

ENVIRONMENTAL IMPACT EVALUATION

*Prepared in accordance with the
Connecticut Environmental Policy Act*

Seaside State Park Master Plan *Waterford, Connecticut*

JUNE 2017



Sponsoring Agency:
*Connecticut Department of Energy
and Environmental Protection,
Bureau of Outdoor Recreation*

Participating Agency:
*Connecticut Department of
Administrative Services*

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LIST OF ABBREVIATIONS

ACM	Asbestos containing materials
AST	Aboveground storage tank
ATVs	All terrain vehicles
BMPs	Best Management Practices
C&D Plan	State Plan of Conservation and Development
CAA	Clean Air Act
CCEA	Connecticut Center for Economic Analysis
CCMA	Connecticut Coastal Management Act
CEPA	Connecticut Environmental Policy Act
CGP	Construction General Permit
CGS	Connecticut General Statutes
CJL	Coastal Jurisdiction Line
CO	Carbon monoxide
CT	Connecticut
CTECO	Connecticut Environmental Conditions Online
DAS	Department of Administrative Services
dB	decibel
dBA	decibel (A-weighted)
DCS	Division of Construction Services
DDS	Department of Developmental Services
DECD	Department of Economic and Community Development
DEEP	Department of Energy and Environmental Protection
DEP	Department of Environmental Protection
DMR	Department of Mental Retardation

DOT	Department of Transportation
DPH	Department of Public Health
DPW	Department of Public Works
EEP	Environmental Equity Policy
EIE	Environmental Impact Evaluation
ELUR	Environmental Land Use Restriction
EMT	Emergency Medical Technician
EPA	U.S. Environmental Protection Agency
EPZ	Emergency Planning Zone
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FMC	Flood Management Certification
FRPP	Farm and Ranch Lands Protection Program
ft	Foot/Feet
GMPs	Growth Management Principles
gpd	gallons per day
gpm	gallons per minute
GWPC	Groundwater Protection Criterion
HVAC	Heating, ventilation, and air conditioning
I/I	Inflow and infiltration
IMPROVE	Interagency Monitoring or Protected Visual Environments
LED	light emitting diode
LF	linear foot/feet
LID	Low Impact Development
LIS	Long Island Sound

LOS	Level of Service
MGD	Million gallons per day
MOS	Margin of Safety
N/A	Not Applicable
NAAQS	National Ambient Air Quality Standards
NAVD88	North American Vertical Datum of 1988
NDDB	Natural Diversity Database
NFIP	National Flood Insurance Program
NOAA	National Oceanic and Atmospheric Administration
NO _x	Nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSF	Net square feet
NSR	New source review
O ₃	Ozone
OPM	Office of Policy and Management
Pb	Lead
PCA	Property Condition Assessment
PCBs	Polychlorinated biphenyls
PFA	Priority Funding Area
PM ₁₀	Particulate matter with diameter of 10 microns or less
PM _{2.5}	Particulate matter with diameter of 2.5 microns or less
PPCD	Plan of Preservation, Conservation, and Development

ppm	parts per million
RCSA	Regulations of Connecticut State Agencies
RSRs	Remediation Standard Regulations
SCER	Southeastern Connecticut Enterprise Region
SECCOG	Southeastern Connecticut Council of Governments
SF	Square foot/feet
SHPO	State Historic Preservation Office
SO ₂	Sulfur dioxide
SWPC	Surface Water Protection Criterion
SWPCP	Stormwater Pollution Control Plan
TASA	Transfer Act Site Assessment
TPH	Total petroleum hydrocarbons
TSI	Thermal system insulation
TSS	Total suspended solids
U.S.	United States
USDA	United States Department of Agriculture
USGS	United States Geological Survey
UST	Underground Storage Tank
UTV	Utility terrain vehicle
VCP	Vitrified clay pipe
VMT	Vehicle miles traveled
WPD	Waterford Police Department

EXECUTIVE SUMMARY

Introduction/Proposed Action Description

This Environmental Impact Evaluation (EIE) has been prepared pursuant to the requirements of the Connecticut Environmental Policy Act (CEPA) as promulgated under Section 22a-1 to 22a-1h of the Connecticut General Statutes (CGS) and as amended by Public Act 02-121, which requires that State-sponsored actions that have the potential for causing negative environmental impact be evaluated and disclosed. The sponsoring agency for this EIE is the State of Connecticut Department of Energy and Environmental Protection (DEEP) and the State of Connecticut Department of Administrative Services (DAS) is the participating agency.

The Proposed Action is the implementation of a development concept from the Seaside State Park Master Plan (Sasaki, 2016). The Site is a 32-acre tract of waterfront land in the Town of Waterford currently owned by the State of Connecticut. The Site has a history of varied uses by the State, dating back to the 1930s when it was developed as a sanatorium for the treatment of children with tuberculosis.

The Site has been largely vacant since the last State facility (Seaside Regional Center) closed onsite in the mid-1990s. In 2014, the Governor designated the Site as a State Park and, since that time, DEEP developed a Master Plan for development of the Site as part of the Connecticut State Park system (Sasaki, 2016).

Purpose and Need

The purpose of the Proposed Action is to fully incorporate Seaside State Park into the Connecticut State Park system. The Master Plan (Sasaki, 2016) identified a shortage of State Park amenities, some of which could be addressed at Seaside.

Opportunities to expand the State Park system along Long Island Sound have been infrequent and the designation of the former Seaside State Sanatorium property by DEEP as a State Park in 2014 has provided such an opportunity. With the existence of historical buildings and grounds located adjacent to Long Island Sound, Seaside State Park provides a unique blend of historical architecture, landscaping, and natural features that provides opportunities for both passive and active recreation. In addition, and with the buildings intact, there is also opportunity to provide a revenue generating source income to help offset the cost of developing, maintaining, and operating the park.

The goal of the Proposed Action is to:

- Promote and improve recreation and public access to Long Island Sound;
- Restore, preserve, and reuse historic assets where feasible;
- Preserve and improve the Site's ecology and habitats;
- Create an implementation and operating plan that is financially-feasible; and,
- Engage the public in helping shape the future of Seaside State Park.

Alternatives Considered

The Master Plan developed four potential concepts for the Site:

- Destination Park;
- Ecological Park;
- Passive Recreation Park; and
- Hybrid Park.

These concepts constitute the EIE alternatives that are summarized, described, and assessed herein, along with the “No Build” alternative. Each of these concepts (except for the No Build) addresses the purpose, needs, and goals of the Proposed Action to varying degrees.

Benefits and Impacts

There would be various benefits and impacts associated with the implementation of whichever Master Plan alternative is selected. The paragraphs below summarize potential benefits/impacts (i.e., effects) associated with the alternatives for the various issue areas.

Agricultural Soils: There is no active agricultural use onsite, although the soils onsite are mapped as “farmland soils”. Actual soil conditions show evidence of manipulation and modification due to past site usage. Under the Destination Park and Hybrid alternatives there would be a minimal impact to agricultural soils due to the installation of ecological features, parking areas, and, for the Hybrid alternative, a new building. The Ecological Park alternative would result in minimal impacts due to installation of ecological features, while the Passive Recreation Park would not result in impacts to these soils. The No Build would not result in impacts to agricultural soils.

Water Resources: There are both freshwater and coastal water resources present at the Site. The alternatives that involve seawall removal (Ecological Park) and seawall configuration with openings (Destination Park) would cause increased flood elevations, wave velocity and erosion at the shoreline. The alternatives that keep the seawall intact (Passive Park, Hybrid Park, No Build) would have no effect on flood zones. All alternatives beyond the No Build would enhance the existing freshwater resources at the Site with minimal negative impact caused by driveway and path crossings.

Ecology: Any potential alternative beyond the No Build would have some level of effect on regulated ecological habitat and resources which would need to be properly permitted and mitigated for as part of the design process. Many of the effects are potentially positive, although some would develop habitat for various uses. Of the alternatives, the level of potential impacts would be similar for the Destination and Ecological Park alternatives and slightly less for the Hybrid Park alternative, with the Passive Recreation Park having the least potential impacts, based on the ecological resources and development proposed under each alternative.

Endangered, Threatened, and Special Concern Species/Habitats: Based on DEEP Natural Diversity Database (NDDB) comments, there is the potential for several listed/protected species to be present onsite, although confirmed sightings were not reported. Any alternative selected beyond the No Build would most likely require species and habitat surveys to determine what

species and habitats are present and to prepare a sensitive design and mitigation plan to minimize potential impacts. Waterfront development and alterations would need to be reviewed to determine what habitat changes might accompany any such modifications.

Traffic: Any alternative beyond the No Build would result in an increase in vehicle trips to the Site and an increase in the number of onsite parking spaces. The traffic impact from the increased vehicle trips is insignificant and no offsite improvements are proposed.

Air Quality: There would be minor, temporary impacts to air quality associated with the construction of any alternative beyond the No Build, with mitigation methods as discussed in the main EIE document, including anti-idling policies. In addition, the operation of any of the Master Plan alternatives would include increased mobile sources due to vehicles for visitors to the Site, while all alternatives except for the Passive Park alternative would also include increased stationary sources in the form of heating and cooling systems for the buildings associated with those alternatives and potentially for emergency generators for those alternatives which include lodging (Destination Park and Hybrid).

Noise: There would be minor, temporary impacts for noise associated with the construction of any alternative beyond the No Build, with mitigation as discussed in the EIE, including limited construction hours. The operation of any of the alternatives would include increased park usership, resulting in minor increases in daytime noise from park users. In addition, those alternatives with lodging would potentially result in additional noise from heating/cooling units and from outdoor events held at the hotel. For the lodging options, there would be noise level limits designated for outdoor music and also outdoor event limits on hours of operation.

Light/Shadow: Any alternatives (beyond the No Build), which includes lodging, would incorporate the addition of safety/security landscape lighting and parking lot lighting and could have additional minor impacts from hotel indoor lighting. Downward directed lighting would be used for landscape/parking lots to minimize light trespass and vegetative shielding would also be used to limit potential impacts to abutters.

Utilities (Water/Wastewater/Stormwater/Electricity/Heat/Energy): There is currently no permanent utility demand at the Site; however, temporary water and electrical services are currently being used to support asbestos abatement onsite. Any alternative beyond the No Build would result in some level of increased demand for permanent utilities. Alternatives with lodging would result in the largest increase in demand for utilities and largest increases in impervious area, resulting in the need for additional stormwater treatment, while the Ecological Park and Passive Park alternatives would have the least utility demand and would result in decreases in impervious area.

Aesthetics/Viewsheds: The Ecological and Passive Park alternatives would have the least visual impact and would potentially result in improved views/aesthetics due to building removal. The alternatives which renovate the buildings would restore historic structures, thereby improving aesthetics over existing conditions, but new development (the new proposed lodging building under the Hybrid alternative, additional parking) would need to consider potential impacts on existing viewsheds and to provide visual shielding without limiting views of the Sound to the

maximum extent possible. The No Build alternative would result in aesthetic impacts, as the existing buildings would continue to degrade in place over time.

Cultural Resources: The two alternatives with lodging (Destination Park and Hybrid) would involve restoration and reuse of the existing historic structures onsite as hotel rooms/lodging, while the remaining two alternatives would result in the demolition of these structures, although all alternatives would include some element of interpretive signage relative to the previous uses of the property. Two alternatives (Destination Park and Ecological Park) would result in the relocation or demolition of the seawall, which is a contributing historic structure. The No Build would allow the existing buildings to remain, but would not result in their repair and renovation, allowing conditions to degrade further. All alternatives beyond the No Build may also result in the need for earth disturbance in areas designated as potentially sensitive and could require Phase II surveys and potentially recordation and/or preservation of artifacts recovered (if any) at specific locations.

Hazardous Materials: All alternatives beyond the No Build would require, as applicable, the abatement of existing hazardous materials onsite associated with either building demolition or renovation, including lead paint and asbestos. The potential need for assessing soil or groundwater in areas associated with former and existing tanks or storage areas may be necessary depending on the conditions of the tanks and/or any future redevelopment scenarios. Under the No Build, minor abatement of asbestos could continue on as it has been over the past year; however, any future abatement activity would be based on available funding.

Land Use/Neighborhoods: The Site is currently a State Park with existing vacant structures. Under all alternatives, the park would remain open to the public, with augmentation of existing features for all but the No Build alternative. Two alternatives would remove existing buildings, while the other two would retain the historic structures and develop lodging, which would further increase usership of the Site. All alternatives, except the No Build, would increase usage of the park by providing a formal parking lot and improving the Site under any of the alternatives.

Population/Employment/Income: All alternatives beyond the No Build would create temporary construction jobs in the area associated with the redevelopment of the Site. The alternatives with lodging would provide the most potential for employment opportunities and income, while the economic benefits from the Ecological and Passive Recreation Park would be more limited. Surrounding areas would also benefit from increased park usership by those seeking restaurants and other local services.

Consistency with Plans: The proposed alternatives all would appear to be consistent with local and State plans, as discussed further in the EIE, although the No Build would not allow for economic development.

Potential Certificates, Permits, and Approvals

The following table summarizes the environmental certificates, permits, and approvals that would be likely to be required for the construction and operation of the Master Plan alternatives considered in this EIE.

Table ES-1. Summary of Potential Certificates, Permits, and Approvals Required for Master Plan Alternatives

Certificate, Permit, or Approval	Reviewing Agency	Alternative	Comments
General Permit for Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities	CT DEEP	All except No Build	Applies to projects with one or more acres of earth disturbance. Development of SWPCP and registration with DEEP required prior to earth disturbing activities onsite.
Flood Management Certification (FMC) Section 25-68 CGS	CT DEEP	All except No Build	Activity proposed by State Agency within or affecting floodplain or that impacts natural or man-made storm drainage facilities requires certification.
Inland Wetlands and Watercourses IWRD-FS-104	CT DEEP	All except No Build	Work affecting and in immediate proximity to watercourses and fringing inland wetlands. Boardwalk/trail, roads, parking, building reconstruction and demolition; new buildings; picnicking grounds; wet meadow; grasslands/meadows and woodland enhancements.
Coastal Permits (COP or Structures & Dredging)	CT DEEP	All except No Build	<p>Structures, Dredging and Fill Act (CGS Sec. 22a-359 - 22a-363f, inclusive for work below the Coastal Jurisdiction Line.</p> <p>Stormwater Management: Individual Permit. Coastal development sites must incorporate proper stormwater management measures. Sites should retain existing natural vegetation, reduce site disturbance and overall impervious cover, and pretreat runoff to tidal waters and wetlands. Drainage from paved surfaces should be directed to stormwater collection systems with appropriate pretreatment structures.</p> <p>Seawalls and Overlook: Repair of existing seawalls is likely a Certificate of Permission (COP) if it is repair in-kind. The construction of new seawalls is discouraged and would likely require an individual permit.</p> <p>Groins and Jetties/Fishing Pier: COP possible for repair of existing, but must minimize alteration of natural circulation patterns and loss of intertidal/subtidal habitat. Sand fill to mitigate past beach erosion may be required. The proposed modification as a fishing pier could require an individual permit.</p> <p>Kayak Launch/Swimming Beach/Dune Restoration/Tidal Pools: Individual Permit</p>
Coastal Consistency Review	CT DEEP	All except No Build	Review for consistency with Connecticut Coastal Management Act (CGS Sec. 22a-90 - 22a-112, inclusive).

Certificate, Permit, or Approval	Reviewing Agency	Alternative	Comments
Section 404 Permit (either GP or IP)	USACE	All except No Build	All activities within Waters of the U.S. (below High Tide Line, within watercourses, and inland wetlands).
Natural Diversity Data Base Review	CT DEEP NDDB	All except No Build	All activities within designated NDDB areas.
OSTA Certificate	CT OSTA	Destination Hybrid	Required for facilities with 200 or more parking spaces or a change in use involving 100,000 square feet or more
Soil and Special Waste Disposal approvals	CT DEEP	All except No Build	May be required for disposal of waste generated during utility relocation or demolition activities
Groundwater Remediation Wastewater to a Sanitary Sewer	CT DEEP	All	May be required if groundwater remediation is found to be needed
Permit by Rule for Generators	CT DEEP	Destination Hybrid	May be required for emergency generators associated with lodging structures
Demolition Permits	Waterford Building Department	All except No Build (although demolition could be required long-term for that alternative	Demolition
Building Permits	CT DAS	Destination Hybrid	Building exterior/interior work.

Conclusion

The proposed development of any of the Master Plan alternatives would not result in significant adverse environmental impacts, regardless of which alternative, or combination of alternatives, is selected. However, depending on the alternative selected, careful study, design, construction, and operation would be needed to minimize potential impacts and provide mitigation for those impacts.

Public Involvement and EIE Review/Comments

A Notice of Scoping for the Proposed Action was published in the Connecticut Council of Environmental Quality's Environmental Monitor on August 2, 2016. The purpose of this notice was to inform and solicit comments on the Proposed Action from agency reviewers and other interested parties. The public comment period ended on September 1, 2016. On August 24, 2016, a public Scoping Meeting was held at 7 PM at the Waterford Town Hall Auditorium, located at 15 Rope Ferry Road in Waterford. Approximately 40 individuals attended the meeting. The public/agency comments, transcripts of the Scoping Meeting, and a summary of the comments is presented in Appendix A.

Based on comments from the scoping phase, this EIE was developed to review and identify potential environmental impacts associated with the Proposed Action. Review agencies and other interested parties are offered an opportunity to provide comments and other pertinent information

that would help define environmental impacts, interpret the significance of such impacts, and evaluate alternatives.

The EIE will be noticed in the Environmental Monitor on June 20, 2017. A public hearing on the EIE is scheduled for 7:00 PM on July 31, 2017, at the Waterford Town Hall Auditorium, located at 15 Rope Ferry Road in the Town of Waterford, Connecticut, to solicit public comments on the EIE. Doors open at 6:30 PM.

Written comments on this document and any other pertinent information must be sent or postmarked by August 11, 2017. Comments must be sent to:

Michael Lambert, Bureau Chief, Outdoor Recreation
CT Department of Energy and Environmental Protection
79 Elm Street
Hartford, Connecticut 06106

Fax: 860-424-4070

Email: DEEP.seasideEIE@ct.gov

This document is also available for viewing and download at www.ct.gov/deep/seaside.

DEEP and DAS will review all such materials submitted by that time and consider comments made at the public hearing, and will prepare responses to the substantive issues raised. Based on the EIE and comments received during the EIE public review period, DEEP and DAS will submit a Record of Decision to the State Office of Policy and Management, which will review the documentation, including responses to comments, and make a Determination of Adequacy.

EIE Distribution List

The EIE Distribution List is included in Appendix G of this EIE.

1.0 INTRODUCTION

This Environmental Impact Evaluation (EIE) has been prepared pursuant to the requirements of the Connecticut Environmental Policy Act (CEPA) as promulgated under Section 22a-1 to 22a-1h of the Connecticut General Statutes (CGS) and as amended by Public Act 02-121 which requires that State-sponsored actions that have the potential for causing negative environmental impact be evaluated and disclosed. That evaluation, in the form of an EIE, is to be made available to government agencies, the public and any other interested parties for review and comment.

The sponsoring agency for this EIE is the State of Connecticut Department of Energy and Environmental Protection (DEEP) and the State of Connecticut Department of Administrative Services (DAS) is the participating agency.

1.1 BACKGROUND

The subject property (the Site or the Property) is a 32-acre tract of waterfront land in the Town of Waterford currently owned by the State of Connecticut, as shown in the Locus Map in Figure 1-1 and the Existing Conditions Plan in Figure 1-2.

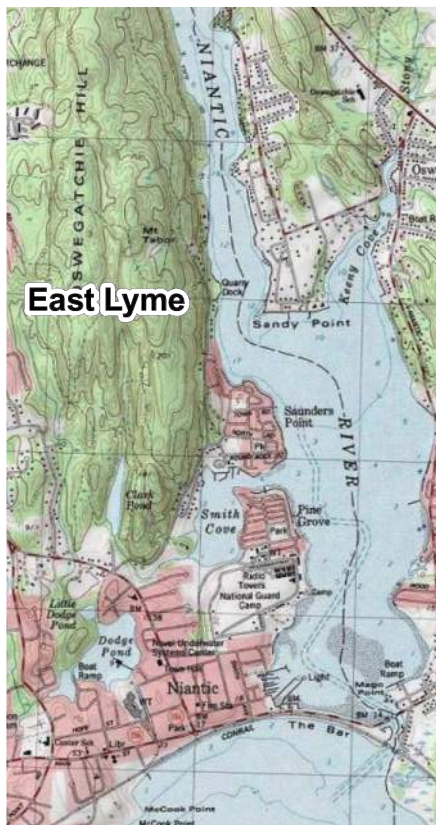
In the 1930's, the State of Connecticut purchased the property from the Smith-Grimes estate. The general history of the site is summarized as follows and described in more herein:

- 1930: State of Connecticut acquires Seaside property
- 1934-1958: Seaside Sanatorium in operation, treating child tuberculosis patients
- 1959-1961: Seaside Geriatric Hospital in operation
- 1961-1996: Seaside Regional Center in operation
- 1993: State initiates reuse planning
- 1993-1997: State of Connecticut, Town of Waterford, and neighborhood groups consider future use
- 1997: Town of Waterford rejects its right of first refusal to purchase property
- 1998-2014: State pursues different reuse and disposition options; one of the disposition efforts initiates a CEPA review but is discontinued; Town also rejects another right of first refusal
- 2014: Governor Malloy designated Seaside a State Park
- 2014-2016: Seaside State Park Master Plan Development
- 2016-2017: CEPA process for State Park Master Plan implementation

In 1934, the State developed the property as a sanatorium for children with tuberculosis. At that time, staff size ranged from 80-100 employees with approximately 50 patients.

The facility was closed in 1958, due to the significant decline in tuberculosis among children, and then reopened as a State-owned and operated geriatric hospital in 1959. The staff size at that time was 100-150 with 100 patients. The State closed the Seaside Geriatric Hospital in 1961 and converted it to a facility for mentally and physically handicapped children. Around this time, additional buildings were added to accommodate 220 patients and 300 staff. At that time, the facility was named the Seaside Regional Center.

Source: USGS QUAD. NIANTIC & NEW LONDON (1984)



0 2000 4000 8000



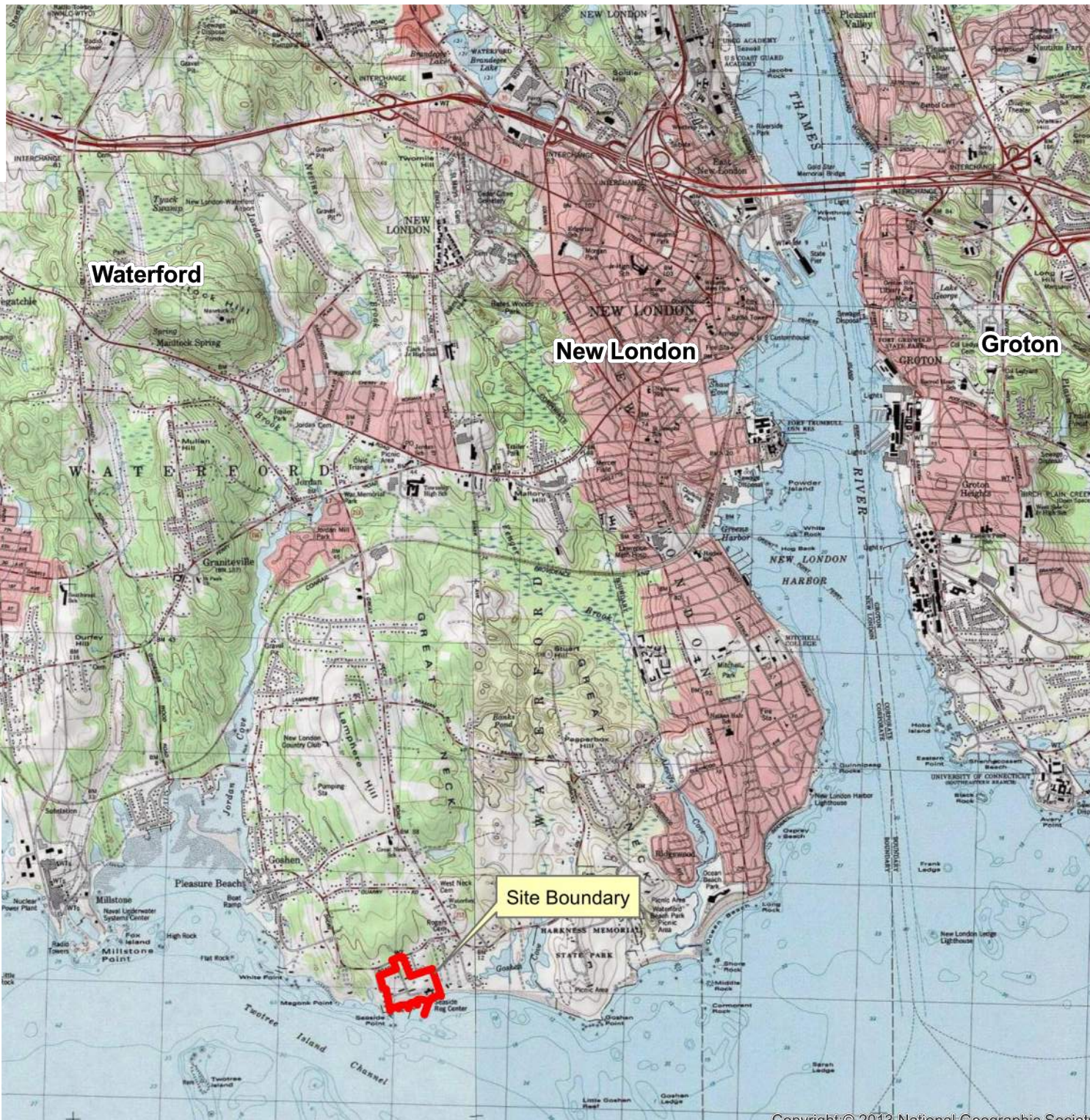
1 INCH = 4,000 FEET

FIGURE 1-1
LOCUS MAP

Seaside State Park Master Plan

ENVIRONMENTAL IMPACT
EVALUATION
May 2017

PREPARED BY: PREPARED FOR:

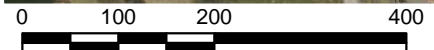


LEGEND

- 1. MAIN HOSPITAL
- 2. EMPLOYEE RESIDENCE
- 3. WASTEWATER PUMP STATION
- 4. SUPERINTENDENT'S RESIDENCE
- 5. DUPLEX HOUSE
- 6. DUPLEX GARAGE
- 7. MAINTENANCE BUILDING (DEMOLISHED)
- 8. RENOVATED GARAGE
- 9. OLD PUMP HOUSE

--- PROPERTY BOUNDARY

Sources: CLA, CT ECO.



1 INCH = 200 FEET

FIGURE 1-2
EXISTING CONDITIONS

Seaside State Park Master Plan

ENVIRONMENTAL IMPACT
EVALUATION
May 2017

PREPARED BY: PREPARED FOR:





Photo 1-1. Children enjoying some fresh air at the Seaside Sanatorium

The closure of the Seaside Regional Center was considered in the early 1990s, but it was not officially closed until 1997. Circa 1993, the State began the process of finding a new use for the property. A facility study committee involving the Department of Mental Retardation (DMR) (now the Department of Developmental Services or DDS), the Connecticut Department of Public Works (DPW) (now the Department of Administrative Services), the Office of Policy and Management (OPM) and the Town of Waterford (Town) was formed to consider the future use of the property.

Several new uses were proposed; however, there was no consensus among the committee constituents at that time. As a result, the Town began to study potential future uses of the property and prepared a plan for the “Seaside Regional District” in the mid-1990s.

In 1997, the Seaside facility officially closed and the State began the process of selling the property. Over several years, two different selling options were pursued by the State. Neither resulted in the sale of the property; however, during this time period, the Town approved a zone change from RU-120 to the Seaside Preservation Zoning District. The actual transfer of the property had not occurred, and, in 2014, Governor Malloy designated the former Seaside Sanatorium a State Park (Seaside State Park), the first shoreline park established in over 50 years.

In December 2014, the Seaside State Park Master Planning Process was initiated with an extensive public outreach effort that included public information meetings, online surveys and media coverage. In total, approximately 400 people attended the Master Plan public meetings and 1,360 people responded to online surveys. During the Master Planning period, PKF Consulting USA conducted a feasibility study of the historical buildings to determine the market for adaptive reuse of the buildings as a State Park lodge. The Final Master Plan was published by Sasaki in August 2016.

The CEPA process was initiated August 2016. A public scoping meeting was held at Waterford Town Hall on August 24, 2016, to summarize the CEPA process as it relates to the Master Plan and to hear comments from local citizens and others regarding the focus of the EIE. Approximately 40 people attended and 86 comments were received. The scoping presentation and comments are contained in Appendix A of this EIE.



Photo 1-2. Seaside State Park Master Plan Public Information Meeting

1.2 PURPOSE AND NEED

The purpose of the Proposed Action is to fully incorporate Seaside State Park into the Connecticut State Park system. The Master Plan (Sasaki, 2016) identified a shortage of State Park amenities, some of which could be addressed at Seaside including: multi-use trails; scuba diving; car-top boating; fishing, waterfront activities (e.g. picnicking); and wildlife observation.

The Connecticut State Park system consists of 109 State Parks and 32 State Forests, which generates 8.5 million visitor-days per year (Connecticut Center for Economic Analysis (CCEA), 2011). Opportunities to expand the park system along Long Island Sound have been infrequent and the designation of the former Seaside State Sanatorium property by the Governor as a State Park in 2014 has provided such an opportunity. With the existence of historical buildings and grounds located adjacent to Long Island Sound, Seaside State Park provides a unique blend of historical architecture, landscaping, and natural features that provide passive and active recreational opportunities. In addition, utilization of the buildings provides an opportunity to provide a revenue generating source income to help offset the cost of developing, maintaining, and operating the park.

The goal of the Proposed Action is to:

- Promote and improve recreation and public access to Long Island Sound;
- Restore, preserve, and reuse historic assets where feasible;
- Preserve and improve the Site's ecology and habitats;

- Create an implementation and operating plan that is financially-feasible; and,
- Engage the public in helping shape the future of Seaside State Park.

The four Master Plan concepts aim to achieve these goals with varying degrees of emphasis as summarized in Section 1.3 below. As required by CEPA, the environmental impacts of each concept (alternative) are summarized and compared in Section 2 and discussed in more detail in Section 3.

1.3 DESCRIPTION OF THE PROPOSED ACTION

The Proposed Action is the implementation of a development concept from the Seaside State Park Master Plan (Sasaki, 2016). The Master Plan depicts four potential concepts for the Site, as summarized below and described in more detail in Section 2.

- Destination Park – This concept emphasizes passive and active recreation along with a lodging experience. Existing historic buildings would be restored for lodging and auxiliary uses and the grounds and waterfront would be modified and enhanced to support passive and active recreational uses.
- Ecological Park – This concept emphasizes maintenance and enhancement of ecological features of the site, both in the terrestrial and waterfront environment. Under this concept, the historic buildings would be demolished.
- Passive Recreation Park – This concept most closely resembles the Park in its current condition/use with minimal improvements to the grounds. Under this concept, the historic buildings would be demolished.
- Hybrid Park – This concept is an amalgam of the other alternatives. The historic buildings would be converted to lodging, the grounds would be enhanced, and ecological habitats would be created or enhanced along the waterfront.

These concepts, along with the “No Build” alternative, are the alternatives that are being evaluated in this EIE. Each of these concepts addresses the purpose and need and goals of the Proposed Action to varying degrees.

2.0 ALTERNATIVES

The following subsections describe the potential alternatives associated with the Seaside Master Plan which will be evaluated in this EIE. Maps included in this section provide conceptual depictions of each of the Master Plan alternatives.

It should be noted that the maps/plans contained in this report are accurate to the level needed to estimate impacts and are not intended to be used for legal, construction document purposes, or as a “final design”.

2.1 NO BUILD

CEPA requires that the No Build alternative be evaluated in an EIE. This alternative would involve leaving the Site in its current state with continued operation as it has for the past two plus years since the Site was designated a State Park in 2014. The existing buildings would continue to be secured in an effort to keep people from entering them, which could pose a safety hazard, and to prevent rain and snow from breaching the buildings. Existing interior asbestos abatement would most likely not continue or would only continue on a very limited basis based on available funds. The grounds would be minimally maintained. The lawn would be cut and trees would be pruned as needed by DEEP, and during the winter, the Town would clear the main access road of snow to access the wastewater pump station. The entrance gate would be closed so that visitors would need to enter the Site on foot or via other non-motorized means. The Park would continue to be fee-free under this alternative.

The No Build alternative would result in the continued degradation of the historic buildings onsite from lack of maintenance and use, would not provide an improved park resource to meet the goals of the Proposed Action, and would not provide an opportunity for any revenue generation. As such, this alternative is not considered a feasible means of meeting the purpose and need of the Proposed Action and has not been evaluated in further detail in this EIE.

2.2 DESTINATION PARK

The Destination Park Alternative (Figure 2-1) involves restoration and reuse of the existing buildings onsite and the enhancement of the waterfront for ecological and recreational purposes. A public-private partnership would be sought to support the adaptive reuse and restoration of the historic buildings onsite. The State of Connecticut would retain ownership of the entire Site, including all buildings and grounds, while a private entity would be responsible for restoration of the historic buildings, operation and management of these buildings, and any grounds maintenance associated with the use of these buildings.

The Site would be open to the public from dawn to dusk, as is customary with other parks in the State; however, lodging guests would have 24-hour access to the entire Site.

The estimated cost for construction of this alternative is \$39.5 million.

LEGEND

1. ENTRY ROAD
2. PARKING
3. MAIN LODGE
4. AUXILIARY LODGE
5. INN OR SINGLE FAMILY VACATION RENTAL
6. BOARDWALK
7. TIDAL POOLS
8. SEAWALL
9. OVERLOOK
10. DUNE SWALE
11. WET MEADOW
12. SAVANNAH GRASSLAND
13. COASTAL MEADOW
14. COASTAL WOODLANDS
15. FISHING PIER
16. KAYAK LAUNCH
17. MAINTENANCE SHED
18. VISITOR CENTER
19. OLD PUMP HOUSE
20. WASTEWATER PUMP STATION

Sources: Sasaki, CLA.



PROPERTY BOUNDARY

0 100 200 400



1 INCH = 200 FEET

FIGURE 2-1
DESTINATION PARK ALTERNATIVE

Seaside State Park Master Plan

ENVIRONMENTAL IMPACT
EVALUATION

May 2017

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2.2.1 Buildings

The Destination Park alternative involves retaining and/or restoring all of the existing building space onsite. This includes conversion of the Main Hospital Building (3) to a lodge and conversion of the Employee Residence (4) into an auxiliary lodge. The Superintendent's Residence (5) and the Duplex House (5) would be restored and used as private vacation cottages for larger groups and families. The Renovated Garage (18) would be converted to a Visitor Center and the Old Pump House (19) would remain as-is, as would the Municipal Wastewater Pump Station (20). The Duplex Garage (17) would be reused as a maintenance shed.

In total, the buildings designated for lodging would support up to approximately 63 rooms with associated services such as dining areas, conference space, a pool, fitness center and parking. At this time, it is estimated that conference space would range from 4,000 to 16,000 net square feet (NSF). A restaurant/bar could encompass approximately 5,000 to 8,000 NSF. A fitness center would also be included within one of the existing buildings.

The buildings would be designed to achieve water and energy conservation and waste reduction goals associated with Green Lodging Certification.

2.2.2 Access and Parking

The existing driveway (1) would serve as the entry road for the Park. Parking (2) would be provided behind and across from the Employee Residence and behind the Main Lodge. There would also be parking at several locations along the east-west road from the Main Lodge to the Superintendent's Residence. Parking would also be placed between the Superintendent's Residence and the Duplex House, with an estimated total of 250 parking spaces.

2.2.3 Grounds

The grounds would be improved by including a boardwalk (6), savannah grasslands (12), and a coastal meadow (13). These would involve grading, seeding, and plantings.

2.2.4 Waterfront

On the waterfront, the large groin (15) in the eastern portion of the Site would be converted to a fishing pier by either creating a pile-supported deck or by placing flat surface materials over the existing groin stones to create a level surface for walking. A carry-in kayak launch (16) would be constructed immediately north of a groin on the western portion of the property. The existing seawall (8) would be reconfigured along the waterward perimeter of the proposed boardwalk.

This alternative would involve the creation and/or enhancement of wet meadows (11) and the creation of three tidal pools (7), along with an overlook landward of one of the tidal pools.

2.3 ECOLOGICAL PARK

The Ecological Park alternative (Figure 2-2) would involve maximizing ecological restoration of the Site while providing passive recreational opportunities. This alternative would involve demolition of the majority of the buildings on the Site. There would be no lodging as part of this alternative and the entire Site would be owned and managed by DEEP. The estimated construction cost to implement this alternative is \$8.3 million.

LEGEND

1. PARKING/VISITOR CENTER
2. NATURE TRAIL
3. MAINTENANCE ROAD/TRAIL
4. NATURE FOLLIES
5. FISHING PIER
6. DUNE RESTORATION
7. SAVANNAH GRASSLAND
8. COASTAL MEADOW
9. COASTAL WOODLANDS
10. KAYAK LAUNCH
11. STONE WALLS
12. WASTEWATER PUMP STATION

Source: Sasaki, CLA.



0 100 200 400



1 INCH = 200 FEET

FIGURE 2-2
ECOLOGICAL PARK ALTERNATIVE
Seaside State Park
Master Plan
ENVIRONMENTAL IMPACT
EVALUATION
May 2017

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2.3.1 Buildings

The Ecological Park alternative would involve demolition of the Main Hospital Building, Employee Residence, Superintendent's Residence, Duplex House, Duplex Garage and Old Pump House, although foundations of the first two may remain.

The Renovated Garage would be converted to a Visitor Center. Alternatively, the Superintendent's Residence or the Duplex House, or Employee Residence could serve as the Visitor Center, if larger space is needed; however, it is assumed that the Renovated Garage would provide sufficient space. The Municipal Wastewater Pump Station would remain as-is.

2.3.2 Access and Parking

The existing driveway would serve as access to the park but would be truncated at the Visitor Center (1) (existing Renovated Garage) and the remainder of the existing driveway would serve as a trail and maintenance road only for use by vehicles that need to gain access to the Site or wastewater pump station. All parking for the Site (approximately 90 spaces) would be provided at the Visitor Center (1).

2.3.3 Grounds

The grounds would be improved to include a perimeter nature trail (2) and nature follies (4), coastal meadows (8) and savannah grasslands (7). Additional trees would be planted to create a more dense coastal woodland habitat. Some minor grading would be required as well as seeding and plantings.

2.3.4 Waterfront

On the waterfront, the large groin (5) in the eastern portion of the site would be converted to a fishing pier by either creating a pile-supported deck or by placing flat surface materials over the existing groin stones to create a level surface for walking. Existing dune grass patches (6) would be enhanced and the existing seawall would be removed. There is no kayak launch proposed for this alternative.

2.4 PASSIVE RECREATION PARK

The Passive Recreation Park alternative (Figure 2-3) involves minimal alterations to the Site grounds. No lodging would be provided as part of this alternative and all the historic buildings would be removed. The entire Site would be owned and managed by DEEP.

The estimated construction cost to implement this option is \$2.7 million.

2.4.1 Buildings

All buildings onsite would be removed except for the Municipal Wastewater Pump Station near the waterfront.

LEGEND

1. PARK/VISITOR CENTER
2. WALKING/JOGGING TRAIL
3. MAINTENANCE ROAD/TRAIL
4. WASTEWATER PUMP STATION
5. PICNICKING/BBQ GROUNDS
6. OPEN LAWN
7. SAVANNAH GRASSLAND
8. SEAWALL

Source: Sasaki, CLA.



0 100 200 400

1 INCH = 200 FEET

FIGURE 2-3
PASSIVE PARK ALTERNATIVE

Seaside State Park Master Plan

ENVIRONMENTAL IMPACT
EVALUATION
May 2017

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2.4.2 Access and Parking

The existing driveway would serve as access to the park but public vehicular access would be truncated at a new parking lot constructed in the area of the Renovated Garage and Old Pump House. Access for site maintenance and the pump station would be allowed to use the full extent of the driveway. The new parking lot would accommodate approximately 90 vehicles.

2.4.3 Grounds

The grounds would remain primarily as-is, except for improvements to existing and new open lawn areas voided by the demolished buildings. There would be savannah grassland plantings west of the Municipal Wastewater Pump Station. A looped walking/jogging trail would be constructed along the perimeter of the site. Picnicking grounds would be established near the waterfront between the Municipal Wastewater Pump Station and the seawall.

2.4.4 Waterfront

On the waterfront, all existing features would remain as-is, except that the seawall would be repaired, as needed.

2.5 HYBRID DESTINATION/ECOLOGICAL/PASSIVE PARK

The Hybrid Destination/Ecological/Passive Park alternative (referred to throughout this document as the “Hybrid alternative” or “Hybrid Park alternative” Figure 2-4), combines many of the features of the Destination Park, Ecological Park and Passive Park concepts. A public-private partnership would be sought to support the adaptive reuse and restoration of the historic buildings onsite and construction of a new 15,000 NSF lodging building in the vicinity of the Main Hospital Building and Employee Residence (Figure 2-4, items 20a-20f). DEEP would retain ownership of the entire Site including all buildings and grounds, while a private entity would be responsible for restoration of the historic buildings and operation and management of these buildings and any grounds associated with the use of these buildings.

The estimated cost for this alternative would be \$44.6 million.

The Site would be open to the public from dawn to dusk, as is customary with other parks in the State; however lodging guests would have 24-hour access to the entire Site.

2.5.1 Buildings

The Hybrid Alternative would involve restoring the existing historic buildings onsite. This includes conversion of the Main Hospital Building (4) to a Main Lodge and conversion of the Employee Residence (5) into an Auxiliary Lodge. The Superintendent’s Residence (5) and the Duplex House (5) would be restored and used as private vacation cottages for larger groups and families. The Renovated Garage (18) would be converted to a Visitor Center and the Old Pump House (19) would remain as-is, as would the Municipal Wastewater Pump Station (22).

LEGEND

- 1. ENTRY ROAD
- 2. PARKING
- 3. LODGE DROP-OFF
- 4. MAIN LODGE
- 5. AUXILIARY LODGE BUILDINGS
- 6. FORMAL LAWN
- 7. OYSTER REEFS
- 8. SEAWALL
- 9. COASTAL TRAIL
- 10. GRASS MOUND
- 11. WET MEADOW
- 12. NATIVE SUNFLOWER MEADOW
- 13. COASTAL WOODLAND
- 14. PLAY AREA
- 15. FISHING PIER
- 16. KAYAK LAUNCH
- 17. ART INSTALLATION
- 18. PARK VISITORS CENTER
- 19. OLD PUMP HOUSE
- 20 A-F. NEW LODGE BUILDING- (LOCATION TO BE DETERMINED)
- 21. DUPLEX GARAGE
- 22. WASTEWATER PUMP STATION



APPROX. FOOTPRINT OF 15,000-GSF 3-STORY BUILDING

Source: Sasaki, CLA, GZA.

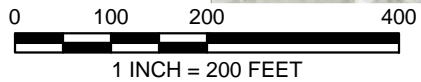


FIGURE 2-4
HYBRID PARK ALTERNATIVE
Seaside State Park
Master Plan
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 EVALUATION
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In total, the buildings designated for lodging would support approximately 100 rooms with associated services such as dining areas, conference space, a pool, spa and parking. At this time, it is estimated that there would be, at minimum, 6,000 NSF of conference/meeting space and 8,000 NSF of dining space. A fitness center and a spa would also be located within the building(s) encompassing approximately 6,000 NSF.

A new lodging facility encompassing approximately 15,000 NSF would likely be needed to fulfill the desired 100-room count. The location of this building has yet to be determined; however, potential general locations are depicted as items 20A-20F in Figure 2-4.

The new building would likely be a multi-story facility located near the Employee Residence and Main Hospital Building. The building could either be a free-standing structure or an addition to either of these building.

The buildings would be designed to achieve water and energy conservation and waste reduction goals associated with Green Lodging Certification.

2.5.2 Access and Parking

The existing driveway (1) would serve as the entry road for the Park. Parking (2) would be provided behind and across from the Employee Residence and behind the Main Lodge. There would also be parking at the kayak launch (16) and behind the Municipal Wastewater Pump Station (east of 10). Parking would be placed between the Superintendent's Residence and the Duplex House. In total, there would be an estimated 275-290 spaces.

2.5.3 Grounds

The grounds would be improved to including a coastal trail (9), formal lawn areas (6), native sunflower (12) and wet meadows (11), a play area (14), and art installations (17). Grading would be required to support development of these features and their transition to the waterfront.

2.5.4 Waterfront

On the waterfront, the large groin (15) in the eastern portion of the site would be converted to a fishing pier by either creating a pile-supported deck or by placing flat surface materials over the existing groin stones to create a level surface for walking. Oyster reefs (7) would be placed alongside this groin and two other groins. A car-top kayak launch (16) would be constructed immediately north of a groin on the western portion of the property. The existing seawall (8) along the entire Site would be repaired, as needed, but would remain in its current location.

2.6 COMPARISON OF ALTERNATIVES

The No Build alternative does not meet the purpose and need for the Proposed Action and as such is not evaluated in more detail in this EIE.

For the remaining build alternatives, it is estimated that there would be approximately 50,000 annual visitations to the Park. These visitation estimates do not include the employees or visitors to the lodging facilities under the Destination and Hybrid Park alternatives.

The alternatives vary in features, with the Destination Park and Hybrid Park being most similar due to the presence of lodging and significant waterfront improvements, and the Ecological and Passive Recreation Park alternatives being most similar to each other due to the removal of the buildings and lack of lodging with limited resources and amenities and less demand with respect to energy and utilities/services.

A Natural Diversity Data Base (NDDB) Review Request was submitted to the DEEP Division of Wildlife because the eastern portion of the Site is within a NDDB Area. In summary, Division of Wildlife suggested that removal of all man-made coastal structures (seawall and groins) be considered as an alternative. The Division of Wildlife opined that removal of such structures would restore the coastline to its original state and, in turn, restore the coastal hydrodynamics and sediment transport to the Site and downdrift areas before the seawall and groins were constructed, sometime around 1934. The Division of Wildlife suggested that the potential increase in sediment accretion from longshore drift to beach areas east of the Site could improve habitat for State and federally-protected species.

While removal of the seawall and groins would create a coastal erosive environment at the Site and could potentially increase beach accretion (i.e. accumulation of sand) rates east of the Site, the effect is likely to be extremely limited. The Site is located on a coastal promontory with shallow bedrock and limited local sand sources. The local coastline west of the Site is a relatively deep embayment, which limits longshore drift sources of sand reaching the Site. Aerial photographs suggest that the amount and rate of sediment accretion at the Site caused by the presence of the groins is not significant. The groins and seawall have been in place for over 80 years and beach formation has been extremely limited at best. Therefore, it is doubtful that removal of the groins would provide a significant amount of sand along portions of the coastline to the east via longshore drift, as very little is being intercepted by the existing groins that might otherwise contribute to those beaches.

