146,667)	(146,667)	(146,667)	(146,667)	(146,667)	(146,667)	(146,667)	(146,667)	(146,667)	(146,667)
EBITDA	64,359	352,301	546,673	575,387	607,369	637,921	671,869	704,373	703,191	699,438	698,204	694,322	693,035	689,020	687,678
Debt Service Costs - Assumed at Interest-only Through First Year of Stabilized Operations, Amortized over 22 years @ Prime (3.25%) Plus ¼ % - Hence $8.84M @ 3.375%	(298,350)	(298,350)	(298,350)	(569,832)	(569,832)	(569,832)	(569,832)	(569,832)	(569,832)	(569,832)	(569,832)	(569,832)	(569,832)	(569,832)	(569,832)
"Effective" Net Cash Flow Before Taxes, Dep'n & Amortization	**($233,991)**	**$53,951**	**$248,323**	**$5,555**	**$37,537**	**$68,089**	**$102,037**	**$134,541**	**$133,359**	**$129,606**	**$128,372**	**$124,490**	**$123,203**	**$119,188**	**$117,846**

15-year Total Cash Flow **$1,292,106**

Key Assumptions:

1. Facility is totally replaced -basin dredged (along w/ Northside's), installation of new docks (Structuremarine-type), utilities and anchoring system in same basin configuration as presently exists.
2. New power posts have integrated metering of individual slip electrical usage. As a result there will now be revenue generated from the "sale" of electricity to slip customers. Only the net revenue from these sales is shown in the proforma. The industry-typical revenue generated from the metering and billing of actual usage is between $60 and $100 per slip per season. The proforma reflects $80 per occupied slip in the first 3 years with a 3% increase per year thereafter.
3. Facility renovation will take one full year (Year 2xx1 minus 1). Resumed operations will result in first year (2xx1) assumed to be 50% occupied, second year (2xx2) 80% occupied, and a return to stabilized operations in third year (2xx3).
4. Slip rental fees are projected to increase 3% per year for first five years after stabilized operations, then increase 5% every third year thereafter.
5. Expense details can be found on the separate *Notes on Operating Expenses* page..
6. Since the operating assets will be 100% new at the beginning of year 2xx1, it will be necessary to create a Reserve for Repairs and Replacement to cover any and all maintenance, repair and, ultimately, replacement of Land/Water Imp's. As is customar in the industry, this annual charge to expenses for the reserve is to be calculated by taking the total cost of the new facilities (soft & hard costs) , dividing by approx. twenty to twenty-five (depending on the expected useful life of the new facilities), and reducing the result by the actual expenditures for any necessary maintenance and repairs in arriving at EDITDA (*earnings before interest, taxes, depreciation and amortization*). The amount so calculated must be fully funded on a current basis. For cash flow purposes it is recommended to be funded 50% every July and Nov.
7. The Reserve for Repairs and Replacement to cover shoreline stabilization and the dredging of the basin should be calculated in a similar fashion to that of the marina components, with the estimated useful life of both estimated using historical experience and input from the contractors selected to perform the work. As with the marina components reserve these reserves must be fully funded on a current basis and for cash flow purposes it is recommended to be funded 50% every July and Nov.
8. Mooring Fees are assumed to increase 33% from present pricing levels for first year (2xx1) then increase 3% every other year beginning with third operating year (2xx3).
9. Transient Fees are projected to double their present levels for the first year (2xx1) ther increase 3% every other year beginning with second operating year (2xx2).
10. Any taxes collected and remitted are neither revenues nor expenses of the marina operations and are not reflected in this proforma.
11. Commercial Slip Fees are projected to be a combination of the regular slip fee charged for the appropriate length of required slip PLUS a Commercial operator permit constant demand for commercial berthing, it is assumed that stabilized operations resume in the first year (2xx1) and continue at same rate through year three (2xx3) then increase 3% per year. A revised commecial vessel berthing contract that includes an additional %age of gross revenues may be an appropriate alternative.
12. Ramp Parking Fees for both east and west ramps are projected to resume at present levels in the first year (2xx1). They are projected to increase 2% per year thereafter as a result of both increased fee levels and increased demand.
13. Wait List Fees are immaterial and projected to be a minimal $200 per year.

y

fee. As there is

16-May-14

Town Marina - SLIP REVENUE

Resident	160
Nonresider	180

number	town	st	leng	comboat	denres	totallen	feedue	rate	fee due
E 002	Brewster	MA	26	No	No	29	2813	180	5220
E 003	Brewster	MA	23	No	No	28	2716	180	5040
E 004	South Dennis	MA	16	No	Yes	16	1360	160	2560
E 005	Dennis	MA	20	No	Yes	20	1360	160	3200
E 007	Dennis	MA	30	No	Yes	30	2145	160	4800
E 008	South Dennis	MA	27	No	Yes	27	1836	160	4320
E 009	Brewster	MA	28	No	No	28	2716	180	5040
E 011	Yarmouth Port	MA	28	No	No	31	3007	180	5580
E 012	Reading	MA	27	No	Yes	30	2145	160	4800
E 013	Brewster	MA	29	No	No	29	2918	180	5220
E 014	Dennis	MA	25	No	Yes	30	2040	160	4800
E 015	Chestnut Hill	MA	42	No	Yes	42	2961	160	6720
E 016	Medfield	MA	13	No	Yes	13	1360	160	2080
E 017			0	No	Yes	0	1360	160	0
E 018	Dennis	MA	28	No	Yes	31	2213	160	4960
E 019	Westford	MA	29	No	No	31	3112	180	5580
E 020	Worcester	MA	29	No	Yes	31	2213	160	4960
E 021	Foxboro	MA	29	No	Yes	29	1972	160	4640
E 022	East Dennis	MA	26	No	Yes	29	1972	160	4640
E 023	Nokomis	FL	25	No	Yes	28	1904	160	4480
E 024	East Dennis	MA	42	No	Yes	45	3285	160	7200
E 025	Leicester	MA	28	No	Yes	28	1904	160	4480
E 026	East Dennis	MA	24	No	Yes	24	1632	160	3840
E 027	Brewster	MA	25	No	No	25	2425	180	4500
E 028	Stoneham	MA	16	No	Yes	16	1360	160	2560
E 029	Fayville	MA	27	No	No	27	2724	180	4860
E 030	Dover	MA	21	No	No	21	2037	180	3780
E 031	Dennis	MA	26	No	Yes	26	1873	160	4160
E 032	Tyngsboro	MA	24	No	Yes	24	1632	160	3840
E 033	Martinsville	NJ	30	No	Yes	34	2537	160	5440
E 034	East Dennis	MA	19	No	Yes	19	1360	160	3040
E 035	Belmont	MA	13	No	Yes	13	1360	160	2080
E 036	East Dennis	MA	13	No	Yes	13	1360	160	2080
E 037	Northboro	MA	21	No	Yes	21	1428	160	3360
E 038	Dennis	MA	25	No	Yes	26	1768	160	4160
E 039	Dennis	MA	24	No	Yes	24	1632	160	3840
E 040	Hopedale	MA	25	No	Yes	26	1768	160	4160
E 041	Ware	MA	22	No	Yes	22	1496	160	3520
E 042	East Dennis	MA	19	No	Yes	19	1360	160	3040
E 043	East Dennis	MA	22	No	Yes	22	1496	160	3520
E 044	Cataumet	MA	22	No	No	22	2134	180	3960
E 045	So Windsor	CT	24	No	No	24	2433	180	4320
E 046	East Dennis	MA	20	No	Yes	21	1428	160	3360
E 047	Winchester	MA	20	No	Yes	20	1360	160	3200
E 048	Sudbury	MA	28	No	Yes	28	1904	160	4480
E 049	East Dennis	MA	21	No	Yes	21	1428	160	3360
E 050	Dennis	MA	22	No	Yes	23	1564	160	3680
E 051	Yarmouthport	MA	21	No	No	21	2037	180	3780
E 052	Holliston	MA	20	No	Yes	21	1428	160	3360
E 053	South Dennis	MA	20	No	Yes	20	1360	160	3200
E 054	Granby	MA	24	No	Yes	25	1700	160	4000
E 055	Dennis	MA	21	No	Yes	22	1496	160	3520
E 056	East Dennis	MA	18	No	Yes	18	1360	160	2880
E 057	Dennis	MA	17	No	Yes	19	1360	160	3040
E 058	Hopkington	MA	19	No	Yes	19	1360	160	3040
E 059	Tewksbury	MA	22	No	Yes	23	1564	160	3680
E 060			20	No	No	20	1940	180	3600
E 061	Dennis	MA	20	No	No	20	1940	180	3600
E 062	Brewster	MA	20	No	No	20	1940	180	3600
E 063	Longmeadow	MA	21	No	Yes	22	1496	160	3520
E 064			20			20		180	3600
E 065	East Bridgewate	MA	22	No	No	24	2328	180	4320
E 066	Uxbridge	MA	20	No	Yes	20	1360	160	3200
E 067	Dennis	MA	24	No	Yes	24	1632	160	3840
E 068	Dennis	MA	18	No	Yes	18	1360	160	2880
E 069	East Dennis	MA	16	No	Yes	16	1360	160	2560
E 070	Dennis	MA	19	No	Yes	19	1360	160	3040
E 071	Brewster	MA	20	No	No	20	1940	180	3600
E 072	S. Dennis	MA	23	No	Yes	23	1564	160	3680
E 073	South Dennis	MA	28	No	Yes	29	2077	160	4640
E 074	Brewster	MA	24	No	No	26	2522	180	4680

