# SOUTHEASTERN CONNECTICUT METROPOLITAN TRANSPORTATION PLAN

FY 2019-2045

DRAFT: January 22, 2019

SOUTHEASTERN CONNECTICUT COUNCIL OF GOVERNMENTS

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Prepared by the **Southeastern Connecticut Council of Governments** in cooperation with the Connecticut Department of Transportation, U.S. Department of Transportation's Federal Highway Administration and the Federal Transit Administration.

5 Connecticut Avenue
Norwich, CT 06360

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Town of COLCHESTER Art Shilosky, First Selectman
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Town of FRANKLIN Charles Grant, First Selectman
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**RESOLUTION NO. 19-1**
**CONFORMITY WITH THE CLEAN AIR ACT OZONE**

**WHEREAS**, the Southeastern Connecticut Council of Governments is required to submit an Air Quality Conformity Statement to the U.S. Federal Highway Administration (FHWA) and to the U.S. Environmental Protection Administration (EPA) in accordance with the final conformity rule promulgated by EPA (40 CFR 51 and 93) when adopting an annual Transportation Improvement Program or when effecting a significant revision of the region's Transportation Plan; and

**WHEREAS**, Title 42, Section 7506(3)(A) states that conformity of transportation plans and programs will be demonstrated if: (1) the plans and programs are consistent with recent estimates of mobile source emissions; (2) the plans and programs provide for the expeditious implementation of certain transportation control measures; and (3) the plans and program contribute to annual emissions reductions consistent with the Clean Air Act of 1977, as amended; and

**WHEREAS**, it is the opinion of the Southeastern Connecticut Council of Governments that the plans and programs approved today, March 20, 2019 and submitted to FHWA and EPA conform to the requirements of Title 42, Section 7506(3)(A) as interpreted by EPA (40 CFR 51 and 93); and

**WHEREAS**, the State of Connecticut has elected to assess conformity in the Greater Connecticut Ozone Moderate Nonattainment Area (Hartford, New London, Tolland, Windham and Litchfield Counties), and the Connecticut Department of Transportation has jointly assessed the impact of all transportation plans and programs in these Nonattainment areas (Ozone Air Quality Conformity Report May 2017); and

**WHEREAS**, the Connecticut Department of Transportation's assessment (above) has found that plans and programs jointly meet mobile source emission's guidelines advanced by EPA pursuant to Section 7506(3)(A).

**NOW, THEREFORE**, be it Resolved by the Southeastern Connecticut Council of Governments, that the Southeastern Connecticut Council of Governments finds that the 2019 Metropolitan Transportation Plan and the FFY 2018-2021 Transportation Improvement Program and all Amendments conform to air quality requirements of the U.S. Environmental Protection

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Administration (40 CFR 51 and 93), related U.S. Department of Transportation guidelines (23 CFR 450) and with Title 42, Section 7506(3)(A) and hereby approves the existing May 2017 Ozone Air Quality Conformity Determination contingent upon no major adverse comments are received during said period.

**CERTIFICATE**

The undersigned duly qualified and acting Secretary of the Southeastern Connecticut Council of Governments certifies that the foregoing is a true and correct copy of a resolution adopted at a legally convened meeting of the Council of Governments on March 20, 2019.

Date: _____ By: _____

Fred Allyn, III, Secretary

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# 1. Purpose and Need

The Southeastern Connecticut Metropolitan Transportation Plan 2019-2045(MTP) was prepared by the Southern Connecticut Council of Governments (SCCOG) in cooperation with the Connecticut Department of Transportation, U.S. Department of Transportation's Federal Highway Administration and the Federal Transit Administration. This MTP supersedes the "Long Range Regional Transportation Plan FY2015-2040" (LRTP 2015) which can be found at www.seccog.org. The SCCOG undertook this update of the LRTP 2015 in compliance with federal regulation, 23 CFR 450.324(a) which requires: "MPOs shall review and update the transportation plan at least every 4 years in air quality nonattainment and maintenance areas to confirm the transportation plan's validity and consistency with current and forecasted transportation and land use conditions and trends and to extend the forecast period to at least a 20-year planning horizon". In addition, the MPO may revise the transportation plan at any time using the procedures in this section without a requirement to extend the horizon year. The MPO shall approve the transportation plan (and any revisions) and submit it for information purposes to the Governor. Copies of any updated or revised transportation plans must be provided to the FHWA and the FTA [23 CFR 450.324], with additional State filing requirements to CT DOT and CT OPM. The metropolitan planning process is governed by the Clean Air Act Amendments (CAAA) of 1990; conformity is ensured through the CT DOT and documented by the resolution provided at the beginning of this document.

## Introduction

The Metropolitan Transportation Plan is developed, adopted and updated through the metropolitan transportation planning process with the purpose of identifying the long-range transportation needs of the southeastern Connecticut region and to create a general policy guide for the future allocation of available public resources to address those needs. The SCCOG 2019-2045 MTP is valid upon its adoption in April of 2019. The plan includes short-range and long-range program strategies and actions that lead to the development of an integrated intermodal transportation system that facilitates the efficient movement of people and goods [23 CFR 450.324]. More explicitly, the intent and purpose of the MTP is to encourage and promote the safe and efficient management, operation and development of a cost feasible intermodal transportation system that will serve the mobility needs of people and freight within and through urbanized areas of this state, while minimizing transportation-related fuel consumption and air pollution.

The Southeastern Connecticut Council of Governments is the Metropolitan Planning Organization (MPO) responsible for the 22 municipalities within southeastern Connecticut. The region is bounded by: River COG to the west, CRCOG and NECCOG to the north; and the State of Rhode Island to the east (see Figure 1). At the time of adoption of the FY2015-2040 Long Range Transportation Plan a geographic redesignation of the SCCOG region adding the municipalities

of Lebanon, Windham and removing the municipality of Voluntown was included in the plan but not officially finalized. Since then the region was designated as a Transportation Management Area (TMA), in addition to being an MPO. A TMA is defined as an urbanized area with greater than 200,000 people. The SCCOG TMA certification was completed in 2016.

**FIGURE 1 LOCATION MAP SOUTHEASTERN CONNECTICUT COUNCIL OF GOVERNMENTS**

This update will incorporate performance measures to a greater extent than the 2015 LRTP. MAP-21 federal transportation legislation ushered in new requirements for performance based planning. The SCCOG has cooperated and contributed to the CT DOT's effort to define

methodologies, collect baseline data and set targets for the mandated performance measures. SCCOG has adopted CT DOT target performance measures for transit, freight, non-motorists and highways. While still in the bench-marking stage of implementation, the SCCOG is beginning to implement performance measures in funding allocation and planning.

The MTP will provide short and long-range strategies consistent with the state and local goals and objectives. Federal regulation requires MPOs to consider additional factors while employing performance based decision making [23 CFR450.306]. Those factors include economic vitality, safety, security, access and mobility of freight and people, protection and enhancement of the environment, improvement of the quality of life, consistency between planning products, efficiency, an emphasis on preservation of the existing transportation system, resiliency and reliability of the transportation system, storm water, and enhancing travel and tourism. As an air quality maintenance area, SCCOG's compliance with the Clean Air Act Amendments (CAAA) of 1990, continues to remain one of the key centerpieces of transportation planning in the region.

Finally, programs such as the Americans with Disabilities Act (ADA), the Jobs Access and Reverse Commute (JARC) Program, New Freedoms and Locally Coordinated Health and Social Services Transportation Plans (LOCHSTP) impose major new service requirements on public transportation systems in order to serve the needs of special populations. For these reasons, this document examines not only the region's transportation needs but evaluates them against many other factors of national, state, regional and local concern.

Throughout this ongoing process, the public continues to be regularly consulted as specific projects from the plan are implemented. The actual implementation of projects recommended in the regional transportation plan requires a parallel, but entirely separate, administrative process that is largely dependent on available federal, state, and, in some cases, local funding, as well as local political support. The document that summarizes the actual transportation project implementation process and schedule is called the State Transportation Improvement Program (STIP). Regionally, it is known as the Transportation Improvement Program (TIP). The STIP/TIP lists those projects drawn from the Metropolitan Transportation Plan to be implemented over the next four-year period (2019-2023). The TIP is updated regularly as amendments are needed. The TIP provides specific information about the public funding sources of projects underway as well as a schedule for implementation.

# 1. Population and Development

Transportation improvements and patterns of settlement and development have a reciprocal relationship; the improvements made in a transportation network are informed primarily by land use and human movement, which in turn are influenced by the transportation network. Regional planning seeks to find efficient and practical uses for land within a regional context. Because of the relationship between land use and transportation networks, transportation

planning is a component of regional planning that requires specialized attention, funding, and staff.

## Transportation and Land Use over Time

Southeastern Connecticut was settled in the mid seventeenth century. Early colonial settlements were of two types: coastal villages and cities with access to Long Island Sound or the Thames River, and agricultural communities centered on a church or meetinghouse. During this period, ships and horse-drawn carts were the only modes of long-distance transportation. Turnpikes linked the region with other parts of Connecticut and New England.

The New York and Stonington Railroad and Boston, Norwich and New London Railroad were the first rail lines in Connecticut, both chartered in 1832. The advent of rail and the industrial revolution solidified the role of Norwich and New London as trading ports, as well as igniting new industrial settlements along the Thames River and its tributaries.

In the late nineteenth century and early twentieth century, a trolley network spread out along the shoreline, and outward from Norwich and Willimantic as well. Not long after, the automobile was invented, which placed increased importance on the road network. In response, Connecticut's and New England's numbered route systems were developed.

At the time of World War II, the region remained densely populated along the Thames River and its tributaries. Norwich, Groton New London, and the Willimantic section of Windham were centers of trade and industry. Large and small mill villages, such as Baltic and Jewett City, were interspersed along major rivers. The balance of the region was rural.

Following World War II, the personal freedom afforded by automobile ownership, and the mobility afforded by a system of State routes and the new Interstate Highway System along with post-war home financing policy, resulted in new development being located away from city centers. Suburban growth spread outward from the region's employment centers and along the Connecticut Turnpike—today, Interstates 95 and 395.

## Transportation and Land Use Today

- Employment, retail, and services, are more geographically distributed than ever.
- Due to a changing economy, manufacturing employs only a small share of the population, and has largely moved away from urban areas.
- Rail, which used to support industries by bringing transporting materials and goods, has been all but replaced by trucking.
- Industry clusters in the region include shipbuilding, pharmaceuticals, tourism, and casino gaming.
- New housing development is dominated by single-family homes on individual lots, replacing agriculture as the dominating land use in non-urban communities.
- Distributed employment, retail, and services make fixed-route public transit less economical.

## Recent Revelations and Expected Trends

- The Genesee & Wyoming Railroad Company has completed a $10 million upgrade to the New England Central freight rail line in eastern Connecticut and Massachusetts, accommodating 286 ton standard rail cars. This upgrade provides heavy axle rail connectivity to Palmer Massachusetts, a major freight hub.
- Expansion at General Dynamics Electric Boat is expected to bring thousands of additional workers to the region.
- The State has placed greater emphasis on New London as a deep-water port, coinciding with a newfound interest in off-shore wind farms.
- There is renewed appreciation for non-motorized transportation and interest in developing and improving sidewalk and trail networks; this should be expected to continue.
- A shift toward work-at-home arrangements in many industries will allow greater worker flexibility, reducing stress on transportation networks. This will mean a reduced rush hour demand, but it will also erode the ability to provide transit and traditional ridesharing services. The region's significant service sector will not see the benefits of these anticipated shifts in job hours and location.

## Local Land Use Control

Local municipalities control the use of land and form of new development through zoning regulations, and control the division of land and layout of new streets through subdivision regulations. The overall intent of these regulations is to control growth so that it occurs sustainably and in accordance with the municipal Plan of Conservation and Development—an overall vision for land use, among other things. The local Plan of Conservation and Development is required to note inconsistencies with the Regional Plan of Conservation and Development, prepared and adopted by SCCOG, and the State Conservation and Development Policies Plan, adopted by the legislature and prepared by the Connecticut Office of Policy and Management. The regional plan is generally reflective of the region's numerous local plans, while the State plan consistency between local, regional, and state Plans of Conservation and Development are ensured through their coordination process.

## Land Use and Zoning

The existing use of land and layout of buildings on individual properties does not always conform to zoning regulations. Because the goal is conformance with an overall plan, zoning is used to proactively promote more intensive land use in certain areas while encouraging less intensive uses in other areas.

Where land is zoned for uses more intensive than the existing use of property, the intention is often to grow the tax base by encouraging commercial and industrial development. In rural or suburban towns, land with access to arterial roads or other infrastructure like sewers will often be prioritized for development; however, in many cases industrial uses and high-intensity

commercial activity is prioritized on the periphery of town. This can place uneven stress on the transportation network. Current land use zoning can be seen in Figure 2.

Lower-intensity commercial activity, and mixed-use development is typically focused on existing village centers, which are often accessed by more than one collector or arterial road. This pattern of growth is supportive of the existing transportation network as well as municipalities' goals for improving community character and quality of life. A potential pitfall of growing new town centers is that these will take emphasis away from established urban centers like Norwich, Willimantic and New London. Additionally, development focused on growing each town's tax base results in greater transportation inequity for people without access to cars, as development occurs further from the existing transit routes.

Towns less frequently encourage greater residential density. Residential density is heavily dependent on access to public sewer and water, and even if this infrastructure is present, many municipalities are worried about the effect greater residential development will have on community service costs, especially education.

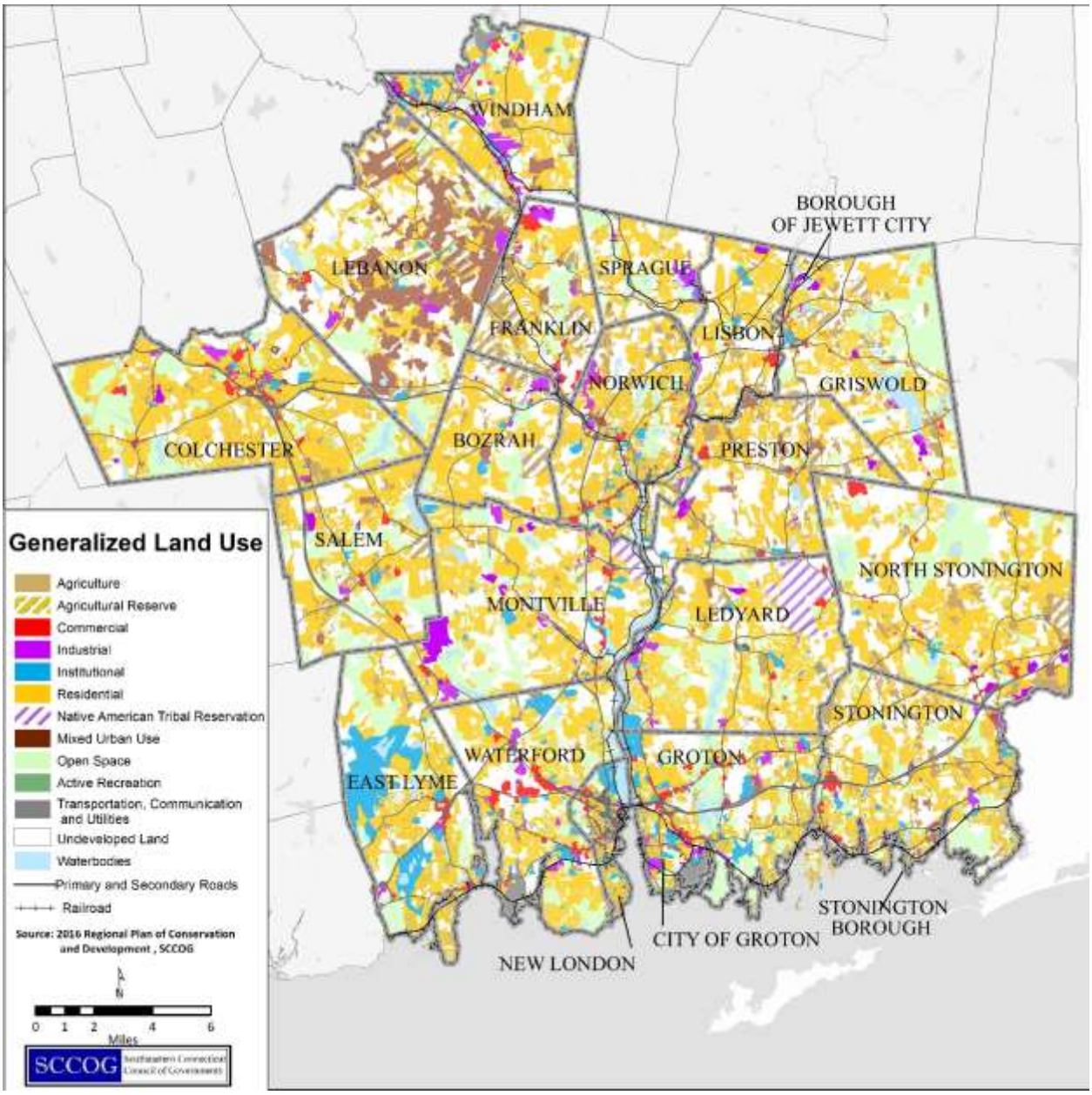


**FIGURE 2 GENERALIZED LAND USE**

## Growth Potential

The total growth potential of the region can be thought of as the maximum growth possible under zoning regulations, accounting for subdivision of land and creation of new roads in the process. This is represented above in the Generalized Land Use map. The region's entire growth potential will never be realized, however. When compared with other regions of Connecticut, such as the greater Hartford region or Fairfield County, southeastern Connecticut has very low

density of development. The reason for this is rooted in the region's relative lack of proximity to large cities and relative lack of public sewer and water. Throughout the life of this plan, it is expected that most of the land area in southeastern Connecticut will remain well below its development potential, and large-lot single-family homes will remain the dominant land use.

## Natural Resources and Conservation

Natural resources are managed locally by municipal land use commissions. Zoning and subdivision processes take careful consideration of impacts to watercourses, wetlands, forests, and other landscapes when making decisions on land use applications. Each municipality also has an Inland Wetlands commission that administers the Inland Wetlands and Watercourses Act (IWWA), specifically regulating activities that will have an impact on wetland soils or watercourses. Transportation improvements undertaken by municipalities are subject to Inland Wetlands review if work will be done that affects a wetlands or water resource, or may affect such resource by way of being within a specified distance. When the Connecticut Department of Transportation (CT DOT) undertakes a transportation project, the Connecticut Department of Energy and Environmental Protection (CT DEEP) acts as the agency responsible for administering the IWWA. The IWWA seeks to balance the project's needs with protection and enhancement of the wetland or watercourse. Typically, a chosen project alternative avoids wetlands and watercourse altogether; but if the resources cannot be avoided, steps are taken to ensure minimum impact and proper mitigation.

In addition to advocating for the protection of wetlands and watercourses, the Regional Plan of Conservation and Development notes that the conservation and procurement of open space is also a priority for the region. Several municipalities have developed Open Space Plans to identify areas which are targets for preservation. There are numerous private land trusts which operate in southeastern Connecticut, with the goal of preserving existing open space and acquiring new lands for preservation. These localized efforts complement the goals of the Connecticut Statewide Comprehensive Outdoor Recreation Plan, which seeks to protect and conserve natural resources as they support outdoor recreation.

## Historic and Cultural Resources

Southeastern Connecticut has a rich historic tradition, thanks in part to the early timeframe in which the region was first settled. The region is home to 12 National Historic Landmarks (four of which are Early American ships, found at Mystic Seaport), as well as ten distinct Local Historic Districts. The State of Connecticut Plan of Conservation and Development includes "Conserving and Restoring....Historical Resources" as one of its six Growth Management Principles, which are intended to be followed in Regional and Municipal Plans of Conservation and Development (any inconsistencies must be so noted). Accordingly, the Southeastern Connecticut Regional Plan of Conservation and Development encourages the protection and preservation of local historic resources. Numerous municipalities in the region bolster the protection of their historic resources with specific provisions in their zoning and subdivision regulations, and eight of the municipalities are classified as Certified Local Governments (CLG) by the State of Connecticut

Historic Preservation Office. These mechanisms allow for and encourage the protection and continued presence of historic assets by conducting reviews of projects which would have an impact on the historic character of the protected resources. If an adverse impact on the resource is anticipated, alternatives may be suggested or required.

## Population and Housing

The population of the Southeastern Connecticut region at the time of the 2010 Census was 286,711, (see Figure 3). The population of the region is expected to increase modestly over the course of the next two decades, with a projected 2040 population of 303,785. Current projections estimate that the population of the region is expected to generally shift slightly away from rural and suburban areas, and increase in urban areas such as Windham, Norwich, and New London. This trend, in part, illustrates a shifting desire of the population to be within closer and easier reach of jobs and amenities.

More than half of the residents in the region live in homes of only one or two people, while fewer than 10% of the population lives in a home with five or more people. This is somewhat related to and emblematic of an aging population in the region, as the elderly are less likely to live in large households. While southeastern Connecticut has a larger population aged 20-24-years than the statewide average due to the presence of colleges, military installations, and prisons, the average age of the population in the region is still increasing. In 1990, the average age of a resident of New London County was 32.5, a figure which increased to 40.4 in 2010. Senior citizens make up for 10-20% of the population of each municipality in the region. According to a survey conducted for Connecticut's Legislative Commission on Aging, 20% of Connecticut residents aged 50 and older anticipate using public transportation more frequently as they age. Furthermore, the 2017 Connecticut Statewide Household Transportation Study found that medical-related trips were the fourth most common purpose for travel within Connecticut. As such, there is an increasing necessity for easy access to public transportation and paratransit options for the elderly.

In addition to an aging population, the population of the region is also diversifying. The minority population of southeastern Connecticut is currently at 24%. The largest concentrations of minority populations are located within urban areas, with New London having the highest rate at 51%. The Hispanic/Latino community accounts for approximately 11% of the population in the region, the Non-Hispanic Black population accounts for 5%, and the Asian and other/more than one race population account for 4% each.