The removal of the seawall and groins would more likely cause a more energetic wave environment at the Site, resulting in increased coastal erosion at the Site. In addition to impacting the existing coastal resources, such a loss of land and increased Site vulnerability would be inconsistent with the purpose and need and goals of the Master Plan implementation. As evaluated in Section 3.1.2 and Appendix D, removal of the seawall, as proposed under the Ecological Park alternative, would increase the extent of the FEMA VE zones. This is caused by the coastal erosion at the erodible shoreline during a storm event. Removal of the groins that provide wave attenuation would exacerbate erosion at the Site. Increased erosion would, over time, could potentially threaten the wastewater system (pump station and sewer force main), the lawn between the existing seawall and the historic buildings and, potentially, the historic buildings themselves.

The removal of all man-made coastal protection structures does not meet the goal of the Master Plan of providing an active recreational component to the park experience. Features such as a kayak launch and a beach would not be feasible or safe without the presence of these structures. The fishing pier would be constructed but on piles without the groins; however, it would likely be exposed to more wave energy and would, therefore, need to be designed and constructed to withstand these additional wave forces, which would be more costly.

For these reasons, the removal of both the seawall and the groins is not being carried forward as a potential alternative.

Table 2-1 provides a visual summary of the major features which would be included in each of the alternatives, based on the Master Plan illustrations from Sasaki (Figure 2-1 to Figure 2-4).

Table 2-1. Comparison of Features by Alternative

	No Build	Destination Park	Ecological Park	Passive Recreation Park	Hybrid Park
Entry/Maintenance Road	•	•	•	•	•
Parking		•	•	•	•
Hotel in Existing Buildings		•			•
New Hotel Building					•
Boardwalk		•			
Tidal Pools		•			
Seawall	•	•		•	•
Overlook		•			
Dune Swale		•			
Wet Meadow		•			•
Savannah Grassland		•	•		
Coastal Meadow		•	•		
Coastal Woodlands		•	•		•
Fishing Pier		•	•		•
Kayak Launch		•	•		•
Maintenance Shed	•	•			
Visitor Center		•	•		•
Old Pump House	•	•			•
Wastewater Pump Station	•	•	•	•	•
Nature Trail			•		
Nature Follies			•		
Dune Restoration			•		
Stone Walls			•		
Walking/Jogging Trail				•	
Picnicking/BBQ Grounds				•	
Open Lawn				•	•
Swimming Beach				•	
Oyster Reefs					•
Coastal Trail					•
Grass Mound					•
Native Sunflower Meadow					•
Play Area					•
Art Installation					•

The following table, Table 2-2, compares each of the alternatives against potential impact areas. This table considers permanent impacts related to the operation of the Park under each alternative, not construction-phase impacts which are described in Section 6.0.

Table 2-2. Comparison of Potential Impacts by Alternatives

Topic	No Build	Destination Park	Ecological Park	Passive Recreation Park	Hybrid Park
Agricultural Soils	No impacts	2.8 acres converted	2.1 acres lost or converted	1.2 acres lost or converted	3.5 acres converted
Water Resources	No impacts	Reconfigured seawall with openings would cause increased shoreline erosion and seawall foundation scour	Removal of seawall would create more shoreline erosion.	No flood zone changes	No flood zone changes
Ecological Resources	No impacts	Some impact to existing coastal and freshwater/upland habitats that can be mitigated, but overall ecological systems on site are enhanced. Permitting required.	Minor impact to ecological resources and overall enhancement of existing freshwater and coastal habitats. Permitting required.	Minor impact to habitat associated with eastern groin resulting from fishing pier. Some enhancement of upland habitat. Permitting required.	Some impact to existing coastal and freshwater/upland habitats that can be mitigated, but overall ecological systems on site are enhanced. Permitting required.
Rare Species	No impacts	Potential benefit to plant habitat; no likely effect on bird habitat; some potential loss or benefit to insect habitat.	Potential benefit to plant habitat; no likely effect on habitat for protected birds, but could provide improvement for migratory passerine bird habitat; some potential loss or benefit to insect habitat.	Potential benefit to plant habitat; no likely effect on bird habitat; some potential loss or benefit to insect habitat.	Potential benefit to plant habitat; no likely effect on bird habitat; some potential loss or benefit to insect habitat.
Traffic, Parking, Circulation	No impacts	Increased on-site parking; no significant traffic impacts in area	Increased on-site parking; no significant traffic impacts in area	Increased on-site parking; no significant traffic impacts in area	Increased on-site parking; no significant traffic impacts in area
Air Quality	No impacts	Slight increase in air emissions from automobiles and electrical/heat demand	Slight increase in air emission from automobiles	Slight increase in air emissions from automobiles	Slight increase in air emissions from automobiles and electrical/heat demand
Noise	No impacts	Increase in noise from increased site usage – park visitors and lodge guests	Slight increase in noise from increased site usage	Slight increase in noise from increased site usage	Increase in noise from increased site usage – park visitors and lodge guests
Light/Shadow	No impacts	Increased lighting from park and buildings for extended periods, beyond dusk	Increased lighting from park limited to park hours – dawn to dusk	Increase lighting from park limited to park hours – dawn to dusk	Increased lighting from park and buildings for extended periods, beyond dusk
Water Supply	No impacts	25,000 gpd potable/640gpm fire flow	600 gpd potable/380 gpm fire flow	0 gpd potable/380 gpm fire flow	35,000 gpd potable/72-gpm fire flow
Wastewater	No impacts	16,000 gpd	550 gpd	0 gpd	21,000 gpd
Stormwater	No impacts	1.5 acres additional impervious area; stormwater system replacement would result in overall water quality improvement	1.9 acre decrease in impervious area; stormwater system upgrades would improve overall stormwater quality	2.5 acre decrease in impervious area; stormwater system upgrades would improve overall stormwater quality	1.8 acres additional impervious area; stormwater system replacement would result in overall water quality improvement
Electricity/Telecommunications	No impacts	Upgrade of system provides improvement	Upgrade of system provides improvement	Upgrade of system provides improvement	Upgrade of system provides improvement
Heat	No impacts	Increase heating demand due to reuse of buildings	Nominal increase in heating demand	Slight decrease in heating demand due to demolition of renovated garage (only building on site that is currently heated)	Increase heating demand due to reuse of buildings
Aesthetics/Viewsheds	Continued building deterioration causing negative aesthetic impacts in the short term. Long term prognosis would be building demolition with increased viewshed of the Sound	Improved aesthetics from building exterior rehabilitation and grounds improvements	Increased viewshed for abutters resulting from building removal.	Increased viewshed for abutters resulting from building removal.	Improved aesthetics from building exterior rehabilitation and grounds improvements. Potential viewshed impacts to abutting properties from new lodge annex
Solid Waste and Recycling	No impacts	Increase in solid waste generation and recycling	Nominal increase in solid waste generation and recycling	Nominal increase in solid waste generation and recycling	Increase in solid waste generation and recycling
Cultural Resources	Continued building deterioration would lead to required demolition	Retaining of historically significant buildings but reconfiguration of seawall, a contributing historic element.	Demolition of six National Register buildings	Demolition of seven National Register Buildings	Retainage of historically significant buildings.
Pesticides, Toxics, Haz. Mat.	USTs remain in place. Limited asbestos abatement over time as funds are available; complete abatement would be necessary for demolition	UST closure per state regulations; Level of abatement and/or remediation would most likely be based on redevelopment options	UST closure per state regulations; Abatement would be necessary due to demolition of buildings, potential remediation	UST closure per state regulations; Abatement would be necessary due to demolition of buildings, potential remediation	UST closure per state regulations; Level of abatement would most likely be based on redevelopment options, potential remediation
Energy	No impacts	Increase in energy usage from building and site improvements	Nominal increase in energy usage	Nominal increase in energy usage	Increase in energy usage from building and site improvements
Public Health & Safety	No impacts	Slight increase in fire, police, ambulatory services	Nominal increase in fire, police, ambulatory services required	Nominal increase in fire, police, ambulatory services required	Slight increase in fire, police, ambulatory services
Land Use/Neighborhoods	No impacts	Increased intensity of land use. Lodging is a new land use in the neighborhood.	No change in land use. Slight increase in site usage.	No change in land use. Slight increase in site usage.	Increased intensity of land use. Lodging is a new land use in the neighborhood.
Population, Income, Employment, Housing	No impacts	Overall significant positive impact	Nominal positive benefit	No impact	Overall significant positive impact
Economic Impact	No impacts	Estimated 51 permanent jobs created; 303 construction jobs	Estimated 3 permanent jobs created; 49 construction jobs	Estimated 3 permanent jobs created; 17 construction jobs	Estimated 75 permanent jobs created; 347 construction jobs
Fiscal Impact	No impacts	\$246,000 annual local revenue generated; \$642,000 annual State revenue	20% decline in local revenue; \$83,000 annual State revenue	21% decline in local revenue; \$83,000 annual State revenue	\$325,000 annual local revenue generated; \$901,000 annual State Revenue

3.0 EXISTING ENVIRONMENT AND ANALYSIS OF IMPACTS

3.1 NATURAL ENVIRONMENT

3.1.1 Geology, Soils, Agricultural Soils, and Topography

3.1.1.1 *Existing Conditions*

Topography

The topography of the Site is generally flat, with a gradual downward slope toward Long Island Sound (Figure 3-1). The Site has a 3% average slope and a relief change of approximately 40 feet from Shore Road to the beach. There is very little microtopography onsite, with the exception of the seawall at the southern end of the property and the swales associated with intermittent streams on the parcel that flow from north to south. There are two primary drainage courses across the Site, with a third minor drainage course along the eastern property line. Each of these drainage courses are generally broad swale-like features that flow intermittently in a general north-south direction.

The northernmost portion of the Site, parallel to Shore Road, is at an elevation of 42 feet on the North American Vertical Datum of 1988 (NAVD88). The lowest portion of the Site is the beach which is at approximately 2 feet NAVD88 and is partially submerged during high tide. The average tidal range in this area is approximately 3 feet. The top of the seawall ranges from approximately elevation 10 feet NAVD88 at the eastern end to approximately 6 feet NAVD88 at the western end.

The seawall is approximately 1,500 feet (ft) in length, 4 ft high, and 3 ft wide, constructed in 1938 to provide a beach area for pediatric patients at the facility. It is composed primarily of pink granite, sandstone, and metamorphic rock.

Geology

According to the Connecticut Geological and Natural History Survey (Rodgers, 1985), the bedrock geology of the Site vicinity is an interlayered light to dark, fine-to medium-grained gneiss, known as the Rope Ferry Gneiss formation. The depth to bedrock is unknown, with no bedrock outcrops onsite, although there appears to be some exposed bedrock along the westerly beach area.

The United States Geological Survey (USGS) defines Rope Ferry Gneiss as interlayered light- to dark-gray, fine- to medium-grained gneiss, composed of plagioclase, quartz, and biotite, with hornblende in some layers and microcline in others, with local layers of amphibolite.

Bedrock within the Site is draped in glacial sediments laid down during the last glacial episode, approximately 18,000 years ago. Most of the property is underlain by glacial till deposits. These consist of thin till deposited during the last glacial episode, as well as thick till, which predates the last glaciation. The thin till deposits consist of relatively well-drained, generally coarse-grained deposits which can be stony. The area of thick till is limited to the north-central portion of the property where it represents the southernmost extent of a drumloidal feature. The older deposit consists of relatively impermeable sediments. The position of the thick till lobe explains the presence of the two small watercourses that flow south across the Site.

LEGEND

- 3 - RIDGEBURY, LEICESTER, AND WHITMAN SOILS, EXTREMELY STONY
- 13 - WALPOLE SANDY LOAM
- 21A - NINIGRET AND TISBURY SOILS, 0 TO 5 PERCENT SLOPES
- 29A - AGAWAM FINE SANDY LOAM, 0 TO 3 PERCENT SLOPES
- 45B - WOODBRIDGE FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES, VERY STONY
- 301 - BEACHES-UDIPSAMMENTS COMPLEX, COASTAL

- COASTAL BEACH AND DUNE DEPOSITS
- DEPOSITS OF SEDIMENT DAMMED LAKES
- TILL
- THICK TILL

- - - - PROPERTY BOUNDARY
- EXISTING WATERCOURSE
- EXISTING MAJOR CONTOUR
- - - EXISTING MINOR CONTOUR

Sources: NRCS, CT DEEP, CT ECO, CLA.

NOTE: Contours in NAVD 88, US FT.

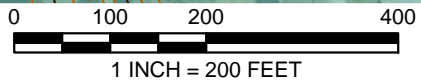
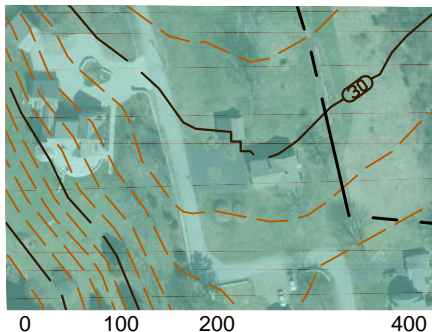
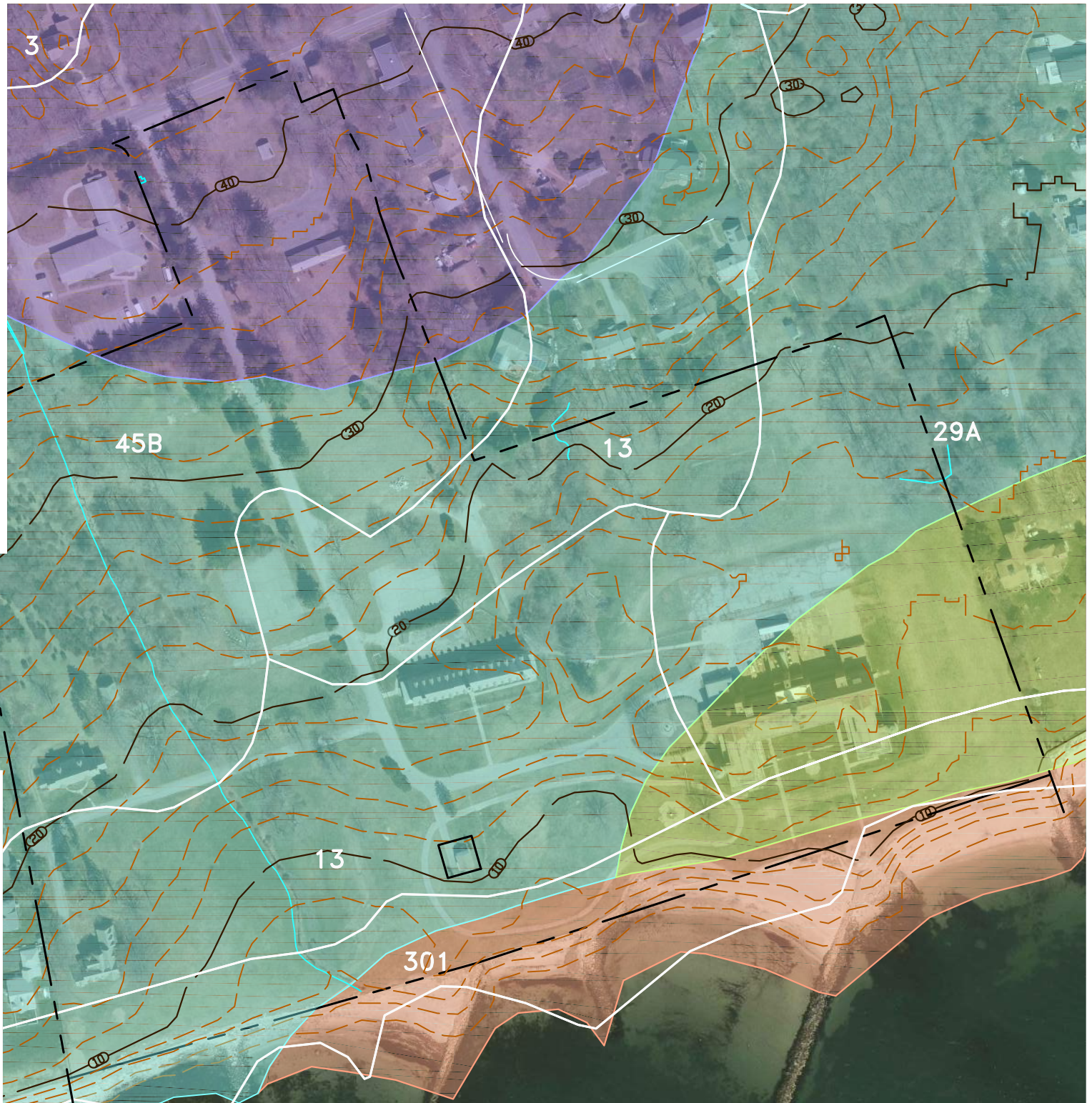


FIGURE 3-1
TOPOGRAPHY, GEOLOGY AND SOILS

**Seaside State Park
Master Plan**
ENVIRONMENTAL IMPACT
EVALUATION
May 2017

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The southeastern portion of the Site is underlain by finer-grained deposits associated with high stand of Glacial Lake Connecticut.

USGS describes this as gently sloping, relatively wide valleys and basins that drained to the south, away from the ice margin where:

“Relatively large glacial lakes formed in these valleys and basins behind thick sediment dams that filled narrower sections of the valleys. Dams most commonly were composed of ice-marginal meltwater sediments (usually deltaic) deposited at slightly earlier ice-margin positions in the valleys. Lakes developed in wider sections of valleys or in basins within valleys and were commonly fed by streams in tributary valleys to the lakes. Spillways for some lakes were over their sediment dams, in which case the lake-level lowered continuously during the life of the lake because the spillway was across easily erodible sand and gravel deposits. Other lakes had spillways with their base in bedrock across basin divides that were lower in altitude than the surface of the sediment dam blocking the valley; lake levels were stable throughout the life of these lakes.”

Deltaic, fluvial, and lake-bottom sediments are included in these deposits. According to USGS, “deltas in this depositional system commonly have free fronts with lakebottom sediments beyond that separate younger deltas from older ones.”

According to the *USGS Quaternary Geologic Map of Connecticut and Long Island Sound Basin* (USGS, 2017) and the *USGS Surficial Geology Map of Connecticut* (USGS, 2017), the underlying surficial geology of the Site is talus, which forms steep unstable slopes, and is generally less than 10-feet thick. The surficial material of the Site is composed of unconsolidated glacial ice-laid deposits (Late Wisconsinan and Illinoian) and post-glacial materials including: gravel, sand, fines, till, alluvium, and swamp deposits.

Per USGS the materials are described as:

“Silty sand, clayey silt-sand, and sandy or silty diamict sediment as matrix, containing 5 to 40 percent pebbles, cobbles, and boulders; generally nonstratified. Large boulders within and on surface of tills range from sparse to abundant. Gravel clasts, boulders, and sand grains in till matrix are subangular to subrounded, generally unweathered. Surface till deposits include two facies: (1) compact, massive till with subhorizontal fissile structure, subvertical jointing, and strongly preferred orientation of long axes of elongate gravel clasts; inferred to be subglacial till of lodgement or basal meltout origin; overlain locally by (2) noncompact, sandier, commonly layered till with minor lenses of sorted sand and gravel; less common masses of laminated, fine-grained sediments and clusters of cobbles and boulders; inferred to be a supraglacial till of meltout origin. Compact till common on lower slopes and locally in areas of bedrock outcrops; noncompact till either forms discontinuous, thin veneer overlying compact till and bedrock, or forms small moraines.

Color, texture, and composition of tills related closely to underlying and northerly adjacent bedrock units from which till was derived. Tills in highlands are light-gray sand to silt-sand, containing clasts of gneiss, schist, granitic rocks, minor quartzite, and local mafic rocks. Tills in Central Lowland are dark-reddish-brown to yellowish-brown, silty to clayey silt-sand containing clasts of sandstone, basalt, diabase, and erratic clasts of gneiss, schist, and quartzite. In valleys underlain by marble in western part of State, tills are silt-sand with calcareous matrix containing clasts of marble, quartzite, schist, and gneiss.”

Along the beach corridor, unconsolidated sands and pebbles accumulate from wave action, the USGS describes such deposits as:

“Fine to coarse sand and local pebble-cobble gravel in modern beach deposits. Texture of beach deposits varies over short distances and is generally controlled by texture of nearby glacial materials exposed to wave action. Beach deposits are poorly to well sorted and generally less than 2 m (6 ft) thick. Locally includes dune deposits consisting of relatively well sorted, fine to coarse sand in transverse coastal eolian dunes that are 1 to 3 m (3 to 10 ft) thick.”

Within the lower (southeastern corner) of the Site, a swath of deposits of major sediment-dammed lakes is present, consisting of sands and gravel, as previously described.

Soils

The site contains five soil classifications (Figure 3-1), according to United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) and Soil Survey of New London County (1979).

Approximately 16.5 acres of the western and northwestern portion of the Site are classified as Woodbridge Fine Sandy Loam, 3 to 8 percent slopes. The USDA NRCS online soil survey (2017) describes the soils as

“moderately well drained loamy soils formed in lodgment till. They are very deep to bedrock and moderately deep to a densic contact. They are nearly level to moderately steep soils on hills, drumlins, till plains, and ground moraines...Saturated hydraulic conductivity ranges from moderately-high to high in the surface layer and subsoil and low or moderately low in the dense substratum.”

Approximately 8.6 acres located in the southern portion of the Site, upland from the beach, are classified as Ninigret and Tisbury Soils 0 to 5 percent slopes. The NRCS describes the Ninigret series as:

“very deep, moderately well drained soils formed in loamy over sandy and gravelly glacial outwash. They are nearly level to strongly sloping soils on glaciofluvial landforms, typically in slight depressions and broad drainage ways. Slope ranges from 0 through 15 percent. Saturated hydraulic conductivity is moderately high or high in the solum and high or very high in the substratum.”

The Tisbury series is described as:

“The Tisbury series consists of very deep, moderately well drained loamy soils formed in silty eolian deposits overlying outwash. They are nearly level and gently sloping soils on outwash plains and terraces, typically in slight depressions and broad drainageways. Slope ranges from 0 to 3 percent. Permeability is moderate in the surface layer and subsoil and rapid or very rapid in the substratum.”

Approximately 3.4 acres located in the northeast corner of the Site is defined as poorly drained Walpole Sandy Loam 0 to 3 percent slopes. This series is described as:

“very deep, poorly drained sandy soils formed in outwash and stratified drift. They are nearly level to gently sloping soils in low-lying positions on terraces and plains. Slope ranges from 0 to 8 percent. Saturated hydraulic conductivity is moderately high or high in the surface layer and subsoil, and high or very high in the substratum.”

Approximately 1.2 acres to the far eastern end of the Site is classified as Agawam Fine Sandy Loam 0 to 3 percent slopes. This series is described as:

“very deep, well drained soils formed in sandy, water deposited materials. They are level to steep soils on outwash plains and high stream terraces. Slope ranges from 0 to 15 percent. Saturated hydraulic conductivity is moderately high or high in the upper solum and high or very high in the lower solum and substratum.”

The southernmost portion of the site along Long Island Sound is classified as Beaches-Udipsamments Complex, Coastal. Beaches occurring on coastal plain dune landforms are sandy, gravelly, or cobbly shores washed and reworked by waves. These areas may be partly covered with water during high tides or storms. The range of slope varies from 0-8 percent and is considered excessively drained due to the parent material of beach sand. The unit complex is composed of: beaches 50%, Udipsamments and similar soils: 35 percent, and Minor components: 15 percent.

The entire Site, except for the beach and the wetlands/watercourses, is mapped as farmland soils. There are three subsections, the Woodbridge fine sandy loam, the Ninigret and Tisbury soils, and the Walpole sandy loam. The former two are considered prime farmland, although the latter is considered a “farmland of State importance.” According to the Connecticut Environmental Conditions Online (CTECO) Complete Resource Guide, revised April 2011, the purpose of mapping these soil types is because: “Farmland Soils can be used to identify the location and extent of those lands that have productive soils. Those lands may qualify to be protected in the Federal Farm and Ranch Lands Protection Program (FRPP) which is reauthorized in the Farm Security and Rural Investment Act of 2002 (Farm Bill) to protect working agricultural land from conversion to nonagricultural uses and the Connecticut Department of Agriculture, Farmland Preservation Program’s goal of securing a food and fiber producing land resource base for the future of agriculture in Connecticut.” (CTECO, 2011)

3.1.1.2 *Impacts*

Destination Park

Existing historic buildings would be restored for lodging and auxiliary uses and the grounds and waterfront would be modified and enhanced to support passive and active recreational uses. Site geology would remain the same on the Site. There would be minimal impacts to soils from the installation of ecological improvements, such as coastal meadows, wet meadows, and tidal pools to the soil series which are present. The coastal meadow would have to be excavated to proposed grades to ensure that these areas are inundated with tidal or fresh water, the wet meadow would similarly have to be excavated out so that freshwater inputs can collect within these areas. The tidal pools would be installed where the existing beach and exposed rock are, and some sands may naturally recollect once the Project is complete. There would be an increase in impervious surface from parking lots and the additional building, which would cover natural soils and may require the removal of natural soils for subgrade installation, and importation of suitable subsoils if not present onsite. Overall, only minor impact would occur from the creation/enhancement of the ecological resources and the parking lots, although there would be a permanent net loss to farmland soils of 2.8 acres, both prime and those of statewide importance.

Ecological Park

This concept emphasizes maintenance and enhancement of ecological features of the site, both in the terrestrial and waterfront environment. Under this concept, the historic buildings would be demolished, which would require offsite suitable backfill to be brought in, if not available on the Site from other excavation. These areas would be restored to lawn. Site geology would remain the same for the major portion of the Site. There would be minimal impacts from the installation of ecological improvements, such as coastal meadows and savannah grassland to the soil series which are present. The seawall would be removed and there would likely be an increase in beach erosion. Section 3 provides more information on this subject. The coastal meadow would have to be excavated down below existing grades in order to ensure that these areas are inundated with tidal waters. Overall, only minor impact would occur from the installation of the ecological resources, although there would be a permanent net loss to farmland soils of 2.1 acres, both prime and those of statewide importance.

Passive Recreation Park

This concept most closely resembles the Park in its current condition/use with minimal improvements to the grounds. Under this alternative, the historic buildings would be demolished, which would require offsite suitable backfill to be brought in, if not available on the Site from other excavation. Site geology would remain the same for the major portion of the Site. There would be minimal impacts to the soils onsite, occurring only from the demolition of the buildings, these areas would then be converted into turf lawn. Overall, only minimal impact would occur from the installation of the ecological resources, although there would be a permanent net loss to farmland soils of 1.2 acres, both prime and those of statewide importance.

Hybrid Park

Existing historic buildings would be restored for lodging and auxiliary uses and the grounds and waterfront would be modified and enhanced to support passive and active recreational uses. Site geology would remain the same on the Site. There would be minimal impacts from the installation

of ecological improvements, such as coastal meadows, wet meadows, native sunflower meadow, and tidal pools to the soil series which are present. The coastal meadow would have to be excavated down below existing grades in order to ensure that these areas are inundated with tidal waters, the wet meadow would similarly have to be excavated out so that freshwater inputs can collect within these areas. There would be an increase in impervious surface from parking lots and the additional building, the soils under these locations would have to be removed in order to install suitable and stable subgrade and soils. The new building would require excavation for any sublevel/basement and grading its surrounding environment. Overall, only minor impact would occur from the installation of the ecological resources, the parking lots, and the new building, although there would be a permanent net loss to farmland soils of 3.5 acres, both prime and those of statewide importance.

3.1.2 Water Resources

3.1.2.1 Existing Conditions

Freshwater Resources

Surface Water

The Site lies within the Southeast Coast Major Basin, which encompasses the entire Connecticut shoreline from Old Lyme to New London. The Site is also within the Southeast Shoreline Subregional Basin, roughly between Shore Road in Waterford and Ocean Avenue in New London.

Surface water from the Site flows in a north to south direction primarily via overland flow (see stream descriptions in Section 3.1.3). There is a closed storm drainage system in place for the southern portion of the driveway leading to the Main Hospital and the Employee Residence, but most of the Site's surface drainage is directed via overland flow to the two watercourses in the east and central portions of the Site. As these streams are not major watercourses, they are not assigned a surface water quality classification; therefore, according to DEEP policy, these streams are, by default, given the highest classification of A (or SA for coastal and marine surface waters). The A classification denotes a freshwater designated for potential drinking water supply, fish and wildlife habitat, recreational use, agricultural and industrial supply, and navigation, with discharges restricted to discharges from public or private drinking water treatment systems, dredging and dewatering, and emergency and clean water discharges.

The surface water quality classification for eastern Long Island Sound is SB, designating the waters for marine fish, shellfish and wildlife habitat, shellfish harvesting for transfer to approved areas for purification prior to human consumption, recreation, industrial and other legitimate uses including navigation, with discharges restricted to those allowed for Class A as listed above, plus cooling waters, and discharges from industrial and municipal wastewater treatment facilities providing that specific conditions are met. The SB classification indicates that the waters do not meet water quality criteria for one or more designated uses.

The Site's surface waters are described in more detail in the Stormwater and Site Ecology sections of this EIE.

Groundwater

Groundwater flow direction is controlled by a variety of factors, but is primarily influenced by topography. Aquifer type, bedrock composition and depth, groundwater use, subsurface structures and the presence of watercourses can all influence groundwater flow and direction, but in most cases groundwater flows from topographic high points to low points. Based on the topography of the site, local groundwater flow is inferred to be toward the south towards Long Island Sound.

Groundwater at the Site and the vicinity is classified as GA, which indicates that designated uses are existing private and public water supplies suitable for drinking without treatment and baseflow for hydraulically connected surface waters. Discharges to GA areas are restricted to treated domestic sewage, certain agricultural wastes, certain water treatment wastewaters, and other wastes of natural origin that easily biodegrade and do not present a threat to groundwater.

Although this classification assumes there could be public water supply wells in the area, there are no such wells in proximity to the Site and the area is not within a designated Aquifer Protection Area. Most of the Town of Waterford, including the Site and its surrounding neighborhood, is serviced by the municipal water supply system. However, homes surrounding the Site may still have private wells that are used as potable water sources.

The most extensive information on groundwater for the Site was obtained from Phase II and Phase III Environmental Site Assessments conducted by GEI (2000, 2001a, b, c). Groundwater elevation data was collected from eighteen monitoring wells that were established to assess potential groundwater impacts of historical operations at many of the Site's facilities. Monitoring was done in 1999 and 2001 and, in 2001, monitoring was conducted during the approximate high and low tide periods to determine the extent of tidal influence on groundwater at the Site. Water quality samples were also collected from several of the wells.

The groundwater elevation at the site fluctuates significantly in response to climate conditions. The groundwater levels in 2001 were two to six feet higher than those observed in 1999. This is likely due to fact that the 2001 levels were recorded in March, shortly after a heavy winter storm and the 1999 levels were recorded in July during a particularly dry summer.

The 2001 readings suggest that the tide from Long Island Sound has a relatively small influence on groundwater levels at the Site. Groundwater elevation data confirms the assumption that groundwater flow direction is generally from north to south towards Long Island Sound.

Groundwater level data from 2001 indicates that depth to groundwater ranges from 1.58 feet below ground near the former Fenn Building at the northeast corner of the Site to 10.51 feet near the Main Hospital.

Groundwater samples from monitoring wells were sampled for polychlorinated biphenyls (PCBs) and 11 of these samples were also analyzed for the following metals: arsenic, lead, chromium, copper, and zinc. PCBs were not detected in any groundwater samples. Of the five metals tested, only zinc was found above detectable limits. The samples where zinc was detected are all located near the former Maintenance Building #1, with the exception of one sample located near the Renovated Garage.

All zinc samples were below the Groundwater Protection Criterion (GWPC) of 5.0 mg/l but one result exceeded the Surface Water Protection Criterion (SWPC) of 0.123 mg/l. However, the average concentration of in this area (near former Maintenance Building #1) was below the SWPC indicating compliance with the DEEP Remediation Standard Regulations (RSRs) (GEI, 2001a).

Coastal Water Resources

The shoreline of the Site is located in eastern Long Island Sound (LIS). The nearest major freshwater inputs are the Niantic River to the west and the Thames River to the east. The only freshwater inputs directly to the Site's shoreline are the two small watercourses described above so the shoreline's primary influence is the tides and currents of LIS. The mean tidal range (differences between mean high water and mean low water) is 2.56 feet. The majority of the sustained winds at the Site are from the southwest and northwest.

The Seaside shoreline is within a Federal Emergency Management Agency (FEMA) mapped flood zone area. Figure 3-2 shows the official existing (August 5, 2013) FEMA flood zones. Flood Zone AE is the 1% annual chance flood (i.e. the area that has a 1% chance of being flooded in any particular year). This is often referred to as the 100-year flood elevation, although this naming can be misleading. As an example, the 1% annual chance flood equates to a 26% probability of being flooded over a 30-year period so it is not, as some would believe, an event that would occur once every 100 years. The immediate shoreline including much of the lawn area along the shore and the existing wastewater pump station are within the AE Zone, which is estimated at elevation 12 feet (NAVD88).

Zone X is the 0.2% annual chance flood which is commonly referred to as the 500-year flood zone. Again, this does not indicate that this area would be flooded once every 500 years, rather it is the area that has a 0.2% chance of being flooded in any particular year, which equates to a 6% chance over a 30-year period. On the Site, this area encompasses the Main Hospital Building, half of the Employee Building, the Superintendent Residence and the Duplex Residence.





Zone VE is the velocity zone. The velocity zone is defined by FEMA as the area subject to inundation by the 1% annual chance flood event with additional hazards due to storm-induced velocity wave action. The VE zone encompasses the Site's immediate shoreline up to the seawall.

3.1.2.2 *Impacts*

Impacts to the existing freshwater streams on the Site are covered under the Ecology section (3.1.3). The groundwater impacts under all the alternatives would be minimal. Under all scenarios, existing potential sources of groundwater contamination would be removed from the Site and any resulting contamination would be remediated. None of the uses of the Site would require groundwater for potable or irrigation water because the Site is served by municipal water supply and sewer.

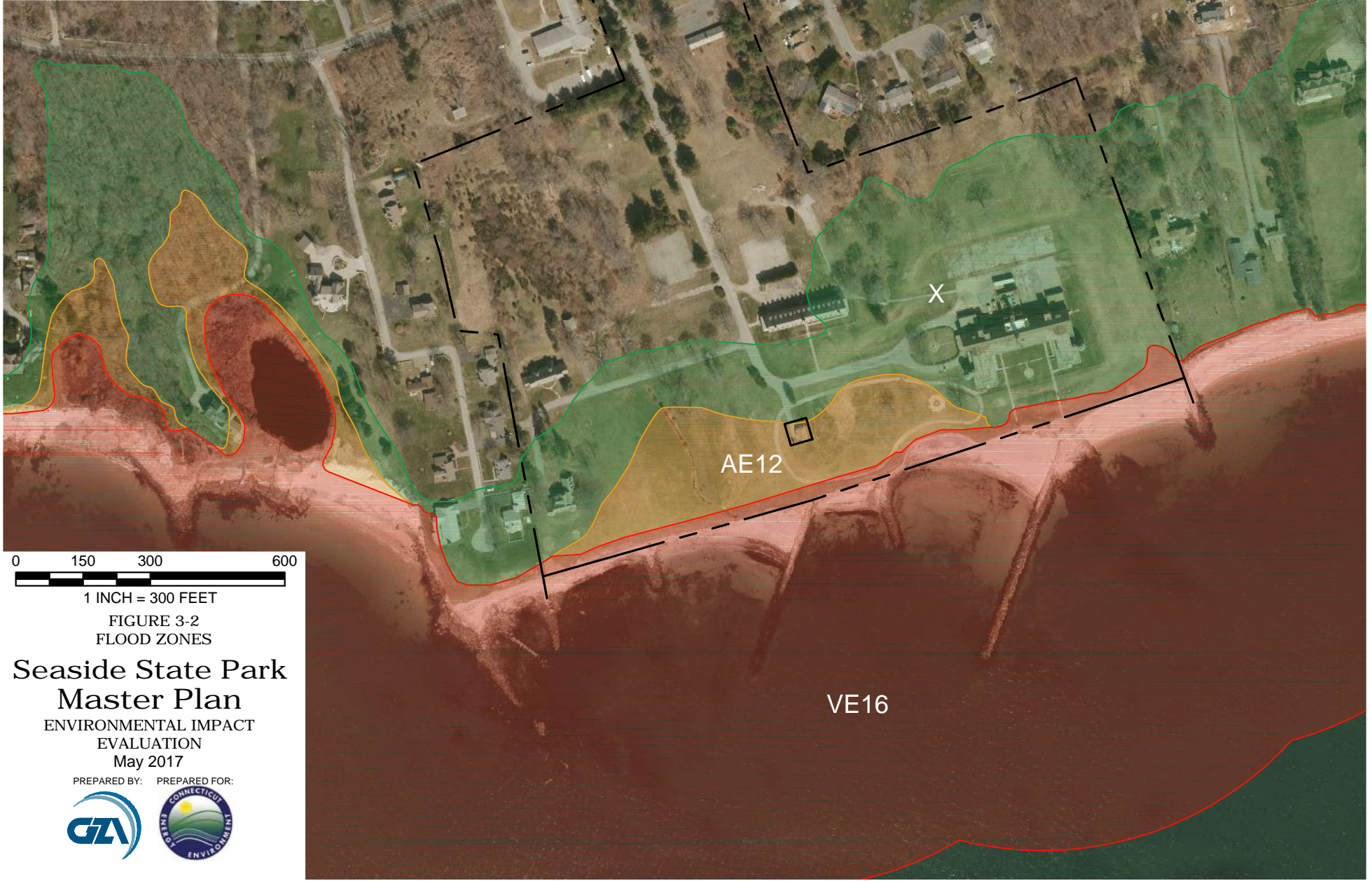
The following is a summary of environmental impacts on the coastal water resources of the Site. Appendix D includes the coastal study performed as part of this EIE.

LEGEND

-  100-YEAR FLOOD ZONE - AE
-  500-YEAR FLOOD ZONE - X
-  COASTAL HAZARD - VE
-  PROPERTY BOUNDARY



Sources: FEMA NHFL, CT ECO, CLA.



1 INCH = 300 FEET

FIGURE 3-2
FLOOD ZONES

**Seaside State Park
Master Plan**
ENVIRONMENTAL IMPACT
EVALUATION
May 2017

PREPARED BY: PREPARED FOR:



Destination Park

The Destination Park alternative includes realigning the seawall to give it a curved look along a proposed boardwalk. The new seawall would also include gaps in the middle to allow tidal water in and out of the proposed wet meadows. Seawalls are hard (gray) structures constructed to form a coastal defense against coastal processes such as the tides, waves or tsunamis. Creating gaps along the structure to allow water flow in and out would create a weak point which could be detrimental to its structural integrity, so special design consideration would be required. Especially during surge events, water would be forced to pass through a constricted opening, causing flow velocity to increase. Higher flow velocities would increase scour behind the seawall.

Constructing a new seawall with openings would also impact flood elevations. While performing Flood Insurance Studies, FEMA places transects to execute analysis at the most flood-prone location at a Site. The wall opening would be the most flood-prone location at the Site and flood maps created under this scenario would be similar to the one presented in Figure 3-3.

This alternative would also include adding three tidal pools next to existing groins. The existing groins provide a relatively sheltered site from waves. Adding tidal pools between the groins could provide additional wave attenuation; however, the intensity is not anticipated to be significant, since these features would be built very close to the shoreline, with relatively short structure heights.

One other feature included this alternative is the fishing pier. At this time, it is envisioned that the pier would be built by capping the existing groin or placing the pier on piles while retained most, if not all, of the existing stone. The existing groin would not be extended and its crest elevation would not be significantly altered. With these assumptions, the fishing pier would not cause a change in wave conditions or the sediment transport patterns at the Site.

Ecological Park

The most significant component of the Ecological Park alternative would be the removal of the seawall and placement of some limited dune feature. The obvious impact of this change is the change to the flood elevations, which is shown in Figure 3-3. Removing the seawall would eliminate the hard water/land interface and would allow natural erosion processes to occur. During significant storm events such as the one-percent annual chance storm, erosion of the land would allow higher waves to propagate inland, increasing flood elevations at the Site.

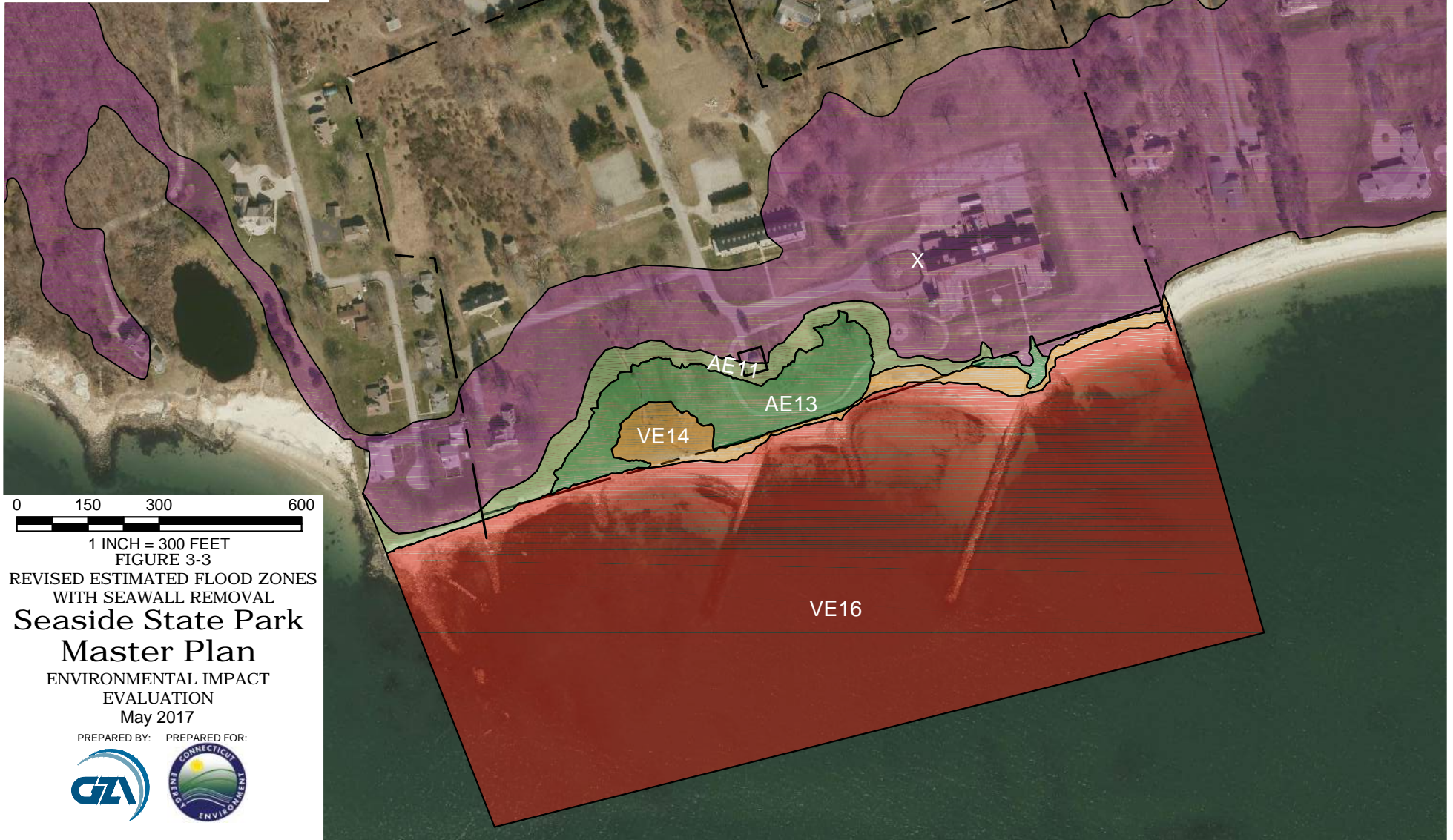
Another impact of creating a soft water/land interface would be the change in sediment transport. Beaches are dynamic environments with constant movement of sediment as long as there is enough sediment to travel and there is no obstruction to prevent the transport. Sediment transport occurs in two directions: 1) parallel to the shoreline (longshore) and 2) perpendicular to the shoreline (cross-shore). Longshore sediment transport (also known as littoral transport) is driven by the angle of waves in relation to the shoreline as they approach the beach. Cross-shore sediment transport is driven by wave steepness with steeper storm waves typically scouring the beach and transporting sand offshore while less steep summer waves transporting sand back to the beach (Wright and Short, 1984).

LEGEND

- 100-YEAR FLOOD ZONE - AE
- 100-YEAR FLOOD ZONE - AE
- COASTAL HAZARD - VE
- COASTAL HAZARD - VE
- 500-YEAR FLOOD ZONE - X
- PROPERTY BOUNDARY



Sources: FEMA NHFL, CT ECO, CLA, GZA



REVISED ESTIMATED FLOOD ZONES
WITH SEAWALL REMOVAL
Seaside State Park
Master Plan
ENVIRONMENTAL IMPACT
EVALUATION
May 2017



Coastal structures such as seawalls cause additional erosive processes like wave reflection and scouring depleting sediment source at the beach. On the other hand, groins obstruct alongshore sediment transport processes, trapping sediment where they are constructed and reducing the amount of sediment transported to downdrift beaches.

The existing Site condition includes both a seawall and multiple submerged and exposed groins. Removal of the seawall would eliminate additional erosive processes; however, keeping the groins in place would likely retain much of the sediment/sand locally, with some sediment added to the local sediment budget via cross-shore sediment transport. However, the majority of the sediment added to the sediment budget would be trapped locally due to the groins.

One other feature included in this alternative is the fishing pier. A discussion about the impacts of the fishing pier is provided under the Destination Park alternative.

Passive Recreation Park

The Passive Recreation Park alternative does not propose any changes at the Site's shoreline and therefore this alternative does not have any potential environmental impacts related to flooding or wave action.

Hybrid Park

On the seaward side of the seawall, the Hybrid Park alternative includes adding oyster reefs and a fishing pier. Oyster reefs are dense, expansive clusters of oyster formed by oyster larvae settling on shells of other oysters and they have a beneficial role in maintaining water quality, recycling water and nutrients within an ecosystem and stabilizing shorelines through wave attenuation. However, typical reef siting criteria include placing reefs in areas that historically supported oyster bars and where hydrodynamic conditions allow for natural spatset (recruitment of oyster larvae). It is unclear if such conditions exist at this Site (see Section 3.1.3) and the lack of oysters along the groins suggest favorable conditions may not exist at this location.