E 075	East Dennis	MA	21	No	Yes	21	1428	160	3360
E 076	Dennis	MA	19	No	Yes	19	1360	160	3040
E 077	South Yarmouth	MA	24	No	No	27	2619	180	4860
E 078	Harwich	MA	21	No	No	21	2037	180	3780
E 079	East Dennis	MA	22	No	Yes	22	1496	160	3520
E 080	Brewster	MA	20	No	No	22	2134	180	3960
E 081	Middleboro	MA	22	No	No	22	2134	180	3960
E 082	Worcester	MA	26	No	Yes	28	1904	160	4480
E 083	Westwood	MA	17	No	Yes	17	1360	160	2720
E 084	East Dennis	MA	22	No	Yes	24	1632	160	3840
E 085	Dennis	MA	16	No	Yes	16	1360	160	2560
E 086	Needham	MA	22	No	Yes	22	1496	160	3520
E 087	Concord	MA	19	No	Yes	19	1360	160	3040
E 088	Millington	NJ	23	No	Yes	23	1564	160	3680
E 089	Canton	MA	25	No	No	26	2522	180	4680
E 090	South Dennis	MA	20	No	Yes	20	1360	160	3200
E 091	Wellesley Hills	MA	24	No	Yes	24	1632	160	3840
E 092	South Dennis	MA	22	No	Yes	23	1564	160	3680
E 093	Jefferson	MA	20	No	No	20	1940	180	3600
E 094	South Dennis	MA	24	No	Yes	24	1632	160	3840
E 095	Enfield	CT	20	No	Yes	20	1360	160	3200
E 096	Dennis	MA	27	No	Yes	29	2077	160	4640
E 097	Brewster	MA	26	No	No	26	2627	180	4680
E 098	South Dennis	MA	22	No	Yes	22	1496	160	3520
E 099	Brewster	MA	19	No	No	19	1940	180	3420
E 100	Belmont	MA	20	No	Yes	20	1360	160	3200
E 101	Salem	NH	20	No	Yes	20	1360	160	3200
E 102	Northboro	MA	22	No	Yes	23	1564	160	3680
E 103	Bedford	MA	22	No	Yes	22	1496	160	3520
E 104	Englewood	FL	24	No	No	28	2716	180	5040
E 105	Duxbury	MA	26	No	Yes	28	1904	160	4480
E 106	Hopedale	MA	22	No	No	22	2134	180	3960
E 107	South Dennis	MA	20	No	Yes	20	1360	160	3200
E 108	Brewster	MA	24	No	No	24	2328	180	4320
E 109	Concord	MA	26	No	No	26	2522	180	4680
E 110	Brewster	MA	22	No	No	24	2328	180	4320
E 111	Dennis	MA	21	No	Yes	21	1428	160	3360
E 112	East Dennis	MA	24	No	Yes	24	1737	160	3840
E 113	Dennis	MA	19	No	Yes	19	1360	160	3040
E 114	Sudbury	MA	24	No	Yes	24	1632	160	3840
E 115	Dennis	MA	22	No	Yes	22	1496	160	3520
E 116	Brewster	MA	20	No	Yes	20	1360	160	3200
E 117	Dennis	MA	23	No	No	23	2336	180	4140
E 118	East Dennis	MA	25	No	Yes	25	1700	160	4000
E 119	Medfield	MA	20	No	Yes	20	1360	160	3200
E 120	South Dennis	MA	22	No	Yes	23	1564	160	3680
E 121	Dennis	MA	23	No	Yes	25	1700	160	4000
E 122	East Dennis	MA	18	No	Yes	18	1360	160	2880
E 123	Dennis	MA	20	No	Yes	20	1360	160	3200
E 124	South Dennis	MA	30	No	Yes	30	2145	160	4800
E 125	East Dennis	MA	31	No	Yes	31	2213	160	4960
E 126	Brewster	MA	34	No	Yes	34	2312	160	5440
E 127	NA	NA	0	No	No	0	1940	180	0
W 004	South Dennis	MA	38	No	Yes	41	3013	160	6560
W 005	Wellesley	MA	43	No	Yes	43	3149	160	6880
W 006	Sherborn	MA	33	No	Yes	33	2349	160	5280
W 014	Blackstone	MA	35	No	No	35	3500	180	6300
W 017	Dennis	MA	55	No	Yes	56	3913	160	8960
W 018	NA	NA	30	No	Yes	30		160	4800
W 019	East Dennis	MA	31	No	Yes	31	2213	160	4960
W 020	Boston	MA	26	No	Yes	26	1768	160	4160
W 021	Bratleboro	VT	32	No	Yes	32	2281	160	5120
W 022	East Dennis	MA	26	No	Yes	26	1768	160	4160
W 023	NewRochelle	NY	29	No	No	33	3201	180	5940
W 024	Dennis	MA	37	No	Yes	39	2757	160	6240
W 025	Westport	CT	27	No	Yes	30	2145	160	4800
W 027	Dennis	MA	28	No	Yes	30	2145	160	4800
W 028	Belchertown	MA	20	No	No	22	2134	180	3960
W 029	Yarmouth Port	MA	23	No	No	23	2231	180	4140
W 031	West Yarmouth	MA	31	No	No	33	3306	180	5940
W 032	Dennis	MA	31	No	Yes	31	2213	160	4960
W 033	Dennis	MA	29	No	Yes	29	2077	160	4640
W 035	So. Dennis	MA	27	No	Yes	28	2009	160	4480
W 036	Dennis	MA	28	No	Yes	29	2077	160	4640
W 038	East Dennis	MA	24	No	Yes	25	1700	160	4000
W 039	South Dennis	MA	23	No	Yes	23	1564	160	3680

W 040	Dennis	MA	22	No	Yes	22	1496	160	3520
W 041	Dennis	MA	20	No	Yes	20	1360	160	3200
W 042	Needham	MA	20	No	Yes	21	1428	160	3360
W 043	East Dennis	MA	21	No	Yes	21	1428	160	3360
W 044			20			20		180	3600
W 045	Brewster	MA	24	No	No	27	2619	180	4860
W 046	Dennis	MA	20	No	Yes	20	1360	160	3200
W 047	Dennis	MA	24	No	Yes	25	1805	160	4000
W 048	Needham	MA	20	No	Yes	20	1360	160	3200
W 049	Hopkinton	MA	25	No	Yes	27	1941	160	4320
W 050	Jensen Beach	FL	21	No	Yes	21	1428	160	3360
W 051	Needham	MA	22	No	Yes	23	1564	160	3680
W 052	Norwood	MA	24	No	No	24	2328	180	4320
W 053	Dennis	MA	20	No	Yes	20	1360	160	3200
W 054	East Dennis	MA	24	No	Yes	25	1805	160	4000
W 055	East Dennis	MA	20	No	Yes	20	1360	160	3200
W 056	Dennis	MA	21	No	Yes	21	1533	160	3360
W 057	Quincy	MA	21	No	Yes	21	1428	160	3360
W 058	Dennis	MA	17	No	Yes	17	1360	160	2720
W 059	Dennis	MA	22	No	Yes	22	1496	160	3520
W 060	South Dennis	MA	21	No	Yes	21	1428	160	3360
W 061	Wellesley	MA	21	No	Yes	21	1428	160	3360
W 062	South Yarmoutl	MA	22	No	No	22	2134	180	3960
W 063	N. Eastham	MA	25	No	Yes	25	1700	160	4000
W 064	Arlington	MA	22	No	Yes	22	1496	160	3520
W 065	Wilmington	MA	20	No	Yes	20	1360	160	3200
W 066	Dennis	MA	25	No	Yes	25	1700	160	4000
W 068	Shrewsbury	MA	31	No	Yes	31	2108	160	4960
W 069	Dennis	MA	28	No	Yes	30	2145	160	4800
W 070	Dennis	MA	28	No	Yes	28	2009	160	4480
W 071	East Dennis	MA	31	No	Yes	31	2213	160	4960
W 072	South Dennis	MA	27	No	Yes	30	2145	160	4800
W 073	Dennis	MA	27	No	Yes	27	1941	160	4320
W 074	Esat Dennis	MA	32	No	Yes	32	2281	160	5120
W 076	East Dennis	MA	36	No	Yes	36	2448	160	5760
W 077			0	No	Yes	0	1360	160	0
W 078	Hudson	MA	34	No	No	38	3791	180	6840
W 079	East Dennis	MA	37	No	Yes	39	2877	160	6240
W 080	Norwood	MA	25	No	Yes	25	1700	160	4000
W 082	Mansfield	MA	37	No	Yes	37	2621	160	5920
W 083	Mansfield	MA	24	No	No	24	2328	180	4320
W 084	Dennis	MA	26	No	Yes	26	1768	160	4160
W 085	Dennis	MA	24	No	Yes	25	1700	160	4000
W 086	Boston	MA	25	No	Yes	25	1700	160	4000
W 087	Wilton	CT	31	No	Yes	33	2349	160	5280
W 088	Shrewsbury	MA	28	No	Yes	28	2009	160	4480
W 089	Milford	MA	29	No	Yes	31	2213	160	4960
W 090	East Dennis	MA	26	No	Yes	29	1972	160	4640
W 091	East Dennis	MA	24	No	Yes	24	1632	160	3840
W 092	Dennis	MA	19	No	Yes	19	1360	160	3040
W 093	East Dennis	MA	23	No	Yes	23	1564	160	3680
W 094	South Dennis	MA	18	No	No	18	1940	180	3240
W 095	East Dennis	MA	20	No	Yes	20	1360	160	3200
W 096	Dennis	MA	23	No	Yes	23	1564	160	3680
W 097	Dennis	MA	16	No	Yes	16	1360	160	2560
W 098	East Dennis	MA	20	No	Yes	20	1360	160	3200
W 099	Medfield	MA	20	No	Yes	20	1360	160	3200
W 100	Paxton	MA	20	No	Yes	20	1360	160	3200
W 101	Chestnut Hill	MA	22	No	Yes	22	1496	160	3520
W 102	East Dennis	MA	23	No	Yes	23	1564	160	3680
W 103	Cambridge	MA	20	No	No	22	2134	180	3960
W 104	East Dennis	MA	24	No	Yes	27	1836	160	4320
W 105	Dennis	MA	26	No	Yes	27	1836	160	4320
W 106	Brookline	MA	20	No	Yes	20	1360	160	3200
W 107	Wellesley	MA	18	No	Yes	18	1360	160	2880
W 108	Plymouth	MA	27	No	Yes	28	2009	160	4480
W 109	Saint Augestine	FL	20	No	Yes	20	1360	160	3200
W 110	Reading	MA	22	No	Yes	22	1496	160	3520
W 111	Saddle River	NJ	27	No	Yes	27	1836	160	4320
W 112	Dover	MA	22	No	Yes	22	1360	160	3520
W 113	Yarmouth Port	MA	18	No	No	18	1940	180	3240
W 114	East Dennis	MA	21	No	Yes	21	1428	160	3360
W 115	Alexandria	VA	20	No	Yes	20	1360	160	3200
W 116	South Dennis	MA	21	No	Yes	21	1428	160	3360
W 117			21			21		180	3780
W 118	East Dennis	MA	22	No	Yes	24	1632	160	3840

