

# 4

## Existing Environmental Conditions

This chapter provides information on the environmental resources found within the 58-mile I-95 Southeast Corridor study area. Each environmental resource is described and mapped. Specific resources that could potentially be affected by transportation improvements within the I-95 corridor are identified. The study area includes the I-95 corridor right of way and additional distances around each intersection (generally 300 feet) sufficient to identify resources that may be directly affected by design alternatives.

The purpose of the environmental data collection effort is to support the preliminary transportation alternatives analysis process concerning highway improvements to I-95. The preliminary environmental data provides information regarding critical resources that may be affected and which, in some cases, should be avoided if possible. The data is also useful in determining the extent of impacts for a given alternative. The data and mapping can be used to identify and evaluate alternatives, to identify potential fatal flaws in the alternative development process, and to determine the relative environmental impact for each set of alternatives for a given interchange or highway section. Including this data in the highway improvement review process will assist decision-making, help to identify preferred alternatives, and contribute to an understanding of the permitting requirements for selected improvements.

The resources discussed in this section include: surface water and wetland resources, 100 year floodplains, groundwater resources including aquifer protection areas, wells and groundwater quality classifications, water supply reservoirs, coastal resources, areas where threatened and endangered species may exist, farmland soils and active farms, cultural resources including historic structures and districts and archaeological resources, land uses within the I-95 corridor, section 4(f) and 6(f) lands, areas of potential hazardous materials contamination, and other unique features found along the I-95 corridor.

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### 4.1 Constraint Mapping Process

Data used in the constraint mapping process was collected from a variety of sources. Available GIS data from the Connecticut Department of Environmental Protection (CTDEP) were used to identify surface water, wetland soils, groundwater, threatened and endangered species, and Section 4(f) and 6(f) lands. The University of Connecticut Mapping and Geographic Information Center (MAGIC) site provided some floodplain and National Wetlands Inventory (NWI) data. Additional data was obtained from private GIS sources. Coastal resource mapping was obtained from CTDEP and those resources within 1,000 feet of the

highway were digitized as a GIS data layer. Farmland soils data were obtained from the Natural Resources Conservation Service (NRCS) soils mapping and active farms were identified by aerial photography and field investigation. Cultural resource information was obtained by consultation with the State Historic Preservation Officer (SHPO), local contacts and field investigation. Environmental Data Resources, Inc. (EDR) identified potentially contaminated and hazardous material sites for the entire corridor (1/8 mile on either side of the highway). Land use and other data were obtained from the three regional planning agencies within the corridor including South Central Regional Council of Governments (SCRCOG), Connecticut River Estuary Regional Planning Agency (CRERPA), and Southeastern Connecticut Council of Governments (SCCOG). In addition, local plans of conservation and development and municipal GIS data layers were obtained where available. Existing year 2000 aerial photography was used to confirm resources where applicable and field investigations were conducted using the aerial photography to approximate wetland boundaries and streams. United States 2000 Census data was provided by SCRCOG for use in the environmental justice evaluation.

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## 4.2 Corridor Environmental Constraints

Each of the environmental and social constraints for the I-95 study corridor is described below. Each set of data (combined in logical groupings for mapping purposes) is shown on 1" = 2000' figures (presented in the report figures booklet) with the corridor divided into 13 sheets.

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### 4.2.1 Surface Water Resources

This section includes a range of related resources that are associated with water. Resources such as water supply reservoirs, rivers, streams, ponds, the near coastal shore, and wetlands, have obvious ecological, social and economic importance to people and the environment. Figure 4-1 represents water-related features including the watercourses, ponds and lakes, floodplains, and wetlands.

#### Surface Waters

Surface waters include streams, rivers, ponds and lakes. For the purposes of this study, streams are reported using U.S. Geological Survey quadrangle maps and CTDEP hydrography data from the Environmental and Geographic Information Center. Streams are denoted as perennial, meaning flowing year-round, and intermittent, meaning it flows seasonally, or resulting from a weather event. Due to the project proximity to Long Island Sound, several streams are tidally influenced. The largest surface waters in the corridor are the Connecticut River and the Thames River. The watershed for a particular water feature includes all the contributing land areas that flow to the stream or water body. Drainage basins are the contributing watersheds for a watercourse or river.

#### Drainage Basins

CTDEP mapped major and regional drainage basins throughout the State. That information was used to identify the drainage basins describe herein. The study corridor passes through four major water basins including South Central Coast Major Basin, Connecticut Major Basin, Thames Major Basin, and Pawcatuck Major Basin. There are two smaller basins near the Thames River basin, which are also crossed by the I-95 study corridor. They are designated as Southeast Western Regional Complex and Southeast Eastern Regional Complex. The smaller regional drainage basins contain small coastal rivers and streams that discharge directly to Long Island Sound, compared with the largest river basins that collect tributary water

and discharge through the major rivers. There are 29 unique drainage basins crossed by the I-95 corridor in the study area. Although the I-95 roadway passes over streams and rivers within the 29 basins, some of the watercourses crossed are tributaries and do not share the watercourse name of the primary basin.

The river watersheds crossed by I-95 include from west to east: Branford River, West River, East River, Neck River, Hammonasset River, Indian River, Menunketesuck River, Patchoque River, Oyster River, Lieutenant River, Black Hall River, Four Mile River, Pataguanset River, Niantic River, Poquonock River, Mystic River, Wequetequock River, Shunock River, Pawcatuck River, and Ashaway River. The study corridor's proximity to Long Island Sound and its east-west orientation relative to the north-south river orientations are evidenced by the number of unique river watersheds crossed.

### Watercourses

There are 94 watercourses crossed by I-95 in the study corridor as shown by the U.S Geological Survey and CTDEP. Most of the 94 watercourses are perennial streams (75 streams/ivers flow year-round) and many are named watercourses. Several small tributaries are unnamed intermittent streams in the corridor. The watercourses are shown in Figure 4-1. Where applicable, the stream name is included in the figure. The stream counts by town are reported in Table 4-1 below.

**Table 4-1**  
**Stream Crossings Along the I-95 Corridor by Town**

Town	Perennial	Intermittent	Total
Branford	5	0	5
Guilford	8	0	8
Guilford/Madison*	1	0	1
Madison	4	1	5
Madison/Clinton*	1	0	1
Clinton	4	5	9
Westbrook	3	0	3
Old Saybrook	8	0	8
Old Saybrook/Old Lyme*	1	0	1
Old Lyme	9	0	9
Old Lyme/East Lyme*	1	0	1
East Lyme	7	2	9
Waterford	6	2	8
New London	3	0	3
New London/Groton*	1	0	1
Groton	5	4	9
Groton/Stonington*	1	0	1
Stonington	3	5	8
North Stonington	4	0	4
<b>Total</b>	<b>75</b>	<b>19</b>	<b>94</b>

\* = Stream or river forming boundary between two municipalities.

### Public Water Supply Reservoirs

Public water supplies are critical reservoirs that collect predominantly surface water from clean watersheds, and store it for consumptive uses. The study corridor passes near and over public drinking water supply reservoirs. In addition, several streams near or passing beneath I-95 are tributaries to reservoirs.

The Connecticut Department of Public Health (CTDPH) is primarily responsible for administration of all State and Federal drinking water regulations in Connecticut. Divisions within the CTDPH have responsibilities ranging from monitoring water quality, reviewing activities involving public water supplies, and public outreach, to regulatory permitting activities such as construction work within water company lands, land sales, changes to distribution systems, and treatment processes among others. Water supply reservoirs have protective buffers for Water Company Lands, ranging from 100 feet for streams feeding reservoirs, to 250 feet (horizontal) of the high water for a reservoir. Water company lands are classified as Class I, Class II, or Class III, represented by criteria that afford protection of the water supply. Generally, Class I is most critical and typically directly adjacent to or connected to the integrity of the water. Further protection of Water Company Land is made in Class II and Class III lands. Any project involving Water Company Land must be reviewed and permitted by the CTDPH.

The I-95 study corridor encompasses eight water supply reservoirs owned and managed by four water companies (Figure 4-1, Sheets 1, 9, 10, 12). The water companies include: South Central Connecticut Regional Water Authority, New London Water Division, Groton Utilities, and Connecticut AM Water Company, Mystic Valley District. The reservoir names include: Lake Brandegee (two ponds) in Waterford; Buddington Pond, Poquonnock Reservoir, Poheganut Reservoir, and Smith Lake, in Groton; and Dean's Mill Reservoir and Palmer Reservoir in Stonington. All reservoirs are active with the exception of the New London Water Division reservoir (Lake Brandegee). In Groton, the four water bodies form a network of surface supply ponds that comprise the Groton Utilities water. Each surface pond is individually designated as a reservoir by the CTDPH. A ninth reservoir (Lake Saltonstall at the Branford/East Haven municipal boundary) occurs immediately west of the study corridor, but the contributing watershed is crossed by the I-95 roadway in Branford.

### **Wild and Scenic Rivers**

The 1968 National Wild and Scenic Rivers Act, Public Law 90-542, protects and preserves designated rivers from degradation. There is only one designated Wild and Scenic River in Connecticut, which is located outside the study corridor. There are no designated Wild and Scenic Rivers in the study corridor. There is presently a study of a 15-mile portion of the Eight Mile River for designation to the National Wild and Scenic Rivers inventory; however, it lies just north of the I-95 study corridor.

The Connecticut River was designated an "American Heritage River" in 1998 by President Clinton. There are only 14 designated rivers in the entire United States. The designation provides communities along the river more opportunities to receive Federal funding for river-related projects (Connecticut River Estuary Regional Planning Agency).

### **Wetlands**

Wetlands are land areas that are transitional between upland and aquatic ecosystems. Wetlands are important because they provide a variety of functions such as providing fish and wildlife habitats, purifying water, maintaining groundwater supplies, preventing flooding, supporting water-dependent uses by humans, and providing critical habitats for rare and endangered species. A number of scientific and regulatory definitions are used to denote an area as wetland. State and Federal laws protect wetlands, watercourses, and water bodies.

Connecticut's regulatory definition of wetlands is based upon soil drainage classes and types. Connecticut has two regulatory definitions, including inland and tidal wetlands. Connecticut wetland regulations also protect perennial and intermittent watercourses and water bodies. Connecticut General Statutes, Sections

22a-36 to 45 inclusive, specify inland wetland definitions. “Wetlands mean land, including submerged land, which consists of any of the soil types designated as poorly drained, very poorly drained, alluvial, and floodplain by the National Cooperative Soils Survey, as may be amended from time to time, of the Soil Conservation Service of the United States Department of Agriculture. Watercourses are defined as rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs, and all other bodies of water, natural or artificial, public or private” (Metzler & Tiner 1992).

Connecticut General Statutes, Sections 22a-28 to 35 inclusive, specify tidal wetland definitions. “Wetlands are those areas which border on or lie beneath tidal waters, such as, but not limited to banks, bogs, salt marshes, swamps, meadows, flats or other low lands subject to tidal action, including those areas now or formerly connected to tidal waters, and whose surface is at or below an elevation of one foot above local extreme high water” (Metzler & Tiner 1992).

Federal wetlands are defined using a combination of three parameters including soil indicators, vegetation dominated by plants adapted for growing in wetland, and indicators of hydrology. For the most part, State and Federal wetlands coincide, however, there are instances where wetland boundaries differ. Typically, State defined wetlands are more extensive than Federal criteria. There are several definitions of wetlands from different Federal agencies, such as the U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, U.S. Natural Resources Conservation Service, and the U.S. Army Corps of Engineers. Since current Federal policy requires permits from the Army Corps of Engineers through Section 404 of the Clean Water Act, the Army Corps definition is provided. “Wetlands are those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas” (Metzler & Tiner 1992).

### **Wetland Permits**

Since State and Federal laws protect wetlands, permits are required to dredge, fill, drain, or otherwise alter wetlands and watercourses. Both CTDEP and the U.S. Army Corps of Engineers administer wetland permit programs in Connecticut, and the U.S. Environmental Protection Agency has review, oversight, and policy responsibility for the Federal wetland programs (Want 1999). Wetlands in the study corridor include flowing freshwater (palustrine), lakes (lacustrine), and saltwater (estuarine) types. Due to the proximity of the study corridor to Long Island Sound, tides affect water levels in some study corridor wetlands. Those wetlands are designated as tidal wetlands, which are further distinguished by freshwater and saltwater types. Generally, tidal wetlands are afforded greater protection by the wetland laws, and permitting reviews are often more controversial for tidal wetlands.

### **Wetland Data Sources**

Mostly digital data were used to show wetlands within the region near the study corridor. Four information sources were used to identify wetlands in the study corridor. Note that the wetland locations presented do not represent formal field delineated wetland boundaries. Wetlands shown are representations taken from available sources including: soil survey maps from the Natural Resources Conservation Service (NRCS) (formerly Soil Conservation Service); National Wetland Inventory (NWI) maps from the U.S. Fish & Wildlife Service; Coastal Resource Maps from CTDEP, and hydrography data from CTDEP. Digital information was collected from the CTDEP Environmental and Geographic Information Center, regional planning agencies, and digital data vendors. Some levels of redundancy are afforded by using multiple data sources. In order to improve the representation of wetland soils used from county soil surveys, adjustment of wetland soils were made relative to the approximate footprints of I-95 and the Amtrak rail line.

Some information, for instance NWI maps at the western end of the corridor, and the Connecticut tidal wetland maps, were not available in digital formats. For the tidal wetlands, information was digitized in a 2,000-foot swath (1,000 feet either side of I-95) along the study corridor. Therefore, tidal wetland data gaps exist for wetland resources outside the limits of digitized information. For the most part, the incidence of tidal wetland increases to the south toward Long Island Sound. However, due to distance from the corridor, that data was not digitized. Note that the absence of tidal wetland information to the south and removed from I-95 is not reflective of non-occurrence, but is due to digital data gaps.