3.1.3 Site Ecology

3.1.3.1 *Existing Conditions*

The Seaside facility and grounds are set in the residentially-developed shorefront section of Waterford, which, as the former Seaside Regional Center, preserved a considerable part of the grounds as beachfront, landscaped grounds, or otherwise undeveloped estate grounds. Currently, the area has several relatively undisturbed habitat types on the property, in addition to the developed shorefront and landscaped areas. These habitats are generally grouped into ocean front habitats and terrestrial habitats as shown in Figure 3-4 and in Table 3-1.

The Site contains similar habitat types associated with the residential landscape of the surrounding area. The property does not contain any unique habitats that are rare in the area. The terrestrial areas are primarily disturbed habitats, but do provide likely habitat for more common or transitory terrestrial wildlife species including reptiles, amphibians, and birds. However, the ocean front habitats are of much higher quality, and the coastal waters, marine intertidal / beach area, and rocky shorefront, including the groins, maintain important coastal habitats, including areas of dune grass that can provide local value to wildlife and marine species.

Table 3-1. Natural Community Types at Seaside State Park

Community Type	Area (ac)*	Linear Extent (ft)
Ocean Front Habitats		
Coastal Waters	N/A	1,500
Pocket Beach (Intertidal)	1.8	1,250
Rocky Shorefront	1.7	2,210
Beach Grass Area	0.5	NA
Terrestrial Habitats/Areas		
Inland Wetland & Watercourse	0.7	1,850 (open swale) 600 (culverted)
Shrub / Early Successional	4.7	N/A
Forested Upland	1.2	N/A
Developed / Landscaped	24.4	N/A

**total area exceeds site acreage due to inclusion of coastal features beyond parcel boundary
N/A – Not Applicable*

The regulatory status of each of the habitat/resource areas listed varies. All areas are located within the coastal zone. The coastal waters, beach areas, and much of the rocky shorefront are located within the elevations of the High Tide Line (limits of Federal Jurisdiction) and Coastal Jurisdiction Line (CJL) under State Regulation. The elevation of the CJL for Waterford is El. 2.2 feet NAVD88.

Coastal Wetland boundaries can potentially extend landward to El. 3.2 feet with the presence of wetland vegetation in that zone. However, in this setting, there is an absence of vegetation that would extend the boundaries, since the vegetated areas are all landward of the seawall with a rise in elevation much higher than one foot above the CJL.

The Inland Wetlands and Watercourses were previously field delineated by a Certified Soil Scientist in 2002 and field reviewed again in 2007 and 2017. The State and federal jurisdictional inland wetland boundaries are depicted in Figure 3-4 and are largely based upon the original delineation, but are modified slightly based upon field observations in 2017. Information on particular plant and animal species present or potentially present on the Site was based on one or more of the following:

- Biological survey by GZA in 2007;
- DEEP Natural Diversity Data Base (NDDDB) correspondence (DEEP NDDDB, 2017); and
- Field observations by GZA in the late fall and winter of 2016/2017.

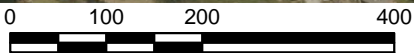
Each of the various habitat types listed in Table 3-1 is described in the sections below.

LEGEND

-  EELGRASS LOW BED DENSITY (2012)
-  EELGRASS MEDIUM BED DENSITY (2012)
-  BEACH GRASS
-  DEVELOPED SHOREFRONT & LANDSCAPED AREA
-  FORESTED UPLAND
-  FRESH WATER WETLAND & WATERCOURSE
-  POCKET BEACH
-  ROCKY SHORE
-  SHRUBBY / EARLY SUCCESSIONAL
-  PROPERTY BOUNDARY



Sources: CT DEEP, GZA, CLA, CT ECO.



1 INCH = 200 FEET

FIGURE 3-4
ECOLOGICAL RESOURCES

**Seaside State Park
Master Plan**

ENVIRONMENTAL IMPACT
EVALUATION
May 2017

PREPARED BY: PREPARED FOR:



Ocean Front Habitats

The marine intertidal area consists of natural sand beach and rocky intertidal areas (the latter mostly associated with stone groins) extending along the southern boundary of the Site along Long Island Sound for approximately 1,500 feet, and ranging in width from 25 to 150 feet, with the groins extending out from the shoreline. Six rock groins protrude from the beach along the property, dividing the beach into five sections. Beach Grass habitat is patchily distributed within this corridor but totals nearly ½ acre. These community types are generally separated from the adjacent upland maintained grassland community by a continuous seawall approximately three feet wide and four feet tall. At most locations, the seawall is reinforced on the seaward side with large revetment stone.



Photo 3-1. Westerly groins and rocky intertidal area

Coastal Waters: The coastal waters of Long Island Sound front on the beach and groins associated with Seaside facility. The near-shore marine ecosystem provides quality habitat for fish, as submerged aquatic vegetation and several piscivorous bird species were observed. The typical flora and fauna of coastal waters would be expected to be present. Beds of eel grass (*Zostera marina*) are mapped by DEEP (Figure 3-4) as being nearby offshore. Bird species observed include osprey (*Pandion haliaetus*), great egret (*Ardea alba*), and double-crested cormorant (*Phalacrocorax auritus*). Other species observed in near shore habitats include: mute swan (*Cygnus olor*), herring gull (*Larus argentatus*), and ring-billed gull (*Larus delawarensis*).

Many State and federal protected species can be associated with shorefront habitats along Long Island Sound, although none were identified as present within the Site boundaries.

Pocket Beaches: The stone groins separate areas of pocket beaches, and their positioning assists with the capture and maintenance of the small beach areas through sand capture. In total, there is approximately 1,250 linear feet (LF) of beach separated into five beach areas separated by the stone groins. The intertidal beach extending shoreward encompasses an estimated 1.8± acres of beachfront.

The western three beach sections have a fairly narrow tidal area and the wrack line is at the base of the revetment stone. The area between the permanent water and the seawall becomes wider in

the eastern two beach sections. At these locations, the high energy tidal zones are primarily sandy with some gravel. The wrack line is typically on the sand and sandy beach habitat extends for approximately 30 feet at its widest above the wrack line.

The marine intertidal/sand beach community offers valuable habitat to a variety of avifauna. Some of the wider beach sections on the western end of the property likely do not offer suitable breeding habitat for piping plover (*Charadrius melodus*), a State- and federally-listed threatened species. The size of the beach sections is likely too small (~0.1 – 0.5 acres) to support piping plover, since this species typically has a minimum habitat requirement of 2.7 acres to breed. It is not clear whether the groins dividing the beach act as partitions, fragmenting potential breeding habitat.



Photo 3-2. Pocket beach, seawall and beach grass in front of Main Hospital

Evidence of breeding piping plovers was not observed on this Site; however, this community does offer suitable habitat for foraging migratory shorebirds. Spotted sandpiper (*Actitis macularia*) and ruddy turnstone (*Arenaria interpres*) were observed foraging along the wrack line and groins. These observations are likely indicators that other shorebird species use these habitats, particularly during migration.

Other plants that may be found on the beaches are dusty miller (*Centaurea*), sea rocket (*Cakile*), Virginia rose (*Rosa virginiana*), beach plum (*Prunus maritima*), and northern bayberry (*Myrica pennsylvannica*). The State-listed plant, seabeach sandwort (*Honckenya peploides*) is not known to be on the Site, although it has been observed within one mile of the Site, along the coast to the east.

Rocky Shorefront Areas: As previously noted, there are six stone groins extending into the water obliquely to the shorefront in a southwesterly direction, paralleling each other. They were presumably constructed to help capture sand to help create and preserve beach areas along the shoreline of the Site. There is also natural rock present in several of the coves indicating that a

rocky shorefront was naturally part of this area. Geographically, the Site's ocean frontage is on a small promontory lying between Jordon Cove to the west and Goshen Cove to the east.



Photo 3-3. Culverted stream outlet to central pocket beach at base of seawall



Photo 3-4. Westerly pocket beach area, view to east

Much of the rocky shorefront area at the Site is within the intertidal zone, but some is above normal high tide and below normal low tide levels. In total, there is approximately 70,900 SF Rocky Shorefront with an estimated 2,200 LF of groins exposed at low tide. The rocky intertidal habitats provide protection to the shoreline and provide upland protection against the eroding action of waves and the impacts of storm surges and sea level rise. The stone groins enhance these attributes, and also provide for sand capture to support the pocket beaches. While rocky intertidal habitats often have associated tidepools, none are present onsite.



Photo 3-5. Westerly stream outlet to rocky shorefront of central pocket beach area

Relative to habitat conditions, the rocky intertidal areas are high stress areas of episodic extreme wave action with alternating periods of exposure and submersion, and other seasonal extremes including ice formation. Marine plant and animal species normally present within these habitats have adapted to survive in this stressful environment by devising means to anchor themselves in place (e.g., seaweeds, mussels and barnacles), move to secure locations, or retain moisture during low tide (e.g., closure of mussel and snail shells or hiding beneath seaweeds and rocks at low tide for mobile crabs).

Typical rocky intertidal species present in these habitats include various marine macroalgae including sea lettuce (*Ulva*), rockweed (*Fucus*), brown kelp (*Codium*), and deadman's fingers (*Xylaria sp.*) and macroinvertebrates such as barnacles (*Balanus balanoides*), periwinkles (*Littorina littorea*), limpets (*Crepidula fornicata*), blue mussel (*Mytilus edulis*), and sea urchin (*Strongylocentrotus purpuratus*), all of which were observed on the Site. Rockweeds are brown seaweeds that inhabit the rocky intertidal zone, attaching to the rocks and providing food and shelter for many organisms. Green sea lettuce grows abundantly in nutrient rich waters, and is grazed upon by snails, crabs, some fish, and waterfowl. Deadman's fingers is a spongy, thick green invasive seaweed originally from the west coast but introduced to the area.



Photo 3-6. Westerly view along broken seawall section



Photo 3-7. Rocky intertidal area in westerly cove

Two typical shoreline crab species likely to be found in this habitat include the more dominant Asian shore crab (*Hemigrapsus sanguineus*) and the green crab (*Carcinus maenas*), both of which are non-native invasive species. At high tide, fish are able to feed and seek refuge within the rock cavities. The rock groins also provide foraging opportunities for coastal and migrating birds with roosting and predation sites.

Beach Grass Area: Just seaward of the revetment stone is a sandy vegetated shelf, one to two feet in elevation above the beach. This shelf is present in each of the five of the beach sections, totaling approximately 21,000 SF in size. The dominant plant in this area is American beach grass (*Ammophila breviligulata*), which is one of the most common and important plants of sand dunes.

This grass has an extensive root system and can spread via underground stems or rhizomes, which act as a natural erosion control device, helping to stabilize the shifting sands of the dunes.

While the sandy substrate has vegetative assemblage typically associated with dune areas, the habitat cannot be called a true dune habitat, due to the lack of sand volume and constraining seawall and developed shorefront areas. The presence of the sand and dune associated species is most likely an artifact of the groins and shoreline seawall and concrete features. The property exists on a point of land and there are no significant sand sources in the area that renourish the beach and beach grass area at a high rate. The minimal beach and beach grass areas present are the result of the capture of minimal sands over more than a century of coastal dynamic action. Typically, groins of this size are capable of capturing significantly more beach and upgradient dunes where sources of coastal sands are available and subject to long-shore drift patterns. Most of the vegetation found in this community was located on this shelf (Table 3-2).

Table 3-2. Beach Grass Area Plant Species at Seaside

Common Name	Scientific Name	Notes
American beachgrass	<i>Ammophila breviligulata</i>	D
Sea rocket	<i>Cakile edentula</i>	D
Saltwort	<i>Salsola kali</i>	D
Seaside goldenrod	<i>Solidago sempervirens</i>	C
Rugosa rose	<i>Rosa rugosa</i>	C
Japanese barberry	<i>Berberis thunbergii</i>	C (I)
Beach clotbur	<i>Xanthium echinatum</i>	C
Spearscale	<i>Atriplex patula</i>	F
Red cedar	<i>Juniperus virginiana</i>	C

(C) Common Species, (D) Dominant Species, (F) Few or Sparse Occurrences, (I) Invasive



Photo 3-8. Beach grass area landward of easterly cove

Terrestrial Habitats

As previously mentioned, the terrestrial habitat areas landward of the seawall fall into four major categories:

- Developed/Landscaped (85% of the area);
- Shrub/Early Successional (10% of the area);
- Inland Wetland and Watercourse (3.8% of the area); and
- Forested Upland (1.2% of the area).

Each of these habitat areas is described in detail below.

Developed Shorefront and Landscaped Area: By far, the largest portion of the Site (24.4± acres) is developed as buildings, grounds, and otherwise landscaped areas, including areas of trees where the land is mowed beneath the trees. Within this area, the highly-developed areas (e.g., buildings, roads, parking lots, driveways, and courts) account for approximately 12 acres. These areas and structures in and of themselves do not provide valuable habitat for wildlife.



Photo 3-9. Easterly view along seawall at central cove

The remaining portion of this category is the landscaped area, mostly maintained as mowed lawn. As listed in Table 3-3, the herbaceous layer consists of typical species found within a weedy lawn area (various upland grasses, clover, plantain, dandelion, and bedstraw). Invasive species do not appear to be a problem within this community, although many of the species present are non-native in origin. While not maintained as a mono-typic lawn grass species, the intense cutting limits the area's usefulness as cover habitat for small mammals and birds, although some forage is likely present, especially to species that graze on young herbaceous vegetation. The lawn areas are bordered by or contain landscape shrubs and trees of various species, including several invasive species. Due to the poor quality and frequent mowing of these areas, there are no species that would make exclusive use of the grassland areas, although species found within the shrubby edge ecotones may utilize these grassland areas for forage. Species such as eastern cottontail (*Sylvilagus floridanus*), woodchuck (*Marmota monax*), field mice (*Mus musculus*), and meadow voles

(*Microtus chrotorrhinus*) are likely present and make use of this habitat to some extent. The high mowing frequencies likely exclude species that prefer mature grassland/meadow areas, as the vegetation is not allowed to grow much past a few inches off the ground.

Trees within the landscaped areas include many ornamental species, with some notable individuals including umbrella magnolia (*Magnolia tripetala*), copper beech (*Fagus sylvatica*), white oak (*Quercus alba*), red oak (*Quercus rubra*), white pine (*Pinus strobus*), and Norway spruce (*Picea abies*) (Table 3-4). Many of the areas around the buildings are overgrown with early successional species. Such areas do not typically offer valuable wildlife habitat; however, some of the dense vegetation around the buildings may be suitable for nesting and foraging habitat for common shrubland birds such as house wren (*Troglodytes aedon*), Carolina wren (*Thryothorus ludovicianus*), northern cardinal (*Cardinalis virginianus*), and American robin (*Turdus migratorius*). The central tower of the main building as well as some of the larger chimneys on other buildings may act as roost/ breeding sites for chimney swifts (*Chaetura pelagica*) and some bat species (*Myotis spp.*). An osprey nest (*Pandion haliaetus*) was observed on the Employee Residence during a site visit in 2016. Common urban adapted species tolerant of human disturbance, similar to those currently found within the shrub/early successional areas, utilize these areas as well.

Table 3-3. Maintained Grassland Plants at Seaside

Common Name	Scientific Name	Notes
Grass	<i>Graminae spp.</i>	D
Crabgrass	<i>Digitaria spp.</i>	C
Common Plantain	<i>Plantago major</i>	C
English Plantain	<i>Plantago lanceolata</i>	C
Dandelion	<i>Taraxacum officinale</i>	C
Red Clover	<i>Trifolium pretense</i>	C
White Clover	<i>Trifolium repens</i>	C
Violet	<i>Viola spp.</i>	C
Bedstraw	<i>Galium spp.</i>	C
Cinquefoil	<i>Potentilla spp.</i>	C
Buttercup	<i>Ranunculus spp.</i>	C

(C) Common, (D) Dominant Species

Table 3-4. Developed/Residential Area Woody Vegetation at Seaside

Common Name	Scientific Name	Notes
Umbrella magnolia	<i>Magnolia tripetala</i>	F
Copper beech	<i>Fagus sylvatica</i>	F
Tulip poplar	<i>Liriodendron tulipifera</i>	C
Norway spruce	<i>Picea abies</i>	C
White oak	<i>Quercus alba</i>	C
Red oak	<i>Quercus rubra</i>	C
White pine	<i>Pinus strobus</i>	C
Oriental bittersweet	<i>Celastrus orbiculata</i>	C,I
Tree of Heaven	<i>Ailanthus altissima</i>	C,I
Poison Ivy	<i>Toxicodendron radicans</i>	C

(C) Common, (F) Few or Sparse Occurrences, (I) Invasive

Shrubby/Early Successional: This 4.2± acre natural community is primarily found in the northwest corner of the study area, primarily behind the Duplex House/Garage. Most of this area is a 2.6± acre former field located directly behind the Duplex House/Garage, which was likely a maintained grassland that is now in early succession. This community is characterized by flowering herbaceous plants, shrubs and some invasive plants. The dominant species are milkweed, goldenrod, wild carrot, Tartarian honeysuckle, and autumn olive. Table 3-5 provides a complete list of species observed during the survey.

The dense shrub / groundcover layer likely provides good escape cover, forage, and nesting habitat for scrub shrub song birds such as song sparrow (*Melospiza melodia*), indigo bunting (*Passerina cyanea*) and common yellowthroat (*Geothlypis trichas*). It may also provide suitable habitat for small mammals. Additionally, the high density of milkweed likely provides breeding habitat for monarch butterflies (*Danaus plexippus*). Finally, the berry/mast producing mature trees of the riparian, maintained grassland, and developed community types provide important food resource to migrating and overwintering songbirds. The northern portion of this early successional patch is a transitional ecotone to the mature forest. This area is almost entirely covered in Oriental bittersweet, an invasive non-native species and provides very little habitat value.

Table 3-5. Shrub & Early Successional Plant Species at Seaside

Common Name	Scientific Name	Notes
Common milkweed	<i>Asclepias syriaca</i>	D
Goldenrod	<i>Solidage spp</i>	C
Tartarian honeysuckle	<i>Lonicera tatarica</i>	C(I)
Autumn olive	<i>Eleagnus umbellate</i>	C (I)
Queen Anne’s lace	<i>Daucus carota</i>	C
Oriental Bittersweet	<i>Celastrus orbiculata</i>	D (I)
Tansy	<i>Tanacetum vulgare</i>	C
Red Cedar	<i>Juniperus virginiana</i>	F
Wood Sorrel	<i>Oxalis eurpoea</i>	C
Toad Flax	<i>Linaria Canadensis</i>	C
Intermediate Wood Fern	<i>Dryopteris intermedia</i>	F
English plantain	<i>Plantago lanceolata</i>	C
Daisy fleabane	<i>Erigeron annuus</i>	C
Linear Leaved Goldenrod	<i>Elthalmia galetorum</i>	F
Clover	<i>Trifolium spp.</i>	C
Spotted Knapweed	<i>Centaurea maculosa</i>	F (I)
Black Eyed Susan	<i>Rudbeckia hirta</i>	C
Primrose	<i>Oenothera biennis</i>	C
Chicory	<i>Cichorium intybus</i>	C

(C) Common, (D) Dominant, (F) Few or Sparse Occurrences, (I) Invasive

Freshwater Wetlands and Watercourses: There are three watercourses located on the Site (Figure 3-4), each of which generally flows from north to south, ultimately draining into the Sound:

1. One on the westerly third of the parcel;
2. One central to the property (between the former Main Hospital Building and the former Employee Residence); and
3. One on the easterly border of the parcel.

Each of the watercourses consists of a combination of open swale and culverted segments on the Site. The watercourses all are contained within relatively defined channels approximately two to three feet wide and one to three feet deep with a substrate is composed of sandy gravel. Each of these watercourses also has some degree of associated inland wetlands within the narrow riparian vegetation associated with the open portions of the swales. Figure 3-4 shows the original surveyed boundaries of the regulated inland wetland resources on the parcel. These drainage features and associated riparian wetlands are described in greater detail below.

Westerly Swale: The westerly swale is mostly open stream (1,450± LF) with two short culvert crossings beneath Ocean View Lane Drive and White Cap Lane on the grounds. There is also a short tributary swale between Ocean View Lane Drive and the seawall, prior to the stream's discharge to Long Island Sound. However, this stream is culverted for a distance of approximately 200 feet along the land side of the seawall, discharging at the western side of the middle pocket beach. The watershed for this intermittent stream extends north of Shore Road up to Quarry Road, encompassing a total area of about 50 acres. The stream continues for approximately 300 LF north of Shore Road.



Photo 3-10. Westerly swale in lawn area (northwesterly view from seawall)

Central Watercourse: The central watercourse is a 400 LF open channel originating onsite at a culvert outlet from Woodsea Place on the northern boundary of the parcel. An additional 400 LF of the stream is culverted further downstream to its discharge point through the seawall to the central pocket beach. The intermittent stream has its origins north of Shore Drive opposite Woodsea Place, extending approximately 800 LF to the north, but is culverted approximately 400 LF along the length of Woodsea Place. The entire watershed is estimated at 30± acres.

Easterly Watercourse: The easterly watercourse on the parcel is culverted beneath the lawn at the rear of the former Main Hospital Building, merging with the culverted section of the central watercourse, downgradient of a covered pedestrian bridge. Near the easterly boundary of the parcel, the stream is a relatively short (100± LF) open swale, which extends beyond the property limits about 1,200 LF northward to Shore Road. North of Shore Road, the watercourse continues

upstream an additional 2,000 LF to a point north of Quarry Road. The watershed for this intermittent stream is 50± acres to its entry into the culvert on the property.

Inland Wetlands and Riparian Vegetation/Habitat: The Inland Wetlands associated with the watercourses total approximately 67,300± SF (1.5± acres). The inland wetlands are a narrow margin along the westerly and central watercourses, with more broad expanses along the westerly watercourse, extending into a relatedly wide wooded wetland west of the parcel. Along the westerly watercourse, vegetation is primarily herbaceous and shrubs for the northern portion of the swale, with some larger black gum trees on the perimeter. Other canopy species include red maple and silver maple. The herbaceous layer is primarily composed of fringed sedge, umbrella sedge, lady’s thumb, beggars tick, sensitive fern, Joe-Pye Weed, soft rush, and reed canary grass (Table 3-6). The southern section of the westerly watercourse is completely embedded within a larger maintained grassland and is entirely herbaceous, containing mostly wetter grasses, maintained up to the stream edge. The central watercourse is composed of a large patch of common reed, multiflora rose, raspberry canes and Japanese knotweed (Table 3-6). The easterly watercourse on the property is set within a red maple swamp with a dense shrub later. The canopy is primarily composed of green ash and red maple. The understory and shrub layer is dominated by multiflora rose, Tartarian honeysuckle, and highbush blueberry.

Table 3-6. Inland Wetland, Watercourse & Riparian Plants at Seaside

Common Name	Scientific Name	Notes
Black gum	<i>Nyssa sylvatica</i>	C
Red maple	<i>Acer rubrum</i>	C
Silver maple	<i>Acer saccharinum</i>	F
Green ash	<i>Fraxinus pennsylvanica</i>	F
Multiflora Rose	<i>Rosa multiflora</i>	C, I
Tartarian honeysuckle	<i>Lonicera tartarica</i>	F, I
Highbush blueberry	<i>Vaccinium corymbosum</i>	F
Soft rush	<i>Juncus effuses</i>	F
Fringed sedge	<i>Carex crinita</i>	C
Common reed	<i>Phragmites australis</i>	C, I
Lady’s thumb	<i>Persicaria maculosa</i>	C
Beggars tick	<i>Bidens frondosa</i>	C
Sensitive Fern	<i>Onoclea sensibilis</i>	C
Reed canary grass	<i>Phalaris arundinaceae</i>	F, I
Jewelweed	<i>Impatiens capensis</i>	C
Joe-Pye Weed	<i>Eupatoriadelphus purpureus</i>	C
Seaside goldenrod	<i>Solidago sempervirens</i>	C
Roughstem goldenrod	<i>Solidago rugosa</i>	C

(C) Common, (F) Few or Sparse Occurrences, (I) Invasive

Based upon apparent soils, vegetative and hydrologic criteria, and field evidence, the estimated State and federal jurisdictional wetland boundaries are depicted in Figure 3-4. The wetland soils are largely fill material, with hydrology maintained by shallow seasonal groundwater and intermittent stream flow. The disturbed Aquents type soil have an aquic soil moisture regime that supports the local hydrophytic vegetation. Typically, undisturbed natural soil layers were not

identifiable within the cut and filled soils associated with drainage ditches through a developed, mowed turf landscape.

The wetland boundary appears to be a reasonable estimation of the wetland/upland interface; however, this boundary determination would need to be updated and approved during the permitting phase of the Project. The wetland habitat is generally of limited value, but does provide some food resources and refuge for wildlife, as well as providing a buffer to the watercourses and moderating water quality. Berry and seed producing forbs, grasses and shrubs provide food for bird and small mammals. Wildlife to be expected within this area would largely include disturbance tolerant bird and mammal species, as well as the more common local amphibians and reptiles such as black-capped chickadee (*Poecile atricapillus*), Carolina wren, house wren, American robin, white-tailed deer (*Odocoileus virginianus*), raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), gray squirrel (*Sciurus carolinensis*), eastern chipmunk (*Tamias striatus*), white-footed mouse (*Peromyscus leucopus*), and eastern cottontail.

Forested Upland: The forested upland community on the Site is patchy and mostly along the eastern and northern portion of the Site, totaling only about ½ acre in size (20,100± SF). While additional trees are scattered throughout the parcel, they are within existing landscaped or maintained areas and were not estimated as forested upland, even if there was some degree of contiguous closed canopy and thin or absent understory due to maintenance. The composition of the species within the upland forest was primarily native with red maple, red oak, white oak, tulip tree, and big toothed aspen as the dominant species. The canopy averages approximately 60 feet in height. Near the central portion of the Site, the understory is exceptionally sparse, with a density of less than 20% in most locations. Forested areas in the eastern portion of the Site contain a more developed understory, with a density of about 60%. Here, the understory is dominated by *Viburnum* spp., honeysuckles, bittersweet, and multiflora rose (Table 3-7).

This habitat, despite its lack of understory in some locations, provides food resources and refuge for wildlife. Abundant berries produced by black gum trees are used by a variety of frugivorous bird species. The forest patches on this site are relatively small in size and are fairly fragmented throughout the landscape. As such, it is not expected that interior forest birds would inhabit these patches. However, disturbance tolerant species such as black-capped chickadee, Carolina wren, house wren, and American robin are present in this community. White-tailed deer, raccoon, opossum, gray squirrel, eastern chipmunk, white-footed mouse, and eastern cottontail are mammals that may also inhabit this habitat, particularly due to its location within the mosaic of grassland and residential areas.

Table 3-7. Forested Upland Plant Species

Common Name	Scientific Name	Notes
Black gum	<i>Nyssa sylvatica</i>	C
Tulip tree	<i>Ulmus Americana</i>	C
Green ash	<i>Fraxinus pennsylvanica</i>	C
Red maple	<i>Acer rubrum</i>	C
Silver maple	<i>Acer saccharinum</i>	C
Red oak	<i>Quercus rubra</i>	C
Norway maple	<i>Acer plantanoides</i>	D

(C) Common, (D) Dominant

3.1.3.2 *Impacts*

Each of the alternatives considered for the Site have varying degrees of impact to the different habitat and resource areas present at the existing facility. These areas of effect are summarized in Table 3-8 for each group of activities within each resource/habitat area. The regulated areas are associated with the coastal waters, beach and rocky shorefront/groins area for coastal resources and the freshwater watercourse and wetland resources for inland resources. These areas of effect and their regulatory status are discussed in greater detail below.

Destination Park

Figure 3-5 is an overlay of existing habitats onto the Destination Park concept. New features associated with the Destination Park alternative that would affect the existing natural resources and land uses onsite include:

- Addition of parking areas and internal circulation roadways;
- Creation of a boardwalk;
- Modifications to the seawall and overlook;
- Addition of a fishing pier (on the longest existing groin);
- Addition of a kayak launch (in a beach/rocky shoreland area);
- Addition of tidal pools; and
- Creation or enhancement of wet meadow, savannah grassland, coastal meadow, dune swale and coastal woodland habitats.

The habitat features tend to augment existing and other habitat features. They also attempt to provide educational and public access functions and values for these resources. Nevertheless, there would still be regulated activity occurring within inland and coastal wetlands and waters, all of which would require State and/or federal permitting.










Several ecological restoration and enhancement elements associated with this alternative have the potential to increase the habitat values associated with the coastal and terrestrial resources. Most of this habitat development occurs within the existing landscaped area, encompassing approximately 12 acres. In addition, relatively small areas of habitat development and other work would occur within regulated resources (wetlands/watercourses). The seawall restoration/relocation would include some coastal vegetation re-establishment, as likely part of a “living shoreline”, providing coastal habitat areas. The dune swale areas would also be areas where beach grasses and vegetation can be established. The meadow and woodland habitats would likely be accomplished mostly with soil augmentation where needed and special vegetation treatment and planting/seeding. Not all of these habitats are likely to be native to the area prior to development and, therefore, some maintenance would be required on an annual and semi-annual basis to sustain these elements, including management of invasive species which are prevalent throughout the area.

Table 3-8. Estimated Impacts and Areas of Effect in Resource/Habitat Areas for Different Development Alternatives (acres)

Resource/ Habitat Area	Concept A Destination Park		Concept B Ecological Park		Concept C Passive Recreational Park		Concept D Hybrid Park	
	Activity	Area of Effect	Activity	Area of Effect	Activity	Area of Effect	Activity	Area of Effect
Coastal Waters Eel Grass Beds*	Tidal Pool	0.60 0.0	N/A		N/A		Oyster reefs	0.19 0.0
Pocket Beach	Tidal Pool & Kayak Launch	0.03	Kayak Launch	0.01	Swimming beach	1.25	Kayak Launch & Oyster reefs	0.04
Rocky Shorefront/Groins	Tidal Pool	0.02	Fishing Pier	0.18	Seawall	0.10	Oyster reefs	0.10
	Fishing Pier & Overlook	0.18	N/A		N/A		Coastal Trail, Fishing Pier, Seawall	0.34
	Seawall/Living Shoreline	0.18	N/A		N/A		N/A	
Dune Grass Area	Seawall/Living Shoreline	0.23	Savannah Grasslands & Dune creation	0.47	Walking jogging trail, seawall	0.04	Coastal Trail, Seawall	0.12
Watercourse/ Wetlands	Wet Meadow	0.14	Nature trail crossings; Nature Follies	0.05	Walking jogging trail	0.01	Coastal trail	0.01
	Boardwalk	0.02	N/A		N/A		Wet meadow	0.20
Forested Upland	Parking	0.08	Stonewall	0.02	N/A		Coastal Trail & Art Installation	0.07
	Coastal Woodlands & Coastal Meadow	1.09	Coastal Woodlands & Coastal Meadow	1.15	N/A		Coastal Woodlands	0.84
Shrub/Successional Upland	Parking	0.08	Nature trail & Nature Follies	0.26	Walking jogging trail	0.10	Parking Lot & Access	0.09
	Coastal Woodlands & Coastal Meadow	4.1	Coastal Woodlands & Coastal Meadow	4.4	N/A		Coastal trail Play Area Art installation	0.22
	N/A		N/A		N/A		Coastal Woodlands	3.0
Building & Landscaped Area	Building Reconstruction, Parking Lot & Access, Boardwalk	2.65	Demolition & Removal, Building Reconstruction, Parking Lot & Access, Stone wall	2.1	Demolition & Removal, Park/Visitor Center, Maintenance Road, Walking jogging trail, Picnic/BBQ grounds	3.75	Demolition & Removal, Building Reconstruction, Roadway, Old Pump House, Park Visitor Center, Parking Lot & Access, Formal lawn, Art Installation	7.3
	Seawall/Living Shoreline	0.45	Nature Follies, Nature Trail	2.0	Savannah Grassland	2.1	Coastal trail, Sunflower Meadow,	5.1
	Coastal Woodlands, Coastal Meadow, Savannah Grasslands, Wet Meadow, Dune Swale	12.25	Coastal Woodlands, Coastal Meadow, Savannah Grasslands, Dune Creation	14.6	N/A		Wet Meadow	1.25
	Wet Meadow	1.25	N/A		N/A		N/A	

*It is assumed that tidal pools and oyster reef features would be necessarily sited in a manner to avoid any potential impact to eel grass beds as a condition of permits.

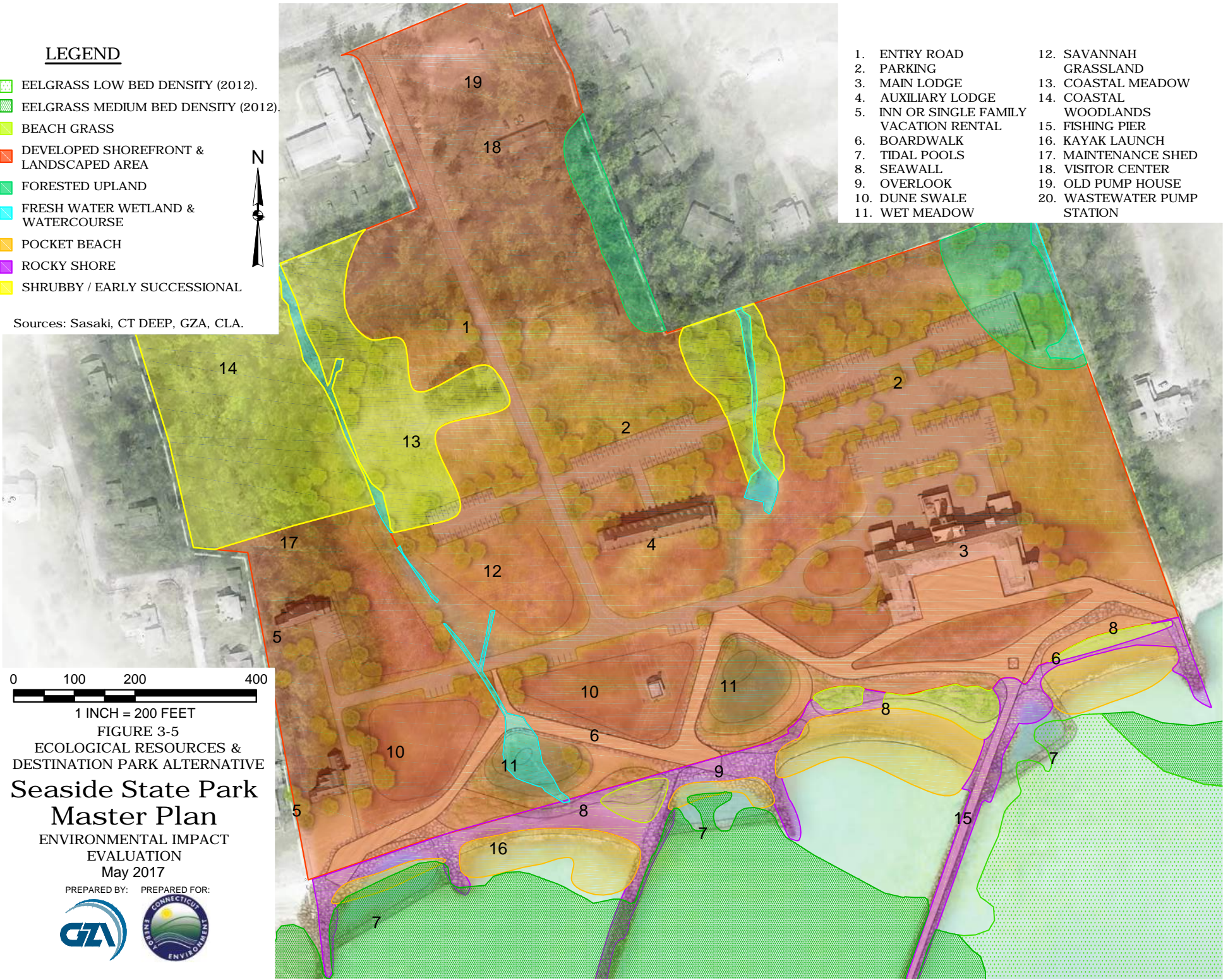
LEGEND

-  EELGRASS LOW BED DENSITY (2012).
-  EELGRASS MEDIUM BED DENSITY (2012).
-  BEACH GRASS
-  DEVELOPED SHOREFRONT & LANDSCAPED AREA
-  FORESTED UPLAND
-  FRESH WATER WETLAND & WATERCOURSE
-  POCKET BEACH
-  ROCKY SHORE
-  SHRUBBY / EARLY SUCCESSIONAL



Sources: Sasaki, CT DEEP, GZA, CLA.

- 1. ENTRY ROAD
- 2. PARKING
- 3. MAIN LODGE
- 4. AUXILIARY LODGE
- 5. INN OR SINGLE FAMILY VACATION RENTAL
- 6. BOARDWALK
- 7. TIDAL POOLS
- 8. SEAWALL
- 9. OVERLOOK
- 10. DUNE SWALE
- 11. WET MEADOW
- 12. SAVANNAH GRASSLAND
- 13. COASTAL MEADOW
- 14. COASTAL WOODLANDS
- 15. FISHING PIER
- 16. KAYAK LAUNCH
- 17. MAINTENANCE SHED
- 18. VISITOR CENTER
- 19. OLD PUMP HOUSE
- 20. WASTEWATER PUMP STATION



0 100 200 400

1 INCH = 200 FEET

FIGURE 3-5

ECOLOGICAL RESOURCES & DESTINATION PARK ALTERNATIVE

**Seaside State Park
Master Plan**

ENVIRONMENTAL IMPACT
EVALUATION
May 2017

PREPARED BY: GZA PREPARED FOR: CONNECTICUT DEPT. OF ENVIRONMENT



The wet meadow areas would require additional grading, and as a creation or modification of existing inland wetland and watercourse features, would require additional permitting and post-construction monitoring for determination of success. The westerly wet meadow would be readily created by lowering grades around the open stream channel, and an opportunity exists to provide some meandering of the stream to increase stream habitat value with undercut banks and areas of stream accretion. The easterly wet meadow would likely require daylighting a significant portion of the existing culverted stream, which would be an important ecological restoration by itself, in addition to grading a wet meadow riparian area in association with the restored streambed. The proposed boardwalk would cross the wetlands, but impacts would be minimal and potentially further reduced by bridging. However, interference with existing utilities could be an issue with the proposed grading, as discussed in other sections of this EIE.

The proposed three tidal pool areas would necessarily be constructed directly within areas of beach and rocky shoreline habitats, in tidal and subtidal areas, affecting more than ½ acre. None of the area overlaps with the area of eel grass. Construction would likely require some placement of rock, and impervious hardened materials (e.g., concrete) to create areas that retained tidal waters throughout the tidal cycles. The middle proposed tidal pool area would include the pocket beach area which receives the stream discharge for the westerly and central streams. A successful tidal pool, which maintains normal salinity seawater, would need to divert these flows to other locations or extend the point of discharge beyond the limits tidal pool. The kayak launch area would similarly be located within the intertidal to subtidal area but any associated impacts are typically minimal for these features, and could be limited to a designated portion of the beach with no other modification.










Ecological Park

The Ecological Park alternative would involve less intense modification of the existing Site, with an emphasis on enhancement of the natural resources on the parcel. New features associated with the Ecological Park alternative that could affect the existing natural resources onsite include:

- Addition of parking and visitor center with removal of existing internal circulation roadways and most buildings;
- Creation of a nature trail;
- Addition of a kayak launch;
- Addition of a fishing pier (on the longest existing groin);
- Removal of the seawall; and
- Creation or enhancement of dune habitat, savannah grassland, coastal meadow and coastal woodland habitats.

Figure 3-6 shows the overlay of the ecological features on the Ecological Park alternative layout. The habitat creation/enhancement elements have the potential to increase the habitat values associated with the coastal and terrestrial resources over existing conditions, but would still be regulated activity occurring within inland and coastal wetlands and waters requiring permitting. Most of this habitat development would occur within the existing landscaped area, encompassing roughly 15 acres. Additional, relative small areas of habitat development and other work would occur within resources. Much of the additional non-habitat related work would occur within buffer zones.

LEGEND

-  EELGRASS LOW BED DENSITY (2012).
-  EELGRASS MEDIUM BED DENSITY (2012).
-  BEACH GRASS
-  DEVELOPED SHOREFRONT & LANDSCAPED AREA
-  FORESTED UPLAND
-  FRESH WATER WETLAND & WATERCOURSE
-  POCKET BEACH
-  ROCKY SHORE
-  SHRUBBY / EARLY SUCCESSIONAL



Sources: Sasaki, CT DEEP, GZA, CLA.

- 1. PARKING/VISITOR CENTER
- 2. NATURE TRAIL
- 3. MAINTENANCE ROAD/TRAIL
- 4. NATURE FOLLIES
- 5. FISHING PIER
- 6. DUNE RESTORATION
- 7. SAVANNAH GRASSLAND
- 8. COASTAL MEADOW
- 9. COASTAL WOODLANDS
- 10. KAYAK LAUNCH
- 11. STONE WALLS
- 12. WASTEWATER PUMP STATION



1 INCH = 200 FEET

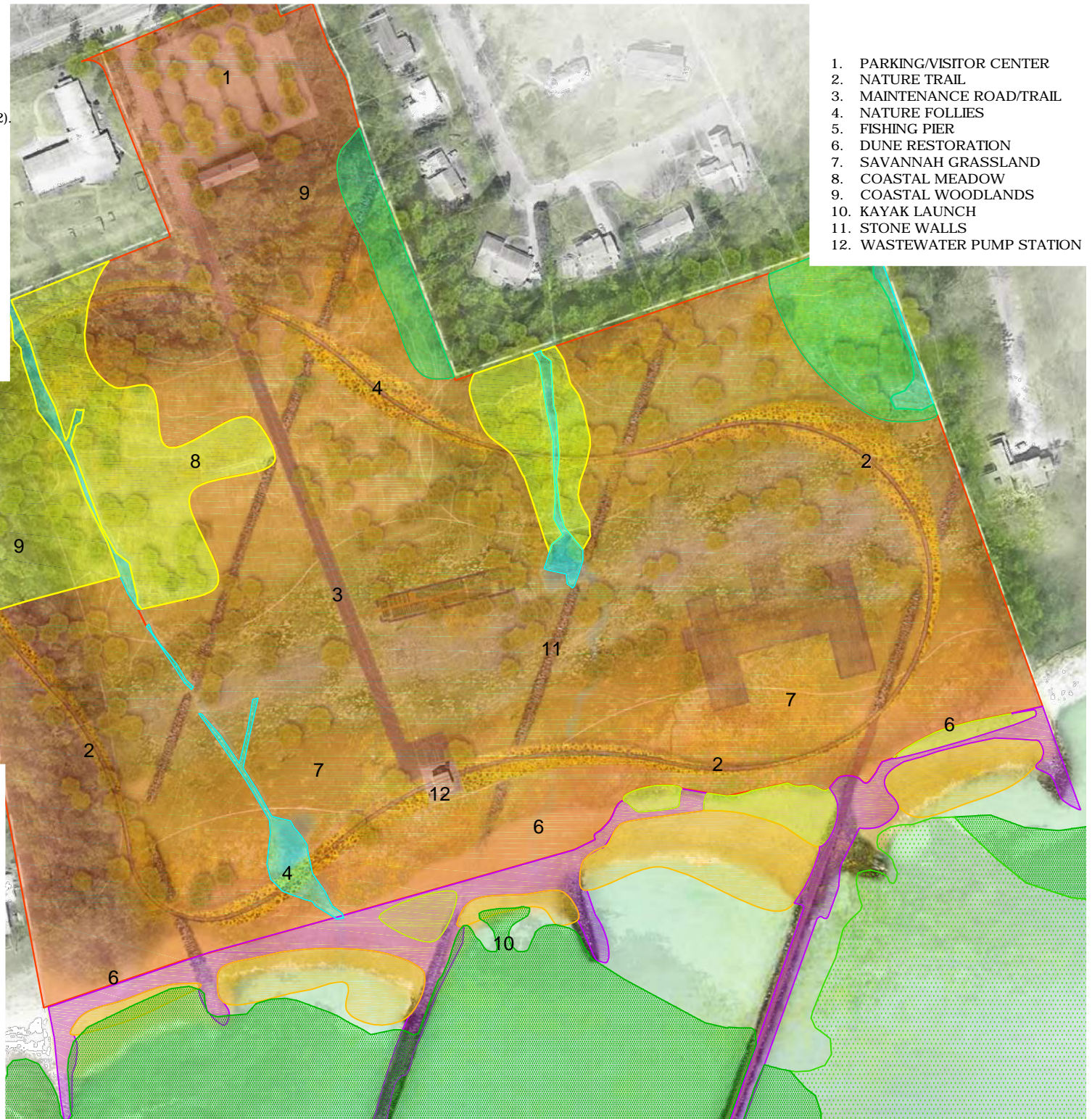
FIGURE 3-6

ECOLOGICAL RESOURCES & ECOLOGICAL PARK ALTERNATIVE

**Seaside State Park
Master Plan**

ENVIRONMENTAL IMPACT
EVALUATION
May 2017

PREPARED BY: GZA PREPARED FOR: CONNECTICUT DEPARTMENT OF ENVIRONMENT



There would be some minimal direct impacts to regulated coastal resources and inland wetland/watercourse and all of the work would occur within the coastal zone. The need for stormwater improvements might be lessened, due to the likely reduction in the total amount of impervious surface. Removal of the seawall allows for the restoration of a more natural shoreline area. However, areas currently protected by the seawall would be subject to erosion and future degradation, potentially putting some of the restored habitats at risk (see Section 3.1.2).

As with the Destination Park alternative, the ecological restoration and enhancement elements associated with this alternative have the potential to increase the habitat values associated with the coastal and terrestrial resources. As discussed previously, the meadow and woodland habitats could be accomplished mostly with soil augmentation where needed and special vegetation treatment and planting/seeding.

Some annual maintenance would be required on an annual and semi-annual basis to encourage these elements, including management of invasive species which are prevalent throughout the area. This alternative would forgo the opportunity for wet meadow, but provide an opportunity for dune creation.

While there are patches of dune grass within the existing Site, these areas, as previously described, are sandy soils with beach grass vegetative assemblage but are constrained by other hardened site development. Similarly, with this proposed alternative, it is unlikely that a true dune environment could be accommodated, since by its nature, dunes are anticipated to have areas of sand loss and capture over time and at this geo-physical location of the shoreline, there is no significant source of new sand to support normal dune activity. However, it would be possible to allow for an enhancement of dune like habitat and soils by importing sands, that would likely be supportive of dune associated species. Annual and semi-annual maintenance likely would be required to maintain the habitat (especially with the removal of the seawall and increased projected erosion potential), prevent dune migration, and prevent dominance by invasive species.










For this alternative, the proposed kayak launch is the only feature that would be within the intertidal and subtidal areas. Again, any associated impacts are typically minimal for these features, and could be limited to a designated portion of the beach with no other modification.