W 119	South Dennis	MA	26	No	Yes	27	1941	160	4320
W 120			0	No	No	0	1940	180	0
W 121	Chatham	MA	30	No	Yes	30	2040	160	4800
W 122	Oxford	MA	40	No	No	42	4299	180	7560
W 123	East Dennis	MA	36	No	Yes	36	2448	160	5760
W 124	Brewster	MA	39	No	No	39	3783	180	7020
W 125	Newton	Ma	27		No	27	2619	180	4860
W 126	Brownsville	VT	24	No	Yes	24	1632	160	3840
W 127	Dennis	MA	22	No	Yes	22	1496	160	3520
W 128	East Dennis	MA	22	No	Yes	24	1632	160	3840
W 129	Naples	FL	20	No	Yes	20	1360	160	3200
W 130	Mansfield	MA	24	No	Yes	24	1632	160	3840
W 131	Colts Neck	NJ	16	No	Yes	16	1360	160	2560
W 132	Dennis	MA	25	No	Yes	25	1700	160	4000
W 133	South Dennis	MA	19	No	Yes	20	1360	160	3200

$949,680

Resident	150
Nonresider	170

	number	town	st	leng	comboat	denres	totallen	rate	fee due
E 001		Dennis	MA	35	Yes	Yes	35	150	5250
W 001		Dennis	MA	58	Yes	Yes	58	150	8700
W 002		East Denn	MA	50	Yes	Yes	51	150	7650
W 003		Harwich P	MA	42	Yes	No	42	170	7140
W 010		Dennis	MA	35	Yes	Yes	35	150	5250
W 011		So. Denni	MA	37	Yes	Yes	37	150	5550
W 012		Dennispor	MA	36	Yes	Yes	38	150	5700
W 013		South Yar	MA	42	Yes	No	45	170	7650
W 015		Plymouth	MA	29	Yes	No	29	170	4930
W 030		So. Denni	MA	30	Yes	Yes	30	150	4500
W 034		Dennis	MA	32	Yes	Yes	32	150	4800
E 006		Yarmouth	MA	26	Yes	No	30	170	5100
E 010		Brewster	MA	28	Yes	No	28	170	4760
W 007		East Denn	MA	36	Yes	Yes	36	150	5400
W 008		So. Denni	MA.	35	Yes	Yes	35	150	5250
W 009		East Denn	MA	35	Yes	Yes	35	150	5250
W 016		Dennis	MA	32	Yes	Yes	32	150	4800
W 026		Dennis	MA	36	Yes	Yes	36	150	5400
W 037		Shrewsbu	MA.	31	Yes	Yes	31	150	4650
W 067		South Den	MA	25	Yes	Yes	25	150	3750
W 075		Dennis	MA	28	Yes	Yes	28	150	4200
W 081		Orleans	MA	28	Yes	No	28	170	4760

Total Commercial Slip Revenue **$120,440**

					Avg 2013	20.9375		mooring base	200
					projected	20		over 16ft	10 /ft

number	town	st	leng	comboat	denres	totallen	feedue	fee due
SIB004	South Hadl	MA	52	Yes	Yes	52	438	560
SIB013	East Dennis	MA	20	Yes	Yes	20	182	240
SIB024	East Dennis	MA	31	Yes	Yes	31	270	350
SIB001			0	No	No	20	150	240
SIB002	Whitman	MA	25	No	Yes	25	222	290
SIB003	Wellesley	MA	16	No	Yes	16	150	200
SIB005	East Dennis	MA	24	No	Yes	24	214	280
SIB006	South Denr	MA	16	No	Yes	16	150	200
SIB007	Sacrament	CA	16	No	Yes	16	150	200
SIB008	East Dennis	MA	27	No	Yes	27	238	310
SIB009			0	No	No	20	0	240
SIB010	East Dennis	MA	22	No	Yes	22	198	260
SIB011	Holden	MA	24	No	No	24	214	280
SIB012	Waban	MA	22	No	Yes	22	198	260
SIB014	Brewster	MA	21	No	No	21	190	250
SIB015	Dennis	MA	22	No	No	22	198	260
SIB016			0	No	No	20	0	240
SIB017	East Dennis	MA	22	No	Yes	22	198	260
SIB018	Brewster	MA	41	No	No	41	350	450
SIB019	East Sandw	MA	26	No	No	32	278	360
SIB020	Winchester	MA	22	No	No	22	198	260
SIB021	East Dennis	MA	22	No	Yes	22	198	260
SIB022			0	No	No	20	0	240
SIB023			0	No	No	20	0	240
SIB025	Brewster	MA	25	No	No	25	222	290
SIB026	Dennis	MA	16	No	Yes	16	150	200
SOB001	East Dennis	MA	18	No	Yes	18	166	220
SOB002	Chestnut H	MA	12	No	Yes	16	150	200
SOB003	Brewster	MA	16	No	Yes	16	150	200
SOB004			0	No	No	20	0	240
SOB005	Medfield	MA	18	No	Yes	18	166	220
SOB006			0	No	No	20	0	240
SOB007	Dennis	MA	18	No	Yes	18	166	220
SOB008	Sherborn	MA	18	No	Yes	18	166	220
SOB009			0	No	No	20	0	240
SOB010	East Dennis	MA	16	No	Yes	16	150	200
SOB011	East Dennis	MA	16	No	Yes	16	150	200
SOB012	East Dennis	MA	16	No	Yes	16	150	200
SOB013			0	No	No	20	0	240
SOB014	Harwich	MA	18	No	Yes	18	166	220
SOB015			0	No	No	20	0	240
SOB016			0	No	No	20	0	240
SOB017			0	No	No	20	0	240
SOB018	East Dennis	MA	16	No	Yes	16	150	200
SOB019	Madison	NH	18	No	Yes	18	166	220
SOB020						20	150	240
NEW W/ EXPANDED OUTER BASIN						20		240
NEW W/ EXPANDED OUTER BASIN						20		240
NEW W/ EXPANDED OUTER BASIN						20		240
NEW W/ EXPANDED OUTER BASIN						20		240
NEW W/ EXPANDED OUTER BASIN						20		240
NEW W/ EXPANDED OUTER BASIN						20		240
NEW W/ EXPANDED OUTER BASIN						20		240
NEW W/ EXPANDED OUTER BASIN						20		240
NEW W/ EXPANDED OUTER BASIN						20		240
NEW W/ EXPANDED OUTER BASIN						20		240
NEW W/ EXPANDED OUTER BASIN						20		240
NEW W/ EXPANDED OUTER BASIN						20		240
						140	per pram	8120
							Total	22660

16-May-14

Town Marina - Wages and Benefits

Position	Description	# Hrs	Equivalent Per Hour	Gross Wages	Notes:
Dockmaster	**Full-Time**	**2080**	31.25	**$ 65,000**	One Full-time (alternating two weekdays off)
Ass't Dockmaster	**Full-Time**	**2080**	20.00	**41,600**	One Full-time (alternating two weekdays off)
Marina Office Manager	**Full-Time**	**2080**	16.50	**34,320**	One full-time (Mon-Fri)
Seasonal Ass't Dockmasters	**Part-Time**	**900**	13.00	**11,700**	Two part-time to cover Fri-Sun each week, Memorial Day-Labor Day, 10 hrs/day.
Seasonal Dockpersons	**Part Time**	**4224**	10.50	**44,352**	Part-time to cover all 7 days per week with 4 persons from Memorial Day-Labor Day, and two persons from May 1st-Memorial Day and Labor Day-October 1st (assume 27 days in May & Sept.). Assume MA minimum wage is $10.50.
Seasonal Gate Attendants	**Part Time**	**1050**	10.50	**11,025**	Two part-time to cover 10 hrs/day, 7 days/week, Memorial Day-Labor Day.
Totals		**12414**		**207,997**	
Add load for benefits @ 20% for full-time employees				**28,184**	
Total Wages and Benefits				**$ 236,181.00**	Wages & Benefits are expected to increase at 2% per year after the first year.

