

## 4. RELATED STUDIES



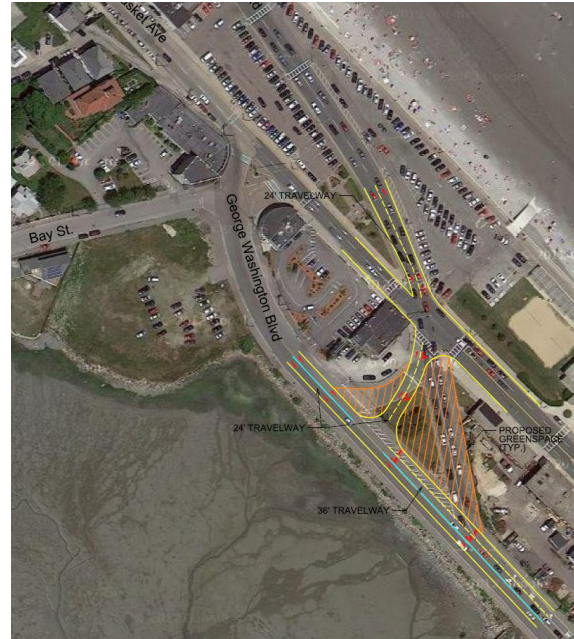
*Crosswalk locations (does not include crosswalks 22-26 to the north).*

The results of two studies conducted simultaneously with the final phase of this Master Plan are summarized below and incorporated into this Master Plan. The final reports are available under separate cover:

- *Nantasket Beach Reservation Traffic Analysis Report*, Louis Berger, 2014.

- *Nantasket Beach Reservation Facilities Utilization Report*, Louis Berger, 2014.

The results of a third study, *Nantasket Beach Reservation Parking Demand and Capacity Study*, Louis Berger, 2015, are discussed in Chapter 5 and also available under separate cover.



From left: Roadway realignment alternatives A, B and C.

## Traffic Analysis Report

This traffic study assessed traffic flow and pedestrian/ bicycle interaction at and around the Nantasket Beach Reservation during the summer months and recommended modifications to improve circulation, as appropriate. Traffic, pedestrian, and bicycle flow were counted in 2006 and analyzed for year 2013 (existing conditions) and year 2033 (forecasted conditions).

## Pedestrian Crossings

The pedestrian counts at crosswalks within the study area were high, with a total of 996 pedestrians using crosswalks during the 12 pm to 1 pm hour on a Saturday. The most heavily used crosswalk was number 17 with 151 pedestrians; the crosswalk is located on Hull Shore Drive near a number of restaurants (i.e., Hull's Kitchen, Dry Dock, Daddy's Dogs).

The report included the following recommendations:

- Crosswalk 4 was utilized by only 11 pedestrians during the Saturday peak hour. This crosswalk

does not have a clear destination from the beach and could be removed to reduce the number of locations where vehicles yield to pedestrians.

- Crosswalks 8 and 9, which both lead to the arcade buildings, could be combined. A total of 175 pedestrians are expected to use this proposed crossing during the Saturday peak hour. A push-button activated flashing beacon and warning sign would be appropriate at this combined location.

- Crosswalks 17 and 18 may also be viable candidates for a pedestrian signal. These crosswalks service 151 and 118 pedestrians during the peak hour, respectively. Installing a push-button activated flashing beacon and warning sign at one or both of these locations would encourage safe crossing over the two-lane Hull Shore Drive and allow larger groups of people to gather and cross at the same time.
- All crosswalks at intersections should remain. Drivers generally proceed more cautiously at intersections, creating a safer environment for pedestrians when compared to mid-block crosswalks.