Passive Recreation Park

The proposed Passive Recreation Park alternative would, similar to the Ecological Park, involve less intense modification of the existing Site, with an emphasis on enhancement of the open space and natural resources on the parcel. Figure 3-7 shows the ecological features overlain onto the Passive Recreation Park layout. New features associated with the Passive Recreation Park alternative that would affect the existing natural resources and land uses onsite including:

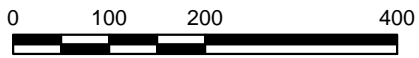
- Addition of parking and kiosk, with removal of existing internal circulation roadways and all buildings other than the municipal wastewater pump station;
- Creation of a walking/jogging trail;
- Addition of picnicking/barbeque grounds,
- Enhancement of open lawn areas;
- Enhancement of an existing swimming beach area; and
- Creation or enhancement of savannah grassland habitat.

LEGEND

-  EELGRASS LOW BED DENSITY (2012).
-  EELGRASS MEDIUM BED DENSITY (2012).
-  BEACH GRASS
-  DEVELOPED SHOREFRONT & LANDSCAPED AREA
-  FORESTED UPLAND
-  FRESH WATER WETLAND & WATERCOURSE
-  POCKET BEACH
-  ROCKY SHORE
-  SHRUBBY / EARLY SUCCESSIONAL

Sources: Sasaki, CT DEEP, GZA, CLA.

- 1. PARK/VISITOR CENTER
- 2. WALKING/JOGGING TRAIL
- 3. MAINTENANCE ROAD/TRAIL
- 4. WASTEWATER PUMP STATION
- 5. PICNICKING/BBQ GROUNDS
- 6. OPEN LAWN
- 7. SAVANNAH GRASSLAND
- 8. SEAWALL



1 INCH = 200 FEET

FIGURE 3-7

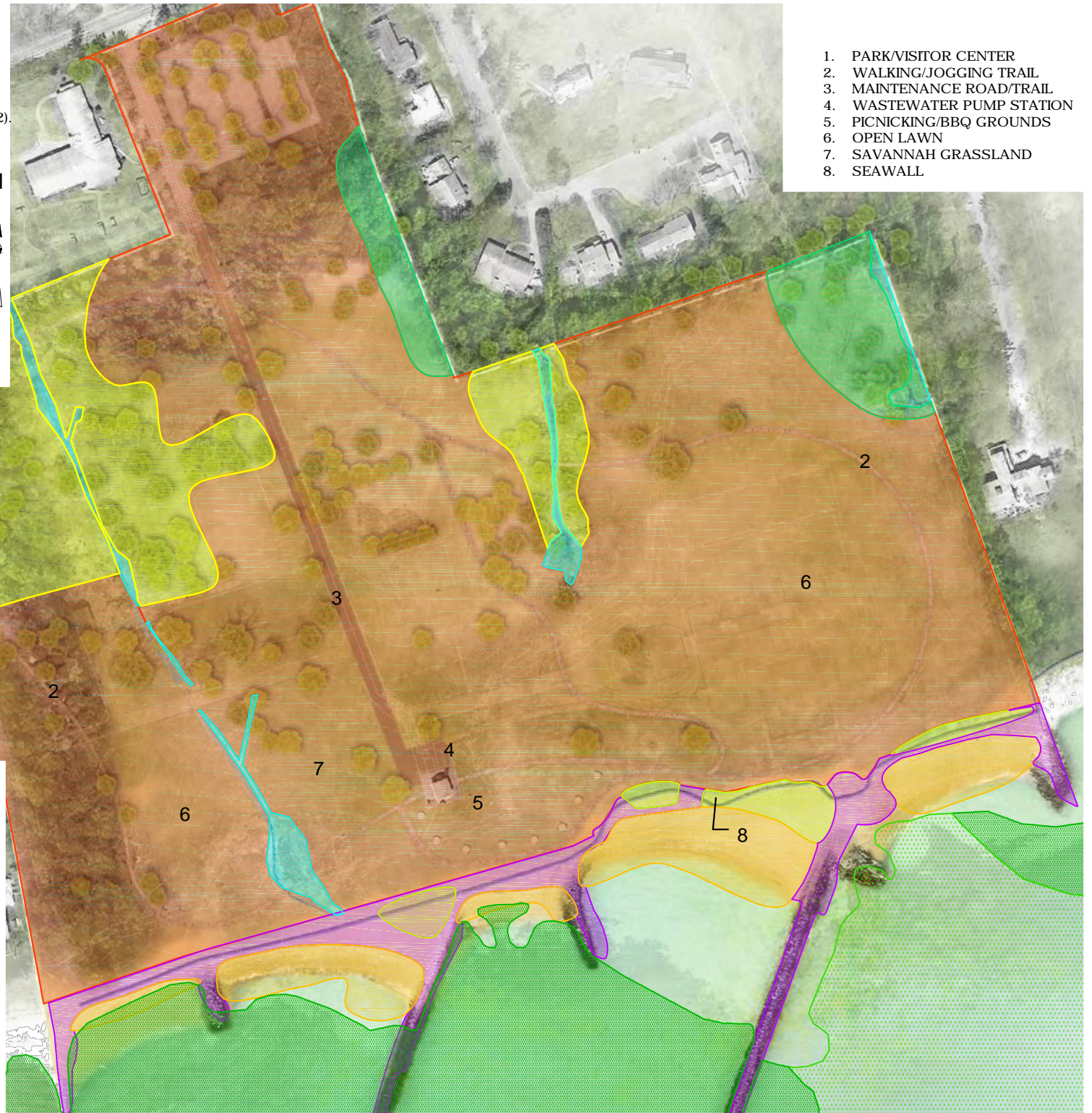
ECOLOGICAL RESOURCES & PASSIVE PARK ALTERNATIVE

**Seaside State Park
Master Plan**

ENVIRONMENTAL IMPACT
EVALUATION

May 2017

PREPARED BY: GZA
PREPARED FOR: CONNECTICUT DEPARTMENT OF ENVIRONMENT & NATURAL RESOURCES



Much of the work would still be regulated activity occurring within or in proximity to inland and coastal wetlands and waters requiring permitting; and all of the work would be within the coastal zone. The largest single area of regulated activity along the coastline (1.25 acres) would be associated with the enhancement of the swimming beach area, which would likely require sand nourishment and modification of the subtidal and intertidal shoreline. The need for stormwater improvements might be lessened due to the likely reduction in the total amount of impervious surface.

As with the Destination or Ecological Park alternatives, the Passive Recreation Park alternative has ecological restoration/enhancement elements that have the potential to increase the habitat values associated with the coastal and terrestrial resources.

The meadow habitat could be accomplished mostly with soil augmentation and special vegetation planting/seeding, allowing for annual maintenance and invasive species control. The picnicking and lawn areas would provide reduced habitat value, due to the need for more frequently managed vegetation, preventing operation as normal ecosystems.

For this alternative, the proposed swimming beach would modify an existing beach located within the intertidal and subtidal areas. The creation of the swimming beach would augment the existing condition, perhaps bringing in additional suitable sands and removing obstructions to swimming such as rocks and boulders. Associated impacts would likely be limited.










Hybrid Park

The proposed Hybrid Park alternative would result in an increased level of modification of the existing Site, with an emphasis on maintaining roadways for new usage, and the addition and enhancement of the lodging and passive recreation use of the grounds. Figure 3-8 shows the ecological resources overlain onto the Hybrid Park layout. New features associated with the Hybrid Park alternative that could affect the existing natural resources onsite include:

- Addition of parking areas and internal circulation roadways;
- Modification and expansion of existing buildings for lodging;
- Creation of a coastal trail;
- Modifications to the seawall;
- Addition of a fishing pier (on the longest existing groin);
- Creation of an oyster reef area;
- Addition of a play area and art installation;
- Addition of a kayak launch (in a beach/rocky shoreland area); and
- Creation or enhancement of native sunflower meadow, grass mound, wet meadow and coastal woodland habitats.

As with the other alternatives, the habitat features would augment existing habitat features and create others within or in proximity to inland and coastal wetlands and waters, therefore requiring permitting; and all of the work would be within the coastal zone. Stormwater improvements would likely be a component of the work associated with the addition of impervious surface.


LEGEND

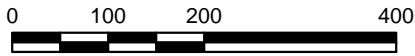
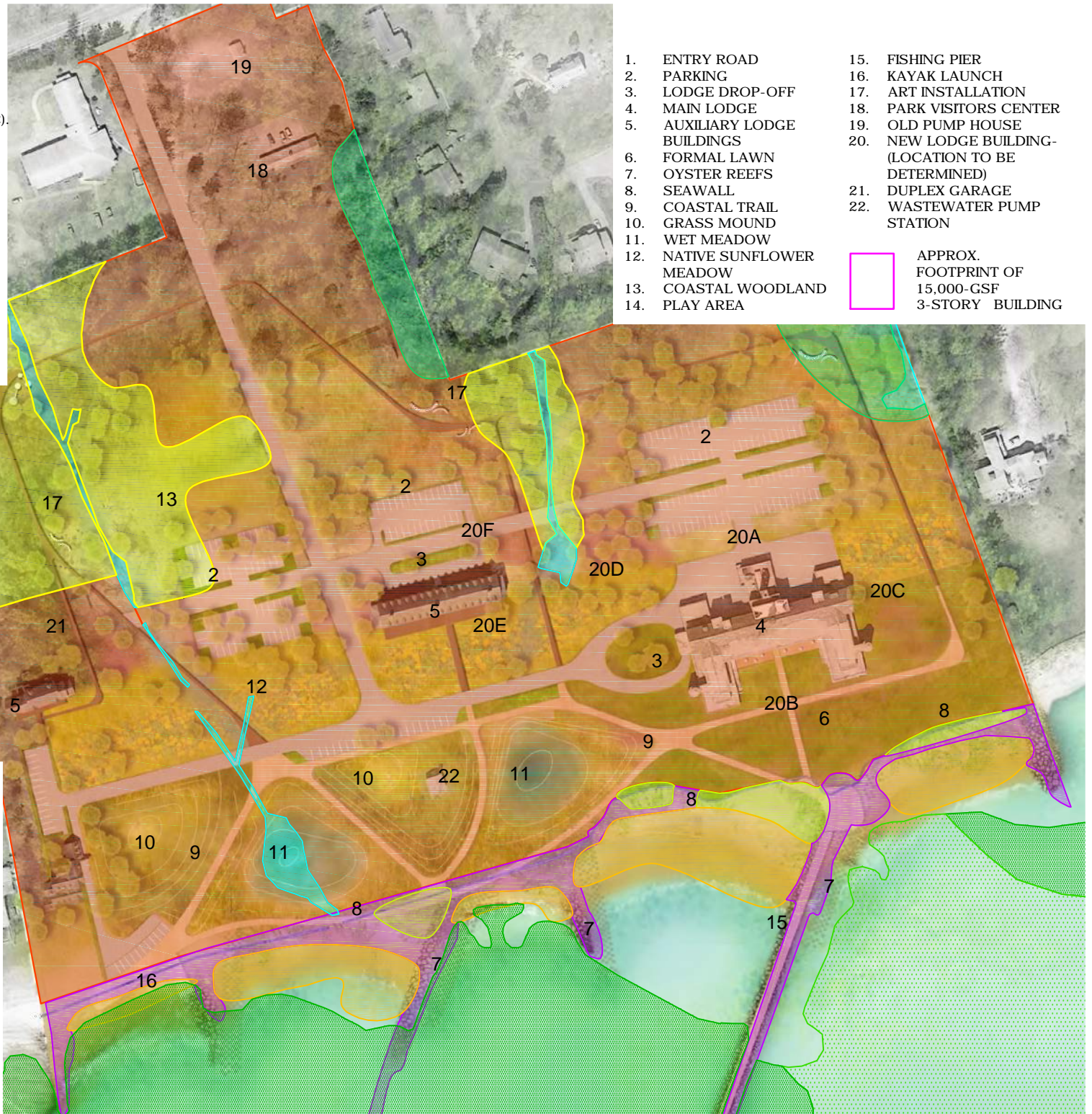
-  EELGRASS LOW BED DENSITY (2012).
-  EELGRASS MEDIUM BED DENSITY (2012).
-  BEACH GRASS
-  DEVELOPED SHOREFRONT & LANDSCAPED AREA
-  FORESTED UPLAND
-  FRESH WATER WETLAND & WATERCOURSE
-  POCKET BEACH
-  ROCKY SHORE
-  SHRUBBY / EARLY SUCCESSIONAL



Sources: Sasaki, CT DEEP, GZA, CLA.

- 1. ENTRY ROAD
- 2. PARKING
- 3. LODGE DROP-OFF
- 4. MAIN LODGE
- 5. AUXILIARY LODGE BUILDINGS
- 6. FORMAL LAWN
- 7. OYSTER REEFS
- 8. SEAWALL
- 9. COASTAL TRAIL
- 10. GRASS MOUND
- 11. WET MEADOW
- 12. NATIVE SUNFLOWER MEADOW
- 13. COASTAL WOODLAND
- 14. PLAY AREA
- 15. FISHING PIER
- 16. KAYAK LAUNCH
- 17. ART INSTALLATION
- 18. PARK VISITORS CENTER
- 19. OLD PUMP HOUSE
- 20. NEW LODGE BUILDING- (LOCATION TO BE DETERMINED)
- 21. DUPLEX GARAGE
- 22. WASTEWATER PUMP STATION

 APPROX. FOOTPRINT OF 15,000-GSF 3-STORY BUILDING



1 INCH = 200 FEET

FIGURE 3-8
 ECOLOGICAL RESOURCES &
 HYBRID PARK ALTERNATIVE
Seaside State Park
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 May 2017

PREPARED BY: PREPARED FOR:



The sunflower and wet meadow, and coastal woodlands have the potential to increase the habitat values associated with the coastal and terrestrial resources. The meadow and woodland habitats could be accomplished mostly with soil augmentation where needed and special vegetation treatment and planting/seeding. Some maintenance would be required on an annual and semi-annual basis to encourage these elements, including management of invasive species which are prevalent throughout the area.

As previously discussed with the Ecological Park and Destination Park alternatives, the wet meadow areas would require additional grading, and as a creation or modification of existing inland wetland and watercourse features, would require additional permitting and post-construction monitoring for determination of success.

The westerly wet meadow could be readily created by lowering grades around the open stream channel, and an opportunity exists to provide some meandering of the stream to increase stream habitat value with undercut banks and areas of stream accretion. The easterly wet meadow would likely require daylighting a significant portion of the existing culverted stream, which would be an important ecological restoration in itself, in addition to grading a wet meadow riparian area in association with the restored streambed. Conflicts with existing utilities would need to be resolved.

The proposed kayak launch would be within the intertidal and subtidal areas, but any associated impacts are typically minimal for these features, and could be limited to a designated portion of the beach, with no other modification.

The proposed “oyster reef” area would utilize reef balls along the easterly sides of several of the stone groins. Oysters are typically more associated with estuarine embayment conditions and are not found in this immediate area. The reef balls would not likely be valuable habitat for this species at this location and there is no indication that they colonize hard bottom substrate along the beach. However, blue mussels, limpets, crab, sea urchins and other species could readily utilize this habitat, since they are present along the existing stone groins which already provides ample void space between the rocks in the intertidal and subtidal zones. The reef balls are also typically employed as a means to disperse wave energy. While they would still have some effect at these locations, the groins presently provide the primary means for most of the wave energy dispersion and would continue to do so.

3.1.4 Endangered, Threatened, or Special Concern Species or Habitats

3.1.4.1 Existing Conditions

Rare species and their habitats are regulated under the Connecticut Endangered Species Act (ESA) (CGS Section 26-303 to 26-315) and the Federal Endangered Species Act. The purpose of these Acts is to conserve, protect, restore and enhance any endangered or threatened species listed at the State or national level. The Northern long-eared bat is federally listed as a threatened species statewide in Connecticut; however, CT DEEP Natural Diversity Data Base (NDDDB) mapping indicates that there are no known hibernacula within Waterford or surrounding towns and no known maternity roost trees in the area. NDDDB, the maintainer of the official State database on rare species, has stated that there are State-listed species documented within the general area of the proposed Project, although none were reported as having been observed onsite (DEEP NDDDB,

2017, Appendix A). Figure 3-9 shows the mapped NDDDB areas on the Site and in the vicinity. DEEP identified three (3) plant, four (4) bird, and seven (7) insect species of concern relative to the property and provided associated habitats that might be relevant to the Site, as described below and summarized in Table 3-8. DEEP NDDDB has stated they will conduct site specific surveys for the plants in August/September, the appropriate time of year to identify plant species, in order to determine if they are present on the Site. DEEP NDDDB also asked for consideration of modifying the alternatives by removal of the groins and seawalls. This request is discussed in Section 2 and is also briefly discussed in the sections below relative to the individual species and groups.

Plants

DEEP NDDDB has identified three rare plants that might occur onsite based in part on their known occurrence at Harkness Memorial State Park, located approximately one mile east of the Site along the coast:

- Seabeach sandwort (*Honckenya peploides*) - State Special Concern,
- Field paspalum (*Paspalum laeve*) - State Threatened, and
- Sand bramble (*Rubus cuneifolius*) - State Special Concern.

The habitat of the seabeach sandwort is sandy coastal beaches, blooming May through September. The field paspalum habitat is damp, sandy fields, thickets, and shores, with flowers and fruits between August and September. The sand bramble habitat is sandy soils of old fields, utility transmission corridors, roadsides, openings in woods; flowering from May to mid-July and fruiting July to September. While the generally described habitats for these species are not extensive onsite, they are present, supporting the need for a seasonal examination for the potential presence of these species. Removal of the groins could be negative relative to the preservation of habitat supportive of seabeach sandwort, since it is doubtful that any significant coastal beach would be preserved without the presence of the groins.

Fauna

Of the DEEP NDDDB identified State-protected bird and insect species known to be within the proximity to, and possibly on, the Site, most of these species are associated with two basic habitat types:





- Natural dune and beach/shoreline habitats, and
- Coastal grassland/woodland.

As previously described, there are no natural dune habitats onsite, although there is a small sandy patch that supports some dune vegetation (beach grass). The pocket beaches provide some limited beach habitat, along with some limited rocky shoreline. Grassland (mowed lawn) and fringing woodland is present at the Site.

Beach/Shoreline Species: The three birds referenced by DEEP NDDDB for this habitat were as follows:

- Piping Plover (*Charadrius melodus*) - State and Federally Threatened;
- Least Tern (*Sterna antillarum*) - State Threatened; and
- Great Egret (*Ardea alba*) - State Threatened.

LEGEND

-  NATURAL DIVERSITY DATABASE AREA (2016)
-  CRITICAL HABITAT: BEACHSHORE (2005)
-  CRITICAL HABITAT: GOSHEN FIELDS (2005)
-  PROPERTY BOUNDARY

Sources: CT DEEP, CT ECO, CLA.



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The beach or shoreline associated insects referenced by DEEP NDDDB as potentially being present were:

- Tiger beetle (*Cicindela hirticollis*) - State Special Concern;
- Apamea moth (*Apamea lintneri*) - State Special Concern;
- Apamea moth (*Apamea inordinate*) - State Special Concern;
- Dune noctuid moth (*Sympistis riparia*) - State Special Concern;
- Pink Streak (*Dargida rubripennis*) - State Threatened.
- Coastal heathland cutworm (*Abagrotis nefascia benjamini*) - State Threatened; and
- Short-lined chocolate (*Argyrostromis anilis*) - State Special Concern.

Relative to the Piping Plover and Least Tern, the habitat at the Site's coastal shoreline is significantly substandard for these species. Piping Plover has a minimum habitat requirement of 2.7 acres to breed and the beach onsite is much smaller than this size. For Least Tern, this species usually nests well above the high tide mark on open, generally grassless sand beaches or dredge spoil areas. The seawall sharply and abruptly ends the beach area in close proximity to the high tide line, making this habitat likely unsuitable for nesting. However, there is an area east of the property where both Piping Plover and Least Tern currently nest.

The Great Egret (*Ardea alba*; State Threatened) is also a protected shoreline bird, but this species is more associated with rocky shoreline, with some of this habitat onsite. While it is possible that this species may use the Site's shoreline for occasional foraging, it does not appear to be a critical area for this species (DEEP, 2017).

For the insects, the protected Tiger Beetle can be associated with coastal beaches, as well as marine tidal flats and sandy shores of freshwater rivers or lakes. The *A. lintneri* moth is a dune inhabiting species of the eastern seaboard. The Dune Noctuid and Pink Streak moths use coastal beaches and dunes as habitat in addition to upland shrublands. As noted, some coastal beach habitat is present that could potentially support this species. No true dunes are present, but about ½ acre of dune grass vegetation occurs in limited patches. The Pink Streak and *A. inordinata* moths benefit from dune habitat as well as coastal grasslands.

To the extent that habitat supportive of dune species is present, it is also likely dependent upon the groins that maintain sandy beach material onsite. Removal of the groins could be negative relative to the preservation of habitat supportive of several of these species dependent upon beach habitat, if present, since it is doubtful that any coastal beach would be preserved without the presence of the groins. As previously described, dune habitat is not present and natural dunes are unlikely to form and be sustainable onsite.

Coastal Grassland/Woodland Species: There is approximately 4.7 acres of shrub and woodland habitat on the parcel, with much of the remaining unbuilt area present as maintained lawn. The coastal grassland/woodland species referenced by DEEP as potentially being present were as follows:

Birds:

- Brown Thrasher (*Toxostoma rufum*) - State Special Concern;

Insects:

- Coastal heathland cutworm (*Abagrotis nefascia benjamini*) - State Threatened;
- Apamea moth (*Apamea inordinata*) - State Special Concern; and
- Short-lined chocolate (*Argyrostromis anilis*) - State Special Concern.

Table 3-9. State Protected Species known in General Project Area

Type	Scientific Name or Group	Common Name	State Protection Status	Habitat Preference	Available Existing Habitat Onsite
Birds	<i>Ardea alba</i>	Great egret	Threatened	Rocky Shoreline	Minimal. Not critical area for this species
	<i>Charadrius melodus</i>	Piping plover	Threatened	Beach	Minimal area present
	<i>Sternula antillarum</i>	Least tern	Threatened	Beach	Minimal area present
	<i>Toxostoma rufum</i>	Brown thrasher	Special Concern	Hedgerows adjacent to natural meadows	No natural meadows. Some shrub areas.
Insects	<i>Cicindela hirticollis</i>	Tiger beetle	Special Concern	Tidal flats, beaches	Some habitat
	<i>Dargida rubripennis</i>	Pink Streak	Threatened	Coastal beaches and dunes, upland shrublands	Minimal area present
	<i>Sympistis riparia</i>	Dune noctuid moth	Special Concern	Coastal beaches and dunes, upland shrublands	Minimal area present
	<i>Abagrotis nefascia benjamini</i>	Coastal heathland cutworm	Threatened	Sandplain grasslands, coastal heathlands	Minimal or no area present
	<i>Apamea lintneri</i>	Apamea moth	Special Concern	Dune inhabiting species of the eastern seaboard	No dunes present; some dune like habitat
	<i>Argyrostromis anilis</i>	Short-lined chocolate	Special Concern	Barrens, thickets, woodlands, and coastal strand communities	Some potential habitat
	<i>Apamea inordinata</i>	Apamea moth	Special Concern	Dry sandy areas with grasses and sedges	Minimal or no area present
Plants	<i>Honckenya peploides</i>	seabeach sandwort	Special Concern	Sandy coastal beaches	Some Potential habitat
	<i>Rubus cuneifolius</i>	Sand bramble	Special Concern	Sandy soils of old fields, utility transmission corridors, roadsides, openings in woods.	Poor habitat
	<i>Paspalum laeve</i>	Field paspalum	Threatened	Damp, sandy fields, thickets, and shores.	Some Potential habitat

¹From DEEP NDDB Preliminary Assessment, letter

In general, shrubland and coastal woodlands are important to migratory passerine birds and are identified as a habitat of Regional Greatest Conservation Need. DEEP NDDB indicated that the general project areas have a “very high and consistent use by migrating passerines” (DEEP, 2017). The Brown Thrasher is a bird that inhabits hedgerows adjacent to natural meadows and some suitable habitat may be present onsite.

In addition, the previously mentioned Dune Noctuid and Pink Streak moths can use upland shrublands as habitat. The Short-lined Chocolate moth uses barrens, thickets, woodlands, and coastal strand communities, some of which may be present onsite.

Relative to the coastal heathland cutworm, its habitat preference is for sandplain grasslands and coastal heathlands, neither of which is present onsite. Similarly, the *Apamea* moth prefers dry sandy areas with grasses and sedges, which is not a strong characteristic of the grassy lawn present onsite.

3.1.4.2 *Impacts*

As previously discussed, the habitats present onsite appear to be of somewhat limited value relative to the preferred habitat requirements for the species identified by DEEP NDDDB as present in the general Project area. Nevertheless, the Site will be inspected by DEEP for the presence of the three (3) vegetative species. The following discussion reviews the effects of the various alternatives on the habitats present onsite and the potentially supported rare species.

Destination Park

The Destination Park alternative would affect the existing natural habitats as follows:

- Conversion of dune grass area to living shoreline and seawall (0.23± acres);
- Conversion of existing forested upland to coastal woodland/coastal meadow (1.09± acres);
- Conversion of Shrub/Successional Upland to coastal woodlands and coastal meadow (4.1± acres); and
- Conversion of existing building and landscaped area to a mix of natural habitats (coastal woodlands, meadow, grasslands, wet meadow and dune swale; 13.5± acres).

The changes are mostly conversion of lawn to habitat with some conversion of habitat from one type to another. The potential effects on rare species habitat are summarized by group below.

Plants: If present, there would likely be some alteration of the protected plant habitats. However, it is likely that this would could be done in a way to transplant the protected species and enhance their habitats to the benefit of the species.

Birds: There would likely be no net effect on the habitat types for brown thrasher, if present. The other bird species, as previously discussed, are less likely onsite or the habitat is not critical.

Insects: The enhancement of habitats could benefit certain of the species with the natural meadow and woodlands planned for the northwest corner of the parcel (DEEP, 2017). The placement of the kayak launch would need to be assessed during the design/permitting phase relative to the potential tiger beetle presence. The proposed shoreline work could potentially result in a loss of some shoreline habitat for some of these species, assuming any are present.

Ecological Park

The Ecological Park alternative would affect the existing natural habitats as follows:

- Enhance the existing dune and sandplain grasslands (0.47± acres);
- Conversion of existing forested upland to coastal woodland/coastal meadow (1.15± acres);
- Conversion of Shrub/Successional Upland to coastal woodlands and coastal meadow (4.4± acres); and
- Conversion of existing building and landscaped area to a mix of natural habitats (coastal woodlands, meadow, grasslands, and dune-type area (14.6± acres).

Similar to the Destination Park, the changes are mostly conversion of lawn to habitat with some conversion of habitat from one type to another. However, the removal of the seawall adds in a dynamic of future shoreline erosion and loss of some of the created habitats. The potential effects on rare species habitat is summarized by group below.

Plants: If present, there would likely be some alteration of the protected plant habitats. However, it is likely that this would could be done in a way to transplant the protected species and enhance their habitats to the benefit of the species.

Birds: There would likely be no net effect on the habitat types for brown thrasher, if present, or might be somewhat beneficial. The other bird species, as previously discussed, are less likely onsite or the habitat is not critical. Overall, the proposed habitat improvements could benefit the migratory passerine birds.

Insects: The enhancement of habitats could benefit certain of the species with the natural meadow and woodlands planned for the northwest corner of the parcel (DEEP, 2017). The placement of the kayak launch would need to be assessed relative to the potential tiger beetle presence during the design/permitting phase.

Passive Recreation Park

The Passive Recreation Park alternative would affect the existing natural habitats as follows:

- Conversion of existing beach to swimming beach (1.25± acres); and
- Building demolition and removal with provision of trails (3.4± acres).

This alternative would focus less upon habitat enhancement but would preserve open space and the existing habitats largely intact. Therefore, there would be less potential for beneficial results for any rare species that might be present. The potential effects on rare species habitat is summarized by group below.

Plants: If present, there could likely be some alteration of the protected plant habitats. However, it is likely that this would could be done in a way to transplant the protected species and enhance their habitats to avoid impacts and potentially benefit the species.

Birds: There would likely be no net effect on the habitat types for brown thrasher, if present. The other bird species, as previously discussed, are less likely onsite or the habitat is not critical.

Insects: The lack of significant alteration of habitats should minimize the potential for any adverse effect to protected species if present. The utilization of the swimming beach would need to be assessed relative to the potential tiger beetle presence.

Hybrid Park

The Hybrid Park alternative would affect the existing natural habitats as follows:

- Addition/enhancement of rocky intertidal (“oyster reef”) areas (0.19± acres);
- Enhance the existing dune and sandplain grasslands (0.47± acres);
- Enhancement of coastal woodlands (0.84± acres);
- Conversion of Shrub/Successional Upland to coastal woodlands (3.0± acres); and
- Conversion of existing building and landscaped area to sunflower meadow and wet meadow areas (6.35± acres).

While not as extensive as in the Destination Park and Ecological Park alternatives, much of the changes are conversion of lawn to habitat with some conversion of habitat from one type to another. The potential effects on rare species habitat is summarized by group below.

Plants: If present, there would likely be some alteration of the protected plant habitats. However, it is likely that this would could be done in a way to transplant the protected species and enhance their habitats to the benefit of the species.

Birds: There would likely be no net effect or slight loss of habitat types for brown thrasher, if present. The other bird species, as previously discussed, are less likely onsite or the habitat is not critical.

Insects: The enhancement of habitats could benefit certain species with the natural meadow and woodlands, although to a lesser degree than the Destination and Ecological Park alternatives, but greater than the Passive Park alternative. The placement of the kayak launch and “oyster reef” would need to be assessed relative to the potential tiger beetle presence during the design/permitting phase of the Project. The proposed shoreline and creation of hardscapes and impervious surface could potentially result in a loss of some habitat for some of these species, assuming any are present.

3.2 PHYSICAL ENVIRONMENT/INFRASTRUCTURE

3.2.1 Traffic and Bicycle/Pedestrian Access

A traffic study was conducted to review existing conditions and potential impacts related to the four alternatives. The complete traffic impact report is included in Appendix C of this document and the assumptions and findings are summarized in this section.

Throughout this section, many terms unique to traffic engineering are used. Below are definitions of several of the most common terms.

Trip is a one-way movement of a vehicle to or from a site. One car entering and exiting a site constitutes two trips.

Traffic generation is the actual number of vehicle movements which may reasonably be expected to be attracted by a specific development. Usually traffic generation is expressed as a number of trips.

Average Daily Traffic (ADT) is the average 24-hour traffic volume (trips), not adjusted for days of the week or seasons of the year, unless otherwise stated.

Peak hourly generation is the traffic generation which may be anticipated during the highest volume hour for the particular development. This analysis parameter may vary as to the time of day.

Capacity and Level of Service are terms utilized to describe the ability of a roadway to handle its traffic assignment.

Capacity is defined as the maximum volume of vehicles which may be expected to be carried by a specific roadway or intersection at a given Level of Service. The typical unit is vehicles/hour.

Level of Service (LOS) is a measure of the quality of flow and overall congestion on a particular section of road or at a specific intersection.

Levels of Service are defined in the 2010 *Highway Capacity Manual*, published by the Transportation Research Board. LOS ratings are classified by the letters A through F, and are as follows in Table 3-10 below:

Table 3-10. LOS Ratings

Rating	Description	Traffic
A	Free Flow	Drivers feel no restrictions
B	Stable Flow	Drivers feel some restrictions
C	Stable Flow	Drivers feel somewhat restricted, but not objectionably so
D	Approaching Unstable Flow	Increased restriction and congestion
E	Capacity	Substantial restriction, serious delays
F	Forced Flow	Stop and go conditions, extreme delays

3.2.1.1 *Existing Conditions*

Traffic

Seaside State Park is located along the south side of Shore Drive, between Magonk Point Road and Woodsea Place. Shore Road is a two-lane residential street beginning at Great Neck Road (Route 213) to the east, traveling west past the Site, then turning to the north, ending at Lamphere Road near Great Neck Country Club. The regional approach routes to the Site include Interstate 95 and Route 1, which lead to Rope Ferry Road (Route 156), the closest major arterial roadway to the Site. Figure 3-10 shows the local roadway network in the vicinity of the Site.

In the vicinity of the Site, the posted speed limit along Shore road is 25 mph. The drive into the site is a two-lane driveway with the approach to Shore Road stop sign-controlled. The available sight distance along Shore Road from the Site drive exceeds 500 feet in each direction, which is adequate for a speed of 45 mph, 20 miles over the posted speed limit.

The following seven intersections were studied between the Site and Rope Ferry Road:

- Rope Ferry Road (Route 156) at Gardeners Wood Road;
- Jordan Cove Road at Shore Road;
- Palmer Drive at Shore Drive;
- Shore Drive at Seaside Park Drive;
- Shore Drive at Great Neck Road;
- Great Neck Road (Route 213) at Lamphere Road / Braman Road; and
- Rope Ferry Road (Route 156) at Great Neck Road (Route 213) / Avery Lane.

Turning movement counts were made during the weekday morning (AM) and afternoon (PM) peak periods in March 2017 at each of the locations listed above.

Review of seasonal adjustment factors available from the Connecticut Department of Transportation indicate that March traffic volumes tend to be 10% below the average traffic volumes in southeastern Connecticut. To account for this variation, the existing counts were expanded by 10% prior to adjusting for general background growth. A design year of 2027 was chosen for this development and, to account for general background growth, the 2017 Seasonally Adjusted Volumes were expanded by 2% per year for 10 years.

Capacity analyses for the 2027 No Build (existing) Condition were conducted for the study intersections in the vicinity of the Site using the Synchro Professional Software, version 9.1, according to the methods described in the 2010 *Highway Capacity Manual*, published by the Transportation Research Board.







The analyses indicate that under existing conditions, each of the signalized intersections will operate at a Level of Service (LOS) C or better throughout the day for the 2027 No-Build Conditions. The analyses also show that the side street approaches for the unsignalized intersections will operate at an LOS D or better for the 2027 No-Build Conditions.

[Bicycle/Pedestrian Access](#)

Pedestrian access to the Site is currently accomplished via sidewalks along Shore Road and Great Neck Road. The sidewalk along Shore Road is along the south side of the road, beginning at Magonk Point Road to the west of the Site, traveling east ending at Great Neck Road. There is a sidewalk along the west side of Great Neck Road, traveling north beginning at Shore Road. There is no sidewalk along the Seaside Park access drive.

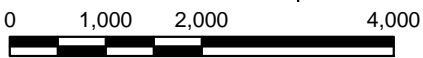
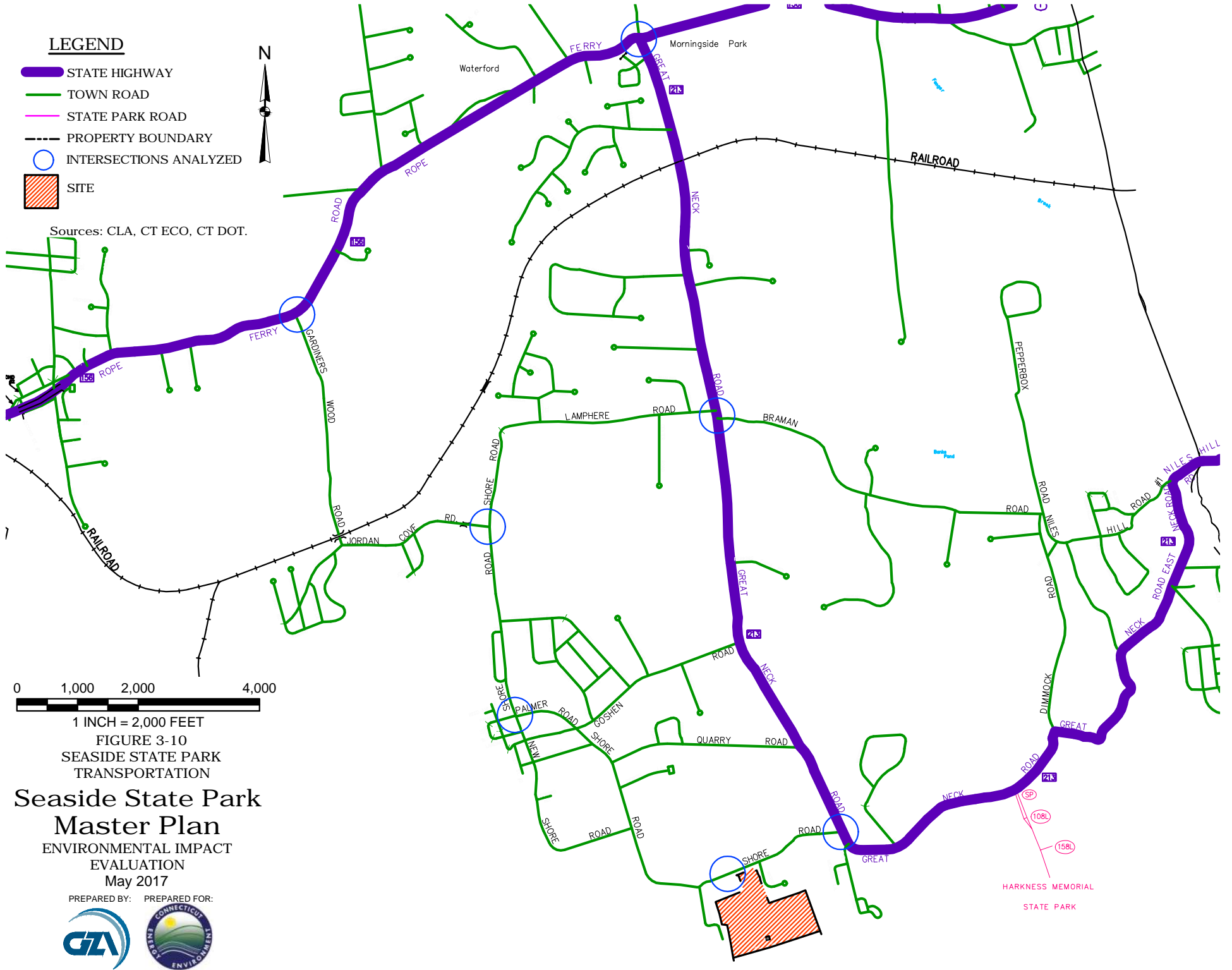
There are no dedicated bicycle facilities along the roadways in the immediate vicinity of the Site, nor is there a bike path or marked bicycle lane with the Site.

LEGEND

-  STATE HIGHWAY
-  TOWN ROAD
-  STATE PARK ROAD
-  PROPERTY BOUNDARY
-  INTERSECTIONS ANALYZED
-  SITE



Sources: CLA, CT ECO, CT DOT.



1 INCH = 2,000 FEET

FIGURE 3-10
SEASIDE STATE PARK
TRANSPORTATION

Seaside State Park Master Plan

ENVIRONMENTAL IMPACT
EVALUATION
May 2017

PREPARED BY: PREPARED FOR:



3.2.1.2 *Impacts*

For each of the proposed alternatives, the traffic impact of a proposed development was determined by calculating the number of new trips that would be expected to be generated by the development. The trip generation volumes represent the number of trips expected to be added to the roadway during the peak hours of the development. The anticipated site generated traffic volumes for each alternative were calculated using existing empirical data from the Institute of Transportation Engineers *Trip Generation, 9th Edition* (2012). This publication contains trip generation rates for each of the various types of parks and hotels. Reviewing the data, Land Use 310, “Hotel” is the use most closely matching the proposed hotel. This data used to generate these rates utilized studies of hotels which include such amenities as fitness centers, conference rooms and food services. Land Use 417 “Regional Park” represents the land use most closely matching the park amenities. These land uses were used for trip generation for each of the applicable alternatives.

Local travel patterns to the Site were determined based on the geographical location of the development and the local roadway network, as described in the full traffic impact report appended to this document. Analysis for each of the alternatives indicated that each of the intersections studied has sufficient capacity to accommodate each of the alternatives being considered without the need to construct any improvements. However, pedestrian and bicycle access to the Site and onsite is limited, and improving access for these users could be a consideration in the future.

Destination Park

The estimated ADT for the Destination Park alternative is 710 vehicle trips (355 vehicles per day entering and leaving the Site). This number indicates the total expected trips per day, with modeling indicating 14 vehicles entering and 10 vehicles exiting during the morning peak hour with 25 vehicles entering and 27 vehicles exiting the during the afternoon peak hour. These values account for peak hour estimates which are between 1.4 to 3.8% of the total ADT for context.

Under this alternative, each of the signalized intersections would operate at a Level of Service (LOS) C or better throughout the day for the 2027 Build Conditions, the same as for the Existing Condition in 2027. The analyses also show that the side street approaches for the unsignalized intersections would operate at an LOS C or better for the 2027 Build Conditions, except for the Lamphere Road approach to Great Neck Road which would operate at an LOS E during the afternoon peak hour, with a delay increase of only a few seconds. LOS E is considered acceptable for a side street approach to a heavily traveled collector road such as Great Neck Road. This impact is not considered to be significant and would not warrant any traffic/roadway improvements.

Ecological Park

The estimated ADT for the Ecological Park alternative is 148 vehicle trips (74 vehicles per day entering and leaving the Site), with 3 vehicles entering and 2 vehicles exiting during the morning peak hour with 4 vehicles entering and 5 vehicles exiting the during the afternoon peak hour.

Under this alternative, each of the signalized intersections would operate at a Level of Service (LOS) C or better throughout the day for the 2027 Build Conditions, the same as for existing conditions. The analyses also show that the side street approaches for the unsignalized

intersections would operate at an LOS D or better for the 2027 Build Conditions, the same as for existing conditions. As such, this alternative is expected to have only a minimal impact on traffic.

Passive Recreation Park

The estimated ADT, peak hour estimates, and LOS estimates would be the same as for the Ecological Park, with minimal impacts on traffic.

Hybrid Park

The estimated ADT for the Hybrid Park alternative is 1,040 vehicle trips (520 vehicles per day entering and leaving the Site), with 31 vehicles entering and 22 vehicles exiting during the morning peak hour with 38 vehicles entering and 40 vehicles exiting the during the afternoon peak hour.

The analyses indicate that each of the signalized intersections would operate at a Level of Service (LOS) C or better throughout the day for the 2027 Build Conditions, the same as for existing conditions. The analyses also show that the side street approaches for the unsignalized intersections would operate at an LOS C or better for the 2027 Build Conditions except for the Lamphere Road approach to Great Neck Road which would operate at an LOS E during the afternoon peak hour. A level of service E is considered acceptable for a side street approach to a heavily traveled collector road such as Great Neck Road and the delay change would only be a few seconds. This impact is not considered to be significant and would not warrant any traffic/roadway improvements.

3.2.2 Air Quality

3.2.2.1 Existing Conditions

Under the Federal Clean Air Act (CAA) and its associated amendments (42 USC 7401 et seq.), the federal government regulates and sets National Ambient Air Quality Standards (NAAQS) for six “criteria” air pollutants through the United States (U.S.) Environmental Protection Agency (EPA) by developing human health-based and/or environmentally based criteria which are used to set primary standards (human health based) and secondary standards (prevention of environmental and property damage based). The six criteria air pollutants are listed below:

- Nitrogen oxides (NO_x),
- Sulfur dioxide (SO₂),
- Lead (Pb),
- Carbon monoxide (CO),
- Particulate matter with a diameter of 10 microns or less (PM₁₀) and 2.5 microns or less (PM_{2.5}), and
- Ozone (O₃).

In accordance with CAA requirements, the State of Connecticut has adopted its own air quality standards that mimic the NAAQS and are administered by the DEEP. The DEEP Bureau of Air Management Ambient Air Monitoring Group monitors air quality to protect the public health and environment. In order to assess air quality, a network of monitoring stations is located throughout the State. According to the Connecticut 2016 Air Monitoring Network Plan, the current network consists of 15 stations, which monitor from one to several air pollutants. The two air monitoring

sites nearest to Seaside State Park are Fort Griswold (in Groton) to the east, and Hammonasset State Park (in Madison) to the west. The Fort Griswold site collects data for PM_{2.5} and ozone, while the Hammonasset State Park site collects data for ozone.

Areas of the State are designated as “attainment” or “non-attainment” for a particular criterion pollutant based on the monitoring data. Attainment areas are those which show no exceedances of the primary or secondary air quality standards.

According to the EPA *GreenBook* website (2017), the entire State of Connecticut is in attainment for PM_{2.5}, SO₂, Pb, CO, and NO₂. However, much of the State of Connecticut, including the Site area, is designated as moderate nonattainment for 8-hour ozone, per the 2008 standard.

Under the Clean Air Amendments of 1990, each State was required to develop a Title V operating permit program to permit major sources of air pollution and other sources subject to federal Clean Air Act requirements. As of March 2017, the only listed source in Waterford was the Dominion Nuclear Connecticut, Incorporated Plant. The towns surrounding Waterford also had a few listed Title V permits identified.

Sources of air pollution in the area are derived from stationary sources and mobile sources.

Mobile Sources

Emissions from mobile sources, i.e., automobiles, principally include CO, nitrogen oxides - NO_x, and volatile organic compounds - VOCs. NO_x and VOCs are of concern because in hot, sunny weather they can contribute to the formation of ozone on a regional (mesoscale) basis. Therefore, these pollutants are typically most problematic in the summer and are related to the total Vehicle Miles Traveled (VMT) in the region.

Conversely, CO is most problematic in the winter, since CO emissions are highest when low temperatures favor the incomplete combustion of gasoline in vehicle engines. The formation of extended queues at stop signs and signalized intersections is a necessary condition for CO concentrations to exceed air quality standards. When cars idle in queue over a period of time, accelerate, and decelerate they produce emissions in excess of what would be generated if the cars were traveling in an uninterrupted or sporadically interrupted flow. The effects of CO are most concentrated immediately adjacent to traffic corridors and, therefore, are more appropriately considered on a local (microscale) basis.

Existing mobile sources of air pollution at the Site are limited due to traffic generated by current visitors to the Site on nearby residential roads. It is expected that during the summer months, traffic associated with nearby coastal recreational facilities may increase local traffic and increase mobile sources of air pollutants.

Stationary Sources

Currently, there are no stationary sources of air emissions generated on the Site. The last operational use of the facility was in 1997. Since that time, all stationary sources of air pollution have ceased. During its operation, there would have been air emissions related to combustion in furnaces/boilers for heating at each of the buildings and any emergency generators.

For new equipment which have potential emissions greater than 15 tons per year of any individual air pollutant (10 tons per year for any federal hazardous air pollutant, the equipment would require an air quality stationary source new source review (NSR) permit, unless it is able to meet an exemption or operates under one of DEEP's "permit by rule" regulations.

It is anticipated that certain alternatives may include diesel fuel powered emergency generators to provide backup power to the main hotel buildings. Depending on size, generators are subject to both State and federal standards regarding their operation and use, including restrictions on operating and testing hours and fuel types. It is anticipated that alternatives requiring generators would require meeting "permit by rule" requirements for generators under Section 22a-174-3b of the Connecticut General Statutes.