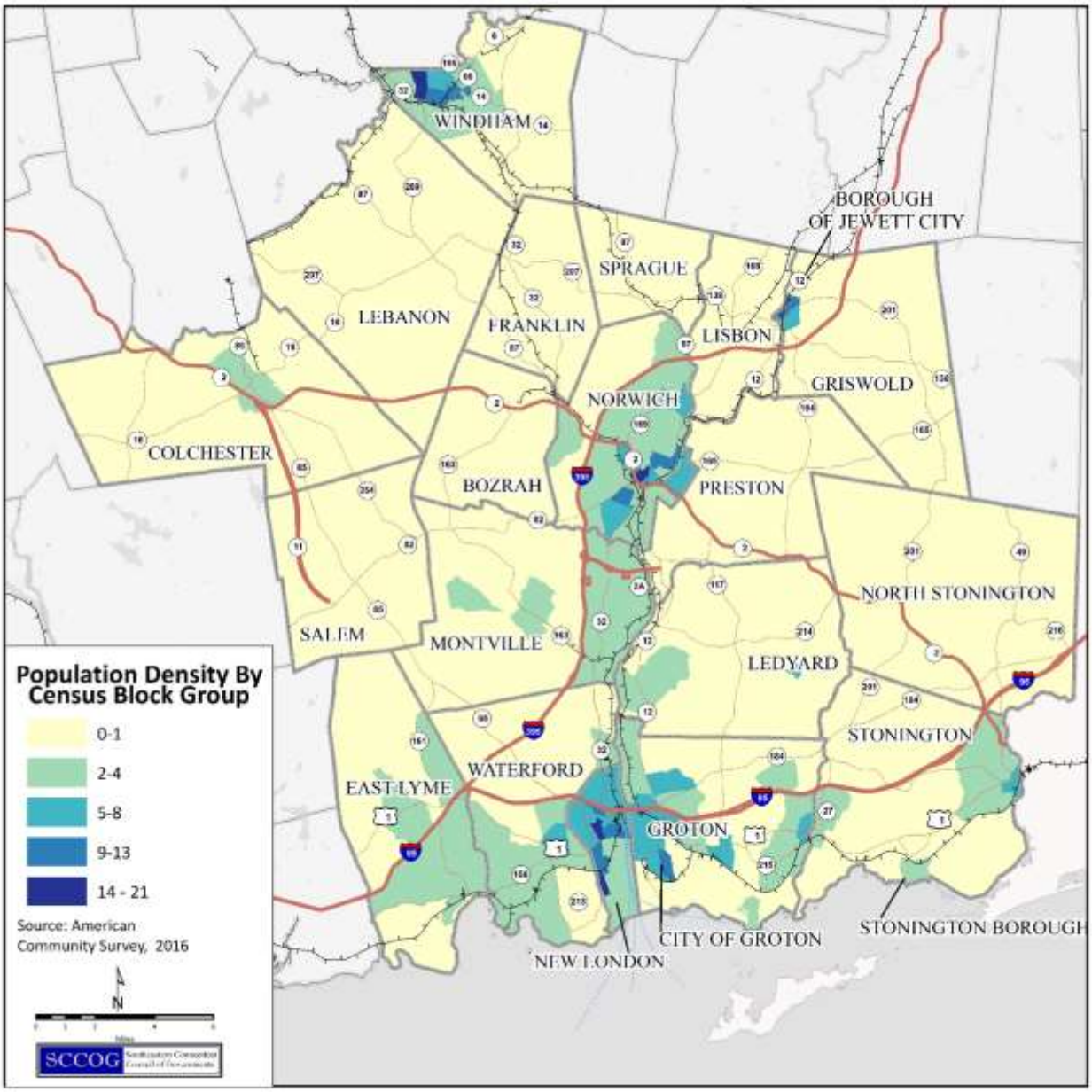


**FIGURE 3 POPULATION DENSITY BY CENSUS BLOCK GROUP**

The income range for residents of the region is diverse, with approximately a third of households earning less than $50,000 per year, a third earning $50,000-$100,000, and a third earning $100,000 or more. Over 29,000 households in the region are considered cost-burdened for the housing in which they reside, according to the recently published 2018 Housing Needs Assessment, prepared by the Southeastern Connecticut Council of Governments in coordination with the Southeastern Connecticut Housing Alliance. As such, there is a demand for affordable housing in the region, as well as transit options for low income individuals. Approximately 60% of the current housing stock of approximately 124,000 units is single-family housing.

### Commuting and Employment

By far the most prominent method of commuting to work in southeastern Connecticut remains driving alone in a personal vehicle. This is especially true in more rural areas, where transit options are limited, and employment is not within walking or biking distance. Public transportation is utilized for commuting to work more frequently in more densely populated and urban areas. Walking and biking to work is the least prevalent mode of transportation in the region for commuting purposes and is also focused in largely urban areas where distances from residences to jobs are smaller. Data show that a sizeable portion of the population is also working from home, without having a measurable journey to work. Those who report they work from home are scattered throughout the region, without necessarily following any urban or rural trends.

The 2017 Connecticut Statewide Household Transportation Study found that the weighted average time for commuting (trips from home to work and back to home) was 30 minutes in duration and 12.5 miles in distance. Work-related trips (trips taken during the workday for work purposes) were similar in duration but averaged 18.55 miles.

The largest employers in the region are primarily located in urban areas, including Groton, New London, and Norwich, with two major exceptions being Foxwoods Casino and Mohegan Sun Casino, located in Ledyard and Montville respectively. Three employers (Foxwoods, Mohegan Sun, and General Dynamics Electric Boat in Groton) each employ more than 5,000 people.

## 2. Goals and Strategies

Creating “liveable communities” through the notion of “smart growth” continues to be a guiding vision in southeastern Connecticut. The concept of “smart growth” reflects a growing recognition that development, mostly residential and commercial, is eating up increasingly large amounts of undeveloped farm and forestland that many people take for granted as “open space”. For this reason, smart growth has emerged as an idealized development policy that is intended to: (1) give priority to development locating where the infrastructure to support it already exists, (2) develop a new transportation strategy that more effectively moves people and goods, (3) give high priority to cleaning up brownfields and attacking blight, and (4) preserve undeveloped forest and agricultural land. A livable community is one that is safe and secure, has affordable and appropriate housing and transportation options, and offers supportive community features and services. As part of these concepts, more and more people are gradually beginning to appreciate the subtle difference between the phrases “standard of living” and “quality of life”, especially as it relates to the automobile. These differences mostly involve the time and cost demands of the suburban lifestyle. Smart growth, sometimes difficult to define, does at least attempt to focus attention on the need to balance conservation and development. Connecticut’s 169 independent governmental structures, in which each town

needs a diverse and robust property tax base in order to support itself, are seemingly at odds with our goals. SCCOG supports smart growth and livability within the region by: coordinating transportation, health and human services; encouraging greater transit options; water and sewer infrastructure planning; embracing novel and innovative solutions to development issues; preparation of special studies and plans like the SUBASE Joint Land Use Study; and through the preparation and adoption of the 2017 Regional Plan of Conservation and Development (RPOCD).

The pressure for smart growth and regionalism has only increased as local municipalities have struggled with deep cuts to municipal aid from the State and rising programmatic and infrastructure costs. Inefficient land use patterns, which encourage dispersed residential development, increases costs for road maintenance, storm sewer and other utilities, school busing, and amenity maintenance. Current development patterns also limit the ability to reach density thresholds upon which a functional transit system can exist.

During the process of preparing the 2017 Regional Plan of Conservation and Development, local planning and zoning commission members, planners and the general public expressed continued concern about sprawl in the region. Large lot, residential, zoning pattern is generally characterized and supported by self-contained, on-site water and septic systems. Coupled with this residential pattern are large separations between residential, commercial, industrial and institutional land uses in order to promote and protect residential property values. The need to functionally link these separate land uses and provide optimum access opportunities is now accomplished almost exclusively through use of the automobile and supported by a well-developed, somewhat well-maintained system of highways. The Regional Plan of Conservation and Development presents the SCCOG's vision for the region's future transportation system, and its transportation goals and objectives are repeated below and made part of this plan. In addition, the SCCOG includes and endorses the federal and state goals listed below.

## Goals

### *Regional Goals*

1. Provide transit that meets the needs of the region, especially businesses, low-income workers, and ageing residents.
2. Complete Streets that encourage transit use, biking, and walking.
3. Coordinated transportation that makes use of new technologies to improve mobility.
4. Safety and reliability that meet the future needs of the region, and can withstand potential natural hazards.

### *State Goals (2018 Long Range Transportation Plan)*

State Long Range Transportation Plan goals were broken into four categories: Economic, Deliverability, Quality of Life and Livability/Resilience. The Economic goal includes: an efficient

and effective transportation system, connectivity to national and global markets, maintaining a state of good repair, reducing business costs for goods movement, and revitalizing urban centers with modal options. Deliverability was broken down into: cost effective and quick project delivery; improved communications and responsiveness and strong intergovernmental partnerships. Quality of Life would be addressed through: safe and secure travel for all modes, mobility and accessibility for all users, convenient and reliable travel choices, integration of transportation and land use. Livability and resilience are broken into: commitment to livable, healthy and environmentally sustainable communities; enhancement of biking and walking accommodations; making environmentally friendly transportation an affordable option; and making the transportation system more resilient.

## Strategies

While the regional, federal and state transportation goals vary, the themes are consistent at each level of government. The SCCOG is a technical resource for innovation and policy for its member towns. Its staff works collaboratively with FTA and FHWA, the State of Connecticut, towns, the transit districts, and others to innovate and maintain the region's transportation system in a state of good repair. The SCCOG takes a multifaceted approach to realizing our goals and the following will summarize our strategies for integration of federal focus areas and state goals.

1. Provide transit that meets the needs of the region, especially businesses, low-income workers, and ageing residents.
    a. Provide support to the transit districts and ECTC (senior/ADA paratransit).
    b. Support ride sharing and the integration of emerging technologies to supplement fixed route transit.
    c. Provide pragmatic assistance to the towns and DOT for the 5310 program and the Municipal Grants program to address aging and disabled residents.
    d. Work with towns, employers, seCTer to encourage transit ready growth.
    e. Integrate the transit maps and schedules to provide a more holistic customer experience.
2. Complete Streets that encourage transit use, biking, and walking.
    a. Prioritize the expansion and improvement of sidewalks and bike facilities to enhance access and livability through the bike and pedestrian planning process.
    b. Encourage and educate local staff, advocates and residents.
    c. Incorporating complete streets into all LOTCIP projects and seeking safety improvements for pedestrians and cyclists.
3. Coordinated transportation that makes use of new technologies to improve mobility
    a. Inclusion of TSM and TDM strategies to ease congestion.
        i. Signal coordination
        ii. Transit priority
        iii. Support of ride sharing and telecommuting

    b. Municipal technical assistance and municipal assistance planning and GIS contracts.
    c. Enhance and better coordinate rail, port and road freight.
    d. Support private investment and improvement of ferry, pier, port and waterways through grant assistance and coordination.
4. Safety and reliability that meet the future needs of the region, and can withstand potential natural hazards.
    a. Identification and planning for the congested corridors of the region.
    b. State of Good Repair projects carried out through the STIP/TIP process and local road projects.
    c. Identification of critical infrastructure in potentially flooded areas.
    d. Carry out a regional Community Rating System assistance program to enable our member towns to leverage the National Flood Insurance program to decrease flooding liability.
    e. Adoption of CTDOT performance measures which allow us to identify and prioritize projects which will result in a sustainable and resilient transportation system.
    f. Commitment to the MS4 permitting process and the reduction of connected impervious surface on both local and state roadways through sound engineering, technical assistance and coordination.
    g. Leadership in regional emergency preparedness.
    h. Providing assistance to towns in accessing funding for infrastructure and programs.

# 4. Performance Measures

MAP21 legislation ushered in an era of performance based planning. Much of the work to date has been at the federal and state level, interpreting the federal ruling with guidance. In May of 2018, The SCCOG adopted new language in its Unified Planning Work Program (UPWP) to formalize our role in performance-based planning and programming. Through that framework, the SCCOG ensures that programming of projects, both long- and short-term, are based on their ability to meet established goals for improving the overall transportation system. This addition to the UPWP was in accordance with the Metropolitan Transportation Planning Final Rule (May 27, 2016, 23CFR 450.306(d)). The SCCOG has elected to endorse the measures and targets developed by the CT DOT, in cooperation with the COGs. The decision to endorse these targets was based upon data availability and staff capacity, and reflects our willingness to plan and program projects that contribute to the accomplishment of the performance targets. Targets will be reviewed periodically to ensure that the SCCOG continues to concur with them. The following measures and targets have been adopted by CT DOT and SCCOG (see Tables 1 and 2).

### TABLE 1 PERFORMANCE MEASURES: SAFETY, BRIDGES AND PAVEMENTS, SYSTEM PERFORMANCE, AIR QUALITY, AND FREIGHT

| | Performance Measure | Bench Mark | Target 2018 | Target 2019 | Target 2020 | Target 2022 |
|---|---|---|---|---|---|---|
| Highway Safety | Number of Fatalities - 5-Year Rolling Average | | 257 | 274 | | |
| Highway Safety | Rate of Fatalities per 100 million VMT - 5-Year Rolling Average | | 0.823 | 0.873 | | |
| Highway Safety | Number of Serious Injuries - 5-Year Rolling Average | | 1,571 | 1,574 | | |
| Highway Safety | Rate of Serious Injuries per 100 million VMT - 5-Year Rolling Average | | 5.033 | 5.024 | | |
| Highway Safety | Number of Non-Motorized Fatalities and Non-Motorized Serious Injuries - 5-Year Rolling Average | | 280 | 290 | | |
| Bridges & Pavements | Percentage of Pavements of the Interstate System in Good Condition | 66.2 | | | 65.5 | 64.4 |
| Bridges & Pavements | Percentage of Pavements of the Interstate System in in Poor Condition | 2.2 | | | 2 | 2.6 |
| Bridges & Pavements | Percentage of Pavements of the Non-Interstate NHS in Good Condition | 37.9 | | | 36 | 31.9 |
| Bridges & Pavements | Percentage of Pavements of the Non-Interstate NHS in Poor Condition | 8.6 | | | 6.8 | 7.6 |
| Bridges & Pavements | Percentage of NHS Bridges classified in Good Condition (by deck area) | 18% | | | 22.10% | 26.90% |
| Bridges & Pavements | Percentage of NHS Bridges classified in Poor Condition (by deck area) | 15% | | | 7.90% | 5.70% |
| System Performance | Percent of the Person-Miles Traveled on the Interstate That Are Reliable | 78.3 | | | 75.2 | 72.1 |
| System Performance | Percent of the Person-Miles Traveled on the Non-Interstate That Are Reliable | 83.6 | | | 80 | 76.4 |
| CMAQ Program Measures- On-Road Mobile Source Emissions | Total Emissions Reduction<br>1) VOC<br>2)NOx<br>3)PM2.5 | 1) 10.820<br>2) 34.680<br>3) 1.040 | | | 1) 19.320<br>2) 67.690<br>3) 1.632 | 1) 30.140<br>2) 102.14<br>3) 2.674 |
| Freight Movement | Truck Travel Time Reliability Index | 1.75 | | | 1.79 | 1.83 |

### TABLE 2 TRANSIT PERFORMANCE MEASURES

| | Transit Performance Measure | Benchmark Useful Life (ULB) | Performance Target | Current Performance (09/2018) |
|---|---|---|---|---|
| Transit | % Vehicles Met or Exceeded ULB - Transit Bus | 12 Years | 14% | 24% |
| Transit | % Vehicles Met or Exceeded ULB - Cutaway Bus | 5 Years | 17% | 46% |
| Transit | % Vehicles Met or Exceeded ULB - Minivan | 6 Years | 17% | 0% |

# 5. Transportation Facilities

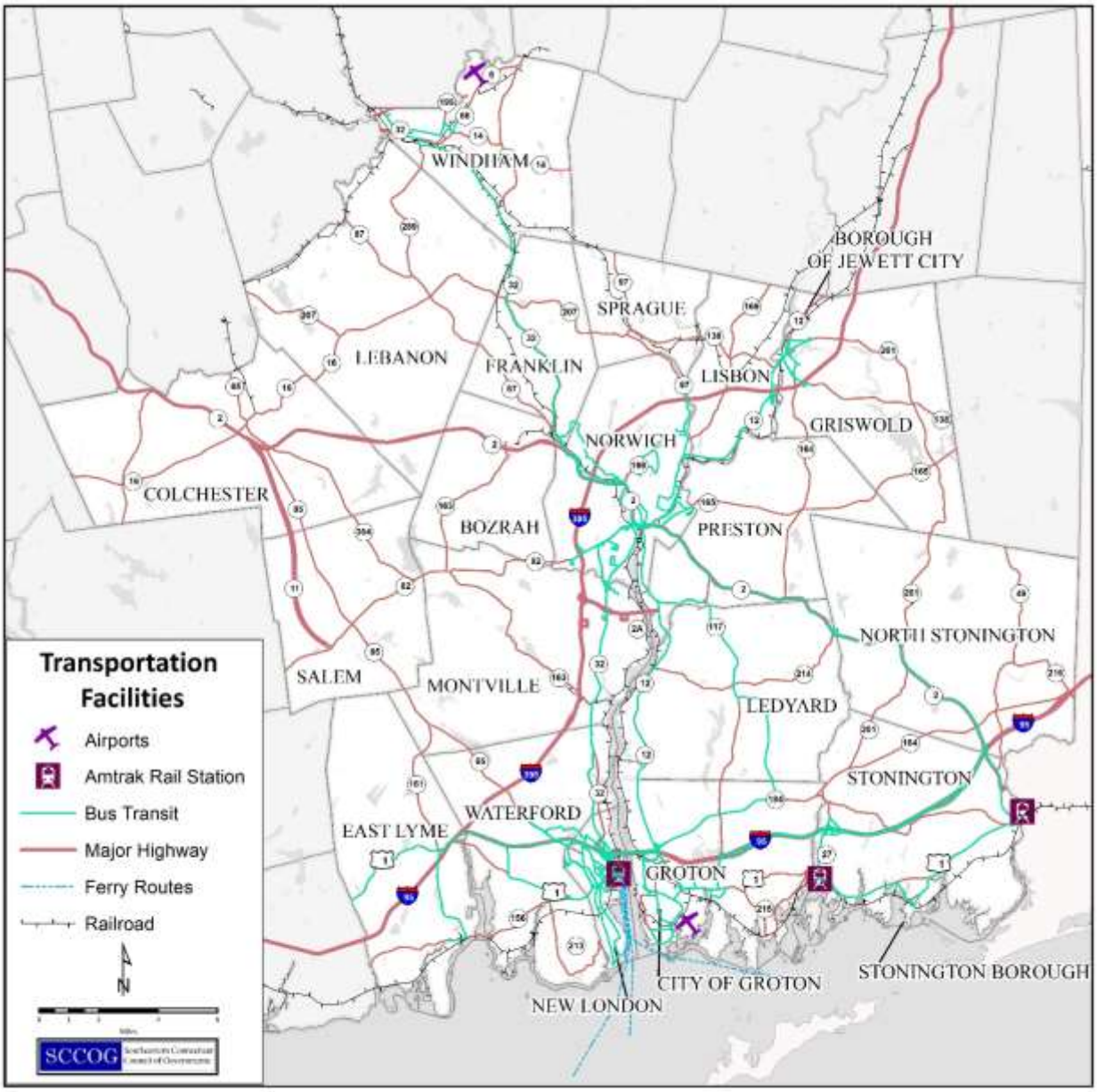


**FIGURE 4 TRANSPORTATION FACILITIES**

## Highway

The following text reviews the major highways in southeastern Connecticut, shown in Figure 4. The information was based on studies conducted by CT DOT and SCCOG and on discussions with officials and citizens in the towns and cities of southeastern Connecticut

North/South Corridor, West of Thames River: This corridor is served by two routes between Norwich and New London, with both I-395 and Route 32 providing north-south access. Further north these two routes diverge, with Route 32 heading west to Windham and I-395 turning eastward before heading north to the Massachusetts border. The interstate highway is the main north-south link in the system of four-lane facilities that connect the urban centers of Norwich and New London by way of Route 82 (West Main Street in Norwich), I-395 (through Montville), and Routes 693 and 32 (through Waterford and into New London).

I-395 is the tenth most frequent location for crashes within SCCOG, which is heavily influenced by the high number of miles it traverses within the region. There are consistent crashes along its length, with clusters of greater frequency just north of Route 2A, the ramps at West Town Street in Norwich, and the split interchange in Griswold.

Route 32 is an arterial throughout this region that provides local and through access to many of the region's towns and provides primary access to Windham, connecting that town to the rest of the region. Traffic volumes on Route 32 through Montville declined somewhat when the tolls were removed on I-395 during the mid-1980's, but have increased in recent years with casino-related traffic; average daily volumes now exceed 19,700 vehicles north of the Route 2A ramps. Use of the road will continue to undergo extensive changes in the coming years largely as the result of new commercial development attracted to the area because of the synergy of Mohegan Sun Casino. Future improvement opportunities on Route 32 may include widening in isolated sections, access consolidations, channelization, signal improvements, and the addition of adequate sidewalks for pedestrian safety in the Norwich area. Further north, at the I-395 on-ramp, another crash cluster appears. Accidents are high at the intersection of Route 163 in Montville. There is a broad cluster of crashes in the vicinity of the Route 2A ramps spreading north to the skewed angle intersection with New London Turnpike in Norwich. In the northerly end of the corridor there are higher accident locations in Windham, both at Windham Center Road (an at grade rail crossing) and in the downtown area.

Further to the south, high crash incidence and a greater focus on reconnecting College Hill in New London to Hodges Square and downtown have spurred a more complete re-visioning effort. Crash incidence along the southerly end of the Route 32 corridor show several crash clusters. College Hill in New London is the area of Route 32 that is flanked by the U.S. Coast Guard Academy and Connecticut College and it is characterized by a median separated facility with several signalized intersections extending into Waterford. Route 32 just south of the main entrance to Connecticut College was the site of a pedestrian fatality in 2017, and SCCOG has begun working with the City of New London staff on corridor planning activities to better address design conflicts.

North/South Corridor, East of Thames River*:* Route 12 serves north/south local and through- traffic east of the Thames River between Norwich and Groton. Except for the section of the highway located in downtown Norwich and north of Greenville, the road can be

considered a reasonably adequate arterial highway under present conditions of demand. The Preston Riverwalk property, now owned by the Mohegan Tribe, will necessitate capacity improvements on both the Route 2A Mohegan-Pequot Bridge and adjacent intersections and roadways as it is developed. In 2005, the Federal Highway Administration documented and selected an alternative in a Record of Decision for "The Route 2/2A/32 Transportation Improvement Project" which had been through a substantial planning process and Environmental Impact Study. The Record of Decision supported the study's preferred alternative between the Route 2A crossing of the Thames River and I-95 interchange (Exit 92) with Route 2 at the North Stonington/Stonington town line. The preferred alternative included: 1) the addition of a second 2-lane span of the Route 2A bridge over the Thames River; 2) a 4-lane bypass connecting the bridge's Preston approach to Route 2 west of Schoolhouse Road; 3) Route 2 widening to a median-separated 4-lane facility in Preston; and 4) upgrades to Route 2 in North Stonington to the I-95 interchange to improve safety. These improvements will build upon upgrades to Route 2 in the vicinity of Foxwoods Casino. Average daily traffic volumes on Route 12 in the vicinity of Route 2A are now 37,000.

More generally, Route 12 crash clusters exist along this roadway near the I-95 ramps, at the junction of the Route 2A Mohegan-Pequot Bridge, in downtown Norwich, and to a lesser extent just south of Jewett City. The section of Route 12 through Groton presently has the highest traffic volumes and highest number of accidents in this corridor. It also has four or more traffic lanes between Crystal Lake Road and Route 1. But congestion continues to occur because of frequent turning movements at the numerous intersections and driveways to businesses and residential development along the frontage. Major traffic generators, such as the Groton Square shopping center, U.S. Submarine Base and the USS Nautilus Memorial and Submarine Force Library and Museum have contributed to peak hour congestion in this corridor. Completion of the reconstruction of the interchange with Route 184 has helped alleviate some of the congestion at this point in the roadway. Other than driveway consolidations and access management techniques, future improvement opportunities in this section of Route 12 appear limited.

Another north/south route paralleling Route 12 east of the Thames River is Route 117. Land use along most of this road is primarily residential. It extends from Route 2 in Preston to Route 1 in Groton. The reconstruction of this route between Ledyard Center and Route 184 in Groton now provides a good alternative to the busy Route 12 for commuting workers and others traveling between Groton and towns to the north. With the completion of the Mystic Marriott at Exit 88, there might be pressure for future additional commercial development in the vicinity of I-95 although no major improvements to this roadway are envisioned at this time. Portions of Route 117, between Groton and Preston, have now become the focus of a planned bike and pedestrian pathway.

