

CHAPTER 6

SUMMARY OF ENVIRONMENTAL IMPACT ANALYSIS

6.1 INTRODUCTION

In accordance with the MEPA review process, an Environmental Impact Report (EIR) is required as part of the Town of Falmouth's CWMP. The Code of Massachusetts Regulations (301 CMR 11.00) provides the outline for the information required for the EIR and this information is presented as part of the Draft Comprehensive Wastewater Management Planning Report. The purpose of this chapter is to outline the existing conditions of the Town; and provide an analysis of effects for the Town of Falmouth's recommended plan and the "No Action" alternative.

The existing conditions establish an environmental baseline to help assess the potential impacts of construction and operation of the recommended plan and the no action alternative. Following the establishment of the existing environment and the environmental impacts associated with the Town of Falmouth's preferred plan versus the No Action alternative, a recommended plan is then selected and any potential impacts are identified. Mitigation measures are primarily identified in Chapter 8, where practicable, to minimize these impacts to the proposed sites, while allowing for full functionality of the proposed facilities.

The main focus of this environmental impact analysis is to address the nitrogen TMDLs developed (and planned) for Falmouth's estuaries. Based on the evaluations performed as part of the CWMP, this is best accomplished by extending sewers, first to plan for the initial 20-year period which would not completely address TMDLs (Phase 1 and 2), and then as a second 20-year period (40-year planning horizon) which would include the remaining sewer system to meet the TMDLs (Phase 3) with coordination with Mashpee and Sandwich. The focus of this CWMP is for the first 20 years of plan implementation (2015 to 2035) when sewers are extended to the Phase 1 and 2 areas and septic tank discharges are eliminated in this area. Phase 3 would follow in years 2035 to 2055. All three phases would include transmission of the wastewater to a new WWTF to be built at the Massachusetts Military Reservation (MMR)/Otis Air Force Base (AFB) site, and then reuse of the treated water to recharge the groundwater system via recharge wells.

6.2 EXISTING ENVIRONMENT

A. **Introduction.** To properly assess the potential site impacts, background information regarding the physical, biological, chemical, economic, and social conditions of the planning area and immediate surroundings must be outlined. The majority of this information was compiled in the October 2007 Needs Assessment Report (NAR). The Alternatives Screening Analysis Report (ASAR) outlined the Alternative Management Plans in greater detail. The NAR combined with the ASAR provides the background for this chapter section.

Environmental information has been reviewed in the November 2007 Alternatives Screening Analysis Report to aid in the assessment of the alternatives. For the purpose of this report, overall existing conditions will be discussed primarily for the Recommended Plan and the No Action alternative as the planning area encompasses such a large area of the Town of Falmouth. The proposed MMR/Otis AFB WWTF site will be a focus of the analysis in addition to the sites identified for potential injection wells along Route 151. Additional detailed information will be included in the analysis where site specific data is available or applicable to the discussion.

Figure 1-1, Project Location Map, illustrates the project location, planning area and watersheds. Figure 1-2 illustrates the project estimates of existing wastewater nitrogen that needs to be removed from these watershed to meets the nitrogen TMDLs. Figures 6-1 through 6-9 provide detailed illustrations of the existing conditions in the planning areas.

B. **Topography, Geology and Soils.**

1. **Topography.** In general, the planning area is a relatively flat portion of Falmouth. The topography is typical of a glacial outwash plain with flooded river valleys forming the salt water ponds of Falmouth and upper portions of these valleys forming surface streams/rivers and wetlands. There are also kettle-hole ponds which are depressions in the outwash plain. The majority of the planning area is within the Town of Falmouth. Portions of the neighboring towns of Mashpee, Sandwich and Bourne are within the planning area and have similar topography. The topography of the planning area is illustrated in the Geographic Information Systems (GIS) developed Figure 6-1.

2. **Geology/Soils.** The Town of Falmouth Open Space and Recreation Plan describes the Town as being divided into two major geologic units: the Buzzards Bay (Falmouth) moraine,

and the Mashpee outwash plains. The line dividing these two geologic formations runs approximately along Gifford Street through Long Pond, down Palmer Avenue, and through Salt Pond. Figure 6-2 illustrates the surficial geology of the planning area. The majority of the planning area is identified as “sand and gravel deposits” and “large sand deposits where distinguished from sand and gravel.” Portions of the planning area in Falmouth and Mashpee are identified as “floodplain alluvium” and an area in the Eel Pond and Waquoit-West Watershed is identified as “till or bedrock.” The potential MMR/Otis AFB WWTF site is also identified as “sand and gravel deposits.”

According to the Barnstable County Soil Survey (U.S. Department of Agriculture [USDA], 1993), Falmouth contains 25 specific soil types. These soils can be further classified based on topography and thickness of the soil layers. The predominant soil types are Plymouth-Barnstable-Nantucket and Enfield-Merrimack-Carver. However, Hooksan-Beaches-Dune Land, Carver, and Enfield-Merrimack-Carver soil types dominate the planning area. The Plymouth-Barnstable-Nantucket soils are “nearly level to steep, excessively drained and well drained, sandy and loamy soils formed in reworked glacial outwash and glacial till; on moraines and outwash plains” (USDA, 1993). The Enfield-Merrimack-Carver soils are “nearly level to steep, very deep, well drained and excessively drained, loamy and sandy soils formed in glacial outwash and loamy eolian materials; on outwash plains” (USDA, 1993). The Hooksan-Beaches-Dune Land soils are “nearly level to steep, drained, sandy soils formed in windblown deposits; along coastal shorelines” (USDA, 1993). The Carver soils are “nearly level to steep, very deep, excessively drained, sandy soils formed in glacial outwash and ice-contact deposits; on outwash plains and kames” (USDA, 1993). For purposes of this project, a soils map (Figure 6-3) was developed in GIS.

C. Surface and Groundwater Hydrology and Quality. The surface waters in the planning area consist of embayments, lakes, ponds, rivers, wetlands, and vernal pools. A brief discussion of these water bodies in the planning area follows including floodplains and velocity zones. The groundwater in Falmouth provides drinking water supplies and recharges the ponds, wetlands, and coastal estuaries. The groundwater resources on Cape Cod are classified as a sole-source aquifer by USEPA. Groundwater details such as flow direction and elevation, public water supplies and protected areas are discussed below.

1. Embayment Water Quality. Embayment water quality for each of the watersheds, specifically the infaunal communities (benthic organisms), eelgrass distribution and water

quality in the planning area is discussed in greater detail in Chapter 5 of the NAR. As documented in the MEP Technical Reports, the excessive nitrogen loading to the Town's embayments is damaging these water resources and could impact property values and ultimately the tourist and summer home economy of many portions of Falmouth.