3.2.2.2 Impacts

Potential air quality impacts from with the various alternatives would be related to stationary sources associated with fuel burning equipment for heating of buildings and emergency generators and also associated with mobile sources related to vehicle traffic generated by the final selected use of the Site.

Destination Park

Potential air quality impacts related to the operation of this alternative would be related to both stationary sources for heating/cooling units for each of the buildings onsite under this alternative, as well as mobile sources related to vehicle trips to the Site associated with its development and use as a Destination Park. It is not anticipated that the equipment used for heating would exceed the thresholds to require new source review, but this would need to be assessed once design is underway, if this alternative is selected. If emergency generators would be used for the hotel buildings, it is likely that they would be of a size that they would need to meet the "permit by rule" requirements from the State and also follow all applicable State and federal regulations relative to their design and operation.

This alternative would result in more stationary and mobile emissions, as compared to the existing condition, as there is expected to be increased use and the onsite structures would be returned to an operational condition. The proposed Destination Park would be expected to utilize energy efficient equipment during facility operation to partially mitigate for increases in emissions.

Potential air quality impacts associated with this alternative would also occur as a result of construction activities. During construction, stationary source pollutants would be generated by the fuel burning equipment including any temporary generators and stationary construction equipment. Mobile sources of air pollution would be associated with operating construction vehicles such as excavators, bulldozers, dump trucks, and cranes. Construction-related air quality impacts can be caused by exhaust emissions from construction equipment and fugitive dust (e.g., wind-blown dust from the construction area), but would be temporary.

To mitigate these temporary construction-phase impacts, the Project would incorporate the following best management practices:

Construction work at the Site would adhere to the following measures and all applicable State and federal policies, to mitigate temporary air quality impacts during the construction period.

- All diesel-powered non-road construction equipment with engine horsepower ratings of 60 and above that are on the Project or are assigned to the contract for a period in excess of 30 consecutive calendar days shall be retrofitted with emission control devices (oxidation catalysts, or similar retrofit equipment control technology);
- All motor vehicles and/or construction equipment (both on-highway and non-road) shall comply with all pertinent State and federal regulations relative to exhaust emission controls and safety;
- Idling of delivery and/or dump trucks or other diesel powered equipment shall be limited to three (3) minutes during non-active use in accordance with RCSA (Regulations of Connecticut State Agencies) Section 22a-174- 18(b)(3)(C);
- All work shall be conducted to ensure that harmful effects are not caused to adjacent sensitive receptors such as residences. Diesel engines shall be located away from fresh air intakes, air conditioners, and windows, except for when in motion; and,
- Control of fugitive dust through best management practices (BMPs) shall be required. In addition to using vegetative cover over large areas of disturbed earth, water can be effective as a control measure against fugitive dust on construction sites if applied often enough. In necessary, solid fencing tall enough to keep dust from migrating offsite could be applied.

Ecological Park

The Ecological Park would only retain the Renovated Garage as a Visitor Center for the park and the wastewater pump station which is operated by the Town and separate from this work. The Visitor Center would be the only heated space associated with this alternative and would represent only a minor increase in emissions for the Site as a stationary source. Increased park usership would be expected to increase the number of vehicle trips to the Site and would result in an increase in mobile source emissions.

During construction, as discussed previously, there would be temporary impacts to air quality, related to the demolition of structures and grading and redevelopment of the Site into a park setting. Proposed mitigation for construction would be the same as previously identified.

Passive Recreation Park

It is anticipated that the impacts associated with the Passive Recreation Park alternative would be similar in nature to the Ecological Park alternative, as neither would have hotel/resort development requiring heating/combustion sources, and both would be anticipated to have similar numbers of daily park visitors and vehicle trips generated. This alternative would not have the Visitor Center proposed under the Ecological Park and as such would not have any stationary sources associated with the Project. The primary potential source of air quality impacts would be from mobile sources due to park usership.

During construction, as discussed previously, there would be temporary impacts to air quality, related to the demolition of structures and grading and redevelopment of the Site into a park setting. Proposed mitigation for construction would be the same as previously identified.

Hybrid Park

Impacts associated with this alternative would be expected to be similar to those described in the Destination Park alternative. As compared to that alternative, there would be an additional

stationary source in the form of an additional lodging building and additional mobile sources associated with the additional hotel rooms and spa facility which are part of this alternative.

During construction, as discussed previously, there would be temporary impacts to air quality, related to the creation of the Hybrid Park elements and new building construction. Proposed mitigation for construction would be the same as previously identified.

3.2.3 Noise

Several factors affect the perception of noise by the people who are exposed to it. These include the actual noise level, the frequencies involved, and the duration of exposure. The noise heard by humans is the result of a sound source inducing vibration in the air. The vibration produces alternating bands of varying densities in the air, spreading outward from the source in the same way as ripples do on water. The result is a fluctuation from the normal atmosphere pressure, or sound waves. The ear is extremely sensitive to sound pressure fluctuations, which are converted into auditory sensations. The loudness of a noise source is indicated by the amplitude of the sound pressure. The amplitude is a measure of the difference between atmosphere pressure (in the absence of noise) and the total pressure (with noise present).

The unit of sound pressure is the decibel (dB). The decibel scale is a logarithmic scale. A logarithmic scale is used due to the intensity of the range of sound; it is convenient to compress the scale to encompass all sounds that need to be measured. The human ear has an extremely wide range of response to sound amplitude. A method for weighting the frequency spectrum to more closely represent how humans hear and perceive noise is called A-weighting. This method gives less weight (or emphasis) to both the high and low frequency ends of the spectra where human response is poor. A-weighting is widely accepted as an appropriate measure to describe the effects of environmental noise. When a noise level is so weighted, its level would be written as dBA.

In addition to sound pressure and frequency, the type of sound is important when considering human impacts, as certain types of sounds may be more acceptable than others. Human annoyance based on noise depends on factors such as personal sensitivity to noise and the source, number of occurrences, and time of day.

Federal noise regulations include the Noise Pollution Act of 1972, which placed the primary responsibility for noise control with State and local governments. At the State level, the Noise Pollution Control Statutes in Chapter 442 identify the limits of sound that may be emitted from a specific site and what activities are excluded or exempt. Examples of excluded/exempt noise sources are mobile sources, safety alarms, construction and demolition equipment, and sporting events. Noise zones are classified as Zone A, B, or C, as described below:

- Zone A includes residential areas, hotels, cultural activities, entertainment and recreational activities, historic sites, and undeveloped land.
- Zone B includes transportation, communication, and utilities, parking areas, trade, various business services, cultural, recreational, and entertainment, amusement areas, reports, parks, and water areas.
- Zone C includes manufacturing, warehousing, military establishments, mining, and other services.

Resorts, parks, and certain recreation facilities are identified by State noise regulations (RCSA 22a-69-1 through 22a-69-7.4) as Class B emitters, while hotels are identified as Class A emitters. Based on the proposed use, it would appear that Class B would be the appropriate Class. The standard for Class A or Class B emitters to Class A receptors (such as residences) at the property boundary is 55 dBA during daytime hours and 45 dBA during nighttime hours, which is defined by the State of Connecticut regulations cited above as 10 PM to 7 AM.

The Town of Waterford maintains its own noise ordinance, which is based on the State regulations. The Town standard for Class A or Class B emitters to Class A receptors (such as residences) at the property boundary is 55 dBA during daytime hours and 45 dBA during nighttime hours, where the Town of Waterford defines daytime hours as the hours between 7AM and 9PM Monday through Saturday, and the hours between 9AM and 9PM on Sunday.

3.2.3.1 *Existing Conditions*

The past use of the facility would have been designated as Class A, but the current State Park use would be considered Class B. The surrounding residential neighborhood would be designated as Class A by the Town and State based on land use and zoning.

Noise currently generated at the Site is currently limited to human voices, pet noise, and potentially individual music devices (radios, etc.) at the Site from park users. Other noise sources on the Site are natural and include noise generated by waves crashing and onsite fauna. Boats along Long Island Sound also generate noise that is likely perceptible at the Site.

3.2.3.2 *Impacts*

Noise impacts associated with Master Plan development would be related to both the operation of the developed Site and to the construction of the selected alternative, as described under each alternative below.

Destination Park

Noise associated with the operation of this alternative would include noise related to the operation of the hotel, conference facilities, and restaurant(s).

Noise associated with hotel facility operation would be an increase over the existing condition, as there are currently no occupied buildings on the Site. Noise associated with the buildings may include noise from heating/cooling systems, noise from facility events or guests outside on patio/lawn areas, noise from entering/departing guests using restaurant or conference facilities, and additional vehicle noise related to the additional parking areas and trip generation. It is anticipated that most activity related to the hotel, restaurant, and conference space would occur indoors, thus minimizing noise emitted exterior to the buildings. Heating/cooling systems would be designed to be efficient and be shielded to minimize noise leaving the Site.

Some events associated with the hotel and conference space may be held outdoors seasonally on the front patio of the proposed Main Lodge or on outdoor lawn areas. To minimize noise impacts associated with such events, it is anticipated that there would be noise limits and time-of-day

constraints imposed in order to comply with the State noise standards and to mitigate for any potential impacts to adjacent residences during nighttime hours.

Noise associated with this alternative would also be related to daytime daily use of the park and onsite facilities and would be expected to be an increase over the existing condition, due to an expected increase in park usership. Noise would be anticipated to be related to human voices, pet noise, and potentially individual music playing devices (radios, etc.) at the Site during daytime hours when the park is open, as well as from vehicles arriving to the parking areas onsite.

Construction of all alternatives beyond the No Build would result in temporary construction phase noise associated with construction and demolition equipment needed to construct the selected alternative. Construction noise is exempt under the State noise regulations; however, as discussed elsewhere in this EIE, vehicle idling is limited to three minutes, which would prohibit prolonged idling and reduce construction phase noise impacts. Construction would be expected to proceed during normal daylight hours, limiting nighttime impacts to adjacent residences during construction.

Ecological Park

Noise associated with this alternative would be related to daytime daily use of the park and onsite facilities and would be expected to increase over the existing condition, due to an expected increase in park usership. Noise would be anticipated to be related to human voices, pet noise, and potentially individual music playing devices (radios, etc.) at the Site during daytime hours when the park is open, as well as from vehicles arriving to the parking areas onsite. Noise impacts to abutters would be mitigated by restricting park usage to daylight hours, thereby limiting noise during nighttime hours to natural conditions.

Temporary construction phase noise impacts would be as discussed above for the Destination Park alternative.

Passive Recreation Park

Noise associated with this alternative would be similar in nature to the Ecological Park alternative and would be expected to increase over the existing condition, due to an expected increase in park usership. Mitigation would be the same as for the Ecological Park alternative.

Temporary construction phase noise impacts would be as discussed above for the Destination Park alternative.

Hybrid Park

Noise associated with the operation of this alternative would be similar in nature to the Destination Park alternative. The addition of more hotel rooms in a new building with associated parking, and the addition of a new spa facility could potentially cause a slight increase in noise, as compared to the Destination Park alternative. Mitigation would be similar to that stated for the Destination Park.

Temporary construction phase noise impacts would be as discussed above for the Destination Park alternative.

3.2.4 Light and Shadow

3.2.4.1 *Existing Conditions*

The Site has been mostly dormant since its last operational use in 1997, save for daytime park users. Nighttime illumination in the areas from the east, west, and north are typical of suburban/rural residential areas. There is a considerable vegetative buffer along the northern and eastern perimeters of the Site, reducing light trespass, where light trespass is the light that illuminates surfaces beyond the property boundary. As most of the trees along this perimeter are deciduous, there may be more light trespass in the winter months, when the trees are barren of leaves. Little to no light illuminates the Site from Long Island Sound.

3.2.4.2 *Impacts*

Destination Park

The Site's restored buildings would be fitted with new interior and exterior lighting. Interior lighting would not be expected to result in significant light trespass or increased sky glow in the area. Exterior lighting would likely consist of wall-mounted or free standing light-emitting diode (LED) lights.

For security and safety reasons, the parking lots would remain illuminated throughout the nighttime hours, which could result in some light trespass and/or sky glow. As mitigation, downward directed fixtures would be used to limit lighting impacts from the parking lots. Exterior lights would likely be on a timer to conserve energy during the day.

Ecological Park

The State-owned and operated Ecological Park would only be open from dawn until dusk. The new parking lot and Visitor Center would also likely be closed after dusk, and therefore it is assumed that no additional light trespass or sky glow would result from the Site, beyond illumination needed for safety and security purposes.

Passive Recreation Park

The State-owned and operated Passive Park would only be open from dawn until dusk. The new parking lot with kiosk would also likely be closed after dusk, and therefore it is assumed that no additional light trespass or sky glow would result from the Site, beyond illumination needed for safety and security purposes.

Hybrid Park

The Site's restored buildings, and the proposed additional 15,000 SF lodging building would be fitted with new interior and exterior lighting. Interior lighting would not be expected to result in significant light trespass or increased sky glow in the area. Exterior lighting would likely consist of wall-mounted or free standing LED lights.

For security and safety reasons, the parking lots would remain illuminated throughout the nighttime hours, which could result in some light trespass and/or sky glow. As mitigation, downward directed fixtures would be used to limit lighting impacts from the parking lots. Exterior lights would likely be on a timer to conserve energy during the day.

3.2.5 Water Supply

3.2.5.1 Existing Conditions

Historic Context

According to GEI (1998) and DTC (2015), municipal water service was initially provided to the Site in the 1930s. However, the original water main reportedly did not have either the capacity or the pressure to provide both potable water and fire suppression services to the entire Site. In response to this problem, a water pump station and a water tower with a reported capacity of one million gallons were constructed at the Site in the mid-1930s (GEI, 1998). The water tower was subsequently removed in the late 1980s after improvements to the municipal water supply system eliminated the need for the additional storage. However, the water pump station is still located on the northern portion of the Site. Separate domestic and fire service lines leave the water pump station and provide service to the Site.

After operations at the Site were ended, the domestic water service was shut off at the Shore Road, but the fire system was left on (DTC, 2015). Reportedly, several water lines froze in at least one of the buildings, and flooded the basement(s), after which point the fire service was also reportedly shut off at the pump station.

Historic plans also show sprinkler systems in the lawn in front of the former Main Hospital Building and showers near the seawall on the southeastern portion of the Site (Lockwood, Kessler, & Bartlett, 1957), as well as a saltwater intake from Long Island Sound to the former Main Hospital Building. The saltwater was reportedly used by patients for therapeutic bathing.

Existing Site Conditions

According to existing and historic plans of the Site, water lines enter the Site from Shore Road and are directed to the pump station, then down the Site's main access driveway, where the service lines split off to the east or west to the individual structures and facilities. Six-inch domestic and 8-inch fire lines run along the east side of the access drive. Fire hydrants are present along the main access drive and throughout the Site. The domestic lines servicing the individual buildings are laterals of varying size. Figure 3-11 depicts the existing permanent utility infrastructure onsite, based on available information.

A 2015 report by DTC indicated that the water lines were at the end of their life cycle and would need replacement. As mentioned in the previous section, water service (fire and domestic) is reported to have been shut off at the pump station, as there is currently no permanent water demand at the Site. However, a temporary water line was established at the Main Hospital Building to facilitate asbestos abatement. This temporary water line is not depicted on the figures in this document, which show only permanent utilities.

Discussions with the Assistant Director of the Waterford Utility Commission (2017) indicated that both the fire and potable water lines, as well as the historic fire hydrants, would need to be replaced onsite and that there are known issues with leaks in the onsite potable water and fire supply system associated with the former Seaside development.

The Site's potable/fire suppression water supply is provided by the City of New London, while the Waterford Utility Commission owns the municipal infrastructure in town.

LEGEND

- EXISTING WATER MAIN
- EXISTING TOWN WATER MAIN
- EXISTING STORM DRAIN
- EXISTING ELECTRIC
- - - EXISTING STEAM LINE
- EXISTING SAN. SEWER (GRAVITY MAIN)
- EXISTING TOWN SAN. SEWER (GRAVITY MAIN)
- EXISTING TOWN SAN. SEWER (FORCE MAIN)
- - - PROPERTY BOUNDARY

Sources: CLA, CT ECO, TOWN OF WATERFORD

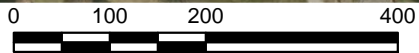


NOTES:

1. CONDITION AND EXTENT OF EXISTING INFRASTRUCTURE UNKNOWN.
2. SOME SAN. SEWER LINES HAVE BEEN RECONFIGURED AFTER TREATMENT PLANT REMOVED. (RECONFIGURATION NOT SHOWN).
3. ALL LOCATIONS APPROXIMATE.



FORMER WASTEWATER TREATMENT PLANT AREA (NO LONGER USED)



1 INCH = 200 FEET

FIGURE 3-11
EXISTING UTILITIES

**Seaside State Park
Master Plan**
ENVIRONMENTAL IMPACT
EVALUATION
May 2017

PREPARED BY: PREPARED FOR:



The Utility Commission is also in charge of delivery. According to the Director of Public Utilities for the City of New London (2017), New London maintains the Waterford system, but Waterford is responsible for capital improvements to their system, beyond maintenance. The Assistant Director of the Waterford Utility Commission (2017) confirmed that the old pump house near Shore Road is not municipally owned or maintained and is only associated with the Seaside property. He indicated that there are no known issues with the municipal service in the street along Shore Road.

The City of New London services approximately 45,000 customers in New London, Waterford, and East Lyme, through 14,000 water services (City of New London Public Utilities, 2016). The water supply is provided by five service reservoirs (City of New London, 2017), with the terminal reservoir at Lake Konomoc providing the bulk of the reservoir storage, with over 1.2 billion gallons of storage (City of New London Public Utilities, 2016).

Water from the Lake Konomoc system is treated at a filtration plant with a capacity of 10 million gallons per day (MGD) (City of New London, 2017). The treatment plant is managed by Veolia Water (City of New London, 2017) and employs coagulation, flocculation, sedimentation, and carbon filtration, with lime for pH adjustment, sodium hypochlorite for disinfection, fluoride for dental benefits, and phosphate for corrosion control (City of New London Public Utilities, 2016). The average daily demand at the water treatment plant has been 5.5 MGD over the past five years, while the safe yield of the system (the amount of water that can be safely withdrawn in a drought year) is 6.4 MGD (City of New London, 2017). The City of New London Director of Public Utilities (2017) indicated that the safe yield will likely be increased in an upcoming update to their water supply plan due to improvements the City has made.

The State of Connecticut (through DEEP and the Department of Public Health (DPH)) imposes standards on all public water suppliers in order to guarantee safe water consumption for all residents. The State requires suppliers to meet adequate margins of safety (MOS) between average water consumption and the safe yield of the system. An MOS is calculated by dividing the average daily supply by the average daily demand. State standards conclude that an adequate MOS exists when the safe yield is more than 125 percent of the average consumption, or the average consumption is less than 80 percent of the safe yield. The current MOS is 0.9 MGD, according to the City in 2017, which is approximately 85% of the safe yield. The new water supply plan will likely modify this value.

The water distribution system consists of 210 miles of water main, with four pump stations and six water storage tanks with a capacity of 15 million gallons (City of New London Public Utilities, 2016).

3.2.5.2 *Impacts*

The requirements of the individual alternatives are discussed separately below, but all alternatives beyond the No Build would have some potential impacts in common.

Due to the age of the existing system, it is assumed that any alternative which requires water supply to the Site would require replacement of the existing system, resulting in temporary construction impacts. The degree of renovation/rebuild necessary would vary by alternative. The Town's

Utility Commission (2017) indicated that the Site would need to be reviewed to determine if the water service would need to be looped to one of the adjacent streets.

Water demand (fire and domestic) would differ based on the projected visitors/hotel guests and usage types at the Site. Water use estimates are derived from estimated wastewater generation rates with an added factor of 10% to account for consumption, system losses, and other use. Based on wastewater generation rates discussed later in this document, water use rates were estimated for each alternative. As with the wastewater estimates, these water demand estimates are conceptual only, and based on the limited information available at the time of this study. Actual water demand may be appreciably lower, due to water reuse and conservation techniques and more detailed estimation. Rough estimates of fire flows and irrigation needs were also generated, assuming two acres would be irrigated for the Destination Park and three acres for the Hybrid Park. No irrigation was assumed for the other two alternatives.

The City of New London Director of Public Utilities (2017) indicated that the system should be able to provide sufficient water for any of the alternatives, based on the preliminary demand estimates, but that the local pipe network would need to be reviewed for any alternative to determine if local pipe sizes can accommodate the demand.

All water services would be installed in accordance with all applicable regulations, codes, and standards for all alternatives.

For the Destination and Hybrid Park alternatives, Green Lodging Certification would be sought. This program is a self-certification program based on accumulating points associated with environmental practices, including practices related to water conservation. Water conservation measures would help mitigate for increases in water demand associated with site development.

Destination Park

The Destination Park alternative would result in the need to maintain the water pump station and fire service to the Site, as well as water service to the proposed Visitor Center, Main Lodge, Auxiliary Lodge, and former Duplex House and Superintendent's Residence, which would be used as lodging facilities.

It is anticipated that approximately 25,000 gallons per day (gpd) would be required for this alternative for domestic use and irrigation, based on preliminary conceptual order of magnitude estimates. It is estimated that approximately 640 gallons per minute (gpm) would be required for fire flows at the Site under this alternative.

Ecological Park

The Ecological Park alternative would still require fire and domestic service to the Site, but would only require domestic service for daily visitors and employees at the Visitor Center. The water pump station may no longer be needed if this alternative is selected.

It is anticipated that approximately 600 gpd would be required for this alternative, assuming that no irrigation is to be used onsite and that the only demand is for the Visitor Center. It is estimated that approximately 380 gpm would be required for fire flows at the Site under this alternative.

Passive Recreation Park

It is assumed that there would be no water demand associated with domestic supply for this alternative, since there would be no structures or sanitary facilities and no irrigation is assumed to be needed. The water pump station would no longer be needed if this alternative is selected. It is estimated that approximately 380 gpm would be required for fire flows at the Site under this alternative.

Hybrid Park

The Hybrid Park alternative would result in the need to maintain the water pump station, as well as water service to the proposed Visitor Center, Main Lodge, Auxiliary Lodge, the new proposed lodging building, and former Duplex House and Superintendent's Residence, which would be used as vacation rentals.

It is anticipated that approximately 35,000 gpd might be required for this alternative. It is estimated that approximately 720 gpm would be required for fire flows at the Site under this alternative.

3.2.6 Wastewater

3.2.6.1 Existing Conditions

Historic Context

Before municipal sanitary sewer service was available to the Site, the facility operated its own wastewater collection and treatment system, with a discharge of treated effluent to Long Island Sound. A 1939 State Water Commission plan of the Site entitled "Seaside Sanitarium, Waterford, Conn. Location of Buildings, Water, Sewer, Power, and Electric Lines" shows a sewage pumping station in the vicinity of the existing pump station location, which directed wastewater flows to an onsite area labeled as "Sewage Treatment Plant". Outflows from the treatment plant discharged to Long Island Sound via an 8-inch cast iron pipe, along the alignment of an existing groin. Based on 1939 plans from the State Water Commission, it appears that stormwater runoff from the Duplex House and Superintendent's Residence were connected to the outflow sanitary sewer line before it discharged to Long Island Sound. It is not known based on available mapping if these stormwater drains are still connected to or still discharge through the former sanitary sewer line.

The initial onsite wastewater treatment system reportedly utilized the former Greenhouse Building as a sewage drying bed until a private onsite wastewater treatment building was constructed in 1971 (GEI, 1998), at which time the sludge beds were reportedly removed and materials disposed of at the Waterford Municipal Landfill. The former onsite treatment system was reported to contain one 1,000-gallon solids settling tank along the east side of the former treatment plant building, and one 1,500-gallon grease trap, located to the east of the sewage pump station, both of which were reportedly cleaned out periodically with wastes discharged at local municipal treatment facilities (GEI, 1998). There were also reportedly two onsite septic systems, utilized in the 1980s when temporary office trailers were located onsite, one near the former incinerator location and one near the former Maintenance Building No. 1. The systems were reported to be abandoned in place when the temporary offices were removed from the Site (GEI, 1998).

The system also included a private sewage pumping station that was constructed in 1934 (GEI, 1998). The pumping station collected wastewater from the former Main Hospital Building, the

former Employee Residence, Duplex House, and Superintendent's Residence and directed it to the treatment plant, according to historic plans from 1939 and 1957. The Renovated Garage building discharged to the plant via gravity. This system operated under a National Pollutant Discharge Elimination System (NPDES) permit (Permit No. CT0100951) until it was decommissioned in 1990s (GEI, 1998).

In August 1985, an Order of Conditions (Order No. 4140) was issued against the onsite wastewater treatment system by DEP, which required the elimination of wastewater effluent discharge to Long Island Sound and connection to a municipal system. The wastewater collection system was connected to the newly constructed Town of Waterford municipal system along Shore Road in September 1989, and the onsite treatment system was subsequently decommissioned in the early 1990s (GEI, 1998).

Circa 1987, the Town of Waterford constructed a new municipal wastewater pump station to replace the existing sewage pumping station on the Site and to accept waste from adjoining residences (DTC, 2015). The Site's sewer discharges were connected to the municipal system at this time and the lines entering the former pump station were connected to the new municipal pump station. The former pump station was demolished.

The wastewater pump station is maintained by the Town of Waterford and is a single-story building with components set below ground. Municipal sanitary sewer lines cross the Site along 20-ft wide Town sewer easements. These easements were created around the time of the pump station installation in order to service the Shore Road and Great Neck Road neighborhoods (Wright-Pierce, undated) whose sewage requires pumping in order to be discharged to the collection system on Shore Road. Discharges from the municipal wastewater pump station are directed via an 8-inch force main which traverses the easement from east to the west and continues northward along Magonk Point Road to Shore Road (DTC, 2015).

A study conducted by Wright-Pierce in 2002 and 2003 concluded that there was inflow and/or rain-induced infiltration in the Seaside private wastewater collection system. The original Seaside collection system connected to the buildings onsite, which was still intact, is constructed primarily of vitrified clay pipe (VCP), which is known to have issues with leakage, especially over time.

Existing Site Conditions

There is no sanitary wastewater currently being generated at the Site. Existing historic VCP sewer lines from the former Seaside development currently provide the means of collecting Seaside's wastewater from the existing buildings and direct flows to the Town's municipal wastewater pump station (Photo 3-11), where it is discharged via the aforementioned force main to the west offsite. A municipal gravity sewer main traverses the Site from northeast to southwest (Figure 3-11), directing wastewater to the pump station from the surrounding neighborhood to the northwest in an easement. There is also a gravity main along the primary access road to the Site within an easement, which connects to the pump station. On the Site, there are sanitary sewer manholes which are elevated above the existing surrounding grade, located along the sewer easement, associated with a municipal gravity sewer line that traverses the easement from west to east, directing wastewater from the neighborhood on the west to the onsite pump station. The force main conveys wastewater from the pump station to the west in the same easement, as described previously. The Assistant Director of the Waterford Utility Commission (2017) indicated that the

manholes are raised (Photo 3-12) in accordance with the Town standard, which requires sewer manholes located off of a paved roadway to be elevated 18 inches for ease of location and to prevent inflow to the manholes, which are vented.

As discussed in the section above, the Site is serviced by the Town of Waterford's municipal sanitary sewer system. The Town owns and operates its own wastewater collection system and conveyances, including a wastewater pump station, force main, and gravity mains in easements on the Site. The Assistant Director of the Waterford Utility Commission (2017) indicated that the pump station is "critical infrastructure" for the Town and that the Town needs to maintain full, unrestricted access to the pump station and easement at all times, in order to maintain the system. The maintenance division is onsite daily to check the pump station system and provide regular maintenance. The Assistant Director also indicated that the Town system which crosses the Site and pump station are in good condition, but that all sanitary sewer structures and laterals associated with Seaside would need to be replaced, due to age and condition.



Photo 3-11. Municipal wastewater pump station

Sewage treatment for discharges from the Site would be provided by the City of New London through agreement. The City of New London has a regional wastewater treatment plant which services Waterford, New London, and East Lyme. Since 2008, Veolia Water has operated and maintained this plant and according to the City of New London (2017), the wastewater treatment plant treats sewage for approximately 60,000 customers. The regional wastewater treatment plant was originally constructed in the 1930s as a primary treatment plant, expanded to a secondary plant, and upgraded twice in the 1990s. The wastewater treatment plant employs anoxic denitrification. The treatment plant has a design capacity of 10.0 MGD, with an average daily flow of 6 MGD (City of New London, 2017).



Photo 3-12. Elevated sewer manhole along easement

According to the Director of Public Utilities (City of New London, 2017), the regional wastewater collection system consists of approximately 200 miles of sanitary sewer lines and six pump stations. The Town of Waterford maintains the wastewater collection system within its borders. The City of New London receives a bulk quantity of waste from the Town's system and does not interact with their collection system (City of New London, 2017).

3.2.6.2 *Impacts*

Due to the age of the existing system, it is assumed that any alternative which requires wastewater to be removed from the Site would require replacement of the existing Seaside system, resulting in temporary construction impacts. The degree of renovation/rebuild necessary would vary by alternative. The Town wastewater system (gravity mains, force main, and pump station) would need to remain in place and operational for any alternative.

In order to compare alternatives based on their wastewater demands and to review whether the proposed alternatives would be able to be served by the existing regional wastewater system, conceptual level wastewater estimates were developed for each alternative. These estimates are preliminary, order of magnitude estimates only, based on the limited conceptual information available at this time, and could vary widely from the actual wastewater demand calculated as part of the design process, which would consider more accurate and detailed information and factor in water conservation measures and management practices.

For consistency, the standard wastewater generation rates tabulated below were used for the various alternatives, taken from Metcalf & Eddy (2003) and from the International Building Code (IBC) (2015):

Table 3-11. Standard Wastewater Generation Rates

Source	Flowrate (gal/guest/day)
Hotel (guest)	70
Hotel (employee)	10
Conference Center	8
Restaurant	8
Pool/Fitness/Spa	10
Visitor Center	4

For purposes of estimation, two guests per room at 100% occupancy was assumed. Conference center and restaurant rates were estimated from IBC square foot estimates by use type. For the visitor center, 50,000 visitors per year were assumed in order to generate a daily use rate. Fitness/pool rates assumed that approximately ¼ of guests utilized the facility, with 20 additional guests per day assumed for the spa.

According to Town data provided by the Assistant Director of the Utility Commission (2017), the pump station is currently operating at about 24% of capacity and would be able to accept additional flow from redevelopment/operation of Seaside. Needed improvements to the pump station include safety upgrades and the potential addition of grinder systems. It was also indicated that the façade of the pump station could be improved/modified potentially to be more aesthetically pleasing, in coordination with the Town. Full operation of the system and unimpeded 24-hour access to the pump station and easement during construction and operation must be maintained during construction. Any grading or modifications for alternatives in the area of the sanitary sewer lines and pump station (Figure 3-11) would need to be reviewed for potential impacts to the sanitary sewer system and such impacts avoided. The Town indicated that the manholes are currently raised and vented, but that they could consider potential alternatives, such as watertight frames and covers, provided that adequate venting was provided by stacks, or potentially setting the manholes at grade, provided that considerations for inflow and infiltration (I/I) and structure location were included as mitigation and approved by the Town. This would apply to any alternative.

According to the Director of Public Utilities for New London (2017), the Town of Waterford has sufficient additional capacity in their contract with New London to accept sanitary sewage from any of the proposed redevelopment alternatives for Seaside.

Destination Park

Destination Park wastewater generation estimates were based on 63 hotel rooms, 6,000 SF conference space, 8,000 SF restaurant space, a visitor center, and a fitness center/pool. Based on standard generation rates and limited conceptual information available regarding the alternative, the typical wastewater generation for the alternative was estimated at approximately 16,000 gpd. It is assumed that this alternative would require new wastewater lines and manholes most likely, based on the age of the existing system.

LEGEND

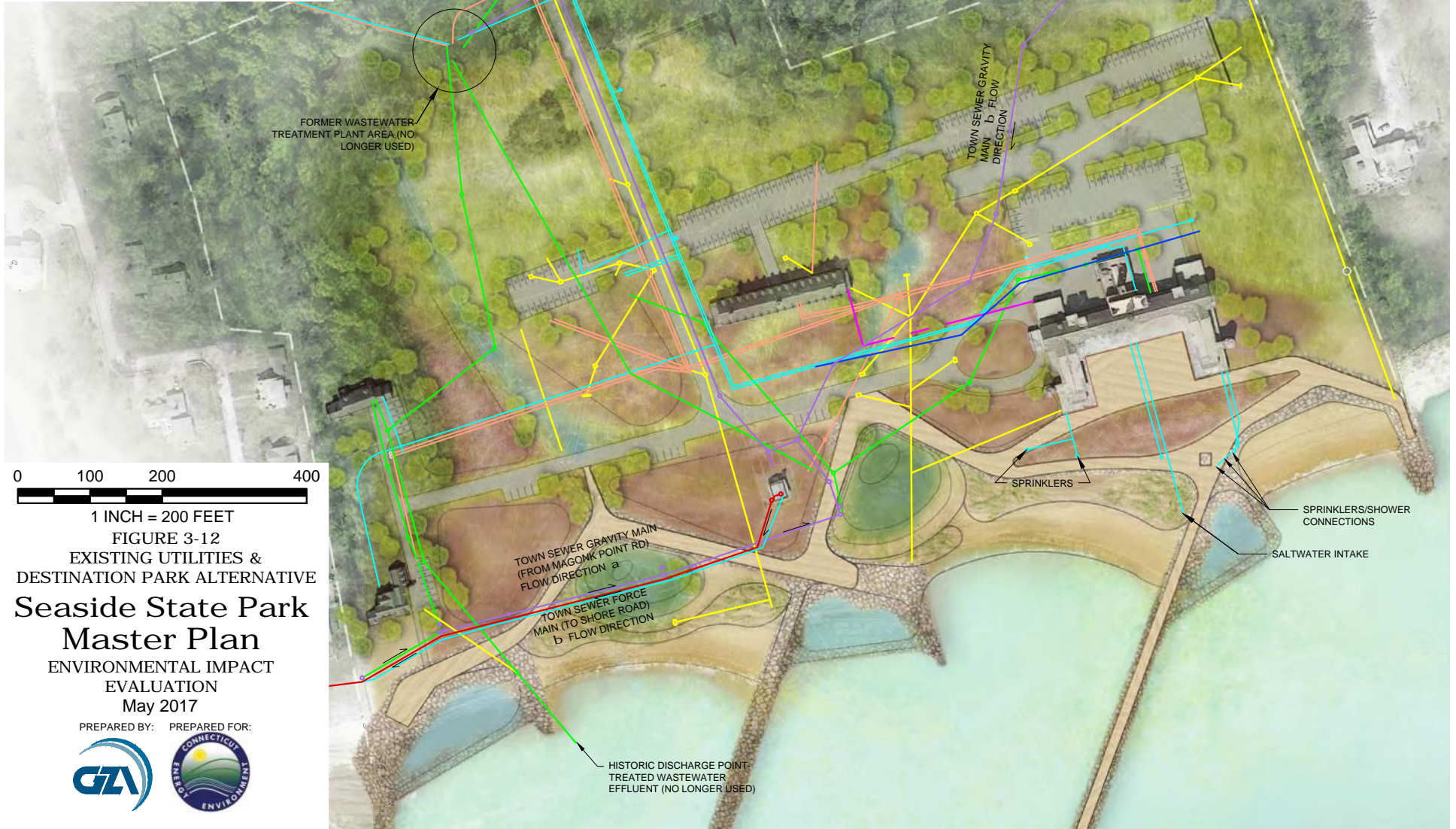
- EXISTING WATER MAIN
- EXISTING TOWN WATER MAIN
- EXISTING STORM DRAIN
- EXISTING ELECTRIC
- EXISTING STEAM LINE
- EXISTING SAN. SEWER (GRAVITY MAIN)
- EXISTING TOWN SAN. SEWER (GRAVITY MAIN)
- EXISTING TOWN SAN. SEWER (FORCE MAIN)

Sources: Sasaki, CLA, TOWN OF WATERFORD.



NOTES:

1. CONDITION AND EXTENT OF EXISTING INFRASTRUCTURE UNKNOWN.
2. SOME SAN. SEWER LINES HAVE BEEN RECONFIGURED AFTER TREATMENT PLANT REMOVED. (RECONFIGURATION NOT SHOWN).
3. ALL LOCATIONS APPROXIMATE.



FORMER WASTEWATER TREATMENT PLANT AREA (NO LONGER USED)

TOWN SEWER GRAVITY MAIN 'b' FLOW DIRECTION

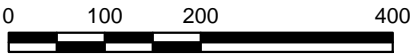
SPRINKLERS

SPRINKLERS/SHOWER CONNECTIONS
SALTWATER INTAKE

TOWN SEWER GRAVITY MAIN (FROM MAGOMK POINT RD) FLOW DIRECTION 'a'

TOWN SEWER FORCE MAIN (TO SHORE ROAD) 'b' FLOW DIRECTION

HISTORIC DISCHARGE POINT-TREATED WASTEWATER EFFLUENT (NO LONGER USED)



1 INCH = 200 FEET

FIGURE 3-12
EXISTING UTILITIES & DESTINATION PARK ALTERNATIVE
Seaside State Park Master Plan
ENVIRONMENTAL IMPACT EVALUATION
May 2017

PREPARED BY: PREPARED FOR:



The Destination Park alternative would involve significant grading and redevelopment along the waterfront area, where the existing Town sewer force main is located and also shows parking lot and access work along the force main alignment. Any development along this area would need to be coordinated with the Town and to consider and be graded in such a manner so as not to conflict with this series of sewer mains and manholes and to make sure the system was protected during construction (Figure 3-12). The sewer manholes are currently above grade in several locations and the alignment is within an easement to the Town. Alternately, the pump station and force main alignment would need to be moved and a new easement granted, but this would be costly and the current force main would need to remain operational throughout. This alternative also depicts removal of the end of the access road to the wastewater pump station. This would need to be coordinated with the Town, as these pavements may be critical for access to the pump station.

Ecological Park

Based on the proposed estimated usership of the park on a daily basis and standard wastewater generation rates for visitor centers, a conceptual estimate of approximately 550 gpd was developed for this alternative. It is assumed that this alternative, like the others, would likely require new wastewater lines and manholes, based on the age of the existing system.

The Ecological Park alternative would require removal and/or capping of existing sewer lines associated with the former Seaside development. This alternative includes seawall removal. Because of the proximity of the Town's sewer force main and pump station to the waterfront area, there would be an increase in shoreline erosion that could potentially, over time, impact the sewer force main and pump station. See Section 3.1.2 and Appendix D for the shoreline analysis. Also, proposed grading and earthwork would need to be reviewed with the Town to determine if there would be conflicts with the location of the existing force main system and to determine if additional protection would be required during construction (Figure 3-13).

Passive Recreation Park

The Passive Recreation Park does not propose any structures to remain. As such, water fixtures or sanitary facilities and not anticipated with this alternative. As such, there would be no wastewater generation onsite for this alternative.

As with the Ecological Park alternative, this alternative would require removal and/or capping of existing sewer lines onsite associated with the former Seaside development and protection of the existing Town force main and pump station during construction. Grading would need to be considered for any potential conflicts with this system (Figure 3-14), as previously discussed. The seawall remains in this option, therefore the existing sewer force main would remain protected from wave action and coastal erosion.

Hybrid Park

Hybrid Park wastewater generation estimates were based on 100 hotel rooms, 6,000 SF conference space, 8,000 SF restaurant space, a visitor center, and a fitness center/pool/spa. Based on standard generation rates and limited conceptual information available regarding the alternative, the typical wastewater generation for the alternative was estimated at approximately 21,000 gpd. It is assumed that this alternative, like the others, would require new wastewater lines and manholes, based on the age of the existing system.

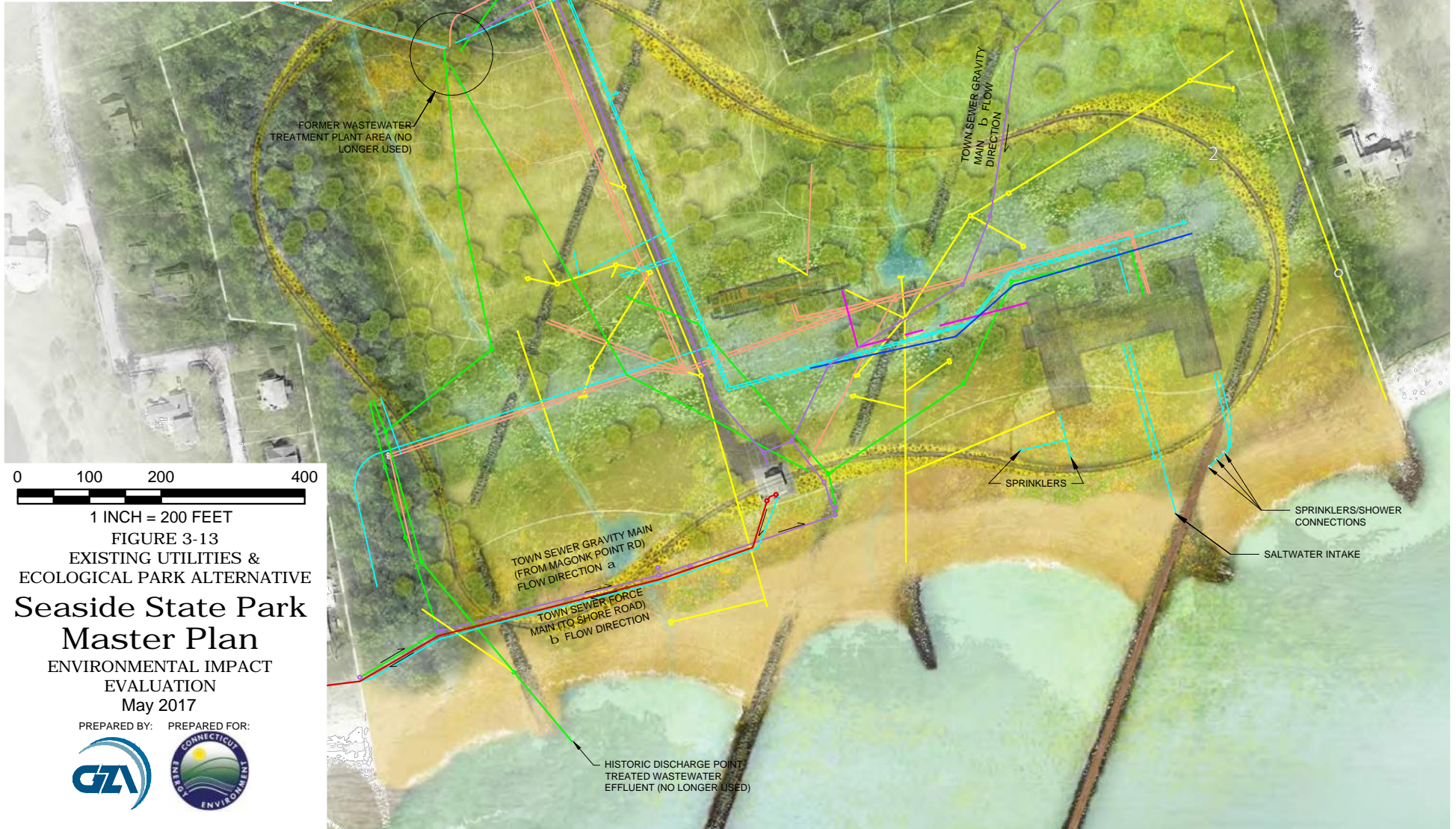
LEGEND

- EXISTING WATER MAIN
- EXISTING TOWN WATER MAIN
- EXISTING STORM DRAIN
- EXISTING ELECTRIC
- - - EXISTING STEAM LINE
- EXISTING SAN. SEWER (GRAVITY MAIN)
- EXISTING TOWN SAN. SEWER (GRAVITY MAIN)
- EXISTING TOWN SAN. SEWER (FORCE MAIN)

Sources: Sasaki, CLA, TOWN OF WATERFORD.



- NOTES:**
1. CONDITION AND EXTENT OF EXISTING INFRASTRUCTURE UNKNOWN.
 2. SOME SAN. SEWER LINES HAVE BEEN RECONFIGURED AFTER TREATMENT PLANT REMOVED. (RECONFIGURATION NOT SHOWN).
 3. ALL LOCATIONS APPROXIMATE.



1 INCH = 200 FEET

FIGURE 3-13

EXISTING UTILITIES & ECOLOGICAL PARK ALTERNATIVE

Seaside State Park Master Plan

ENVIRONMENTAL IMPACT EVALUATION
May 2017

PREPARED BY: PREPARED FOR:



LEGEND

- EXISTING WATER MAIN
- EXISTING TOWN WATER MAIN
- EXISTING STORM DRAIN
- EXISTING ELECTRIC
- - - EXISTING STEAM LINE
- EXISTING SAN. SEWER (GRAVITY MAIN)
- EXISTING TOWN SAN. SEWER (GRAVITY MAIN)
- EXISTING TOWN SAN. SEWER (FORCE MAIN)

Sources: Sasaki, CLA, TOWN OF WATERFORD.



- NOTES:**
1. CONDITION AND EXTENT OF EXISTING INFRASTRUCTURE UNKNOWN.
 2. SOME SAN. SEWER LINES HAVE BEEN RECONFIGURED AFTER TREATMENT PLANT REMOVED. (RECONFIGURATION NOT SHOWN).
 3. ALL LOCATIONS APPROXIMATE.