Generally, NWI wetlands occur in the same locations as NRCS-designated poorly drained soils. However, some wetlands are found outside of mapped wetland soils and are shown by the National Wetland Inventory. In order to maintain figure clarity, only those NWI wetland areas that are not coincident with poorly drained soils, and are adjacent to the I-95 corridor, are shown on Figure 4-1. As such, the NWI data gaps do not present substantive areas of missed wetland. Wetland locations were further refined and adjusted by limited field reconnaissance and transferring approximated wetland boundaries to aerial photographs. That information was used to evaluate wetland impacts and permitting requirements in more detail than is available from remote sources.

Wetlands denoted using large-scale sources such as soil surveys and NWI maps are suitable for large study areas and context determinations. The wetland information is sufficient to determine areas to avoid, where practicable. These sources are not suitable for site-specific or permit-level assessments. Large-scale sources provide sufficient information to assess relative wetland impacts and likelihood of encountering wetlands necessitating permits. Potentially, sufficient information is available to determine relative wetland value or importance. That qualitative information can be considered when developing transportation alternatives. Once a project is advanced, detailed wetland determinations will be made by on-site delineation and assessments, and permits will be sought for any wetland alterations.

### **Study Area Wetlands**

The study area contains a diverse assemblage of wetland types ranging from watercourses and rivers, freshwater swamps, marshes, meadows, to estuarine tidal marshes and inter-tidal rocky shores and flats. Many of the wetlands are integral parts of systems following the streams flowing toward Long Island Sound. Other wetlands are isolated depressions or occur on hill slope faces. As the Surface Water Resources figure illustrates (Figure 4-1) the floodplains, streams, water bodies, and wetlands, are closely related and generally superimposed in many locations. The study corridor crosses and passes by hundreds of wetland areas. The majority of wetlands along the corridor are inland, freshwater systems. However, as described earlier, the I-95 corridor's proximity to the coast and tidal effects means there are also freshwater and saltwater tidal wetlands encountered.

Based upon the available information, there are more wetlands near I-95 in the western half of the study corridor, compared with the eastern half.

Regulated tidal wetlands occur adjacent to I-95 at nine locations along the corridor. Coastal freshwater wetlands and undesignated tidal wetlands occur at 34 locations along the corridor. Coastal freshwater wetlands are wetlands denoted by CTDEP that occur within the coastal zone, but are non-tidal, while the undesignated tidal wetlands are not specifically designated by CTDEP. Coastal freshwater wetlands are coincident with wetlands identified using soil surveys and National Wetland Inventory mapping. For clarity, those freshwater coastal zone wetlands are not shown in Figure 4-1. Table 4-2 reports the locations of

CTDEP regulated tidal wetlands. Figure 4-1 shows the locations of regulated tidal, wetlands within 1,000 feet of I-95.

**Table 4-2  
Regulated Tidal Wetlands Near I-95**

Town	Watercourse	Regulated Tidal Wetland	Freshwater and Undesignated Tidal Wetland Nearby
Guilford/Madison*	East River	Yes	Yes
Madison/Clinton*	Hammonasset River	Yes	Yes
Clinton	Hammonasset Tributary	Yes	Yes
Westbrook	Patchogue River	Yes	Yes
Old Saybrook	Oyster River	Yes	Yes
Old Saybrook	Connecticut River	Yes	Yes
Old Lyme	Lieutenant River	Yes	No
East Lyme	Niantic River	Yes	Yes
Groton/Stonington*	Mystic River	Yes	Yes

\* = Stream or river forming boundary between two municipalities.

The greatest concentration of tidal wetlands to the south of the study corridor occur at the Branford River in Branford, West River in Guilford, East River at the Guilford/Madison boundary, Hammonasset River in Clinton, Menunketesuck and Patchogue River in Westbrook, Oyster River in Old Saybrook, and along the Connecticut River in Old Saybrook and Old Lyme.

The Connecticut River estuary and tidal wetlands from the mouth to north of Middletown were designated as “Wetland of International Importance” under the international Ramsar Convention Treaty in 1994. There were only 15 designations for the United States. In 1993, The Nature Conservancy designated the tidal lands of the Connecticut River as one of 40 biologically important ecosystems in the western hemisphere (Connecticut River Estuary Regional Planning Agency)

### **Floodplains & Stream Channel Encroachments**

Floodplains are areas near streams, rivers, lakes, ponds, and the ocean that are subject to periodic flooding. Water bodies and lands with higher frequencies of flooding, or with potential for causing property damage or injury are identified by the Federal Emergency Management Agency (FEMA) and the Federal Insurance Agency (FIA) through the Flood Insurance Study (FIS) for communities. To provide a national standard without regional inconsistencies, the 100-year flood was adopted by the FIA as the base flood for floodplain management. Many flood insurance studies also identify 500-year flood as areas of additional risk. The 100-year flood zone represents land areas, based upon their elevation and connectivity to a flood source, that are prone to inundation at a recurrence interval of once every 100 years (100/1). That means the probability that flooding will occur each year is 1% in that location. The FIA points out that not all streams are evaluated to the same level of detail in a community FIS and generally, areas of higher density development or near larger watercourses are studied in greater detail.

Floodplains and floodways are protected through Executive Order 11988, Floodplain Management; US DOT Order 5640.2 Floodplain Management and Protection; and Connecticut General Statutes (CGS Section 25-68d through 25-68h) as regulated by the Connecticut Department of Environmental Protection. All State projects must comply with the floodplain management standards and criteria. To the extent practicable,

projects should avoid impacts to floodplains, and where unavoidable, minimize impacts. Mitigation may be required in some instances if practicable.

The low-lying coastal areas of Connecticut are also subject to occasional coastal flooding due to tidal and storm surges. High winds and low barometric pressure such as occur with hurricanes, as well as tidal effects can combine to cause severe coastal flooding. Areas subject to flooding from rising ocean areas are designated as Coastal Flood Hazard Zones and mapped in the community Flood Insurance Studies. The rising ocean level effects extend upstream and contribute to areas mapped as 100-year floodplain in the study corridor.

Floodplains and floodways were mapped along the project corridor using digital GIS data from both the University of Connecticut's Map and Geographic Information Center (MAGIC) database and vendor sources of Digital Flood Insurance Rate Maps (DFIRM). Figure 4-1 Surface Water Resources, shows the areas of 100-year floodplain within the I-95 study area.

The study corridor encounters 100-year floodplains at approximately 45 locations along the corridor. Generally, the project corridor lies in proximity to Long Island Sound and crosses many tributary rivers and streams that are affected by coastal flood events. High tides and storm surges influence the flooding characteristics of many of the crossed watercourses. Of the 45 floodplain locations, only the Connecticut River and Thames River are identified as flood zones with coastal wave action effects. These larger rivers have wide-open reaches to Long Island Sound such that waves can reach the I-95 crossing points. The Connecticut and Thames rivers are crossed by substantive bridges with wide decks, and any transportation improvement alternatives are unlikely to require re-configuration of the bridge, its approaches and appurtenances (piers, abutments) within floodplains or flood hazard areas.

The corridor floodplains are somewhat evenly distributed along the study area. The distribution of 100-year floodplains that are crossed by I-95, sorted by town include: Branford 4; Guilford 6; Guilford/Madison boundary 1; Madison 2; Madison/Clinton boundary 1; Clinton 5; Westbrook 2; Old Saybrook 5; Old Saybrook/Old Lyme boundary 1; Old Lyme 2; Old Lyme/East Lyme boundary 1; East Lyme 3; Waterford 4; New London/Groton boundary 1; Groton/Stonington boundary 1; Stonington 3; and North Stonington 3.

The majority of the floodplain areas along the corridor are narrow and directly border a watercourse or river. However, in some instances, floodplains extend moderate distances from the source watercourse. Examples of this condition include near Exit 53 in Branford, and just east of Exit 55 in Branford near East Industrial Road.

Floodways are portion of a flood channel that carries the majority of the flows. The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept unobstructed to allow the flood to pass without substantial increases in flood height. The Federal Insurance Administration limits such increases in flood heights to 1.0 foot, provided that hazardous velocities are not produced.

CTDEP identifies stream channel encroachment areas, which are closely representative of a riverine floodplain, and generally encompass the outer floodplain limit as well as the floodway in the river. Work or structures within stream channel encroachment areas requires a permit from CTDEP. Although the study corridor crosses many streams and rivers, there are no CTDEP identified Channel Encroachment lines in the project corridor (CTDEP 2000).

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## 4.2.2 Groundwater Resources

### Groundwater Quality Classifications

Connecticut's water quality standards and criteria were developed following the principles set forth under Connecticut's Clean Water Act, and in accordance with the directives of Section 303 Federal Clean Water Act. Groundwater is assigned a classification of GAA, GA, GB, or GC. The Connecticut Department of Environmental Protection defines these standards:

#### ***Class GAA***

Designated uses: existing or potential public supply of water suitable for drinking without treatment; base flow for hydraulically connected surface water bodies.

Discharge restricted to: treated domestic sewage, certain agricultural wastes, and certain water treatment wastewaters.

#### ***Class GA***

Designated uses: existing private and potential public or private supplies of water suitable for drinking without treatment; base flow for hydraulically connected surface water bodies.

Discharge restricted to: for GAA and discharge from septage treatment facilities subject to stringent treatment and discharge requirements, and other wastes of natural origin that easily biodegrade and present no threat to groundwater.

#### ***Class GB***

Designated uses: industrial process water and cooling waters; base flow for hydraulically connected surface water bodies; presumed not suitable for human consumption without treatment.

Discharge restricted to: same as for GA (Note; same treatment standards apply), certain other biodegradable wastewaters subject to soil attenuation.

#### ***Class GC***

Designated uses: assimilation of discharge authorized by the Commissioner pursuant to Section 22a-430 of the General Statutes. As an example a lined landfill for disposal of ash residue from a resource recovery facility. The GC hydrogeology and setting provides the safest back up in case of technological failure.

Discharge restricted to: potential discharges from certain waste facilities subject to extraordinary permitting requirements.

All groundwater not otherwise classified is considered GA. Classifications GA-impaired and GAA-impaired indicate that those areas may not currently be obtaining their respective groundwater standards. GAAs is a subclass of GAA that indicates that the groundwater is a tributary to a public water supply watershed. The groundwater classifications reflect known and/or potential uses that the groundwater will support.

The classifications provide a basis for regulatory and permitting decisions in that CTDEP's goal is to maintain or improve the groundwater quality at all locations, and certain regulated activities and discharges may be appropriate for some locations (GC) but not for others (GAA).

The groundwater classification data shown in Figure 4-2 was obtained from CTDEP, published in 1995 and updated in 1997. The mapping in Figure 4-2 indicates that relatively urbanized areas such as portions of Branford, New London, Groton, and the Mystic section of Stonington are designated GB. A GAA or GAAs

rating is assigned to the area around the Saltonstall Reservoir, north of I-95 just west of the project area, as well as the region of Waterford near Brandegee Lake, near Exits 82 and 82A. Much of Groton north of I-95, and south of I-95 in the vicinity of the Groton Reservoir (near Exit 88) also is rated GAA, as is the area immediately surrounding the Mystic Reservoir in Stonington, (between Exits 90 and 91) both north and South of I-95.

### **Public Drinking Water Wells: Community and Non-Community Water Supply Wells**

Community Water Systems are defined by the CT Department of Public Health (CT DPH) as a public water system that pipes water for human consumption to at least 15 service connections used by year-round residents, or one that regularly services at least 25 year-round residents (e.g., municipality, subdivision, mobile home park). A Non-Community Water System is defined as a public water system that pipes water for human consumption to at least 15 service connections used by individuals other than year-round residents for at least 60 days a year, or serves 25 or more people at least 60 days a year (e.g., schools, factories, rest stops, interstate carrier conveyances). Note that a buffer zone of 500 foot radius is created around each community well and this buffered area is classified by CT DPH as GAA unless the buffered area overlaps with an area already known to be impaired.

The Community and Non-Community Well locations were obtained from the University of Connecticut's MAGIC Website. They are depicted in Figure 4-2. While fairly common throughout the mapped area, these wells occur within 1,000 feet of I-95 in only a few locations.

Community Wells are located at the following points:

- North of I-95 in Guilford, on Granite Road
- South of I-95 in Guilford, near Exit 58
- South of I-95 in Madison, along Copse Road
- North of I-95 along the Hammonasset River in Madison/Clinton
- South of I-95 in East Lyme, along Old Bride Brook Road (between Exits 72 and 73), and
- North of I-95 in Stonington, at Exit 90

Non-Community Wells within 1,000 feet of I-95 are located at the following points:

- South of I-95 in Branford near Exit 55
- North and south of I-95 in the vicinity of Exit 70 (multiple wells)
- South of I-95 in Old Lyme near Exit 71 (multiple wells)

### **Aquifer Protection Areas**

Aquifer Protection Area Wells are major "community" wells that provide water service to more than 1,000 people and are set in stratified drift aquifers. Not all community wells are included as Aquifer Protection Area Wells. Associated with these wells are Aquifer Protection Areas (APA's). The APA's are submitted to CTDEP for approval by the owning water companies. They are classified as either final (Level A) or preliminary (Level B). The preliminary (Level B) APA's are roughly approximated, while the final (Level A) APAs are determined based upon a site-specific investigation.

All of the APA's in the study area are preliminary (Level B). Several APA wells lack any designated APA.

The I-95 corridor crosses APA's at five locations:

- Guilford Wellfield, Guilford near Exits 57 and 58
- Rettich Wellfield, Madison and Clinton near Exit 62
- Clinton Wellfield, Clinton near Exit 63
- Bride's Lake Wellfield, East Lyme between Exits 73 and 73
- Gorton's Pond Wellfield, East Lyme near Exit 74

The Connecticut Department of Environmental Protection has proposed aquifer protection land use regulations that would restrict certain high-risk land-uses such as gas stations and dry cleaners. As proposed in the regulations, each municipality would designate its own aquifer protection areas. The regulations remain in draft while CTDEP refines the regulations. The regulations would apply to final (Level A) Aquifer Protection Areas only.

