State of the Systems

Existing Transit Conditions in the Lower Connecticut River Valley

October 22, 2019

Lower **Connecti**cut
River Valley Transit Study

RiverCOG
Lower Connecticut River Valley Council of Governments

Connecticut Department of Transportation

Middletown Area Transit MAT

9 Town Transit

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1 Introduction

Overview of the Lower Connecticut River Valley Transit Study

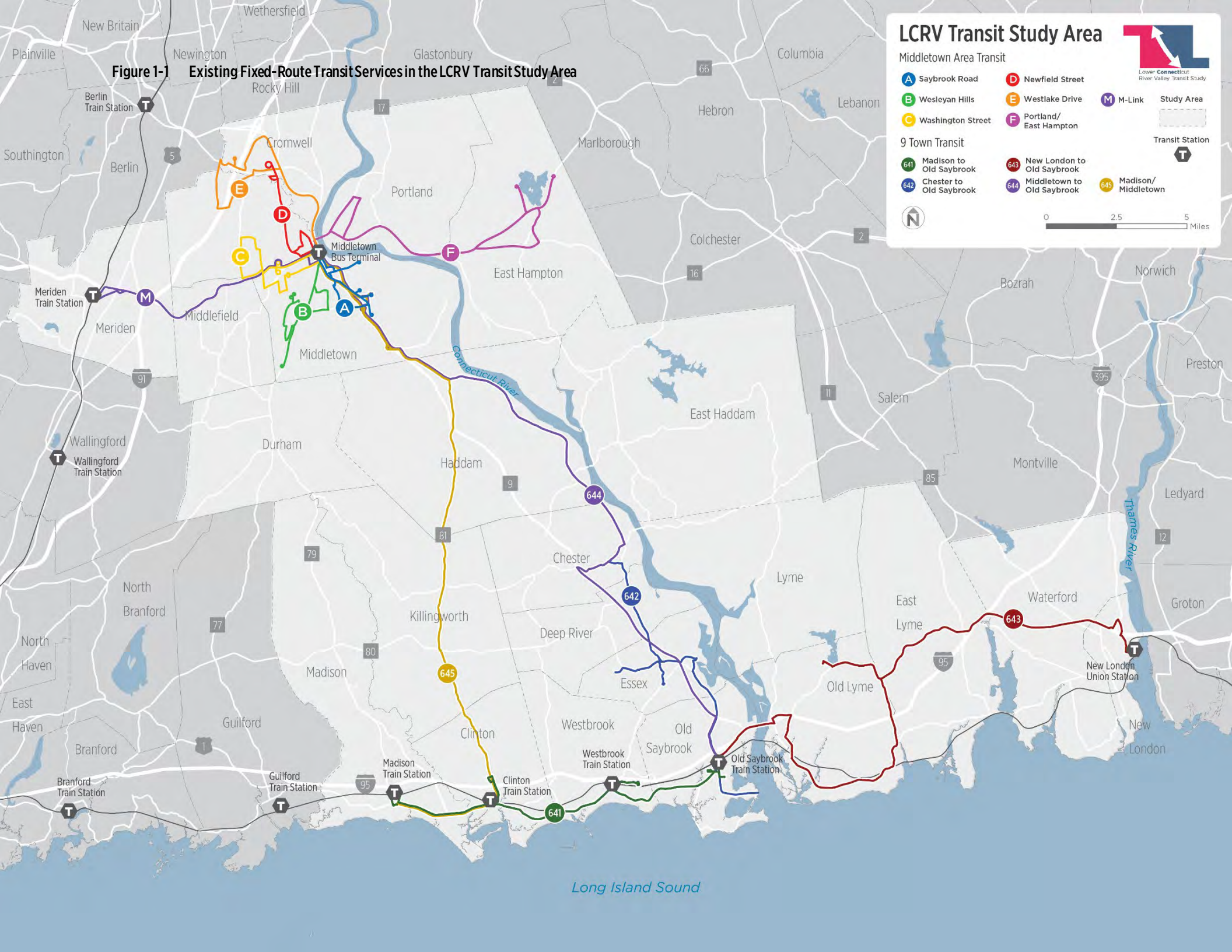
The Lower Connecticut River Valley (LCRV) Council of Governments (RiverCOG) coordinates land use and transportation planning for a 17-community region in south central Connecticut. Much of the region is served by one of two local public transit districts: Middletown Transit District, operating in the northern part of the region centered around Middletown; and Estuary Transit District, serving a broader area to the south (see Figure 1-1). Many communities in this region have expressed interest in enhancing the efficiency and attractiveness of public transit service to better meet the needs of local residents, workers, and visitors. To meet this objective, RiverCOG, in cooperation with the Connecticut Department of Transportation (CTDOT) and the two transit districts, is undertaking the Lower Connecticut River Valley (LCRV) Transit Study.