1 INCH = 200 FEET

FIGURE 3-14

EXISTING UTILITIES & PASSIVE PARK ALTERNATIVE

Seaside State Park Master Plan

ENVIRONMENTAL IMPACT EVALUATION
May 2017

PREPARED BY: PREPARED FOR:



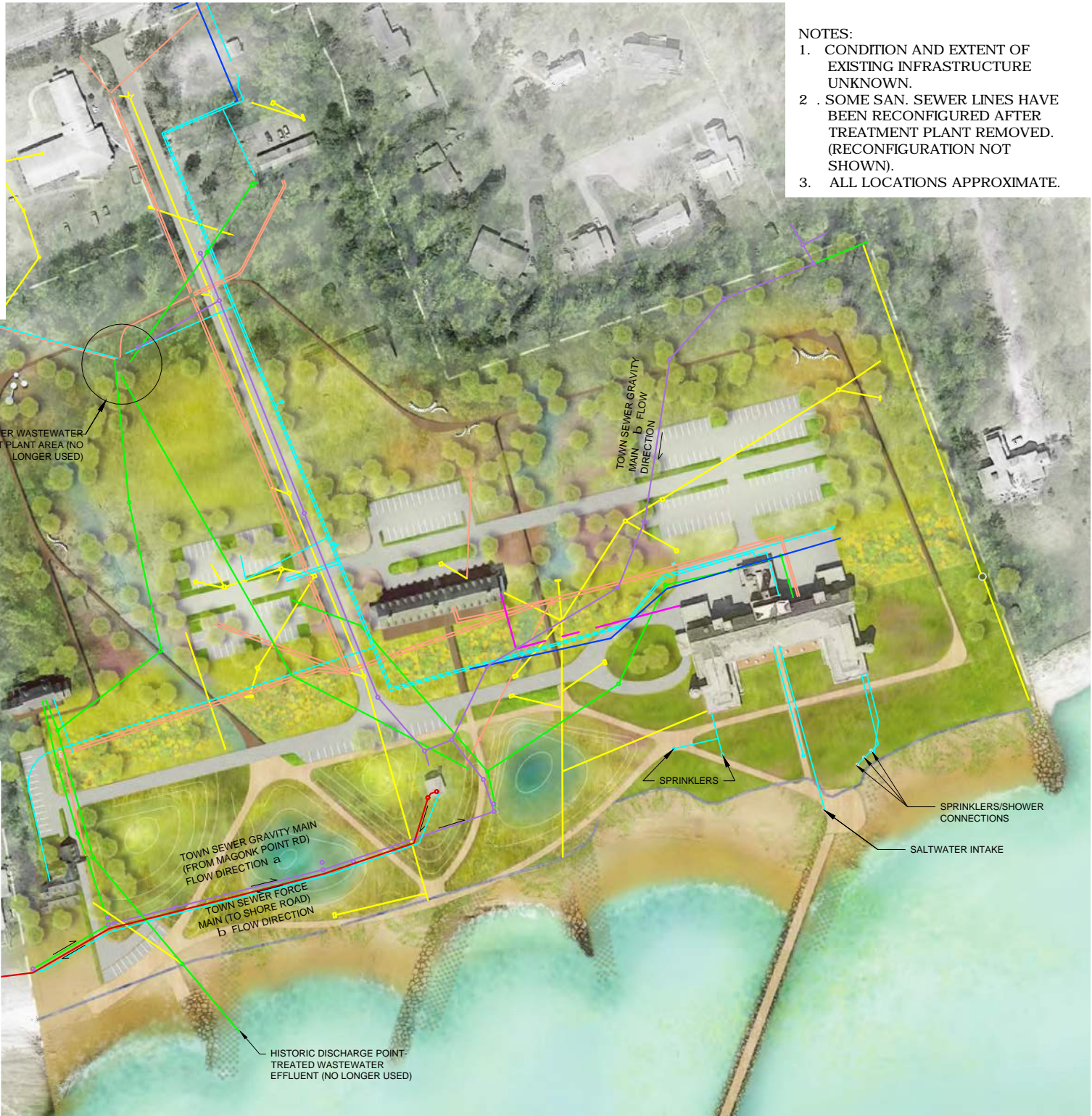
LEGEND

- EXISTING WATER MAIN
- EXISTING TOWN WATER MAIN
- EXISTING STORM DRAIN
- EXISTING ELECTRIC
- - - EXISTING STEAM LINE
- EXISTING SAN. SEWER (GRAVITY MAIN)
- EXISTING TOWN SAN. SEWER (GRAVITY MAIN)
- EXISTING TOWN SAN. SEWER (FORCE MAIN)

Sources: Sasaki, CLA, TOWN OF WATERFORD.



- NOTES:
1. CONDITION AND EXTENT OF EXISTING INFRASTRUCTURE UNKNOWN.
 2. SOME SAN. SEWER LINES HAVE BEEN RECONFIGURED AFTER TREATMENT PLANT REMOVED. (RECONFIGURATION NOT SHOWN).
 3. ALL LOCATIONS APPROXIMATE.



1 INCH = 200 FEET

FIGURE 3-15

EXISTING UTILITIES & HYBRID PARK ALTERNATIVE

Seaside State Park Master Plan

ENVIRONMENTAL IMPACT EVALUATION
May 2017

PREPARED BY: PREPARED FOR:



Impacts related to the construction of the Hybrid Park option would be similar in nature to those associated with the Destination Park, with concerns for protecting and maintaining the Town's wastewater gravity mains, force main, and pump station system during construction. The grading required for Project elements along the alignment of the force main and gravity main would appear to be in conflict with the sewer mains in this area (Figure 3-15) and would need to be reviewed further when more detailed grading plans are developed during the design process.

This alternative also depicts removal of the end of the access road to the wastewater pump station. This would need to be coordinated with the Town, as these pavements may be critical for access to the pump station.

3.2.7 Stormwater

Construction projects which result in one acre or more of earth disturbance in the State of Connecticut, as would be the case for any of the alternatives considered, are subject to the *General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities* (also known as the Construction General Permit or CGP). Projects subject to this permit need to develop a Stormwater Pollution Control Plan (SWPCP) to cover the construction phase of the Project and need to file a registration with DEEP for coverage under the CGP. BMPs for construction and post-construction phase controls would be required, as well as inspection, monitoring, and reporting. Construction phase stormwater erosion and sedimentation control must be designed in accordance with the *Guidelines for Soil Erosion and Sediment Control* (the Guidelines), the *Stormwater Quality Manual*, or the Connecticut Department of Transportation (DOT) *Qualified Products List*. The CGP also requires documentation relative to runoff reduction and low impact development (LID) practices to be used for post-construction stormwater control and that post-construction stormwater management practices be designed in accordance with the *Stormwater Quality Manual* and DOT *Qualified Products List*.

For discharges to tidal wetlands (not including fresh-tidal wetlands) where the discharge is within 500 feet of the tidal wetland, the CGP requires that stormwater shall be discharged through a system designed to capture and infiltrate stormwater runoff from one inch of rainfall on the Site. There are no known tidal wetlands (e.g. salt marsh, intertidal flats) within 500 feet of the Site; therefore, the accompanying permit requirements would not apply.

3.2.7.1 Existing Conditions

Stormwater runoff at the Site is managed through a combination of overland flow to wetlands and watercourses on the Site and through a piped stormwater system consisting of stormwater inlets (catch basins, area drains, etc.), interconnecting pipes and manholes, and piped outfalls (Figure 3-11). In some locations, as discussed herein, watercourses are culverted or piped underground across the Site. Based on a review of existing site conditions and existing documentation available regarding the development of the Site, it is not believed that there are currently any structural controls or BMPs relative to stormwater quality and quantity control beyond infiltration occurring from overland flow of runoff, although the watercourses and wetlands receiving current discharges undoubtedly provide some measure of control prior to final discharge to coastal waters.

Historic Context

The 1939 plan of the Site utilities shows two main watercourses flowing north to south across the Site, one to the west of the main access road and one to the east of the access road. The watercourse to the west of the access road accepts stormwater discharges from the basketball/tennis court area, Duplex Garage, a small portion of the main access road, and a portion of the access road to the Duplex House before discharging via a piped outfall at the beach area along Long Island Sound to the south.

The 1957 plan shows a 12-inch stormwater outfall through the seawall with a flap valve, at the center of the Site, with contributing drainage areas and storm drain inlets along the main access.

The watercourse to the east of the main access road accepts piped stormwater discharges from the water pump station area which discharges to the watercourse via a piped outfall, prior to being piped underground, starting near the Employee Residence. The piped segment of the watercourse accepts piped stormwater runoff from the Employee Residence area, the access road to the former Main Hospital Building, and areas around that building, before discharging to the beach area and Long Island Sound via a 24-inch pipe. To the far east of the Site, a third watercourse is shown entering a culvert/piped drainage inlet, which flows east to west across the Site, until its junction with the piped portion of the above-described watercourse east of the access road.

The 1939 plan also shows stormwater from the Superintendent's Residence being piped into the sanitary sewer line that historically discharged to Long Island Sound. Since the sanitary discharges from the Site have been connected to the municipal system, it is unclear if this outlet is still in place based on available documentation.

Finally, a 20-ft wide stormwater easement runs from north to south along the eastern boundary of the Site, carrying municipal stormwater flows with street drainage to its piped discharge point in the beach/seawall area.

Existing Site Conditions

The existing stormwater system appears to be largely the same as in the historic plans, although some features may no longer exist or function in the same manner, due to demolition of some structures at the Site. The series of open watercourses accepting overland flow and the closed drainage system elements are largely as described in the Historic Context subsection above. No formal site inventory or mapping was completed as part of the EIE.

The watercourse to the east of the existing access road appears to have been modified since the time of the 1957 plans, potentially in conjunction with new residential construction to the northeast of the Site, south of Shore Road. A portion of the watercourse appears to have been culverted south of Shore Road, returning to an open channel at a headwall near the northern property line.

The main sources of existing impervious areas at the Site include the main access drives and circulation driveways on the property, the existing structures (with associated patios), parking lots associated with the Renovated Garage, Main Hospital Building, Employee Residence, paved areas associated with the former Maintenance Building, paved walkways, and the basketball court area. The total estimated existing impervious area on the property is approximately 5.0 acres.

3.2.7.2 *Impacts*

Stormwater drainage design for any alternative beyond the No Build would need to be in accordance with the *Connecticut Stormwater Quality Manual* and with the post-construction requirements of the CGP, as well as any requirements which may be imposed as part of Flood Management Certification (FMC) or exemption for the Project. The Project would need to coordinate with DEEP to determine what would be required for this process, should a State action affect natural or man-made drainage facilities.

All alternatives beyond the No Build Alternative are expected to result in one acre or more of earth disturbance, and as such would be subject to the CGP. These alternatives would need to comply with this permit for design of its post-construction stormwater management, would need to have a Stormwater Pollution Control Plan (SWPCP) prepared to cover the construction phase of any alternative, and would need to file a registration with DEEP for coverage under the CGP.

All stormwater discharges from each of the alternatives below would need to be designed in accordance with the requirements of the applicable permits, approvals, and registrations, as discussed herein.

No concepts for stormwater management have been developed to date for any of the alternatives as part of the Master Plan process, as the development is still at the conceptual phase. Drainage design would occur once a preferred alternative is selected and the design development process commences.

It is anticipated that, based on its location, age, and condition, much of the existing drainage system would need to be replaced or modified to accept stormwater runoff from new and reconfigured impervious areas. If the existing systems are to remain, a formal drainage study/engineering review would be required to determine whether the existing drainage piping and outfalls are appropriately sized.

Any redevelopment of the Site would not meet DEEP's definition of "Redevelopment" per the CGP, as the Site is currently less than 40 percent impervious, as such, any redevelopment of the Site would qualify as "Other Development", which requires post-construction design to retain the entire water quality volume for the Site, as defined in the permit. If this is not feasible due to site constraints, any deviation would need to be documented, reviewed, and approved by DEEP.

The CGP also requires the following as part of post-construction control measures:

- Runoff reduction and Low Impact Development (LID), per guidance in the permit and the information provided earlier in this subsection;
- Suspended solids and floatables removal, with a goal of 80% Total Suspended Solids (TSS) removal; and
- Velocity dissipation devices to provide a non-erosive velocity to the receiving watercourse.

Stormwater systems would need to be designed in accordance with the regulatory requirements cited above relative to the CGP and the FMC, to the maximum extent practicable based on Site constraints. Detention/retention and stormwater treatment BMPs would be needed to mitigate increases in stormwater runoff volume, flow rates, and pollutant potential due to changes in

impervious area associated with any of the alternatives. Due to the proximity to Long Island Sound and the elevation of the Site, opportunities for infiltration may be limited, as the depth to groundwater may be shallow. However, opportunities for infiltration would be reviewed in the context of the Site constraints and applicable regulations.

Destination Park

The proposed Destination Park concept would retain and utilize much of the existing impervious area, included all of the main structures onsite, and most of the existing access drives, circulation driveways, and parking areas. Parking would be reconfigured and expanded, and the basketball court would be removed and replaced with parking. Small parking areas would also be added along the access road to the Duplex House and in the vicinity of the Duplex House and Superintendent's Residence. A new boardwalk system would be added down toward the coastline, and was considered in this analysis as impervious. For this analysis, all walkways were assumed to be impervious, for consistency across alternatives. The total estimated impervious area on the property associated with this alternative would be approximately 6.5 acres, an increase of approximately 1.5 acres.

Based on its location, age, and condition, it is anticipated that most if not all of the existing drainage system would need to be replaced or modified to accept stormwater runoff from new and reconfigured impervious areas and that a new drainage system for the proposed new parking areas would be designed to connect to this system and discharge to Long Island Sound, after onsite treatment. Increases in impervious area across the Site would result in increased rate and quantity of stormwater runoff from the Site and would be mitigated for through a careful stormwater design which meets the applicable regulations and permits.

The proposed concept for this alternative shows significant work and redesign of the waterfront area. Depending on the anticipated grading and any modification/relocation of the seawall, existing stormwater systems and outfalls would need to be reconfigured and elevations reviewed for feasibility of these system modifications.

Ecological Park

The proposed Ecological Park alternative would result in the removal of the majority of impervious surfaces and piped drainage systems from the Site, through the removal of the most of structures, parking, and circulation routes and walkways, as well as the seawall. This alternative would retain the Renovated Garage and would include a reconfigured and larger parking lot near the roadway, as well as retaining the access road to the Municipal Wastewater Pump Station. A new loop nature trail would be created and was considered to be paved for the purposes of this analysis. This option would also include stone walls crossing the Site, and would retain some portion of the foundations of the Main Hospital and Employee Residence. These features were assumed to be impervious. The total estimated impervious area on the property associated with this alternative would be approximately 3.1 acres, a decrease of approximately 1.9 acres.

Because demolition is included as an earth disturbing activity (as it relates to foundation removal or filling in), it is still assumed that the alternative would be subject to the CGP and that all water quality and runoff reduction requirements would need to be met under this alternative, much like the Destination Park alternative. It is anticipated that the drainage system along the main road would be modified or replaced and that a new drainage system for the proposed new parking lot

at the road would be designed to connect to this system and discharge toward Long Island Sound, after onsite treatment. The overall imperviousness of the Site would decrease if this alternative were to be selected, and as such, there would be expected to be a decrease in stormwater runoff from the Site. However, new drainage design would be in accordance with the applicable regulations and permits. Because the seawall is proposed to be removed under this alternative, any existing stormwater piping and outfalls that are still needed would need to have the outfalls reconfigured, as they currently discharge through the seawall area.

Passive Recreation Park

The proposed Passive Recreation Park alternative would result in similar impacts as the Ecological Park alternative, resulting in the removal of the majority of impervious surfaces from the Site, through the removal of all structures, parking, and circulation routes and walkways. This alternative would remove the Renovated Garage and would include a reconfigured and larger parking lot near the roadway, much like the Ecological Park alternative, as well as retaining the access road to the Municipal Wastewater Pump Station. New trails would be created, which are assumed to be paved for the purposes of this analysis. The total estimated impervious area on the property associated with this alternative is approximately 2.5 acres, reducing the total existing impervious onsite by half.

Again, because demolition is included as an earth disturbing activity (as it relates to foundation removal or filling in), it is still assumed that the alternative would be subject to the CGP and that all water quality and runoff reduction requirements would need to be met under this alternative. Much like the Ecological Park alternative, it is anticipated that the drainage system along the main road would be modified or replaced and that a new drainage system for the proposed new parking lot at the road would be designed to connect to this system and discharge through the seawall, after retention/detention and onsite treatment. The overall imperviousness of the Site would decrease if this alternative were to be selected, and as such, there would not be expected to be increases in stormwater runoff from the Site. However, new drainage design would be in accordance with the applicable regulations and permits. It is anticipated that much of the piped drainage system onsite would be removed and that the existing outfalls through the seawall would be maintained as part of this alternative, since they also carry streamflow.

Hybrid Park

The proposed Hybrid Park Alternative most closely resembles the Destination Park in terms of impacts relative to stormwater. This option retains onsite structures, parking, and access, but would result in additional impervious area compared to the Destination Park, resulting from the addition of a new building assumed to have a footprint of approximately 5,000 SF and for additional parking beyond that offered under the Destination Park alternative. All trails are assumed to be impervious, for consistency with the review of other alternatives. The total estimated impervious area on the property associated with this alternative is approximately 6.8 acres, an increase of approximately 1.8 acres.

It is anticipated that the drainage system along the main road would be modified and/or replaced and that new drainage systems for proposed parking areas would be designed to connect to the existing onsite systems and discharge to Long Island Sound, after retention/detention and onsite treatment. Increases in impervious area across the Site would result in increased rate and quantity of stormwater runoff from the Site and would be mitigated for through a careful stormwater design

which meets the applicable regulations and permits. Grading would need to be considered relative to the existing system and outfall areas, in the waterfront area, as it appears that this option would alter grading and could require modification of the existing outfalls through the seawall.

3.2.8 Electricity and Telecommunications

3.2.8.1 *Existing Conditions*

Underground telephone, cable and electrical lines are available from overhead utility lines along Shore Road, and are connected to existing structures within the Seaside facility. Temporary underground electrical service was installed to support asbestos abatement efforts in the Main Hospital Building. The remaining Seaside State Park structures are not currently using these services and electrical and telecommunication services were reportedly discontinued to the buildings onsite in the mid-1990s, although it has been reported that the Superintendent's Residence and Duplex House had power in the basements available during a site visit in 2012. The municipal wastewater pump station reportedly has its own separate service (DTC, 2015).

Based on a review of local utility websites, Atlantic Broadband provides cable, high-speed cable internet and telephone services along the portion of Shore Road adjacent to the Site. AT&T also provides high-speed internet, DirectTV, and telephone services along the portion of Shore Road adjacent to the Site. Electricity is provided to the Town of Waterford by Eversource, and is available along Shore Road and from onsite connections. A review of the condition of existing utilities onsite by DTC (2015) indicated that the existing electrical system onsite has exceeded its useful life and would need to be reconstructed as part of any development onsite.

3.2.8.2 *Impacts*

There is an existing underground service to the existing Town-owned wastewater pump house. During construction phase work for any of the following alternatives, this service would need to be maintained at all times. Grading and site redevelopment for any alternative would need to be coordinated to maintain service to this structure.

As indicated above, the electrical system for all alternatives would most likely need to be reconstructed, based on recent condition assessment.

Destination Park

Implementation of the Destination Park alternative would require the restoration of permanent electricity and telecommunications services to the Site and would utilize the available services from Shore Road for the hotel buildings and visitor center, as well as landscape/safety lighting. New transformers would be required for this development and would need to be coordinated with the local utility. Services are available in Shore Road and onsite, although it is expected that the historical connections onsite would need to be updated/upgraded to meet current needs associated with the development.

Ecological Park

Implementation of the Ecological Park alternative would require the restoration of permanent electrical service to the Site for onsite landscape/safety lighting and electrical service and telecommunications for the Visitor Center. Historical connections onsite would need to be

updated/upgraded to meet needs associated with the development. Demands for these utilities would be expected to be significantly less than for the Destination Park as there would not be a hotel or nighttime demand beyond landscape/safety lighting, but this alternative would still result in an increase over the existing lack of use.

Passive Recreation Park

Implementation of the Passive Recreation Park alternative would require the restoration of permanent electrical service to the Site for onsite landscape/safety lighting, but would most likely not require telecommunication services. Historical connections onsite would need to be updated/upgraded to meet current needs associated with the development. Demands for electricity associated with this alternative would be expected to be significantly less than for the Destination Park as there would not be a hotel or nighttime demand beyond landscape/safety lighting, but this alternative would still result in an increase over the existing lack of use, albeit less than for the Ecological Park, as there would not be a Visitor Center building.

Hybrid Park

Implementation of the Hybrid Park alternative would require the restoration of permanent electricity and telecommunications services to the Site and would utilize the available services for the hotel buildings and visitor center, as well as landscape/safety lighting. New transformers may be required for this development and would need to be coordinated with the local utility. Historical connections onsite would need to be updated/upgraded to meet current needs associated with the development. Demands for electricity associated with this alternative would be expected to be the highest of the four alternatives, as there would be additional hotel facility space as compared to the Destination Park.

3.2.9 Heat

3.2.9.1 Existing Conditions

None of the buildings onsite are presently heated.

According to GEI (1998), the Main Hospital Building historically contained two low-pressure boilers and two high-pressure boilers. The low-pressure boilers, which operated on No. 4 fuel oil and propane gas, were utilized to heat the Main Hospital Building. The high-pressure boilers were used to provide steam to the kitchen areas of the main building.

GZA (2012) reviewed the heating, ventilation, and air conditioning (HVAC) equipment as part of a Property Condition Assessment (PCA). At that time, the steam boiler equipment was still present in the basement of the Main Hospital Building, but it was noted that the equipment had been abandoned, damaged, partly removed, and vandalized and was not in service. The report indicated that the system would need to be totally renovated or replaced if the building were to be reused.

The Employee Residence was formerly heated by two large coal-fired boilers which have been out-of-service since the 1970s (GEI, 1998). The Employee Residence was more recently heated with steam generated by the Main Hospital Building that was piped underground before the Seaside complex closed in 1996. The 2012 GZA PCA indicated that a boiler was still in place, but that the system was in disrepair and would need to be replaced.

The Duplex House and Garage and the Superintendent's Residence were once heated by oil-fired furnaces (GEI, 1998). The GZA PCA (2012) indicated that while boilers and steam piping/radiators were in place, the existing systems would need replacement.

Based on a review of local utility company websites, natural gas service is not available in Shore Road or the immediate vicinity. As such, heating for any development would most likely need to be oil or electric based systems, unless natural gas service is extended to the Shore Road area.

3.2.9.2 *Impacts*

Destination Park

Development of the Destination Park alternative would require replacement of the existing HVAC systems within the buildings which exist onsite. Impacts related to this alternative would be the energy and materials required for the demolition/construction and operation of such systems. It is anticipated that energy efficient systems would be installed onsite.

Ecological Park

For the Ecological Park alternative, heating/cooling would only be required for the Visitor Center structure. No other structures would remain that require heating. The only impacts would be for the energy needed for heating/cooling this structure. It is anticipated that a new HVAC system would be constructed for this structure as part of this alternative and that all other HVAC onsite would be demolished and removed from the Site. The increase in the need for heating/cooling would be small, compared to the existing condition.

Passive Recreation Park

No HVAC systems would be required for this alternative, as no structures would remain to require heating and cooling. The only impacts would be from demolition and disposal of the existing HVAC systems onsite. There would be no operational impacts, as no HVAC would be used onsite for this alternative.

Hybrid Park

Development of the Destination Park alternative would require replacement of the existing HVAC systems within the buildings which exist onsite and construction of new HVAC systems in the additional building proposed for this alternative. Impacts related to this alternative would be the energy and materials required for the demolition/construction and operation of such systems. It is anticipated that energy efficient systems would be installed onsite. This alternative would require the largest systems and have the most impact of the four Master Plan alternatives.

3.2.10 *Aesthetics/Viewsheds*

3.2.10.1 *Existing Conditions*

Seaside Park is a 32-acre parcel with approximately a third of a mile of shoreline. Seaside's Main Hospital building, former Employee Residences, and single family houses are all oriented towards Long Island Sound for maximum views of the ocean. The architect Cass Gilbert, chose the Tudor Revival Style, giving the former medical facility a residential feel, rather than an institutional one. The architect carried this style of architecture through the entire campus in a cohesive, well-planned manner. Open terraces on the Main Hospital Building historically allowed for expansive

views by recovering patients. Facilities added onto the property during later dates are generally located behind the original structures, and do not intrude upon the viewshed of the Sound from the hospital and residential buildings.



Photo 3-13. Terraces along Main Hospital, allowing multiple patients exposure to the outdoor elements and views of the ocean

Access to the Site is gained off of Shore Road. Upon entering the Site, one travels approximately 1,000 feet down a tree-lined access road known as Seaside Drive before reaching the sprawling, open lawns and views of Long Island Sound. At this point, Seaside Drive then turns ninety degrees to the east towards an oval-shaped drop-off area just outside the western end of the former Main Hospital. Ocean View Lane Drive splits off from Seaside Drive about one hundred feet before the aforementioned turn, and heads west towards the former Superintendent's Residence and the Duplex House. Both drives are paved with bituminous concrete and are approximately 20 feet wide, allowing for two-way traffic. Parking for the Site's former uses was located in proximity to the buildings, but is now fenced off and closed to the public. Currently, visitors to the Site park along the access road, or in the parking lot north of the Renovated Garage, approximately two hundred feet away from Shore Road. A Municipal Wastewater Pump Station is located at the bend in the Seaside Drive, where the road turns towards the east. The pump house is a small, 400 square foot, one-story, vinyl sided structure with a pitched roof. It sits directly in the viewshed of the ocean from many vantage points, as it is centrally located within the property, although its small size minimizes its visual impact.

The grounds of the 32-acre Site are comprised of expansive lawn areas, mature specimen trees, and naturalized woodlands which generally follow the Site's two interior stream channels. The naturalized woodland areas achieve a visual buffer from the neighboring properties in the

northwestern portion of the Site, and along northeastern property boundary. Where neighbors may benefit from views of Long Island Sound, vegetation along the property boundary has been kept low so that views of ocean may be seen over the Site's lawns.



Photo 3-14. Former Duplex House with ornamental façade made of brick, stone, and wood



Photo 3-15. Houses in the distance benefiting from view of Long Island Sound over the Site's lawn area to the east of the Main Hospital

While the lawn areas are mowed, other landscape maintenance has been minimal since the facility's closure. Generally, all pavements including the former ball courts, pathways, driveways, seawall, and concrete platform and seating wall adjacent to the seawall, are cracked and in various stages of disrepair. Graffiti and vandalism have defaced the former Main Hospital Building and Employee Residence, as well as the wooded pedestrian bridge which spans a small watercourse between the two buildings.

However, the Site is subject to public use, as evidenced by informal walking paths around the site's perimeter, through openings in the dense vegetation along the property line of residential abutters. Access to the beach is possible through a set of steps in the mortared granite seawall. The seawall parallels the shoreline, with meanders in places and features a seating alcove, platform areas, and steps down to the beach. Besides the seawall which separates the Site's generous lawn area from waterfront, the Site features six stone jetties that jut into the Sound, protecting the shore

and affording three small protected beaches. The largest and sandiest of the beaches is positioned directly in front of the Main Hospital Building.



Photo 3-16. Stairway in seawall leading down to beach



Photo 3-17. View of municipal pump house, former Main Hospital, lawns, seawall, and shoreline, facing east

Since the Seaside Regional Center's closure in 1997, the property and its buildings have been dormant, and fallen into disrepair. The Main Hospital, Employee Residence and other buildings appear to have been broken into and vandalized over the last twenty years and graffiti, broken windows, and damage from small fires are evident from the outside. Chain link fencing surrounds the Main Hospital and Employee Residence to protect the public from an ongoing abatement of the buildings, and to deter vandals from entering. The seawall's wall cap, seating area, and platform have cracked and shifted over time, and are in disrepair.

3.2.10.2 *Impacts*

Destination Park

The Destination Park alternative involves restoring all of the existing buildings onsite and the enhancement of the waterfront for ecological and recreational purposes. Under this alternative, the Main Hospital Building and the Employee Residence would be converted into lodges. The Superintendent's Residence and the Duplex House would be restored and used as private vacation cottages for larger groups and families. The Renovated Garage would be converted to a Visitor Center, and the Old Pump House would remain as-is, as would the Municipal Wastewater Pump Station. The Duplex Garage would be reused as a maintenance shed. Restoration of the existing buildings would be likely to be done in a manner such that that the original architectural style is preserved.

Seaside Drive and Ocean View Lane Drive would continue to serve as the access roads for the Site, and an additional driveway would be added to access additional proposed parking behind the Main Lodge (former Main Hospital Building). This new driveway would be likely to create a visual impact upon the abutting residential properties located to the north about 130 feet from the new driveway and parking lot. The new driveway would necessitate the crossing of an existing stream. The Master Plan does not specify how this stream crossing would be constructed, but it is assumed that DEEP Stream Crossing Guidelines would be followed, and some type of an open-bottomed box culvert or bridge would be implemented.

Additional parking lots near the former Superintendent's Residence and the Duplex House would also be likely to impact the views of the neighboring properties. It is likely that any aesthetic impacts to neighboring properties from new parking and the new driveway and new bridge/box culvert would likely be mitigated by planting a denser vegetated edge along the property boundary or along the edge of the new features. However, the planting of vegetation would add a visual barrier for abutters, potentially minimizing views of the Sound from neighboring properties, depending on the type of vegetative buffers planted.

Under the Destination Park alternative, the Site's grounds would see a reduction in open lawn space, and an increase of ecological landscape enhancements such as meadows, wet meadows, and woodlands. Existing viewsheds of the Sound over flat mown lawns, could be impacted as a result of the increase of naturalized vegetation. However, if the naturalized plantings were done in a way to allow for viewshed openings, the visual impact may be lessened or actually improved through adding views of vegetation that enriches the landscape and changes with the seasons.

Under the Destination Park Alternative, the waterfront would see the modification of the seawall, expansion of beaches and introduction of dune swales, tidal pools, and wet meadows. The

shoreline and its many new ecological features would become accessible through addition of a boardwalk, kayak launch, and fishing pier. Aesthetically, the proposed improvements are likely to have a positive impact by enhancing the visitor's experience of the waterfront and improving upon existing degraded conditions.



Photo 3-18. View of Main Hospital, open space, and Sound from northeast property edge



Photo 3-19. View of open expanse and vegetation, looking from the Main Hospital Building northward toward abutting residential neighborhood

Overall, there would likely be both positive and negative impacts to the aesthetics of the Site. Views from abutting properties could become comprised with addition of parking and plantings, while views from within the Site out towards the Sound may be enhanced due to enhanced ecological features, and access along the waterfront. Restoration of the existing buildings, and landscaping of the grounds would likely have a positive aesthetic impact on the Site's visitors.

Ecological Park

The Ecological Park Alternative involves maximizing ecological restoration of the Site while providing passive recreational opportunities. This alternative would involve demolition of the Main Hospital Building and all auxiliary buildings except for the Renovated Garage and the Municipal Wastewater Pump Station. The buildings and all components would be removed from the site in order to install new ecological features. The foundations for both the Main Hospital and Employee Residence would remain in some fashion to preserve a historical memory of the building. It is likely that interpretive signage would be placed at each foundation structure indicating the history of those buildings and the Site.

The grounds would be improved to include a perimeter nature trail with nature follies, coastal meadows, grasslands, and enhanced woodland plantings. The restoration of the landscape is likely to have a positive visual impact.

Along the waterfront, the large groin in the eastern portion of the site would be converted to a fishing pier by either creating a pile-supported deck or by placing flat surface materials over the existing groin stones to create a level surface for walking. Existing dune patches would be enhanced as the existing seawall would be removed. The addition of the deck and enhanced access to the waterfront would likely have a positive visual impact.

Under this alternative, the existing driveway would continue to serve as access to the park but would be truncated at the Visitor Center (existing Renovated Garage) and the remainder of the existing driveway would serve as a trail and maintenance road only for use by vehicles that need to gain access to the Site's Municipal Wastewater Pump Station. All the parking for the Site would be provided at the Visitor Center. The addition of the 90-car parking lot is likely to be a visual impact on the abutting residences. An addition of a vegetated screen or fence could act to mitigate the visual impact of the parking.

Overall, the Ecological Park's greatest visual impacts would be achieved by the demolition of the buildings and seawall, and by the enhancement of the landscape through addition of walking trails, nature follies, meadows, grasslands, woodlands, stone wall, fishing pier and kayak launch. Views of the Sound onsite and for residential abutters could become expanded by removal of the buildings. A trade-off to creating an open, uninterrupted landscape is the addition of a parking lot in close proximity to Shore Road. Views of the parking could be mitigated by perimeter fencing and plantings. However, by planting trees in areas that currently have open views of the Sound, neighboring properties would potentially have obstructed views. Any impact to the views of the ocean could be minimized through thoughtful consideration of the plant species and vegetation placement.

Passive Recreation Park

Under this concept, all buildings onsite would be removed except for the Municipal Wastewater Pump Station located near the waterfront. The existing driveway would serve as access to the park, but public vehicular access would be truncated at the new 90-car parking lot located approximately 50 feet away from the eastern Site boundary, and approximately 30 feet from Shore Road. Access to the Site for vehicles would be preserved for Town vehicles needing to access the Wastewater Pump Station. This new parking lot would likely be a negative visual impact to the

abutting properties, and would alter the view of the Site from Shore Road. This impact could be mitigated through addition of plantings and fencing.

The remainder of the grounds would remain primarily as-is, except for improvements to existing and new open lawn areas created by the demolished buildings. There would be savannah grassland plantings west of the Municipal Wastewater Pump Station. A looped walking/jogging trail would be constructed along the perimeter of the site. Picnicking grounds would be established near the waterfront between the Municipal Wastewater Pump Station and the seawall.

Along the waterfront, all existing features would remain as-is except that the seawall would be repaired, as needed. Overall, the Passive Recreation Park's greatest visual positive and negative impacts would be the opening up of views of the Sound for abutting residences through the demolition of the existing buildings, but with potential negative viewshed impacts by the addition of a parking lot in close proximity to Shore Road.

Hybrid Park

The Hybrid Alternative combines many of the features of the Destination Park, Ecological Park and Passive Park concepts. Under this alternative, all existing buildings would be restored similarly to the Destination Park Alternative. In addition, a new 15,000 SF lodging building would be constructed in the vicinity of the Main Lodge (former Main Hospital building) and Auxiliary Lodge (former Employee Residence). The new lodging facility would likely be constructed as a three-story building with a 5,000 SF footprint. The location of this building has yet to be determined. Potential locations are depicted as items 20A-20F in Figure 2-4. The building could either be a free-standing structure or an addition to Main Lodge or Auxiliary Lodge, and would likely complement the historic buildings in architectural style and choice of materials. Of the five potential building locations, option 20D and 20C would appear to have the greatest negative impact on abutting property owners by blocking or limiting their existing views of the Sound.

Similar to the Destination Alternative, Seaside Drive would continue to serve as the access road for the lodging facilities and adjoining parking. Parking would be provided behind and across from the Employee Residence and behind the Main Lodge, between the entry road and the western property boundary, at the kayak launch, behind the Municipal Wastewater Pump Station, and between the vacation cottages (former Superintendent's Residence and Duplex's House). A new driveway which crosses a stream would be constructed similar to the Destination Alternative. The increased parking, and addition of a driveway with stream crossing, would likely visually impact the views from abutting property of the Site and the Sound.

Under the Hybrid Alternative, lawn space would be reduced, and the grounds would be improved to include a coastal trail, formal lawn areas, sunflower and wet meadows, a play area, and art installations.

Along the waterfront, the large groin in the eastern portion of the site would be converted to a fishing pier by either creating a pile-supported deck or by placing flat surface materials over the existing groin stones to create a level surface for walking. Oyster reefs would be placed alongside this groin and two other groins. A car-top kayak launch would be constructed immediately north of a groin on the western portion of the property. The existing seawall along the entire Site would be repaired, as needed, and remain in its current location.

Overall, under the Hybrid Park Alternative there would likely be both positive and negative impacts to the aesthetic of the Site. Views from abutting properties may become comprised with addition of parking and plantings, while views from within the Site out towards the Sound may be enhanced due to enhanced ecological features, and access along the waterfront. The new building could potentially have a viewshed impact. The developer would complete a viewshed analysis to analyze potential impacts relative to the new proposed building. Restoration of the existing buildings, and landscaping of the ground would likely have a positive aesthetic impact on the Site's visitors.

3.2.11 Solid Waste and Recycling

3.2.11.1 *Existing Conditions*

Since the closure of The Seaside Regional Center in 1997, solid waste and recycling materials have not been generated at the Site. Since the transfer of ownership of the land to DEEP, small scale trash collection and park cleanup has been the responsibility of DEEP staff.

Solid waste and recycled materials for residential and small commercial establishments are currently collected by the Town of Waterford Department of Public Works on a weekly basis, and disposed of by the Southeastern Connecticut Regional Resource Recovery Authority at the Southeastern Connecticut Plant in Preston, Connecticut; which has a capacity to collect 700+ tons of solid waste per day.

The Town of Waterford also provides for alternative disposal methods for specific types of waste such as:

- Brush, leaves, furniture, cardboard, construction debris, appliances, drain oil - collected annually by the Town or can be brought to the transfer station;
- Bulk Trash Pick Up - collected from April – October by appointment;
- Hazardous Household Waste Collection - various collection facilities as coordinated by the Southeastern Connecticut Council of Governments (SECCOG); and,
- #1 and #2 plastics; metal cans, paper cartons, glass containers, paper, and cardboard - weekly pick-up.

3.2.11.2 *Impacts*

Associated with any of these alternatives, there would be a short-term increase in solid waste and recycling generated onsite related to the demolition and construction of any alternative. These materials would be handled properly and disposed of offsite by the Contractor, in accordance with all applicable regulations.

During the operations phase, it is anticipated that, at a minimum, the two alternatives with lodging would offer recycling programs for hotel guests and employees to offset impacts related to waste generation, as the hotel would seek Green Lodging Certification.

Destination Park

This concept emphasizes passive and active recreation along with a lodging experience. Under this concept, the historic buildings would be restored and used for a hotel. As a result of the

proposed lodging, trash generation would increase, resulting from hotel room occupancy, restaurant and banquet operations, and park patronage, among other uses. The increase in waste at the Site is not likely to negatively impact the Town's ability to process such refuse.

Ecological Park

This concept emphasizes maintenance and enhancement of ecological features of the site, both in the terrestrial and waterfront environment. Under this concept, only minimal refuse would be generated, associated with day use of the park. The increase in waste generated at the Site under this alternative would be negligible.

Passive Recreation Park

This concept most closely resembles the Park in its current condition/use with minimal improvements to the grounds. Under this concept only minimal refuse would be generated, associated with day use of the park. The increase in waste generated at the Site under this alternative would be negligible.

Hybrid Park

As part of the Hybrid Park alternative, historic buildings would be converted to lodging, the grounds would be enhanced and ecological habitats would be created or enhanced along the waterfront. Trash generation would increase, resulting from room occupancy, restaurant and banquet operations, and park patronage, among other uses. The increase in waste at the Site associated with this alternative would likely be the largest, but is not likely to negatively impact the Town's ability to process such refuse.

3.2.12 Cultural Resources

Cultural resources include aboveground (historical) and below ground (archaeological) elements. Much is known about the historical aspects of the Site, particularly the nine buildings that are listed on the National Register of Historic Places (NRHP) (two have subsequently been demolished) (National Park Service (NPS), 2017). Previous archaeological studies have revealed some important information on the archaeological aspects of the Site.

In 2007, when the Site was being considered for a different development scenario, the Connecticut State Historic Preservation Office (SHPO) recommended that a Phase 1A Archaeological Reconnaissance Survey be conducted for the Project at that time due to the Site's moderate-high potential for containing archaeological resources. Archeological and Historical Services, Inc. (AHS) conducted a Phase 1A and subsequently a Phase 1B archeological survey at the Site. The Phase 1A survey was initiated on October 25, 2007, and indicated that approximately 4.8 acres possessed archaeological sensitivity. A Phase 1B survey, with subsurface testing, was conducted, which identified hospital era, 18th- and 19th-century, and pre-colonial artifacts at the Site.

In 2016, following the CEPA Public Scoping Meeting, representatives from the SHPO visited the Site with DEEP, DAS, and their consultants. They viewed the interior and exterior of the Main Hospital Building, Employee Residence (formerly known as the Nurses' Residence), Superintendent's Residence, and Duplex House and discussed the proposed alternatives. The SHPO opined that it would be most favorable to restore and reuse the existing buildings, if practicable, so that the historical integrity of the Site is retained. In the Main Hospital Building,

there were no interior elements that SHPO believed warranted preservation beyond the spiral emergency escape; however, there are many original wood features in the other buildings that the SHPO indicated warrant preservation including fireplaces, stair railings and cabinetry.

The SHPO noted that the layout of the Employee Residence, which consists of a long center hallway with rooms on either side, is historically interesting and would best be preserved; however, SHPO did recognize the limitations of keeping this configuration in light of the proposed lodging use, which would require guest rooms that are larger than the existing rooms; therefore, maintaining a central hallway may not be feasible.

The following is a summary of the known historical and archaeological characteristics of the Site.

Historical

The Site, known historically as “Seaside Regional Center,” “The Seaside,” and “Seaside Sanatorium,” was one of five sanatoriums established by the State of Connecticut for the treatment of tuberculosis. Established in 1934 as a children’s hospital, The Seaside now appears on the National Register of Historic Places, having significantly contributed to the medical community as the first institution of its kind in the United States to use heliotherapy, a prolonged exposure to the sun, to treat its patients. The unique medical treatment required a facility specifically designed to embrace this technique.

The Seaside achieves further national distinction because of its attribution to architect Cass Gilbert (1858-1934). Gilbert’s distinct formal monumental architectural style and a preference for revivals of Classical, Colonial, or Renaissance architecture resulted in a distinguished body of work, primarily for the federal and state governments. Noteworthy works by Gilbert include: The U.S. Supreme Court Building in Washington D.C.; the Federal Court House; the 1913 Woolworth Building; and the U.S. Customs House on the Battery in New York City. Gilbert retained similar commissions in Connecticut and designed several buildings in New Haven: the 1908 New Haven Free Public Library and the 1918 Union Station. His most acclaimed work within the State, however, was the Waterbury Municipal Center, a series of buildings designed and built from 1913-1924 that are listed on the National Register of Historic Places.

Of the remaining eight buildings at the Site, seven are contributing historic structural resources and four are attributed to Cass Gilbert (Table 3-12). The eighth building is the Town’s municipal wastewater pump station is not a contributing structure. The four Gilbert-attributed buildings are the Stephen J. Maher Building (Main Hospital), Nurses’ Residence (Employees Building #1), the Duplex House, and the Superintendent’s Residence. These buildings were designed as a thematic group. Gilbert’s choice to use the Tudor Revival as the essential domestic architectural style deinstitutionalized their appearance. Choosing to use building materials such as granite for the foundations, brick and tile for the building facades and tile/slate for the roofs with decorative structural elements such as gables and dormers was a deliberate effort to make The Seaside appear less utilitarian. The Duplex Garage (1936), the Workshop (Renovated Garage) (1936) and the Pump House # 1 (1942) are also contributing structures to the selection of the site to appointment to the NRHP. The photos on the following pages depict the existing structures onsite and the accompanying table lists the contributing structures per NRHP.

In 1930, the State’s Tuberculosis Commission purchased 28 acres of property along the shore of the Long Island Sound in Waterford, the two original parcels had been in probate for a number of years. In 1936, the Commission purchased two additional parcels extending the Site to its present boundaries. The total cost of the property was \$125,000 (~\$2,000,000 in 2016 U.S. dollars value).

The seawall is located along the southern border of the Site. Although not specifically listed in the National Register Nomination, it is also likely locally historically significant, as it was installed at approximately the time that the institutional buildings were erected and construction was done by the Civilian Conservation Corps. The seawall follows the seacoast and offers storm protection to the Site. It was constructed with a semi-circular bench for the children nearer to the western edge of the parcel and consists of pink granite blocks, perhaps locally sourced as pink granite that is known to exist just north of the Site.



Photo 3-20. Main Hospital



Photo 3-21. Employee Residence



Photo 3-22. Superintendent's Residence



Photo 3-23. Duplex House



Photo 3-24. Renovated Garage

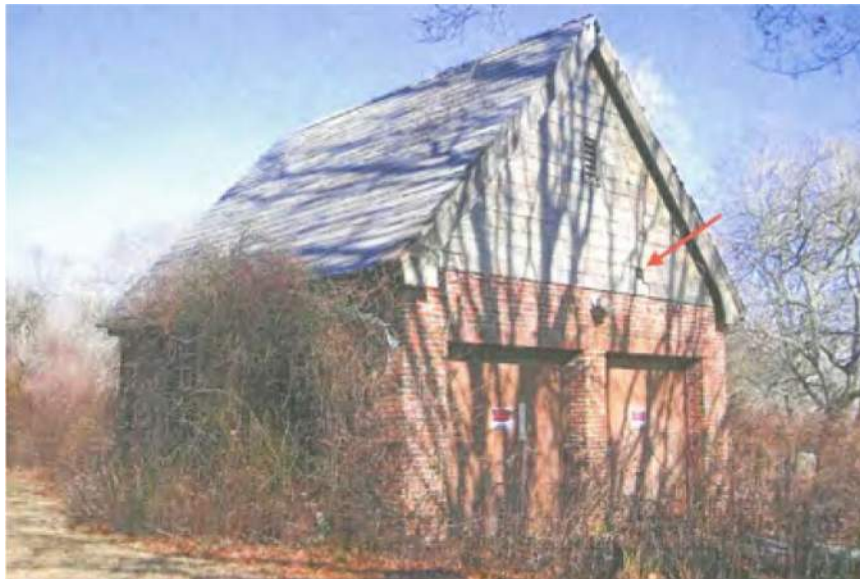


Photo 3-25. Duplex Garage



Photo 3-26. Old Pump House

Table 3-12. Contributing Historic Structures at the Site

Historic Name¹	Current Name	Style	Date	Architect	Remaining onsite?
Stephen J. Maher Building	Main Hospital	Tudor Revival	1934	Cass Gilbert	Yes
Nurses' Residence	Employee Residence or Employee's Building No. 1	Tudor Revival	1935	Cass Gilbert	Yes
Duplex House	Same	Tudor Revival	1936	Attributed to Cass Gilbert	Yes
Superintendent's Residence	Same	Tudor Revival	1936	Attributed to Cass Gilbert	Yes
Workshop	Renovated Garage	Undetermined	1936	Unknown	Yes
Greenhouse	Septic system drying bed	Colonial Revival	1936	Unknown	No
Duplex House Garage	Same	Tudor Revival	1936	Unknown	Yes
Pump House #1	Old Pump House	Undetermined	1942	Unknown	Yes
Pump House #2	Same	Undetermined	1945	Unknown	No

¹ Inventory sources provided by the United States Department of the Interior, National Park Service National Register of Historic Places

Archaeological

An archaeological reconnaissance survey consists of two parts: a Phase 1A, or assessment survey, in which the specific archaeological potential of the Project area is determined, and a Phase 1B survey, in which systematic subsurface testing is done to confirm the presence or absence of buried archaeological sites that may be impacted by the Project. If Phase 1B surveys confirm the presence




of buried archaeological sites, then Phase II surveys, which involve more intensive and systematic survey and recovery, are conducted.

The Phase 1A archaeological survey of the Site, initiated on October 25, 2007, indicated that the majority of the Site has been affected by previous ground disturbance. Although the subsurface testing undertaken for the Phase 1A survey was limited in scope and tightly targeted, it provided sufficient information on the existing soil conditions to determine the potential of the Project area to contain significant buried cultural resources. Based on the results from background research, pedestrian survey, soil probe sampling and limited test pit survey, 27.2 acres of the 32-acre Site have low archaeological sensitivity. Construction of the sanatorium buildings, roadways, and utilities involved the displacement and redeposition of soils within the property. The limited potential for the majority of the Site to contain significant archaeological resources is underscored by the evidence of pervasive soil disturbance in the vicinity of all the campus buildings, within utility corridors, and within the two natural surface water drainage features. All of these areas have been subjected to grading, cutting, and/or filling that have displaced or destroyed any archaeological materials that might once have been present. It is estimated that the remaining 4.8 acres of the Project area, consisting of six distinct areas, have a high potential to contain archaeological resources (Figure 3-16). These areas were the subject of a Phase 1B survey.