### **Sole Source Aquifers**

A 'sole source aquifer' is an aquifer that supplies at least 50% of the drinking water for an area for which there is no other reasonable available sources of drinking water should the aquifer become contaminated. The Federal Sole Source Aquifer Program was established under Section 1424(c) of the Safe Drinking Water Act of 1974. Under these regulations, any Federal financially assisted project planned within a sole source aquifer must be coordinated with the regional EPA office.

Only one of the Connecticut's two sole source aquifers falls within the project area. The Pawcatuck River Sole Source Aquifer encompasses portions of Stonington and North Stonington, as well as most of southwestern Rhode Island. (See Figure 4-2, Sheets 12 and 13).

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## **4.2.3 Farmland**

The Farmland Protection Policy Act (FPPA) of 1981 (7 CFR 658, as amended at 59 Federal Register 31117) was enacted by the United States Department of Agriculture (USDA) "to minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses,...". The Act requires that before undertaking an activity that would convert farmland to another use, a Federal agency must examine the effects of the action on farmland and, if the action would have adverse effects on the farmland, the agency must consider alternatives to lessen the impacts.

The Act defines four categories of "farmland", based on the soil types: (1) Prime, (2) Unique, (3) Other than Prime or Unique that is of Statewide Importance (Statewide Important), and (4) Other than Prime or Unique that is of Local Importance (Local). The FPPA does not apply to some areas mapped as "farmland" soil types, because of other considerations. Such exceptions include land that is already developed with houses, or is otherwise committed to non-agricultural uses, including transportation. Highway embankments or other heavily regraded soils associated with development are classified as Ud (Udorthents), and urbanized areas may be classified as Ur (Urban Land).

Once the general layout and approximate 'footprint' of transportation improvements are known, the project proponent must complete a Farmland Conversion Impact Rating Form (Form AD-1006). This form quantifies impacts and must be submitted to the USDA's Natural Resource Conservation Service (NRCS) to assist them in determining whether there will be an adverse effect on farmlands.

The Prime and Statewide Important soils were mapped along the project corridor (Figure 4-3) using soil mapping and digital data produced under the Connecticut Department of Environmental Protection/Natural Resources Conservation Service soils cooperative. That database contains all soil units, and identifies those soils qualifying as Prime or Statewide Important. No Unique soils or soils of Local Importance have been identified by NRCS within the study area. Since the soils data used for the mapping often depicts farmland soils extending across the existing I-95 corridor, a mapping technique known as ‘clipping’ was used to graphically indicate that the existing interstate has already displaced the farmland soils under the pavement and immediately adjacent to the edge of pavement. This modification prevents the appearance that intact farmland soils overlap with the existing interstate highway. The farmland soils were similarly ‘clipped’ along the adjacent Amtrak rail line.

The Prime and Statewide Important farmland soils are common along the study corridor (Figure 4-3) but the relatively developed nature of the corridor has already displaced much of the farming potential offered by the soil types, particularly in the western portion of the corridor and in the New London/Groton urban area.

Figure 4-3 also denotes active farms, although the FPPA is based on soil types, rather than current land use. A review of year 2000 aerial photography of the corridor reveals that active farmland is uncommon immediately adjacent to the I-95 corridor. Sizable active farms, however, are found at the following locations:

*Branford:*

- West of Exit 53 along Hosley Avenue (north of I-95) (outside study area)
- Between Exits 53 and 54, east of Cherry Hill Road (north of I-95)

*Guilford:*

- East of Exit 57 along Long Hill Road and east of State Street (both north and south of I-95)
- East of Exit 58 near State Street (north and south of I-95)
- Between Exit 58 and 59 near Tanner Marsh Road and Wildwood Avenue (north of I-95)

*East Lyme:*

- East of Exit 72, east of North Bride Brook Road (both north and south of I-95)

*Waterford:*

- West of Exit 81 south of South Frontage Road (south of I-95)

*Groton:*

- East of Exit 88 between Flanders and Ledyard Roads (north of I-95)
- Between Exits 89 and 91, along Jerry Browne Road (south of I-95)

*Stonington:*

- East of Exit 91, along Pequot Trail south of I-95 and in corresponding location north of I-95

*North Stonington:*

- Between Exits 92 and 93, in several locations (both north and south of I-95).

The active farms often encompass or overlap Prime or Statewide Important soils.

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## 4.2.4 Coastal Resources

### Coastal Management Act

In 1972, the United States Congress passed the Federal Coastal Zone Management Act (P.L. 92-583, that was subsequently amended in 1976 (P.L. 94-370)). The Act required each state to develop, approve, and implement a State Coastal Zone Management Plan. Connecticut's Coastal Management Act (CCMA)(CGS Sections 22a-90 through 22a-112) was passed in 1979 by the General Assembly, and took effect on January 1, 1980. The act is a regulatory mechanism designed to balance the needs of economic development with the responsibility to preserve and protect the natural resources associated with the coastal environment. The CCMA furthermore called upon the local municipalities to prepare their own coastal programs. By directive, the municipal coastal programs are consistent with the CCMA and serve as a more detailed statement of goals and policies to be applied to coastal use and development.

The jurisdiction of both the Statewide and local plans is the Coastal Zone, which is defined by the Coastal Boundary. The source of the Coastal Boundary used for this study, as depicted on Figure 4-4, is the CTDEP, Office of Long Island Sound Programs (Published 1995). The boundary is a 'hybrid' of the original statewide boundary and more recent and refined town-defined coastal boundaries. The boundary is precisely defined in the CCMA; it extends to a 1,000 foot setback from mean high water, or a 1,000 foot setback from the inland boundary of tidal wetlands, or the inland limit of the 100-year coastal flood-zone, whichever is furthest inland. The seaward portion of the boundary follows the State's jurisdiction line in Long Island Sound.

The CCMA describes its goals and policies in four parts, with Federal and State agencies subject to the greatest number of requirements, relative to private landowners and municipal agencies. In all, 15 goals and policies appear in the legislation, many with numerous sub-policies. The goals and policies can be loosely categorized into five groupings.

- Minimize environmental impacts to the extent practical
- Promote economic development in an orderly fashion, and favoring water dependent uses
- Coordinate regulatory agencies and ensuring consistency between planning documents
- Provide for public safety and access to waterfront areas
- Promote research on coastal matters.

Any State-sponsored transportation construction projects within the coastal zone must be evaluated relative to fulfilling the intent of the CCMA. Any proposed actions would be sponsored by State and Federal governments, and would not be legally subject to local regulations. However, since State and Federal coastal legislation enlists the local governments to develop specific plans to carry out the intent of their more general policies, local coastal policies should be addressed during planning.

As depicted in Figure 4-4, the Coastal Zone extends inland to, or across, I-95 at 16 locations, for a total length of approximately 14 miles:

- Branford: West of Exit 55 near Mill Plain Road
- Guilford: At Exit 59
- Guilford/Madison: In the vicinity of the East River, and eastward in Madison to Copse Road
- Madison/Clinton: Near Exit 62/Hammonasset River
- Clinton/Westbrook/Old Saybrook: Intermittently throughout (at 7 locations)

- Old Saybrook/Old Lyme: Near the Connecticut River
- Old Lyme: near the Black Hall River/Whippoorwill Road crossing
- East Lyme/Waterford: At the Niantic River/Exit 76
- New London/Groton: At the Thames River
- Groton/Stonington: Mystic River/Exit 89/90

The section of I-95 between Exit 59 in Guilford and Exit 70 in Old Lyme is predominately within the Coastal Zone.

### **Coastal Resources**

The CCMA defines Coastal Resources as the coastal waters of the State, their natural resources, related marine and wildlife habitat and the adjacent shorelands, both developed and undeveloped, that together form an integrated terrestrial and estuarine ecosystem. (P.A. 79-535, sec 3(7)).

Coastal Resources within 1,000 feet north and south of I-95 (a 2,000-foot-wide corridor) were digitally mapped for this project using maps published in 1979 by CTDEP's Coastal Area Management (CAM) Program. The CAM Coastal Resources maps identify 11 coastal land resources, two intertidal resources, and three resources associated with Coastal Waters, as well as the Coastal Boundary. The Shellfish CAM Concentration Area maps identify areas believed to support and produce significant concentrations of shellfish that are of commercial or recreational value.

Among the Coastal Resources within the Coastal Zones of the I-95 corridor are Freshwater Wetlands and Undesignated Tidal Wetlands, Regulated Tidal Wetlands, Open Water, Estuarine Embayments, and Shellfish Concentration Areas. Estuarine Embayments crossed by I-95 occur at major rivers: Connecticut River, Niantic River, Thames River, and Mystic River. Two coastal 'resources' are intentionally omitted from Figure 4-4 in the interest of clarity. The first is Coastal 'Flood' Hazard Areas, which are present at most locations within the Coastal Zone, (also discussed in Section 4.2.1 and the associated Figure 4-1, which depicts the 100-year flood hazard area). The second is Developed Shorefront, which is present on both shores of the Thames River. Shellfish Concentration Areas within the I-95 corridor are limited to the Thames and Mystic Rivers. Shellfish Concentration Areas in the Thames River include hard clam (*Mercenaria mercenaria*) and eastern oyster (*Crassostrea virginica*). The Mystic River supports a concentration of hard clam, south of the I-95 crossing. Extensive shellfish concentration areas exist seaward of the I-95 corridor along most of the shoreline.

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## 4.2.5 Historic and Archeological Resources

Section 106 of the National Historic Preservation Act of 1966, as amended, requires Federal agencies to take into account the effect of an undertaking on historic properties listed or eligible for listing in the National Register of Historic Places (NRHP). The proposed undertaking's impact on historic properties listed or eligible for listing in the NRHP is studied to determine if the project would have no effect, no adverse effect, or an adverse effect on these resources (36 CFR 800.3). A preliminary assessment was initiated to identify NRHP and Connecticut State Register listed resources that are located within the area of potential effect.

It should be noted that although the project may lie within an historic district eligible for the NRHP, contributing features to the district must be affected in order for Section 4(f) of the Department of Transportation Act of 1966 to apply. Even if Section 4(f) does not apply, Section 106 of the National Historic Preservation Act may or may not apply depending on coordination with the State Historic Preservation Office (SHPO), FHWA and Connecticut Department of Transportation.

### Existing Conditions: Known Architectural Resources

#### Methodology

In January 2003, architectural resource files at the Connecticut State Historic Preservation Office in Hartford were examined for previously identified architectural resources within 1,000 feet of the project corridor. Previous survey reports for each town were reviewed for additional architectural resources identified within the project corridor. Locations of the resources listed on the National Register and Connecticut State Register were transferred to project base maps and information was obtained from the National Register/Connecticut Inventory forms.

The locations of previously identified resources were examined during the windshield survey of the project area in January 2003.

#### Known Architectural Resources

As of January 2003, five National Register listed Historic Districts and five National Register/State Register resources have been identified within 1,000 feet of the project corridor. One resource, the Florence-Griswold House and Museum (Old Lyme), is a National Historic Landmark within the Old Lyme Historic District. In addition, one historic district and one historic resource have been recommended for listing on the National Register during a previous survey. These resources were added to the study's existing conditions maps (see Figure 4-4).

Two of the historic districts, the Guilford Historic Town Center and Dudleytown Historic Districts, are located in Guilford with boundaries that abut I-95 at Exits 58 and 59. The boundaries of the Old Lyme Historic District encompass Lyme Street directly north and south of I-95 at Exit 70 east. The remaining two historic districts are the Post Hill Historic District in New London (Exit 84) and the Groton Bank Historic District (Exit 85). The boundaries of the Post Hill Historic District abut the exit interchange while the boundaries for Groton Bank are two blocks to the south of Exit 85. The remaining five resources date from the 17<sup>th</sup> through the 20<sup>th</sup> centuries and are located at exits 68, 69, 70 east, 84, and 90. See Table 4-3.

These historic resources are summarized as follows:

**Guilford Historic Town Center, Guilford:** The Guilford Historic Town Center Historic District includes approximately 700 buildings dating from the 17<sup>th</sup> to the 20<sup>th</sup> century. First settled in 1639 by a group of Puritans, Guilford's economy and growth was based on modest shipbuilding and related maritime industries with the development of several foundries after the Civil War (sheet 3 on Figure 4-4).

**Dudleytown Historic District, Guilford:** The Dudleytown Historic District encompasses the farms established by the Dudley family during the 18<sup>th</sup> and 19<sup>th</sup> centuries. The historic district includes 60 contributing buildings such as farmhouses, sheds, barns and other farm-related buildings (sheet 3 on Figure 4-4).

**Jedidiah Dudley House, Springbrook Road, Old Saybrook:** The Jedidiah Dudley House, constructed after 1750, is a 1½ story frame building with clapboard siding, a steeply pitched side gable roof and central chimney. Constructed upon a coursed rubble foundation, the symmetrical house is five bays wide. The house is associated with the Dudley and Whittlesey families who shared operation of the ferry and ferry landing on the west bank of the Connecticut River in Old Saybrook during the 17<sup>th</sup> and early 18<sup>th</sup> centuries. The house is located 200 feet north of Exit 68 (sheet 7 on Figure 4-4).

**John Whittlesey Jr. House, 40 Ferry Road, Old Saybrook:** The John Whittlesey Jr. House, constructed in 1693 (ell) and 1750 (main block), is a 2½ story frame building with clapboard siding, a side gable roof, and central chimney. Constructed upon a stone rubble foundation, the main block of the house is five bays wide. The house is associated with the Whittlesey family who were co-operators of the ferry on the Connecticut River. The house is located 900 feet southwest of Exit 69 (sheet 7 on Figure 4-4).

**Old Lyme Historic District, Old Lyme:** The Old Lyme Historic District includes approximately 71 buildings located along Lyme Street and Old Boston Post Road. The buildings date from the 18<sup>th</sup> to the 20<sup>th</sup> centuries and include designs by architect Alexander Jackson Davis and master builder Colonel Samuel Belcher (sheet 7 on Figure 4-4).