2. **Lakes, Ponds and Rivers.** There are 21 great ponds and three rivers within the planning area, most of which are located in Falmouth. A great pond is defined by the MassDEP as any pond or lake of 10 or more acres. Ashumet Pond, Flat Pond, Hamblin Pond, Jehu Pond, Johns Pond, and Snake Pond are located either in Mashpee or Sandwich or shared with Falmouth. The Great Ponds and smaller ponds in the planning area were listed and illustrated in Chapter 5 of the NAR; see Figure 6-4 for a map of the ponds.

According to the CCC Pond and Lake Atlas, there are 141 ponds in Falmouth totaling 1,016 acres. The atlas serves as a status report on the Cape Cod Pond and Lake Stewardship (PALS) program and reviews water quality data collected by volunteers during the 2001 PALS snapshot in order to gain Cape Cod specific nutrient indicators of pond impacts. Of the 141 ponds located within the Town of Falmouth, only 7 ponds were sampled (or 5 percent) and only 2 were located within the planning area (Deep Pond and Fresh Pond). Of the seven ponds sampled, six were considered impacted by the CCC for chlorophyll a and total phosphorus and all seven were considered impacted for total nitrogen.

3. **Wetlands.** Wetlands are identified as both fresh and salt water. In 1993, the Falmouth Wetlands Action Committee performed a wetland survey to account for unidentified wetland areas. This information was then incorporated into the Falmouth Local Comprehensive Plan (LCP) (Open Space, 1996). Also as part of the Town's wetland regulations, a 100-foot buffer was defined, surrounding each identified wetland area. Each of the planning areas has wetlands within their boundaries and in some cases, these wetland areas and freshwater ponds provide natural attenuation of nitrogen.

Wetlands result from both salt water and fresh water and are valuable for flood protection, nutrient uptake and release, wildlife habitat and propagation, groundwater recharge, and open space for recreation and scenic beauty. The Wetlands Protection Act (WPA) is administered and enforced by MassDEP's Wetlands Program. The WPA imposes restriction on the removal, filling, dredging, or alteration of any designated wetland. The wetland delineations within the planning area are shown on Figure 6-5.

4. **Vernal Pools.** Vernal pools are temporary bodies of freshwater that provide critical habitat for a number of vertebrate and invertebrate wildlife species. More than 50 vernal pools have been identified by the Natural Heritage & Endangered Species Program (NHESP) in the Town of Falmouth alone. The vernal pools located within the planning area are shown on Figure 6-5. The majority of the vernal pools located within the Town of Falmouth are within the Great Pond Watershed, and the ones in the Town of Mashpee are within the Waquoit-East Watershed.

5. **Floodplains and Velocity Zones.** Floodplains are nature's way of buffering land areas from excessive storm events because they act to dissipate the wind and wave action generated during these storms. V-Zones are designated by FEMA and are defined as areas susceptible to 100-year coastal flooding with high velocity wave action.

Also designated by FEMA, A-Zones are areas where flooding is predicted to occur once every 100 years. This flooding occurs with minimal associated wave action, and these areas are typically located landward of the V-Zones, typically in salt marshes and low elevation areas of Falmouth and Mashpee. The surface elevations in these areas typically lie below 10 feet mean sea level. The flood zones in the planning area are illustrated in Figure 6-6.

Both the potential MMR/Otis AFB WWTF site and well injection sites are outside of all flood zone areas as shown on Figure 6-6.

6. **Groundwater Flow Direction and Elevation.** Generally, the groundwater system (Sagamore Lens) is at its highest elevation in the Town of Sandwich. Groundwater flows in a southerly direction for this part of the lens and eventually drains into Nantucket Sound. Figure 6-4 illustrates the generalized groundwater contours and elevations (based on USGS evaluations) and indicates the direction of flow.

7. **Public Water Supplies.** As discussed in Chapter 4 of the NAR, approximately 90 percent of Falmouth is serviced by public water, which comes from the Sagamore Lens. Residents in the remainder of the planning area also receive drinking water from the Sagamore Lens. There are currently five groundwater source wells in Falmouth; Fresh Pond well, Coonamessett well, Mares Pond well, Crooked Pond well and Ashumet well. Of these, only the Ashumet well is currently inactive. These five active wells account for 40 percent of the water used in Falmouth. The Coonamessett, Mares Pond and Crooked Pond wells are located within

the Great Pond watershed, the Ashumet well is located in the Waquoit-East watershed and the Fresh Pond well is located outside the planning area.

In addition, the Town of Falmouth receives drinking water (approximately 10 percent of its total usage) from the Upper Cape Water Supply Cooperative (UCWSC), located on the MMR. Portions of the MMR are located within the Great Pond watershed and Waquoit-East watershed.

The Town of Falmouth also receives water from Long Pond, a surface water supply located between Route 28 and Buzzards Bay. This water supply provides approximately 50 percent of the Town's consumption and is outside of the planning area, just west of the Little Pond Watershed.

8. **Protected Areas.** The Town of Falmouth's LCP discusses the zoning bylaw set forth by the Town which allows for the protection of the Town's water resources. By-laws have been adopted that ensure that the water quality of the coastal ponds and potable water sources is preserved. There is a coastal pond overlay district that regulates developments which contribute runoff and wastewater flow to the recharge areas of the Town's coastal ponds. Also, there are water resource protection districts that preserve existing and potential sources of drinking water to ensure adequate quality and quantity of water. Also, a Coastal Pond Management Committee was established late in 2004 to study a broad range of issues to be addressed for individual ponds. Furthermore, the Town is participating with the Cape Cod Water Protection Collaborative to work on a regional approach to protecting the Cape's water supply (Falmouth LCP, 2005). Figure 6-4 illustrates the Zone I and II areas and wellhead protection areas in the planning area.

The potential MMR/Otis AFB WWTF is located within a Zone II protection area as are a portion of the recharge well sites as illustrated on Figure 6-4. These locations will require treatment to water reuse standards which is part of the preferred plan.

D. **Air Quality and Noise.**

1. **Air Quality.** Air quality data is limited with respects to Falmouth, as no major studies on air quality have been identified. However, Falmouth has a limited number of industries located inside its boundaries, and no major point sources of air pollution are evident.

Automobile traffic in Falmouth is likely the largest major non-point source of air pollution. Carbon monoxide pollution results from the incomplete combustion of fossil fuels.