East/West Corridor*:* I-95 is the most heavily traveled corridor in the region. It is the main highway for travelers along the Atlantic coast from Florida to Maine as well as the main means

of accessing our region's coastal towns. With future development potential all along this corridor and the roadway's importance as a freight corridor, increases in congestion on this route are inevitable. Annual Average Daily Traffic has rebounded recently to over 70,000 vehicles per day (permanent count location in East Lyme, 2015); this benchmark had not been seen since 2009. Further north in Groton, volumes are slightly lower with 68,300 Average Daily Traffic. Both permanent count locations show a significant seasonal spike for the months of July, August and September. This is a critical planning factor for our region because tourism is a significant sector of the economy and the performance measures for reliability fail to adequately address seasonality. Average Summer Weekday Daily Traffic volumes were recorded in 2016 and showed 85,710 vehicles at the previously mentioned East Lyme site and 80,090 at the Groton location. The SCCOG, and other shoreline COGs continue to work with CT DOT to address this performance challenge. High frequency crash locations within SCCOG along I-95 include East Lyme from Society Road to the I-395 interchange, the interchange with Route 85 in Waterford, the complex interchanges in New London with Route 32 and Williams Street, and the Allyn Street exit in Groton. As I-95 is the most heavily utilized corridor in the SCCOG, we have proposed significant improvements and maintenance work which will be detailed in section 10 of this MTP. The CT DOT updated the I-95 Branford to Rhode Island feasibility study in May of 2018, but CTDOT did not consult with the SCCOG and the projects proposed in previous planning documents have been significantly scaled back. While SCCOG continues to strive for a state of good repair and reliability within the corridor, there is a need for more regional input into the design process.

Routes 1 and 156 served as the main through-routes in the region prior to the completion of I-95, and continue to serve a vital role for both access and mobility. These routes also act as diversion routes both during emergencies and during seasonal peak hour congestion. Route 1 is a two to four lane route paralleling I-95 through the region that connects village centers, as it does in towns west of southeastern Connecticut. With a crash frequency second only to I-95, Route 1 poses many planning challenges and solutions will have to include both engineering and land use policy. Route 156 within this region is a two lane road paralleling I-95 along the shore. It provides primary access to the beach communities in East Lyme and Waterford. The Niantic River draw bridge spans the Niantic River between Waterford and East Lyme and will need significant maintenance in the near future.

Northwest/Southeast Corridors*:* Two major routes serve the region in this direction. These are Route 2 and Routes 11/85. Route 2, originating in Hartford, enters the region near its western extremity in Colchester and passes through eight towns before reaching its eastern terminus in the Pawcatuck section of Stonington. Routes 11/85 are the main routes of travel between Route 2 in Colchester and New London, passing through Salem, Montville and Waterford.

Through-traffic on Route 2 from the Hartford/Glastonbury area remains a difficult regional traffic problem to solve. This is due, in large part, to the huge demand created by the region's

two Indian gaming casinos. One option is to by-pass the bottleneck in Norwich by re-routing traffic south on I-395 to Route 2A. While this ostensibly solves the congestion problem in Norwich, a second highway bottleneck exists in the village of Poquetanuck, in Preston. The solution to this problem, identified by CTDOT as part of the Route 2/2A/32 Environmental Impact Study, is to add an additional span to the Mohegan-Pequot Bridge and build a limited access by-pass of Route 2A. However, while this solution continues to be opposed by the Town of Preston, the likelihood of redevelopment of the Preston Riverwalk property may create the conditions to enable this project to go forward.

Since 1992, Foxwoods Casino has had a significant impact on traffic in the region from both an employee and patron perspective. The facility attracts an average of more than 25,000 vehicles per day. On peak days, this number can double. Routes 2 and 2A have clearly borne the brunt of the increased traffic but there is also a noticeable increase in volumes on other roads as well. Traffic going to the casino from the western part of the state uses I-395 and Route 2A through the Poquetanuck section of Preston to get to Route 2, while traffic from the east, on I-95, uses Exit 92 at Route 2 in North Stonington to get to the reservation. Traffic approaching from the northeast, on I-395, exits at Route 164 in Griswold to get to Route 2. As patrons become more familiar with the area, the secondary road system has been exploited as offering less congested routes of travel to and from the gaming center. This is resulting in heavier volumes on these narrow roads. Likewise, local residents are increasingly using the secondary road system in order to avoid congestion on the main arterials. Citizen concern about the changing pattern of both the primary and secondary roadway use in this section of the region is widespread. However, while there continues to be some public resistance to making major highway improvements simply for the convenience of casino patrons, the resistance now tends to be isolated to one or two communities. Independently, the Town of Preston has expressed interest in developing the Preston City area in the vicinity of Routes 164 and 165 as a village center. While the long term development objective of retaining “village character” is somewhat in conflict with the volumes of gaming traffic on Route 164 passing through Preston City headed toward Foxwoods, Preston is recommending intersection modifications along Route 164, both above and below the intersection with Route 165. Of immediate concern will be the realignment of the intersection of Route 164 at Old Shetucket Turnpike and Amos/Northwest Corner Roads.

Route 2 is constructed to arterial standards between Norwich and Route 164 in Preston with 11-foot lanes and 8-foot shoulders in each direction. Easterly of Route 201, it lacks the needed lane or shoulder width and alignment to accommodate traffic in a safe and efficient manner. Recommendations for reconstruction between Route 201 in North Stonington and its intersection with I-95 in Stonington were part of an Environmental Impact Study conducted by CT DOT in 1998. While there has been no local consensus to make major improvements to Route 2, in 2008/2009, the Mashantucket Pequot Tribe constructed a 1.8 mile elevated bypass of Route 2 from Lot 10 to east of the intersection with Milltown Road. Between I-95 and Route

78, Route 2 has been improved to four lanes. Again, access to and from Route 2 to abutting properties is of continuing concern as the volume of this roadway approaches its capacity.

As the region continues to develop as a major tourism and commercial destination, traffic is likely to continue to increase despite the recent downward trend. More troubling, seasonal and periodic peaks will be challenging to address in a context sensitive manner. Development on property abutting I-95 in North Stonington (once proposed for a large theme park) may heighten the need to consider improving other roads, especially those that link Mystic to Foxwoods. One of these is Route 201 in North Stonington between Route 2 and the Stonington town line.

The crash history of Route 2 reveals that the largest cluster of accidents occur in Norwich between the end of the expressway and the Route 165. A second cluster exists in Stonington south of the I-95 Interchange and terminating at the Route 1. Both of these locations are densely developed and need to provide safe access for all modes.

The seasonal traffic congestion occurring on Route 85 in Salem, Montville, and Waterford is not likely to diminish significantly, and since the last LRTP, the planned extension of the Route 11 expressway has been abandoned by CT DOT and the SCCOG due to the cost and environmental impacts. To address safety issues, CT DOT has in cooperation with the towns of Salem, Montville, and Waterford begun design and construction of various shoulder widening, safety and drainage improvements. Year-round traffic in the Route 85 corridor is presently moderate, with average daily traffic of 14,600 between Route 82 and the Montville town line; it reaches intolerable conditions on some summer weekends when recreation traffic in this corridor reaches its peak. School bussing is another source of congestion; Route 85 offers few bypass areas and passing stopped school buses is illegal.

Improvements are currently planned and are being undertaken all along the Route 85 corridor in Salem, Montville and Waterford. Of special concern is the intersection with Route 161. This location is particularly challenging due to the closely spaced intersections at Chesterfield Road, Route 161/Flanders Road and Turner Road. Compounding the problem are the existence of flood zones, historic structures, significant grade changes, and a public water supply. Bicyclists and pedestrians are poorly accommodated throughout much of the Route 85 corridor. While current projects fail to provide for cyclists or pedestrians, the SCCOG looks forward to making targeted recommendations for the corridor that will provide safe access for non-motorist corridor users.

Between the interchange of I-395 and Route 85 in Waterford and the interchange with I-95 is one area of the corridor which has a current volume to capacity ratio above 1.0. The corridor lacks pedestrian and cycling amenities.

The I-395 overpass will be brought to a state of good repair within the CT DOT Capital Plan. In the future greater demand is anticipated for this interchange as traffic calming is implemented on Route 32 and demand shifts to this interchange. Close spacing of intersections surrounding

the Interchange will continue to cause conflict and congestion, particularly as commercial and industrial land adjacent to the interchange in Waterford is developed. The I-95 interchange is congested and provides inadequate turn queues.

Within the Route 85 corridor, crash clusters exist in Colchester, at the roundabout at Route 82 in Salem, and at the intersection of Route 161. But more often the greatest cluster of accidents is Route 32 on the section from I-395 to Jefferson Avenue in New London. Most of the accidents occur at signalized intersections in this portion of the corridor.

## Demand

Traffic data for this plan was provided by CT DOT. It consists of several sources including periodic ADT data which are typically done on a three-year basis and permanent count location data. The region also utilized data available in our 2016 CMP which prioritized congested corridors. Within southeastern Connecticut there were several instances where data was not updated; those locations are depicted in grey in Figure 5 below to show that no valid change in ADT can be shown for that location. The vast majority of these counts are periodic; permanent count locations within the region are very limited. Figure 5 describes the change in ADT between 2014 and 2017; and shows that predominantly there has been only very little change symbolized by yellow dots representing less than 5% change in either direction. Most other changes in ADT were between 5-25%. Dramatic increase in traffic occurred at one location in Windham while a dramatic decrease occurred at several locations throughout the region (in Groton, Waterford, Montville, Sprague, Franklin and Lebanon).

Since the last LRTP, the region as a whole has seen traffic decline. This is anecdotally attributed to economic downturn in the past decade. Since the recession, the region continues to make progress toward recovery. Substantial growth in our manufacturing had been the strongest influence on traffic and housing growth within the region and will continue to increases over the projected period. The SCCOG anticipates growth in the tourism sector with the development of Preston Riverwalk within the plan period.

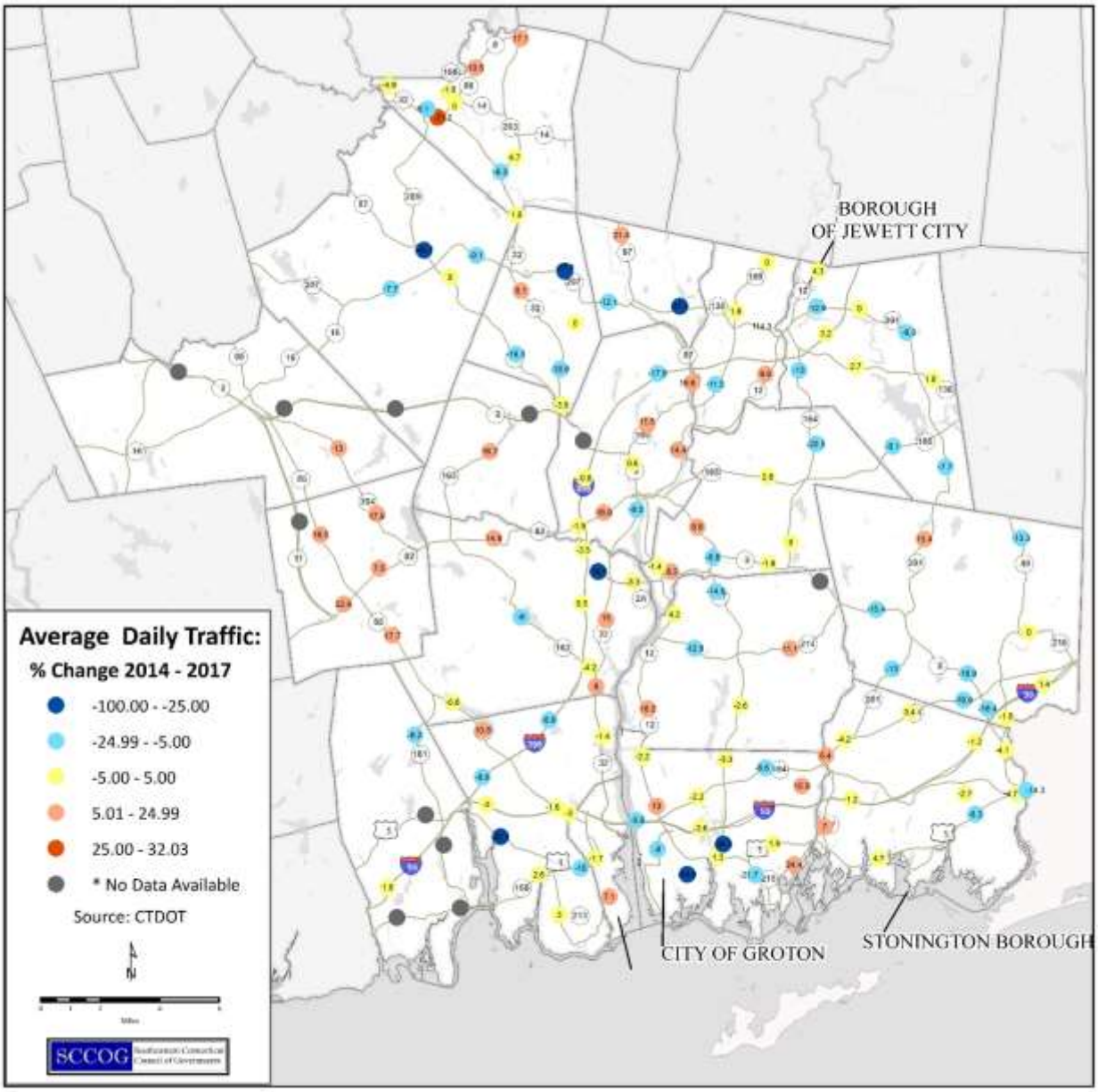


**FIGURE 5 AVERAGE DAILY TRAFFIC: % CHANGE 2014-2017**

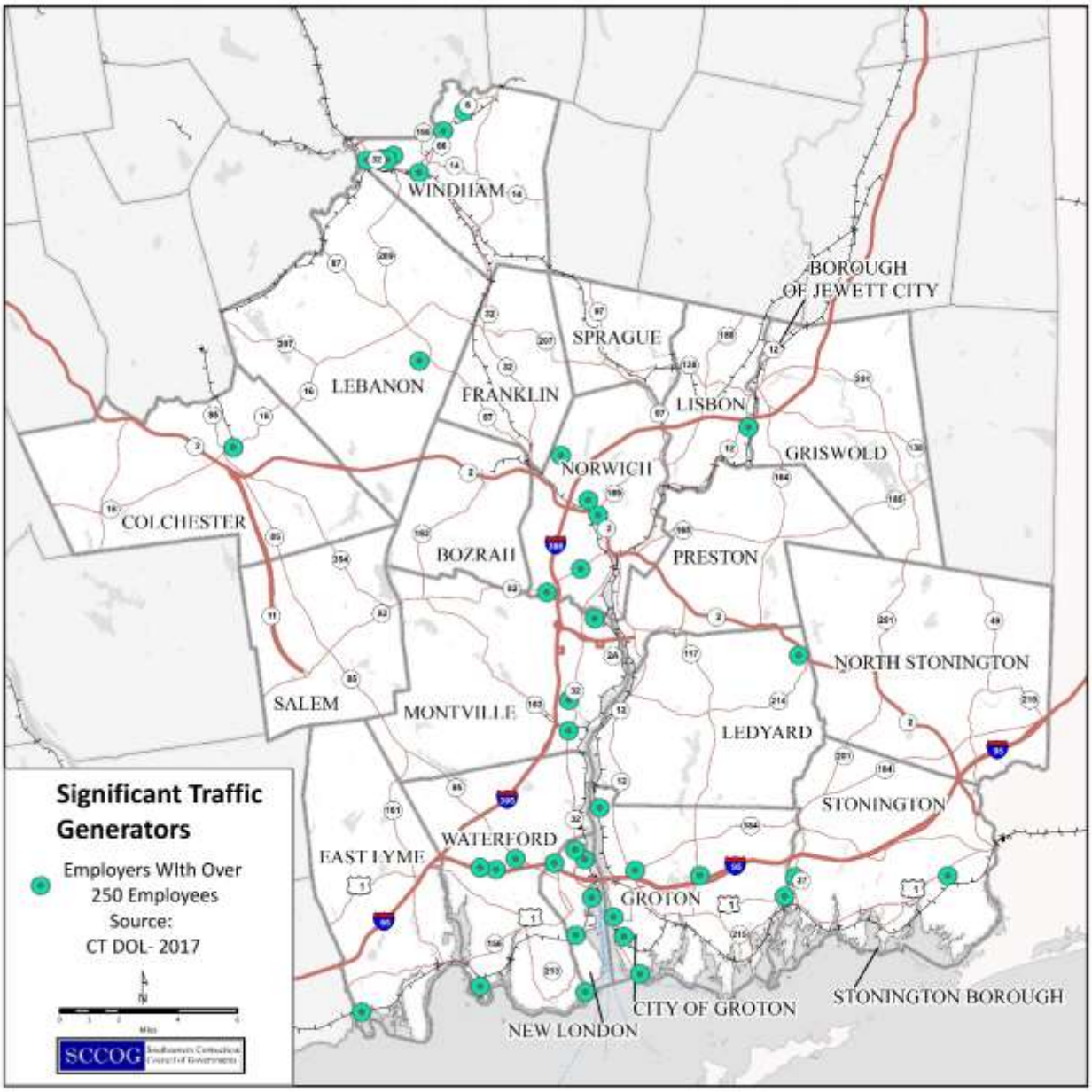


**FIGURE 6 SIGNIFICANT TRAFFIC GENERATORS**

The higher educational institutions within the region are another source of traffic demand and include, but are not limited to, U.S. Coast Guard Academy, Connecticut College, Eastern Connecticut State University, and Three Rivers Community College. The many public and private K-12 education facilities are significant traffic generators as well that were overlooked in past plans. Because these institutions are not only large employers but also are associated with both busing and personal vehicle drop offs, they remain significant generators of peak hour congestion.

Non-public employers with greater than 250 employees are mapped in Figure 6. The location of these employers is predominantly along the Interstate and limited access highway system. Foxwoods, Davis-Standard in Stonington, Prides Corner in Lebanon, and UConn Avery Point in Groton are some employment locations with less proximal access to the limited highway network. Traffic increases significantly in the region during summer due to attractions like Rocky Neck State Park and Ocean Beach Park, two examples of seasonal large employers which also create significant demand from patrons of their business. Mystic Aquarium and Mystic Seaport are both open in the winter, but significantly more visitors patronize these establishments during the summer.

## Safety

Crash incidence is widespread throughout the region with the highest density of crashes along the shore and in the urban centers of New London, Groton, Norwich and Windham. Within the last three years, there have been 27,781 reported crashes; of those 96 were fatal and 5,824 were injurious. Figure 7 indicates the highest frequency crash locations in red; this "heat mapping" takes the place of the Suggested List of Surveillance Study Sites (SLOSSS) list previously provided by the CT DOT in the 2014 LRTP. For additional discussion of crashes, refer to the Highway major corridor sections.

Non-motorist crashes are visualized in Figure 8; for the same 3 year crash period, 201 crashes involved pedestrians, 108 crashes involved cyclists, and 10 non-motorists are shown. Crashes with non-vehicles follow similar geographic patterns compared with all crashes, however they tend to be more injurious than crashes that involve only vehicles. Within this plan we have used 3 year data for consistency; within SCCOG's Regional Bike and Pedestrian Plan which is currently being drafted, 10 years of data will be used to obtain a more complete understanding of non-motorist crashes.

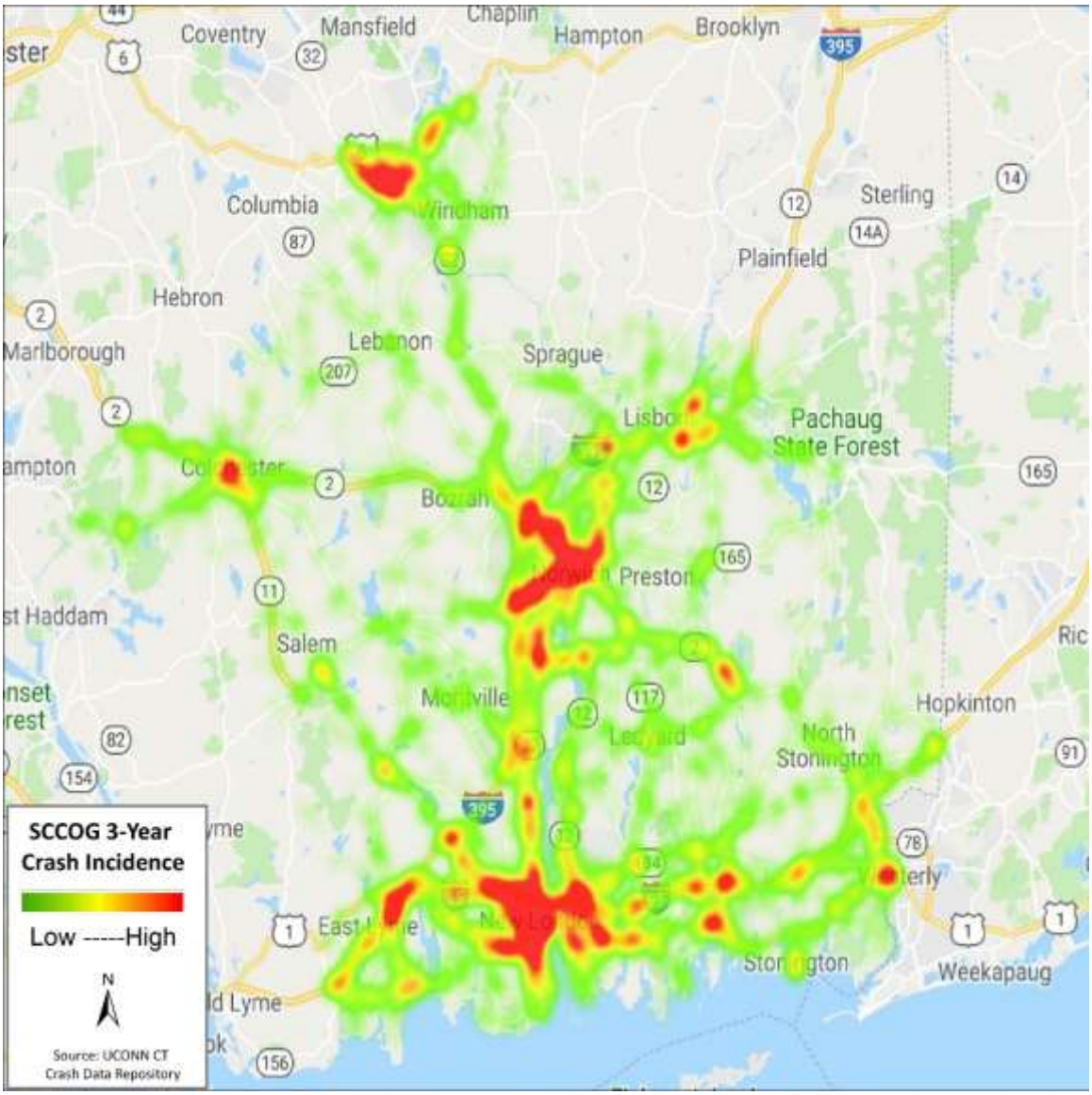


**FIGURE 7 SCCOG 3-YEAR CRASH INCIDENCE, UCONN CONNECTICUT CRASH DATA REPOSITORY**

The Highway Safety Plan indicates several emphasis areas for crashes. Among these, Distraction and Driving while Under the Influence (DUI) are two predominant areas addressed through enforcement which is carried out by both State Police and local police through enforcement grants. While the vast majority of drivers involved in accidents were unimpaired, 1,288 were under the influence of medication, drugs or alcohol and those crashes involved 2,291 people. Another 593 were fatigued, and over 500 were impacted by physical or emotional impairment or were ill at the time of the crash. “Distraction” continues to be a cultural challenge and is targeted by enforcement, it is often hard to prove or identify as the cause as is evidenced by the few crash records that identify distraction as a factor in the crash. Motorcycles, another emphasis area, accounted for 503 crashes within the 3 year time period.