**Florence Griswold House & Museum, Old Lyme:** The Florence Griswold House & Museum, is a contributing resource to the Old Lyme Historic District and is individually listed as a National Historic Landmark. Designed by Samuel Belcher in 1817, the late Georgian house was home to the Lyme Art Colony which combined the French Barbizon and American Impressionist style schools in the early half of the 20<sup>th</sup> century. The building is located approximately 600 feet north of Exit 70 but the exit drive from the museum grounds is less than 100 feet from an Exit 70 off ramp (sheet 7 on Figure 4-4).

**Post Hill Historic District, New London:** The Post Hill Historic District includes approximately 212 contributing buildings dating from the 19<sup>th</sup> to the 20<sup>th</sup> centuries. This neighborhood is one of the oldest sections of New London and is a cohesive group of buildings with examples from the Greek Revival, Italianate, Second Empire, Queen Anne, Shingle, and Colonial Revival styles (sheet 10 on Figure 4-4).

**Winthrop (Old Town) Mill, New London:** The 1½ story frame gristmill was constructed ca. 1650 and is associated with John Winthrop Jr. who would serve as governor of Connecticut from 1657-1676. The mill property is located between the eastbound and westbound lanes under the elevated portion of I-95 as it begins to cross the Thames River (sheet 10 on Figure 4-4).

**Table 4-3  
National Register/State Register Listed Architectural Resources Within 1000 Feet of I-95 Interchanges Exit 54-93**

Exit	CR ID	Name and Location	Date	Description
58	A	Guilford Historic Town Center HD, Guilford	17 <sup>th</sup> century-1944	Historic District with buildings dating from 1640 to the mid 20th century
59		Guilford Historic Town Center HD, Guilford	17th century-1944	Historic District with buildings dating from 1640 to the mid 20th century (South of US Rte 1)
59	B	Dudleytown HD, Guilford	18 <sup>th</sup> -19 <sup>th</sup> centuries	Historic District associated with the Dudley family
68	C	Jedidiah Dudley House Springbrook Road, Old Saybrook	Post 1750	1 ½ story frame building
68 & 69	D	J. Whittlesey Jr. House 40 Ferry Road, Old Saybrook	1693, ca. 1750	2 ½ story frame building
70 east	E	Old Lyme HD	18th-19th centuries	Historic District extends across the north and south side of I-95 and includes buildings dating from 1700 to the late 19th c.
70 east	F	Florence-Griswold House & Museum, 96 Lyme Street, Old Lyme	1817	National Historic Landmark, within the Old Lyme Historic District
84	G	Post Hill HD, New London	Ca. 1845-1925	Historic District abuts exit 84 interchange at south side; Includes 216 contributing buildings
84	H	Winthrop (Old Town) Mill, New London	1650	Mill is located beneath I-95 ramps leading to bridge over Thames
85	I	Groton Bank HD Groton	Mid-18th c.-1915	Northeast boundary of historic district is south of exit 85 Includes great examples of Queen Anne & Greek Revival styles.
90	J	Whitehall Mansion, 42 Whitehall Ave. Stonington	1771-1775	Moved in 1962 from its original location for construction of I-95
80	K	Gurley Rd & Oil Mill Rd, Waterford	18th-19th century	Cluster of resources developed along an early mill site on the Niantic River; Recommended as potentially eligible
80	L	21 Gurley Road, Waterford	Joshua Moore House (18th c.?)	Recommended as potentially eligible for National Register listing in 1997 survey
85	M	NY, NH, & H RR Bridge, Groton	ca. 1919	Determined eligible by SHPO but owner objection by Amtrak

**Groton Bank Historic District, Groton:** The Groton Bank Historic District comprises approximately 130 buildings dating from the 18<sup>th</sup> to the 20<sup>th</sup> centuries. Shipbuilding and maritime activities had been at the center of Groton Bank's economy since the 17<sup>th</sup> century and the architecture of the district reflects the wealth of the residents (sheet 10 on Figure 4-4).

**Whitehall Mansion, 42 Whitehall Avenue, Stonington:** Whitehall Mansion, constructed ca.1771-1775, is a 2½ story frame dwelling with a center chimney and gambrel roof. The mansion was constructed for Dr. Dudley Woodbridge who was a local physician that served in the Connecticut colonial legislative in the 18<sup>th</sup> century. The mansion was moved from its original location in 1962 as a result of the construction of I-95. The Whitehall Mansion is located 250 feet north of Exit 90 (sheet 11 on Figure 4-4).

## **Potential for Historic Resources**

### **Methodology**

In January 2003, the area within 800 feet of each interchange in the project corridor was examined during a windshield survey to determine the potential for architectural resources, which could qualify for inclusion in the National Register of Historic Places (NRHP) or listing in the Connecticut State Register. In addition, historic USGS topographic maps and Sanborn Fire Insurance maps (if available) were studied to identify potential historic architectural resources within the study area. Areas not readily accessible were examined on the project's large-scale aerial photographs.

In assessing potential eligibility of buildings for listing in the National Register of Historic Places (NRHP), the age and integrity of the buildings were considered during this windshield survey. The initial assessments were based on site visits, information on file in the Connecticut State Historic Preservation Office, and previous survey reports.

The previous reconnaissance, intensive or comprehensive surveys prepared for each town were primarily conducted between 1980-1997. As a result of the length of time since these surveys were conducted, a number of mid 20<sup>th</sup> century resources previously not assessed or previously recommended as ineligible for potential listing in the NRHP should be revisited as a result of reaching 50 years of age. An historic resource which is less than 50 years of age is not considered eligible for the National Register unless it is of exceptional importance.

### **Potential Historic Resources**

Historic resources were investigated within 800 feet of each interchange. In general, the date of construction of the resources ranges from the 19<sup>th</sup> to the mid-20<sup>th</sup> centuries and includes both residential and commercial buildings. Buildings that are less than 50 years of age or have undergone extensive alterations are not recommended for additional survey/research and are listed as having no potential. The windshield survey identified approximately 75 resources that have the potential to be eligible for listing in the National Register of Historic Places. Of these 75 resources, 13 are identified as multi-building resources within individual blocks and/or neighborhoods. Two resources were identified during a 1997 survey of Waterford and were recommended as potentially eligible for listing in the NRHP. One property (Exit 91 south side), located on the Pequot Trail, could possibly be the James Noyes House (ca.1740), which is listed on the Connecticut State Register. The original survey form for this house did not list an exact address, but it appears that the building at 709 Pequot Trail is the same resource (John Herzon, personal communication 2/4/2003). Five architectural resources were not accessible and could not be assessed for potential eligibility.

## **Existing Conditions: Known Archaeological Resources**

### **Methodology**

In January 2003, archaeological site files at the Connecticut State Historic Preservation Office (SHPO) in Hartford were examined for previously identified archaeological resources within 1,000 feet of the project corridor. Locations of these archaeological sites were transferred to study base maps and information was obtained from the State site forms. In several cases where site forms were not available, the staff archaeologist, David Poirier, indicated that the site was probably an older surface collection of a prehistoric site. In assessing potential eligibility of each site for listing in the National Register of Historic Places, the integrity of the site was a main consideration. Some sites had already been destroyed by subsequent development, according to supplemental site forms. The locations of known sites were examined during the windshield survey of the project area in January 2003. In cases where the site location was not readily accessible, the project's large-scale aerial photographs were examined for current site conditions.

### **Known Archaeological Resources**

Fifteen archaeological sites have been identified within 1,000 feet of the project corridor. Eight of these sites do not appear to be eligible for listing in the NRHP because they were heavily disturbed or destroyed by subsequent development. The remaining seven sites could still be relatively intact and therefore may be potentially eligible for listing in the NRHP. None of the seven sites are within 500 feet of an interchange although one site may be within 150 feet of the eastbound lane of I-95.

Six of the seven potentially eligible sites are within the western portion of the project corridor and one site is in the eastern portion. Most of the sites are prehistoric, although one also has an historic component. Four of the prehistoric sites are of unknown date, one dates to roughly 1,000 BC, and one is from the Archaic/Woodland Period. The multi-component site dated to the Archaic, Late Archaic, and undated historic time periods; a Carbon-14 sample from this site was dated to roughly 300 BC. The sites functioned as a fish weir or a prehistoric camp. One campsite reportedly also contains bones from a Native American, which were re-interred here by a local historian in the 1940s or 1950s.

## **Potential for Undiscovered Archaeological Resources**

### **Methodology**

In January 2003, the area within 500 feet of each interchange in the project corridor was examined during a windshield survey to determine the potential for discovering archaeological resources. Areas not readily accessible were examined on the corridor's large-scale aerial photographs. The locations of modern development (i.e. buildings, paved parking, paved roadways) were judged to have a low potential for containing intact archaeological sites and were eliminated from further consideration. Remaining, undeveloped areas were judged to have low, moderate, or high potential for archaeological resources. Decisions were based on the existing conditions in each area, including vegetation, slope, and distance to a water source. Other factors included an examination of former conditions on topographic, surficial geological and general historic maps to determine former uses of the land.

### **Potential for Archaeological Resources**

The archaeological potential of the undeveloped areas within 500 feet of each interchange was entered into a database table. The boundaries of the described areas were recorded on the corridor's large-scale aerial photographs. This data will be used to assess potential impacts of proposed transportation improvement alternatives.

Areas that have been developed were judged to have low potential for undiscovered archaeological resources. Exceptions included yards surrounding pre-modern houses. Undeveloped areas close to a water source were usually moderate to high potential. Areas near previously discovered archaeological sites tended to have moderate to high potential, as did undeveloped locations where maps indicated a house once stood.

In general, areas judged to have a low potential for undiscovered archaeological resources are not recommended for archaeological survey. Areas with low to moderate, moderate, or high potential are recommended for archaeological survey prior to ground-disturbing activities. Survey plans should be coordinated with the Connecticut State Archaeologist or SHPO.

Information regarding listed and resources eligible for listing for the Connecticut State Register and the NRHP gathered during the feasibility study provides an opportunity to identify resources that directly adjoin the I-95 corridor. These resources are of particular concern as a result of their close proximity to the existing roadway and sensitivity to any proposed alterations to I-95. They include the Guilford Historic Town Center Historic District (Exit 58), the Dudleytown Historic District (Exit 59), the Jedidiah Dudley House (Exit 68), the Old Lyme Historic District and the Florence Griswold House and Museum (Exit 70 east), the Gurley Road/Oil Mill Road proposed Historic District (Exit 80), and the Post Hill Historic District and the Winthrop Mill (Exit 84). These resources adjoin or are less than 200 feet from the I-95 corridor at various exit interchanges.

Two archaeological sites have been identified which are not located directly next to an interchange, but which are within close proximity to the I-95 corridor. The exact location of archaeological sites are not disclosed to the public in order to protect the sites from disturbance. Archaeological site 27-9 was identified on the Connecticut State site form as “probably [being] destroyed by I-95”, but it is unclear if it has indeed been destroyed. Site 27-30 is approximately 150 feet from the I-95 corridor and could be potentially disturbed by transportation improvements on the corridor. It is more than 1,000 feet from the nearest interchange.

The windshield survey of the proposed area of potential effect (APE) at the interchanges identified numerous historic resources that will require additional documentation to ascertain possible eligibility for listing in the Connecticut State Register and the NRHP. The preliminary assessment discussed in this section does not address these resources or previously identified resources which do not adjoin the I-95 corridor but are within the proposed APE.

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## **4.2.6 Section 4(f) and Section 6(f) Resources**

### **Section 4(f) Resources**

Section 4(f) of the 1966 Department of Transportation Act requires that special efforts be made to protect any public park, recreational area, or wildlife or waterfowl refuge, or any public or private historic property or archeological site on or eligible for listing on the National Register of Historic Places from adverse impacts resulting from any Department of Transportation project. Section 4(f) only applies if federal funds are used on the project. The law states that the Secretary of Transportation shall approve a project which requires use of a public park, recreation area, wildlife or waterfowl refuge, or historic or archeological site of significance only if (1) there is no prudent and feasible alternative to using that land and (2) the project includes all possible planning to minimize harm to the resource being affected by the use.

This section discusses the public parks, recreation areas and wildlife and waterfowl properties contained in the study area, and re-lists historic properties and archaeological sites that may qualify as a Section 4(f) property. A summary of these resources is found in Table 4-4 and described below. Final determination of a property's 4(f) status normally requires consultation with FHWA and the management agency associated with the property. The data presented in Table 4-4, therefore, provides a preliminary list of potential Section 4(f) properties (Personal communication, E. Kennedy to Robert Turner, FHWA).

Data was derived from CTDEP GIS sources of Federal, CTDEP-owned and municipal properties, a review of property data contained in local Plans of Conservation and Development, municipal GIS data where available, and confirmed during field investigations.

Five parcels were identified as being potentially eligible for Section 4(f) status. These parcels are adjacent to the existing I-95 right of way and include one recreation area, two State Wildlife Areas, one State Forest and one State Park. Further research is necessary to determine if these two wildlife areas qualify as refuges and whether the State Forest qualifies due to the presence of park or recreation activities.

- Branford River Wildlife Area, Branford – North of Exit 55 and including approximately 3,000 feet adjacent to the right of way
- East River Wildlife Area, Madison - State owned property including 600 feet adjacent to the I-95 right of way
- Cockaponset State Forest, Westbrook – The State Forest parallels the I-95 right of way on the north side and east of Exit 64 for approximately 1,000 feet
- Rocky Neck State Park, East Lyme – A 34 acre portion of the State Park is adjacent to the Exit 72 on-ramp from Route 156 to I-95
- Recreation Field, Stonington – The field is on the west side of Taugwonk Road across from the I-95 southbound off ramp

Three schools are located adjacent to I-95 or one of its interchanges. Section 4(f) does not apply to areas of multiple use lands where the primary use is not one included in the definition of 4(f) properties. However, Section 4(f) does apply to those areas which function primarily for Section 4(f) purposes. Additional research will be necessary once transportation improvement alternatives are developed to determine if park or recreation activities at these sites are affected.