The USEPA has limited air trends data regarding peak air quality statistics for ozone and other pollutants. During the years of 2004 through 2006, Barnstable County met the 8-hr ozone National Ambient Air Quality Standards (NAAQS).

2. **Noise.** The Steamship Authority ferry services at the Woods Hole terminal including shuttle buses from various parking lot areas, chartered passenger buses, motor vehicles and motorcycles are some of the Town's major sources of noise. Downtown Falmouth also experiences increased noise in association with high traffic volume and high visitor population during the summer season. The ferries also generate noise from loading and docking ships and vehicle traffic generated by Island bound travelers.

No major studies on noise have been identified, thus no site-specific data exists for the planning area.

E. **Plant and Animal Species and Habitat.** There are several regions in the planning area that have been identified as estimated habitats of rare species and wildlife by the Massachusetts Division of Fisheries, Natural Heritage and Endangered Species Program (NHESP). Figure 6-5 shows areas where NHESP Certified vernal pools are located as well as NHESP estimated rare wildlife habitat areas. Figure 6-5 also illustrates areas designated as wetlands by the MassDEP.

The NHESP, Massachusetts Division of Fisheries & Wildlife database of "Rare Species Occurrence Lists by Town" was used as a resource to identify several wildlife species which are endangered (E), threatened (T) or of special concern (SC) in the Town of Falmouth (Table 6-1).

The potential MMR/Otis AFB WWTF site appears to be within a NHESP Estimated Rare Wildlife Habitat as illustrated on Figure 6-5. Prior to construction, the proper permit filing to NHESP will be done and a site specific determination will be made by NHESP with respect to species in the area and whether any additional mitigation is necessary.

F. **Traffic, Transit, and Pedestrian and Bicycle Transportation.** In general, the towns of Cape Cod experience a large tourist population and summer residential influx in the summer which creates high traffic and greater transit volume. The Town of Falmouth experiences

TABLE 6-1
Endangered, Threatened, or Species of Special Concern in the Town of Falmouth

Taxonomic Group	Scientific Name	Common Name	MESA Status	Federal Status	Most Recent Observation
Amphibian	<i>Scaphiopus holbrookii</i>	Eastern Spadefoot	T		1970
Beetle	<i>Cicindela purpurea</i>	Purple Tiger Beetle	SC		2006
Bird	<i>Ammodramus savannarum</i>	Grasshopper Sparrow	T		2007
Bird	<i>Asio flammeus</i>	Short-eared Owl	E		Historic
Bird	<i>Bartramia longicauda</i>	Upland Sandpiper	E		2005
Bird	<i>Charadrius melodus</i>	Piping Plover	T	T	2006
Bird	<i>Gavia immer</i>	Common Loon	SC		1921
Bird	<i>Poocetes gramineus</i>	Vesper Sparrow	T		2005
Bird	<i>Sterna dougallii</i>	Roseate Tern	E	E	2007
Bird	<i>Sterna hirundo</i>	Common Tern	SC		2007
Bird	<i>Sternula antillarum</i>	Least Tern	SC		2007
Butterfly/Moth	<i>Callophrys irus</i>	Frosted Elfin	SC		2005
Butterfly/Moth	<i>Catocala herodias gerhardi</i>	Gerhard's Underwing Moth	SC		1998
Butterfly/Moth	<i>Cingilia catenaria</i>	Chain Dot Geometer	SC		2004
Butterfly/Moth	<i>Cycnia inopinatus</i>	Unexpected Cycnia	T		1998
Butterfly/Moth	<i>Faronta rubripennis</i>	The Pink Streak	T		1998
Butterfly/Moth	<i>Hemileuca maia</i>	Barrens Buckmoth	SC		2006
Butterfly/Moth	<i>Itame sp. 1 nr. inextricata</i>	Pine Barrens Itame	SC		1998
Butterfly/Moth	<i>Papaipema sulphurata</i>	Water-willow Stem Borer	T		1986
Butterfly/Moth	<i>Satyrium favonius</i>	Oak Hairstreak	SC		1996
Butterfly/Moth	<i>Zale sp. 1 nr. lunifera</i>	Pine Barrens Zale	SC		1998
Crustacean	<i>Eulimnadia agassizii</i>	Agassiz's Clam Shrimp	E		1970
Crustacean	<i>Limnadia lenticularis</i>	American Clam Shrimp	SC		1890
Dragonfly/Damselfly	<i>Anax longipes</i>	Comet Darner	SC		2006
Dragonfly/Damselfly	<i>Enallagma laterale</i>	New England Bluet	SC		2006
Dragonfly/Damselfly	<i>Enallagma pictum</i>	Scarlet Bluet	T		1999
Dragonfly/Damselfly	<i>Enallagma recurvatum</i>	Pine Barrens Bluet	T		2006
Fish	<i>Acipenser brevirostrum</i>	Shortnose Sturgeon	E	E	1871
Fish	<i>Notropis bifrenatus</i>	Bridle Shiner	SC		1952
Mussel	<i>Leptodea ochracea</i>	Tidewater Mucket	SC		2007
Reptile	<i>Terrapene carolina</i>	Eastern Box Turtle	SC		2008
Vascular Plant	<i>Amelanchier nantucketensis</i>	Nantucket Shadbush	SC		2007
Vascular Plant	<i>Aristida purpurascens</i>	Purple Needlegrass	T		1894
Vascular Plant	<i>Asclepias purpurascens</i>	Purple Milkweed	E		2007
Vascular Plant	<i>Asclepias verticillata</i>	Linear-leaved Milkweed	T		1884
Vascular Plant	<i>Corema conradii</i>	Broom Crowberry	SC		1932
Vascular Plant	<i>Crocanthemum dumosum</i>	Bushy Rockrose	SC		2000
Vascular Plant	<i>Dichanthelium dichotomum ssp. mattamuskeetense</i>	Mattamuskeet Panic-grass	E		1894
Vascular Plant	<i>Dichanthelium wrightianum</i>	Wright's Panic-grass	SC		2001
Vascular Plant	<i>Gamochaeta purpurea</i>	Purple Cudweed	E		1884
Vascular Plant	<i>Hydrocotyle verticillata</i>	Saltpond Pennywort	T		2005
Vascular Plant	<i>Lachnanthes carolina</i>	Redroot	SC		2004
Vascular Plant	<i>Leptochloa fusca ssp. fascicularis</i>	Saltpond Grass	T		1985
Vascular Plant	<i>Liatris scariosa var. novae-angliae</i>	New England Blazing Star	SC		2007
Vascular Plant	<i>Linum intercursum</i>	Sandplain Flax	SC		1984
Vascular Plant	<i>Lipocarpa micrantha</i>	Dwarf Bulrush	T		1990
Vascular Plant	<i>Malaxis bayardii</i>	Bayard's Green Adder's-mouth	E		1911
Vascular Plant	<i>Myriophyllum pinnatum</i>	Pinnate Water-milfoil	SC		1919
Vascular Plant	<i>Ophioglossum pusillum</i>	Adder's-tongue Fern	T		1971
Vascular Plant	<i>Opuntia humifusa</i>	Prickly Pear	E		2007
Vascular Plant	<i>Polygonum glaucum</i>	Sea-beach Knotweed	SC		1901
Vascular Plant	<i>Polygonum puritanorum</i>	Pondshore Knotweed	SC		1997
Vascular Plant	<i>Rhynchospora nitens</i>	Short-beaked Bald-sedge	T		2002
Vascular Plant	<i>Rhynchospora scirpoides</i>	Long-beaked Bald-sedge	SC		1995
Vascular Plant	<i>Sabatia kennedyana</i>	Plymouth Gentian	SC		2003
Vascular Plant	<i>Sagittaria teres</i>	Terete Arrowhead	SC		2002
Vascular Plant	<i>Scleria pauciflora</i>	Papillose Nut Sedge	E		2005
Vascular Plant	<i>Setaria parviflora</i>	Bristly Foxtail	SC		1990
Vascular Plant	<i>Utricularia resupinata</i>	Resupinate Bladderwort	T		2002