16-May-14

Town Marina - Notes on Operating Expenses

Electricity - Going forward each slip will be seperately metered for electric usage and each slipholder will be billed for their actual usage plus an overage. Industry-typical practice is to generate between $60 and $100 per slip in revenue for the facility. This proforma assumes $80 per slip in net revenue. The rest of the facility's electric needs are estimated to be within the industry-typical $20 to $30 per slip, with this proforma estimating the cost to be $25 per slip with a 1% increase each subsequent year.

Water & Sewer - As with electricity, water & sewer are estimated based on industry-typical. The proforma estimates water & sewer at $10 per slip, with a 1% increase each subsequent year.

Communications - This category includes phone, internet, and local (walkie-talkie) communication costs. It is estimated that phone/internet will cost $250 per month and upkeep of local communications gear will be $100 per month with a 1% increase each subsequent year.

Advertising & Marketing - Given the demand for slips on the Cape and the expected welcoming of the renewed facilities, there is no expectation of the need for full-scale launch promotion. There will be the need to do local promotion to "get the word out" about the upgrade in facilities, and a need to prepare new in-office slip rate marketing brochures. A budget of $5,000 spread over the first two years should be adequate, with a minimal budget for printing updated brochures each year of $1,000 with a 1% increase each subsequent year.

Office Supplies - Using industry-typical data, office supplies are projected at $1,000 per year with a 1% increase each subsequent year.

Vehicle Expenses - Using historical actuals for the facility, and taking the age/condition of the existing road vehicles into account, it is estimted that the cost to register, operate and maintain the facility's vehicles will be $2,500 per year with a 1% increase each subsequent year.

Dues and Subscriptions - Based on industry practices it is projected that the facility will maintain membership in the AMI and any appropriate marina owner/operator organizations and will provide educational opportunities for key personnel. Annual costs are estimated to be $2,000 per year with a 1% increase each subsequent year.

Operating Supplies - Using historical actuals for the facility it is projected that non-classified operating supplies could be required totaling $3,000 per year with a 1% increase each subsequent year.

Miscellaneous - Based on industry practice it is projected that there will be an occasional need to provide for unbudgeted items. The proforma reflects a $2,000 charge with a 1% increase each subsequent year.

Repairs & Maintenance - See *Key Assumptions #s 6 & 7* on the 10-Year Operating Proforma for detailed descriptions.

16-May-14

TOWN MARINA - OPERATING PROFORMA - Replacement Facility

	Year 2xx1	2xx2	2xx3	2xx4	2xx5	2xx6	2xx7	2xx8	2xx9	2x10	2x11	2x12	2x13	2x14	2x15
REVENUES															
Slip Fees	$532,590	$852,144	$1,065,180	$1,097,135	$1,130,049	$1,163,951	$1,198,869	$1,234,836	$1,234,836	$1,234,836	$1,234,836	$1,234,836	$1,234,836	$1,234,836	$1,234,836
Mooring & Pram Fees	25,858	25,858	26,634	26,634	27,433	27,433	28,256	28,256	29,103	29,103	29,977	29,977	30,876	30,876	31,802
Transient Fees	53,820	53,820	55,435	55,435	57,098	57,098	58,811	58,811	60,575	60,575	62,392	62,392	64,264	64,264	66,192
Wait List Fees	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
Commercial Slip Fees	135,960	135,960	135,960	$140,039	$144,240	$148,567	$153,024	$157,615	$157,615	$157,615	$157,615	$157,615	$157,615	$157,615	$157,615
Commercial Permits	4,360	4,360	4,360	4,360	4,360	4,360	4,360	4,360	4,360	4,360	4,360	4,360	4,360	4,360	4,360
Utility Revenue	11,600	18,560	23,200	23,896	24,613	25,351	26,112	26,895	27,702	28,533	29,389	30,271	31,179	32,114	33,078
Ramp Parking Fees															
West @ $8	12,353	12,600	12,852	13,109	13,371	13,639	13,911	14,190	14,474	14,763	15,058	15,359	15,667	15,980	16,300
West @ $10	16,829	17,166	17,509	17,859	18,216	18,581	18,952	19,331	19,718	20,112	20,514	20,925	21,343	21,770	22,206
West @ $15	8,925	9,104	9,286	9,471	9,661	9,854	10,051	10,252	10,457	10,666	10,880	11,097	11,319	11,545	11,776
East @ $8	3,660	3,733	3,808	3,884	3,962	4,041	4,122	4,204	4,288	4,374	4,462	4,551	4,642	4,735	4,829
East @ $10	10,970	11,189	11,413	11,641	11,874	12,112	12,354	12,601	12,853	13,110	13,372	13,640	13,913	14,191	14,475
Total Operating Revenues	817,125	1,144,694	1,365,836	1,403,663	1,445,077	1,485,186	1,529,022	1,571,550	1,576,181	1,578,247	1,583,054	1,585,222	1,590,212	1,592,485	1,597,667
EXPENSES															
Wages and Benefits	236,181	240,905	245,723	250,637	255,650	260,763	265,978	271,298	276,724	282,258	287,903	293,661	299,535	305,525	311,636
Electric	7,250	7,323	7,396	7,470	7,544	7,620	7,696	7,773	7,851	7,929	8,009	8,089	8,169	8,251	8,334
Water and Sewer	2,900	2,929	2,958	2,988	3,018	3,048	3,078	3,109	3,140	3,172	3,203	3,235	3,268	3,300	3,333
Communications	4,200	4,242	4,284	4,327	4,371	4,414	4,458	4,503	4,548	4,593	4,639	4,686	4,733	4,780	4,828
Advertising and Marketing	2,500	2,500	1,000	1,010	1,020	1,030	1,041	1,051	1,062	1,072	1,083	1,094	1,105	1,116	1,127
Office Supplies	1,000	1,010	1,020	1,030	1,041	1,051	1,062	1,072	1,083	1,094	1,105	1,116	1,127	1,138	1,149
Vehicles	2,500	2,525	2,550	2,576	2,602	2,628	2,654	2,680	2,707	2,734	2,762	2,789	2,817	2,845	2,874
Dues and Subscriptions	2,000	2,020	2,040	2,061	2,081	2,102	2,123	2,144	2,166	2,187	2,209	2,231	2,254	2,276	2,299
Operating Supplies	3,000	3,030	3,060	3,091	3,122	3,153	3,185	3,216	3,249	3,281	3,314	3,347	3,380	3,414	3,448
Miscellaneous	2,500	2,525	2,550	2,576	2,602	2,628	2,654	2,680	2,707	2,734	2,762	2,789	2,817	2,845	2,874
Total Operating Expenses	264,031	269,008	272,582	277,765	283,049	288,436	293,928	299,527	305,236	311,055	316,988	323,037	329,204	335,492	341,902
EBITDA & Reserves - Earnings Before Interest, Taxes, Depreciation and Amortization AND RESERVES	$553,094	$875,686	$1,093,254	$1,125,898	$1,162,028	$1,196,749	$1,235,094	$1,272,023	$1,270,945	$1,267,192	$1,266,066	$1,262,184	$1,261,008	$1,256,994	$1,255,766
R&R Reserve - Land/Water Impmt's *See Key Assumptions # 6 Est. @ $8.35M, Est. Life - 25 yrs*	(334,000)	(334,000)	(334,000)	(334,000)	(334,000)	(334,000)	(334,000)	(334,000)	(334,000)	(334,000)	(334,000)	(334,000)	(334,000)	(334,000)	(334,000)
R&R Reserve - Shoreline *See Key Assumptions # 7 Est. @ $6.6M, Est. Life - 30 yrs*	(220,000)	(220,000)	(220,000)	(220,000)	(220,000)	(220,000)	(220,000)	(220,000)	(220,000)	(220,000)	(220,000)	(220,000)	(220,000)	(220,000)	(220,000)
R&R Reserve - Dredging *See Key Assumptions # 7 Est. @ $2.2M, Est. Life - 15 yrs*	(146,667)	(146,667)	(146,667)	(146,667)	(146,667)	(146,667)	(146,667)	(146,667)	(146,667)	(146,667)	(146,667)	(146,667)	(146,667)	(146,667)	(146,667)
EBITDA	(147,573)	175,019	392,587	425,232	461,361	496,083	534,427	571,356	570,278	566,526	565,399	561,518	560,341	556,327	555,099
Debt Service Costs - Assumed at Interest-only Through First Year of Stabilized Operations, Amortized over 22 years @ Prime (3.25%) Plus ¼ % - Hence $17.15M @ 3.375%	(578,813)	(578,813)	(578,813)	(1,105,488)	(1,105,488)	(1,105,488)	(1,105,488)	(1,105,488)	(1,105,488)	(1,105,488)	(1,105,488)	(1,105,488)	(1,105,488)	(1,105,488)	(1,105,488)
"Effective" Net Cash Flow Before Taxes, Dep'n & Amortization	**($726,385)**	**($403,794)**	**($186,225)**	**($680,256)**	**($644,127)**	**($609,405)**	**($571,061)**	**($534,132)**	**($535,210)**	**($538,962)**	**($540,089)**	**($543,970)**	**($545,147)**	**($549,161)**	**($550,389)**

15-year Total Cash Flow **($8,158,314)**

Key Assumptions:

1. Facility is totally replaced - shoreline stabilized, basin dredged (along w/ Northside's), installation of new docks (Structuremarine-type), utilities and anchoring system in same basin configuration as presently exists.
2. New power posts have integrated metering of individual slip electrical usage. As a result there will now be revenue generated from the "sale" of electricity to slip customers. Only the net revenue from these sales is shown in the proforma. The industry-typical revenue generated from the metering and billing of actual usage is between $60 and $100 per slip per season. The proforma reflects $80 per occupied slip in the first 3 years with a 3% increase per year thereafter.
3. Facility renovation will take one full year (Year 2xx1 minus 1). Resumed operations will result in first year (2xx1) assumed to be 50% occupied, second year (2xx2) 80% occupied, and a return to stabilized operations in third year (2xx3).
4. Slip rental fees are projected to increase 3% per year for first five years after stabilized operations, then increase 5% every third year thereafter.
5. Expense details can be found on the separate *Notes on Operating Expenses* page..
6. Since the operating assets will be 100% new at the beginning of year 2xx1, it will be necessary to create a Reserve for Repairs and Replacement to cover any and all maintenance, repair and, ultimately, replacement of Land/Water Imp's. As is customary in the industry, this annual charge to expenses for the reserve is to be calculated by taking the total cost of the new facilities (soft & hard costs) , dividing by approx. twenty to twenty-five (depending on the expected useful life of the new facilities), and reducing the result by the actual expenditures for any necessary maintenance and repairs in arriving at EDITDA (*earnings before interest, taxes, depreciation and amortization*). The amount so calculated must be fully funded on a current basis. For cash flow purposes it is recommended to be funded 50% every July and Nov.
7. The Reserve for Repairs and Replacement to cover shoreline stabilization and the dredging of the basin should be calculated in a similar fashion to that of the marina components, with the estimated useful life of both estimated using historical experience and input from the contractors selected to perform the work. As with the marina components reserve these reserves must be fully funded on a current basis and for cash flow purposes it is recommended to be funded 50% every July and Nov.
8. Mooring Fees are assumed to increase 50% from present pricing levels for first year (2xx1) then increase 3% every other year beginning with third operating year (2xx3).
9. Transient Fees are projected to double their present levels for the first year (2xx1) then increase 3% every other year beginning with second operating year (2xx2).
10. Any taxes collected and remitted are neither revenues nor expenses of the marina operations and are not reflected in this proforma.
11. Commercial Slip Fees are projected to be a combination of the regular slip fee charged for the appropriate length of required slip PLUS a Commercial operator permit f constant demand for commercial berthing, it is assumed that stabilized operations resume in the first year (2xx1) and continue at same rate through year three (2xx3) then increase 3% per year. A revised commecial vessel berthing contract that includes an additional %age of gross revenues may be an appropriate alternative.
12. Ramp Parking Fees for both east and west ramps are projected to resume at present levels in the first year (2xx1). They are projected to increase 2% per year thereafter as a result of both increased fee levels and increased demand.
13. Wait List Fees are immaterial and projected to be a minimal $200 per year.

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16-May-14

TOWN MARINA - OPERATING PROFORMA - Replacement Facility

	Year 2xx1	2xx2	2xx3	2xx4	2xx5	2xx6	2xx7	2xx8	2xx9	2x10	2x11	2x12	2x13	2x14	2x15
REVENUES															
Slip Fees	$532,590	$852,144	$1,065,180	$1,097,135	$1,130,049	$1,163,951	$1,198,869	$1,234,836	$1,234,836	$1,234,836	$1,234,836	$1,234,836	$1,234,836	$1,234,836	$1,234,836
Mooring & Pram Fees	25,858	25,858	26,634	26,634	27,433	27,433	28,256	28,256	29,103	29,103	29,977	29,977	30,876	30,876	31,802
Transient Fees	53,820	53,820	55,435	55,435	57,098	57,098	58,811	58,811	60,575	60,575	62,392	62,392	64,264	64,264	66,192
Wait List Fees	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
Commercial Slip Fees	135,960	135,960	135,960	$140,039	$144,240	$148,567	$153,024	$157,615	$157,615	$157,615	$157,615	$157,615	$157,615	$157,615	$157,615
Commercial Permits	4,360	4,360	4,360	4,360	4,360	4,360	4,360	4,360	4,360	4,360	4,360	4,360	4,360	4,360	4,360
Utility Revenue	11,600	18,560	23,200	23,896	24,613	25,351	26,112	26,895	27,702	28,533	29,389	30,271	31,179	32,114	33,078
Ramp Parking Fees															
West @ $8	12,353	12,600	12,852	13,109	13,371	13,639	13,911	14,190	14,474	14,763	15,058	15,359	15,667	15,980	16,300
West @ $10	16,829	17,166	17,509	17,859	18,216	18,581	18,952	19,331	19,718	20,112	20,514	20,925	21,343	21,770	22,206
West @ $15	8,925	9,104	9,286	9,471	9,661	9,854	10,051	10,252	10,457	10,666	10,880	11,097	11,319	11,545	11,776
East @ $8	3,660	3,733	3,808	3,884	3,962	4,041	4,122	4,204	4,288	4,374	4,462	4,551	4,642	4,735	4,829
East @ $10	10,970	11,189	11,413	11,641	11,874	12,112	12,354	12,601	12,853	13,110	13,372	13,640	13,913	14,191	14,475
Total Operating Revenues	817,125	1,144,694	1,365,836	1,403,663	1,445,077	1,485,186	1,529,022	1,571,550	1,576,181	1,578,247	1,583,054	1,585,222	1,590,212	1,592,485	1,597,667
EXPENSES															
Wages and Benefits	236,181	240,905	245,723	250,637	255,650	260,763	265,978	271,298	276,724	282,258	287,903	293,661	299,535	305,525	311,636
Electric	7,250	7,323	7,396	7,470	7,544	7,620	7,696	7,773	7,851	7,929	8,009	8,089	8,169	8,251	8,334
Water and Sewer	2,900	2,929	2,958	2,988	3,018	3,048	3,078	3,109	3,140	3,172	3,203	3,235	3,268	3,300	3,333
Communications	4,200	4,242	4,284	4,327	4,371	4,414	4,458	4,503	4,548	4,593	4,639	4,686	4,733	4,780	4,828
Advertising and Marketing	2,500	2,500	1,000	1,010	1,020	1,030	1,041	1,051	1,062	1,072	1,083	1,094	1,105	1,116	1,127
Office Supplies	1,000	1,010	1,020	1,030	1,041	1,051	1,062	1,072	1,083	1,094	1,105	1,116	1,127	1,138	1,149
Vehicles	2,500	2,525	2,550	2,576	2,602	2,628	2,654	2,680	2,707	2,734	2,762	2,789	2,817	2,845	2,874
Dues and Subscriptions	2,000	2,020	2,040	2,061	2,081	2,102	2,123	2,144	2,166	2,187	2,209	2,231	2,254	2,276	2,299
Operating Supplies	3,000	3,030	3,060	3,091	3,122	3,153	3,185	3,216	3,249	3,281	3,314	3,347	3,380	3,414	3,448
Miscellaneous	2,500	2,525	2,550	2,576	2,602	2,628	2,654	2,680	2,707	2,734	2,762	2,789	2,817	2,845	2,874
Total Operating Expenses	264,031	269,008	272,582	277,765	283,049	288,436	293,928	299,527	305,236	311,055	316,988	323,037	329,204	335,492	341,902
EBITDA & Reserves - Earnings Before Interest, Taxes, Depreciation and Amortization AND RESERVES	$553,094	$875,686	$1,093,254	$1,125,898	$1,162,028	$1,196,749	$1,235,094	$1,272,023	$1,270,945	$1,267,192	$1,266,066	$1,262,184	$1,261,008	$1,256,994	$1,255,766
R&R Reserve - Land/Water Impmt's *See Key Assumptions # 6 Est. @ $8.35M, Est. Life - 25 yrs*	(334,000)	(334,000)	(334,000)	(334,000)	(334,000)	(334,000)	(334,000)	(334,000)	(334,000)	(334,000)	(334,000)	(334,000)	(334,000)	(334,000)	(334,000)
R&R Reserve - Dredging *See Key Assumptions # 7 Est. @ $2.2M, Est. Life - 15 yrs*	(146,667)	(146,667)	(146,667)	(146,667)	(146,667)	(146,667)	(146,667)	(146,667)	(146,667)	(146,667)	(146,667)	(146,667)	(146,667)	(146,667)	(146,667)
EBITDA	72,427	395,019	612,587	645,232	681,361	716,083	754,427	791,356	790,278	786,526	785,399	781,518	780,341	776,327	775,099
Debt Service Costs - Assumed at Interest-only Through First Year of Stabilized Operations, Amortized over 22 years @ Prime (3.25%) Plus ¼ % - Hence $10.55M @ 3.375%	(356,063)	(356,063)	(356,063)	(680,052)	(680,052)	(680,052)	(680,052)	(680,052)	(680,052)	(680,052)	(680,052)	(680,052)	(680,052)	(680,052)	(680,052)
"Effective" Net Cash Flow Before Taxes, Dep'n & Amortization	**($283,635)**	**$38,956**	**$256,525**	**($34,820)**	**$1,309**	**$36,031**	**$74,375**	**$111,304**	**$110,226**	**$106,474**	**$105,347**	**$101,466**	**$100,289**	**$96,275**	**$95,047**

15-year Total Cash Flow **$915,168**

Key Assumptions:

1 Facility is totally replaced - basin dredged (along w/ Northside's), installation of new docks (Structuremarine-type), utilities and an same basin configuration as presently exists.

2 New power posts have integrated metering of individual slip elect result there will now be revenue generated from the "sale" of ele customers. Only the net revenue from these sales is shown in th industry-typical revenue generated from the metering and billing is between $60 and $100 per slip per season. The proforma refle slip in the first 3 years with a 3% increase per year thereafter.