The Phase 1B subsurface testing of the six areas identified hospital era, 18th- and 19th-century, and pre-colonial artifacts at the Site. The Phase 1A subsurface testing, in which shovel test pits were excavated at 15-meter intervals, determined that four of the areas (Areas 1-4) were too disturbed to contain significant archaeological remains. Only one of these areas, Area 4, in the southeastern corner of the property, produced evidence of a pre-colonial Native American site, but the entire small lithic assemblage from this area was mixed with Hospital-era fill deposits; thus, the prehistoric component has no integrity or information potential. The increasing artifact density at the western edges of this area suggests an archaeological site was once present in the area of the main hospital building, but that it was destroyed by subsequent construction, grading, and development. Very small numbers of pre-hospital era historic-period artifacts were recovered from Areas 1 and 4, but were found in disturbed contexts, thus their integrity and information potential have been destroyed. Areas 1-4 appear to have no potential for yielding intact significant archaeological remains; thus, no further archaeological investigations appear to be warranted in these areas.

Areas 5 and 6 yielded potentially significant early historic-period and pre-colonial-period artifacts. A possible historic-period buried stone feature was identified in Area 5, along with a small assemblage of 18th- to early 19th-century ceramics and window glass. Quartz debitage was found in five of the 18 test pits excavated in Area 5, indicating a prehistoric component is also present. In Area 6, to the north of Area 5, a Late Woodland-period projectile point and quartz debitage were recovered during the Phase 1A survey. Additional quartz debitage and a single unifacial stone tool were recovered during the Phase 1B survey. A small number of 18th- to early 19th-century ceramics were also recovered from Area 6. The two areas were collectively designated Site 152-137. Areas 5 and 6 (Site 152-137) are potentially significant archaeological resources.

LEGEND

-  AREA 5- REFINED
-  AREA 6- REFINED
-  PHASE 1B SURVEY AREA

Sources: AHS, CLEAR



0 100 200 400



1 INCH = 200 FEET

FIGURE 3-16
CULTURAL RESOURCES

Seaside State Park Master Plan

ENVIRONMENTAL IMPACT
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Phase II Intensive Archaeological Survey of the two areas (Figure 3-16) would be required should the final design plans involve subsurface activities for any of the alternatives to determine if they meet the criteria for nomination to the National Register of Historic Places. Areas 5 and 6 (located northeast of the Superintendent's Residence and north of the Duplex House, respectively) were determined to be culturally sensitive and likely contain further examples of remnant artifacts from all three eras (pre-historic, 18th- and 19th- century, and operational hospital periods). The surveys also suggested that artifacts are likely present offsite, to the west, in a residential area. Areas 5 and 6 are generally existing turf lawn areas that are maintained by DEEP staff.

3.2.12.2 *Impacts*

Depending upon the type of work and design for the various elements of the different alternatives, there may be some impact to cultural resources that would require mitigation. Mitigation for impacts described below could include restoration, Phase II Survey with recordation of artifacts, and/or preservation (i.e. no subsurface disturbance and/or conservation restriction). Under any of the alternatives, coordination with SHPO would occur to ensure any potential for adverse impacts are mitigated to the extent feasible. The potential for impacts and need for mitigation is discussed below for each alternative.

Destination Park

Under this alternative, the existing historic buildings would be preserved. The facades of the buildings would be preserved and restored. The *Seaside Sanatorium Exterior Envelope Condition Assessment* (WJE, 2015) detailed the required work which would be required to restore the facades. The interiors of the Main Hospital and Employee Residence would likely be gutted to the extent practical; however, there are no historically sensitive interior structures within these buildings, beyond the spiral emergency escape in the Main Hospital and central hallway layout in the Employee Residence, which would be recommended to be retained if possible. The Superintendent's Residence and the Duplex House have aspects of the interiors which are likely contributing to the historical significance of the structures, such as fireplaces, stairway balustrades, built-in cabinets, wainscoting, doors, and running trim, and these would be preserved.

The seawall would be relocated along the seacoast and would serve as a wall to protect the proposed boardwalk. This would result in a negative impact to the existing historic seawall; however, impacts can be minimized by reusing the existing stone as much as possible. If this alternative is selected, more detailed study and recordation of the seawall would be required prior to commencement of the work.

The Phase 1B archeological report indicates the likely presence of archeologically significant artifacts in Areas 5 and 6. The creation of a coastal woodland within Area 6 would likely involve planting juvenile trees which would involve excavation and; therefore, artifacts could be encountered during this process. This would warrant a Phase II Survey if disturbance were to be proposed in that area. Area 5 may be impacted by the relocation of Ocean View Lane to the south roughly 100 feet. Also, the roadway/parking construction and could result in the compaction of soils and the loss of structural integrity of any undiscovered artifacts. Finally, creation of the dune swale would likely involve excavation which would also warrant Phase II Survey of Area 5 under this alternative.

Ecological Park

This concept emphasizes maintenance and enhancement of ecological features of the Site, both in the terrestrial and waterfront environment. Under this concept, the seven remaining historic buildings would be demolished. The structures and all components would be removed from the Site to install new ecological features. The foundations for both the Main Hospital and Employee Residence would remain in some fashion to preserve a historical memory of the building, likely with interpretive signage which would be placed at each foundation structure indicating the history of those buildings and the site. The seawall would be removed under this concept and further study, including recordation, would be required.

The Phase 1B archeological report indicates the likely presence of archeologically significant artifacts in Areas 5 and 6. This concept could impact archaeological resources at Area 6 if construction of the nature trail and follies were to involve subsurface preparation or grading for construction. The creation of a coastal woodland within Area 6 would likely involve planting juvenile trees which would involve excavation and; therefore, artifacts could be encountered during this process. Because of these potential impacts, a Phase II survey should be conducted in the specific areas of work within Area 6.

Area 5 could be impacted by installation of a stone wall proposed along the eastern edge of the area. If the stones could be placed without earth disturbance, then impacts to the area would be avoided, although the compaction of the soil if heavy equipment is used may have a negative effect on shallow subsurface artifacts. Timber matting could be used to minimize potential impacts. This technique has been used at sites throughout Connecticut when equipment needs to be moved over archeologically sensitive areas. Timber matting distributes weight over a larger surface area therefore decreasing weight load on a smaller area. If earth disturbance is required, then Area 5 would be surveyed in detail to collect and preserve any existing artifacts within this area, if any are present.

Passive Recreation Park

This concept most closely resembles the Park in its current condition/use with minimal improvements to the grounds. This concept emphasizes maintenance and enhancement of ecological features of the site, both in the terrestrial and waterfront environment. Under this concept, the seven remaining historic buildings would be demolished. The structures and all components would be removed from the site to install new ecological features. The foundations for both the Main Hospital and Employee Residence would remain in some fashion to preserve a historical memory of the building. Interpretive signage would be placed at each former foundation location indicating the history of those buildings and the site. The seawall would remain in its entirety and in the same location under this concept.

The Phase 1B archeological report indicates the likely presence of archeologically significant artifacts in Areas 5 and 6. This concept could potentially impact archaeological resources at Area 6 if construction of the nature trail involves subsurface preparation or grading for construction. This concept would likely not significantly impact Area 6, as the plan is to create a grassland habitat through seeding; however, if subsurface preparation of the soil is needed below the existing grass layer, then a Phase II Survey would be warranted.

Hybrid Park

Under this alternative, the existing historic buildings would be preserved. The facades of the buildings would be preserved and restored. The *Seaside Sanatorium Exterior Envelope Condition Assessment* (WJE, 2015) details the work which would be required to restore the facades. The interiors of the Main Hospital and Employee Residence would likely be gutted to the extent practical; however, there are no historically sensitive interior structures within these buildings, beyond the spiral emergency escape in the Main Hospital and central hallway layout in the Employee Residence, which would be recommended to be retained if possible. The Superintendent's Residence and the Duplex House have aspects of the interiors which are likely contributing to the historical significance of the structures, such as fireplaces, stairway balustrades, built-in cabinets, wainscoting, doors, and running trim, and these would be preserved. The seawall would remain in its entirety and in the same location under this concept.

The Phase 1B archeological report indicates the likely presence of archeologically significant artifacts in Areas 5 and 6. The creation of a coastal woodland within Area 6 would likely involve planting juvenile trees which would involve digging and; therefore, artifacts could be encountered during this process. The creation of a circumferential trail with art installations could involve excavation for creating a trail base and if this occurs, then the portion of Area 6 within the proposed trail would warrant a Phase II Survey.

Area 5 may be impacted by the relocation of Ocean View Lane to the south roughly 100 feet. The roadway/parking construction and could result in the compaction of soils and the loss of structural integrity of any undiscovered artifacts. Also, creation of the dune swale would likely involve excavation which would also warrant Phase II Survey of Area 5 under this alternative.

3.2.13 Pesticides, Toxic or Hazardous Materials

3.2.13.1 Existing Conditions

An evaluation of the existing environmental conditions at the Site was conducted by GZA in October 2007 (GZA, 2007). That report involved a site reconnaissance and review of existing environmental reports available at that time. Since then, the State of Connecticut has demolished several of the buildings on the Site and has abated/remediated many of the areas of potential concern noted in the 2007 report.

The following is a list of areas of potential concern that may still remain on Site based on available documentation and recommended items to be investigated prior to construction.

1. Additional testing of soil and/or ground water may be needed to evaluate the following potential concerns:
 - a. Possible presence of pesticides in surficial soils immediately adjacent to the buildings and in landscaped areas.
 - b. 1,000-gallon concrete solid settling underground storage tank (UST) for the wastewater treatment system located adjacent to the Sewage Treatment Building.
 - c. Former pump island for diesel or gasoline dispensing adjacent to Maintenance Building No. 1.

- d. Apparent fill area around Maintenance Building No. 2. This area was identified in aerial photos and during GZA's 2007 site inspection but was not evaluated during the TASA Phase II/III investigations.
 - e. The soil, groundwater, and interior conditions associated with the apparent UST and aboveground storage tank (AST) identified during GZA's site inspection adjacent to the northeast corner of the Duplex Building.
2. Soil contamination in excess of the Remediation Standard Regulations (RSRs) criteria has been identified in the past at the following locations which may still require investigation:
 - a. Petroleum contamination, exterior storage area, Maintenance Building No. 1
 - b. Lead and Zinc contamination, northeast corner of Maintenance Building No. 1
 - c. Petroleum contamination in sediment collected from a suspected drywell in the Main Hospital.
3. Groundwater contamination has been identified in the past at the following locations and may require additional testing and/or remediation:
 - a. Metals and/or PCB contamination adjacent to the former Incinerator Building and south of the Renovated Garage identified during the TASA Phase II (Subsequent testing did not confirm these findings).
 - b. Petroleum contamination (Total petroleum hydrocarbons equal to the CT DEEP's Ground Water Protection Criteria identified downgradient of the Greenhouse Building ;
 - c. Metals contamination identified along the north side of Maintenance Building (zinc exceeded the CT DEEP's Surface Water Protection Criteria) .
4. The following are known unused USTs present at the Site. Note that historic reports indicated that the municipal wastewater pump station maintains a UST onsite. Its location and condition should be coordinated with the Town. Based on available information provided by DEEP, the following tanks may still be onsite:
 - a. 3,000-gallon heating oil UST, northwest corner, Maintenance Building No. 1
 - b. 10,000-gallon heating oil UST, northeast side, Main Hospital Building
 - c. 4,000-gallon heating oil UST, northwest side, Main Hospital Building
 - d. A potential heating oil UST identified during 2007 site inspections, unknown size, northeast corner, Duplex Building
5. Asbestos containing materials were identified in the buildings including thermal system insulation, window and door caulks and glazing, floor tile/sheeting and associated mastics, and, possibly, in steam pipe insulation in tunnels between buildings. Efforts to abate such materials has been ongoing during 2016 and 2017.
6. Lead-based paint and lead-containing paint are present in the Site buildings.
7. Miscellaneous hazardous materials or suspect building contents including ASTs, refrigerants, and mercury containing equipment (heating oil AST, basement of Duplex

Building; derelict electrical equipment, northeast stairwell and basement of the Main Hospital Building).

8. No data is presently available concerning the levels of radon gas inside the buildings.

Based on the *Indoor Radon Potential Map of Connecticut* (Connecticut Geological and Natural History Survey and CT DEEP, 1997), the potential for indoor radon is low to moderate for the Site.

3.2.13.2 *Impacts*

Each of the proposed alternatives would result in either renovation or demolition of existing buildings on the Site. As a result, all alternatives would require abatement of in-building contamination before renovations or demolition could progress. Separate from this EIE Proposed Action, limited and sporadic asbestos abatement efforts are ongoing at the Main Hospital and Employee Residence and such efforts are based on available funding.

For all alternatives, existing USTs would need to be properly closed in accordance with state regulations and/or removed from the Site. For those alternatives which retain the buildings, it is assumed that replacement USTs or ASTs would be installed to provide fuel oil for building heat most likely.

For all alternatives, areas of soil contamination would have to either be abated by removal and disposal of those soils or capped and subject to an Environmental Land Use Restriction (ELUR); ELUR areas would not be applicable to areas where newly installed ecological resources are presented, as excavation of the contaminated soils would be required, this is especially true of areas where there are new inputs of either fresh or seawater proposed. If groundwater is found to be contaminated, then remediation efforts would have to occur at those locations within the Site.

All remediation and abatement activities would be conducted in accordance with all applicable State and federal regulations and policies.

Destination Park

Under this alternative, the historic buildings would be renovated, once building remediation is completed. All remediation and reporting/notifications would be conducted in accordance with local, State, and federal regulations. It is anticipated that fuel oil would most likely be required for heating and as such, new USTs or ASTs would be required under this alternative. Hazardous material storage would be limited to cleaning chemicals and other materials typical of a hotel/lodging operation. The use of fertilizers or pesticides would be in accordance with manufacturer's instructions and all applicable regulations.

Ecological Park

Under this alternative, the historic buildings would be demolished, once building remediation is completed. All remediation and reporting/notifications would be conducted in accordance with local, State, and federal regulations. A UST or AST may be required for heating for the Visitor Center under this alternative. Otherwise, hazardous materials would be limited to those consistent

with an office environment. Any use of fertilizers or pesticides would be limited for this alternative.

Passive Recreation Park

This concept most closely resembles the Park in its current condition/use with minimal improvements to the grounds. Under this alternative, the historic buildings would be demolished, once building abatement is completed. All abatement and reporting/notifications would be conducted in accordance with local, State, and federal regulations. No UST or AST would be required for heating, as this alternative does not include buildings. Any use of fertilizers or pesticides would be limited for this alternative.

Hybrid Park

Under this alternative, the historic buildings would be renovated, once building abatement is completed. All abatement and reporting/notifications would be conducted in accordance with local, State, and federal regulations. It is anticipated that fuel oil would most likely be required for heating and as such, new USTs or ASTs would be required under this alternative. Hazardous material storage would be limited to cleaning chemicals and other materials typical of a hotel/lodging operation. The use of fertilizers or pesticides would be in accordance with manufacturer's instructions and all applicable regulations.

3.2.14 Energy (Use and Conservation)

3.2.14.1 *Existing Conditions*

During its operation, the Site's electricity was provided by what is now Eversource Energy, originating from Shore Road. Heat was produced by oil burning furnaces/boilers at each individual building; Employee Residence was the only exception, as it was serviced by an underground steam line connection from the Main Hospital Building. Since the facility closed, all heat and electrical services to the buildings have been shut off. There is currently no energy demand at the Site, with the exception of electrical service lines from Shore Road which still service the town-owned and operated wastewater pump station, which would remain under any alternative, and ongoing abatement operations.

3.2.14.2 *Impacts*

Several energy-related programs/rating systems would be relevant to the development of the Master Plan alternatives that include buildings and lodging components, as discussed below. For those options without lodging, Leadership in Energy and Environmental Design (LEED) and the Green Lodging Certification would not apply, although Energy Star products could still be considered for the Visitor Center under the Ecological Park alternative.

Energy Star® is an EPA program which promotes voluntary energy efficiency product design and usage. Energy Star® rated products and fixtures could be utilized to reduce or minimize energy demand within the buildings and on the grounds. Such products may include energy-efficient lighting fixtures, laundry machines, and kitchen machinery.

Green Lodging Certification is a self-certification program for hotels promoted by DEEP and the Department of Economic and Community Development (DECD). Those alternatives which

include lodging would require that the developer obtain and maintain Green Lodging Certification. The program is based on accumulating points associated with environmental practices at a lodging facility. The lodging owner completes the Connecticut Green Lodging Self-Certification Workbook and calculates their estimated score. Facilities which can claim at least 100 points can qualify for certification. The workbook then must be submitted to DEEP and DECD for review and certification. Businesses which meet the 100-point requirement are then certified for two (2) years, at which time they would need to increase their total points to 130 in order to be eligible for free recertification. Points can be earned for items such as using environmentally preferable cleaning products and methods, recycling and waste management methods, responsible landscaping practices, energy efficient HVAC, water conservation practices, and use of energy and water efficient fixtures and building products, as well as “green meetings” practices for facilities that host conferences.

Destination Park

Under this alternative, the demand for energy would increase over existing conditions. There would be a demand for heat energy powered, most likely by fuel oil at each building, as well as electric demands associated with cooling systems. There would be an increase in demand for electricity due to the renovation and utilization of the buildings within the Site, lighting along trails, parking lots, access roads, and landscape lighting, as well as demands beyond lighting associated with hotel use, kitchen and restaurant needs, laundry, and other such appurtenances. Energy Star products and energy efficient design concepts would be used to help to reduce overall demand from the Site.

Ecological Park

Under this alternative, the historic buildings would be demolished. Since the buildings would be removed, there would be minimal demand for energy on the Site. A small Visitor Center would be require heat and electricity and landscape and access road lighting would still be required.

Passive Recreation Park

Under this alternative, the historic buildings would be demolished. Since all buildings would be removed, there would be minimal demand for energy on the Site, in the form of access and landscape lighting.

Hybrid Park

Under this alternative, the demand for energy would increase over existing condition and exceed the demand needed for the Destination Park alternative, due to the construction of a new lodging structure, which would also require heat and electricity. Other demands would be similar in nature to those described under the Destination Park alternative.

3.3 SOCIOECONOMIC RESOURCES

3.3.1 Public Health and Safety

3.3.1.1 *Existing Conditions*

The Town of Waterford is approximately 33 square miles and has a population of approximately 19,517 people (US Census 2010). The Town’s public health and safety needs are served by the

Waterford Police Department, the Waterford Fire Department, and the Waterford Office of Emergency Management. Lawrence + Memorial Hospital is the largest emergency medical facility serving the Town.

Police Department

The Waterford Police Department (WPD) headquarters is located at 41 Avery Lane, approximately three miles north of the Site. According to the Town's Chief of Police (2017), there are currently 47 full-time officers, comprised of patrol officers, detectives, a regional narcotics officer, two K9 officers, one accident reconstruction specialist, two school officers, and one harbor master (Lieutenant). During any given shift, there are seven officers, one sergeant, one lieutenant, and two to three dispatchers on duty. The police department has 22 patrol cars available, a patrol boat, three trucks, a mobile command post, eight support vehicles made up of four All Terrain Vehicles (ATV) and four Utility Terrain Vehicles (UTV). One police substation also operates out of the Crystal Mall, located on Hartford Turnpike, on an as-needed basis. (Town of Waterford Police Department, 2017)

Fire Department

The Waterford Fire Department consists of eight full-time and 43 part-time employees; with 30 volunteer fire fighters per company for a total of 180 volunteers. The Town is divided into five fire districts, each served by its own fire station: the Cohanzie Fire Company, the Goshen Fire Department, the Jordan Fire Company, the Oswegatchie Fire Company, and the Quaker Hill Fire Company. There are 40 trained station personnel that provide emergency medical services at the Emergency Medical Technician (EMT) level. The department has eight engines, two ladder trucks, one rescue truck, one service truck, six utility trucks, and two boats. The Goshen Fire Station, which is located at 63 Goshen Road, approximately one mile west of the Site, is the closest emergency response unit (Town of Waterford Fire Department, 2017).

Medical Services

Emergency medical response units from one of the five local fire stations transports patients to Lawrence + Memorial Hospital in New London, which is the closest medical care facility to the Site with a trauma center; although, in cases where paramedics are required, the paramedics from the Hospital may go directly to the Site or meet the emergency medical response en route to the hospital.

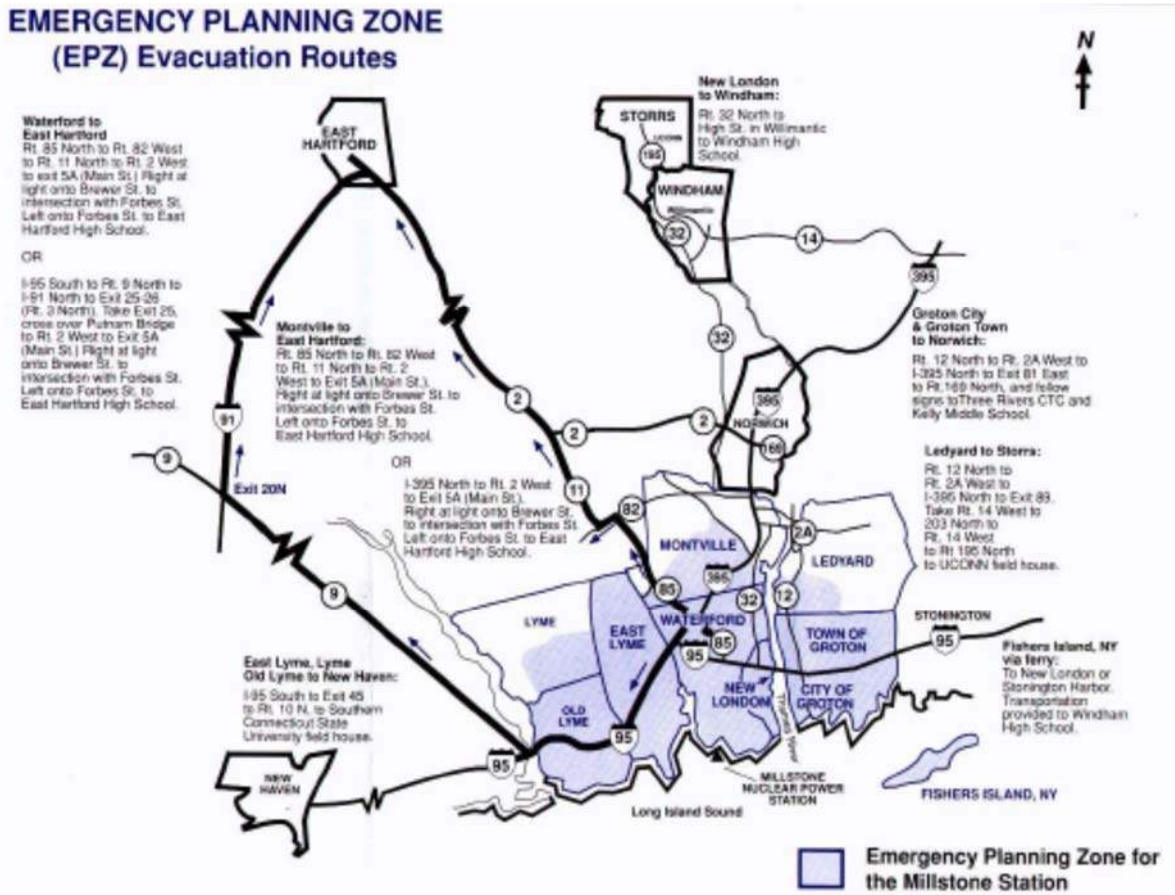
Office of Emergency Management

The Waterford Office of Emergency Management was established by authority under Section 28-7 of the CGS, Civil Preparedness: Department of Emergency Management and Homeland Security. Under this local division of emergency management, according to the Waterford Municipal Code 2.108.010, the First Selectman of the town is authorized to declare that a state of emergency exists within the town at any time that conditions develop that threaten the health, safety or welfare of the residents and/or extensive property damage in the community; providing a coordinated, integrated program for State-wide emergency management and homeland security.

The Site is located within the Emergency Planning Zone (EPZ) for the Millstone Power Station, which is located approximately two-miles west of the Site. The EPZ is an area covering an approximate 10-mile radius around the plant. Both State and local responding management agencies have released information to the public in several media guides to assist in the

preparation, response, and evacuation of certain areas in the event of a nuclear power plant emergency.

Emergency evacuation routes have been established with the EPZ, as shown in Figure 3-17. Depending on the nature of the emergency and the prevailing wind direction, land-based evacuation from the Site would be via various local State and federal routes including Routes 213, 11, and 2, and Interstates I-95 and I-395. Instructions for an emergency can be found at the Town’s Emergency Management website under “Emergency Instructions.”



Graphic Source: Provided by the Town of Waterford Office of Emergency Management

Figure 3-17. Emergency Planning Zone Evacuation Routes

3.3.1.2 Impacts

Destination Park

The restoration of the historic buildings for lodging and the improvements to the Site for park auxiliary uses would result in a potential increase in the need for the above described services, including additional patrolling of the Site by local police and the potential need for fire and emergency response to the Site in the event of illnesses, injuries, fire, or other events requiring

response. “911” calls would initially be responded to by local police, while DEEP Environmental Conservation Police or Connecticut State Police would be responsible for other complaints depending on their nature.

Ecological Park

This alternative would not include lodging and therefore would not present the same level of increased response needs from local services. The increase in park patrons would still likely cause a minimal increase in response and monitoring needs at the Site.

Passive Recreation Park

This concept most closely resembles the Park in its current condition/use with minimal improvements to the grounds. This alternative would not include lodging and therefore would not present the same level of increased response needs from local services. The increase in park patrons would still likely cause a minimal increase in response and monitoring needs at the Site.

Hybrid Park

This alternative would increase the potential for response needs from local emergency services, similar to the Destination Park alternative. The additional lodging proposed under this alternative would increase the potential need for services slightly over that alternative.

3.3.2 Land Use/Neighborhoods

3.3.2.1 *Existing Conditions*

The Site is located in an area of low-density residential housing units, almost entirely single-family homes located along Shore Road to the north and west, Magonk Point Road to the west, West Strand Road and Woodsea Place to the east, and Long Island Sound to the south (Figure 3-18). Located to the north of the Site, a stand of deciduous trees is interspersed sporadic with single-family homes set off Shore Road, Lindros Lane, and Quarry Road. Shore Road may be used periodically as a bypass between Jordan Cove Road and Route 212, situated in a Northwest/Southeast direction, but is mostly dedicated to local traffic.

Table 3-13 below defines the land use classifications onsite and Figure 3-19 depicts the general land use of the Site and environs. The classification system used was developed by the National Oceanic and Atmospheric Administration (NOAA) for coastal lands in the United States (NOAA, 2017). The original definitions were described from the ‘Regional Land Cover Classification Scheme’, and amended to reflect a more accurate definition of onsite and offsite conditions. Directly to the west and north and approximately 900 feet to the east, zoning district R-40 is present. Directly abutting the Site to the east and approximately 450 feet to the west, zoning district RU-120 is present. Much of the development in this area preceded zoning, and the land uses are different from the prescribed definitions in the Waterford Zoning Regulations.

LEGEND

--- PROPERTY BOUNDARY

Sources: CT ECO, CLA, CT DOT.



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Table 3-13. Land Uses Onsite and Adjacent

On/Offsite Land Use Descriptions and Locations		
Classification/ Code	Definition	Location
Developed Open Space (DOS)	Contains areas with a mixture of manmade structures and features, yet primarily managed turf and ornamental inclusions. These areas are maintained by human activity such as fertilization and irrigation. Structures and features account for less than 20 percent of total land cover.	This land use description is located on the Site in the southern portion and the southeastern corner. The area is covered by maintained lawn with ornamental shade tree inclusions.
Developed, Low Intensity (Institutional) (DLI-I)	Contains areas with a mixture of manmade structures and features. Such structures and features account for 25 to 50 percent of total area. This subclass commonly includes governmental buildings, specifically rural neighborhoods rather than urban environments, but may include all types of land use.	This land use description is located from the entry point off of Shore Rd and continues south along the access road, it includes areas both on the western and eastern sides of the Site and is inclusive of all of the buildings onsite. It is mainly maintained lawn, structures, and ornamental trees.
Developed, Low Intensity (Residential) (DLI-R)	Contains areas with a mixture of manmade structures and features. Such structures and features account for 25 to 50 percent of total area. This subclass commonly includes single-family housing areas, especially in rural neighborhoods, but may include all types of land use.	This land use description is located off Site at all points west, north, and east. Along Magonk Point Rd, Shore Road and east to Rt. 112, housing units are located on both sides of the roads, they are comprised of single family houses, maintained lawn, and driveways; often there are remnant trees located on each parcel.
Early Successional Forest (ESF)	Contains areas of post-cleared lands, likely former farmland or DOS. Early successional forest habitat has developed, with herbaceous undergrowth, large areas of shrubby habitat, with minimal inclusions (<20%) of trees generally less than 20-foot tall.	This land use description is located at the northwest corner of the Site, this land use develops as maintained lawn is left fallow, or stands of forest are cleared, the former is the case at the Site.
Beach	Contains areas of open sand and sand dunes, either artificially constructed or naturally occurring, ecological use is dependent upon contact with open ocean/sea. Generally, vegetation accounts for less than 10 percent of total cover.	This land use description is located at the southern edge of the Site, at the interface with Long Island Sound. It is located offsite south of the residential areas both west and east of the Site. At the Site, the accretion of sands is somewhat artificial, as the breakwaters allow accumulation behind them.
Deciduous Forest (DF)	Contains areas dominated by trees generally greater than 20-foot tall and greater than 20 percent of total vegetation cover. More than 75 percent of the tree species shed foliage simultaneously in response to seasonal change, up to 25 percent may include evergreen inclusions.	This land use type is located only on the eastern portion of the Site. It is located in greater portion offsite at all points west, north, and east, as inclusions positioned in between residential areas.

The Site is owned by the State of Connecticut and, therefore, is not subject to local zoning; however, the following information is provided for land use context. The Site is designated as Seaside Preservation District (SPD) under local zoning, coupled with the DDS parcel abutting the property to the northwest which will remain in State ownership, but is not part of the Proposed Action.

LEGEND

- BEACH
- DECIDUOUS FOREST
- DEVELOPED, LOW-INTENSITY (INSTITUTIONAL)
- DEVELOPED, LOW-INTENSITY (RESIDENTIAL)
- DEVELOPED, OPEN SPACE
- ROAD
- SCRUB/SHRUB
- PROPERTY BOUNDARY



Sources: CLA, CT ECO, CT DEEP, GZA.



1 INCH = 400 FEET

FIGURE 3-19
LAND USE

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EVALUATION
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3.3.2.2 *Impacts*

Destination Park

The historic and auxiliary buildings would be rehabilitated as lodging; therefore, the land use of Site would change from DLI-I to Developed Open Space – Hospitality (DOS-H). DOS-H is defined by NOAA as “containing areas with a mixture of manmade structures and features. Such structures and features account for 25 to 50 percent of total area. This subclass commonly includes typical hotel buildings, specifically rural neighborhoods rather than urban environments, but may include all types of land use.” Also, DOS located along the southern portion of the Site would be converted into Coastal Ecological Resource Area (CERA) which is defined by NOAA as “containing areas of marine-influence dependent ecological resource areas” because of newly introduced features such as dune swales and wet meadow.

This alternative would result in a higher intensity use than what currently exists in the neighborhood. The Site would draw more visitors because of the presence of the lodging facilities and the provision of approximately 90 visitor spaces for park users not associated with the lodging. This would have potential negative impacts on traffic, noise, and lighting on adjacent properties as discussed in Sections 3.2.1, 3.2.3, and 3.2.4 of the EIE, respectively.

The change in land use of the Site would not impact the land use of the neighborhood because the neighborhood is zoned for rural residential use and is built-out. This alternative would create temporary and permanent jobs as well as an increased need from local businesses to service the lodging component of the Site; however, such economic activity would not likely result in increased land development.

Ecological Park

This concept emphasizes maintenance and enhancement of ecological features of the site, both in the terrestrial and waterfront environment. Under this concept, all historic buildings onsite would be demolished, except for the Renovated Garage which would be converted to a Visitor Center. However; land use of the Site would be similar to the current condition, although under the NOAA classification scheme it would change from DLI-I to DOS. The Site would be more utilized than it is today because of the provision of approximately 90 parking spaces for visitors which is approximately three times the number of vehicles that can be accommodated today. This would have potential negative impacts on traffic, noise, and lighting on adjacent properties as discussed in Sections 3.2.1, 3.2.3, and 3.2.4 of the EIE, respectively.

Passive Recreation Park

This concept most closely resembles the Park in its current condition/use with minimal improvements to the grounds. Under this concept all historic buildings would be demolished. The land use of the Site would be similar to the current condition, although under the NOAA classification scheme it would change from DLI-I to DOS. The Site would be more utilized than it is today because of the provision of approximately 90 parking spaces for visitors which is approximately three times the number of vehicles that can be accommodated today. This would have potential negative impacts on traffic, noise, and lighting on adjacent properties as discussed in these sections of the EIE.

Hybrid Park

Under this alternative, the historic and auxiliary buildings would be rehabilitated as lodging; therefore, the land use of Site would change from DLI-I to Developed Open Space – Hospitality (DOS-H), similar to the Destination Park alternative. Manmade structures and features account for 25 to 50 percent of total area. This subclass commonly includes typical hotel buildings, specifically rural neighborhoods rather than urban environments, but may include all types of land use.” Also, DOS located along the southern portion of the Site would be converted into Coastal Ecological Resource Area (CERA) which is defined by NOAA as “containing areas of marine-influence dependent ecological resource areas” because of newly introduced features such as oyster reefs and wet meadow.

This alternative would result in a higher intensity use than what currently exists in the neighborhood. The Site would draw more visitors because of the presence of the 100-room lodging facilities and the provision of approximately 90 visitor spaces for park users not associated with the lodging. This would have potential negative impacts on traffic, noise, and lighting on adjacent properties as discussed in these sections of the EIE.

The change in land use of the Site would not impact the land use of the neighborhood because the neighborhood is zoned for rural residential use and is built-out. This alternative would create temporary and permanent jobs as well as an increased need from local businesses to service the lodging component of the Site; however, such economic activity would not likely result in increased land development.

3.3.3 Population, Employment, Income, and Housing

3.3.3.1 Existing Conditions

The Site is located entirely within the Town of Waterford, New London County, which as of the 2010 US Census, has a population of 19,517 (U.S. Census, 2010), up 2% from the 2000 US Census (19,152). Of this 2010 total, 48.5% were males and 51.5% were female (the Census does not specify self-defined gender populations). The median age was 45.1 for males and 47.1 for females. The majority of the population in 2010 identified as White (89.4%), then Hispanic or Latino (4.7%), Asian (3.7%), Black (2.5%), Other (1.3%), and Native American (0.5%).

The Town of Waterford is 44.6 square miles; there are 8,634 housing units in the Town, with 8,005 occupied, and 6,697 owner-occupied; there were 629 vacant housing units reported in the Census. The average household size was reported at 2.38, with an average family size of 2.91.

The Town is located west of New London along the I-95 and I-395 corridors, with the interchange located at the western boundary of the town. Access to the Town is direct from the east and west (I-95) and north (I-395), the latter connects the town with Worcester, MA and CT-2 and CT-9, both connecting the Town to the State capitol. I-95 connects the Town indirectly to the west to the New York City metro area and to the east, with Providence, RI and Boston, MA. The Site is about equidistant from New York City and Boston. Bradley International Airport, located north of Hartford, is the closest major airport. Access from Long Island Sound is also feasible with boats being able to dock in Niantic just to the west. The Town also has a dock within Waterford, although public access is limited. Ferry service is available between New London, Long Island,

Block Island, and Fishers Island. The Amtrak Northeast Regional and Acela Express routes both have stops in New London.

The median household income for Waterford as of 2015 was \$75,956 (\pm 3,479) according to 2011-2015 American Community Survey 5-Year Estimates. The March 2017 unemployment rate was 4.7% (seasonally adjusted) for the entire State of Connecticut (DOL, 2017). The five largest employers in the county are Foxwoods Resort Casino, Mohegan Sun, Pfizer Inc., Naval Submarine Base, and Lawrence & Memorial Hospital, in descending order.

A total of 1,182 people (530 males & 652 females) in Waterford were identified as being below the federal poverty line, 6% of the total population of the Town. Of this total, 1,021 were White, 91 Black, 34 Native American, 31 Asian, and 5 of self-identified other status.

The 2010 Census estimated educational attainment at 13,936 for the population 25 years and over. Of this total, 953 had less than a high school diploma, 4,150 had a high school diploma or equivalent, 3,894 had some college experience or an Associate's degree, and 4,939 had a Bachelor's degree or higher.

According to the 2012 Survey of Business Owners (www.factfinder.census.gov), there were 1,799 business in Waterford supporting the following jobs:

- Retail trade - 3,475;
- Health care and social assistance industry - 3,628;
- Transportation and warehousing industry - 620;
- Professional scientific and technical services industry - 550;
- Waste management and remediation services industry - 548;
- Finance and insurance industry - 154;
- Other services (except public administration) - 152;
- Arts, entertainment, and recreation industry - 126;
- Real estate and rental and leasing industry - 44; and
- Educational services, 66.

Religious categorization is not provided by the US Census. However, the Association of Religion Data Archives (ARDA New London County Membership Report) for 2010 identifies 274,055 people in New London County in religious memberships as follows:

- 150,905 - No claimed affiliation;
- 84,765 – Catholic;
- 18,993 - Mainline Protestant;
- 9,320 - Evangelical Protestant;
- 2,594 - Black Protestant;
- 2,456 - Orthodox; and
- 5,022 as Other.

3.3.3.2 *Impacts*

In accordance with Federal Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” and the DEEP Environmental Equity Policy, proposed State and federal actions should not result in disproportionately high and adverse human health or environmental effects on minority and low-income populations. The proposed Project would result in an increase in employment opportunities at the Site, both temporary (construction) and permanent (park or hotel operations) (See Section 3.3.4, Economic Impact Analysis). There may be an increase in population in the region as jobs opportunities are filled, although employment opportunities would arise for the local population to fill such vacancies as well. The Destination and Hybrid concepts would create the greatest economic stimulus to the geographic region. Not only would the hotel complex have employment opportunities for full-time and seasonal work, the hotel would also produce an economic stimulus to the surrounding areas. There would likely be food vendors and restaurants, technical and consulting needs, livery services, adventure services such as fishing and boating on the Sound, local shopping by hotel guests, and opportunities associated with such events as weddings at the hotel, among many others.

Destination Park

The socioeconomic effects of this concept would be an increase in both temporary (construction) and permanent employment opportunities consisting of park staff as well as staff within the hotel complex itself. Temporary employment opportunities would consist of construction worker jobs. This would include manual labor and heavy equipment operators, engineers and landscape architects, among many other jobs. The permanent employment opportunities would consist of hotel staff, including reception, management, dining services, cleaning, grounds crews, lifeguards, valet staff, and more. These opportunities would likely be serviced from the local population and regional population, increasing employment and consumer spending in the area, resulting in a boost for local businesses and tax collections. The likely jobs would provide the working-age population within the area (63.7% of the 19,517), with permanent employment opportunities.

Ecological Park

The socioeconomic effects of this concept would be an increase in temporary (construction) employment opportunities consisting of construction worker jobs. This would include manual labor and heavy equipment operators, engineers, and landscape architects, among many other jobs. Operation phase opportunities would be more limited with this alternative, associated with the Visitor Center.

Passive Recreation Park

The socioeconomic effects of this concept would be an increase in temporary (construction) employment opportunities consisting of construction worker jobs. This would include manual labor and heavy equipment operators, engineers and landscape architects, among many other jobs. There would not likely be devoted full-time operational staff associated with this alternative.

Hybrid Park

The socioeconomic effects of this concept would be an increase in both temporary (construction) and permanent employment opportunities consisting of park staff as well as staff within the hotel

complex itself. This would include manual labor and heavy equipment operators, engineers and landscape architects, among many other jobs. The permanent employment opportunities would consist of hotel staff, including reception, management, dining services, cleaning, grounds crews, lifeguards, valet staff and many more. These opportunities would likely be serviced from the local population and regional population, increasing employment and consumer spending in the area, resulting in a boost for local businesses and tax collections. The likely jobs would provide the working-age population within the area (63.7% of the 19,517), with permanent employment opportunities.

3.3.4 Economic Impact Analysis

The proposed alternatives were evaluated in detail to estimate the overall economic and fiscal impact to the State and the Town of Waterford. The economic impact analysis measures the impact associated with both the construction phase and the subsequent operations that would occur associated with each alternative. The economic impact analysis estimates jobs, earnings, and output as defined below.

- **Jobs** represents employment levels sustained by an entity's current existence, or anticipated to be created by investment, such as construction. Jobs represent a combination of full- and part-time jobs. The impact analysis does not distinguish between the two.
- **Earnings** represents salaries and wages paid to employees (not corporate earnings or net profit); the second type of impact calculated. Construction phase earnings are spread over the life of the project and not repeated. Operational earnings and jobs are considered ongoing, annual impacts.
- **Output** represents the sum of economic activity or investment associated with the development. In the case of the construction phase, output is the total development budget. In the operational phase, output is a projection of the sum of all operations expenditures associated with commercial use onsite and maintenance and upkeep of the park, inclusive of wages linked to these activities.

The types of economic impacts are calculated as direct, indirect, induced, and total, as defined below:

- **Direct Impact:** the annual amount of money put into the economy and jobs created by the project itself. Direct jobs impacts include, for example, construction workers in the construction phase and hotel workers during the operational phase.
- **Indirect Impact:** the continuing annual flow of money as transactions take place after initially being put into the economy, sometimes informally referred to as the "ripple effect". In order to calculate indirect impact, multipliers specific to the regional economy from the RIMSII Regional Input-Output Modeling System are used.
- **Induced Impact:** the effect of when payrolls increase and workers in affected industry sectors spend more on local goods and services (household spending effect). The RIMSII model also accounts for induced impacts.
- **Total Impact:** the sum of the direct and indirect-induced calculations for the three types of economic impact - output, earnings, and jobs.

The fiscal impact analysis estimates any changes in fiscal revenue or cost associated with the development alternatives specific to Town of Waterford and State of Connecticut. This includes an estimate in change in real and personal property taxes to Town of Waterford under the four development options, as well as estimate of fiscal cost to the Town resulting from operations occurring in the park.

For the State, fiscal impact analysis measures both estimated revenue from State lodging tax and sales & use tax associated with operation of hotel in the Hybrid and Destination option, as well as parking fee income at the park. In the Ecological and Passive Park scenarios, there is no commercial component and thus no State tax to compute. State fiscal costs include both the expense in maintenance and operation of the park, as well as cost of site improvements in each development alternative, with cost on the latter expressed annually in the form of a State General Obligation Bond for payment of improvements. State cost is largely impacted by the size of the General Obligation Bond needed to pay for improvements to the park under each alternative. The costs presented below do not include the \$10.1 million State contribution for exterior improvements on State-owned historic buildings in the Hybrid and Destination options. For purposes of this analysis, this cost was not included in the overall estimated yearly bond cost for the Destination and Hybrid alternatives since it is assumed that this cost would be offset by ground lease payments by the hotel developer-operator. Thus, capital costs subject to bonding only refer to site improvements. However, the analysis did consider the economic impact of expenditure of those funds relative to jobs, earnings, and output. More information is provided in the full economic report, appended to this EIE.

The full economic and fiscal impact analysis is presented in Appendix B and is summarized below and in Table 3-14. The numbers presented below have been rounded for ease in reading.

3.3.4.1 *Existing Conditions*

Based on Waterford's latest revaluation (2013), Seaside Park is appraised at \$48.6 million (land & buildings), with net assessment calculating to \$34.0 million. This number, however, may be inflated because some buildings on site have been demolished since the last revaluation. If the Seaside State Park was under private ownership, the tax levy on Seaside Park at the current mill rate of 26.78 is estimated at \$910,000.

However, as the park is State-owned, payment of property taxes for Seaside Park is made under the State's PILOT program (Payment in Lieu of Taxes), which sets a ceiling on real estate taxes paid of 45% of such taxes that could be collected by the town under private ownership. The actual tax payments made by the State to municipalities under the PILOT program varies from year to year based on State Legislature's appropriations.

3.3.4.2 *Impacts*

The following is a summary of the economic and fiscal impact of each alternative as described in more detail in Appendix B.

Overall, the greatest economic and fiscal impacts are realized under the lodging alternatives, the Destination and Hybrid Park alternatives, because of the commensurate higher level of investment by the State and prospective developer. And of these two alternatives, the Hybrid Park one has

the greatest economic impact primarily because it offers more hotel rooms and, therefore, a slightly higher level of investment.

Destination Park

The estimated cost for construction of this hotel alternative is \$39.5 million, which would be shared by the State and the selected hotel developer. This is based on the plans presented in the Master Plan and this EIE, which are conceptual and, therefore, the costs presented herein for all the alternatives are gross estimates and would be refined during the design process. A total of 195 direct onsite/offsite construction jobs (full- and part-time) are projected to be created under this scenario.

It is estimated that construction indirect impacts under this scenario would result in approximately \$20.8 million in additional output and generate 108 indirect jobs (full- and part-time).

Thus, total employment created under this scenario is estimated at 303 jobs (direct and indirect) resulting in \$16.9 million in earnings (both direct and indirect) during the construction phase. Once the Project has been constructed and the hotel is operational, then it is estimated that there would be 40 direct jobs created and an additional 11 jobs indirectly created, for a total of 51 jobs. Operational output and earnings would be \$5.5 and \$1.5 million, respectively.

The Town of Waterford is projected to receive \$246,000 annually in the form of real estate and personal property tax. Estimated fiscal impact to the Town of Waterford resulting from commercial operations in the park is projected at \$21,000 annually.

The State would be projected to receive approximately \$642,000 annually from hotel occupancy tax, sales and use tax, and park entrance fees. The estimated annual cost to the State for maintenance and operation and to repay a general obligation bond(s) for building and site improvements is projected at \$1.2 million.

Ecological Park

The estimated cost for construction of this alternative is \$8.3 million, which would be borne by the State. This is based on the plans presented in the Master Plan and this EIE, which are conceptual and, therefore, the costs presented herein for all the alternatives are gross estimates and would be refined during the design process. A total of 29 direct onsite/offsite construction jobs (full- and part-time) are projected to be created under this scenario.

It is estimated that construction indirect impacts under this scenario would result in approximately \$4.1 million in additional output with 20 jobs created (full- and part-time).

Thus, the total estimated employment (direct and indirect) created under this scenario is estimated at 49 jobs. This would generate an estimated \$2.8 million in earnings (direct and indirect) during the construction phase. Once the Project has been constructed, then it is estimated that there would be three direct jobs to manage and maintain the property. Operational output and earnings would be \$100,000 and \$40,000, respectively.