Source: Natural Heritage & Endangered Species Program, Massachusetts Division of Fisheries & Wildlife (Species Info. by Town, 7/29/09)

significant traffic and additional transit volume on the major roadways such as Route 151, Route 28 and Route 28A. Entrance and exit pathways specifically along Rt. 28 during the summer months have the potential to backup and cause significant delays in local traffic. Delays may also exist in major shopping and eating areas in Falmouth, such as in plazas along Rt. 28, Main Street, Falmouth Harbor and Woods Hole. Woods Hole attractions include the Marine Biological Laboratory, National Marine Fisheries, National Oceanographic and Atmospheric Administration, Woods Hole Oceanographic Institution, the United States Coast Guard and the Steamship Authority. Major lodging areas, scenic beach areas and roads may also experience greater volume in the summer months.

The Town of Falmouth experiences the heaviest traffic during the months of June, July, and August. Current and future population increases in Falmouth may contribute to the year-round volume as well. For instance, the percent increase in population was 16.8 percent from 1990 to 2000 according to the U.S. Census Bureau.

In terms of pedestrian and bicycle transportation, many of the major routes in the planning areas are not heavily used by pedestrian and bicycle transportation. However, coastal and beach areas generally have a greater number of pedestrian and bicycle transportation, including the Shining Sea Bikeway which also provides linkages from neighborhoods to beaches, conservation land, and local villages as well as a connection between the ferry parking and Woods Hole.

G. Scenic Qualities, Open Space and Recreational Resources.

1. **Scenic Qualities.** According to the Town of Falmouth LCP Scenic Resources section, the Falmouth Historical Commission has compiled lists of approximately 50 scenic roads, 59 scenic vistas or areas and 42 culturally significant landscapes (Falmouth LCP, 2005).

2. **Open Space.** For the purposes of this report, an Open Space and Landuse Map was created (Figure 6-7) in GIS to show the protected open space within the planning area.

According to the Falmouth LCP, the Conservation Commission oversees approximately 1,775 acres, or 6.1 percent of the Town's total area. These areas include, but are not limited to, Beebe Woods (387 acres), the Coonamessett Reservation (380 acres), the Collins Woodlots (97 acres), Sea Farms Marsh (88 acres), Peterson Farm (88 acres), and 75 acres around Mares Pond. Large

tracts of unprotected Town land include 650 acres surrounding Long Pond, 280 acres at the WWTF, Falmouth High School (136 acres), and the Crooked Pond well site (98 acres). The total area of unprotected land is approximately 3,180 acres, or 11.2 percent (Falmouth LCP, 2005).

The Commonwealth of Massachusetts holds approximately 2,400 acres, or 8.6 percent within the Town, including the Frances A. Crane Wildlife Management Area (1,700 acres), the Hayway Road parcels (353 acres), and Washburn Island (333 acres) (Falmouth LCP, 2005).

There are also several privately protected areas in Falmouth. Groups such as the Conservation Trusts, including the 300 Committee, the Salt Pond Area Bird Sanctuaries, and the Massachusetts Audubon Society protect over 380 acres in Town. Approximately 490 acres (1.7 percent) is designated as Residential Open Space while 610 acres (1.3 percent) have Conservation Restrictions (Falmouth LCP, 2005). These conservation lands, both public and private, are used as open space and recreation areas and account for approximately 8,625 acres, or 30.5 percent of the Town (Falmouth LCP, 2005).

The Town of Mashpee Open Space Incentive Development (OSID) Zoning Bylaw (174-46 OSID) requires that a minimum of 50 percent of the parcels included within the OSID be dedicated as open space. This open space must be located within the primary and secondary conservation area designated on the Mashpee Open Space Incentive Plan. The Waquoit-East watershed in the planning area includes various open space areas as illustrated on Figure 6-7.

The potential MMR/Otis AFB WWTF site is located within government owned land. As shown on Figure 6-7, the well injection sites are within Town-owned land (right-of-ways) and abut State-owned, Town-owned and residential land uses depending on the potential well injection location.

H. Historic Structures or Districts, and Archaeological Sites. The Town of Falmouth has many historic sites, identified in several documents. The Historic Preservation and Community Character section of the Falmouth LCP (2005) provides the most complete listing of existing and recommended historic sites. Figure 6-4 shows the historic districts and sites for the planning area. According to the LCP, Falmouth has 11 individual properties and four districts on the National Register of Historic Places, not including the Town's seven local historic district designations; of which four districts on this list are designated by both the National Register of

Historic Places and the Town's local historic district. Several of the historical districts listed are within or are in proximity to the planning area.

The National Register districts include:

1. Falmouth Village, with 79 contributing buildings, the Village Green, and the Old Burying Ground.
2. North Falmouth Village, with 43 contributing buildings.
3. West Falmouth Village, with 134 contributing buildings.
4. Waquoit Village, with 66 contributing buildings.