The LCRV Transit Study is assessing the performance of transit in the region today; identifying the resources, facilities, staffing, and other assets used to deliver this service; considering best practices used by peer agencies; and making recommendations to enhance and more efficiently deliver service within the region.

Overview of the State of the System Report

This report provides a detailed snapshot of existing conditions related to public transit in the LCRV region. It describes the membership, governance, and operations of the two public transit districts serving the region, evaluates service performance and inventories current facilities, equipment and other assets. A market analysis is performed to better understand the underlying demand for transit in the region. The report concludes with a summary of issues and opportunities to be further explored over the course of the LCRV Transit Study.

Figure 1-1 Existing Fixed-Route Transit Services in the LCRV Transit Study Area



2 Local Transit Districts in the Region

Governance

There are two established transit districts[1] in the Lower Connecticut River Valley region:

- Middletown Transit District doing business as Middletown Area Transit (MAT)
- Estuary Transit District doing business as 9 Town Transit (9 Town)

Each district is governed by a board of directors made up of representatives from member municipalities. Board votes are weighted based on each town's population (and in accordance CSG Section 7-273c). Municipalities may also be non-voting ex-officio members of one or more transit districts.

The MAT Board has three member municipalities, with the City of Middletown appointing two of the four Board representatives. 9 Town Transit has nine member municipalities and four ex-officio municipalities. Both the municipal members and ex-officio members of each district are shown at right.

9 Town Transit

Member Municipalities

Chester
Clinton
Deep River
Essex
Killingworth
Lyme
Old Lyme
Old Saybrook
Westbrook

Ex-Officio Members

Durham
East Haddam
Haddam
Madison

Middletown Area Transit

Member Municipalities

Durham
Middlefield
Middletown

Procedures for establishing or modifying the structure of transit districts are of interest, as some communities are served by both districts, or are served by a district without board representation. According Connecticut General Statutes (CGS Sec. 7-273b), the legislative body of a municipality may vote to establish a new district or join an existing district. In the City of Middletown, the legislative body is the Common Council; in the towns, such decisions are made by majority vote at town meetings. Transit districts are authorized to operate within their member municipalities, into any municipality adjacent to their service area and into municipalities that contract for service.

A majority vote of a district's board is needed to approve any new member municipality. A municipality may likewise vote to withdraw from a district, which requires a settling of outstanding financial obligations and may also involve a transfer of any related transit assets.

[1] Established and governed under the Connecticut General Statutes Chapter 103a Transit Districts (§7-273b-o).

Administration & Funding

Both MAT and 9 Town Transit are direct recipients of federal transit funds, which are distributed based on a national formula using population, population density, and operating statistics. CTDOT will contribute up to 100% of the difference between a system's annual operating costs and revenues — as long as revenues exceed 40% of operating costs. If fixed-route services do not meet these criteria, CTDOT negotiates individual cost-sharing arrangements.

FY2020 operating revenues and expenses for MAT and 9 Town are shown in Figure 2-1. Over 60% of operating funds for both districts are from State sources. Local revenues are anticipated to make up a greater share of MAT's budget in FY2020 (19% versus 7% at 9 Town). Federal funding makes up a greater share of 9 Town's budget (17% versus 2% at MAT). Federal Transit Administration (FTA) capital grants are also provided through the Section 5307 Urbanized Area Grant program and Section 5311 Rural Grant program.

MAT has an approved FY2020 operating budget of about $2.73 million. Wages and fringe benefits comprise more than half of total operating expenses for each system, 56% for MAT and 60% for 9 Town. If management contracts are included, wages represent about 60% and 70% of operating expenses for MAT and 9 Town, respectively.

Federal operating assistance is available only for MAT's rural demand-response service in Portland and East Hampton. With ridership trending downward, MAT's farebox recovery ratio is anticipated to be about 11%, a drop from its 16% ratio in FY2018. Apart from fares and local, state, and federal revenues, MAT receives additional revenues from ATM and vending machine use at its Middletown Transit Terminal, and from advertising.

Overseen by a contracted Administrator (via First Transit), MAT has 27 permanent employees, including 19 full-time drivers (affiliated with the Teamsters Local 671), two supervisors, two dispatchers, one facility manager, one mechanic, one bus fueler/cleaner, and a part-time bookkeeper. In FY2020, plans to create two new positions for an operations manager and a part-time mechanic.