- Guilford Jr. High School, Guilford – School play fields adjacent to the northbound on ramp at Exit 58
- Morgan High School in Clinton – The school parking lot is across Route 81 opposite the southbound on ramp to I-95. There are no active recreation fields in the vicinity
- William Seeley School, Groton – School grounds are adjacent to the southbound portion of I-95

In addition, one Federally owned wildlife sanctuary; the Salt Meadow National Wildlife Refuge in Westbrook is approximately 1,000 feet south of I-95 east of Exit 64.

An additional 14 open space and recreation parcels are adjacent to the I-95 right of way but may not qualify for Section 4(f) status. These parcels include ten town-owned open space parcels (no active recreational activity is evident) and five water access points to the Connecticut, Lieutenant and Thames Rivers owned by the State of Connecticut. All potential Section 4(f) properties as well as other publicly and privately owned open space and recreation properties are shown on Figure 4-4. The 'uncategorized' properties shown on

Figure 4-4 are privately owned open space/recreation lands such as conservation trust areas, beach clubs, and marinas. The 'other' category includes CTDEP-owned properties such as the DEP Marine District Headquarters.

Historic and archeological resources found in the study area are discussed in the previous section and historic resources are shown on Figure 4-4. Archeological resources are not shown on any of the figures. Their locations are confidential in order to protect them from disturbance. It should be noted that if a site is archaeologically sensitive, Section 4(f) applicability cannot be determined until all subsurface testing is completed and approved by SHPO, FHWA, and Connecticut Department of Transportation. A summary of historic and archeological resources that would potentially be eligible for Section 4(f) status is provided below.

Information regarding listed and resources eligible for listing for the Connecticut State Register and the NRHP gathered during the feasibility study provides an opportunity to identify resources that directly adjoin the I-95 corridor. These resources are of particular concern as a result of their close proximity to the existing roadway and sensitivity to any proposed alterations to I-95. They include the Guilford Historic Town Center Historic District (Exit 58), the Dudleytown Historic District (Exit 59), the Jedidiah Dudley House (Exit 68), the Old Lyme Historic District and the Florence Griswold House and Museum (Exit 70 east), the Gurley Road/Oil Mill Road proposed Historic District (Exit 80), and the Post Hill Historic District and the Winthrop Mill (Exit 84). These resources adjoin or are less than 200 feet from the I-95 corridor at interchanges.

Two archaeological sites have been identified which are not located directly next to an interchange, but which are within close proximity to the I-95 corridor. The exact locations of archaeological sites are not disclosed to the public in order to protect the sites from disturbance. Archaeological site 27-9 was identified on the Connecticut State site form as "probably [being] destroyed by I-95", but it is unclear if it has indeed been destroyed. Site 27-30 is approximately 150 feet from the I-95 corridor. It could be disturbed by transportation improvements, however, it is more than 1,000 feet from the nearest exit interchange.

**Table 4-4  
Potential Section 4(f) Lands Adjacent to I-95**

Town	Parcel	Ownership	Location
Branford	Branford River Wildlife Area	DEP	Exit 55 northside
Guilford	Guilford Jr. High School	Guilford	Exit 58 southside
Guilford	Guilford Historic Town Center Historic District	Mult. Private/Public	Exit 58 southside
Madison	East River Wildlife Area	DEP	East of Exit 59
Guilford	Dudleytown Historic District	Mult. Private/Public	Northeast of Exit 59
Clinton	Town Open Space River Road	Clinton	East of Exit 62
Clinton	Morgan High School	Clinton	Exit 63 northside
Clinton	Town Open Space	Clinton	Exit 63 southside
Clinton	Town Open Space - Fairy Dell Road	Clinton	East of Exit 63
Clinton	Menunketsuck River Water Access	DEP	West of Exit 64
Westbrook	Cockaponset State Forest	DEP	East of Exit 64
Westbrook	Salt Meadow National Wildlife Refuge	USFWS	1000' South of I-95
Old Saybrook	Jedidiah Dudley House	Private	Exit 68 northside
Old Saybrook	Connecticut River Water Access	DEP	East of Exit 69
Old Lyme	Old Lyme Historic District	Mult. Private/Public	Exit 70
Old Lyme	Florence Griswold House and Museum	Private	Exit 70 northside
Old Lyme	Lieutenant River Water Access	DEP	West of Exit 70
East Lyme	Rocky Neck State Park	DEP	East of Exit 72
East Lyme	Town Open Space – Smith-Harris Tract	East Lyme	West of Exit 74
Waterford	Gurley Road/Oil Mill Road proposed Historic District	Mult. Private/Public	Exit 80
Waterford	Town Open Space – Snowden Street	New London	Exit 82A
New London	Winthrop Mill	Private	Exit 84
New London	Post Hill Historic District	Mult. Private/Public	Exit 84 southside
New London	Thames River Water Access	DEP	East of Exit 84
Groton	Thames River Water Access	DEP	West of Exit 85
Groton	Seeley School	Groton	Exit 85
Groton	Town Open Space Winthrop Estates I-95 North	Groton	Exit 86
Groton	Town Open Space Winthrop Estates Plymouth Ave. East	Groton	Exit 87
Groton	Town Open Space Woodcrest Open Space	Groton	Exit 89
Stonington	Town Open Space Jerry Browne Rd.	Stonington	Exit 90
Stonington	Town Open Space Anguilla Preserve	Stonington	East of Exit 91
Stonington	Town Recreation Field	Stonington	Exit 91

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### Section 6(f) Resources

Section 6(f) of the 1965 Land and Water Conservation Act (LWCF) states that any lands that were purchased or developed with LWCF funds, cannot be 'converted' to another use for purposes inconsistent with the Act, without being replaced with other land that is of equal use and value to the land proposed for conversion. Section 6(f) documentation is required for 6(f) properties that are directly impacted (acquired) by transportation projects. CTDEP was consulted to identify Section 6(f) properties that received funding or improvements from the Land and Water Conservation Fund.

According to property data provided by CTDEP there are 19 properties within the I-95 study area communities that were purchased with monies from the Land and Water Conservation Fund (seven of these are shown on Figure 4-4). None of these Section 6(f) parcels are adjacent to I-95 or its intersections. The following list identifies those Section 6(f) properties that are within 2,000 feet of the I-95 corridor:

- Daniel P. Wren Park, Westbrook – 1,000 feet south of Exit 65
- Town Park, Old Saybrook – 1,000 feet north of Exit 66
- Washington Park, Groton – 2,000 feet south of Exit 85

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### 4.2.7 Rare, Threatened and Endangered Species

Threatened and endangered plants and animals are protected by both Federal and State legislation. These components of the ecological mosaic are important due to their rarity and importance maintaining biological diversity. The Connecticut Endangered Species Act (C.G.S. Sec. 26-303 to Sec. 26-315) and the Federal Endangered Species Act (16 U.S.C. 1531-1543) provide protection of these resources.

CTDEP Geological and Natural History Survey maintains a database of known occurrences of these species and further classifies them based upon the degree of rarity. The database, designated as the Natural Diversity Data Base (NDDB) is a compilation of locations of species and natural communities based upon knowledge and data from CTDEP, private conservation groups, and the scientific community. The NDDB includes data for both State and Federally listed species through data sharing with the U.S. Fish and Wildlife Service.

The natural diversity database was obtained from CTDEP in GIS format in a compact disk data set. Since the NDDB list is updated twice annually, the latest information on locations was gathered at CTDEP and transferred to the project database. Data for this study is current as of December 2002.

Three classifications of rarity or occurrence are used by CTDEP, including Endangered, Threatened, and Special Concern. Endangered are the least common, representing species within danger of extirpation throughout all or a significant portion of its range, and having no more than five occurrences in the State. Threatened are uncommon and likely to become endangered within the foreseeable future throughout all or a significant portion of its range and have no more than nine occurrences in the State. Species of Special Concern are species that are naturally restricted in range or habitat in the State, or in low population levels or in such high demand that unregulated taking could be detrimental to the conservation of the species.

Federal classifications include Endangered, Threatened, and Candidate species. Endangered species are in danger of extinction within the foreseeable future throughout all or a significant portion of its range. Threatened species are likely to become endangered within the foreseeable future throughout all or a

significant portion of its range. Candidate species are under study and should be proposed for addition to the Federal endangered and threatened species list.

In order to afford some protection of the species from collection or vandalism, CTDEP only provides generalized and non-specific data represented by large circular shapes several thousand feet in diameter. These shapes are not necessarily centered on the species occurrence to further buffer their exact location. In addition, the species name for a particular occurrence is not provided. The data in this generalized form is used to conduct an initial screening for potential encounters with listed species or important natural communities. CTDEP reviewed the project corridor in the context of this corridor analyses. Further information about specific plants and animal resources will be provided for specific consideration as the study proceeds. Consultation with CTDEP, based upon specifics of potential transportation improvements will reveal if impacts will likely occur and if further investigation or mitigation is warranted.

The CTDEP database indicates several potential encounters with listed species or natural communities along the I-95 corridor. Approximately 17 generalized areas are denoted encroaching upon I-95 and interchanges as shown in Figure 4-4. Most of the data indicates single occurrences, however, in a couple of locations, clusters of species are found. Reviewing the published locations reveals patterns of greatest concentrations along the shores of Long Island Sound, and northward along estuaries. The highest density of generalized listed species and natural community occurrences in which the I-95 roadway corridor passes, occurs at the Connecticut River. The near coastal estuarine environment provides important habitats to support a wide variety of uncommon species.

Responses from CTDEP are included in the Appendix to this report. Among the listed animals are several bird species, a reptile, and several invertebrate species. There are four locations containing listed plants that will require further investigation as the transportation improvements are developed.

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#### **4.2.8 Land Use**

Land use along the Route I-95 corridor is an important component for the evaluation of transportation alternatives. The nature, type and location of different land uses influence existing traffic volumes and the level of service that is experienced along sections of the highway. In addition, future development and changes to existing land use patterns must be accommodated in the alternatives analysis phase of this feasibility study. The existing land uses along the corridor therefore serve as a baseline for transportation planning purposes.

Land use information was collected from a variety of sources. Each of the three regional planning agencies (SCROG, CRERPA, and SCCOG) and the 13 communities were contacted for information. Parcel based land use data was acquired where available. Regional and local plans of conservation and development were also obtained. Parcel based land use data will be useful in the evaluation of alternatives because site-specific impacts can be determined.

Generalized land use maps were prepared for the study corridor (Figure 4-5). Because land use categories vary among municipalities, a set of general categories were identified and used for all 13 communities. These categories include:

- Agriculture – active agricultural lands
- Open Space – dedicated public or private open space, including cemeteries
- Low Density Residential – rural or single-family residential uses
- Medium Density Residential – two-family, townhouse, garden apartments or retirement communities
- High Density Residential – apartment buildings and high density multi-family neighborhoods
- Public/Institutional – public lands, schools, hospitals, nursing homes or public utility lands
- Commercial – retail, office, restaurants, motels
- Industrial- light manufacturing, industrial buildings, distribution facilities
- Vacant/Undeveloped – unused and undedicated privately owned land

The land use maps were prepared using GIS data where available. For communities without GIS land use or parcel data, land use data was digitized using paper maps and aerial photography. Limited fieldwork was also conducted. Land use data was collected for parcels within 300 feet of each intersection in the study corridor. This site-specific data include individual building uses and/or their occupants. This data was loaded into the GIS database so that, for each community, generalized as well as site specific data is available. The land use characteristics of each of the interchanges in the study area are described in Table 4-5.

**Table 4-5  
Generalized Land Use Along the I-95 Corridor**

Town	Exit	Generalized Land Use Characteristics	Unique/Special Land Uses
Branford	Exit 54	Medium Density Residential (townhouses); Commercial	
Branford	Exit 55	Commercial; Single-Family Residential	
Branford	Exit 56	Commercial; Industrial	
Guilford	Exit 57	Commercial; Single-Family Residential; Undeveloped	
Guilford	Exit 58	Residential; Institutional; Undeveloped	Guilford Jr. High School
Guilford	Exit 59	Commercial; Industrial	
Madison	Exit 60	Single-Family Residential	
Madison	Exit 61	Commercial; Single-Family Residential, incl. townhouses	
Madison	Exit 62	Single-Family Residential; Undeveloped; Industrial	
Clinton	Exit 63	Commercial; Single-Family Residential	
Westbrook	Exit 64	Undeveloped; Rural Residential	
Westbrook	Exit 65	Commercial; Single-Family Residential	Cemetery
Old Saybrook	Exit 66	Industrial; Undeveloped; Rural Residential	
Old Saybrook	Exit 67	Single-Family Residential; Undeveloped; Industrial	Water
Old Saybrook	Exit 68	Commercial; Single-Family Residential	
Old Saybrook	Exit 69	Commercial; Single-Family Residential	
Old Lyme	Exit 70	Commercial; Rural Residential; Single-Family Residential	Historic properties
Old Lyme	Exit 71	Industrial; Undeveloped	
East Lyme	Exit 72	Undeveloped; Industrial	
East Lyme	Exit 73	Rural Residential; Undeveloped	
East Lyme	Exit 74	Commercial; Single-Family Residential	
East Lyme	Exit 75	Undeveloped; Commercial; Single-Family Residential	
East Lyme	Exit 76	Undeveloped; Single-Family Residential	
Waterford	Exit 80	Undeveloped	
Waterford	Exit 81	Commercial; Rural Residential	Retirement community; cemetery
Waterford	Exit 82	Commercial; Urban Residential	
Waterford	Exit 82A	Commercial; Urban Residential	Lake, water
New London	Exit 83	Urban Residential	
New London	Exit 84	Urban Residential; Industrial	Historic property
Groton	Exit 85	Urban Residential; Undeveloped	
Groton	Exit 86	Commercial; Industrial; Single-Family Residential	
Groton	Exit 87	Undeveloped; Commercial; Moderate Residential	
Groton	Exit 88	Commercial; Undeveloped	Groton and Pohegunt Reservoirs
Groton	Exit 89	Undeveloped; Rural Residential	
Stonington	Exit 90	Commercial	Elm Grove Cemetery
Stonington	Exit 91	Industrial; Rural Residential; Undeveloped	Soccer field
North Stonington	Exit 92	Industrial; Undeveloped; Rural Residential	Casino facilities
North Stonington	Exit 93	Commercial	

### **State Planning**

The *Conservation and Development Policies Plan for Connecticut 1998 - 2003* provides guidelines for the use of land in the State. Eight generalized land use categories are used in the plan: Regional Centers, Neighborhood Conservation Areas, Growth Areas, Rural Community Centers, Rural Land, Existing Preserved Open Space, Preservation Areas and Conservation Areas. There are also two overlay categories: level A/B Aquifer Protection Areas and Historic Areas.