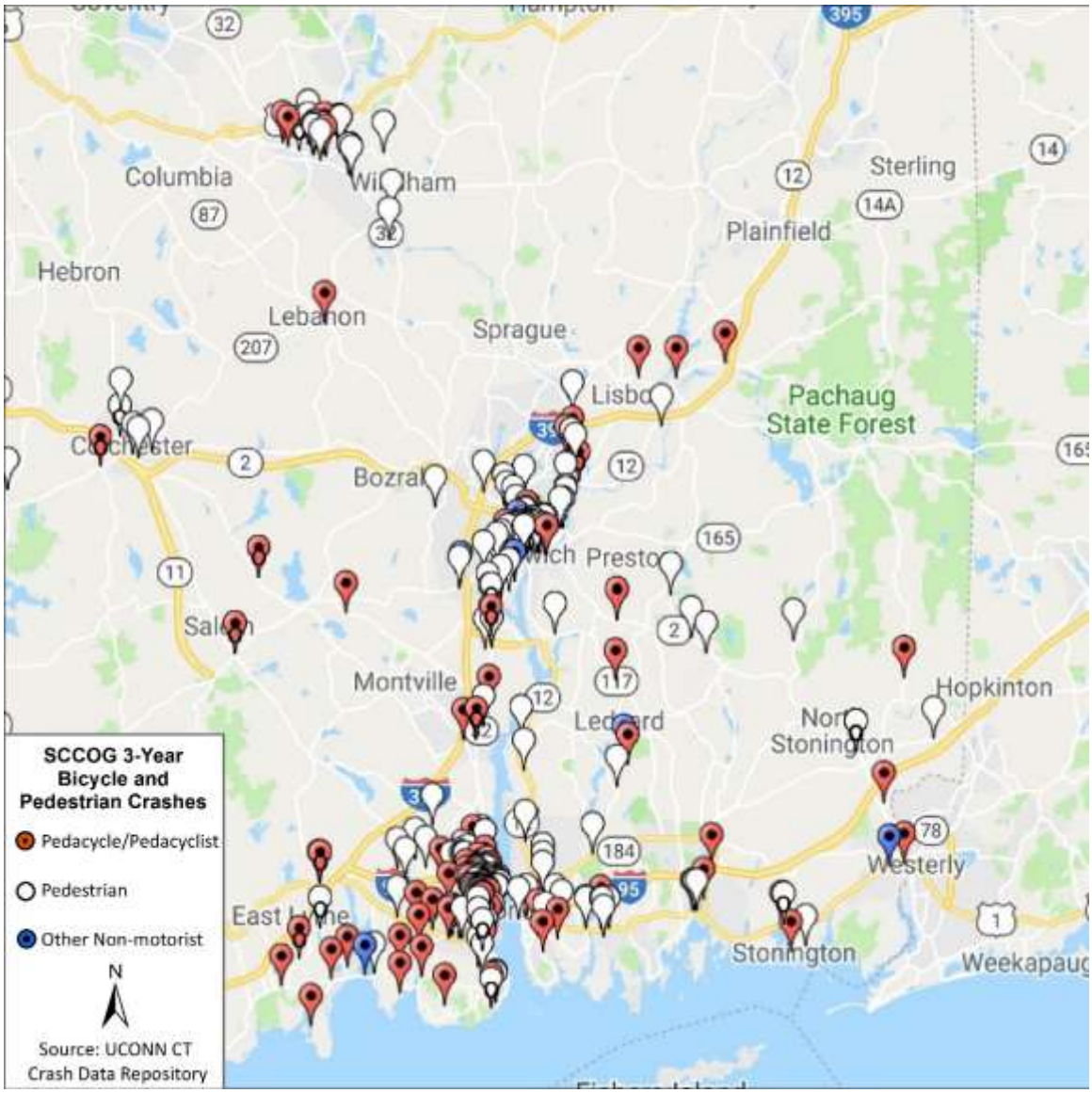


FIGURE 8 SCCOG 3 YEAR BICYCLE AND PEDESTRIAN CRASHES

The Highway Safety Improvement Program is a federal-aid program that funds CT DOT's effort to provide engineering solutions to crashes. Funds predominantly go toward solving systemic crash causes, as opposed to projects tailored for a specific location. Within this region we have benefited from the installation of rumble strips, improved signage, guide rail upgrades, horizontal curve signage, and pavement markings, primarily. SCCOG is awaiting coordination with CT DOT through their Traffic Safety office on SCCOG specific analysis and remediation planning.

## Congestion

In 2017 the SCCOG prepared an update to its Congestion Mitigation Process Report. The report focused in on non-interstate roadways. The identified CMP corridors are shown in Figure 9,

with orange denoting Commercial and grey denoting Industrial Land Use. These are the most congested corridors within the region and those that we have identified strategies for.

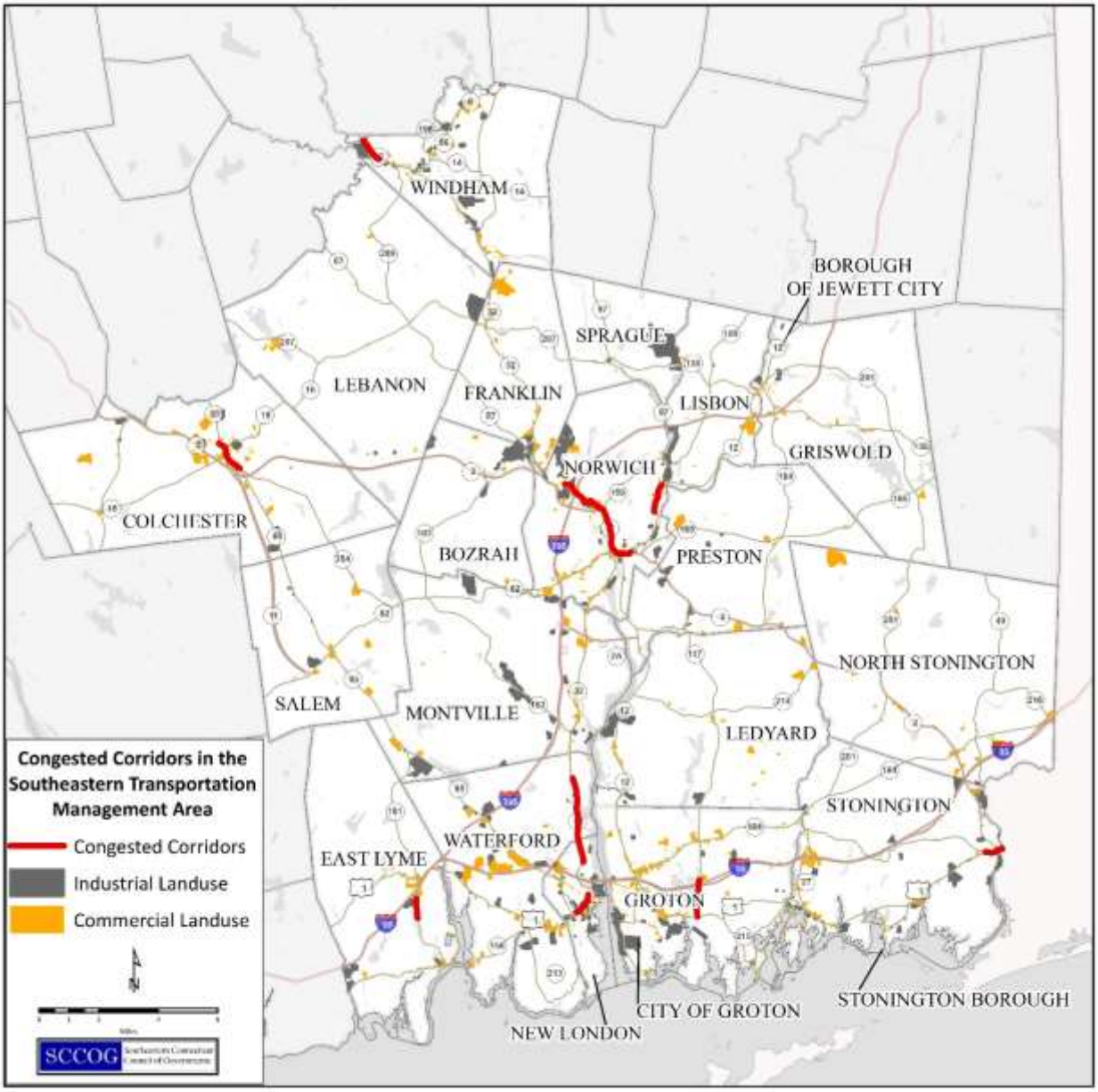


**FIGURE 9 CORRIDORS (2017 SCCOG CMP REPORT)**

For a more complete listing of congested corridors, refer to Appendix B of this plan. Locations where V/C ratios exceeded 1.0 in 2011 invariable deteriorate in the projected 2035 year. The exhaustive list in Appendix B demonstrates the many locations within the region that are prone to congestion. As infrastructure dollars are limited, SCCOG supports the use of access

management and land use planning to mitigate congestion region-wide. The corridors depicted in Figure 9 however, are significant enough to warrant system efficiency strategies such as signal upgrades, synchronization, and transit prioritization, as well as restricting turning movements and improving incident management through Intelligent Transportation System (ITS) solutions. Demand management tools include flexible work hours and telecommuting, carpooling programs, parking fees and restrictions, zoning for dense land use, support of transit oriented development, and congestion pricing.

## Bridges

CT DOT puts considerable emphasis on maintaining a "state of good repair" for its bridges including a robust inspection and maintenance program. Because so many bridges were built in the middle of last century, there is a significant amount of repair and replacement of bridges at this time. This trend of increased rehabilitation work is highlighted by the performance measures which identify bridges in poor condition, and the Transportation Asset Management Plan which identifies how they will be returned to a state of good repair.

Bridges may be funded with federal, state or local funding, determined by the location of the bridge and its size. In addition to the federal funding opportunities, the state maintains and funds a program to improve the state's bridges. Local bridge funding was enabled in 1984 and is codified in the Connecticut General Statutes Sec. 13a-175q. The State provides financial assistance to municipalities for the removal, replacement, reconstruction, rehabilitation and improvement of local bridges. The program provides grants ranging from 10% to 33%, and loans of up to 50% of eligible project costs.

MAP21 ushered in many changes for State DOTs including how bridges are categorized and reported. In the 2015 LRTP the SCCOG provided information about whether bridges were Structurally Deficient and/or Functionally Obsolete. These terms are no longer reported on. The CT DOT now provides ratings for the bridge on a scale of 1-10, 10 being best and 4 defining both a poor state and the point at which design for major rehabilitation or replacement will occur. Figure 10 shows the ratings of bridges within the SCCOG region. The rating system has been simplified to show whether ratings were greater than 5 (acceptable) or less than 4 (poor). The figure below makes it evident that there is significant investment needed in our bridges. Only 7% of the SCCOG's NHS bridges are considered in Good condition, based on deck area compared with the state overall which has 18% in Good condition. Further, 23% of our bridge deck areas are considered to be in poor condition, compared with the state average of 15%. The most significant bridge major rehabilitation in this region will be to the Gold Star Bridge over the Thames River in New London and Groton. This I-95 structure is both aging and does

not serve all modes or meet current standards. Major rehabilitation will attempt to address all of these problems.

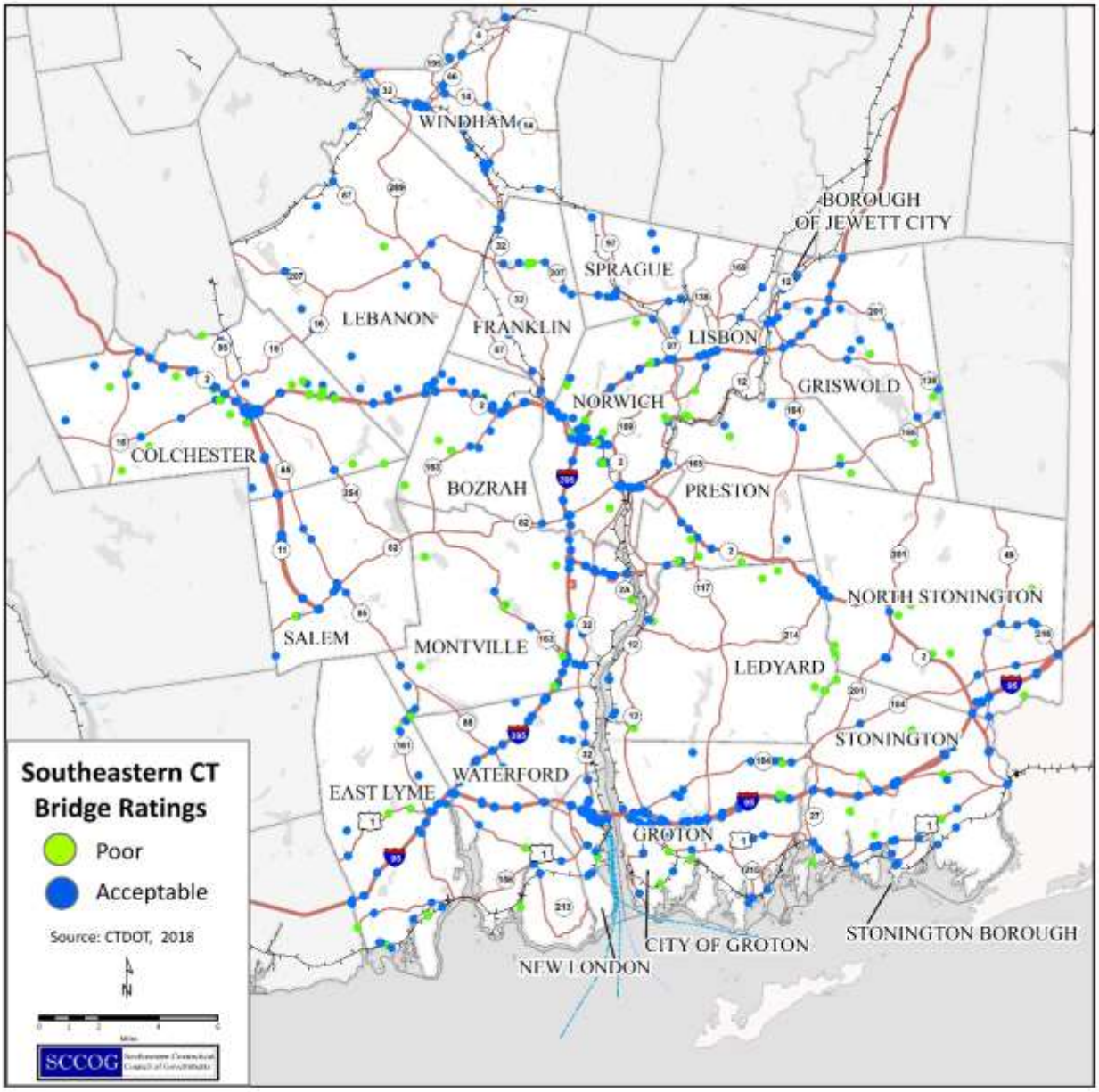


**FIGURE 10 SOUTHEASTERN CT BRIDGE RATINGS**

It is clear from Figure 10 that this region has a significant number of bridges in need of repair and replacement. Further, this metric (5 or greater being acceptable) fails to represent bridges which formerly fell into the category of "functionally obsolete" – those which do not meet the current needs because they carry too few lanes, have insufficient shoulder or fail to provide safe access for active transportation modes. Because resources are finite, the SCCOG prioritizes

bridge projects on the interstate system (such as the Gold Star Bridge in New London), and roadways with higher functional classifications such as the many State Route bridges under design or in the queue for design. Replacement of bridges off the national highway system is encouraged through our technical assistance to the towns and the utilization of both the local bridge programs and other state and local funding sources.

## Active Transportation

SCCOG is currently in the process of preparing a Regional Bicycle and Pedestrian Plan to create an inventory of existing conditions as well as plan for the future of the region's active transportation network. The plan is expected to be adopted by the SCCOG in June of 2019. The SCCOG's plan seeks to provide an integrated, safe, and convenient transportation system for all users. Critical elements of the plan include: engagement and energization of constituents; comprehensive planning of a system that will improve livability, mobility, access, health opportunities and economic vitality; supporting the varied needs of our constituent towns; providing residents and visitors with end user mapping; and growing our capacity to support our towns with data.

Public input on local and regional level of use, concerns, and priorities for walking and biking facilities was gauged by SCCOG through online surveys, interactive events, and an online mapping tool. According to initial survey findings, residents prioritize completing missing pieces of the bicycle and pedestrian network, increase bike facilities, and addressing safety issues. The online map specifically allowed stakeholders to identify maintenance, short and long term infrastructure needs for walking, biking, intermodal and bicycle parking with great acuity.

Data from the American Community Survey Journey to Work indicate that about 4% of commuters in the region walk to work and less than 1% of commuters bike to work. This also varies considerably based on urban density, land uses, and demographics, as the urban centers of Groton, New London, and Windham have much higher mode share of walkers (roughly 11%, 10%, and 8%, respectively). A dense urban fabric makes it much easier for bikers and walkers to go to work and make other trips without the use of a car. Currently, suburbanization and hilly topography make biking and walking for commuting or errands much more challenging outside of urban centers.

However, national surveys indicate that only about 22% of bike trips are for commuting to work. The majority of walking and biking trips in the region are for health, recreation, errands, and social trips. The region's trail facilities are currently geared more toward these kinds of longer health and recreation trips, with many off-road biking and hiking trails in state and local parks. Recommendations will focus on safety, accessibility, filling in gaps in connectivity within the region, and context-sensitive design of any recommended new facilities.

## Existing Facilities

Sidewalks within the region exist primarily in town centers. Our cities, New London, Groton, Norwich, and the Willimantic section of Windham, have complete sidewalk networks in most areas. Suburban and rural towns may have smaller sidewalk networks in village centers or sidewalks within larger residential subdivisions. There are ubiquitous accessibility issues that are resolved typically through municipal sidewalk projects and integration into larger roadway projects. While abutters typically are liable for non-compliant sidewalk, improvements typically occur at the town level or during other permitted land use activities (i.e. redevelopment of the site). Accessibility is difficult to inventory, but the 2019 SCCOG Bicycle and Pedestrian Plan will attempt to analyze 15 locations within the region. These locations were derived from consultation with the towns and will result in actionable recommendations.

The region has very few existing multi-use paths and even fewer marked bike lanes. The vast majority of the region's current facilities (Figure 11) consist of paved shoulders that are not specifically marked for bicycle or pedestrian use and fail to provide the level of safety that is necessary to allow for a wide range of users.

Multi-Use Pathways: include multi use paths that are paved or stone dust and have some degree of accessibility, typically the outdoor recreation trail specifications or higher. Locations in southeastern Connecticut include:

- Airline State Park Trail (north and south sections) through Colchester, Lebanon, and Windham.
- Commons Hill Trail and Schalk Road Connector in Lebanon between CT Route 87 (Norwich-Hartford Turnpike), Schalk Road, and CT Route 289 (Beaumont Highway).
- G&S Trolley Trail in Groton from Knoxville Court to Neptune Drive.
- Cyrstal Lake Road to Pleasant Valley Road, Groton
- I-95 Southbound Gold Star Bridge Pathway in New London and Groton City is a multi-use route across the Thames River using the I-95 southbound bridge with some associated bikeways at either end of the bridge. Wayfinding signage is provided on the street network.
- Groton's Crystal Lake Road Multi-Use path extends from the main gate of the U.S. Submarine Base easterly to Route 12, south on Route 12to Pleasant Valley Road, and then along Pleasant Valley Road to Walker Hill Road where local roads can be utilized to access the Gold Star Bridge Pathway.
- Heritage Riverfront Park Walkway in Norwich begins on Monroe Street then crosses the Yantic River to link with various other streets as it follows the Yantic River into downtown and ends at Howard T. Brown Memorial Park along Chelsea Harbor Drive.
- East Lyme Boardwalk provides a 1 mile pedestrian path south of the railroad line from Cini Beach to Hole in The Wall Beach, and connects to the internal paths in McCook Point Park.

The region also boasts miles of hiking trails which primarily improve the quality of living and supply outdoor recreation opportunities. The major land holders of these trails include the State of Connecticut (Nehantic State Forest, Pachaug State Forest, Bluff Point, Rocky Neck), Avalonia Land Conservatory, individual town open space, and Connecticut College. The Connecticut Forest and Park Association maintains state recognized blue blazed trails within the region including: Pequot, Narraganset, Pachaug, Nehantic, and the Quinebaug. More links between and through open space parcels would benefit the region's goals for connectivity.

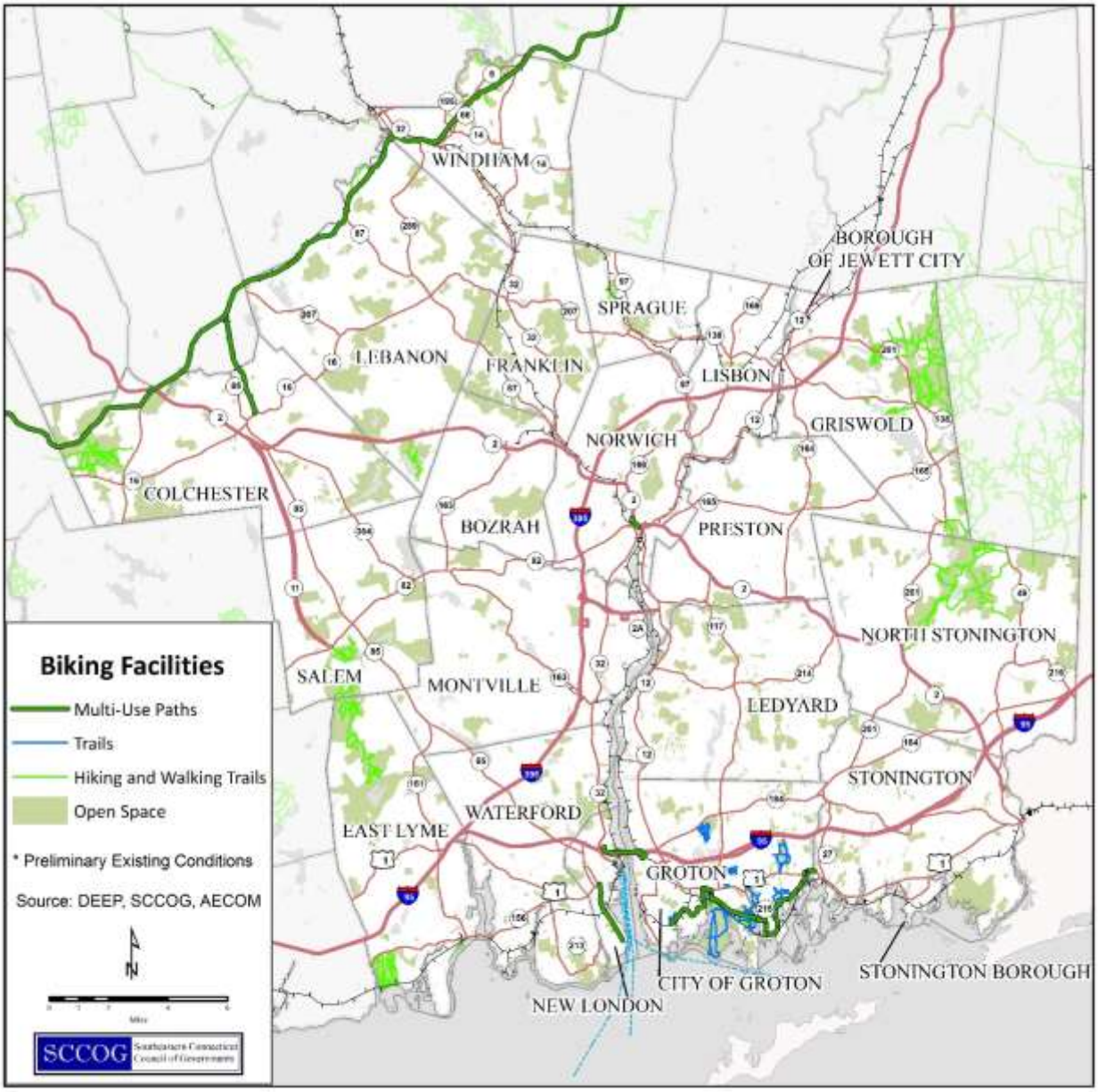


**FIGURE 11 EXISTING BICYCLE FACILITIES**

## Transit

The existing state statutes that govern transit districts were developed almost five decades ago when regionalism was in its infancy, development patterns and transit needs were different, and public-private partnerships were virtually non-existent. Under the statutes, a transit district is comprised of only representatives of the municipalities in which state subsidized (fixed route, fixed schedule) bus transit service is provided. No provisions exist in the statutes for regional transit districts to manage other modes. Towns through which transit passes can choose not to join a transit district. Of those towns that do join, board representation is statutorily weighted toward urban centers with towns over 25,000 population having twice the number of board representatives as smaller towns. At present, the state requires that bus transit systems, other than those served by Connecticut Transit, generate at least 30% of the annual operating costs in revenue. The inequity of this arrangement has been a long-standing issue for the state for almost 40 years. If the non-Connecticut Transit regional transit system, which is comprised of many smaller municipal units of service, fails to reach this revenue threshold, then the individual (non-Connecticut Transit) transit district member towns each become financially liable for their total share of the revenue shortfall up to the 33% level. This municipal financial exposure is derived from the service levels that each town selects from a "menu" of available services. This selection of service by a municipality is based both on a desire to provide transit to their constituents and the ability of the municipality to pay the operating subsidy.