### Traffic Alternatives for Improvements to the Maintenance Yard

Aside from the existing conditions, two alternatives were examined to re-configure traffic in the vicinity of the DCR operations and maintenance area and thereby make the yard space more compact and efficient for operations while reducing frontage on Nantasket Avenue. Specifically, the traffic alternatives being considered at the intersections of Hull Shore Drive, Nantasket Avenue and George Washington Boulevard are as follows:

- **Alternative A:** The existing condition remains. (Estimated construction cost: \$0)
- **Alternative B:** Realignment of the cut-through portion of roadway from George Washington Boulevard westbound. (Estimated construction cost: \$340,000 in 2016\$)
- **Alternative C:** Relocation of the cut-through portion of roadway from George Washington Boulevard westbound to the current intersection of George Washington Boulevard and Nantasket Avenue. The southeastern terminus of Hull Shore Drive is also shifted to align with this proposed intersection. (Estimated construction cost: \$1,060,000 in 2016\$).

From a traffic capacity perspective all three of the intersection alternatives would operate at level of service (LOS) "B" during the current year and at LOS "C" in the year 2033. LOS "B" is classified as reasonably free flow. LOS "C" is classified as stable flow and also considered a passing level of service.

Alternative C would provide the largest amount of yard space for maintenance operations. The decision to move forward with any of the alternatives will need to consider factors such as property ownership, concerns of local residents, and long-term plans for the community.

In 2015, the Town of Hull (with support from DCR) studied changes to the existing roadway system, including making both Nantasket Avenue and Hull Shore Drive two-way, and increasing the number of through streets between them to improve connections and create smaller, more developable blocks on the Hull Redevelopment Authority owned parcels between Water and Phipps Streets. Alternative B would be most compatible with these changes and is therefore included in the master plan drawings. Alternative B would accommodate either the existing one-way street system or the two-way system proposed by the Town. DCR is amenable to a temporary trial of the two-way road system.

### Other Findings

In addition to revising the roadway alignment, the report includes the following recommendations:

- The intersection of Nantasket Avenue, Phipps Street and Mountford Road is currently operating at a failing level of service during the Saturday peak hour. Recommended mitigation for this location is to improve the signing system for parking at DCR lots. In recent years DCR has utilized four variable message signs (VMS) at select parking lots to alert drivers when lots are full. Adding VMS boards at other parking



lot entrances and updating the signs regularly would allow drivers to be aware of full lots and empty spaces allowing them to spend less time circulating. All other stop-controlled locations are currently operating at LOS "B" or better.

- All signalized intersections analyzed are currently operating at LOS "C" or better during the Saturday peak hour. If signalized intersections are found to be a bottleneck in future years, updating the fixed signal timing may decrease delays. Actuated signal timing systems are another option if an acceptable LOS is not achieved in the field. Actuated signal timing allows sensors to notify the controller of waiting vehicles to decrease unnecessary stop delay.

## Facilities Utilization Report

The *Nantasket Beach Reservation Facilities Utilization Report* assessed the maintenance operations and associated facilities at the Nantasket Beach Reservation. Several options were developed to improve operations on the site and at the same time allow for vacating some of the buildings for other potential uses. Options were developed jointly with DCR staff.

## Maintenance Operations

Maintenance operations at the Reservation are ongoing year-round to keep the facility functioning as expected for public use. The busiest time of year is during the summer months from Memorial Day to Labor Day but the area is open year-round from dawn to dusk. During the winter months the staff is responsible for snow removal. Storm management is necessary year-round. The maintenance crews are currently using all garage and yard space available and are in need of additional covered/heated storage for critical equipment.

The Town of Hull has expressed an interest in relocating the operations and maintenance functions to a less central location to enable the Town to reuse the existing operations and maintenance site and buildings for other uses. Chapter 289, Acts of 2010, allows the Town to lease this area for a minimum of 99 years. However, leasing the land to the Town of Hull is contingent upon Sections 2 and 3 of Chapter 289, which state: "The lease authorized in Section 1 shall be granted only if the lessee agrees to assume the costs of any surveys and other expenses deemed necessary by the commissioner of capital asset management and maintenance for the lease." And "The town of Hull shall compensate the commonwealth for the property described in section 1 by providing

necessary storage space for maintenance equipment of the department of conservation and recreation." To date, no development proposal for the existing maintenance operations site has been put forth and no relocation site or funding for the DCR maintenance operations has been designated. This master plan assumes DCR's continued presence on this site, although DCR looks forward to the opportunity to work with the Town and/or potential developer on the reuse of the site, should the conditions of Chapter 289 be met.