Table 3-14. Economic and Fiscal Impact Summary

Economic Parameter	Unit¹	Destination Park	Ecological Park	Passive Park	Hybrid Park
Construction Cost					
Building & Renovation	\$ million	25.9	1.6	1.2	30.7
Site Improvements	\$ million	13.7	6.7	1.5	13.8
Total	\$ million	39.5	8.3	2.7	44.6
Construction Output					
Direct	\$ million	39.5	8.3	2.7	44.5
Indirect	\$ million	20.8	4.1	1.3	23.6
Total	\$ million	60.3	12.4	4.0	68.1
Construction Earnings					
Direct	\$ million	12.1	1.9	0.6	12.8
Indirect	\$ million	4.8	0.9	0.3	6.6
Total	\$ million	16.9	2.8	0.9	19.3
Construction Jobs²					
Direct	Jobs	195	29	10	225
Indirect	Jobs	108	20	7	122
Total	Jobs	303	49	17	347
Operation Output					
Direct	\$ million	3.8	0.1	0.1	5.5
Indirect	\$ million	1.6	0	0	2.4
Total	\$ million	5.5	0.1	0.1	7.9
Operation Earnings					
Direct	\$ million	1.0	.04	0.04	1.6
Indirect	\$ million	0.4	0	0	0.6
Total	\$ million	1.5	.04	0.04	2.2
Operation Jobs²					
Direct	Jobs	40	3	3	59
Indirect	Jobs	11	0	0	16
Total	Jobs	51	3	3	75
Local Revenue – Annual					
Real Estate Tax	\$	197,000	20% decline ³	21% decline ³	251,000
Personal Property Tax	\$	48,000	0	0	75,000
Total	\$	246,000	20% decline³	21% decline³	325,000
One-Time Revenue	\$		12,000	12,000	
Local Cost	\$	20,000	0	0	27,000
State Revenue – Annual					
Hotel Occupancy Tax	\$	470,000	0	0	657,000
Sales & Use Tax	\$	88,000	0	0	161,000
Park Entrance Fees	\$	83,000	83,000	83,000	83,000
Total	\$	642,000	83,000	83,000	901,000
State Cost – Annual					
Maintenance & Operation	\$	201,000	115,000	100,000	201,000
Bond Repayment	\$	961,000	564,000	181,000	969,000
Total	\$	1,200,000	680,000	281,000	1,170,000

¹ 2015 dollars rounded to \$100,000 for output and earnings and \$1,000 for all others

² Jobs represent both full and part time positions

³ Demolition of all State-owned buildings combined with no new construction could result in a decline in net assessment of the property that would likely lead to lower PILOT payments.

The Town of Waterford would likely receive less PILOT money than it currently receives because all the State-owned buildings, with exception of the Renovated Garage, would be demolished under this alternative, thereby reducing the assessed value of the property by approximately 20%. The Town would receive an estimated one-time payment from the State of \$12,000 for demolition of the buildings.

The State would be projected to directly receive approximately \$83,000 annually from park entrance fees. The estimated annual cost to the State for maintenance and operation and to repay a general obligation bond(s) for building and site improvements would be \$680,000.

Passive Park

The estimated cost for construction of this alternative is \$2.7 million, which would be borne by the State. This is based on the plans presented in the Master Plan and this EIE, which are conceptual and, therefore, the costs presented herein for all the alternatives are gross estimates and would be refined during the design process. A total of 10 direct onsite/offsite construction jobs (full- and part-time) are projected to be created under this scenario.

It is estimated that construction indirect impacts under this scenario would result in approximately \$1.3 million in additional output with 7 indirect jobs created (full- and part-time).

Thus, total estimated employment (direct and indirect) created under this scenario is estimated at 17 jobs resulting in \$900,000 in earnings (direct and indirect) during the construction phase. Once the Project has been constructed, then it is estimated that there would be three direct jobs to manage and maintain the property. Operational output and earnings would be \$100,000 and \$40,000, respectively.

The Town of Waterford would likely receive less PILOT money than it currently receives because all the State-owned buildings would be demolished under this alternative, thereby reducing the assessed value of the property by approximately 21%. The Town would receive an estimated one-time payment from the State of \$12,000 for demolition of the buildings.

The State would be projected to directly receive approximately \$83,000 annually from park entrance fees. The estimated annual cost to the State for maintenance and operation and to repay a general obligation bond(s) for building and site improvements would be \$281,000.

Hybrid Park

The estimated cost for construction of this hotel alternative is \$44.6 million, which would be shared by the State and the selected hotel developer. This is based on the plans presented in the Master Plan and this EIE, which are conceptual and, therefore, the costs presented herein for all the alternatives are gross estimates and would be refined during the design process. A total of 225 direct onsite/offsite construction jobs (full- and part-time) are projected to be created under this scenario.

It is estimated that construction indirect impacts under this scenario would result in approximately \$23.6 million in additional output and generate 122 indirect jobs (full- and part-time).

Thus, total employment created under this scenario is estimated at 347 jobs (direct and indirect) resulting in \$19.3 million in earnings (both direct and indirect) during the construction phase. Once the Project has been constructed and the hotel is operational, then it is estimated that there would be 59 direct jobs created and an additional 16 jobs indirectly created for a total of 75 jobs. Operational output and earnings would be \$7.9 and \$2.2 million, respectively.

It is projected that the Town of Waterford would receive approximately \$325,000 annually in the form of real estate and personal property tax. Estimated fiscal impact to the Town of Waterford resulting from commercial operations in the park is projected at \$27,000 annually.

The State would be projected to receive approximately \$901,000 annually from hotel occupancy tax, sales and use tax, and park entrance fees. The estimated annual cost to the State for maintenance and operation and to repay a general obligation bond(s) for building and site improvements would be \$1.2 million.

3.3.5 Consistency with Plans, Policies, and Regulations

3.3.5.1 Consistency with Adopted Municipal and Regional Plans

An evaluation of consistency with local and regional plans, policies, and regulations was conducted as part of this EIE. The scope of work consisted of a review of existing documents as listed below:

Local:

- *Waterford Plan of Preservation, Conservation & Development (1998)*
- *Waterford Plan of Preservation, Conservation and Development – Part 1 – Policy Element (2012a)*
- *Waterford Plan of Preservation, Conservation and Development – Part 2 – Implementation Guide (2012b)*

Regional (Southeastern CT Council of Governments (SECCOG)):

- Southeastern Connecticut Enterprise Region (SCER) & Southeastern Connecticut Council of Governments' *Comprehensive Economic Development Strategy 2011: Southeastern Connecticut* (2011)
- Southeastern CT Council of Governments' *Regional Plan of Conservation & Development* (2007)
- Southeastern CT Council of Governments' *Land Use – 2011, Southeastern Connecticut Region* (2012)
- Southeastern CT Council of Governments' *seCTer CEDS Data Update Final Report* (2011)
- Southeastern CT Council of Governments' *Transportation Improvement Program FY 2015-2018* (2014)

The 1998 Waterford Plan of Preservation, Conservation & Development (PPCD) detailed an overview of community structure, made recommendations for natural resource conservation regarding coastal issues, open space preservation, residential development and uses, business and

economic development, business development and business uses, community facilities/services, transportation, vehicular/pedestrian circulation, infrastructure, utilities (public water and sewer), and special issues such as design review, historic protection, and future land use. The 2012 PPCD documents are merely policy and implementation guides for carrying out the 1998 PPCD.

Some of the relevant goals set out in the 1998 PPCD which are germane to the proposed concepts include the following:

- Reinforce the character and diversity of individual neighborhoods,
- Adopt standards that address building and site design in order to enhance the overall character of Waterford,
- Protect the town's important fresh-water resources (surface and ground water),
- Preserve key scenic vistas and areas,
- Enhance environmental quality, Protect the town's coastal water bodies, wetlands, fragile shoreline environments, and other important coastal resources,
- Address the special needs and issues of coastal areas and continue to restore coastal resource areas in Waterford,
- Establish a coordinated open space/greenbelt system,
- Set aside funding for open space in the annual budget,
- Make necessary infrastructure improvements and make some zoning changes to encourage appropriate economic development,
- Guide the design of non-residential developments, and
- Preserve the historical, archeological, and cultural features that contribute to the character and uniqueness of Waterford.

The 2007 Regional Plan called for resolution for specific items including: five general areas including: governmental fragmentation; diversification and growth of the regional economy; effects of future growth on the environment; transportation demands; and public utility infrastructure needs" (SECCOG, 2007).

The *Comprehensive Economic Development Strategy for Southeastern Connecticut* (2011) states that "the key to a strong economic recovery is the restoration of consumer confidence which had plummeted during the recent recession" and indicated that:

"absent increased demand, companies are unlikely to begin hiring anytime soon. Various measures of consumer confidence have just started inching back into territory where positive sentiment outweighs negative. The overall situation remains a bit of a stalemate – consumers are waiting for employers to begin hiring, while businesses are waiting for consumers to resume spending. This standoff affects everyone in the country including, of course, the seCTer region of Connecticut" (SECCOG, 2011).

The last statement was made in 2011, and economic recovery has been ongoing.

The Town is currently embarking on a study that will provide it with information and tools to prioritize capital projects, operational improvements and regulations to increase resilience to flooding and climate change. A final report has not yet been issued.

Destination Park

This concept emphasizes passive and active recreation along with a lodging experience. Existing historic buildings would be restored for lodging and auxiliary uses and the grounds and waterfront would be modified and enhanced to support passive and active recreational uses. This concept is consistent with both open space and economic development goals for both the Town and the county. It increases public access to open space of significance (waterfront), it preserves some ecological resources such as wet meadows and restores/creates others such as tidal pools and coastal meadows, and it increases economic development by specifically creating job opportunities for locals working at the hotel as well as economic opportunities locally and regionally to support the hotel. This concept would create a temporary boost to the local and regional economy by creating construction jobs and engineering oversight.

The Destination Park alternative would provide access to significant historic structures on the National Register of Historic Places present at the Site which had been limited by prior institutional use and current safety concerns. In the Waterford Plan of Preservation, Conservation & Development, 78% of residents felt that the Town “should encourage the renovation of existing buildings and properties in the Town,” and 65% of resident felt that the Town should “acquire more land for parks and open space”.

Ecological Park

This concept emphasizes maintenance and enhancement of ecological features of the Site, both in the terrestrial and waterfront environment. Under this concept, the historic buildings would be demolished. This concept is consistent with some local and regional planning goals by the increase in public access to open space, and would also provide access to created coastal ecological resources such as dunes, coastal meadows, and coastal woodlands. Freshwater wetlands of importance would also be preserved and enhanced onsite, for example stream sections onsite which are currently piped and outlet to Long Island Sound would be daylighted. The foundations of several of the historic buildings would remain indicating their relic presence at the Site but the buildings themselves would not remain. In the Waterford Plan of Preservation, Conservation & Development, 65% of resident felt that the Town should “acquire more land for parks and open space”.

Passive Recreation Park

This concept most closely resembles the Park in its current condition/use with minimal improvements to the grounds. Under this concept, the historic buildings would be demolished. The concept offers limited ecological preservation and creation such as coastal wetlands, although it does offer public access to open space and recreational opportunities including open savannah grasslands and picnicking opportunities; the seawall would be removed and a swimming beach would be created. This concept would not provide economic opportunities to the Town or the region. The historic buildings would be removed and the foundations filled to grade and converted into lawn. The freshwater resource area would not be enhanced and portions would remain piped. As stated above, the Waterford Plan of Preservation, Conservation & Development indicated that 65% of resident felt that the Town should “acquire more land for parks and open space”.

Hybrid Park

For this alternative, the historic buildings would be converted to lodging, the grounds would be enhanced and ecological habitats would be created or enhanced along the waterfront. This concept is consistent with both open space and economic development goals for both the Town and the County. It increases public access to open space of significance (waterfront), it preserves some ecological resources such as wet meadows and restores/creates others such as native sunflower meadows and coastal meadows and it increases economic development and specifically job opportunities for locals working at the hotel as well as economic opportunities locally and regionally to support the hotel. This concept would create a temporary boost to the local and regional economy as well by creating construction jobs and engineering oversight. This concept would provide access to significant historic structures on the National Register of Historic Places present at the Site which had been limited by prior institutional use and current safety concerns. It should be noted that in the Waterford Plan of Preservation, Conservation & Development, 78% of residents felt that the Town “should encourage the renovation of existing buildings and properties in the Town,” and 65% of resident felt that the Town should “acquire more land for parks and open space”.

3.3.5.2 *Consistency with State Plan of Conservation and Development and Locational Guide Map*

In accordance with Sections 16a-24 through 16a-33 of the CGS, the Office of Policy and Management (OPM) is required to prepare a State Plan of Conservation and Development (C&D Plan) on a recurring five-year cycle. The C&D Plan is a statement of the State's growth, resource management, and public investment policies and is designed to guide the planning and decision-making processes of the State using a balanced response to human, environmental, and economic needs in a manner which best suits the future of Connecticut.

State agencies are required by Public Act 91-395 to be consistent with the C&D Plan when they undertake various actions including the acquisition, development, or improvement of real estate property when the costs are in excess of \$200,000. According to the C&D Plan, the following statutes may be applicable and need to be reviewed for certain state actions:

CGS Chapter 297

- ➔ *Is the proposed State agency action subject to the consistency requirement of the State C&D Plan per CGS Sec. 16a-31a?*
 - *If yes, then sponsoring agency proceeds to document how the proposed action is either consistent or inconsistent with the C&D Plan policies and its Growth Management Principles*
 - *If no, then sponsoring agency may proceed without further consideration of the C&D Plan*

CGS Chapter 297a

- ➔ *Does the proposed State agency action involve “funding” as defined under CGS Sec. 16a-35c(a)(1) and is the proposed action a “growth-related project” per CGS Sec. 16a-35c(a)(2)?*

- *If yes, then sponsoring agency proceeds to determine whether or not the proposed action is located in a Priority Funding Area (PFA) on the Locational Guide Map*
 - *If located outside a PFA, sponsoring agency may undertake PFA exception process at its discretion*
- *If no, then sponsoring agency may proceed without further consideration of the Locational Guide Map*

The entire Site, and points west, north, and east, are set within a Priority Funding Area (Figure 3-20), with the attributes of “Urban Area, Water, and Sewer.” Within the PFA, there is also a Balanced Priority Funding Area. Balanced Funding Areas meet the criteria of both PFAs and Conservation Areas. Applicable State agency actions in these areas must provide balanced consideration of all factors in determining the extent to which it is consistent with the policies of the State C&D Plan.

Within the C&D Plan, there are six Growth Management Principles (GMPs) that lay the foundation for guiding State planning and investments (OPM, 2013). The basic goals of each Growth Management Principle are as follows:

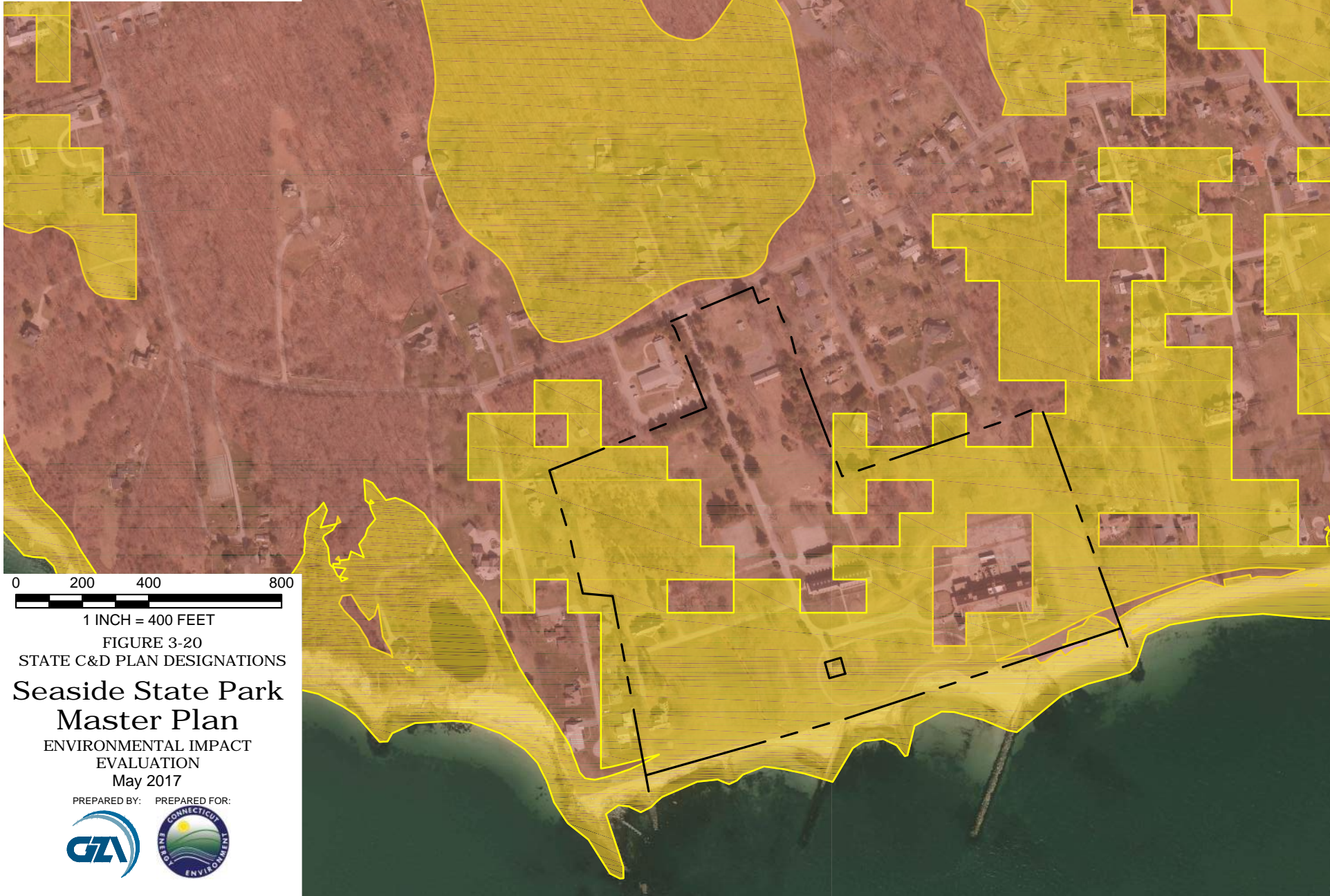
1. Redevelop and revitalize regional centers and areas with existing or currently planned physical infrastructure;
2. Expand housing opportunities and design choices to accommodate a variety of household types and needs;
3. Concentrate development around transportation nodes and along major transportation corridors to support the viability of transportation options;
4. Conserve and restore the natural environment, cultural and historical resources and traditional rural lands;
5. Protect and ensure the integrity of environmental assets critical to public health and safety; and,
6. Promote integrated planning across all levels of government to address issues on a statewide, regional, and local basis.

Some of the GMPs above are not applicable to this Project, as summarized below:

- Growth Management Principle #1 applies to regional centers, of which Waterford is not.
- Growth Management Principle #2 applies to housing projects and none of the alternatives have a housing component.
- Growth Management Principle #3 is also not relevant to this Project because it is not germane nor considerate of the mission of DEEP which is to provide recreational opportunities that utilize the State’s natural features and landscapes, most of which are not located along major transportation corridors or transportation nodes.
- Growth Management Principle #6 applies to broad, large-scale intergovernmental planning policies.

LEGEND

- PRIORITY FUNDING AREAS (PFA)
 - BALANCED PFA
 - PROPERTY BOUNDARY
- Sources: CLA, CT ECO, CT OPM.



0 200 400 800
1 INCH = 400 FEET

FIGURE 3-20
STATE C&D PLAN DESIGNATIONS
**Seaside State Park
Master Plan**
ENVIRONMENTAL IMPACT
EVALUATION
May 2017



GMPs 1,2, 3 and 6 were not evaluated because they were not relevant to the Site or the subject alternatives. For GMP #5, the environmental asset that is critical to public health and safety is the shoreline protection that protects the Site and adjacent properties from flooding and/or land erosion. For both GMPs 4 & 5, the proposed activities would likely meet these goals. The following table and section summarizes the proposed alternatives consistency relative to the applicable GMPs (4 and 5) listed above and described in this paragraph.

Table 3-15. Growth Management Principle Review for C&D Plan Consistency

Alternative	GMP 4	GMP 5
Destination Park	Overall consistent in preserving existing historic nature of the site through building reuse and preservation. Reconfiguration of seawall would negatively affect a contributing historical element.	Seawall configuration would protect the site and adjacent properties from flooding and coastal storms/wave energy and is therefore consistent with GMP 5.
Ecological Park	Overall consistent in preserving and enhancing natural environment features. Removal of historic buildings and seawall would negatively impact historic resources.	Removal of seawall would increase flooding onsite and to adjacent properties. Seawall removal may negatively affect the sewer force main onsite over time.
Passive Recreation Park	Overall consistent in preserving and enhancing natural environment features. Removal of historic buildings and repair of the seawall would negatively impact historic resources.	Preservation of seawall would protect sewer system onsite and the adjacent properties.
Hybrid Park	Overall consistent in preserving existing historic nature of the site through building reuse and preservation. Repair of seawall would preserve its integrity as a functional and contributing historical element.	Preservation of seawall would protect sewer system onsite and the adjacent properties.

3.3.5.3 *Consistency with Coastal Zone Management Act*

Activities within Coastal Areas and Coastal Boundaries are regulated by the DEEP Bureau of Water Protection and Land Reuse. The Site is within both the Coastal Area and the Coastal Boundary of Connecticut. The Coastal Area includes the Town of Waterford and 35 other municipalities that border Long Island Sound and its major tidal rivers.

A general and preliminary assessment of the consistency of the various alternatives with respect to the applicable policies and standards of the CCMA is given below.

Table 3-16. Preliminary Assessment of Consistency with Coastal Resources and Functions

Resource	CGS Section¹	Destination Park	Ecological Park	Passive Park	Hybrid Park
Beaches & Dunes	22a-93(7)(C), 22a-92-(b)(2)(C), 22a-92(c)(1)(K)	Maintains beaches, alters sand accumulation/beach grass areas	Removal of seawall alters beach and sand accumulation/beach grass areas	Existing beach and sand accumulation/beach grass areas remain in current state.	Existing beach and sand accumulation/beach grass areas remain in current state.
Coastal Hazard Area	22a-93(7)(H), 22a-92(a)(2), 22a-92(b)(2)(F), 22a-92(b)(2)(J), 22a-92(c)(2)(B), 22a-92(a)(5)	Slight alteration of Velocity Zone due to seawall reconfiguration but maintains protection of on and off-site properties	Removal of seawall negatively impacts Site by increasing Velocity Zone and coastal erosion	No change to Velocity Zone	No change to Velocity Zone
Developed Shorefront	22a-93(7)(I), 22a-92(b)(2)(G)	Maintains buildings and lawns at/near shorefront	Buildings removed	Buildings removed	Maintains existing buildings and lawns at/near shorefront and adds new building.
Freshwater Wetlands & Watercourses	22a-93(7)(F), 22a-92(a)(2)	Maintains existing wetlands and enhances freshwater meadow	Wetlands and watercourses maintained; additional wetland/watercourse crossing required to implement	Wetlands and watercourses remain in the current state	Wetlands and watercourses enhanced but new crossings for path and driveways are proposed.
Intertidal Flats	22a-93(7)(D), 22a-92(b)(2)(D), 22a-92(c)(1)(K)	Not present on Site	Not present on Site	Not present on Site	Not present on Site
Islands	22a-93(7)(J), 22a-92(b)(2)(H)	Not present on Site	Not present on Site	Not present on Site	Not present on Site
Rocky Shorefront	22a-93(7)(B), 22a-92(b)(2)(B)	Not present on Site to a substantial degree	Not present on Site to a substantial degree	Not present on Site to a substantial degree	Not present on Site to a substantial degree
Shellfish Concentration Areas	22a-93(7)(N), 22a-92(c)(1)(I)	Not present on or near Site	Not present on or near Site	Not present on or near Site	Not present on or near Site
Shorelands	22a-93(7)(M), 22a-92(b)(2)(I)	Not present on Site	Not present on Site	Not present on Site	Not present on Site
Tidal Wetlands	22a-93(7)(E), 22a-92(a)(2), 22a-92(b)(2)(E), 22a-92(c)(1)(B)	Not present on or near Site	Not present on or near Site	Not present on or near Site	Not present on or near Site
Coastal Flooding - CGS Section 22a-93(15)(E)	22a-93(15)(E)	Slight alteration of Velocity Zone due to seawall reconfiguration but maintains protection of on and off-site properties	Seawall removal increases flood potential on and off-site.	No change in FEMA flood zones	No change in FEMA flood zones

Resource	CGS Section¹	Destination Park	Ecological Park	Passive Park	Hybrid Park
Coastal Waters Circulation Pattern	22a-93(15)(B)	No change	No change	No change	No change
Drainage Patterns	Section 22a-93(15)(D)	No significant change	No significant change	No significant change	No significant change
Shoreline Erosion & Accretion	22a-93(15)(C)	Increased shoreline erosion. Existing sediment transport maintained	Increased shoreline erosion. Existing sediment transport maintained.	Existing sediment transport maintained	Existing sediment transport maintained
Visual Quality	22a-93(15)(F)	Restoration of buildings improves aesthetic quality of Site	Removal of structures increases water views from adjacent homes	Removal of structures increases water views from adjacent homes	Restoration of buildings improves aesthetic quality of Site. New lodging building could block waterfront views, depending on site selection.
Water Quality	22a-93(15)(A)	New stormwater system would improve water quality discharge to LIS	New stormwater system would improve water quality discharge to LIS	New stormwater system would improve water quality discharge to LIS	New stormwater system would improve water quality discharge to LIS
Wildlife, Finfish & Shellfish Habitat	22a-93(15)(G)	No change or improved overall habitat conditions.	No change or improved overall habitat conditions.	No change or improved overall habitat conditions.	No change or improved overall habitat conditions.

¹ Connecticut General Statute

The Coastal Boundary is a subset of the Coastal Area and is defined in Section 22a-94 of the CGS as:

“the landward side by the interior contour elevation of the one hundred year frequency coastal flood zone...or a one thousand foot linear setback measured from the mean high water mark in coastal waters..., whichever is farthest inland”.

Therefore, by definition, the entire Site is within the Coastal Boundary.

Projects located within the Coastal Boundary require a positive Coastal Zone Consistency Determination from DEEP. The purpose of this program is to properly assess proposed activities for consistency with the applicable policies and standards in the Connecticut Coastal Management Act (CCMA) as codified in Sections 22a-90 through 22a-112 of the CGS.

The Project proponent, which could be DEEP and/or the selected developer, would need to submit an application to DEEP for a Coastal Zone Consistency Determination. This would be done during the design phase of any of the alternatives.

The coastal resources on the Site include: beaches & dunes, coastal hazard areas, coastal waters & estuarine embayments (the latter does not apply), developed shorefront, freshwater wetlands and watercourses, and rocky shorefronts.

3.3.5.4 *Consistency with State Environmental Equity Policy*

Federal Executive Order 12898 states that proposed Federal actions should not result in disproportionately high and adverse human health or environmental effects on minority or low-income populations. The State of Connecticut has a similar policy, commonly referred to as the “Environmental Equity Policy” (EEP), which serves to protect such populations from State-sponsored actions. DEEP states its impetus for implementing the EEP:

“Federal and state environmental laws have accomplished a great deal in the control, reduction and elimination of pollution. However, these same laws have restricted certain types of activities and have designated some areas not suitable for development. These areas tend to be the rural towns of the State. Conversely, the evolutionary development of the cities (in terms of infrastructure, transportation, population makeup) has resulted in the state’s manufacturing and industrial base being located primarily in the urban areas, where the greatest concentration of racial and ethnic minority groups and lower income persons reside. The Department recognizes that a higher number of potential sources of pollution in these areas may consequently cause a disproportionate impact on their residents. In light of these facts, and because the Department is committed to enhancing the quality of life for all of its residents, the Department has developed an Environmental Equity Policy.” (DEP, 1993)

Further, it states on the website:

“The policy of this Department is that no segment of the population should, because of its racial or economic makeup, bear a disproportionate share of the risks and

consequences of environmental pollution or be denied equal access to environmental benefits. The Department is committed to incorporating environmental equity into its program development and implementation, its policy making and its regulatory activities.” (DEP, 1993)

Destination Park

This concept emphasizes passive and active recreation along with a lodging experience. There are no anticipated negative environmental equity impacts upon the local area. There would be a boost to the local economy, as park and hotel patrons would come through Waterford; the hotel would require local and regional logistical resources, some of which may come from nearby New London which is an Environmental Justice Community. Furthermore, temporary and permanent jobs would be created, thus offering an opportunity for local low income and/or minority populations. See Section 3.3.4 and Appendix B for a detailed analysis of job creation.

Ecological Park

This concept emphasizes maintenance and enhancement of ecological features of the Site, both in the terrestrial and waterfront environment, but would result in the historic buildings being demolished. There are no anticipated negative environmental equity impacts upon the local area. There may be a small boost to the local economy, as park patrons would come through Waterford to visit the Park. See Section 3.3.4 and Appendix B for a detailed analysis of job creation.

Passive Recreation Park

This concept most closely resembles the Park in its current condition/use with minimal improvements to the grounds and would involve the historic buildings being demolished. There are no anticipated negative environmental equity impacts upon the local area. There may be a small boost to the local economy, as park patrons would come through Waterford to visit the Park. See Section 3.3.4 and Appendix B for a detailed analysis of job creation.

Hybrid Park

The historic buildings would be converted to lodging, the grounds would be enhanced and ecological habitats would be created or enhanced along the waterfront. There are no anticipated negative environmental equity impacts upon the local area. There would be a boost to the local economy, as park and hotel patrons would come through Waterford. The hotel would require local and regional logistical resources, some of which may come from nearby New London which is an Environmental Justice Community. Furthermore, temporary and permanent jobs would be created, thus offering an opportunity for local low income and/or minority populations. See Section 3.3.4 and Appendix B for a detailed analysis of job creation.

4.0 CUMULATIVE IMPACTS

According to CEPA Regulation Sec. 22a-1a-3(b), cumulative impacts are defined as:

Cumulative impacts are the impacts on the environment which result from the incremental impact of the action when added to other past, present or reasonably foreseeable future actions to be undertaken by the sponsoring agency. For the purposes of these regulations, cumulative impacts include the incremental effects of similar actions with similar environmental impacts and the incremental effects of a sequence of actions undertaken pursuant to an ongoing agency program which may have a significant environmental impact, whereas the individual component actions would not.

Currently, DAS is conducting abatement activities in the existing buildings and DEEP is providing public parking and access to the Site. Both of those activities would continue to occur under any of the proposed alternatives, with the exception of abatement of hazardous materials, as those activities would eventually be completed as part of any proposed alternative. Therefore, besides providing public access, ongoing maintenance/operations, and improvements identified in the alternatives, there are no foreseeable projects/actions DEEP would take as a result of implementing any of the alternatives or components thereof. Therefore, there are no anticipated cumulative impacts.

5.0 UNAVOIDABLE ADVERSE ENVIRONMENTAL IMPACTS

This section summarizes the general unavoidable (significant) adverse impacts associated with the construction and operation of the four Master Plan concepts identified as alternatives in this EIE. These impacts are also discussed in greater detail in Section 3 of the document.

Unavoidable adverse impacts are defined as those that meet the following two criteria:

1. There are no reasonably practicable mitigation measures to eliminate the significant adverse impacts; and
2. There are no reasonable alternatives to the proposed action that would meet the purpose and need for the action, eliminate the adverse impact, and not cause other or similar significant adverse impacts.

As described in the Impacts and Mitigation Measures sections, a number of the potential impacts identified for the proposed alternatives could be mitigated. However, in some cases, Project impacts would not be immediately or fully mitigated. As described below, unmitigated adverse impacts have been identified for the Project, divided into construction phase and operation phase impacts.

5.1 CONSTRUCTION PHASE

5.1.1 Ecology

There would be temporary disturbance of habitat conditions and increased risk of sedimentation and erosion during construction. Construction stormwater BMPs would be required which should limit any potential impacts. Some time of year restrictions for construction could apply if rare species are determined to reside on-site to avoid nesting seasons for protected bird species, or allow for plant transplantation during a favorable season to maximize success.

5.1.2 Noise

There would be short-term increases in noise levels related to construction activities at the Site, from construction vehicles, equipment, and activities.

5.1.3 Cultural Resources

The Destination alternative would involve seawall relocation, which would affect the historic seawall, while the Ecological Park alternative would involve removal of the historic seawall and demolition of historic buildings onsite (adverse impact). The Passive Park alternative would also involve demolition of historic buildings (adverse impact). All alternatives could require excavation that could impact historical resources unless further study and resource protection methods were employed during design. Depending on the which alternative moves forward or components thereof, specific mitigation measures to offset potential adverse impacts will be coordinated with the State Historic Preservation Office.

5.2 OPERATIONS PHASE

5.2.1 Noise

There would be increases in noise associated with increased usership of the Site, especially the hotel alternatives (Destination and Hybrid Parks). Mitigation is discussed in other sections of this EIE.

5.2.2 Stormwater

Depending on the alternative selected, there would be either an increase or decrease in the amount of impervious cover on the Site. The Destination Park and Hybrid Park alternatives would result in increases, while the Ecological Park and Passive Recreation Park would result in decreases. Unmitigated stormwater has the potential for adverse impacts, especially on coastal recourses. However, current standards for stormwater management, which would exceed those practices currently onsite, would be employed as described in the mitigation sections, thereby avoiding potential adverse impacts.

5.2.3 Aesthetics/Viewsheds

The development of the Destination Park or Hybrid Park would include additional parking, which would be a visual negative, to be offset by vegetative shielding, although this could further limit views. The Hybrid alternative would include a new structure, which could limit views based on its placement.

The development of the Ecological Park or Passive Recreation Park would include the removal of buildings, which would potentially increase or improve water and landscape views for existing abutters, a potential benefit, but would result in the loss of the views of the historical buildings which could be viewed as a negative. These alternatives would involve a new parking lot near the park entrance, which could be perceived as a negative impact by some. Vegetative shielding could be used, but this would potentially limit longer distance water and landscape views.

5.2.4 Land Use/Neighborhoods

Every alternative would increase the use intensity of the Site over current conditions by creating parking and amenities which would attract more users. The Destination and Hybrid alternatives would be the most intensive uses of the Site and would result in a change in land use/intensity within the neighborhood. Lodging would represent a new land use within the neighborhood which is currently residential and open space. The increase in use intensity under the Destination and Hybrid alternatives could be perceived as an adverse impact by some people. It is assumed the perceived impacts are associated with such topics as noise and traffic, for example. These “associated” impacts are individually discussed in Section 3. Based on the analysis and identified mitigation measures within other parts of the EIE, it is anticipated there would be no adverse impacts to land use/neighborhoods.

6.0 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The Proposed Action would result in an irreversible and irretrievable commitment of resources associated with the construction and operation of any of the Master Plan alternatives. Detailed information is provided in Sections 3 and 5 of this EIE.

Depending on the alternative selected, there may be an irreversible and irretrievable loss of vegetation and natural habitats due to development of current lawn and wooded areas and coastal zones. There would also be an irreversible and irretrievable loss of cultural resources, for those options which would result in the demolition of the existing historic structures onsite.

There would also be expenditures for fuels, labor, and construction materials, associated with any of the alternatives. Depending on the selected alternative, this may include, but not limited to, concrete or plastic pipe, bituminous pavements, concrete, steel, and utility related materials, as well as furnishings for those alternatives which include lodging and state funds to pay for or offset design and construction costs.

The commitment of these resources is based on the concept that local, regional, and State residents would benefit through the development of a park resource open to all, as well as from construction job creation, and through potential benefits from the leases associated with private partnerships for Site operation of lodging, which result in saving National Register-listed buildings.

7.0 SUMMARY OF MITIGATION MEASURES

Table 7-1 summarizes the mitigation measures that would be employed as part of the Proposed Action. These mitigation measures offer means of avoiding or minimizing temporary (construction phase) and permanent (operation phase) impacts to the natural, physical, and socioeconomic elements of the Site.

Table 7-1. Summary of Mitigation Measures

Environmental Element	Destination Park	Ecological Park	Passive Park	Hybrid Park
Geology, Soils, Agricultural Soils, Topography	No mitigation warranted	No mitigation warranted	No mitigation warranted	No mitigation warranted
Water Resources	Plan for future shoreline protection of wastewater pump station and sewer main. Develop scour measures at seawall openings. Keep primary groin intact.	Plan for future shoreline protection of wastewater pump station and sewer main. Keep primary groin intact.	Keep primary groin intact.	Keep primary groin intact.
Site Ecology	Impact minimization during design, habitat improvements and ecological restoration.	Impact minimization during design, habitat improvements and ecological restoration.	Impact minimization during design, habitat improvements and ecological restoration.	Impact minimization during design, habitat improvements and ecological restoration.
Endangered, Threatened or Special Concern Species or Habitats	Pre-construction surveys by DEEP and avoidance and/or time of year restrictions. Habitat improvements and possible plant transplantation.	Pre-construction surveys by DEEP and avoidance and/or time of year restrictions. Habitat improvements and possible plant transplantation.	Pre-construction surveys by DEEP and avoidance and/or time of year restrictions. Habitat improvements and possible plant transplantation.	Pre-construction surveys by DEEP and avoidance and/or time of year restrictions. Habitat improvements and possible plant transplantation.
Traffic, Parking, Circulation	No mitigation warranted	No mitigation warranted	No mitigation warranted	No mitigation warranted
Air Quality	Minimize construction idling per regulations Applicable equipment to be retrofitted with emission control devices All vehicles and equipment to comply with applicable regulations re: emission controls and safety Diesel engines shall be located away from fresh air intakes, air conditioners, and windows, except for when in motion Control of fugitive dust through BMPs shall be required.	Minimize construction idling per regulations Applicable equipment to be retrofitted with emission control devices All vehicles and equipment to comply with applicable regulations re: emission controls and safety Diesel engines shall be located away from fresh air intakes, air conditioners, and windows, except for when in motion Control of fugitive dust through BMPs shall be required.	Minimize construction idling per regulations Applicable equipment to be retrofitted with emission control devices All vehicles and equipment to comply with applicable regulations re: emission controls and safety Diesel engines shall be located away from fresh air intakes, air conditioners, and windows, except for when in motion Control of fugitive dust through BMPs shall be required.	Minimize construction idling per regulations Applicable equipment to be retrofitted with emission control devices All vehicles and equipment to comply with applicable regulations re: emission controls and safety Diesel engines shall be located away from fresh air intakes, air conditioners, and windows, except for when in motion Control of fugitive dust through BMPs shall be required.
Noise	Limit construction to daytime hours, when possible Limit vehicle idling to 3 minutes per regulations Use energy efficient HVAC systems and shield them to limit noise trespass Noise limits and time of day restrictions for outdoor events Hour restrictions for daytime park use	Limit construction to daytime hours, when possible Limit vehicle idling to 3 minutes per regulations Noise limits and time of day restrictions for outdoor events Hour restrictions for daytime park use	Limit construction to daytime hours, when possible Limit vehicle idling to 3 minutes per regulations Noise limits and time of day restrictions for outdoor events Hour restrictions for daytime park use	Limit construction to daytime hours, when possible Limit vehicle idling to 3 minutes per regulations Use energy efficient HVAC systems and shield them to limit noise trespass Noise limits and time of day restrictions for outdoor events Hour restrictions for daytime park use
Light and Shadow	Use downward directed lighting fixtures to limit light trespass from parking areas and buildings	Use downward directed lighting fixtures to limit light trespass from parking areas	Use downward directed lighting fixtures to limit light trespass from parking areas	Use downward directed lighting fixtures to limit light trespass from parking areas and buildings
Water Supply/Wastewater	Design and operation of water conservation fixtures/program in accordance with Green Lodging Certification	None warranted	None warranted	Design and operation of water conservation fixtures/program in accordance with Green Lodging Certification
Stormwater	Installation and maintenance of proper erosion and sedimentation controls, in accordance with CGP Design and maintenance of proper BMPs in system per applicable regulations	Installation and maintenance of proper erosion and sedimentation controls, in accordance with CGP Design and maintenance of proper BMPs in system per applicable regulations	Installation and maintenance of proper erosion and sedimentation controls, in accordance with CGP Design and maintenance of proper BMPs in system per applicable regulations	Installation and maintenance of proper erosion and sedimentation controls, in accordance with CGP Design and maintenance of proper BMPs in system per applicable regulations
Electricity, Telecommunications (Utilities)	Contact Call Before You Dig prior to construction, local utilities, and Town Utility Commission	Contact Call Before You Dig prior to construction, local utilities, and Town Utility Commission	Contact Call Before You Dig prior to construction, local utilities, and Town Utility Commission	Contact Call Before You Dig prior to construction, local utilities, and Town Utility Commission

Environmental Element	Destination Park	Ecological Park	Passive Park	Hybrid Park
Heat and Energy	Use energy efficient HVAC systems and generators and follow applicable regulations/permits	None warranted	None warranted	Use energy efficient HVAC systems and generators and follow applicable regulations/permits
Aesthetics/Viewsheds	Shielding with vegetation or fencing. Consideration of abutters viewsheds in planning/design process for Hybrid alternative	None warranted	None warranted	Shielding with vegetation or fencing. Consider abutters viewsheds when locating/designed new lodging annex
Solid Waste and Recycling	Recycling programs would be used to limit increases in solid waste	Recycling programs would be used to limit increases in solid waste	Recycling programs would be used to limit increases in solid waste	Recycling programs would be used to limit increases in solid waste
Cultural Resources	Phase II study before work proceeds in sensitive areas Use of existing seawall materials or similar local materials if seawall is relocated in Destination Park alternative Coordination with SHPO on restoration and preservation measures for the adaptive reuse of the historic buildings	Phase II study before work proceeds in sensitive areas Coordination with SHPO on documentation and recordation of removed seawall and any demolished historic buildings in accordance with SHPO guidelines.	Phase II study before work proceeds in sensitive areas. Coordination with SHPO on documentation and recordation of any demolished historic buildings in accordance with SHPO guidelines.	Phase II study before work proceeds in sensitive areas Coordination with SHPO on restoration and preservation measures for the adaptive reuse of the historic buildings
Pesticides, Toxics, Hazardous Materials	Remediation/abatement of hazardous materials prior to or during construction. During operation, follow applicable regulations for handling and disposal. Minimize use of pesticides/fertilizers and follow all application instructions	Remediation/abatement of hazardous materials prior to or during construction. During operation, follow applicable regulations for handling and disposal. Minimize use of pesticides/fertilizers and follow all application instructions	Remediation/abatement of hazardous materials during construction. During operation, follow applicable regulations for handling and disposal. Minimize use of pesticides/fertilizers and follow all application instructions	Remediation/abatement of hazardous materials prior to or during construction. During operation, follow applicable regulations for handling and disposal. Minimize use of pesticides/fertilizers and follow all application instructions
Public Health and Safety	No mitigation warranted	No mitigation warranted	No mitigation warranted	No mitigation warranted
Land Use/Neighborhoods	Follow mitigation recommendations under light/shadow, noise and aesthetics/viewshed	No mitigation warranted	No mitigation warranted	Follow mitigation recommendations under light/shadow, noise and aesthetics/viewshed
Population, Employment, Income, Housing	No mitigation warranted	No mitigation warranted	No mitigation warranted	No mitigation warranted

8.0 POTENTIAL CERTIFICATES, PERMITS, AND APPROVALS

Table 8-1 summarizes the environmentally-related certificates, permits, and approvals that would likely be required for the construction and operation of the Site, for at least one of the alternatives. The table also identifies the alternatives to which the certificate, permit, or approval might apply.

Table 8-1. Potential Certificates, Permits, and Approvals Required for Seaside State Park Master Plan Development Alternatives

Certificate, Permit, or Approval	Reviewing Agency	Alternative	Comments
General Permit for Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities	CT DEEP	All	Applies to projects with one or more acres of earth disturbance. Development of SWPCP and registration with CT DEEP required prior to earth disturbing activities onsite.
Flood Management Certification (FMC) Section 25-68 CGS	CT DEEP	All	Activity proposed by State Agency within or affecting floodplain or that impacts natural or man-made storm drainage facilities requires certification.
Inland Wetlands and Watercourses IWRD-FS-104	CT DEEP	All	Work affecting and in immediate proximity to watercourses and fringing inland wetlands. Boardwalk/trail, roads, parking, building reconstruction and demolition; new buildings; picnicking grounds; wet meadow; grasslands/meadows and woodland enhancements.
Coastal Permits (COP or Structures & Dredging)	CT DEEP	All	Structures, Dredging and Fill Act (CGS Sec. 22a-359 - 22a-363f, inclusive for work below the Coastal Jurisdiction Line. Stormwater Management: Individual Permit. Coastal development sites must incorporate proper stormwater management measures. Sites should retain existing natural vegetation, reduce site disturbance and overall impervious cover, and pretreat runoff to tidal waters and wetlands. Drainage from paved surfaces should be directed to stormwater collection systems with appropriate pretreatment structures. Seawalls and Overlook: Repair of existing seawalls is likely a

Certificate, Permit, or Approval	Reviewing Agency	Alternative	Comments
			<p>Certificate of Permission (COP) if it is repair in-kind. The construction of new seawalls is discouraged and would likely require an individual permit.</p> <p>Groins and Jetties/Fishing Pier: COP possible for repair of existing, but must minimize alteration of natural circulation patterns and loss of intertidal/subtidal habitat. Sand fill to mitigate past beach erosion may be required. The proposed modification as a fishing pier could require an individual permit.</p> <p>Kayak Launch/Swimming Beach/Dune Restoration/Tidal Pools: Individual Permit</p>
Coastal Consistency Review	CT DEEP	All	Review for consistency with Connecticut Coastal Management Act (CGS Sec. 22a-90 - 22a-112, inclusive).
Section 404 Permit (either GP or IP)	USACE	All	All activities within Waters of the U.S. (below High Tide Line, within watercourses, and inland wetlands).
Natural Diversity Data Base Review	CT DEEP NDDB	All	All activities within designated NDDB areas.
OSTA Certificate	CT OSTA	Destination Hybrid	Required for facilities with 200 or more parking spaces or new building or change in use involving over 100,000 square feet.
Soil and Special Waste Disposal approvals	CT DEEP	All	May be required for disposal of waste generated during utility relocation or demolition activities
Groundwater Remediation Wastewater to a Sanitary Sewer	CT DEEP	All	May be required if groundwater remediation is found to be needed
Permit by Rule for Generators	CT DEEP	Destination Hybrid	May be required for emergency generators associated with lodging structures
Demolition Permits	Waterford Building Department	All	Building Demolition
Building Permits	CT DAS	Destination Hybrid	Building exterior/interior work

9.0 REFERENCES

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