The Town of Falmouth local historic districts include:

1. North Falmouth along Old Main Road and part of 28A.
2. West Falmouth along 28A.
3. Woods Hole – Church Street to lighthouse, Water Street to Eel Pond Bridge, Woods Hole Road, School Street and Luscombe Avenue
4. Falmouth Village along Palmer, Locust, Main and Shore Streets and Depot Avenue.
5. Davisville along a section of Davisville Road
6. Waquoit around the Congregational Church on Route 28.
7. Quissett along Quissett Avenue and Quissett Harbor Road.

The individually listed properties are:

1. Josiah Tobey House, East Falmouth.
2. School Administration Building, Teaticket.
3. Central Fire Station, Falmouth Village.
4. Lawrence Academy, Falmouth Village.
5. Poor House, Falmouth Village.
6. Pumping Station, Falmouth Village.
7. The Elnathan Nye House, North Falmouth.
8. Bourne Farm, West Falmouth.
9. Nobska Lighthouse, Woods Hole.
10. Woods Hole School, Woods Hole.

11. Cleveland Light, Buzzards Bay

The Town of Falmouth also has a Historic Districts Commission which works to preserve the historical character of the buildings and the Historical Commission which works to preserve the historical parts of Town.

According to the Town of Falmouth LCP, an archaeological reconnaissance study performed in 1996 found approximately 50 percent of the town, specifically along the eastern coastal portion has a high potential of containing prehistoric materials and early industrial sites. However, the Massachusetts Historical Commission (MHC) has only 36 recorded prehistoric sites and nine historic sites in Falmouth. The MHC also has records of eight archaeological surveys conducted in Falmouth since 1981 (Falmouth LCP, 2005).

I. **Built Environment and Demographics.**

1. **Land Use and Zoning.** For the purpose of this project, an Open Space and Landuse Map (Figure 6-7) and a Zoning Map (Figure 6-8) was developed to illustrate the land use types and zoning in the Town of Falmouth and planning area. There are nine land use types identified on the open space and landuse map including; residential, commercial, agricultural, industrial, charitable organization; State owned, town owned, recreation, vacant residential land and open space. The majority of the planning area is residential. Zoning within Falmouth includes agriculture, business, residential, light industrial, marine and public use. Zoning outside of Falmouth includes residential, 201 (residential open land), commercial, industrial, recreational, exempt (charitable organization) and agricultural.

According to the Open Space & Recreation section of the Falmouth LCP, “Falmouth contains around 5,300 acres of permanently protected open space, which is owned by various public, non-profit and private entities. The Commonwealth of Massachusetts is the largest protected land holder with approx. 2,400 acres permanently preserved, followed by the Town with 1,750 acres of protected land, and then private and non-profit groups and restrictions protecting an additional 1,250 acres” (Falmouth LCP, 2005).

The potential MMR/Otis AFB WWTF site is located within government owned land. As shown on Figure 6-8, the recharge well sites are within Town-owned land (right-of-ways) and abut

public use, agriculture and business zoned parcels depending on the potential well injection location.

2. **Existing Infrastructure.** The existing wastewater and water supply infrastructure of the planning area was described in Chapter 4 of the Needs Assessment Report. In summary; there is no sewer system in the Planning Area and all properties are served by individual septic systems. These systems work well at protecting human health but do not remove much nitrogen or phosphorus and are the primary source of nitrogen causing exceedance of the nitrogen TMDLs in the Town's south coastal estuaries. The septic systems are also contributing phosphorus loads to the freshwater ponds. The Planning Area is served by public water supply and nearly all the properties in this part of Town are served by public water.

3. **Population.** Population and demographic data are presented in this section from U.S. Census Bureau 2000 data for the Town of Falmouth. The following summaries outline various data with regards to age, gender, race, education and income. The percent change in population from 1990 to 2000 was 16.8 percent.

U.S. Census Bureau Gender/Age Statistics:

• Male population	46.7 percent
• Female population	53.3 percent
• Under 5 years	4.5 percent
• 18 years and over	79.3 percent
• 65 years and over	22.5 percent
• Median age	45 years old

U.S. Census Bureau Race Statistics:

• White	93.4 percent
• Black or African American	1.8 percent
• American Indian and Alaska Native	0.5 percent
• Asian	0.9 percent
• Some other race	1.4 percent
• Two or more races	1.9 percent
• Hispanic or Latino (of any race)	1.3 percent

The total U.S. Census population for the Town of Falmouth in 2000 was 32,660. Of the total population in 2000, the total number of High School graduates (persons age 25+) was 22,069, and of the percentage of the total population (aged 25+) who had a Bachelor's degree or higher, was 36.0 percent. The median household income in 1999 was \$48,191, the per capita money income in 1999 was \$27,548, and the percent of families living below poverty in 1999 was 4.5 percent.

J. Rare or Unique Features of the Site and Environs.

1. **Areas of Critical Environmental Concern (ACECs).** Located within the planning area, the Waquoit Bay and its surrounding environs were designated an ACEC in 1979. The area includes Washburn Island, South Cape Beach, and the Moonakis and Childs Rivers. This ACEC area is designated on Figure 6-5. A bylaw governs this area and the 50-foot buffer surrounding it. According to the Town's LCP, "This bylaw prohibits both new construction (with the exception of accessory buildings) and the clear cutting of vegetation and habitat areas within the ACEC. ACEC regulations also protect various water areas that contain valuable shellfish and fisheries." The ACEC designation, along with coordination with the Waquoit Bay National Estuarine Research Reserve (WBNERR), actively work on protecting, researching, and monitoring this environmentally sensitive resource.

2. **District of Critical Planning Concern (DCPC).** There are no DCPCs located in the planning area. The Town of Falmouth has established a DCPC to protect the Black Beach/Great Sippewissett Marsh area of Falmouth. The DCPC is located south of West Falmouth Harbor and west of Route 28A. The DCPC was developed to help protect this area from flooding, minimize erosion, and protect wildlife and vegetative habitats and the sensitive coastal ecosystem.

6.3 ASSESSMENT OF IMPACTS

A. **General.** An assessment of impacts is performed to provide a detailed description of the positive and negative potential environmental impacts as they pertain to the preferred plan (Water Reuse Alternative) and the No Action alternative. The purpose of the DEIR is to assess quantitatively, to the extent practicable, the direct and indirect potential environmental impacts of the planned project, as well as the short-term and long-term impacts.

A rating system was developed to aid in analyzing the two alternatives and their impacts on the existing conditions in the planning areas. The rating system examines the impact on each parameter discussed previously in this Chapter and assigns it a numerical value of -2, -1, 0, 1, or 2. Negative values represent the magnitudes of the negative impacts of the parameter on the environment, and the positive represent positive impacts. A rating of zero indicates that there is either no impact or it is negligible. Each of the parameters is described briefly in the following section of this chapter.