Gaps in service frequently result from this process of municipal menu selection and problems related to provision of service is exacerbated when individual towns must decide how much financial burden can be encumbered when the 33% level is not achieved by the whole system. Taken together, the self-selective, municipally-based financial structure, coupled with a state operating subsidy program that is not linked to transit performance at the route level, has created decision-making policy boards whose mission has become primarily focused on minimizing municipal financial exposure and only secondarily on providing a high quality level of transit service. In 2017, CT DOT faced a fiscal shutdown because of transportation funding insolvency. The CT DOT proposed transit operational funding cuts to only the non-CTTransit districts. While this cut was averted due to widespread public outrage and legislation to provide additional dedicated transportation funds, it speaks to the challenging situation that the three non-CTTransit districts within the SCCOG region face. While the deep cuts were avoided, there has been little growth in operational funding from the State for many years and it has significantly eroded service.

The SCCOG region includes bus transit service from four providers: SEAT, Windham Regional Transit District (WRTD), Estuary Transit District and CTTransit. Buses originate at intermodal center in New London and Norwich and a hub on the green in Windham (Willimantic). In New London, the intermodal center includes access to commuter and national rail service, inter-city and regional bus, ferry terminals for Long Island, Block Island and Fishers Island, taxi, and paid

parking. This facility serves SEAT and Estuary transit districts. In Norwich, the intermodal center provides paid parking and access to SEAT and WRTD bus service

SEAT provides the majority of service miles and hours in the region, operating in 9 towns with 16 routes. SEAT consists of nine-member towns: East Lyme, Griswold, Groton, Ledyard, Lisbon, Montville, New London, Norwich, Stonington and Waterford. SEAT had over 945,045 boardings, ran 993,611 revenue miles, and operated 64,089 service hours during fiscal year 2018. Headways are typically one to two hours in the peak periods. Since the last LRTP, the SCCOG had prepared a Comprehensive Operational Analysis (COA) for SEAT. The COA concluded that full implementation of the expansion of service would require a 20% increase in operational funding and would provide reduced headways and expansion of the routes currently underserved. The COA also identified a cost neutral plan including route and schedule changes make the district as efficient as possible given severe funding constraints. Cost neutral recommendations, including increasing fares and route changes, have been undertaken already.

WRTD is comprised of approximately 20 vehicles, running 484,151 service miles and 29,559 service hours in FY2018. It operates fixed route service located primarily within the towns of Windham and Mansfield. Within the southeastern Connecticut region, WRTD operates four fixed routes – 671 Willimantic City Bus, 672 Storrs-Willimantic, 673 Willimantic-Norwich (Route 32), and 674 Willimantic-Danielson. It operates demand-response transportation services for a nine-town region, including Windham and Lebanon. Bike racks are available on the front of the vehicles used for 3 of the 4 fixed routes.

Estuary Transit District is based in the RiverCOG region and operates one route within southeastern Connecticut. Route 643 serves Old Saybrook, Lyme, East Lyme, travels through Waterford and terminates at the Union Station in New London. Long range plans include an operational analysis to be conducted by RiverCOG. Short range plans include expansion of service within the RiverCOG region. Estuary Transit District is comprised of 17 vehicles, running 620,000 service miles and 34,000 service hours in FY 2018. Dial-A-Ride provides transportation to both general public and ADA certified riders from door to door anywhere within the towns of Chester, Clinton, Deep River, Durham, Essex, East Haddam, Haddam, Killingworth, Lyme, Old Lyme, Old Saybrook and Westbrook, with limited portions of Middletown and Colchester served by Dial-A-Ride, provided they start or end in one of our twelve towns listed.

CTTransit provides very little service within the region. It makes stops in Colchester and Windham with express bus service to Hartford.

## Paratransit

Meeting the transportation needs of the poor and elderly, paratransit continues to pose one of the region's most perplexing transportation challenges. This is due largely to the costs of maintaining a system characterized by so much fragmentation and duplication of service as well

as the number and types of agencies owning and operating vehicles and the narrow purposes and clientele served.

Historically, efforts to address this problem have met with limited success. This is especially true in the area of transportation for senior citizens, which, beginning in 1970, evolved exclusively at the municipal level. It is also true for the distribution of Federal Transit Administration capital funds for elderly and handicapped vehicles although agencies which coordinate or combine with other agencies are generally the first to be awarded vehicles.

In order to address the problem of regional coordination of paratransit, in 1992 a public and private partnership was formed. At its formation, the Eastern Connecticut Transportation Consortium, Inc. (ECTC) consisted of the major private and public funding agencies that agreed to revise their practice of underwriting the cost of vehicle replacement for individual health, social service and senior citizen agencies and, when possible, to redirect those funds to a single operating agency, ECTC. Under this single operator model, paratransit, like regular transit in southeastern Connecticut, was expected to be reasonably well coordinated. SCCOG is a major supporter of ECTC and the concept of a single operating agency for paratransit. SCCOG continues to view the development of a unified, regional, paratransit system to be of vital importance to the region. At present, SEAT subcontracts with ECTC to operate paratransit service under the Americans with Disabilities Act (ADA) as well as coordinating the Jobs Access Reverse Commute Program for all of eastern Connecticut.

ECTC continues to act as both as a transportation broker and a provider. Partnerships have been formed with municipalities and taxi/livery providers throughout eastern Connecticut. This was done in an effort to provide greater transportation and reduce transportation gaps for low-income, elderly and disabled individuals. ECTC has also implemented programs to reduce taxi and livery costs through a travel voucher program, provide mileage reimbursements to low-income individuals to assist with carpooling and a Caregiver mileage reimbursement to encourage family and friends to help transport others in their community in need. ECTC also implemented a Bike Voucher component to Rides for Jobs (Welfare to Work program).

This Bike Voucher program targets low-income individuals that either: reside within 3 miles of a public bus route, or their employment transportation need is within a 3 mile radius of their residence. This will enable individuals an alternative to costly car ownership or taxi expenses and will dramatically reduce their transportation costs. The program provides a new bicycle, safety equipment and information.

## Jobs Access and Reverse Commute Program

Since 1999, coordination of transit resources in all of eastern Connecticut has been a top priority of SCCOG and the Eastern Connecticut Workforce Investment Board (EWIB) as regions around the nation address the need to provide transportation to those getting off public assistance and in need of job training as well as day care for their children.

The Jobs Access and Reverse Commute Program (JARC) utilizes a variety of federal, state, and private funding sources to identify individuals in need of employment as well as employers in need of labor. Overall, this cooperative effort is commonly referred as the "to", in the Welfare-to-Work program. Large employers in the southeastern region, with difficult-to-fill second and third shift employment needs, have proven an invaluable employment resource willing to hire welfare recipients with minimal job experience. Working cooperatively with transit providers, new transportation services have been initiated that link northeastern Connecticut, Windham County and southeastern Connecticut.

## Ride Sharing

Ridesharing has several benefits; it reduces congestion and resultant emissions, it also reduces transportation costs for workers, parking costs for towns and employers, and can increase transportation alternatives to those without access to a vehicle or in areas without transit.

The traditional model of ridesharing relied upon public, free parking in accessible locations where one might meet a bus or other carpoolers. To this end, there are 24 CT DOT park and ride lots within the region. Quarterly evaluation of the region's commuter parking lots by SCCOG shows considerable variation in utilization as well as in the amenities provided. These amenities can include any combination of paving, lighting, telephones, shelters and bus service. Lots vary greatly in size, from 15 to 223 parking spaces, with occupancy rates ranging from 5% to 72%. Commonalities among well utilized lots include: proximity to a limited access highway (typically either I-95 or I-395), lighting, bus service and adjacent land use that takes advantage of the parking facility. Figure 12 depicts usage in the region's 24 commuter lots which provide a total of 1,836 spaces. Through 2018, average use of commuter lots throughout the region was 536 per day or about 30% of capacity.

A few of these lots are situated where they can be utilized for non-conflicting parking needs, for example trail parking for the Airline State Park or at municipal recreation fields. This is a smart siting choice because it limits overall impervious surface and drainage required for parking while increasing security by having a higher and more consistent flow of traffic. Interestingly, the 2017 Connecticut Statewide Transportation Study found that 76% of work commute trips were by single occupancy vehicles and work trips only made up 15% of total trips.

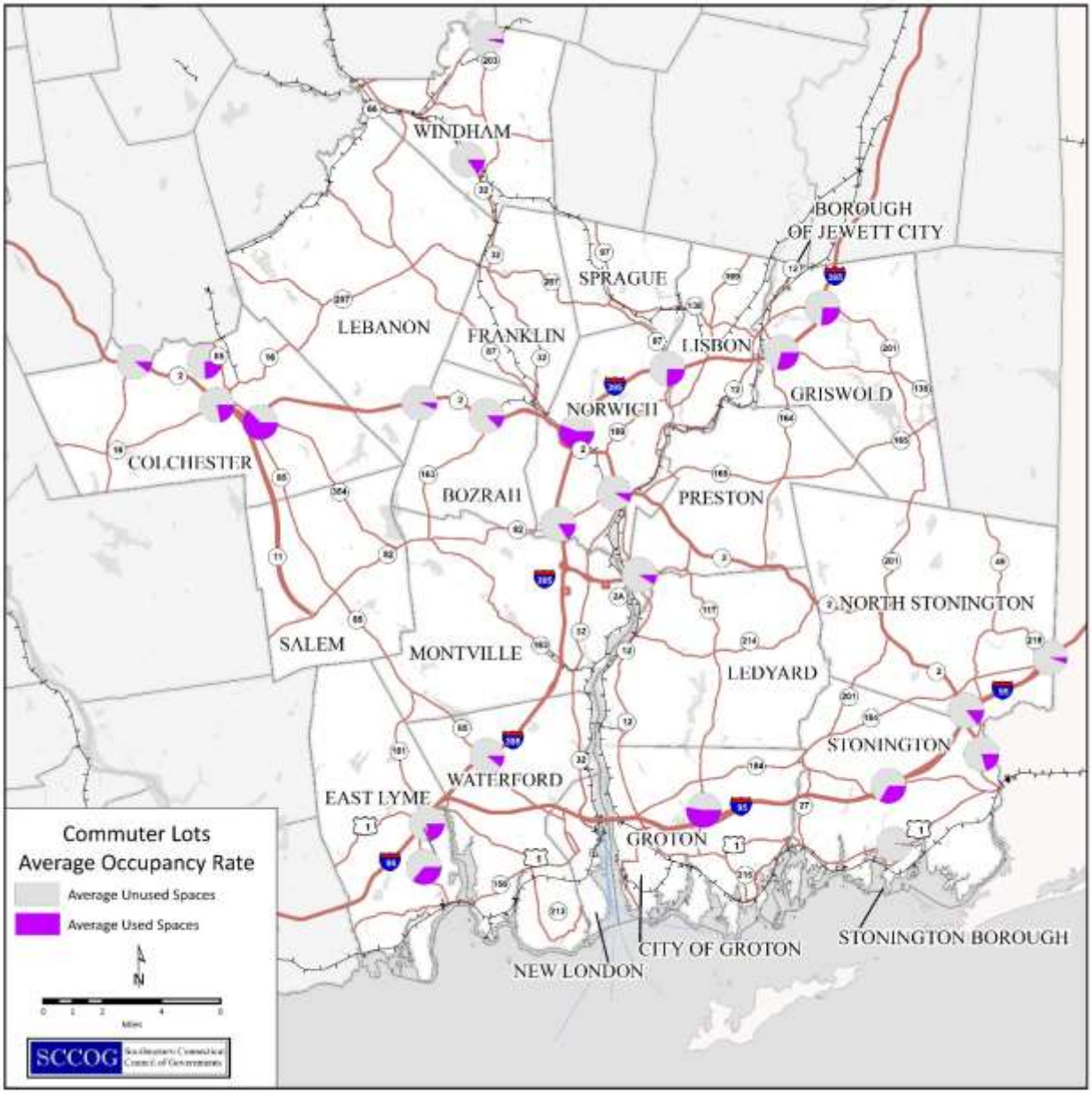


**FIGURE 12 COMMUTER LOTS AVERAGE OCCUPANCY RATE**

Occupancy at several lots is consistently high while most are underutilized. This may be due to the changing demographics since the lots were originally installed and because some lots are not optimally located. Several trends impact the utilization of commuter lots. Increased car ownership has reduced the number of people who rely upon a shared ride; the vast majority of households in the region have at least one car. People enjoy the convenience of having individual cars. Women make up a greater share of the workforce now compared to the 1980s; today they constitute 47% of the total U.S. labor market (U.S. Department of Labor). When the breadwinner is also responsible for household tasks, vehicle trips become more complicated.

For most commuters a trip chain consists of many destinations: coffee shop, daycare, school, dry cleaning, groceries, and medical appointments. Complex trips require flexibility and cargo space. Employers have located office sites in suburban locations to follow lower taxation and have increased work hour flexibility. These trends pose a challenge when employees attempt to fill a 6+ person vanpool going to the same employment location at the same start time. Flexible work hours limit the pool of commuters starting and ending at the same time. All of these factors speak to the inconvenience of ridesharing.

There are however, some innovations which make ridesharing more palatable. CT DOT provides ridesharing services through their CTRides program. Services include opportunities that enable non single-occupancy trips: carpool matching, access to formal vanpools, guaranteed ride home, transit universal passes for students and transit locater app programs are among their offerings. Within the region, relative lack of transit and disbursement of employment are major reasons why ridesharing is not preferred by more commuters, particularly for 2nd and 3rd shift workers.

Uber, Lyft, Zipcar and other emerging car sharing companies are creating a new marketplace for ride sharing. Whether it is commuters using the service on a daily basis to avoid parking shortages and cost, or if it is used for sporadic trips such as medical rides or multimodal trips, this market disruption is pushing traditional taxi companies to enhance their adoption of innovation, cost competitiveness and customer service. Uber and Lyft have also effectively encouraged commuters to share their car by offering financial incentives and seamless matching and payment systems.

While the convenience and flexibility of car ownership is now the dominant trend, SCCOG still sees a role for the public sector to play in encouraging ridesharing. Within the region, data collection indicates that additional satellite parking in Groton and New London would most likely be utilized based on increased employment within the manufacturing and engineering sectors and parking availability. Maintenance and improvement of lots, including transit pull-outs, signage, lighting and security should be pursued. Providing quick, reliable and frequent transit connections from satellite parking lots to major employers would reduce local network congestion at employment sites; however, the current lot locations are not well served by transit. Further, private parking facilities are not included in this analysis, but this could be an opportunity in the region, furthering the implementation of the SCCOG's Congestion Management Process.

## Rail

Regional (Amtrak) and commuter service (SLE) run on the Northeast Corridor. This region has rail stations in New London and Mystic. Current SLE commuter service runs only between New

Haven and New London while Amtrak stops at both New London and Mystic. The Northeast Corridor was the subject of the recent NEC Futures study. The study failed to identify the many conflicts for the proposed bypass from Old Saybrook, CT to Kenyon, RI which would prevent construction; public outcry halted implementation of the recommendations of the NEC Futures study within Connecticut and Rhode Island. SCCOG and its member towns in no way wish to be bypassed by improvements to the rail network outside of the region and have expressed the region's desire to continue planning work with CT DOT and the FTA. The federal Record of Decision on the NEC Futures study requires an interstate planning effort for the portion of the Northeast Corridor between New Haven and Providence.

New London and Mystic stations receive Amtrak trains daily, with New London seeing roughly twice as many trains as Mystic. The high speed Acela service does stop in New London; however, since the opening of the New Haven-Hartford-Springfield rail line this region has seen a diminishing schedule as more Acela trains take the inland route. The lack of coordination from FTA and CT DOT with the region on these changes speaks to the need for a rail study.

Parking at the existing rail stations needs improvement and is a state priority for SLE stations. Most commuter rail stations along the line have state funded parking, typically free surface lots or paid structure parking. In New London, the private Water Street garage holds 250 vehicles adjacent to the rail station. This garage is insufficient to meet the growing needs of the community. The garage provides permit parking for nearby employers, tourists utilizing the Block Island Ferry, and is expected to be further utilized by visitors to the U.S. Coast Guard National Museum which now under design. In Mystic, the 40-space surface lot adjacent to the rail station is utilized by adjacent commercial property as well as rail passengers. Current state priorities also include enhancing Shore Line East stations. New London's Union Station is privately owned and accessibility and maintenance projects are currently underway, and are being funded privately. Mystic is a public building and enhancements would likely include accessibility improvements to bring the facility in line with the Americans with Disabilities Act.

Currently SLE service consists of 9 westbound weekday trains and 12 east bound trains. On the weekends eight trains run in in both directions. SLE is comparatively uncompetitive in this region, however this may largely be a problem related to the lack of convenient service. More than a third of weekday trains are cross listed Amtrak trains; these are available at commuter rates only to monthly rail pass holders. Old Saybrook sees an additional six connecting buses and five trains per day in each direction, roughly double the service. SLE could be defined as "New York focused" with trains connecting to make Grand Central Terminal their final destination; however, this region is as much driven by Providence and Boston employment centers. That is why one of SCCOG's greatest priorities is to better link to the MBTA network that extends to Wickford Junction.

Freight rail operates along the New England Central Railroad, Providence and Worcester Railroad, the Northeast Corridor and a small connecting spur owned by CT DOT.

Most notably, a ten million dollar TIGER grant was recently used to upgrade rail and track infrastructure to accommodate national standard 286,000-pound (286K) gross weight rail freight cars on the 55 miles of track in eastern Connecticut enabling growth in freight rail and intermodal commerce between the Port of New London and the freight rail hub in Palmer Massachusetts. Rail upgrades were completed in late 2018.

## Air

In Connecticut, airports are managed by the Connecticut Airport Authority (CAA). Southeastern Connecticut is home to two airports: Groton-New London Airport (KGON) and Windham Airport (KIJD).

KIJD is the smaller of the airports, and is situated on 280 acres located three miles from Windham's urban core, Willimantic. It is convenient to UCONN Storrs campus as well as the smaller Southern Connecticut State University in New Haven. It is open to small and medium size general aviation aircraft as serves corporate, business and recreational private flights. Two asphalt runways span 4200' and 2700' respectively. The airport facility includes a T-hanger, parking aprons and has maintenance and repair facilities. It was originally purchased in 1923 and was known as Kirby Flats. In 1938, the runways were paved as part of a Works Progress Administration initiative. In 2013, administration of the airports passed from CT DOT to the Connecticut Airport Authority.

KGON is the larger airport, standing on 489 acres in the Town of Groton. The runways are 4000' and 5000' feet long and the control tower is operational between the hours of 7:00 AM and 10:00 PM. The distinction of having manned control tower hours has set this airport apart from other general aviation airports in the state. KGON is the busiest general aviation airport in the state according to CAA. The airport serves recreational, corporate, military and student instruction flights travelers primarily. Major corporate users of KGON include Pfizer and Electric Boat, as well as Foxwoods and Mohegan Sun.

The Airport was established as the first State-owned airport in 1929. Originally named Trumbull Airport after Governor Jonathan Trumbull, the name was changed to Groton-New London Airport in 1980. Operation of the Airport was transferred to the United States Navy during World War II. The Navy built the runway and taxiway system before the State resumed ownership in 1949. The Airport is now one of six State airports operated by the Bureau of Aviation & Ports in the Connecticut Department of Transportation (CT DOT). Groton-New London Airport has held a Federal Aviation Administration (FAA) certificate to operate commercial passenger service since 1984. It currently holds a FAA Part 139, Class IV Airport Operating Certificate for unscheduled service of large air carrier aircraft. Historically, several commercial airlines operated at the Airport. The most well-known was Pilgrim Airlines based in

Groton during the 1970s and 1980s. Later, U.S. Airways flew commuter service shuttles to and from Philadelphia until 2003. After the 2008 global economic downturn, total flight operations declined for general aviation airports like KGON while the number of passengers traveling on corporate-owned and/or operated air shuttle aircraft and planes based at the Airport remained flat. Since the CAA has taken over management, this airport has begun to thrive. Groton has designated an enterprise zone surrounding the airport, enabling employers to leverage tax incentives to locate within the zone.

At KGON, the newest tenant facilities at the Airport include passenger lounges, jet pods, multi-use hangars, individual T-hangars and a restaurant. Current multiple services are aircraft sales and refueling, airplane maintenance and repair, avionics, rental car, rental aircraft and flight instruction. The Army National Guard's east coast helicopter repair facility and the corporate world headquarters of a water crash survival training firm are also located at the Airport.

## Marine

The region's coastline abounds with harbors and inlets used extensively by pleasure and commercial craft of all types and sizes and which support the region's tourism industry. A small commercial fishing fleet exists in Stonington harbor and a day-charter fleet sails from Niantic and Mystic. The Thames River estuary between New London and Groton, serves as the region's major port supporting: ferry, international cargo and marine manufacturing in addition to the many private marinas. It is one of three deep water ports in Connecticut, and the closest to the Atlantic Ocean. The Thames River can support heavy marine traffic from its mouth on Long Island Sound to its head at Norwich.

Regular commercial ferry service sails to Fishers Island, Block Island and Long Island. Cross Sound Ferry operates both the Long Island and Block Island routes with eight regular ferries that carry vehicles as well as passengers and two high-speed catamarans providing service for passengers only. Service from New London to Orient Point consists of 14 round trips daily with some seasonal variation. The Sea Jet has four round trips and Block Island Express high-speed service is less frequent than service to Long Island. Ferry to Casino shuttles are marketed through Cross Sound Ferry. Cross Sound Ferry has added 2 boats since SCCOG's last LRTP update, additionally they have aggressively sought grants for engine overhauls and portside improvements. Fishers Island Ferry provides four to six round trips per day. All ferries permit bicycles, typically for a fee. Freight service is also available on all routes, but no car service is provided to Block Island from New London currently.