## Buildings

There are a number of buildings on site that are not used to capacity. The Dormitory Building is currently utilized by DCR as office space. The Clocktower Building is leased out and the Police Station is closed due to asbestos and major water damage. Maintenance of the buildings on site is a major factor in any future planning. Many buildings are 100+ years old and need substantial repairs and upgrades as summarized by DCR maintenance staff and documented in the report (and summarized in Chapter 2 of this Master Plan).

Aside from long-term layout changes, several repairs and modifications to the facilities are needed, as summarized on the following pages:

### 1. Dormitory Building

- Inspection and possible repairs to the roof
- Assessment of structural integrity of the building
- Re-pointing of all brick work
- Inspection and repair of the brick foundation and support columns due to salt damage
- Extensive gutter and fascia replacement on both porches
- Relocation of the generator from the basement of the Dormitory Building to an area protected from flooding.

### 2. Laundry Building (if not planned to be demolished)

- Asbestos abatement (if not completed previously)
- Inspection and repair of rotten sills
- Replacement of windows.

### 3. Small Garage/Fire Safety Building (if not planned to be demolished)

- Inspection and repair of rotten sills
- Replacement of doors and windows.

### 4. Lower Garage

- Inspection and possible repairs to the roof
- Repair of overhanging eaves
- Re-pointing of all brick work
- Repair or replacement of all windows
- Insulation of the structure
- Installation of a pedestrian-sized door to access the building.

### 5. Upper Garage

- Inspection and possible repairs to the roof
- Repair of eave supports and gutters
- Re-pointing of all brick work.

### 6. Clocktower Building

- Testing of the second floor for lead and asbestos
- Complete remodeling of both floors
- Possible upgrade of the heating, cooling, and electrical systems
- Roof repairs.

### 7. Police Station

- Major rehabilitation work.

### 8. Boilermaker's House (if not planned to be demolished)

- Inspection and repair of rotten sills
- Inspection and repair of the foundation.

## Facilities Layout Options

Four layout options were considered to better utilize the yard area and consolidate DCR operations to meet the anticipated needs of DCR staff. Facilities Layout Options 1 and 2 include modifying traffic along George Washington Boulevard (i.e., Traffic Alternatives B or C) to create additional yard space for maintenance activities. Facilities Layout Options 3 and 4 are based on the No-build Traffic Alternative A.

Key features of each option are summarized in Table 1. Each option could be modified using elements from other options. Under each option at least two buildings would be available for lease to an outside party whose purpose and goals match that of the DCR mission at the Reservation. In all four options the Boilermaker's House, Small Garage and Laundry Building are recommended for demolition or relocation to increase yard area.

Description	Option 1: Full Build-out of Upper Garage	Option 2: Partial Build-out of Upper Garage	Option 3: No Build-out of Upper Garage	Option 4: No Action
Traffic Alternative	B or C	B or C	A	A
Dormitory Building	Lease	Lease	Lease	Office Space
Clocktower Building	Lease	Lease	Lease	Lease
Police Station	Lease/Office Space	Office Space	Office Space	Lease
Yard Area	On site	On site	Parking Lot 8	On site
Small Garage	Demolish/Relocate	Demolish/Relocate	Demolish/Relocate	Demolish/Relocate
Boilermaker's House	Demolish/Relocate	Demolish/Relocate	Demolish/Relocate	Demolish/Relocate
Laundry Building	Demolish/Relocate	Demolish/Relocate	Demolish/Relocate	Demolish/Relocate
Upper Garage	10' expansion, 2nd story addition	10' expansion	No change	No change
Lower Garage	No change	No change	No change	No change
Additional Covered Storage	None	None	3-bay prefabricated garage	3-bay prefabricated garage