The ratings are summed for both alternatives to develop a total value and the final ranking of the alternative.

B. Description of Environmental Features for the Water Reuse Alternative and No Action Alternative.

1. Topography, Geology and Soils – Soil Disturbance.

a. **Water Reuse Alternative.** The potential MMR/Otis AFB WWTF site is located within the MMR/Otis AFB in the Town of Sandwich on the Falmouth border. An existing WWTF currently exists near the site and the old Otis AFB WWTF (abandoned in 1995) was once at the site (see Figures 4-4 and 4-5); therefore the area is considered already disturbed. Construction of the proposed treatment plant requires soil excavation for wastewater facilities, building foundations, tanks, other structures and access roads. The siting of the potential injection wells along Route 151 will be within the Town right-of-way, adjacent to previously disturbed roadway areas.

Centralized treatment does require additional construction and expansion of the wastewater collection system, but the soil beneath the roadway is already considered disturbed and thus collection system construction is not considered a major impact.

b. **No Action Alternative.** Presently, this alternative would not increase the level of soil disturbance in these areas. Construction and/or repair of an on-site system disturbs a much smaller area than construction of a centralized treatment facility and varies by property.

2. **Surface Hydrology and Quality.**

a. **Water Reuse Alternative.** The Town of Falmouth has approximately twenty ponds and three rivers within the planning area. With proper erosion controls in place during construction, it is expected that negative impacts will be minimized. Implementation of this alternative will greatly benefit these resources as proper wastewater management will decrease the nutrient level runoff into the Town's surface water resources and improve quality.

Wetlands, bogs, ponds and the ocean represent the major surface water bodies potentially impacted (benefited) by treated water recharge from a new proposed facility. Since the Town is not directly discharging to any of these aforementioned surface waters, the impacts on the water quality is a function of infiltration from the groundwater.

New facility development will produce a higher quality effluent than achievable with on-site septic systems and will improve the water quality by reducing the nitrogen discharged to the Town's estuaries as required by the nitrogen TMDLs. Elimination of on-site septic systems along freshwater ponds will also eliminate the flow of phosphorus-laden wastewater to these systems and will aid in the improvement of the water quality in these resources. It is certain that wastewater collection and a high level of treatment will have only positive impacts to the health of the estuaries and the Town's water quality and will also be a benefit to the future generations of Falmouth.

b. **No Action Alternative.** This alternative will negatively impact the environment in terms of surface water hydrology and quality. Excess nitrogen loading and nutrient runoff have caused TMDL values to be assigned to subwatershed areas within the planning area. Without a centralized facility current conditions will continue to contribute pollutants and degrade surface water conditions.

3. **Groundwater Hydrology and Quality.**

a. **Water Reuse Alternative.** The Town of Falmouth has six public drinking water supply wells within the planning area. The increase in treated water recharge has

been planned to recharge the groundwater in a flexible way so that the water can be efficiently dispersed. The recharge will be monitored as part of an approved groundwater monitoring plan. Water reuse is beneficial to maintaining the Town's groundwater supply because the water is "reused" as it is recharged back into the system.

This alternative will improve the groundwater quality, especially in areas of dense development, because the groundwater is no longer being impacted by the nutrients from on-site septic systems.

b. **No Action Alternative.** In terms of groundwater hydrology and quality, this alternative will likely negatively impact the future environmental condition. Currently, drinking water supplies in the planning area do not have concerns with wastewater-derived nitrogen. However, in the future condition groundwater quality may be impacted from additional buildout and/or fluxes in seasonal living and tourism. In addition, rising concerns of TOC concentrations in drinking water (also identified as emerging contaminants) which are derived from pharmaceutical byproducts, personal care products and endocrine disruptors, if left untreated have unknown impacts to human and environmental health.

4. **Air Quality and Noise.**

a. **Water Reuse Alternative.** During any construction, dust is often generated on site. Emissions generated by construction equipment also have negative impacts on air quality. To reduce these impacts, proper pollution control measures are necessary to limit these effects and provide a positive means to prevent airborne dust and reduce vehicle emissions.

Odors generated during operations at the WWTF and pumping stations can be limited by designing centralized treatment facilities with odor control units and tank covers. On-site systems typically only generate odors during pump-outs, repairs, or system failures.

Organic emissions will be generated from the treatment of wastewater at a centralized facility through this alternative and are expected to equal the emission that would be generated from individual on-site systems.

The majority of noise impacts are generated during the construction phase of any project. The larger the extent of construction, the more noise associated with that work. In Falmouth, noise impacts from collection system construction will be greatest in the planning area with narrow streets and where buildings are in close proximity to both the road and each other.

Construction of a new WWTF facility at the MMR/Otis AFB will generate minimal noise impacts on neighboring properties. The existing properties have an adequate buffer from this site. Modifications to proposed wastewater treatment facilities can be engineered to minimize noise from pumps and blowers by designing the buildings accordingly.

b. **No Action Alternative.** This alternative would not decrease the air quality or increase noise due to the actual construction of the project. However, this alternative may actually decrease air quality in terms of odors from failing septic systems or surface waters that become eutrophic from the nitrogen and phosphorus in the septic system effluent.

5. **Plant and Animal Species and Habitat.**

a. **Water Reuse Alternative.** This alternative is expected to have limited negative impacts on plant and animal habitat because the potential construction would be in an existing disturbed area. A preliminary site plan is shown in Figure 6-9, outlining various resources such as estimated habitat area, wetland delineations, 100-foot buffer zones and flood zones. Treated water forcemains would be routed to the potential recharge wells. It is expected that the increase in environmental quality to surrounding habitat areas would outweigh the temporary construction impacts. Figure 6-5 illustrates the combined habitat areas that are present in the planning area. The proposed MMR/Otis AFB WWTF site would be developed upon existing abandoned infiltration sites and therefore could be considered already a disturbed habitat area, see Figures 4-4 and 4-5. Benefits to the health of the marine estuaries,

rivers and freshwater ponds and their unique aquatic habitats will be only positive with this alternative, and this benefit is expected to increase over time with the decreased nutrient loading to the environment.

b. **No Action Alternative.** This alternative would continue to increase the nutrient loading to the marine estuaries, rivers and freshwater ponds in the area. The increase in nitrogen and phosphorus loading would have increased and possible irreversible adverse effects on the marine plant and animal species, specifically shellfish species.