9 Town has an approved FY2020 operating budget of $2.47 million. The district has been a direct recipient of FTA Section 5307 and 5311 grants since FY2016; prior to that time. it was a rural subrecipient district receiving only Section 5311 funding administered by the State (CTDOT).

Overseen by a contracted Administrator and Operations Manager (via First Transit), the district has 15 full-time employees (a Finance Manager, two dispatchers, and 12 drivers), and 11 part-time employees (a dispatcher, an administrative assistant, a service worker, and eight drivers); all maintenance is contracted out.

Figure 2-1 MAT & 9 Town Operating Revenues and Expenses, FY 2020

	MAT FY2020 (Approved)	Percent of Total	9 Town Transit FY2020 (Approved)	Percent of Total
Operating Revenues by Source				
State	$1,826,408	67%	$1,580,900	64%
Local/municipal	$675,309	19%	$159,650	7%
Federal	$66,408	2%	$425,720	17%
Fare revenues	$315,200	11%	$180,950	7%
Other	$25,000	1%	$122,475	5%
Total Revenues	**$2,742,131**	**100%**	**$2,469,695**	**100%**
Operating Expenses by Source				
Wages/Fringe Benefits	$1,520,009	55%	$1,481,200	61%
Professional Services	$309,029	11%	$282,000	12%
Vehicle Maintenance/Fuel	$503,822	18%	$522,750	22%
Other	$409,271	15%	$183,745	5%
Total Expenses	**$2,742,131**	**100%**	**$2,469,695**	**100%**

Source: FY2020 budgets provided by MAT and 9 Town Administrators in July 2019.

Capital revenues and expenses are shown in Figure 2-2. Both districts receive FTA Section 5307 and 5311 capital funds, although this funding is pooled by the State (CTDOT) and distributed each year based on individual transit district needs and statewide priorities. The State (CTDOT) and provides the local 20% match and may also issue bonds to support capital needs.

Funds are not necessarily expended in the year received, but are often carried over, meaning revenues and expenditures are not necessarily balanced in any given budget year.

The majority of capital expenditures planned by both districts in FY2020 are related to bus replacement. Other capital funds are used for passenger amenities, facilities, equipment and/or technology. MAT also receives FTA Section 5311 funding for administrative expenses related to rural transportation ($5,000 per year including the 20% State match). 9 Town receives Section 5311 grants for the administration and operations of rural services, as well as capital.

Figure 2-2 Capital Revenues and Expenses for MAT & 9 Town, FY 2018 – FY 2020

	MAT FY2020 (Approved)	9 Town Transit FY2020 (Approved)
Total Capital Revenues	$810,000	$4,814,250
Total Capital Expenditures	$805,000	*$4,814,250*
Fleet Replacement	$570,000	$3,180,000
Preventive Maintenance	$50,000	*$66,000*
Other	$185,000	*$1,568,250*

Source: FY2020 budgets provided by MAT and 9 Town Administrators in July 2019.

3 Existing Transit Services

Middletown Area Transit

Service

MAT provides service in Middletown, as well as in parts of Cromwell, East Hampton, Middlefield, Meriden, Portland, and Durham (see Figure 3-1).

Fixed Routes

MAT operates twelve distinct fixed routes (see Figure 3-1). Routes A, B, C, D and E operate only on weekdays (roughly 6 a.m. –7 p.m.), Routes F and M operate Monday-Saturday; Routes H and I operate on weekday evenings (7 p.m. – 11 p.m.), and Routes S1, S2 and S3 operate only on Saturday. All fixed routes begin and end at the MAT Bus Terminal in downtown Middletown, with individual routes meeting at the terminal (or "pulsing") every 50 minutes to facilitate transfers. Five routes provide service outside of Middletown; Routes E, I and S3 serve Cromwell; Route F serves Portland and East Hampton; and the M-Link serves Meriden.

The fixed-route system operates as a flag-stop system; there are designated time-point pickup spots but no official bus stops, signs, or shelters. Many MAT routes operate at least partially as one-way loops to provide maximum geographic coverage. Alignments for the C, D, E, I, and M-Link routes, as well as S1, S2, and S3, were changed as of May 28, 2019, and Route A was modified in August 2019.

The current alignments for all weekday day-time routes are shown in Figure 3-2. Weekday evening routes are shown in Figure 3-3 and Saturday routes are shown in Figure 3-4. No service is offered on Sunday or holidays.