3 Facility renovation will take one full year (Year 2xx1 minus 1). Res will result in first year (2xx1) assumed to be 50% occupied, secon occupied, and a return to stabilized operations in third year (2xx

4 Slip rental fees are projected to increase 3% per year for first five operations, then increase 5% every third year thereafter.

5 Expense details can be found on the separate *Notes on Operating*

6 Since the operating assets will be 100% new at the beginning of ye necessary to create a Reserve for Repairs and Replacement to co maintenance, repair and, ultimately, replacement of Land/Water in the industry, this annual charge to expenses for the reserve is by taking the total cost of the new facilities (soft & hard costs) , d twenty to twenty-five (depending on the expected useful life of t and reducing the result by the actual expenditures for any neces repairs in arriving at EDITDA (*earnings before interest, taxes, dep amortization*). The amount so calculated must be fully funded o For cash flow purposes it is recommended to be funded 50% eve

7 The Reserve for Repairs and Replacement to cover shoreline stabi dredging of the basin should be calculated in a similar fashion to components, with the estimated useful life of both estimated usi experience and input from the contractors selected to perform tl the marina components reserve these reserves must be fully fun and for cash flow purposes it is recommended to be funded 50%

8 Mooring Fees are assumed to increase 50% from present pricing l (2xx1) then increase 3% every other year beginning with third op

9 Transient Fees are projected to double their present levels for the increase 3% every other year beginning with second operating ye

10 Any taxes collected and remitted are neither revenues nor expens operations and are not reflected in this proforma.

11 Commercial Slip Fees are projected to be a combination of the reg charged for the appropriate length of required slip PLUS Comme constant demand for commercial berthing, it is assumed that sta resume in the first year (2xx1) and continue at same rate throug then increase 3% per year. A revised commecial vessel berthing includes an additional %age of gross revenues may be an approp

12 Ramp Parking Fees for both east and west ramps are projected to levels in the first year (2xx1). They are projected to increase 2% a result of both increased fee levels and increased demand.

13 Wait List Fees are immaterial and projected to be a minimal $200

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Resident	180
Nonresider	200

Town Marina - SLIP REVENUE

number	town	st	leng	comboat	denres	totallen	feedue	rate	fee due
E 002	Brewster	MA	26	No	No	29	2813	200	5800
E 003	Brewster	MA	23	No	No	28	2716	200	5600
E 004	South Dennis	MA	16	No	Yes	16	1360	180	2880
E 005	Dennis	MA	20	No	Yes	20	1360	180	3600
E 007	Dennis	MA	30	No	Yes	30	2145	180	5400
E 008	South Dennis	MA	27	No	Yes	27	1836	180	4860
E 009	Brewster	MA	28	No	No	28	2716	200	5600
E 011	Yarmouth Port	MA	28	No	No	31	3007	200	6200
E 012	Reading	MA	27	No	Yes	30	2145	180	5400
E 013	Brewster	MA	29	No	No	29	2918	200	5800
E 014	Dennis	MA	25	No	Yes	30	2040	180	5400
E 015	Chestnut Hill	MA	42	No	Yes	42	2961	180	7560
E 016	Medfield	MA	13	No	Yes	13	1360	180	2340
E 017			0	No	Yes	0	1360	180	0
E 018	Dennis	MA	28	No	Yes	31	2213	180	5580
E 019	Westford	MA	29	No	No	31	3112	200	6200
E 020	Worcester	MA	29	No	Yes	31	2213	180	5580
E 021	Foxboro	MA	29	No	Yes	29	1972	180	5220
E 022	East Dennis	MA	26	No	Yes	29	1972	180	5220
E 023	Nokomis	FL	25	No	Yes	28	1904	180	5040
E 024	East Dennis	MA	42	No	Yes	45	3285	180	8100
E 025	Leicester	MA	28	No	Yes	28	1904	180	5040
E 026	East Dennis	MA	24	No	Yes	24	1632	180	4320
E 027	Brewster	MA	25	No	No	25	2425	200	5000
E 028	Stoneham	MA	16	No	Yes	16	1360	180	2880
E 029	Fayville	MA	27	No	No	27	2724	200	5400
E 030	Dover	MA	21	No	No	21	2037	200	4200
E 031	Dennis	MA	26	No	Yes	26	1873	180	4680
E 032	Tyngsboro	MA	24	No	Yes	24	1632	180	4320
E 033	Martinsville	NJ	30	No	Yes	34	2537	180	6120
E 034	East Dennis	MA	19	No	Yes	19	1360	180	3420
E 035	Belmont	MA	13	No	Yes	13	1360	180	2340
E 036	East Dennis	MA	13	No	Yes	13	1360	180	2340
E 037	Northboro	MA	21	No	Yes	21	1428	180	3780
E 038	Dennis	MA	25	No	Yes	26	1768	180	4680
E 039	Dennis	MA	24	No	Yes	24	1632	180	4320
E 040	Hopedale	MA	25	No	Yes	26	1768	180	4680
E 041	Ware	MA	22	No	Yes	22	1496	180	3960
E 042	East Dennis	MA	19	No	Yes	19	1360	180	3420
E 043	East Dennis	MA	22	No	Yes	22	1496	180	3960
E 044	Cataumet	MA	22	No	No	22	2134	200	4400
E 045	So Windsor	CT	24	No	No	24	2433	200	4800
E 046	East Dennis	MA	20	No	Yes	21	1428	180	3780
E 047	Winchester	MA	20	No	Yes	20	1360	180	3600
E 048	Sudbury	MA	28	No	Yes	28	1904	180	5040
E 049	East Dennis	MA	21	No	Yes	21	1428	180	3780
E 050	Dennis	MA	22	No	Yes	23	1564	180	4140
E 051	Yarmouthport	MA	21	No	No	21	2037	200	4200
E 052	Holliston	MA	20	No	Yes	21	1428	180	3780
E 053	South Dennis	MA	20	No	Yes	20	1360	180	3600
E 054	Granby	MA	24	No	Yes	25	1700	180	4500
E 055	Dennis	MA	21	No	Yes	22	1496	180	3960
E 056	East Dennis	MA	18	No	Yes	18	1360	180	3240
E 057	Dennis	MA	17	No	Yes	19	1360	180	3420
E 058	Hopkington	MA	19	No	Yes	19	1360	180	3420
E 059	Tewksbury	MA	22	No	Yes	23	1564	180	4140
E 060			20	No	No	20	1940	200	4000
E 061	Dennis	MA	20	No	No	20	1940	200	4000
E 062	Brewster	MA	20	No	No	20	1940	200	4000
E 063	Longmeadow	MA	21	No	Yes	22	1496	180	3960
E 064			20			20		200	4000
E 065	East Bridgewat	MA	22	No	No	24	2328	200	4800
E 066	Uxbridge	MA	20	No	Yes	20	1360	180	3600
E 067	Dennis	MA	24	No	Yes	24	1632	180	4320
E 068	Dennis	MA	18	No	Yes	18	1360	180	3240
E 069	East Dennis	MA	16	No	Yes	16	1360	180	2880
E 070	Dennis	MA	19	No	Yes	19	1360	180	3420
E 071	Brewster	MA	20	No	No	20	1940	200	4000
E 072	S. Dennis	MA	23	No	Yes	23	1564	180	4140
E 073	South Dennis	MA	28	No	Yes	29	2077	180	5220
E 074	Brewster	MA	24	No	No	26	2522	200	5200
E 075	East Dennis	MA	21	No	Yes	21	1428	180	3780