6. **Traffic, Transit, and Pedestrian and Bicycle Transportation.**

a. **Water Reuse Alternative.** This alternative is expected to have limited short-term negative impacts on traffic and transit and minimal short-term effects on pedestrian and bicycle transportation. This alternative is likely to increase traffic during various phases of the construction project. However, with regulated traffic control measures and the effective management of the traffic, the public burden will be decreased.

b. **No Action Alternative.** This alternative would have no effects on the traffic, transit, and pedestrian and bicycle transportation aspect of the existing environment.

7. **Scenic Qualities, Open Space and Recreational Resources.**

a. **Water Reuse Alternative.** With this alternative, it is unlikely that protected open space will be negatively disturbed. Sites identified in this alternative include town owned land (potential well injection sites) and state/federal owned land within the potential MMR/Otis AFB. The implementation of this alternative would decrease overall negative environmental impacts to the protected open spaces in the planning area, specifically to recreational water body areas such as ponds and beaches. These adverse impacts would also be a direct contributor to scenic quality degradation.

b. **No Action Alternative.** With this alternative, no disturbance to protected open space is anticipated. However, by allowing the elevated nutrient loadings in the planning area to continue, they will increasingly impact the environment adversely in the long-term. With this alternative there is a potential that recreationally zoned

resources or scenic qualities will be affected by the decreasing environmental health of the numerous public beaches and landings within Town.

8. **Historic Structures or Districts, and Archaeological Sites.**

a. **Water Reuse Alternative.** With this alternative, it is unlikely historic structures; historic districts or archaeological sites located within the planning area will be adversely affected by collection system installation. The Massachusetts Historical Commission (MHC) has 36 recorded prehistoric sites in Falmouth and nine historic sites. The MHC also has records of eight archaeological surveys conducted in Falmouth since 1981. These were done for an affordable housing development in Maravista, the Poor House, the Central Fire Station and the Candle House in Woods Hole, for Washburn Island, for two sewerage project areas and for the Camp Edwards military training site. There are no known existing archaeological sites within the Town's planning area.

b. **No Action Alternative.** With this alternative, it is unlikely that historic structures, historic districts or archaeological sites will be adversely impacted.

9. **Built Environment and Demographics.**

a. **Water Reuse Alternative.** Improved wastewater treatment and extended collection systems may increase growth in the planning area if regulations are not in place to limit growth. Unregulated growth due to sewer expansion is considered a negative impact, unless an area has been identified as a growth incentive type zone. In addition, the Town of Falmouth may be required to acquire land or establish right-of-ways in order to expand the existing collection system. This result may be considered a negative impact to the current owners of those properties.

Adversely, increased growth in Falmouth has contributed to an added strain on the current environmental condition and the surrounding natural resources. This alternative provides an effective solution to this issue and manages wastewater nutrient loading positively.

b. **No Action Alternative.** With this alternative, population growth is likely the key contributing factor to the negative impacts of this alternative. Existing data shows multiple watersheds in the planning area with increased cumulative nitrogen levels. Growth is always a concern when working in towns on Cape Cod, and growth in Falmouth has continued over the years without extensive centralized wastewater treatment facilities. If population is assumed to continue to grow, the Town may see negative impacts to its resources.

10. **Rare or Unique Features of the Site and Environs.**

a. **Water Reuse Alternative.** This alternative is not expected to impose any negative impacts on the unique features of the Town of Falmouth. The Waquoit Bay vicinity was designated as an ACEC by the Commonwealth in 1979 and as a National Estuarine Research Reserve by the United States in 1988 (see Figure 6-5 for ACEC designation area). The WBNERR is jointly managed by the Massachusetts Department of Conservation and Recreation (DCR) and the National Oceanic and Atmospheric Administration (NOAA). The designation is for the protection of representative natural resources, to facilitate research of the coastal environment and promote education about management of coastal resources.

The entire 2,800-acre Reserve is within the project area, however no infrastructure installation is required in the ACEC. Wastewater management and effectively nitrogen management will be a positive impact to the ACEC in that estuarine health will begin to improve. Potential groundwater impacts to the ACEC have been investigated through various groundwater modeling scenarios and are included in Appendix 2-2. Additional groundwater modeling evaluations are envisioned using the regional and subregional models for this area.

With proper mitigation measures and inter-municipal/interagency coordination, this alternative will have a long-term positive impact on the rare or unique features of the site and environment.

b. **No Action Alternative.** With this alternative, there is no direct threat or impact to the Waquoit ACEC; however impairments to the area will contribute if no action is taken.

6.4 REGULATION STANDARDS

A. **General.** A detailed outline of the Regulatory Issues associated with the Town of Falmouth's CWMP was discussed in Chapter 3 of the NAR developed for this project in 2007. This section summarizes the major regulatory issues associated with this phase of the CWMP and discusses in more detail any regulations which may have changed since the 2007 NAR. Draft Section 61 Findings for State Agency Actions are outlined in Chapter 8, which provides a summary of permits and approvals that will likely be required for implementation of the recommended plan.

Federal regulations are contained in the Code of Federal Regulations (CFR) and are enforced by the United States Environmental Protection Agency (USEPA). Massachusetts regulations are contained in the Code of Massachusetts Regulations (CMR) and Massachusetts General Law (M.G.L.) and are enforced by the Massachusetts Department of Environmental Protection (MassDEP). There are also regional and local regulations which may be enforced by the Cape Cod Commission (CCC), the Falmouth Zoning Board, Falmouth Health Department, Falmouth Department of Public Works Administration, Falmouth Wastewater Department and/or other Falmouth Town Departments.

B. Federal Regulatory Issues.

1. **NEPA.** The National Environmental Policy Act of 1970 (NEPA) provides the basis for the protection of the environment. The NEPA process is designed to aid public officials in the decision making process regarding the use of federal property and provide an understanding of the environmental consequences of that use. The NEPA process would require the filing of an Environmental Impact Statement (EIS) with regards to any proposed site usage on or adjacent to federal property which could potentially impact that property.

2. **TMDLs.** The Federal Clean Water Act requires states to develop a list of impaired waters, which are waters that are unable to meet state-established water quality standards for their intended use (i.e., drinking water supply, fishing, recreational swimming and boating, or healthy ecosystems for plants and animals). States are then required to develop TMDLs for the impaired waters that are affected by pollutants. A TMDL is a determination of the maximum amount of pollutants that a body of water can withstand.