Figure 3-1 Existing MAT Routes (Summer, 2019)

Route	Name	Service Description	Span of Service
A	Saybrook Road	Middlesex Hospital, Middlesex Community College, Saybrook Rd Medical Centers	Weekday 6 AM to 6:44 PM
B	Wesleyan Hills	Elementary School, Marino Manor, DCF, Senior Center, Middlesex Hospital	Weekday 6 AM to 6:50 PM
C	Washington Street	Wesleyan University, Shiloh Manor, Middletown Plaza, 4 Corners	Weekday 6 AM to 6:55 PM
D	Newfield Street	North Main St, Newfield & Stonycrest Towers, Mile Lane, K-Mart Plaza	Weekday 6 AM to 6:50 PM
E	Westlake Drive	Rt 372, Westlake Dr, FedEx, Walmart, Price Rite	Weekday 6 AM to 6:55 PM

Route	Name	Service Description	Span of Service
F	Portland/East Hampton	Marlborough St, Lake Drive, North Main St, Rt 16 & 66, Portland Convalescent	Weekdays, 5:45 AM to 6:45 PM Saturdays, 9:15 AM to 5:45 PM
H	South	Union St, Summerhill Apts, Middlesex Hospital, Middlesex Plaza, William St	Weekday Evenings 7 PM to 11 PM
I	North	North Main St, Newfield & Stonycrest Towers, Mile Lane, K-Mart Plaza, Rt 372, Westlake Dr, FedEx, Walmart, Price Rite	Weekday Evenings 7 PM to 11 PM
M	M-Link	Wesleyan University, Middletown Plaza, Middlefield, Meriden Railroad Station	Weekdays, 6 AM to 7:05 PM Saturdays, 6 AM to 7:05 PM
S1	Expanded A Route	Middlesex Hospital, Middlesex Community College, Saybrook Rd Medical Centers, Broad St	Saturday Only 8 AM to 5:52 PM
S2	Combined B & C Routes	Metro Sq, Middlesex Hospital, Senior Center, Wesleyan Hills, Shiloh Manor, Middletown Plaza, Washington St, Wesleyan University, Sbona Towers	Saturday Only 8 AM to 5:52 PM
S3	Combined D & E Routes	North Main St, Newfield & Stonycrest Towers, Mile Lane, K-Mart Plaza, Rt 372, Westlake Dr, FedEx, Walmart, Price Rite	Saturday Only 8 AM to 6 PM

Source: Middletown Area Transit

Complementary ADA Paratransit

Complementary paratransit services are provided for those unable to access or utilize fixed route services. Service is provided Monday through Saturday during the same operating hours as the fixed route system. Individuals must be per-certified to be eligible for this service, live within ¾ mile of the fixed route system, and must call MAT to reserve rides one day in advance.

Dial-A-Ride

Dial-A-Ride service is provided in smaller, accessible vehicles similar to those used for ADA transportation. This service offers curb-to-curb transportation for individuals over the age of 60 and living in Middletown, Portland, East Hampton, Durham, and Middlefield. Trip origins and destinations can be located anywhere within these communities, but transportation must be arranged one day in advance by calling MAT.

Facilities

MAT operates out of two Middletown facilities: the downtown passenger terminal at 340 Main Street, and a maintenance and storage facility located less than one mile north at 91 North Main Street.

Downtown MAT Passenger Terminal

Built in 1975, MAT's downtown bus terminal serves as its primary passenger hub. It is centrally located off Main Street backing up onto Melilli Plaza, near Court Street and City Hall in downtown Middletown. The terminal is a 3,500-square-foot structure that houses an indoor passenger waiting area, restrooms, a ticketing and information window, and MAT offices for

the supervision of bus operations and dispatching. The rear of the terminal provides six bus bays for passenger dropoff and pickup, and a canopied outdoor waiting area.

The MAT Bus Terminal is the hub of the MAT system and acts as the pulse point for all routes. A real-time information display and audible announcements give updates on bus arrivals and departures.

Other major transfer locations include:

- **Middlesex Community College:** Served by MAT Routes A and S1, and 9 Town Transit Routes 644 and 645.
- **Meriden Transit Center:** Located in downtown Meriden. Served by MAT M-Link with connections to CT*transit* routes serving the Meriden area, the CT*rail* Hartford Line to New Haven and Springfield, MA, and Amtrak to New York City, Washington, DC and Vermont.