**Table 1: Summary of Facilities Layout Options**

## Recommended Facilities Layout Option 2 – Partial Build-out of Upper Garage

Layout Option 2 - because it provides an improved operations area, keeps all maintenance facilities on site, is consistent with Traffic Alternative B, and does not require adding a second floor to the Upper Garage - was selected as the option to be incorporated into the Master Plan illustrations in Chapter 5. The existing operations maintenance facility - bounded by Wharf Avenue, George Washington Boulevard, Hull Shore Drive and Nantasket Avenue – is 78,400 square

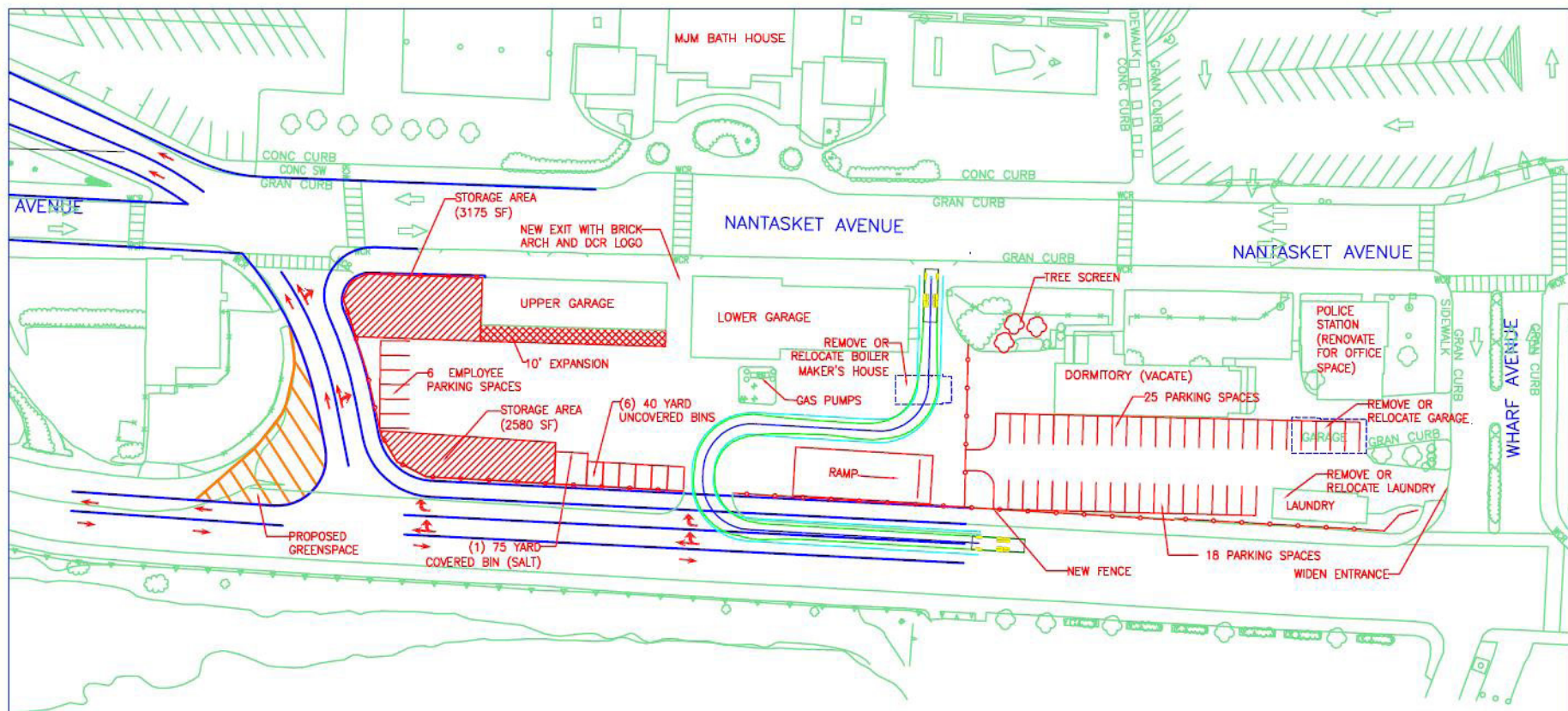
feet (1.8 acres). Traffic Alternative B adds 11,400 square feet (0.26 acres) to this area, while changes to DCR's use of the area and buildings described below result in a 37,000 square foot (0.85 acre) decrease in the area used by DCR. The net result would be that DCR's operations maintenance facility would occupy 52, 800 square feet (1.2 acres), a net reduction of 25,600 square feet (0.6 acres). DCR's use of the Nantasket Avenue frontage of the site would be decreased by 200 feet.