Once TMDLs are determined, MassDEP develops a draft TMDL report, followed by a public review and comment period. After addressing public comments, MassDEP submits the TMDL report to USEPA for formal approval. The TMDL development process requires that communities develop plans to restore the health of water bodies and then make progress toward implementation of the plans. MassDEP monitors the progress of communities in achieving TMDLs. Restoration of water bodies is an extended process, so MassDEP looks for reasonable progress; if no reasonable progress is being made, enforcement actions may be taken.

C. State Regulations.

1. **MEPA Environmental Review.** CWMP projects in Massachusetts include an environmental review process that is governed by the Massachusetts Environmental Policy Act (MEPA) and Cape Cod Commission's DRI review process. In general, the MEPA process, as described in 301 CMR 11.00, establishes thresholds, procedures, and timetables for a multi-level review process. If a project exceeds review thresholds or if state funding is requested for a project, the project proponent begins the review process by preparing and filing an Environmental Notification Form (ENF) with the Secretary of Environmental Affairs. A 30-day review period follows, during which the Secretary of Environmental Affairs receives agency and public comments and holds a site visit and consultation session. At the close of the ENF review period, the Secretary of Energy and Environmental Affairs determines whether an Environmental Impact Report is necessary and issues a MEPA certificate. If an Environmental Impact Report is required, it is prepared by the proponent and submitted to the Secretary of Energy and Environmental Affairs. The Environmental Impact Report is reviewed at both draft and final stages by agencies and the public. After completion of the Secretary's review, state agencies may act on the project.

There are several more specific State regulations which apply to the Town of Falmouth's CWMP. These include: The Wetlands Protection Act (M.G.L. c.131, s.40) and parallel state regulations (310 CMR 10.00) and amendment (Massachusetts Rivers Protection Act); Title 5 of the Massachusetts State Environmental Code (310 CMR 15.00); MassDEP regulation of Water Resources, Treatment and Supply of Potable Water as they closely parallel the federal regulations of 40 CFR 141, 142 and 143 which are maintained and enforced by the USEPA (310 CMR 22.00); Surface Water Discharge Permit Program (314 CMR 3.00); proposed revisions to the Ground Water Discharge Permitting Program Regulations (314 CMR 5.00) which will incorporate the Ground Water Quality Standards (314 CMR 6.00) which will eliminate the need

for 314 CMR 6.00; Sewer Extension and Connection Permit Program (314 CMR 7.00); the proposed Reclaimed Water Permit Program and Standards Regulations (314 CMR 20.00) and the Massachusetts Natural Heritage & Endangered Species Program.

D. Regional.

1. **The DRI Review Process.** In accordance with the Cape Cod Commission Act, Chapter 716, the Cape Cod Commission has the authority to review and regulate DRIs. This review is carried out by the Commissioners and the Cape Cod Commission staff in accordance with Administrative and Enabling regulations.

The Town will be expected to enter the MEPA and DRI process as part of the CWMP. The review process will be a joint review.

2. **Cape Cod Commission Regional Policy Plan.** The Cape Cod Commission Act calls for an update to the plan every five years (previous editions were released in 1991, 1996, and 2002). The current Regional Policy Plan went into effect October 30, 2008.

The minimum performance standards and other development review policies of the Regional Policy Plan are intended to be used by both the Cape Cod Commission and local regulatory authorities once they have adopted a LCP and it has been certified by the Cape Cod Commission. The goal of the water resources minimum performance standards is to preserve the high quality of the groundwater (the source of Cape Cod's drinking water) as well as the marine and fresh surface waters, which are connected to and dependent on the groundwater for ecological health and sustenance. The water resources classification system includes the following: drinking water, coastal embayments, ponds, sewage treatment facility standards, stormwater management standards, and natural resources standards. The reader is directed to the most current Regional Policy Plan for further information specifically relating to the minimum performance standards developed for each goal. Overall, the water resources minimum performance standards state a maximum nitrogen load of 5 parts per million unless there will be no adverse impacts on resources.

E. Local. Several local regulations are applicable to the Town of Falmouth's CWMP process including the Sewer By-laws, Chapter 180 (Sewers and Septic Systems).

6.5 ALTERNATIVE RANKING AND SUMMARY OF EVALUATIONS

The Water Reuse Alternative and the No Action alternative were rated and ranked based on the criteria established previously in this Chapter as required by The Code of Massachusetts Regulations (301 CMR 11.07). Table 6-2 summarizes the ranking analysis for the two alternatives and although this ranking system is subjective, it does allow decision-makers a quantitative analysis of the alternatives. Table 6-2 shows that overall, the Water Reuse Alternative, has the least impact on the existing environment with a ranking of “1” indicating a positive environmental impact. The No Action alternative shows a significant overall negative impact on the existing environment ranking with “-20”.

The largest ranking discrepancies between the Water Reuse Alternative and the No Action Alternative were associated with the following two factors: “Surface and Groundwater Quality and Hydrology” and “Rare or Unique Features of the Site and Environs”; with no ranking difference between “Air Quality and Noise” and “Historic Structures or Districts and Archaeological.”

Factors of cost and other non-monetary issues developed in the ASAR and in previous chapters of this report must be used in combination with the Environmental Impact Analysis ranking.

TABLE 6-2
Environmental Impact Assessment

IMPACTED FEATURE	NO ACTION	WATER REUSE ALTERNATIVE
SOIL DISTURBANCE		
Acquisition	0	-2
Development	-1	-2
Operation	0	0
SURFACE & GROUNDWATER QUALITY & HYDROLOGY		
Acquisition	0	0
Development	-2	2
Operation	-2	2
AIR QUALITY & NOISE		
Acquisition	-1	-1
Development	-1	-1
Operation	-1	-1
PLANT & ANIMAL SPECIES & HABITAT		
Acquisition	0	0
Development	-1	-1
Operation	-1	2
TRAFFIC, TRANSIT, AND PEDESTRIAN AND BICYCLE		
Acquisition	0	0
Development	0	-1
Operation	0	0
SCENIC QUALITIES, OPEN SPACE & RECREATIONAL		
Acquisition	-1	0
Development	-1	0
Operation	-1	0
HISTORIC STRUCTURES OR DISTRICTS, & ARCHAEOLOGICAL		
Acquisition	0	0
Development	0	0
Operation	0	0
BUILT ENVIRONMENT & DEMOGRAPHICS		
Acquisition	0	-2
Development	-1	-1
Operation	-1	0
RARE OR UNIQUE FEATURES OF THE SITE AND ENVIRONS		
Acquisition	-1	0
Development	-1	2
Operation	-2	2
PUBLIC HEALTH		
Acquisition	0	0
Development	0	1
Operation	-1	2
TOTAL:	-20	1
RANK	2	1