New London is the only Regional Center within the I-95 study area. Neighborhood Conservation Areas, defined as significantly built-up and populated areas, are found throughout Branford and at Exit 58 in Guilford, Exit 63 in Clinton, Exit 65 in Westbrook, Exit 74 in East Lyme, Exit 83 in Waterford, Exits 85 and 86 in Groton, and Exit 90 in Stonington. Growth Areas are defined as “..lands that provide the opportunity for staged urban expansion generally in conformance with municipal or regional development plans.” Portions of the I-95 corridor found within the Growth Area category include areas from Branford to Clinton, most of Westbrook and Waterford, the eastern half of Groton and around Exit 92 in North Stonington. The only Rural Community Center is found at Exit 70 in Old Lyme. Areas of Rural Land, considered to be low-density residential areas, are found in Old Saybrook, Old Lyme, East Lyme, Stonington and North Stonington. The other three categories, Preserved Open Space, Preservation Areas and Conservation Areas, are found throughout the corridor wherever sensitive environmental resources exist.

### **Regional Planning Context**

There are three regional planning agencies within the I-95 study area: South Central Regional Council of Governments (SCROG), Connecticut River Estuary Regional Planning Agency (CRERPA), and Southeastern Connecticut Council of Governments (SCCOG). Each agency has prepared a regional plan of development that has specific recommendations related to the I-95 corridor. These are summarized below.

#### **South Central Regional Council of Governments (SCROG)**

Three corridor communities, Branford, Guilford and Madison, are members of SCROG. The regional plan, *Vision for the Future: Regional Plan of Development*, was adopted in November 2000. These communities comprise the East Shore sub-region of which the plan states “Selective infilling and enhancement can help grow the I-95 east corridor while preserving key community values.” The plan notes, in particular, intersection improvements at Exit 56 (Leetes Island Road) and this area’s potential for supporting sub-regional economic growth.

#### **Connecticut River Estuary Regional Planning Agency (CRERPA)**

CRERPA includes the I-95 corridor communities of Clinton, Westbrook, Old Saybrook and Old Lyme. The *Connecticut River Estuary Region Plan of Development* was adopted in May 1995. The plan identifies six generalized land use categories in the regional land use plan. Economic Growth Areas are identified along the corridor west of Exit 63 in Clinton, east of Exit 64 and east of Exit 65 in Westbrook, at Exit 67 and 68 in Old Saybrook and Exit 71 in Old Lyme. Resource Protection Areas are located along both sides of the Connecticut River and in Old Lyme and Water Supply Uses are identified in Clinton and Westbrook. The remainder of the corridor is classified as ‘Established Residential’ or ‘Rural Residential’ areas. The last category – Village Areas- is found at Exit 71 in Old Lyme.

#### **Southeastern Connecticut Council of Governments (SCCOG)**

The remaining six corridor communities, from East Lyme to North Stonington, are members of SCCOG. The *Regional Conservation and Development Policy Guide for Southeastern Connecticut* was adopted in October 1997. The policy guide identifies six generalized land use categories – Mixed Urban Areas, Mixed

Suburban Areas, Low Density Uses, Major Institutional Uses, Recreation and Open Space Uses and Conservation Areas. The Mixed Urban Use category is found throughout Waterford, New London and Groton and at Exit 90 in Stonington and Exit 92 in North Stonington. East Lyme categories include Mixed Suburban Uses, Low Density Uses and Major Institutional Uses. Most of the remainder of Stonington is within the Low Density Use category and the remaining land in North Stonington is categorized as Mixed Suburban Use.

## **Local Planning Summary**

### **Branford**

Single-family residential subdivisions, areas of multi-family housing, commercial areas (strip malls) along Route 1 and industrial parks characterize the Route I-95 corridor through the town of Branford. In particular, Exits 54 and 55 provide direct access to commercial areas most of which are found along Route 1. Very little vacant land is available along the corridor.

The *Branford Plan of Conservation and Development* was adopted in 1997. The future land use plan includes a large office/industrial area in the northeast portion of town at Exit 56 (Leetes Island Road). The plan recommended interchange improvements to Exit 56. These improvements have been recently completed and will support future industrial growth in this area.

### **Guilford**

Guilford is more of a suburban residential community with lower density residential subdivisions and large lot zoning. Agricultural lands are found adjacent to the corridor. Exits 57 and 59 provide direct access to office and retail areas most of which are found along Route 1.

The *Guilford Plan of Conservation and Development* was adopted in January 2002. The future land use plan includes office/industrial areas at Exits 57 and 59. These areas have some potential for further development. Much of the remainder of the corridor is devoted to existing residential land uses. Most of the agricultural lands in the corridor are zoned for residential use should they be developed.

### **Madison**

Most of the I-95 corridor in Madison is devoted to single-family residential neighborhoods. Unlike most other communities in the corridor, the interchanges in Madison are not used extensively for commercial purposes although there are several professional office use developments at Exits 61 and 62. Limited amounts of vacant land exist in the corridor. Notable land uses in Madison include the Harborside Healthcare Rehab and Nursing Center on Wildwood Avenue and the Connecticut Light and Power facilities on New Road at Exit 62.

The *Madison Plan of Conservation and Development* was adopted in 1998. The future land use plan identifies one area of limited commercial/industrial potential north of the corridor between Exits 60 and 61.

### **Clinton**

The predominant land use in Clinton along the corridor consists of single-family residential subdivisions with some industrial activity in the western part of the town. Exit 63 provides direct access to commercial areas including the mall at Clinton Crossing. There is little available vacant land north of I-95. The corridor south of I-95 is almost exclusively used for single-family housing.

The *Clinton Plan of Conservation and Development* was adopted in July 2000. The future land use plan reinforces the existing land use pattern. The large tract of undeveloped land north of I-95 and east of Exit 63 is identified as potential open space in the plan.

### **Westbrook**

Rural residential land uses and large tracts of undeveloped land characterize Westbrook. Commercial land uses, including the regional Westbrook Mall, are clustered at Exit 65. Development potential in Westbrook exists north of the I-95 at Exit 64 and south of I-95 at Exit 65.

The *Westbrook Plan of Conservation and Development* is undergoing revisions and updates, and is not currently available.

### **Old Saybrook**

Land uses in Old Saybrook are predominately mixed with large areas of commercial and industrial uses mixed with residential areas as Route 1 approaches and merges with I-95 prior to crossing the Connecticut River. Industrial parks are found at Exits 66 and 67. There are some undeveloped lands along the corridor.

The *2000 Plan of Conservation and Development* is “in progress” and has not been officially adopted at this time. The plan recognizes Old Saybrook’s location at the mouth of the Connecticut River as being environmentally sensitive and the need to protect environmentally sensitive lands is an important community consideration. The plan also states that economic development should occur in a limited manner in support of local needs rather than to support the regional population.

### **Old Lyme**

Old Lyme is characterized by some single-family neighborhoods with large undeveloped tracts of land some of which are dedicated open space areas. Exit 70 in Old Lyme provides access to an historical district, museums and schools.

The *Old Lyme Plan of Conservation and Development* was adopted in August 2000. The future land use plan seeks to maintain the rural residential character of the town throughout the corridor except at Exits 70 and 71 where commercial and industrial land uses are encouraged.

### **East Lyme**

Much of the I-95 corridor through East Lyme is undeveloped, privately and publicly owned land with occasional residential areas. A commercial center is located at Exit 74 along Flanders Road (Route 161) with a variety of commercial business activities and multi-family housing developments. Recent construction of commercial facilities such as motels and restaurants is also evident at this exit. This area is desirable because Route I-395 merges with I-95 at this location and is close to the tourist attractions and casinos located in southeastern Connecticut. This is also the area where Route 11 will connect to I-395/I-95. The remaining portions of the corridor include undeveloped land north of I-95 and land on the south side of I-95 that is undeveloped but is part of the Gates and York Correctional Institutions on North Bridebrook Road and West Main Street, respectively, in East Lyme.

The *East Lyme Plan of Conservation and Development* was adopted in November 1999. The plan seeks to reinforce the existing land use pattern. The plan notes the importance of the Exit 74 interchange and recommends that future commercial development be accommodated at this location. The plan identifies approximately 100 acres of land north of I-95 and west of Flanders Road that should be targeted for commercial growth. The remaining portions of the corridor would be used for rural residential purposes.

### **Waterford**

As a suburban community adjacent to New London, Waterford has been experiencing recent construction of commercial shopping malls (Crystal Mall) and large stand-alone retail outlets (Home Depot, Walgreen's and BJ Wholesale). However there are a number of large, vacant, commercially available parcels remaining on both sides of I-95 in Waterford.

The *Waterford Plan of Preservation, Conservation and Development* was adopted in October 1998. The plan identifies a 'business triangle' that includes both sides of I-95 extending north along Cross Road and Route 85. This area is the focus for future commercial and industrial growth in Waterford and large portions of this corridor are currently undeveloped. The plan also recognizes the value of the two roadways that parallel Route I-95, Parkway North and Parkway South, and proposes that both be extended to Exit 82. The plan also recommends improvements at Exit 81 at Cross Road.

### **New London**

Higher density residential areas, shopping malls and supporting commercial activities and transportation facilities characterize the urbanized I-95 corridor of New London. Older single and two-family neighborhoods are located on both sides of the highway. There are also multi-family developments including garden apartments and high-rise apartment buildings. Frontage roads east of Exit 82A provide access to the New London Mall and the New London Shopping Center. Transportation facilities within the corridor include numerous ramps, collector/distributor roads, connections with Route 32 and downtown New London and the State Pier facilities on the Thames River.

The *New London Plan of Conservation and Development* was adopted in April 1997. The plan reinforces the existing land use pattern in the corridor and recognizes the importance of marine industrial uses along the Thames River. It supports the redevelopment activities that have occurred along the waterfront and identifies the economic development potential in the State Pier area. Approximately 110 acres of land surrounding the State Pier could be used for economic development, according to the plan.

### **Groton**

Land uses in Groton include higher density residential and commercial uses on both sides of the highway at Exits 85 and 86 where Routes 12 and 184 connect to I-95. Suburban residential development is evident at the eastern end of the town at Exit 89. In between are the Groton and Pohegunt Reservoirs and conservation lands associated with these public water supplies. Large, undeveloped tracts of land continue to be available in Groton primarily around Exit 87 and east of Exit 88.

The *Groton Plan of Conservation and Development* was adopted in February 2002. The plan proposes that large, undeveloped areas of the corridor east of Route 117 and north and south of I-95 be used for office, research and development, light industrial and distribution activities. The amount of vacant land in this area is significant (approximately 500 acres north of I-95). Other vacant land in the corridor located north and south of Exit 87 would be used for medium density and multi-family residential development.

### **Stonington**

Exit 90 in Stonington provides direct access to Mystic Seaport and other tourist attractions. This exit has experienced recent outlet mall construction and provides a mix of motels and restaurants that cater to tourists coming to the area. Beyond Exit 90, land uses become more rural with large tracts of vacant land, agricultural uses and rural residential areas.

The *Stonington Plan of Conservation and Development* is over 11 years old. It contains some general goal statements but no maps.

### **North Stonington**

North Stonington land uses along the I-95 corridor consist of large tracts of vacant land, agricultural uses and rural residential areas. The nearby presence of the Foxwoods Casino is apparent by a recent development of administrative and training facilities at Exit 92. Commercial services to travelers, including restaurants, lodging, and a truck service area are found at Exit 93 on the Rhode Island border.

The *North Stonington Draft Plan of Conservation and Development* was prepared in July 2002. The plan seeks to encourage and support residential and agricultural land uses in the town. It discusses a 'mixed use village' concept for an unspecified area near I-95. This village area could provide a focus for the town while supporting a mix of uses including high-density residential, retail and offices, restaurants, motels or a conference center and light industrial uses. According to the plan, high value commercial uses, not strip retail activities, should be encouraged at Exit 93. The plan acknowledges traffic impacts associated with the Foxwoods Casino but recommends that Route 2, the main access from I-95 to Foxwoods, not be widened to more than the current two lanes and that its scenic qualities be preserved and enhanced.

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## **4.2.9 Environmental Risk Sites**

The relative environmental risk associated with current and former land uses in the vicinity of the I-95 study area was determined. The need for further evaluation as appropriate was also assessed.

A Federal and State environmental database search was conducted for the study area. Environmental Data Resources, Inc. (EDR) performed the search. The extent of the search was set at 1/8 mile on either side of I-95. This 1/4 mile screening area was extended for the entire length of the corridor.

### **Databases Searched**

The following databases are included in the search by EDR:

*Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS)* - EPA's list of potentially hazardous waste sites that have been reported to EPA by states, municipalities, private companies and private persons. This list contains properties that are on or proposed to be on the National Priorities List (NPL).

*Comprehensive Environmental Response, Compensation and Liability Information System No Further Action Planned (CERCLIS-NFRAP)* - Includes sites that have been removed from CERCLIS following an initial investigation by EPA.