E 076	Dennis	MA	19	No	Yes	19	1360	180	3420
E 077	South Yarmoutl	MA	24	No	No	27	2619	200	5400
E 078	Harwich	MA	21	No	No	21	2037	200	4200
E 079	East Dennis	MA	22	No	Yes	22	1496	180	3960
E 080	Brewster	MA	20	No	No	22	2134	200	4400
E 081	Middleboro	MA	22	No	No	22	2134	200	4400
E 082	Worcester	MA	26	No	Yes	28	1904	180	5040
E 083	Westwood	MA	17	No	Yes	17	1360	180	3060
E 084	East Dennis	MA	22	No	Yes	24	1632	180	4320
E 085	Dennis	MA	16	No	Yes	16	1360	180	2880
E 086	Needham	MA	22	No	Yes	22	1496	180	3960
E 087	Concord	MA	19	No	Yes	19	1360	180	3420
E 088	Millington	NJ	23	No	Yes	23	1564	180	4140
E 089	Canton	MA	25	No	No	26	2522	200	5200
E 090	South Dennis	MA	20	No	Yes	20	1360	180	3600
E 091	Wellesley Hills	MA	24	No	Yes	24	1632	180	4320
E 092	South Dennis	MA	22	No	Yes	23	1564	180	4140
E 093	Jefferson	MA	20	No	No	20	1940	200	4000
E 094	South Dennis	MA	24	No	Yes	24	1632	180	4320
E 095	Enfield	CT	20	No	Yes	20	1360	180	3600
E 096	Dennis	MA	27	No	Yes	29	2077	180	5220
E 097	Brewster	MA	26	No	No	26	2627	200	5200
E 098	South Dennis	MA	22	No	Yes	22	1496	180	3960
E 099	Brewster	MA	19	No	No	19	1940	200	3800
E 100	Belmont	MA	20	No	Yes	20	1360	180	3600
E 101	Salem	NH	20	No	Yes	20	1360	180	3600
E 102	Northboro	MA	22	No	Yes	23	1564	180	4140
E 103	Bedford	MA	22	No	Yes	22	1496	180	3960
E 104	Englewood	FL	24	No	No	28	2716	200	5600
E 105	Duxbury	MA	26	No	Yes	28	1904	180	5040
E 106	Hopedale	MA	22	No	No	22	2134	200	4400
E 107	South Dennis	MA	20	No	Yes	20	1360	180	3600
E 108	Brewster	MA	24	No	No	24	2328	200	4800
E 109	Concord	MA	26	No	No	26	2522	200	5200
E 110	Brewster	MA	22	No	No	24	2328	200	4800
E 111	Dennis	MA	21	No	Yes	21	1428	180	3780
E 112	East Dennis	MA	24	No	Yes	24	1737	180	4320
E 113	Dennis	MA	19	No	Yes	19	1360	180	3420
E 114	Sudbury	MA	24	No	Yes	24	1632	180	4320
E 115	Dennis	MA	22	No	Yes	22	1496	180	3960
E 116	Brewster	MA	20	No	Yes	20	1360	180	3600
E 117	Dennis	MA	23	No	No	23	2336	200	4600
E 118	East Dennis	MA	25	No	Yes	25	1700	180	4500
E 119	Medfield	MA	20	No	Yes	20	1360	180	3600
E 120	South Dennis	MA	22	No	Yes	23	1564	180	4140
E 121	Dennis	MA	23	No	Yes	25	1700	180	4500
E 122	East Dennis	MA	18	No	Yes	18	1360	180	3240
E 123	Dennis	MA	20	No	Yes	20	1360	180	3600
E 124	South Dennis	MA	30	No	Yes	30	2145	180	5400
E 125	East Dennis	MA	31	No	Yes	31	2213	180	5580
E 126	Brewster	MA	34	No	Yes	34	2312	180	6120
E 127	NA	NA	0	No	No	0	1940	200	0
W 004	South Dennis	MA	38	No	Yes	41	3013	180	7380
W 005	Wellesley	MA	43	No	Yes	43	3149	180	7740
W 006	Sherborn	MA	33	No	Yes	33	2349	180	5940
W 014	Blackstone	MA	35	No	No	35	3500	200	7000
W 017	Dennis	MA	55	No	Yes	56	3913	180	10080
W 018	NA	NA	30	No	Yes	30		180	5400
W 019	East Dennis	MA	31	No	Yes	31	2213	180	5580
W 020	Boston	MA	26	No	Yes	26	1768	180	4680
W 021	Bratleboro	VT	32	No	Yes	32	2281	180	5760
W 022	East Dennis	MA	26	No	Yes	26	1768	180	4680
W 023	NewRochelle	NY	29	No	No	33	3201	200	6600
W 024	Dennis	MA	37	No	Yes	39	2757	180	7020
W 025	Westport	CT	27	No	Yes	30	2145	180	5400
W 027	Dennis	MA	28	No	Yes	30	2145	180	5400
W 028	Belchertown	MA	20	No	No	22	2134	200	4400
W 029	Yarmouth Port	MA	23	No	No	23	2231	200	4600
W 031	West Yarmouth	MA	31	No	No	33	3306	200	6600
W 032	Dennis	MA	31	No	Yes	31	2213	180	5580
W 033	Dennis	MA	29	No	Yes	29	2077	180	5220
W 035	So. Dennis	MA	27	No	Yes	28	2009	180	5040
W 036	Dennis	MA	28	No	Yes	29	2077	180	5220
W 038	East Dennis	MA	24	No	Yes	25	1700	180	4500
W 039	South Dennis	MA	23	No	Yes	23	1564	180	4140
W 040	Dennis	MA	22	No	Yes	22	1496	180	3960
W 041	Dennis	MA	20	No	Yes	20	1360	180	3600

W 042	Needham	MA	20	No	Yes	21	1428	180	3780
W 043	East Dennis	MA	21	No	Yes	21	1428	180	3780
W 044			20			20		200	4000
W 045	Brewster	MA	24	No	No	27	2619	200	5400
W 046	Dennis	MA	20	No	Yes	20	1360	180	3600
W 047	Dennis	MA	24	No	Yes	25	1805	180	4500
W 048	Needham	MA	20	No	Yes	20	1360	180	3600
W 049	Hopkinton	MA	25	No	Yes	27	1941	180	4860
W 050	Jensen Beach	FL	21	No	Yes	21	1428	180	3780
W 051	Needham	MA	22	No	Yes	23	1564	180	4140
W 052	Norwood	MA	24	No	No	24	2328	200	4800
W 053	Dennis	MA	20	No	Yes	20	1360	180	3600
W 054	East Dennis	MA	24	No	Yes	25	1805	180	4500
W 055	East Dennis	MA	20	No	Yes	20	1360	180	3600
W 056	Dennis	MA	21	No	Yes	21	1533	180	3780
W 057	Quincy	MA	21	No	Yes	21	1428	180	3780
W 058	Dennis	MA	17	No	Yes	17	1360	180	3060
W 059	Dennis	MA	22	No	Yes	22	1496	180	3960
W 060	South Dennis	MA	21	No	Yes	21	1428	180	3780
W 061	Wellesley	MA	21	No	Yes	21	1428	180	3780
W 062	South Yarmoutl	MA	22	No	No	22	2134	200	4400
W 063	N. Eastham	MA	25	No	Yes	25	1700	180	4500
W 064	Arlington	MA	22	No	Yes	22	1496	180	3960
W 065	Wilmington	MA	20	No	Yes	20	1360	180	3600
W 066	Dennis	MA	25	No	Yes	25	1700	180	4500
W 068	Shrewsbury	MA	31	No	Yes	31	2108	180	5580
W 069	Dennis	MA	28	No	Yes	30	2145	180	5400
W 070	Dennis	MA	28	No	Yes	28	2009	180	5040
W 071	East Dennis	MA	31	No	Yes	31	2213	180	5580
W 072	South Dennis	MA	27	No	Yes	30	2145	180	5400
W 073	Dennis	MA	27	No	Yes	27	1941	180	4860
W 074	Esat Dennis	MA	32	No	Yes	32	2281	180	5760
W 076	East Dennis	MA	36	No	Yes	36	2448	180	6480
W 077			0	No	Yes	0	1360	180	0
W 078	Hudson	MA	34	No	No	38	3791	200	7600
W 079	East Dennis	MA	37	No	Yes	39	2877	180	7020
W 080	Norwood	MA	25	No	Yes	25	1700	180	4500
W 082	Mansfield	MA	37	No	Yes	37	2621	180	6660
W 083	Mansfield	MA	24	No	No	24	2328	200	4800
W 084	Dennis	MA	26	No	Yes	26	1768	180	4680
W 085	Dennis	MA	24	No	Yes	25	1700	180	4500
W 086	Boston	MA	25	No	Yes	25	1700	180	4500
W 087	Wilton	CT	31	No	Yes	33	2349	180	5940
W 088	Shrewsbury	MA	28	No	Yes	28	2009	180	5040
W 089	Milford	MA	29	No	Yes	31	2213	180	5580
W 090	East Dennis	MA	26	No	Yes	29	1972	180	5220
W 091	East Dennis	MA	24	No	Yes	24	1632	180	4320
W 092	Dennis	MA	19	No	Yes	19	1360	180	3420
W 093	East Dennis	MA	23	No	Yes	23	1564	180	4140
W 094	South Dennis	MA	18	No	No	18	1940	200	3600
W 095	East Dennis	MA	20	No	Yes	20	1360	180	3600
W 096	Dennis	MA	23	No	Yes	23	1564	180	4140
W 097	Dennis	MA	16	No	Yes	16	1360	180	2880
W 098	East Dennis	MA	20	No	Yes	20	1360	180	3600
W 099	Medfield	MA	20	No	Yes	20	1360	180	3600
W 100	Paxton	MA	20	No	Yes	20	1360	180	3600
W 101	Chestnut Hill	MA	22	No	Yes	22	1496	180	3960
W 102	East Dennis	MA	23	No	Yes	23	1564	180	4140
W 103	Cambridge	MA	20	No	No	22	2134	200	4400
W 104	East Dennis	MA	24	No	Yes	27	1836	180	4860
W 105	Dennis	MA	26	No	Yes	27	1836	180	4860
W 106	Brookline	MA	20	No	Yes	20	1360	180	3600
W 107	Wellesley	MA	18	No	Yes	18	1360	180	3240
W 108	Plymouth	MA	27	No	Yes	28	2009	180	5040
W 109	Saint Augestine	FL	20	No	Yes	20	1360	180	3600
W 110	Reading	MA	22	No	Yes	22	1496	180	3960
W 111	Saddle River	NJ	27	No	Yes	27	1836	180	4860
W 112	Dover	MA	22	No	Yes	22	1360	180	3960
W 113	Yarmouth Port	MA	18	No	No	18	1940	200	3600
W 114	East Dennis	MA	21	No	Yes	21	1428	180	3780
W 115	Alexandria	VA	20	No	Yes	20	1360	180	3600
W 116	South Dennis	MA	21	No	Yes	21	1428	180	3780
W 117			21			21		200	4200
W 118	East Dennis	MA	22	No	Yes	24	1632	180	4320
W 119	South Dennis	MA	26	No	Yes	27	1941	180	4860
W 120			0	No	No	0	1940	200	0
W 121	Chatham	MA	30	No	Yes	30	2040	180	5400

W 122	Oxford	MA	40	No	No	42	4299	200	8400
W 123	East Dennis	MA	36	No	Yes	36	2448	180	6480
W 124	Brewster	MA	39	No	No	39	3783	200	7800
W 125	Newton	Ma	27		No	27	2619	200	5400
W 126	Brownsville	VT	24	No	Yes	24	1632	180	4320
W 127	Dennis	MA	22	No	Yes	22	1496	180	3960
W 128	East Dennis	MA	22	No	Yes	24	1632	180	4320
W 129	Naples	FL	20	No	Yes	20	1360	180	3600
W 130	Mansfield	MA	24	No	Yes	24	1632	180	4320
W 131	Colts Neck	NJ	16	No	Yes	16	1360	180	2880
W 132	Dennis	MA	25	No	Yes	25	1700	180	4500
W 133	South Dennis	MA	19	No	Yes	20	1360	180	3600

$1,065,180

16-May-14

Town Marina - Notes on Operating Expenses

Electricity - Going forward each slip will be seperately metered for electric usage and each slipholder will be billed for their actual usage plus an overage. Industry-typical practice is to generate between $60 and $100 per slip in revenue for the facility. This proforma assumes $80 per slip in net revenue. The rest of the facility's electric needs are estimated to be within the industry-typical $20 to $30 per slip, with this proforma estimating the cost to be $25 per slip with a 1% increase each subsequent year.