## Office Buildings and Uses

Option 2 utilizes the Police Station for office space. While the Police Station needs extensive repairs to serve this purpose, DCR staff agrees that the central location and ease of access make it an appropriate 'face' of DCR's operations on the Reservation. The building is also slightly removed from the brick garages and will aid in separating the public from the maintenance operations and equipment. The Dormitory Building will be available for lease to a user and use that aligns with DCR's mission. The Clocktower Building needs a stronger leasing agreement that includes substantial repair and upkeep of the building. Ideally the funds would come from a capital campaign by the Friends of the Paragon Carousel. The Small Garage, Boilermaker's House, and Laundry Building are recommended for removal or relocation to increase available yard space.

## Maintenance Buildings

Due to the overall good condition of the brick Upper and Lower Garages, Option 2 suggests continued use of both with some improvements. Option 2 expands the back wall of the Upper Garage by 10 feet to the south (towards George Washington Boulevard) for additional storage. Garage doors should be included on the addition to create a convenient 'pull-through' area for the operators. This would eliminate the need



NOT FOR CONSTRUCTION

**OPTION 2 WITH TRAFFIC  
ALTERNATIVE B**

Nantasket Beach  
Seawall Repair and Restoration  
Hull, Massachusetts



1. TOPOGRAPHIC MAP: COPYRIGHT 2006, CLE ENGINEERING, INC.
2. ALL PROPERTY LINES, UTILITY PLACEMENT, AND RIGHT OF WAY LOCATIONS ARE APPROXIMATE.

Facilities Layout Option 2.

for drivers to stop traffic on Nantasket Avenue to either back into or out of the garage. The Lower Garage should be improved as suggested earlier in this chapter. A brick arch between the two maintenance garages with the DCR logo is recommended to maintain the architectural intent of the original design.

### ***Yard Area***

Due to the current restrictions of yard space it is recommended that the dumpster and ramp be relocated to provide easier access during pickup and to avoid damage to the gas pumps. Additional yard space under Alternatives B and C can accommodate a truck entrance to the yard from George Washington Boulevard. Trucks will exit to Nantasket Avenue.

To improve the available area in the maintenance yard, Option 2 removes or relocates the Boilermaker's House, Small Garage, and Laundry Building. Forty-three parking spaces are located near the Dormitory Building.

For outside storage of materials and equipment, various locations around the site have been strategically chosen to leave sufficient open space for vehicle movement. One covered salt bin (capacity of 75 cubic yards) and six open bins (capacity of 40 cubic yards each) are located on the site for storage of materials throughout the year.

Six employee parking spaces are located at the north end of the site. Partial staff parking would be moved to Parking Lot G during the summer months.

For Traffic Alternative B, the entrance from Wharf Avenue should be reconfigured to increase the area for turning movements of large trucks. A new fence would surround the site to provide a visual screen.

### ***Traffic Alternatives***

Layout Option 2 under Traffic Alternative B increases the yard area substantially and "squares off" the yard.