*Resource Conservation and Recovery Act (RCRIS)* - An EPA database that includes information on sites that generate, store, treat, or dispose of hazardous materials that are defined in the Act. The database consists of multiple categories including Treatment, Storage and Disposal (TSD); Large Quantity Generators (LQG), and Small Quantity Generators (SQG) lists.

*CORRACTS* database is a list of handlers of RCRA corrective action activity.

*Emergency Response and Notification System (ERNS)*- An EPA database of reported releases of oil and hazardous materials.

*State Hazardous Waste Sites (SHWS)* – This database consists of Connecticut’s equivalent of CERCLIS. The sites may or may not be on the Federal list. The data comes from CTDEP’s Inventory of Hazardous Disposal Sites.

*Solid Waste Facilities/Landfill Sites (SWF/LF)* – The database contains an inventory of solid waste disposal facilities or landfills and comes from CTDEP’s Inventory of Hazardous Disposal Sites.

*Leaking Underground Storage Tanks (LUST)* – The database, maintained by CTDEP, contains an inventory of reported leaking underground storage tank incidents.

*Underground Storage Tank (UST)* – This database contains a list of registered underground storage tanks for each town.

*Facility Index System (FINDS)* – This database contains facility information and pointers to other databases and sources of information.

*Hazardous Materials Incident Report System (HMIRS)* – An EPA list containing hazardous materials spill incidents reported to the Department of Transportation.

*Material Licensing Tracking System (MLTS)* – This list is maintained by the Nuclear Regulatory Commission and contains sites that possess or use radioactive materials.

*PCB Activity Database (PADS)* - This database is maintained by the EPA and identifies generators, transporters, commercial storers and/or brokers and disposers of PCBs.

*Toxic Chemicals Release Inventory System (TRIS)* – This database identifies facilities that release toxic chemicals to the air, water and land in reportable quantities under SARA Title III, Section 313. The EPA maintains the list.

*FTTS* – This database tracks administrative and pesticide enforcement actions and compliance activities related to FIFRA, TSCA, and EMPCRA (Emergency Planning and Community Right to Know).

*Oil and Chemical Spill Database (SPILLS)* – This database is maintained by CTDEP.

*Site Discovery and Assessment Database (SDADB)* – This database includes sites reported to CTDEP where hazardous waste may have been disposed or sites eligible for listing on the State Inventory of Hazardous Waste Disposal Sites.

*Leachate and Waste Water Discharge Inventory Data (LWDS)* – This database includes surface and groundwater discharges that have received State permits, are abandoned waste sites or locations of accidental spills, leaks or discharges.

*CT Property* – A database listing of sites that meet the definition of hazardous waste generator that have been sold to another owner.

The EDR review retrieved a total of 373 sites or locations listed in the various databases. Because multiple databases were searched some of the same properties appear multiple times. Consequently, there are 454 specific references to the environmental databases shown on Figure 4-5. These references include specific properties as well as locations where hazardous materials spill incidents have occurred. Approximately one third of the total references (154) include spill incidents reported from the CT Oil and Chemical Spill (SPILLS) database.

An initial screening was conducted to identify those sites and spill locations that are proximate to the I-95 study area. The data was reviewed to identify sites or spill locations within 300 feet of an intersection or within or adjacent to the I-95 right of way. This screening analysis identified 65 occurrences and 84 spill incidents. The following summarizes the data for locations that may warrant further research due to the nature of the database reported for the site. Sites not included below include those for which the reported database (i.e. an underground storage tank registration or RCRA small quantity generator status) is not likely to suggest a hazardous condition. Also, the 84 spill incidents, most of which have occurred on I-95 or at an interchange, occur generally throughout the corridor although the most reported incidents were in Groton (17), North Stonington (13), Branford (11) and Old Saybrook (7). Additional research would be necessary to further identify specifics of these incidents.

Branford:

- Two sites reported in the CT SDADB
- Site reported in CERLIS-NFRAP and CORRACT
- Site reported in LWDS – oil spills and junkyard
- 11 CT SPILLS

Guilford:

- Two sites reported in LUST
- Site reported in LWDS – filter backwash discharge
- 1 CT SPILLS

Madison:

- Site reported in the CT SDADB
- Site reported in CT SDADB, LUST, ERNS, PADS, and FTTS
- 4 CT SPILLS

Clinton:

- Site reported in SHWS and SWF/LF
- 4 CT SPILLS

Westbrook:

- No sites
- 3 CT SPILLS

Old Saybrook:

- Site reported in the CT SDADB
- Three sites reported in LWDS – industrial wastewater discharge, salt storage area and bulky waste disposal
- 7 CT SPILLS

Old Lyme:

- Site reported in LWDS – septage disposal site
- Site reported in FTTS
- 2 CT SPILLS

East Lyme:

- Two sites reported in the LUST
- Site reported in FTTS
- Site reported in LWDS – septic system failure
- 5 CT SPILLS

Waterford:

- Site reported in the LUST
- Site reported in LUST and CT SDADB
- 5 CT SPILLS

New London:

- Site reported in the LUST
- Site reported in ERNS
- 5 CT SPILLS

Groton:

- Site reported in the CT SDADB
- Site reported in FINDS
- 17 CT SPILLS

Stonington:

- Site reported in the LWDS - cooling water discharge
- 5 CT SPILLS

North Stonington:

- Site reported in the CT SDADB
- Site reported in FINDS
- 13 CT SPILLS

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## 4.2.10 Environmental Justice

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, directs Federal agencies to "promote nondiscrimination in Federal programs substantially affecting human health and the environment, and provide minority and low-income communities access to public information on, and an opportunity for public participation in, matters relating to human health or the environment." The Order directs agencies to utilize existing law to ensure that when they act:

- They do not discriminate on the basis of race, color, or national origin.
- They identify and address disproportionately high and adverse human health or environmental effects of their actions on minority and low-income communities.
- They provide opportunities for community input in the National Environmental Policy Act (NEPA) process, including input on potential effects and mitigation measures.

The Federal Highway Administration (FHWA) of the US Department of Transportation issued guidance in 1998 entitled *FHWA Actions to Address Environmental Justice in Minority Population and Low Income Populations* (DOT Order 6640.23). This Order reaffirms the principles of EO 12898 by incorporating EJ in all FHWA programs and states that FHWA "...will rely upon existing authorities to collect necessary data and conduct research associated with environmental justice concerns..."

According to available guidance, an Environmental Justice (EJ) analysis should analyze disproportionately high and adverse human health and environmental effects on minority and low-income populations or Indian tribes. Toward this end, the guidance requires that the following types of effects be analyzed:

- Significant effects on minority or low-income populations
- Effects that exceed, or are likely to appreciably exceed, effects on the general population or other appropriate comparison groups; or
- Whether EJ populations experience cumulative or multiple adverse exposures from environmental hazards

### Methodology for Identification of Environmental Justice Populations

Executive Order 12898 does not define the terms "minority" or "low-income." However, guidance provided by the CEQ describes these terms in the context of EJ analysis. These definitions are unique to EJ analysis and are the basis for the methodology that follows:

- **Minority Individual** - A Minority individual is classified by the U.S. Bureau of Census as belonging to one of the following groups: American Indian or Alaskan Native, Asian or Pacific Islander, Black (not of Hispanic Origin), and Hispanic.
- **Minority Populations** - According to the CEQ Guidelines, minority populations should be identified where either (a) the minority population of the affected area exceeds 50% or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.
- **Low-income Population** - Low-income populations are identified where individuals have incomes below the U.S. Department of Health and Human Services poverty guidelines. A low-income population is either a group of low-income individuals living in proximity to one another or a set of individuals who share common conditions of environmental exposure or effect.

This analysis profiles the demographic composition of the I-95 corridor and surrounding area to determine whether these areas can be characterized as areas of potentially affected EJ population (EJ areas). For the purpose of gathering population data, the U.S. Census tracts and block groups used for this analysis were those that are located within 1,000 feet of the I-95 corridor. Data was collected in the study area corridor, as well as for the 13 I-95 communities within the study area. The following data were used to identify minority and low-income populations in the study area:

- Population data from the 2000 U.S. Census
- Income data from the 2000 U.S. Census; and
- Graphical representations of Census Block Group (Block Group) boundaries from the 2000 U.S. Census

This EJ analysis evaluates the racial and income characteristics of persons within the study area. Impacts to block groups meeting the EJ threshold have the potential to be disproportionately borne by minority or low-income populations. The evaluation consists of the following two steps to determine whether each block group along the I-95 corridor meets the “EJ threshold” for further analysis:

Step 1: Calculation of Minority or Low-income Populations – The following 2000 U.S. Census information was collected for each block group in the study area corridor: (1) the total population, (2) the total minority population, and (3) the total low-income population. From these raw numbers the percentage of persons in each minority group and persons below the poverty level were determined.

Step 2: Calculation to Determine if EJ Threshold is Met – Once the baseline minority and low-income populations were determined for comparison purposes, specific block groups that meet the EJ threshold were identified. The EJ threshold for further analysis is met in either of the following cases:

- Block groups where the minority or low-income population in the block groups equals or exceeds 50 percent of the population in that block group.
- Block groups where the percentage of the minority or low-income population is at least 10 percent higher than the average minority or low-income population percentage for the study area corridor.

### **Results of the Census Data Collection**

Racial and economic census data were examined for the block groups along the I-95 corridor. The study area consists of a total of 42 Census Tracts and 75 Block Groups (see Figure 4-6). The EJ threshold was met by all Census Tract Block Groups on either side of I-95 in New London as well as two Census Tract Block Groups south of I-95 in East Lyme. New Haven, Middlesex, and New London County census data was also reviewed for comparative purposes. This analysis resulted in no changes to this set of EJ Block Groups.

As presented in Table 4-6, three out of the 75 block groups examined have minority percentages that exceed 50 percent of the total population in each block group. These block groups include two in New London (Census Tracts 690100 BG2 and 690300 BG4) and one in East Lyme (Census Tract 716101 BG4). One block group (690100 BG2) has a minority population of 91 percent and includes a large, multi-story apartment complex owned and managed by the New London Housing Authority. Six other block groups also meet the second threshold for EJ status with minority percentage at least 10 percent greater than the average for the study area corridor, which has 13.3 percent minority population. These block groups include five in New London (Census Tract 690100 BG 1 and 3, Census Tract 690300 BG 1 and 2 and Census Tract 690500

BG 1) and one in East Lyme (Census Tract 716101 BG 2). The Gates and York Correctional Facilities are located within the two East Lyme block groups. Table 4-7 provides the minority composition for the nine block groups that qualify for EJ status based on minority population.

There are four block groups within the study area that meet the low-income threshold for EJ status. One block group, Census Tract 690100 BG 2, has a percentage of low-income persons that exceeds 50 percent of block group's total population. Census Tract 690100 BG1 (19.2 percent), Census Tract 690300 BG4 (18.7 percent), and Census Tract 690500 BG1 (20.5 percent) meet the second test for the low-income EJ threshold. These block groups, all of which are located in New London, have percentages of low-income persons at least 10 percent greater than the average for the study area (5.0 percent).

**Table 4-6  
Environmental Justice Thresholds**

Community	Census Tract	Block Group	Total Block Group Population	Total Minority Population	Percentage Minority Population	Total Population Poverty Level	Persons Below Poverty Level	Percentage of Persons Below Poverty Level	Question #1	Question #2
Branford	184100	1	902	72	8.0	902	48	5.3	No	No
Branford	184100	5	1394	195	14.0	1394	76	5.5	No	No
Branford	184200	1	1127	168	14.9	1127	59	5.2	No	No
Branford	184500	1	1442	33	2.3	1429	35	2.4	No	No
Branford	184600	1	1959	90	4.6	1959	62	3.2	No	No
Branford	184700	1	1008	57	5.7	1008	69	6.8	No	No
Branford	184700	2	1995	144	7.2	1995	100	5.0	No	No
Branford	184700	3	606	10	1.7	596	0	0.0	No	No
Branford	184700	4	2255	236	10.5	2251	161	7.2	No	No
Guilford	190100	1	859	33	3.8	859	76	8.8	No	No
Guilford	190100	2	1182	101	8.5	1182	43	3.6	No	No
Guilford	190100	3	1256	69	5.5	1165	50	4.3	No	No
Guilford	190200	3	1685	99	5.9	1685	14	0.8	No	No
Guilford	190301	1	2155	115	5.3	2155	69	3.2	No	No
Guilford	190301	2	1296	58	4.5	1296	40	3.1	No	No
Guilford	190302	1	1626	124	7.6	1626	94	5.8	No	No
Guilford	190302	4	917	64	7.0	917	11	1.2	No	No
Madison	194100	1	542	49	9.0	542	39	7.2	No	No
Madison	194100	2	994	14	1.4	994	9	0.9	No	No
Madison	194201	4	1843	102	5.5	1750	37	2.1	No	No
Madison	194202	3	1102	53	4.8	1102	17	1.5	No	No
Madison	194202	4	1129	42	3.7	1129	11	1.0	No	No
Clinton	610100	1	1017	84	8.3	1017	43	4.2	No	No
Clinton	610200	3	760	33	4.3	760	19	2.5	No	No
Clinton	610200	4	1048	57	5.4	1048	13	1.2	No	No
Clinton	610300	1	1496	118	7.9	1496	39	2.6	No	No
Clinton	610300	2	832	23	2.8	832	0	0.0	No	No
Clinton	610400	1	1419	30	2.1	1402	34	2.4	No	No
Clinton	610400	2	1925	221	11.5	1925	35	1.8	No	No
Westbrook	680100	1	1159	79	6.8	1155	27	2.3	No	No
Westbrook	680100	2	1526	50	3.3	1516	21	1.4	No	No
Westbrook	680100	3	1411	0	0.0	1407	133	9.5	No	No
Westbrook	680100	4	781	83	10.6	781	46	5.9	No	No
Old Saybrook	670100	2	1702	76	4.5	1655	147	8.9	No	No
Old Saybrook	670100	3	1214	73	6.0	1214	29	2.4	No	No
Old Saybrook	670100	4	836	115	13.8	836	0	0.0	No	No