Water & Sewer - As with electricity, water & sewer are estimated based on industry-typical. The proforma estimates water & sewer at $10 per slip, with a 1% increase each subsequent year.

Communications - This category includes phone, internet, and local (walkie-talkie) communication costs. It is estimated that phone/internet will cost $250 per month and upkeep of local communications gear will be $100 per month with a 1% increase each subsequent year.

Advertising & Marketing - Given the demand for slips on the Cape and the expected welcoming of the renewed facilities, there is no expectation of the need for full-scale launch promotion. There will be the need to do local promotion to "get the word out" about the upgrade in facilities, and a need to prepare new in-office slip rate marketing brochures. A budget of $5,000 spread over the first two years should be adequate, with a minimal budget for printing updated brochures each year of $1,000 with a 1% increase each subsequent year.

Office Supplies - Using industry-typical data, office supplies are projected at $1,000 per year with a 1% increase each subsequent year.

Vehicle Expenses - Using historical actuals for the facility, and taking the age/condition of the existing road vehicles into account, it is estimted that the cost to register, operate and maintain the facility's vehicles will be $2,500 per year with a 1% increase each subsequent year.

Dues and Subscriptions - Based on industry practices it is projected that the facility will maintain membership in the AMI and any appropriate marina owner/operator organizations and will provide educational opportunities for key personnel. Annual costs are estimated to be $2,000 per year with a 1% increase each subsequent year.

Operating Supplies - Using historical actuals for the facility it is projected that non-classified operating supplies could be required totaling $3,000 per year with a 1% increase each subsequent year.

Miscellaneous - Based on industry practice it is projected that there will be an occasional need to provide for unbudgeted items. The proforma reflects a $2,000 charge with a 1% increase each subsequent year.

Repairs & Maintenance - See *Key Assumptions #s 6 & 7* on the 10-Year Operating Proforma for detailed descriptions.

16-May-14

Town Marina - Wages and Benefits

Position	Description	# Hrs	Equivalent Per Hour	Gross Wages	Notes:
Dockmaster	**Full-Time**	**2080**	31.25	**$ 65,000**	One Full-time (alternating two weekdays off)
Ass't Dockmaster	**Full-Time**	**2080**	20.00	**41,600**	One Full-time (alternating two weekdays off)
Marina Office Manager	**Full-Time**	**2080**	16.50	**34,320**	One full-time (Mon-Fri)
Seasonal Ass't Dockmasters	**Part-Time**	**900**	13.00	**11,700**	Two part-time to cover Fri-Sun each week, Memorial Day-Labor Day, 10 hrs/day.
Seasonal Dockpersons	**Part Time**	**4224**	10.50	**44,352**	Part-time to cover all 7 days per week with 4 persons from Memorial Day-Labor Day, and two persons from May 1st-Memorial Day and Labor Day-October 1st (assume 27 days in May & Sept.). Assume MA minimum wage is $10.50.
Seasonal Gate Attendants	**Part Time**	**1050**	10.50	**11,025**	Two part-time to cover 10 hrs/day, 7 days/week, Memorial Day-Labor Day.
Totals		**12414**		**207,997**	
Add load for benefits @ 20% for full-time employees				**28,184**	
Total Wages and Benefits				**$ 236,181.00**	Wages & Benefits are expected to increase at 2% per year after the first year.

Resident	170
Nonresider	190

number	town	st	leng	comboat	denres	totallen	rate	fee due
E 001	Dennis	MA	35	Yes	Yes	35	170	5950
W 001	Dennis	MA	58	Yes	Yes	58	170	9860
W 002	East Denn	MA	50	Yes	Yes	51	170	8670
W 003	Harwich F	MA	42	Yes	No	42	190	7980
W 010	Dennis	MA	35	Yes	Yes	35	170	5950
W 011	So. Denni	MA	37	Yes	Yes	37	170	6290
W 012	Dennispor	MA	36	Yes	Yes	38	170	6460
W 013	South Yar	MA	42	Yes	No	45	190	8550
W 015	Plymouth	MA	29	Yes	No	29	190	5510
W 030	So. Denni	MA	30	Yes	Yes	30	170	5100
W 034	Dennis	MA	32	Yes	Yes	32	170	5440
E 006	Yarmouth	MA	26	Yes	No	30	190	5700
E 010	Brewster	MA	28	Yes	No	28	190	5320
W 007	East Denn	MA	36	Yes	Yes	36	170	6120
W 008	So. Denni	MA.	35	Yes	Yes	35	170	5950
W 009	East Denn	MA	35	Yes	Yes	35	170	5950
W 016	Dennis	MA	32	Yes	Yes	32	170	5440
W 026	Dennis	MA	36	Yes	Yes	36	170	6120
W 037	Shrewsbu	MA.	31	Yes	Yes	31	170	5270
W 067	South Der	MA	25	Yes	Yes	25	170	4250
W 075	Dennis	MA	28	Yes	Yes	28	170	4760
W 081	Orleans	MA	28	Yes	No	28	190	5320

Total Commercial Slip Revenue **$135,960**

					Avg 2013	20.9375		mooring base	225
					projected	20		over 16ft	12 /ft

number	town	st	leng	comboat	denres	totallen	feedue	fee due
SIB004	South Hadl	MA	52	Yes	Yes	52	438	657
SIB013	East Denni:	MA	20	Yes	Yes	20	182	273
SIB024	East Denni:	MA	31	Yes	Yes	31	270	405
SIB001			0	No	No	20	150	273
SIB002	Whitman	MA	25	No	Yes	25	222	333
SIB003	Wellesley	MA	16	No	Yes	16	150	225
SIB005	East Denni:	MA	24	No	Yes	24	214	321
SIB006	South Deni	MA	16	No	Yes	16	150	225
SIB007	Sacrament	CA	16	No	Yes	16	150	225
SIB008	East Denni:	MA	27	No	Yes	27	238	357
SIB009			0	No	No	20	0	273
SIB010	East Denni:	MA	22	No	Yes	22	198	297
SIB011	Holden	MA	24	No	No	24	214	321
SIB012	Waban	MA	22	No	Yes	22	198	297
SIB014	Brewster	MA	21	No	No	21	190	285
SIB015	Dennis	MA	22	No	No	22	198	297
SIB016			0	No	No	20	0	273
SIB017	East Denni:	MA	22	No	Yes	22	198	297
SIB018	Brewster	MA	41	No	No	41	350	525
SIB019	East Sandw	MA	26	No	No	32	278	417
SIB020	Winchester	MA	22	No	No	22	198	297
SIB021	East Denni:	MA	22	No	Yes	22	198	297
SIB022			0	No	No	20	0	273
SIB023			0	No	No	20	0	273
SIB025	Brewster	MA	25	No	No	25	222	333
SIB026	Dennis	MA	16	No	Yes	16	150	225
SOB001	East Denni:	MA	18	No	Yes	18	166	249
SOB002	Chestnut H	MA	12	No	Yes	16	150	225
SOB003	Brewster	MA	16	No	Yes	16	150	225
SOB004			0	No	No	20	0	273
SOB005	Medfield	MA	18	No	Yes	18	166	249
SOB006			0	No	No	20	0	273
SOB007	Dennis	MA	18	No	Yes	18	166	249
SOB008	Sherborn	MA	18	No	Yes	18	166	249
SOB009			0	No	No	20	0	273
SOB010	East Denni:	MA	16	No	Yes	16	150	225
SOB011	East Denni:	MA	16	No	Yes	16	150	225
SOB012	East Denni:	MA	16	No	Yes	16	150	225
SOB013			0	No	No	20	0	273
SOB014	Harwich	MA	18	No	Yes	18	166	249
SOB015			0	No	No	20	0	273
SOB016			0	No	No	20	0	273
SOB017			0	No	No	20	0	273
SOB018	East Denni:	MA	16	No	Yes	16	150	225
SOB019	Madison	NH	18	No	Yes	18	166	249
SOB020						20	150	273
NEW W/ EXPANDED OUTER BASIN						20		273
NEW W/ EXPANDED OUTER BASIN						20		273
NEW W/ EXPANDED OUTER BASIN						20		273
NEW W/ EXPANDED OUTER BASIN						20		273
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NEW W/ EXPANDED OUTER BASIN						20		273
NEW W/ EXPANDED OUTER BASIN						20		273
NEW W/ EXPANDED OUTER BASIN						20		273
NEW W/ EXPANDED OUTER BASIN						20		273
						160	per pram	9280
							Total	25858