The Admiral Shear State Pier in New London and the adjacent Genesee and Wyoming Railroad Pier are the region's most important commercial marine facilities boasting a 34.5 foot depth. Over the years, the State Pier has been the focus of improvement efforts as well as being a focal

point of a prior statewide effort to remove trucks from I-95 in order to reduce congestion. The close proximity of the Pier to I-95, I-395, and direct access to the railroad network, has made this port ripe for the boom in commodities trading that is now underway. In 2018, the State Pier handled 5 cargo ships per month, over 100,000 tons in January. The facility includes a 20 acre laydown area, 100,000 square feet of warehousing space and cargo management services.

The Genesee and Wyoming Pier, immediately to the west of the State Pier, has the potential for container and break-bulk product distribution by rail throughout New England. This access builds upon the recent investments on the rail line throughout Connecticut and part of Massachusetts.

Over the long term, the viability of the State Pier, in so far as increasing the number of ships and amount of cargo entering the port, is dependent on its marketing as a first class facility. Land mass, for loading/unloading, storage and berthing, is always of critical importance and an ongoing concern, since the last LRTP update land in the vicinity of the port is being converted to warehouse space. Diversification of the port's portfolio includes cruise ships, commercial fishing, staging for green energy projects, and support of U.S. Subase functions.

In New London, there are plans to improve the Cross Sound Ferry site with bulk heading, piers, a new passenger terminal and some form of safe pedestrian access over the AMTRAK line in conjunction with the construction of the National Coast Guard Museum. Water taxi service is provided seasonally between New London and Groton. The Thames River, with its direct access to Long Island Sound and the Atlantic Ocean is one of the region's greatest natural assets. Maintaining adequate channel depth, through dredging, is perhaps one of the region's highest priorities, especially with respect to the function of U.S. Submarine Base in Groton and increasing the region's marine shipping footprint.

# 6. Technology

## Autonomous Vehicles and Connected Vehicles

Autonomous cars will soon be available to the general public. Various automakers have software and sensors on board which enable the car to navigate with little to no assistance from the human behind the wheel. Regulations regarding these vehicles have yet to fully embrace the opportunity that they pose, or deal with the challenges. Autonomy currently ranges from lane departure sensors that alert the driver that he is not staying in lane to fully autonomous buses set to deploy in Providence, Rhode Island in 2019. Connecticut's Fully Autonomous Vehicle Testing Pilot Program (FAVTPP) is open to municipalities and offers a framework to test autonomous vehicles. There have not been applications to this program by southeastern Connecticut municipalities yet, but this technology will be adopted within the time period covered by this MTP. One limitation is that the vehicles would be required to

operate within one municipality. Shuttle services that operate solely on private land may be able to embrace these technologies without operating through the FAVTPP.

Connected vehicles refer to vehicles that use communication technologies to communicate with the driver, other cars and roadside infrastructure. This blossoming technology will enable this region to more efficiently utilize the public right of way. Several projects in the MTP project list will employ connected vehicle technology to allow for transit priority, emergency vehicle preemption, and dynamic, adaptive congestion management. Connected vehicle technology relies upon 5G infrastructure improvements and it will take a considerable amount of time before the infrastructure is available in this region.

## Alternative Fuels

Alternative fuels reduce our dependence on foreign sources of oil products and can reduce emissions; while gas prices are low currently, the region has seen significant growth in alternative fuel vehicle use. Within southeastern Connecticut, biodiesel, compressed natural gas and ethanol are available in at least one location for each fuel type. The U.S. Department of Energy maintains a location map of the refueling locations for all types of fuel, while CT DOT maintains a more up to date electric vehicle (EV) charging map (see Figure 13). While there are some discrepancies between the data, there are just under 30 electric charging stations in the region, publicly available. Statewide there are: 337 electric fueling stations, 1 biodiesel, 9 compressed natural gas, 1 hydrogen, 1 liquefied natural gas and 22 propane stations, according to the U.S. Department of Energy's Alternative Fuels Data Center website (https://afdc.energy.gov/states/ct ). Electric station availability is outpacing other alternative fuel options.

Electric cars are more broadly being adopted by consumers than other alternative fuel vehicles. The prevalence of EV charging stations allows consumers to have confidence that they will not be left stranded when their trip length exceeds their electric vehicle's range. Available models in the United States have ranges from 85-335 miles. Figure 13 shows the availability of EV Charging Stations within Connecticut. EV Charging Stations are provided in both public and commercial settings, primarily along the interstate routes. The map does not show private residential charging stations, but it can be assumed that the majority of EV owners will have charging capacity at their residence. Recharging station availability is a significant barrier to greater utilization of electric vehicles. Within this region, EV owners may have reduced confidence that a charging station will be available when they need it, particularly in less urban areas and away from I-95.

Compared with gasoline powered cars, electric vehicles produce under 20% of the emissions based upon locally available sources of electricity, according to the U.S. Department of Energy. Further penetration of residential solar and onsite power storage ("power banks") offer new opportunities to further reduce emissions and dependence on oil. As manufacturing and

military employment sectors grow and EV cost decreases; it is likely that this region would support additional EV charging stations. To date, publicly accessible EV charging stations have been privately developed within large scale residential or auto oriented commercial properties.

Federal incentives for EV charging stations have expired. At this time, Connecticut does not offer incentives for installation of EV Charging Stations; the neighboring states of Rhode Island, New York and Massachusetts offer incentives primarily through the State government and public utilities. Connecticut is a beneficiary of the Volkswagen Diesel Emissions Mitigation which provided $55 million dollars toward offsetting excess NOx emissions (related to non-compliant vehicle emissions). Within that mitigation program, this region received over $900,000 in grants for engine efficiency upgrades to the Block Island Express. Future mitigation actions will include EV Charging Stations as an eligible project type.

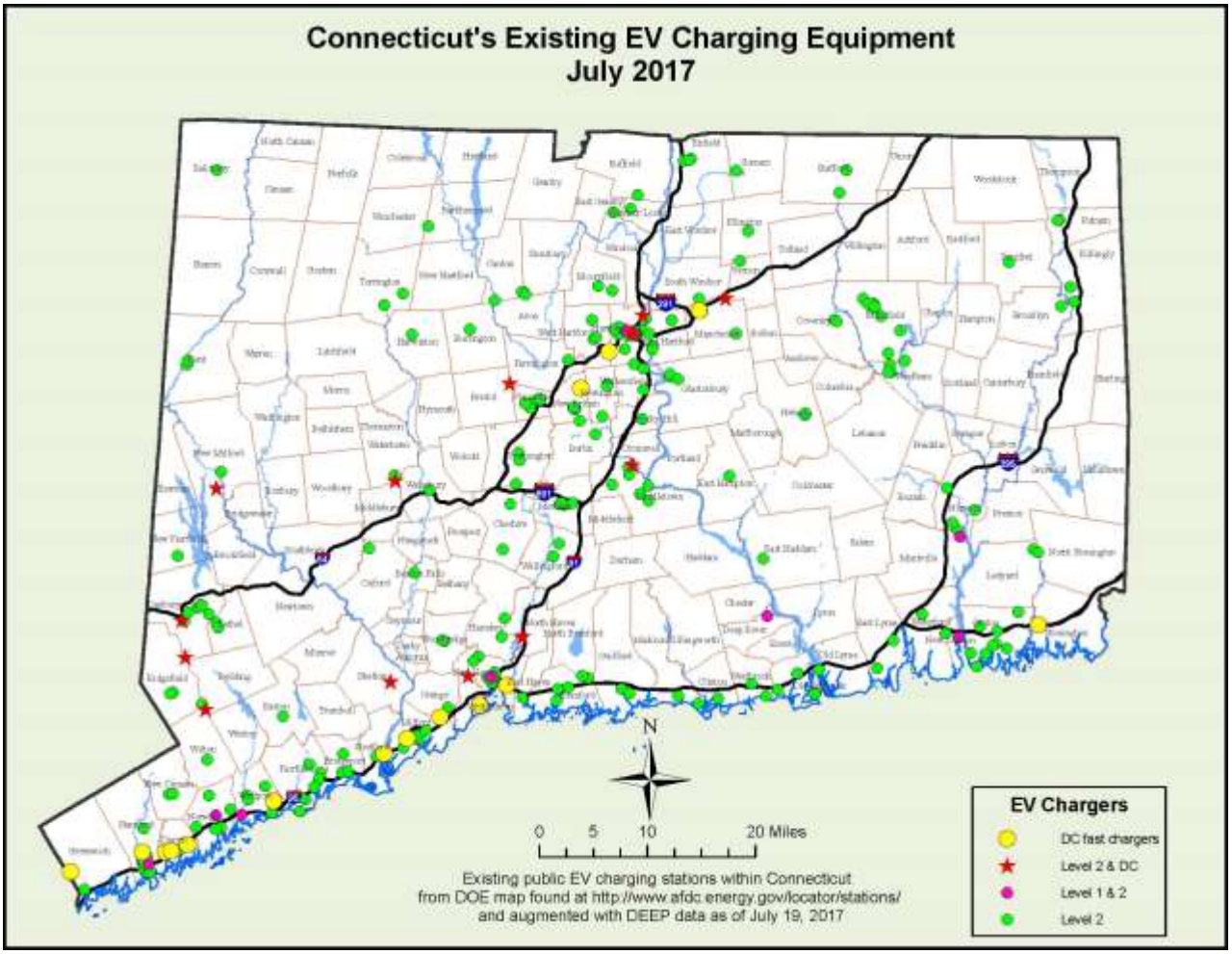


**FIGURE 13 CONNECTICUT'S EXISTING ELECTRIC VEHICLE CHARGING EQUIPMENT (2017)**

## ITS

Within the region, the ITS infrastructure is limited predominantly to the Interstate system, as seen in Figure 14. This data is utilized by CT DOT highway operations as well as being available to the general public through their website. Along I-95 and I-395, traffic cameras survey traffic and weather conditions in real time. Cameras are located in the towns of Norwich, Montville, East Lyme, Waterford, New London, Groton, and Stonington. Expansion of the camera inventory should include Route 2 and 11 expressways, as they perennially see weather related incidents in the winter and experience high levels of beach traffic in the summer. The State inventory of fiber optic cable is very limited and is collocated with the camera infrastructure. In the future, fiber optic cable will enable connected vehicle technologies such as platooning plows and connected and autonomous cars. The fiber optic inventory within the state roadways and local roads has not been inventoried.

Within the region, only one Highway Advisory Radio Tower exists, on I-95 in Waterford near exit 82. It airs on frequency AM 1670. Additional towers in East Hartford, Old Saybrook and Rocky Hill may be heard in the region on channels 530 or 1610. These towers provide service advisory information for roadway users.

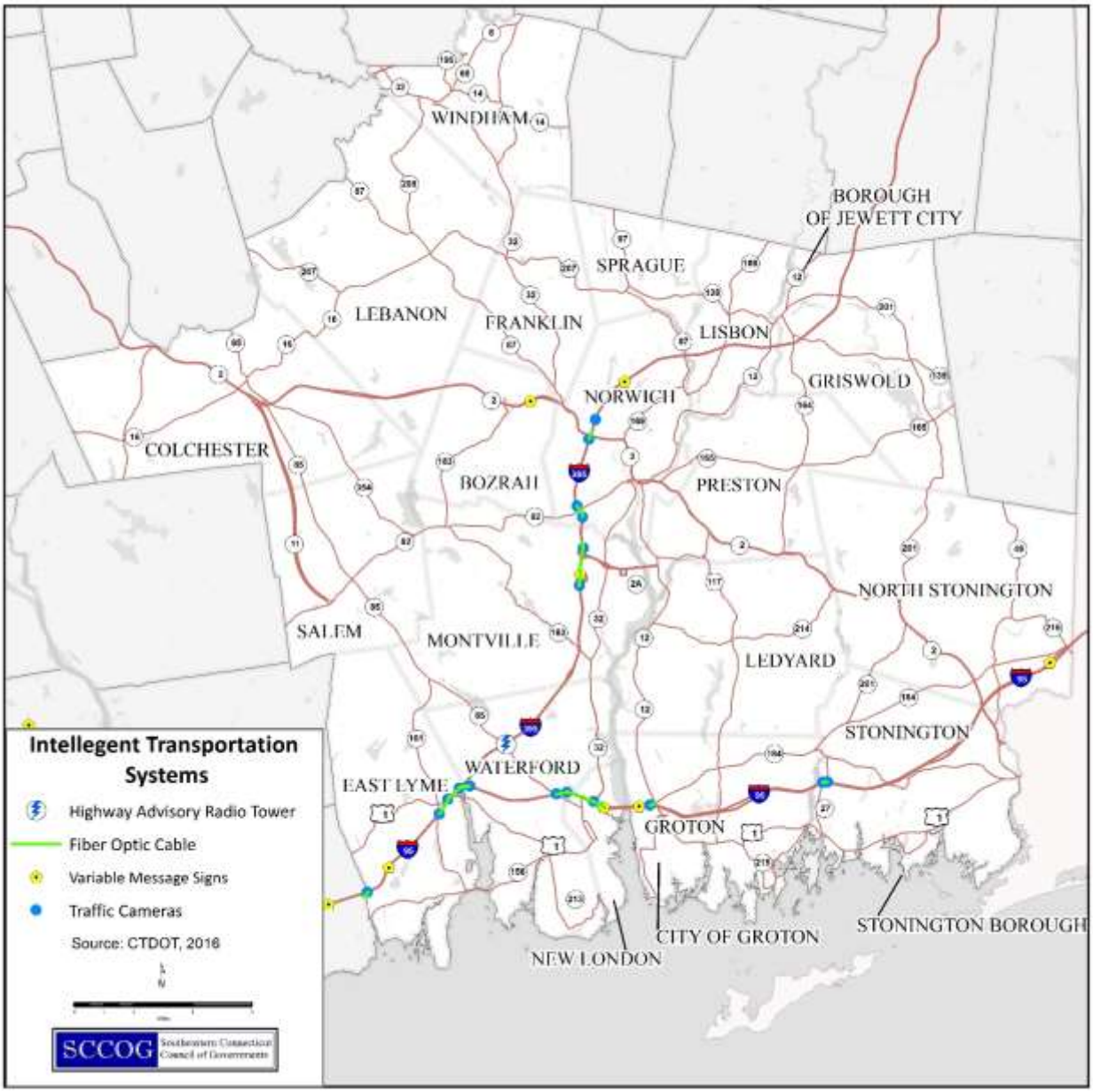


**FIGURE 14 SCCOG INTELLIGENT TRANSPORTATION SYSTEMS**

# 7. Homeland Security and Disaster Preparedness

Following the 9/11 terrorist attacks of 2001, transportation security and disaster preparedness measures were expanded and enhanced throughout the United States. This is especially significant in the southeastern Connecticut region, which is home to several military installations, a nuclear power plant, a manufacturer of nuclear powered submarines, two of the

state's five General Aviation airports, one of the state's three deep water ports, a multi-modal transportation center, and the state's longest highway bridge. While planning for security and disaster preparedness occurs at specific facilities which are critical to the nation's national defense and the region's economy, the region is positioned to make these facilities and the transportation systems that serve them less vulnerable and more secure from both natural and man-made disasters.

As the region's MPO, SCCOG does not have primary responsibility, but coordinates with a number of partners, to ensure that all transportation modes in the region are safe and secure. In the event of disaster, minimization of travel disruption will enable emergency response and evacuation.

The following provides a brief description of those agencies which act together to secure the various modes of travel in southeastern Connecticut.

- Air – Security on airplanes falls under the jurisdiction of the federal government and individual operators serving an airport. Security for Groton-New London Airport is shared by the operators, the CT Airport Authority and the federal government.
- Rail – Passenger rail security is handled by AMTRAK and CT DOT for Shoreline East.
- Infrastructure security is handled by AMTRAK, CT DOT, and other rail bed owners. Freight security is handled by the operators who serve the region.
- Water – Security for the Port of New London is overseen by the CT Port Authority, the port and vessel operators, as well as the United States Coast Guard, which has a station in New London. Security at the U.S. Naval Submarine Base is overseen by the U.S. Navy.
- Road and Highway – Depending upon the control of the highway, security is handled by
- Connecticut State Police, CT DOT, or local police, depending upon the responsibility for the particular road, and these agencies work together to secure and prepare for disasters.
- Bus Transit – Security of the region's bus system is primarily responsibility of the Southeast Area Transit (SEAT) District, and the municipalities which the transit system serves.

Since 2007, SCCOG member municipalities, the municipalities that make up NECCOG, along with Lyme and Old Lyme from RiverCOG, and the two federally recognized Native American Tribes located in southeastern Connecticut, have been a member of and participated in the CT Division of Emergency Management and Homeland Security (DEMHS) Region 4 Regional Emergency Planning Team (REPT). The REPT is supported by Regional Emergency Support Functions (RESF). These RESFs are discipline oriented working groups that provide collaborative planning and resource support within each discipline. Each REPT is therefore made up of members from each municipality and two tribal governments in DEMHS Region 4, as well as each emergency management discipline. A SCCOG member municipality chief elected official

has served as the Region 4 REPT chairman since the REPT's inception, and the SCCOG staff has administered the homeland security grants that flow to Region 4 in its role as REPT fiduciary. These grants, totaling more than $4.5 Million over the past eleven years, have funded training and equipment that will assist the region's emergency responders in securing the region's transportation systems and planning for the disruptions caused by disasters.

In addition to its homeland security planning and preparation, SCCOG has conducted a number of natural hazard planning efforts which inform the security of and disaster preparation for the region's transportation system. In 2017, SCCOG completed the latest update to its Multi-Jurisdictional Hazard Mitigation Plan. The stated purpose of this plan is to identify natural hazards and risks, existing capabilities, and activities that can be undertaken by a community to prevent loss of life and reduce property damages associated with identified hazards. The Disaster Mitigation Act of 2000 requires local communities to have a FEMA-approved mitigation plan in order to be eligible to receive Pre-Disaster Mitigation Program grants and Post-Disaster Hazard Mitigation Grant Program funds under the Hazard Mitigation Assistance program.

Also in 2017, the SCCOG prepared its Municipal Infrastructure Resilience Project: Critical Facilities Assessment. In this study, an assessment of 18 community facilities located in or near flood zones that are critical for ongoing public services, including fire and police stations, town halls, and departments of public works. The assessment was recommended in SCCOG's 2012 Multi-Jurisdictional Hazard Mitigation Plan Update. The assessment identifies the risks to properties and service continuation from flooding, wind damage, and snow loads now and over the next several decades. While the study did not directly make recommendations regarding the region's transportation systems, when implemented, the recommendations included in this report will result in more secure critical facilities, all of which are instrumental to and act to support the municipal governments that comprise the region's MPO, and which will indirectly make the region's transportation system more secure. An extension of the 2017 project might determine impacts to SCCOG transportation facilities caused by flooding, identify how routine flooding affect existing emergency plans and identify mitigation measures for infrastructure which is likely to be impacted.

Disaster recovery planning occurs at all levels of government: federally, statewide, regionally, and locally. Disaster recovery planning is most beneficial prior to a disaster event and includes the members from the whole community. SCCOG participates in this type of planning through its participation in the Region 4 REPT.

# 8. Air Quality

The Clean Air Act Amendments of 1990 (CAAA) established a requirement that all long-range transportation plans, Transportation Improvement Programs (TIPs), and projects conform to the air quality goals set forth in the State Implementation Plan (SIP). The transportation

conformity requirement, along with provisions first contained in the Intermodal Surface Transportation Efficiency Act of 1990 (ISTEA), reauthorized under the Transportation Equity Act for the Twenty First Century (TEA-21), the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), Moving Ahead for Progress in the 21st Century (MAP-21) and the FAST Act. Taken together, create fundamental changes to the practice of transportation and air quality planning for non-attainment areas.

The Clean Air Act and its regulations created six non-conformity categories that were related to the date to which conformity must be achieved. These are: Extreme (2010); Severe (2007); Severe (2005); Serious (1999); Moderate (1996), and Marginal (1993). Southeastern Connecticut is designated as non-attainment with respect to the 8-hour ozone ambient air quality standard. The Clean Air Act requires that the transportation plans in such non-attainment areas must conform to air quality plans.

The U.S. Environmental Protection Agency's (EPA) transportation conformity rule applies only to areas designated as being non-attainment or maintenance for transportation-related criteria pollutants such as oxides of nitrogen, volatile organic compounds, carbon monoxide, and particulate matter. The conformity rule established the regional emissions analysis as the tool for determining emissions from the Regional Transportation Plans and TIPs. In regional emissions analysis, the effects of regionally significant projects are analyzed, then their emissions effects summed. The results of the regional emissions analysis are used to perform the conformity test of plans and TIPs. The most recent conformity analysis has been completed. (January, 2019). Only interim MTPs, consistent with the most recent conforming transportation plan and TIP, may proceed immediately without revisiting the requirements of this section, subject to interagency consultation defined in 40 CFR part 93.

The federal rule imparts greater responsibilities to Metropolitan Planning Organizations (MPOs) in the development of transportation plans and TIPs and for the selection of federally funded highway and transit projects. The rule includes a requirement that plans and TIPs be fiscally constrained. It also made provisions for project prioritization, public participation, and interagency consultation. The CAAA included the transportation conformity requirement to ensure that transportation plans, TIPs, and projects conform to national air quality standards. If transportation plans, TIPs, and projects do not conform to the emissions projections of the SIP, then they cannot be approved or funded until they are revised to do so. As part of the legal process of adopting the Regional Transportation Plan, the MPO must certify conformity of the plan with air quality standards.

Attainment of the NAAQS will compel the adoption of strategies such as DEEP's anti-idling initiative, which seeks to reduce idling through enforcement of the DEEP's 3-minute idling limit regulation and the DEEP's diesel retrofit program, which seeks to reduce diesel emissions through retrofitting emission controls on diesel truck and bus fleets. Pursuant to the reduction of emissions the MTP identifies various highway and transit projects aimed at the reduction of congestion.

# 9. Public Participation and Consultation

As the Metropolitan Planning Organization representing southeastern Connecticut, SCCOG's transportation planning activities are subject to self-prescribed policies for ensuring opportunity for involvement from public individuals and groups. Guided by SCCOG's Public Participation and Consultation Process for Transportation Planning, adopted in 1994 and most recently updated in 2018, and Title VI and Limited English Proficiency (LEP) policies, this Metropolitan Transportation Plan sought public input and input from consulting organizations and agencies at different stages of its formulation. SCCOG's public participation and consultation process meets or exceeds similar requirements under the Connecticut General Statutes and the Federal Transportation Act, Fixing America's Surface Transportation Act ("FAST Act"). Further, SCCOG has a responsibility under Federal Executive Order #12898 to ensure that transportation projects avoid "disproportionately high and adverse" impacts on minority and low-income populations.

The goal of a strong public participation and consultation process is to ensure that programs and policies developed by elected and appointed officials are responsive to the objectives and values of the citizens affect by such programs and policies. SCCOG's public participation and consultation process is organized into three sections: Information Availability and Transparency, Consultation with Other Agencies, and Public Hearings and Information Meetings.

## Information Availability and Transparency

SCCOG strives to engage the public and consulting agencies at all points of the planning process, using proactive techniques:

- Special studies on pressing transportation topics.
- Technical assistance to member communities and outside organizations.
- Presentation and lectures to organizations and citizen groups concerning transportation topics.
- Public records, such as minutes and agendas, and past plans, studies, and documents, are maintained as required under the Freedom of Information Act (FOIA).
- SCCOG's website and social media pages are used to announce projects, meetings, or provide other news.
- SCCOG keeps and collects other information such as historic and current data, such as traffic counts and geographic data, as well as plans and studies.
- SCCOG maintains regular office hours, in which the public is able to set up meetings with staff to ask questions and discuss topics of interest.