Under Traffic Alternative C, even more yard area would be available. In addition to a truck entrance from George Washington Boulevard and additional parking spaces near the Dormitory Building, the storage bins under Traffic Alternative C are moved to the northern side of the yard. For Traffic Alternative C, the number of employee parking spaces within the yard area is increased to 10 (compared to 6 spaces under Traffic Alternative B). Traffic Alternative C also allows for some future expansion of the maintenance area, if needed.

### ***Considerations for All Future Operations Area Options***

A number of building and yard maintenance improvements discussed in the preceding sections are recommended for near-term consideration. The

buildings on site are in need of fairly major repairs just to maintain the deteriorated conditions expected of buildings over 100 years old. Specifically, recommended improvements include the following:

- Build a temporary cover for the salt storage bin to meet environmental run-off regulations until a permanent structure can be constructed.
- Demolish or relocate the Laundry Building, Small Garage/Fire Safety Building, and/or Boilermaker's House to allow for additional yard space and to improve circulation.
- Re-route the current garage waste disposal drains to connect to the town sewer line under Nantasket Avenue.
- Install deep sump catch basins.
- Relocate the generator from the basement of the Dormitory Building to an area protected from flooding.
- Investigate options for a covered dumpster to reduce odors.

### ***Uses of Available Buildings***

Under all facilities layout options, at least two buildings are available to be leased to interested parties that will help to maintain the buildings and act within the intent of DCR's mission statement. If no satisfactory



lease candidates are selected for a building, DCR could use the buildings for internal programs. Possible options for either of these scenarios were discussed for each building by the DCR team and consultants. The resulting options are described in the following sections and are expected to be expanded upon in years to come.

### *Maintained and Operated by DCR*

Maintaining the historic value and essence of all buildings on site is a priority of DCR. If maintenance and upkeep of selected buildings is not agreed to in a lease agreement, the repair and remodeling responsibility would fall to DCR. In this circumstance, appropriate uses for each building would need to be found.

The Dormitory Building could be used by DCR as a headquarters for the youth program Student Conservation Association (SCA). The first floor would be used as office space and the second floor would serve as rooming for students visiting the site to participate in the SCA program.

The Police Station could be used by DCR as a visitor center. It is centrally located and has extensive historical documentation that would be of interest to the public.

The Clocktower Building could be used by DCR for a variety of activities. The current ice cream stand within

the building would make a convenient permit sales location. The adjacent first floor area could serve as a visitor center, office space, storage space, and/or a museum. The second floor would be better suited for office space or storage space.

### *Leased by DCR*

The project team agreed that the first step in leasing any of the spaces vacated by DCR is to create a public forum to collect ideas on how visitors would like to see the spaces used in the future. All proposals submitted would be required to account for historic preservation and maintenance tasks while fitting within the DCR mission statement. Possible uses that the team felt were appropriate for the area and follow the mission statement have been documented for each building. The intent was only to brainstorm and inspire ideas, not to limit the proposals that are received.

The team felt that the Dormitory Building may be a suitable hostel for international youths visiting the area. The Clocktower Building is historically relevant so use as a museum was suggested to complement the existing Carousel. The Friends of the Paragon Carousel currently lease the Clocktower Building and use a portion as a maintenance area for the Carousel. The income from the ice cream vendor provides revenue to support the operation of the Carousel. However,

the income is not sufficient to cover the cost of required building maintenance.. Alternatively, a new long-term lease could require that the lessee contribute more money to building maintenance. The historic Carousel is an important attraction at Nantasket Beach and both DCR and the Town, as well as The Friends of the Carousel, are interested in ensuring that the Carousel continues to operate. As discussed earlier, it is important that the funds required for much needed capital improvements and ongoing maintenance and operations of the building be generated by revenues from the lease of this building, or that an additional source of funding be identified.

The Police Station building also is historically significant and could be used as a visitor center, museum or perhaps as a studio for artists.

Parties interested in the possible leasing of these sites would need to consider:

- The adjacent maintenance facility.
- Flood insurance would be required for leased occupants. The area is classified as a “high velocity” zone by FEMA and flooding is common.