MAT Maintenance and Storage Facility

MAT's maintenance and storage facility is comprised of two structures at 91 North Main Street: a vehicle garage, commonly referred to as the "Pease Avenue Building," that was constructed in 2006, and a maintenance and a storage building constructed in 2014. There is onsite, outdoor parking for 36 automobiles and five larger spaces for transit vehicles. The site also has a diesel fueling station. MAT owns the building and land on which its maintenance and storage facility sits, as well as most of the parking area. The City of Middletown owns a small parcel used by MAT as five employee parking spaces and an adjacent public right-of-way used to park buses.

The Pease Avenue facility originally served as the maintenance facility. The garage is approximately 8,000 square feet and, with the exception of offices on either end, is a single large open space. It is currently used to store small parts, used tires, mobile lifts, and documents; it has the capacity to be used as overflow storage for a few smaller vehicles; the City of Middletown currently houses a historic fire truck in this space.

The newer maintenance and storage building is approximately 19,000 square feet. It houses a single maintenance bay, vehicle storage, a wash bay, administration offices, restrooms, lockers, and a training room. This building has storage capacity for all 20 of MAT's revenue vehicles.

Bus Stops & Shelters

MAT is flag-stop system and there are currently no bus stop signs or shelters located along routes. The district received a Section 5307 grant of $448,000 in FY2019, which is being used in part to install a number of shelters, as well as signage, and graphics at certain bus stops.

Figure 3-2 MAT Existing System (Daytime Network)