## Consultation with Other Agencies

It is SCCOG's mission to represent the broad transportation interests of southeastern Connecticut using local knowledge of challenges and opportunities. Consulting with regional, state, and federal agencies and organizations is vital in meeting this end:

- Affiliate and liaison members to SCCOG are the Mohegan Tribe and Mashantucket Pequot Tribal Nation (affiliate members), and the United States Coast Guard Academy and United States Naval Submarine Base New London (liaison members).
- Other consultation - SCCOG conducts consultation with state and federal agencies and local organizations, as well as neighboring regional councils of governments.

## Public Hearings and Informational Meetings

SCCOG uses public hearings as part of a formal decision-making process. Informational meetings are less formal, but equally valuable, and are useful to communicate a topic and provide a setting for comments.

- Opportunity for comment is afforded at all meetings, public hearings, and during formal public comment periods.
- The location of the meeting, whether it is an informational meeting or a public hearing, is carefully selected to be inclusive and sensitive to the context of the plan, program, study, or topic.
- The timing of the meeting, whether it is an informational meeting or a public hearing, is also carefully selected to best serve the plan, program, study, or topic, and engage the public.
- Meeting notification conforms to FOIA requirements and organizational policies for notification of meetings, hearings, and public comment periods. SCCOG uses social media and the SCCOG webpage to post meeting announcement and agendas. Member municipalities and consulting organizations also receive special notification. Legal notices are made in area newspapers, in conformance with program requirements.
- The content of the meeting is programmed in a manner maintain transparency and elicit public involvement. If any final documents differ significantly from versions made available for public review, additional opportunity for comment will be made.
- SCCOG tailors presentations and visualizations to improve the public's understanding of a proposal.
- SCCOG provides response to comments and on proposals and incorporates comments as appropriate.

## Public Participation and Consultation in the Metropolitan Transportation Plan

The public participation and consultation process for the MTP is in accordance with SCCOG's policies, as outlined in the Public Participation and Consultation Process for Transportation Planning document.

### TABLE 3 PUBLIC PARTICIPATION AND CONSULTATION PROCESS

| | | |
|---|---|---|
| Information availability and transparency | *Special studies* | • Past studies are incorporated into the MTP as appropriate. |
| | *Technical assistance* | • SCCOG maintains its policy to provide technical assistance during the drafting of the MTP. |
| | *Presentations and lectures* | • SCCOG maintains its policy to give presentations and lectures regarding MTP-related topics, if asked, during the drafting of the MTP. |
| | *Public records* | • Public records of meetings and data that is incorporated into the MTP, if not already published, is available upon request. |
| | *Website and social media* | • The SCCOG website and social media pages [will be] used to post important announcements and draft content of the MTP. |
| | *Other information* | • Information incorporated into the MTP is available upon request. |
| | *Meetings with staff* | • SCCOG maintains its policy to provide meeting times with staff to discuss topics related to the MTP. |
| Consultation with other agencies | *Affiliate and liaison members* | • Updates on the status of the MTP are given to the SCCOG Board monthly, which includes affiliate and liaison members. Those members have the opportunity to provide direct input into the MTP. |
| | *Other consultation* | • Federal, State, and municipal agencies, as well as area organizations and neighboring regional councils of governments are specifically notified of the MTP and opportunity for comment.<br>• Federal and State transportation agencies, as well as municipalities, are consulted for transportation projects that become components of the MTP. |
| Public hearings and informational meetings | *Opportunity for comment* | • A 30-day public comment period will begin in March, upon completion of a draft MTP.<br>• A public hearing will be held at the conclusion of the public comment period to afford the public an additional setting for input. |
| | *Location of the meeting* | • The public hearing will be at a location and time of day that seeks to maximize involvement, is sensitive to the needs of disadvantaged groups, |
| | *Timing of the meeting* | |
| | *Meeting notification* | • Legal notice of the public hearing and public comment period will be published in areas newspapers and comments will be solicited through mail, conversations, and e-mail. |
| | *Content of the meeting* | • The public hearing will be programmed to give an overview of the MTP, with presentations and visualizations that seek to maximize understanding of the MTP, and provide an opportunity for interested persons to speak. |
| | *Presentations and visualizations* | |
| | *Response to comments* | • SCCOG will incorporate comments on the MTP as appropriate, as well as provide written response to all comments received in an appendix. |

## Timeline for Public Outreach and Comment

*February 1, 2019:* Publish draft MTP and announce public comment period.

*February 28, 2019:* Public Hearing.

*March 4, 2019:* Conclusion of public comment period.

*March 13, 2019:* Address comments and issue final MTP.

*March 20, 2019:* Adopt final MTP.

# 10. Recommended Projects

Working collaboratively with CT DOT, the SCCOG has prioritized the major projects whose significance extends beyond our region. These will be briefly described below, prior to the full listing of recommended projects.

Many of these projects are on I-95 and previous planning efforts include the 2004 I-95 Branford to Rhode Island Feasibility Study (2004 Study). Subsequent to that document, the CT DOT has unilaterally scaled back its aspirations for that highway's improvement in the region. Operational and safety improvements will be pursued; and the SCCOG looks forward to a more robust consultation from CT DOT at designs are developed.

## Highest Priority Projects

### I-95 Old Lyme to East Lyme

This project should include additional capacity to address seasonal and peak hour congestion. Designs for this improvement have not yet been developed and it is assumed that a context sensitive solution will include primarily operational lane improvements in instances where exits are closely spaced. Safety will be addressed through ramp improvements, shoulder widening and roadside safety improvement.

### I-95 Exit 74

Improvements at this location include an expanded overpass that will provide additional width to allow for increased deceleration lane length and a reconfiguration of the ramps to increase the turning radii for safety reasons. The area beneath the bridge will be improved to include multimodal accommodation that is currently lacking. This will dovetail with built and planned development in the Route 161 corridor including commercial and residential uses.

### I-95/I-395 Interchange Reconfiguration

This project should improve the current interchange to alleviate safety concerns resulting from frequent and left-hand merging conflicts. Designs have not been produced and the SCCOG anticipates a considerable coordination effort on the part of CT DOT. This complex section of roadway serves both local mobility and regional mobility and any ramp closures or realignments will require considerable outreach at the regional and local level by CT DOT.

### I-95 Waterford and New London

Improvement and extension of the frontage roads in Waterford and New London is consistent with the previous LRTP and the 2004 I-95 study. Short stretches of frontage road exist, but extending the frontage roads will enable better land access to areas designated for urban and high-intensity use. The existing frontage road system is composed of 2 through lanes with additional on- and off-ramps. As the 2004 Study is more fully analyzed, allocation of the available right of way, both frontage roads and mainline, may be modified. Planning efforts completed in 2004 by the Department included extensive outreach to the regions, towns and tribes impacted; because this plan will be updated, additional outreach by the CT DOT will be needed going forward.

### I-95 East of the Thames River to the Rhode Island State Line

Spot improvements to address congestion and safety will be pursued. As with previous I-95 projects, little outreach has been done by CT DOT since the 2004 Study.

### Route 85 Salem, Montville and Waterford

Since the last LRTP the Route 11 expressway extension has been abandoned. The significant environmental impacts of completion have been acknowledged and the SCCOG is refocusing its efforts on improving multimodal access and safety along Route 85 with added emphasis on the portion of the roadway south of Route 82 where traffic from the existing Route 11 expressway enters. State efforts have thus far included drainage improvements and bypass shoulders at frequent turn locations. Providing adequate accommodation for cyclists along this route should be included in any future projects as speeds and volumes will remain high in this corridor, with no likelihood of future decreases that would have resulted from expressway extension.

### Route 2A Mohegan – Pequot Bridge

Improvements to the Mohegan-Pequot Bridge will include providing additional lanes to address capacity issues as well as the provision for a bi-directional bicycle and pedestrian facility. This will address existing capacity issues as well as those that arise from development of the Preston Riverwalk property. Additional road improvements identified in the RT2/2A/32 Transportation Improvements EIS will also be pursued as they become necessary based upon demand and political will.

### Route 66 Remove Br 00488 & Rehab Br 00489 o/ RR

This project will remove one bridge and rehabilitate another which carries Route 66 just west of downtown Willimantic over the freight rail line. This project is also related to the provision of

active transportation amenities as these narrow bridges are an impediment to reaching the Airline/Hop River trailheads to the west of the bridges.

### Region-wide Bike and Pedestrian Improvements

The region will pursue various pedestrian and bicycle improvements pursuant to the recommendations made in the 2019 SCCOG Regional Bike and Pedestrian Plan. These will be carried out ubiquitously through all of the funding means we have available in addition to stand alone projects. Improvements will include recommendations made from the CT DOT's Active Transportation Plan. The goal is to provide cost effective, access and mobility within and between our towns and our neighboring regions. Specific recommendations will be forthcoming in the plan, they will however include ADA accessibility upgrades to sidewalks, bike lanes and route signage, safety improvements, trail completion and new trail connections.

### Shore Line East

Expanding Shore Line East to include: more trains, expanded hours of service, and extending the rail service to meet MBTAs trains in Wickford Junction Rhode Island are the region's greatest rail priorities. Additionally, state of good repair dictates improvements to the tracks and stations along the line. Currently, an additional station to be located in Niantic is being studied by the CT DOT.

### Bus Transit Improvements

Service between Norwich and New London is proposed to be split into two routes. Route 980 would provide express bus service on the half hour and would utilize route 32 and I-395. Route 600 would provide local service via Route 32 and New London Turnpike hourly. To enable these service changes the region seeks to upgrade the signal equipment to provide bus priority on local routes. The project would also include defined stops with signage and shelters.

## FY 2019-2045 List of Projects

The following list represents the long range infrastructure plan supported by the SCCOG member municipalities for the term of this plan. This list was generated in coordination with the CT DOT, transit, and municipal planning staff. The 2015 LRTP project list was analyzed for continued need. New locally solicited projects were added. Projects of statewide significance and the approved capital plan were included. Funding source and construction completion are estimates of anticipated available funding eligibility and project delivery. New London and the City of Groton provided additional project descriptions after the air quality conformity project submission deadline and those projects are detailed in Appendix C, for inclusion at a later date.

| Table 4: Proposed 2019-2045 Transportation Project Plan | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | Cost in Thousands | | | |
| **Town** | **Route/ Street Number** | **Project Description** | **Funding Source** | **1 to 4 (2018-2023)** | **5 to 10 (2024-2028)** | **11 to 27 (2029-2045)** | **Total Cost (000)** |
| Major projects | | | | | | | |
| Programmed | | | | | | | |
| Existing Capital plan | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| **HIGHWAY** | | | | | | | |
| BOZRAH | Route 163 | Intersection modifications at Route 163 and Route 2 ramps | Unfunded | | | $ 250 | $ 250 |
| BOZRAH | RT 608 | Sidewalk improvements, intersection improvements | LOTCIP | | $ 500 | | $ 500 |
| COLCHESTER | Various | Rehab/Replace Culverts for Bridges 06696, 06781 & 06820 | FIF-Bridge | $ 2,415 | | | $ 2,415 |
| COLCHESTER | Halls Hill Road | Reconstruction and Bike Lanes: South Main St to Norwich Ave | LOTCIP | $ 595 | | | $ 595 |
| COLCHESTER | 16 | Multi-use path from Airline Trail of Windham Ave to Main St | | | | $ 700 | $ 700 |
| COLCHESTER | Route 2 | Interchange improvements at Exit 17, add eastbound on-ramp, westbound off-ramp | STP-U | | | $ 500 | $ 500 |
| DISTRICT 1 & 2 | VARIOUS | Replace Traffic Signals at 14 Locations | STPA | $ 4,550 | | | $ 4,550 |
| DISTRICT 2 | | DAS Tank Replacement, E. Lyme & Norwich | ENV Comp | $ 1,900 | | | $ 1,900 |
| DISTRICT 2 | CT 2 | Replace Highway Signs - Exits 13-29 | STATE | $ - | | | $ 6,500 |
| EAST LYME | I-95 | Improve I-95 Interchange 74 at CT 161 | NHPP | | | | $ 36,200 |
| EAST LYME | I-95 | Improve I-95 Interchange 74 at CT 161 | NHPP | $ - | | | $ 140,000 |
| EAST LYME | I-95 | Improve I-95 Interchange 74 at CT 161 (80/20) | NHPP | $ - | | | $ 140,000 |
| EAST LYME | I-95 | Improve I-95 Interchange 74 at CT 161 | NHPP | $ - | | | $ 140,000 |
| EAST LYME | | Replace Br 06676 o/ Brook | | $ 850 | | | $ 850 |
| EAST LYME | I-95 | I-95 Exit 70 to Exit 74 widening from Baldwin to I-395 Interchange | State | | | | $ 124,000 |
| EAST LYME | CT 156 | Rehab Br 06026 o/ Niantic River | FHWA | | | | $ 11,000 |
| EAST LYME | I-95 | I-95 / I-395 Interchange Reconfiguration in East Lyme | State | | | | $ 900,000 |
| EAST LYME | Route 161 | Add bike lane from Route 1 to Montville town line | STP-U | | $ 200 | | $ 200 |
| East Lyme/New Lo | I-95 | Widen I-95 b/t I-395 and Gold Star Bridge (CN) Are additional lanes being added? Y | NHPP | $ - | | | $ 275,000 |
| East Lyme/New Lo | I-95 | Widen I-95 b/t I-395 and Gold Star Bridge (CN) | NHPP | $ - | | | $ 275,000 |
| GRISWOLD | Route 138 | Sidewalks, Intersection of 138/164, Jewett City | STP | | $ 450 | | $ 450 |
| GRISWOLD | Route 201 | Realign from Rte. 395 (Exit 86) to Rte. 201/Rte. 138 Intersection | STP | | $ 3,000 | | $ 3,000 |
| GRISWOLD | Route 138 | Realign Rte. 201/Rte. 138 Intersection | STP | | $ 500 | | $ 500 |
| GRISWOLD | Route 138 | Replace Stop Signs with Caution Light at Rte. 201/Rte. 165 Intersection | STP | | | $ 150 | $ 150 |
| GRISWOLD | Route 138 | Realign from Rte. 165 Intersection South to No. Stonington town line | STP | | | $ 3,500 | $ 3,500 |
| GROTON (CITY) | Poquonnock R | Reconstruction from Rainville Ave (RT649) to 5points (Benham/ Thames/ Mitchell/ C | LOTCIP | $ 2,186 | | | $ 2,186 |
| GROTON (TOWN) | Route 1 | Reconstruct from vicinity of intersection with Poquonnock Road North to Ring Drive | STP-U | | $ 10,200 | | $ 10,200 |
| GROTON (TOWN) | Route 1 | Geometric improvement at intersection of Fishtown Road | STP-U | | $ 250 | | $ 250 |
| GROTON (TOWN) | Route 12 | Intersection modification at Crystal Lake, Gungywamp and Tollgate Rds. | STP-U | | $ 600 | | $ 600 |
| GROTON (TOWN) | Route 649 | Improve South Road underpass The Bridge is currently 10'6" and extremely narrow | STP-U | | $ 2,000 | | $ 2,000 |

| Table 4: Proposed 2019-2045 Transportation Project Plan | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | Cost in Thousands | | | |
| **Town** | **Route/ Street Number** | **Project Description** | **Funding Source** | **1 to 4 (2018-2023)** | **5 to 10 (2024-2028)** | **11 to 27 (2029-2045)** | **Total Cost (000)** |
| GROTON (TOWN) | Railroad Unde | Eliminate height limitation at Poquonnock Road | STP-U | | $ 3,000 | | $ 3,000 |
| GROTON (TOWN) | Route 649 | Eliminate height limitation at Depot Road | STP-U | | $ 750 | | $ 750 |
| GROTON (TOWN) | TBA | Establish additional Park and Ride Capacity | STP-U | | $ 200 | | $ 200 |
| Groton (TOWN) | Bridge Street | Bridge St/Kings Highway/RT12 Project initiated under LOTCIP, would realign Kings | LOTCIP | $ 1,860 | | | $ 1,860 |
| LEDYARD | Route 12 | Whalehead Road intersection improvements | STP-U | | | $ 750 | $ 750 |
| Ledyard/Preston | n/a | Tri-town trail | State | | $ 2,000 | | $ 2,000 |
| LISBON | Route 12 | River Road Sidewalk Extension | STP-U | | $ 2,120 | | $ 2,120 |
| LISBON | Route 138 | Realign and widen between Route 660 and Route 12 No new lanes, curve remedia | STP-U | | | $ 4,500 | $ 4,500 |
| LISBON | Route 138 | Reconstruct intersection with Route 169 | STP-U | | | $ 750 | $ 750 |
| LISBON | Route 169 | Realign and widen between I-395 and the Shetucket River Bridge | Unfunded | | $ 2,500 | | $ 2,500 |
| MONTVILLE | Old Colcheste | Culvert Replacement o/ Fox Brook | STP-U | $ 1,360 | | | $ 1,360 |
| MONTVILLE | Route 32 | Construct sidewalks from Powerhouse Rd. To Route 163 | STP-U | | | $ 700 | $ 700 |
| Montville/Salem | CT 85 | Corridor Improvements South of CT 82 | NHPP | $ - | | | $ 34,000 |
| Montville/Salem | CT 85 | Corridor Improvements South of CT 82 | NHPP | $ - | | | $ 34,000 |
| Montville/Salem | CT 85 | Corridor Improvements South of CT 82 | NHPP | $ - | | | $ 34,000 |
| NEW LONDON | I-95 NB | NHS - Rehab Br 03819, NB Gold Star (Phs 2) | FIF-Bridge | $ 29,500 | | | $ 160,000 |
| NEW LONDON | I-95 NB | NHS - Rehab Br 03819, NB Gold Star (Phs 2) | NHBR | $ - | | | $ 160,000 |
| NEW LONDON | I-95 NB | NHS - Rehab Br 03819, NB Gold Star (Phs 2) | FIF-Bridge | $ 29,500 | | | $ 160,000 |
| NEW LONDON | I-95 NB | NHS - Rehab Br 03819, NB Gold Star (Phs 2) | NHBR | $ - | | | $ 160,000 |
| NEW LONDON | I-95 NB | NHS - Rehab Br 03819 - NB Gold Star (Phs 1A) | NHBR | $ 5,000 | | | $ 83,000 |
| NEW LONDON | I-95 NB | NHS - Rehab Br 03819 - NB Gold Star (Phs 1B) | NHBR | $ - | | | $ 48,000 |
| NEW LONDON | I-95 NB | NHS - Rehab Br 03819 - NB Gold Star (Phs 1B) | NHBR | $ - | | | $ 48,000 |
| NEW LONDON | Route 213 | Reconstruct between Willetts Ave. and Bank St. including installation of storm drain | STP-U | | | $ 3,000 | $ 3,000 |
| NEW LONDON | Bank Street | Improvements from Shaw/Truman to Tilley Street | LRARP | | $ 960 | | $ 960 |
| NEW LONDON | Route 641/Ro | intersections of 641 and Bank/Montauk/Ocean: signal coordination and access man | STP-U | | $ 3,000 | | $ 3,000 |
| NEW LONDON | Williams Stree | Hodges Square Area (Streetscape Improvements) | STP | | | $ 3,000 | $ 3,000 |
| NEW LONDON | Eugene O'Nei | Narrow roadway/Pedestrian Improvements/Rework Street Pattern | STP | $ 2,500 | | | $ 2,500 |
| New London | n/a | Connect Waterfront park /FT Trumbull with a Multiuse path including along the Amt | unfunded | | $ 12,000 | | $ 12,000 |
| New London | Jefferson Ave | Reconstruction: Chester St. to RT85 | LOTCIP | $ 2,510 | | | $ 2,510 |
| NEW LONDON | 641 | ITS signal upgrade and coordination from Bank St. to Huntington St at Federal St. (6 i | STP | | $ 6,000 | | $ 6,000 |
| NEW LONDON | Williams Stree | Pedestrian/Bike Improvements | TAPNL | $ 1,177 | | | $ 1,177 |
| New London | i-95 | Close exit 84E to Williams Street (safety improvement, exiting traffic will use exit 83/ | STPU | | $ 500 | | $ 500 |

| Table 4: Proposed 2019-2045 Transportation Project Plan | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | Cost in Thousands | | | |
| **Town** | **Route/ Street Number** | **Project Description** | **Funding Source** | **1 to 4 (2018-2023)** | **5 to 10 (2024-2028)** | **11 to 27 (2029-2045)** | **Total Cost (000)** |
| New London | Route 32 | Boulevard reconstruction; Williams Street to Benham Ave. Low planted median, tra | STP | | $ 40,000 | | $ 40,000 |
| No. Stonington | CT 49 | Replace Br 02967 over Wyassup Brook | STPR | $ - | | | $ 1,500 |
| NORTH STONINGT | Route 2 | At Route 627, add left hand turn lanes from Route 2 onto Main St and Old Mystic Rd | STP-U | | $ 225 | | $ 225 |
| NORWICH | Sherman St | Replace Br 04047 and 03797 o/ Yantic River | STPNL | $ 8,325 | | | $ 9,250 |
| NORWICH | I-395 | Rehab 3 culverts on I-395 in Norwich | FIF-Bridge | $ - | | | $ 2,600 |
| NORWICH | Scotland Roa | Rehab Br 00278 o/ I-395 | FIF-Bridge | $ - | | | $ 5,400 |
| NORWICH | CT 82 | Safety Improvements from Maple St to Fairmount St | STPNL | $ - | | | $ 16,500 |
| NORWICH | CT 82 | Safety Improvements from Maple St to Fairmount St | STPA | $ - | | | $ 16,500 |
| NORWICH | Route 82 | Safety Improvemetns from Maple St To Fairmount St | STP-U | $ 9,250 | | | $ 9,250 |
| NORWICH | Route 82 | Safety Improvemetns from Old Salem Plaza to Maple St | STP-U | $ 7,750 | $ 4,000 | | $ 11,750 |
| NORWICH | Route 12 | Retaining Wall Reconstruction | STP-U | $ 17,450 | | | $ 17 |
| NORWICH | Route 97 | Replace Br 02589 o/ Cold Brook | STP-O | $ 3,075 | | | $ 3,075 |
| NORWICH | Route 642 | Improve bridge over New England Central Railroad, ensure double stack compliance | Bridge | | $ 4,000 | | $ 4,000 |
| NORWICH | Route 82 | Safety Improvemetns from Maple St To Fairmount St | STP-U | | $ 13,800 | | $ 13,800 |
| NORWICH | Route 82 | Safety Improvemetns from Old Salem Plaza to Maple St | STP-U | | $ 21,000 | | $ 21,000 |
| NORWICH | Dunham St. | Reconstruction, sidewalk, bike lanes: RT85 to RT32 | LOTCIP | $ 2,113 | | | |
| Norwich | 12 | North Main St to Newent Rd (formerly:TOD and streetscape improvements: Boswell | STP | | $ 10,000 | | $ 10,000 |
| Norwich | 12 and 2 | Convert downtown circulation to two-way, convert chelsea harbor drive to local par | STP | | | $ 10,000 | $ 10,000 |
| Old Saybrook/New | I-95 | Widen I-95 from the Baldwin to Gold Star Bridge (PE) | Ramp Up | $ 5,000 | | | $ 5,000 |
| Old Saybrook/New | I-95 | Widen I-95 from the Baldwin to Gold Star Bridge (RW) | Ramp Up | $ - | | | $ 3,000 |
| Old Saybrook/New | I-95 | Widen I-95 from the Baldwin to Gold Star Bridge (PE) | Ramp Up | $ - | | | $ 25,000 |
| Old Saybrook/New | I-95 | Widen I-95 from the Baldwin to Gold Star Bridge (RW) | FIF-Roadway | $ - | | | $ 40,000 |
| PRESTON | Route 2A | Rehab Br 02931 o/Dickerman's Brook | STP-U | $ 1,415 | | | $ 1,415 |
| PRESTON | Route 2A | New Parallel 2-lane Route 2A Bridge (Add Second Span to Mohegan Pequot Bridge) | STP-U | $ 10,600 | $ 90,560 | | $ 101,160 |
| PRESTON | | Streetscape Improvements in Poquetanuck Village for Pedestrians | Unfunded | | $ 4,000 | | $ 4,000 |
| Region wide | VARIOUS | bike and pedestrian improvements to the regionalnetwork inclusive of signage, sho | STPU | $ 1,000 | | | $ 1,000 |
| SALEM | CT 82 | Replace Br 01140 & 05401 o/ Eight Mile River | STPR | $ 3,100 | | CN | $ 4,500 |
| SALEM | CT 85 | Corridor Improvements North of CT 82 | STPNL | $ - | | CN | $ 4,200 |
| SALEM | CT 11 | Rehab/Replace Br 06780 (culvert) o/ Brook | STPR | $ - | | CN | $ 680 |
| SALEM | Route 85 | Route 85 Spot Improvements | STP-U | $ 242 | | | $ 242 |
| SALEM | Route 82 | Improve drainage between Route 85 and Hagen Road | Unfunded | | | $ 1,000 | $ 1,000 |