**Table 4-6  
Environmental Justice Thresholds**

Community	Census Tract	Block Group	Total Block Group Population	Total Minority Population	Percentage Minority Population	Total Population Poverty Level	Persons Below Poverty Level	Percentage of Persons Below Poverty Level	Question #1	Question #2
Old Saybrook	670200	3	1905	131	6.9	1905	88	4.6	No	No
Old Lyme	660101	2	1039	43	4.1	1039	32	3.1	No	No
Old Lyme	660101	3	1201	24	2.0	1201	23	1.9	No	No
Old Lyme	660102	1	881	7	0.8	869	14	1.6	No	No
Old Lyme	660102	2	2080	102	4.9	2080	41	2.0	No	No
East Lyme	716101	1	500	15	3.0	500	9	1.8	No	No
East Lyme	716101	2	2843	894	31.4	1778	71	4.0	Yes	No
East Lyme	716101	3	1097	106	9.7	1097	0	0.0	No	No
East Lyme	716101	4	1436	833	58.0	172	0	0.0	Yes	No
East Lyme	716102	1	1836	156	8.5	1836	36	2.0	No	No
East Lyme	716102	2	1268	262	20.7	1268	22	1.7	No	No
East Lyme	716102	3	1635	110	6.7	1627	28	1.7	No	No
East Lyme	716200	1	2862	275	9.6	2862	143	5.0	No	No
Waterford	693300	1	658	73	11.1	658	19	2.9	No	No
Waterford	693400	1	731	150	20.5	720	24	3.3	No	No
Waterford	693700	1	1625	218	13.4	1572	55	3.5	No	No
Waterford	693700	2	1606	195	12.1	1520	48	3.2	No	No
New London	690100	1	689	343	49.8	689	132	19.2	Yes	Yes
New London	690100	2	1464	1334	91.1	1452	747	51.4	Yes	Yes
New London	690100	3	2198	675	30.7	1353	160	11.8	Yes	No
New London	690300	1	806	267	33.1	755	11	1.5	Yes	No
New London	690300	2	1335	460	34.5	1335	132	9.9	Yes	No
New London	690300	4	1968	1552	78.9	1927	361	18.7	Yes	Yes
New London	690500	1	577	204	35.4	577	118	20.5	Yes	Yes
Groton	702100	9	3316	327	9.9	3309	146	4.4	No	No
Groton	702201	1	992	65	6.6	992	28	2.8	No	No
Groton	702300	2	785	109	13.9	785	17	2.2	No	No
Groton	702400	1	462	47	10.2	448	0	0.0	No	No
Groton	702400	2	1812	382	21.1	1812	86	4.7	No	No
Groton	702700	9	3727	843	22.6	3456	221	6.4	No	No
Groton	702800	9	1950	155	7.9	1944	107	5.5	No	No
Groton	703000	3	976	59	6.0	876	13	1.5	No	No
Stonington	705100	1	2384	147	6.2	2384	142	6.0	No	No
Stonington	705200	1	1381	45	3.3	1381	0	0.0	No	No
Stonington	705300	1	1520	104	6.8	1337	25	1.9	No	No
Stonington	705300	3	1126	50	4.4	1126	45	4.0	No	No
Stonington	705400	1	1582	124	7.8	1582	47	3.0	No	No
Stonington	705400	2	1188	110	9.3	1182	57	4.8	No	No
North Stonington	707100	3	1477	50	3.4	1477	62	4.2	No	No
Totals			105318	14016	13.3	100990	5016	5.0		
Question #1: Does the Block Group meet the threshold for Environmental Justice status for Minorities?										
Question #2: Does the Block Group meet the threshold for Environmental Justice status for poverty?										

**Table 4-7  
Composition of Minority Population**

Community	Census Tract	Block Group	Percentage Black Population	Percentage Hispanic Population	Percentage Other Minority Population	Percentage Minority Population
East Lyme	716101	2	16.3%	10.0	5.2	31.5
East Lyme	716101	4	29.6%	21.5	6.9	58.0
New London	690100	1	9.6%	29.3	10.9	49.8
New London	690100	2	19.6%	69.3	2.3	91.1
New London	690100	3	8.8%	12.0	9.9	30.7
New London	690300	1	14.3%	14.3	4.6	33.1
New London	690300	2	6.1%	19.0	9.4	34.5
New London	690300	4	32.9%	40.7	5.2	78.9
New London	690500	1	23.6%	8.7	3.1	35.4

#### 4.2.11 Other Unique Features

This section describes areas of local importance or character that are particularly ‘notable’ because of their uniqueness or local significance. This section is intended to provide the reader with a feeling for the many notable points of interest along this corridor. This discussion is not limited to any particular buffer zone/corridor width, but is based on a review of tourism brochures, town Planning and conservation documents, and field observations made during data collection for land use and other resources.

Three unique features are components of I-95 itself: the new Baldwin Bridge over the Connecticut River and the Gold Star Bridge over the Thames River are notable features in the landscape owing to their monumental proportions. A scenic overlook in Groton, on the northbound side between Exits 89 and 90 provides a pleasing and dramatic vista of Mystic Seaport Harbor.

**Other Unique Features include:**

A boardwalk and pier are open to the public at the DEP Marine Headquarters on the Connecticut River in Old Lyme (Exit 70), and boat launches are provided at several waterways along the corridor, including two at the Thames River in New London and Groton.

Large shoreline State Parks located in Madison (Hammonasset) and East Lyme (Rocky Neck) are proximate to I-95 and are well served by limited access connector roadways at their respective exits.

Three culturally significant art institutions are sites along Lyme Street in Old Lyme (Exit 70), along with the architecturally impressive Old Lyme Inn.

A small fish ladder alongside Latimer Brook is a point of conservation interest at Exit 80 in East Lyme.

The U.S. Coast Guard Academy and the U.S. Submarine World War II Veteran’s Memorial are located along the Thames River in New London and Groton, respectively.

The Mystic section of Stonington features two longstanding tourist attractions: the Mystic Aquarium and Marine Institute, and the Mystic Seaport.

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## 4.2.12 Air Quality

The 1990 Clean Air Act Amendment (CAAA) requires each region of the country be designated as either being in attainment or non-attainment of the National Ambient Air Quality Standards (NAAQS). States with any non-attainment regions must have approved state air quality implementation plans (SIPs) which set forth measures to achieve compliance with the NAAQS. Metropolitan Planning Organizations (MPOs) are responsible for ensuring that the transportation plan and transportation improvement program (TIP) within metropolitan boundaries conform to the SIP. In metropolitan areas, each MPO must formally make a conformity determination on its transportation plan/TIP. The CAAA requires that transportation plans, programs and projects in non-attainment or maintenance areas that are funded or approved by the FHWA or FTA be in conformity with the SIP. A conformity determination must show that transportation plans and TIPs will not:

- Create new NAAQS violations
- Increase the frequency or severity of existing NAAQS violations
- Delay the attainment of the NAAQS

ConnDOT conducts the analysis on the transportation plans and TIPs for the MPOs, which is published in the Air Quality Conformity Report. MPOs endorse this analysis through the adoption of their Air Quality Conformity Statements.

The State of Connecticut is designated as attainment or non-attainment with respect to the National Ambient Air Quality standards (NAAQS) for the following six criteria air pollutants: particulate matter no greater than 10 micrometers in diameter (PM<sub>10</sub>); sulfur dioxide (SO<sub>2</sub>); ozone (O<sub>3</sub>); nitrogen dioxide (NO<sub>2</sub>); carbon monoxide (CO); and lead (Pb). The State is currently designated as attainment for all of these pollutants except ozone and PM<sub>10</sub>. Three regions of the State (the Connecticut portion of the New York-New Jersey-Long Island CO maintenance area, the New Haven-Meriden-Waterbury CO maintenance area, and the Hartford-New Britain-Middletown CO maintenance area) have approved limited maintenance plans for CO.

The State of Connecticut has two ozone non-attainment areas, both of which are designated as moderate non-attainment. Fairfield, New Haven and Middlesex counties are part of the New York-New Jersey-Connecticut moderate non-attainment area. The remainder of the State is referred to as the Greater Connecticut moderate non-attainment area. With regard to CO, the towns of Branford, Guilford and Madison are part of the New Haven-Meriden-Waterbury CO maintenance area. The study area is also in an attainment area with respect to PM<sub>10</sub> (only the city of New Haven is in non-attainment). As stated above, projects that are proposed in any non-attainment or maintenance area must come from a conforming transportation plan and TIP. Therefore, any project resulting from this study must be included in a transportation plan and TIP that has been determined to be in conformance with the respective SIP. Also, any project resulting from this study located in the towns of Branford, Guilford and Madison are subject to CO project level conformity.

The New Haven Urban Area is designated as a Transportation Management Area (TMA). Since portions of this project are located within this TMA, which is designated as a non-attainment area for ozone (as is the entire state), the requirements of 23 CFR 450.320(b) apply. This means that an increase in the carrying capacity of I-95 will require that this project come from a Congestion Management System (CMS) which meets the requirements of 23 CFR 500.

Any expansion projects that might be recommended as a result of this feasibility study will need to be vetted through the metropolitan planning process and included in the respective MPO’s transportation plan/TIP and ConnDOT’s statewide transportation improvement program (STIP).

The National Environmental Policy Act (NEPA) and its state counterpart, the Connecticut Environmental Policy Act (CEPA) require that the applicable environmental documentation include an air quality analysis of the regional and project level impacts associated with any proposed improvements. In addition, any new interchange service, or any new highway on a new location, or any new lane, greater than a mile in length and connecting either signalized intersections or expressway interchanges will require an Indirect Source Permit from CTDEP.

### 4.2.13 Noise

The study corridor is typical of developed urban and suburban locations. Noise is generated by traffic on major arterial roadways, the Interstate highway, local streets to a lesser degree, and from other non-transportation sources. Within the study corridor, infrequent contributions of noise can be expected from other transportation modes such as rail. The Federal Highway Administration provides noise criteria and guidance at 23 CFR 772 (*Procedures for Abatement of Highway Traffic Noise and Construction Noise*). FHWA’s noise regulations are applicable to this project because of the proposed increase in the number of through-traffic lanes.

Traffic noise impacts occur when future noise levels approach (within one decibel) or exceed the Noise Abatement Criteria (NAC) for various land uses as shown in Table 4-8 or when the future noise levels exceed the existing noise levels by 15 decibels. All exterior noise levels are recorded and predicted as Leq(h) dBA. This represents the equivalent steady-state sound level which in a stated period of time (h) contains the same acoustic energy as the time-varying sound level during the same period, commonly shortened to “Leq”. This descriptor closely approximates normal human hearing response. The primary consideration in abating traffic noise impacts is given to exterior activities such as residences, churches and hospitals.

**Table 4-8  
FHWA Noise Abatement Criteria (NAC) Hourly A-Weighted Sound Level – decibels (dBA)\***

Activity Category	Leq(h)	L10(h)	Description of Activity Category
A	57 (Exterior)	60 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	70 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	75 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	--	--	Undeveloped lands.
E	52 (Interior)	55 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

\* Either L10(h) or Leq(h) (but not both) may be used on a project.

Noise analysis for this feasibility study will focus on a qualitative noise impact review for project alternatives. Potentially noise-sensitive areas are shown in Figure 5-2 (Sheets 1 to 124) of this study. Additional traffic noise impact analysis will be required to meet federal (NEPA) and state (CEPA) environmental documentation requirements. The components of a traffic noise study include:

- Identification of existing land use activities and existing noise levels
- Prediction of future noise levels (design year 2025) using traffic volumes for the no-build and build conditions
- Determination of traffic noise impacts
- Determination of the feasibility/cost effectiveness and reasonableness of noise abatement

The governing factor for identifying a traffic noise impact on a lane addition project is usually not the incremental noise increase, but the total noise level of the final facility. The traffic noise analysis would show a comparison between the future traffic noise levels for the expanded facility and the "no-build" alternative for the design year.

Traffic noise is influenced by traffic volumes, travel speed and vehicle type mix, and roadway elevations relative to the locations evaluated. The noise climate of any potentially affected location can be improved or worsened based upon these variables. A three decibel change in the noise climate is the smallest change detectable by the average human ear.

If traffic noise impact(s) are identified and traffic noise abatement measures are required, the abatement measures would weigh the benefits, costs, and overall social, economic and environmental effects. Abatement is considered only where frequent human activity occurs and a beneficial (seven decibels or greater) reduction in noise levels can be achieved. For noise barriers to be effective they must be of sufficient unbroken length and the height should break the line-of-sight from the receptor (at approximately five feet above the ground) to the roadway. Abatement measures that are found to be reasonable and feasible must be incorporated into the project and considered as part of the proposed project. In determining the feasibility, reasonableness and cost effectiveness for providing noise abatement, the following criteria, pursuant to Connecticut Department of Transportation's 1997 *Highway Traffic Noise Impact Analysis and Abatement Policies and Procedures*, are applied:

- The neighborhood is within 300 feet of the nearest travel lane of the highway
- The neighborhood must approach or exceed the FHWA NAC of 67 dBA Leq(h)
- A noise barrier would provide at least a seven decibel reduction in the noise climate of the neighborhood at the middle of the barrier system
- The cost of a barrier system must meet the cost/residence index of \$50,000 per residence

Another noise consideration is construction noise, which would be temporary. Construction equipment would be in operation proximate to the structures abutting the I-95 corridor, but the activities would be of short duration. Construction phase activities such as pile driving would increase noise levels throughout the project area. Contractors would be required to take measures to control the noise intensity caused by construction operations and equipment, including but not limited to equipment used for drilling, pile driving, blasting, excavation or hauling. All methods and devices employed to minimize noise would be subject to the continuing approval of ConnDOT. The maximum allowable level of noise at the nearest residence or occupied building should not exceed 90 decibels on the "A" weighted scale (dBA). Any operation that exceeds this standard would cease until a different construction methodology was developed to allow the work to proceed within the 90 dBA limit.

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