| Table 4: Proposed 2019-2045 Transportation Project Plan | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | Cost in Thousands | | | |
| **Town** | **Route/ Street Number** | **Project Description** | **Funding Source** | **1 to 4 (2018-2023)** | **5 to 10 (2024-2028)** | **11 to 27 (2029-2045)** | **Total Cost (000)** |
| SALEM | Route 354 | Modify curve one-half mile south of Witter Road intersection | Unfunded | | | $ 1,000 | $ 1,000 |
| SPRAGUE | Route 97 | Rehab Br 01291 o/ Beaver Brook | STP-O | $ 118 | | | $ 118 |
| SPRAGUE | Route 97 | New Sidewalk on Route 97, Baltic | LOTCIP (antic | $ 425 | | | $ 425 |
| Stonington | Route 1 | Improve roadway, including underpass and intersections, from RT2 to state line | STP-U, CMAQ | | | $ 6,000 | $ 6,000 |
| STONINGTON | Route 1 | Reconstruction of Route 1/Route 27 Intersection | Unfunded | | | $ 3,375 | $ 3,375 |
| STONINGTON | Route 234 | Improve sight lines at intersection with Farmholme Road | STP-U | | | $ 500 | $ 500 |
| STONINGTON | Route 234 | Make drainage and spot safety improvements in various locations | Unfunded | | $ 1,500 | | $ 1,500 |
| STONINGTON | Mystic Mobili | Pedestrian, Streetscape & Bicycle Improvements; shuttle bus and mobility hubs | Unfunded | | $ 5,000 | | $ 5,000 |
| VARIOUS | RT 85 | Rt. 85 Improvements | FHWA | | | | $ 12,300 |
| VARIOUS | I-95 | I-95 Spot Improvements East of Thames River to Rhode Island State Line (at Exits 88, | FHWA | | | | $ 75,000 |
| WATERFORD | I-95 | I-95 Improvements between Exit 80 and Exit 82A (Improve expressway and extend fr | State | | | | $ 280,000 |
| WATERFORD | North Frontag | Extend north Frontage Roads to connect to Route 85, north of Crystal Mall | Unfunded | | | $ 20,000 | $ 20,000 |
| WATERFORD | Route 85 | Congestion mitigation, queing and pedestrian improviement, safety improviment | CMAQ, STP | | | $ 2,500 | $ 2,500 |
| WATERFORD | Route 1 | Improve intersection at Cross Road signal timing, alignment, turning radii, multimod | STP | $ 500 | | | $ 500 |
| WATERFORD | Route 1 | Avery Lane to New London town line - Ped safety, access management, intersection | STP | | | $ 3,000 | $ 3,000 |
| WATERFORD | Route 156 | Pedestrian and safety improvements from Route 1 to Jordan Village | Com Con | | | $ 500 | $ 500 |
| WATERFORD | Cross Rd | Mill and Pave, TWLTL, bikelanes: RT85 to North Frontage Rd | LOTCIP | $ 3,645 | | | $ 3,645 |
| WATERFORD, MON | Route 32 | Pedestrian Safety Improvements (Benham ave to 395 overpass traffic calming and se | STP | | | $ 10,000 | $ 10,000 |
| WINDHAM | CT 66 | Remove Br 00488 & Rehab Br 00489 o/ RR | FHWA | | | | $ 10,033 |
| WINDHAM | Plains Road, R | New Road Connecting Plains Road to Route 203 | STP | | $ 3,000 | | $ 3,000 |
| WINDHAM | East Coast Gre | Connect from Union St to Bridge St, pedestrian signal at Main Street and Jackson Street | | | $ 500 | | $ 500 |
| | | | | | | | |
| | | | | | | | |
| **TRANSIT:** | | | | | | | |
| Niantic | SLE | SLE - Niantic Station | State | | | $ 50,000 | $ 50,000 |
| VARIOUS | SLE | SLE - Stations/Parking SOGR | State | $ 18,000 | $ 10,000 | $ 30,000 | $ 58,000 |
| VARIOUS | SLE | SLE - Various Track Improvements | State | $ 2,000 | $ 48,000 | | $ 50,000 |
| VARIOUS | SLE | SLE - Extension of Rail Service to Rhode Island | State | $ 75,000 | $ 175,000 | | $ 250,000 |
| Norwich and New | CT Transit | New BRT-like service - Norwich and New London (includes 2016 SEAT COA expansion | Federal/State | | $ 50,000 | | |
| Norwich | SEAT | SEAT Replace Buses 2007 (6/35 ft buses) | 5307 | $ - | | | $ 4,125 |

| Table 4: Proposed 2019-2045 Transportation Project Plan | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | Cost in Thousands | | | |
| **Town** | **Route/ Street Number** | **Project Description** | **Funding Source** | **1 to 4 (2018-2023)** | **5 to 10 (2024-2028)** | **11 to 27 (2029-2045)** | **Total Cost (000)** |
| Norwich | SEAT | SEAT Admin Capital FY 19 | 5307 | $ - | | | $ 625 |
| Windham | Windham TD | Windham TD Facility Improvements(Design) | STATE | $ - | | | $ 400 |
| Norwich | SEAT | SEAT Replace 4 Buses 2007/2008 40 ft buses | 5307 | $ - | | | $ 2,125 |
| Norwich | SEAT | SEAT Admin Capital FY 2020 | 5307 | $ - | | | $ 1,000 |
| Windham | Windham TD | Windham TD Facility Improvements | STATE | $ - | | | $ 4,000 |
| Norwich | SEAT | SEAT Admin Capital FY 2022 | 5307 | $ - | | | $ 625 |
| Norwich | SEAT | SEAT Admin Capital FY 2023 | 5307 | $ - | | | $ 625 |
| VARIOUS | SLE | SLE - Fare Collection Improvements | STATE | $ - | | | $ 4,000 |
| System wide | SEAT | 25% increase in service frequency, | State | $ 10,000 | | | $ 10,000 |
| Norwich | SEAT | SEAT Admin Capital FY 2021 | 5307 | $ - | | | $ 625 |
| Norwich | SEAT | SEAT conversion to stop system (from flag down) including purchase and implement | STATE | $ 100 | | | $ 100 |

# 11. Fiscal Constraint

The SCCOG MTP analysis primarily focuses on matters related to system improvements. These types of projects are defined as those that are intended to improve safety, mobility, increase system productivity or, as a by-product, promote economic growth. The emphasis on improvement-type projects, as opposed to maintenance type projects, is related to parallel responsibility of CTDOT. Maintenance projects primarily address such needs as repaving, bridge repair or replacement and any other form of reconstruction, in place. While the bulk of federal funds available will be for maintenance projects, these type of improvement projects tend to be managed at the state level according to need and funding availability and therefore become the primary emphasis of the state transportation planning process.

The preparation of a long-range regional transportation plan follows a format set forth in federal regulation. Central to this format is the federal requirement for "fiscal constraint" over the multi-year life of the plan. The requirement for fiscal constraint compels a general analysis of anticipated revenues to meet the project expenses of projects depicted in the plan. Table 4, prepared by CTDOT, presents estimated gross revenue thresholds, by region, over a 25-year period (2019-2045) based on present allocations.

As shown in Table 4, the Connecticut Department of Transportation estimates $2,547,429,137 will be expended in southeastern Connecticut over the next 25 years. Further, CTDOT estimates that this funding will be made available in the following amounts for the following categories of expenditure: $688,275,436 for system improvements; $1,664,487,304 for system maintenance; and $194,666,396 for projects of major statewide significance.

The total estimated cost of all highway projects shown in Section 10 for the 4-10 year period is $531,315,000, while the total estimated cost of all projects in the 11-25 year period is $155,675,000. It should be noted that there are several projects shown in the plan known to be of high, or very high, capital and/or operating cost. While these high cost projects collectively represent the expressed desires of the municipalities of the SCCOG and the people of southeastern Connecticut as established through the public participation process, special funding will be needed for these projects beyond the regular finding available through traditional means. Statutorily, a State or MPO shall not be required to select any project from the illustrative list of additional projects included in the financial plan.

As can be seen, the cost of projects shown in the planning period far exceeds the amount of federal funds that CTDOT projects will be available for the region. This project list is comprehensive and includes State funded projects as well as projects that may be completed under other funding sources such as grants or of municipal capital programs. These projects are shown because they reflect regional priorities. It is recognized by SCCOG that projects to be funded in the future must conform to the region's fiscal constraint requirements. In the event

of funding shortfalls or rescissions, projects may be delayed, canceled or funded through other means; subsequent MTPs will reevaluate funding accordingly.

The issue of fiscal constraint and limited public funding for many needed projects draws attention to the need to create innovative funding solutions. Public-private partnerships pose an alternative source of funding. Tax Increment financing has also been discussed as a vehicle for infrastructure investment. The use of tolls has been proposed as a way to stabilize the State transportation fund and implement the Let's Go CT! plan; however, there is not currently legislative authority to implement tolls. Further analysis and policy work surrounding financing will enable this region and the State to program projects to meet performance targets.

**ALLOCATION OF ANTICIPATED FHWA FUNDS TO MPO/RPO**
**2019-2045**

| | SYSTEM IMPROVEMENTS | SYSTEM PRESERVATION | | |
|---|---|---|---|---|
| Distribution | Weights | | | |
| Vehicle Miles of Travel | 0.25 | 0.25 | | |
| Volume to Capacity | 0.75 | 0 | | |
| Lane Miles | 0 | 0.75 | | |
| MPO/RPO | | | MAJOR PROJECTS OF STATEWIDE SIGNIFICANCE | TOTALS |
| Southwest MPO | 1,247,718,585 | 1,395,377,517 | 986,400,000 | 3,629,496,102 |
| Housatonic Valley MPO | 795,276,632 | 1,176,217,827 | 400,000,000 | 2,371,494,458 |
| Northwest Hills RPO | 193,444,278 | 1,251,775,570 | 14,282,400 | 1,459,502,249 |
| Naugatuck Valley MPO | 902,216,700 | 1,525,205,994 | 64,360,000 | 2,491,782,694 |
| GBVMPO | 1,581,238,578 | 1,486,859,506 | 686,694,808 | 3,754,792,892 |
| South Central MPO | 1,958,758,671 | 2,197,972,654 | 502,196,808 | 4,658,928,134 |
| Capitol MPO | 3,435,253,922 | 4,289,839,748 | 3,036,580,597 | 10,761,674,266 |
| Lower Connecticut River MPO | 486,918,876 | 1,227,228,977 | 96,900,000 | 1,811,047,853 |
| Southeastern MPO | 688,275,436 | 1,664,487,304 | 194,666,396 | 2,547,429,137 |
| Northeastern RPO | 196,368,562 | 1,013,240,263 | - | 1,209,608,825 |
| Totals | 11,485,470,240 | 17,228,205,360 | 5,982,081,009 | 34,695,756,610 |

Note: System Improvements are projects which enhance safety, improve mobility, increase system productivity or promote economic growth.

System Preservation are projects such as repaving roadways, bridge repair or replacement and any other form of reconstruction in place.

**TABLE 5 ALLOCATION OF ANTICIPATED FHWA FUNDS TO MPO/RPO 2019-2045**

# Appendix A - SCCOG V/C Ratios

| Town | Rte | Begin | End | 2011 ADT | 2011 Peak Hour | Capacity | 2011 V/C ratio | 2035 ADT | 2035 peak hour | 2035 V/C ratio |
|---|---|---|---|---|---|---|---|---|---|---|
| New Londo | 1 | 98.7 | 98.74 | 17,700 | 1,062 | 915 | 1.16 | 21,771 | 1,306 | 1.43 |
| Groton | 1 | 102.95 | 103.2 | 25,800 | 1,277 | 1,279 | 1.00 | 30,186 | 1,494 | 1.17 |
| Stonington | 1 | 117.25 | 117.37 | 25,600 | 1,382 | 828 | 1.67 | 28,416 | 1,534 | 1.85 |
| | | | | | | | | | | |
| Norwich | 2 | 38.15 | 38.19 | 25,200 | 1,247 | 812 | 1.54 | 31,248 | 1,547 | 1.91 |
| Norwich | 2 | 38.24 | 38.27 | 25,200 | 1,247 | 812 | 1.54 | 31,248 | 1,547 | 1.91 |
| Norwich | 2 | 38.27 | 38.61 | 19,000 | 836 | 795 | 1.05 | 23,560 | 1,037 | 1.3 |
| Norwich | 2 | 39.57 | 39.61 | 18,900 | 1,361 | 1,299 | 1.05 | 23,436 | 1,687 | 1.3 |
| Norwich | 2 | 39.73 | 39.82 | 18,900 | 1,361 | 1,299 | 1.05 | 23,436 | 1,687 | 1.3 |
| | | | | | | | | | | |
| Windham | 6 | 93.37 | 93.41 | 23,100 | 2,310 | 2,189 | 1.06 | 27,951 | 2,795 | 1.28 |
| | | | | | | | | | | |
| Groton | 12 | 0 | 0.09 | 22,700 | 1,294 | 1,299 | 1.00 | 26,559 | 1,514 | 1.17 |
| Groton | 12 | 0.09 | 0.17 | 22,700 | 1,294 | 1,299 | 1.00 | 26,559 | 1,514 | 1.17 |
| Groton | 12 | 0.17 | 0.33 | 26,000 | 1,482 | 1,299 | 1.14 | 30,420 | 1,734 | 1.34 |
| Norwich | 12 | 12.12 | 12.43 | 13,900 | 713 | 669 | 1.07 | 17,236 | 884 | 1.32 |
| Norwich | 12 | 14.26 | 15.03 | 13,000 | 780 | 669 | 1.17 | 16,120 | 967 | 1.45 |
| Norwich | 12 | 15.12 | 15.2 | 12,100 | 726 | 669 | 1.09 | 15,004 | 900 | 1.35 |
| | | | | | | | | | | |
| Colchester | 16 | 12.02 | 12.09 | 15,600 | 827 | 828 | 1.00 | 19,032 | 1,009 | 1.22 |
| | | | | | | | | | | |
| New Londo | 32 | 1.25 | 1.5 | 31,600 | 1,849 | 1,575 | 1.17 | 38,868 | 2,274 | 1.44 |
| New Londo | 32 | 1.5 | 1.82 | 29,400 | 1,720 | 1,701 | 1.01 | 36,162 | 2,115 | 1.24 |
| New Londo | 32 | 1.82 | 1.89 | 29,400 | 1,720 | 1,701 | 1.01 | 36,162 | 2,115 | 1.24 |
| Waterford | 32 | 1.89 | 2.47 | 29,400 | 1,911 | 1,575 | 1.21 | 36,456 | 2,370 | 1.51 |
| Waterford | 32 | 2.47 | 2.51 | 29,400 | 1,911 | 1,623 | 1.18 | 36,456 | 2,370 | 1.46 |
| Waterford | 32 | 2.51 | 3.25 | 29,400 | 1,911 | 1,575 | 1.21 | 36,456 | 2,370 | 1.51 |
| Waterford | 32 | 3.99 | 4.04 | 27,500 | 1,788 | 1,575 | 1.14 | 34,100 | 2,217 | 1.41 |
| Montville | 32 | 9.18 | 9.23 | 19,600 | 1,076 | 974 | 1.10 | 24,304 | 1,334 | 1.37 |
| Windham | 32 | 30.02 | 30.29 | 12,800 | 768 | 649 | 1.18 | 15,488 | 929 | 1.43 |
| Windham | 32 | 30.29 | 30.66 | 15,500 | 930 | 649 | 1.43 | 18,755 | 1,125 | 1.73 |
| Windham | 32 | 30.66 | 30.69 | 16,800 | 1,008 | 649 | 1.55 | 20,328 | 1,220 | 1.88 |
| Windham | 66 | 34.95 | 35 | 17,400 | 940 | 820 | 1.15 | 21,054 | 1,137 | 1.39 |
| | | | | | | | | | | |
| Waterford | 85 | 0.84 | 0.88 | 17,700 | 956 | 804 | 1.19 | 21,948 | 1,185 | 0.74 |
| Colchester | 85 | 18.96 | 19.04 | 16,800 | 907 | 637 | 1.42 | 20,496 | 1,107 | 1.74 |
| Colchester | 85 | 19.11 | 19.4 | 15,500 | 938 | 908 | 1.03 | 18,910 | 1,144 | 1.26 |
| | | | | | | | | | | |
| East Lyme | 95 | 88.16 | 88.48 | 81,300 | 4,065 | 4,024 | 1.01 | 100,812 | 5,041 | 1.25 |
| Waterford | 95 | 91.94 | 92.26 | 71,000 | 4,260 | 4,136 | 1.03 | 88,040 | 5,282 | 1.28 |
| | | | | | | | | | | |
| Groton | 117 | 0 | 0.21 | 12,000 | 936 | 812 | 1.15 | 14,040 | 1,095 | 1.35 |
| Groton | 117 | 0.21 | 0.86 | 12,900 | 1,006 | 812 | 1.24 | 15,093 | 1,177 | 1.45 |
| Groton | 117 | 0.86 | 0.89 | 13,400 | 1,045 | 812 | 1.29 | 15,678 | 1,223 | 1.51 |

| Town | Rte | Begin | End | 2011 ADT | 2011 Peak Hour | Capacity | 2011 V/C ratio | 2035 ADT | 2035 peak hour | 2035 V/C ratio |
|---|---|---|---|---|---|---|---|---|---|---|
| Groton | 117 | 1.07 | 1.24 | 10,800 | 842 | 812 | 1.04 | 12,636 | 986 | 1.21 |
| | | | | | | | | | | |
| East Lyme | 161 | 2.02 | 2.57 | 19,300 | 1,062 | 944 | 1.13 | 22,967 | 1,263 | 1.34 |
| East Lyme | 161 | 2.57 | 2.61 | 19,300 | 955 | 828 | 1.15 | 22,967 | 1,137 | 1.37 |
| | | | | | | | | | | |
| Groton | 184 | 0.46 | 0.51 | 13,600 | 853 | 828 | 1.03 | 15,912 | 998 | 1.21 |
| Groton | 184 | 0.6 | 0.69 | 13,600 | 853 | 828 | 1.03 | 15,912 | 998 | 1.21 |
| Groton | 184 | 1.78 | 2.7 | 14,700 | 922 | 828 | 1.11 | 17,199 | 1,078 | 1.3 |
| Groton | 349 | 2.3 | 2.43 | 19,400 | 1,280 | 1,232 | 1.04 | 22,698 | 1,498 | 1.22 |
| Groton | 349 | 2.43 | 2.98 | 19,400 | 1,280 | 1,232 | 1.04 | 22,698 | 1,498 | 1.22 |
| Groton | 349 | 3.51 | 3.81 | 18,200 | 1,638 | 1,299 | 1.26 | 21,294 | 1,916 | 1.48 |
| Groton | 349 | 3.92 | 4.17 | 7,800 | 811 | 649 | 1.25 | 9,126 | 949 | 1.46 |
| | | | | | | | | | | |
| New Londo | 635 | 0 | 0.12 | 12,100 | 871 | 812 | 1.07 | 14,883 | 1,072 | 1.32 |
| New Londo | 641 | 1.68 | 1.72 | 15,000 | 990 | 828 | 1.20 | 18,450 | 1,218 | 1.47 |
| | | | | | | | | | | |
| Norwich | 642 | 0.97 | 1.2 | 13,200 | 950 | 812 | 1.17 | 16,368 | 1,178 | 1.45 |
| Norwich | 642 | 1.2 | 1.31 | 16,400 | 1,181 | 812 | 1.46 | 20,336 | 1,464 | 1.8 |
| Norwich | 642 | 1.31 | 1.47 | 14,200 | 1,022 | 812 | 1.26 | 17,608 | 1,268 | 1.56 |
| Norwich | 642 | 1.47 | 2.11 | 11,900 | 857 | 812 | 1.06 | 14,756 | 1,062 | 1.31 |
| Norwich | 642 | 2.59 | 2.65 | 13,000 | 936 | 812 | 1.15 | 16,120 | 1,161 | 1.43 |
| | | | | | | | | | | |
| Windham | 661 | 0 | 0.11 | 15,800 | 2,370 | 2,046 | 1.16 | 19,118 | 2,868 | 1.4 |

# Appendix B – Locally Submitted Projects Not Included in Conformity Analysis

## Locally Submitted Projects Not Included in Conformity Analysis

| Locally Submitted Projects Not Included in Conformity Analysis | | | | | | Cost | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Town** | **Route/Street Number** | **Project Description** | **Estimated CCD** | **Add Capacity Y or N (adding vehicle lanes?)** | **Funding Source (federally fundable? Functional Class Collector or greater?)** | **1 to 4 (2018-2023)** | **5 to 10 (2024-2028)** | **11 to 27 (2029-2045 *major projects** | **Total COST** |
| City of Groton | I-95 | Safety upgrades for trail leading to Gold Star Bridge multi use path. Including widening from the existing five foot width to a traditional two way bike path width with striping, lighting of path at pedestrian/bike level of trail and on bridge, minor grading, clearing ,grubbing as needed. | 2020 | | | $750,000 | | | $750,000 |
| City of Groton | Thames Street | Improvements to convert Thames Street to one-way; including signage, striping for bike lanes/cycle track, on-street parking | 2020 | | | $500,000 | | | $500,000 |
| City of Groton | Chicago/Poquonnock/Mitchell/Benham Intersection | Reconfigure the existing five way intersection to 4-way by closing Chicago access. Adjust signal, new signage and design/construction of public pedestrian plaza and gateway improvments | 2020 | | | $750,000 | | | $750,000 |
| City of Groton | SHORE AVENUE | Replace 470' of seawall, railings, sidewalk, and roadway near South Prospect St. | 2025 | | | | $1,800,000.00 | | $1,800,000 |
| City of Groton | SLOCUMB TER. | Replace 200' of retaining wall that holds up Slocumb Ter. Replace one c.b. 200' of railing and 200' of roadway located between Latham St. and Pleasant St. | 2025 | | | | $120,000 | | $120,000 |
| City of Groton | PINE ISLAND RD | Replace 28' of existing drainage with twin 15" RCP under road and replace retaining walls on each side of tidal marsh. | 2025 | | | | $200,000.00 | | $200,000 |
| | | | | | | | | | |
| New London | Route 639 | Narrow roadway/Pedestrian Improvements/Rework Str | N/A | y | STU | | | | |
| New London | Route 1 Jefferson Ave. | Pedestrian / Bike Improvements | N/A | | STU | | | | |
| New London | Bayonet St | Road reconstruction / Pedestrian / Bike Improvements | | N | LOTCIP | | | | |