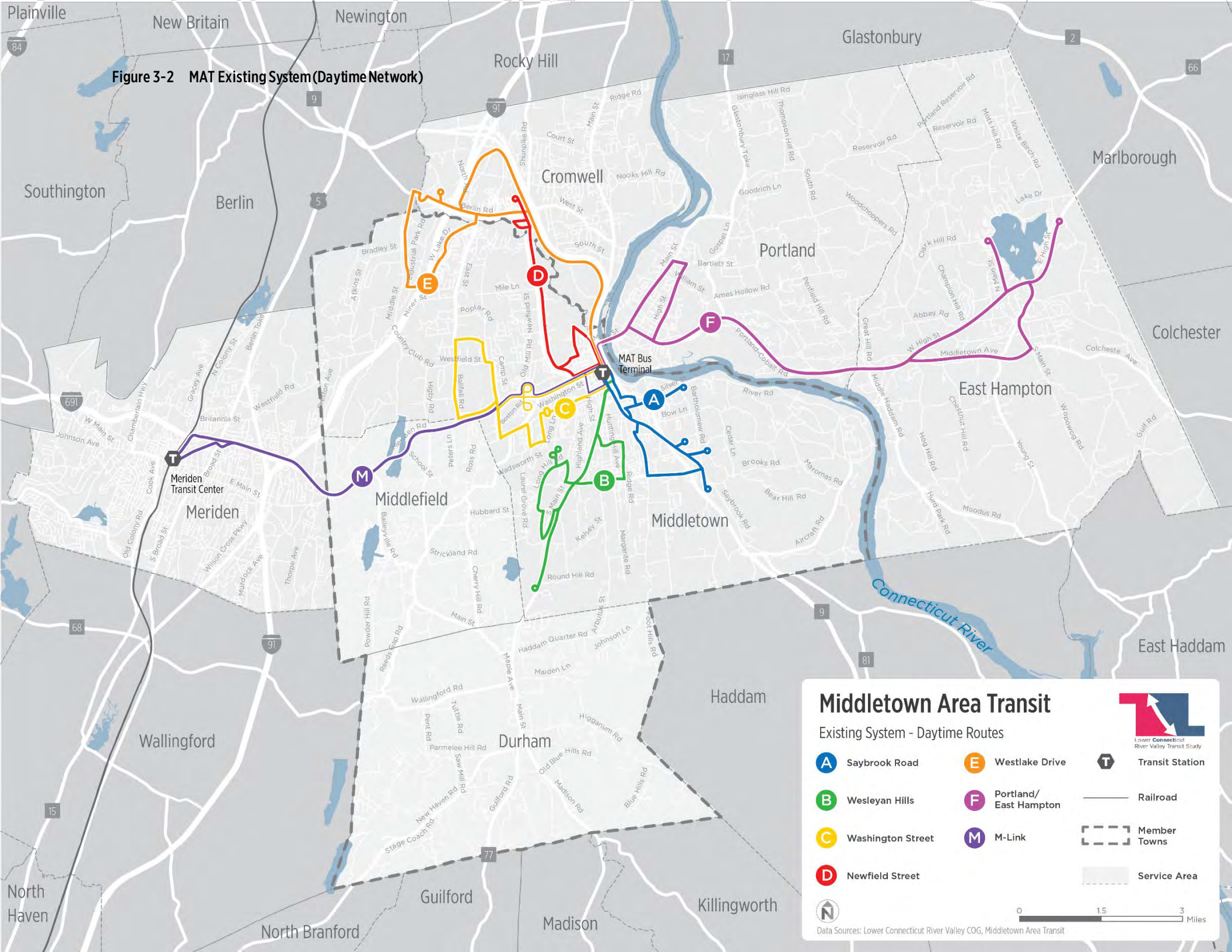


Figure 3-3 MAT Existing System (Evening Network)

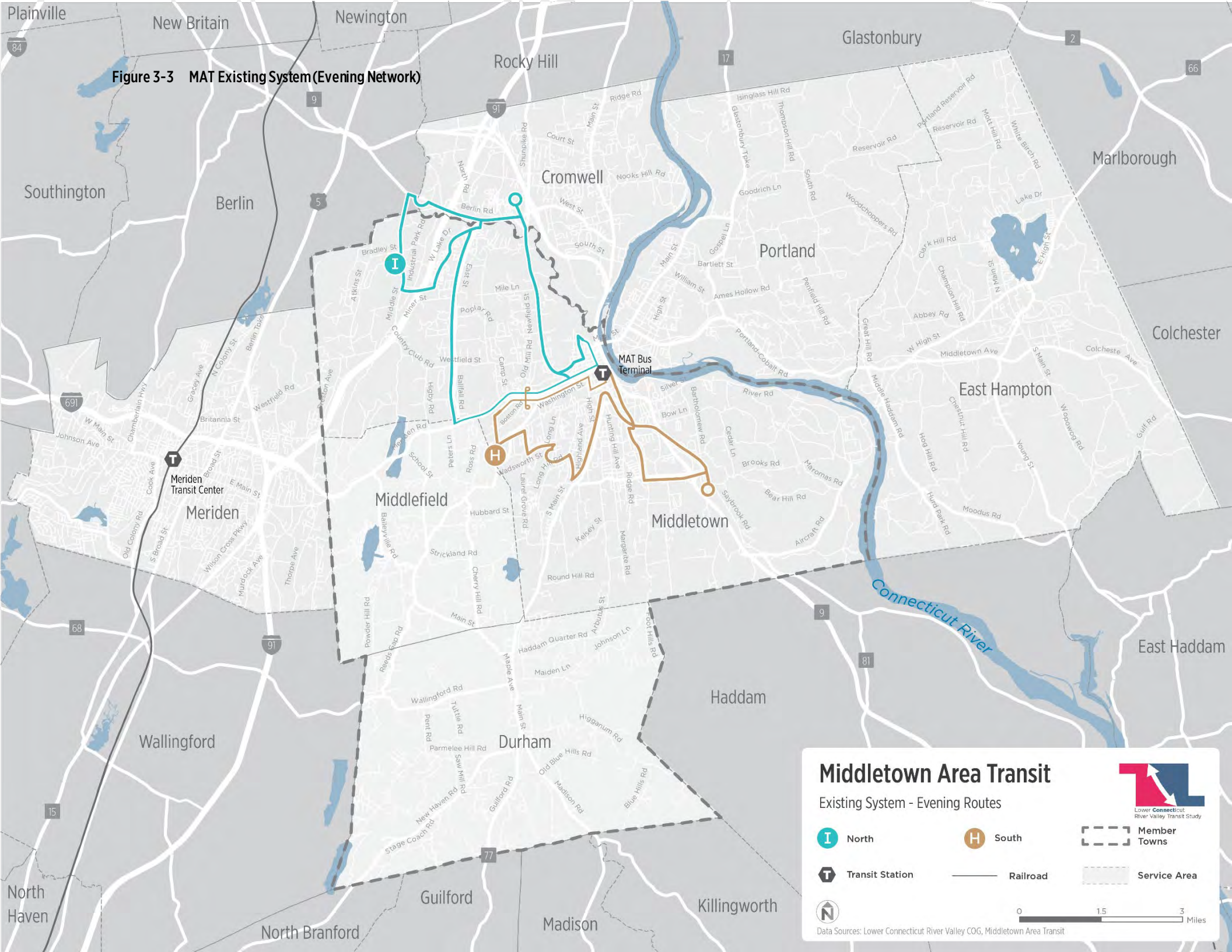
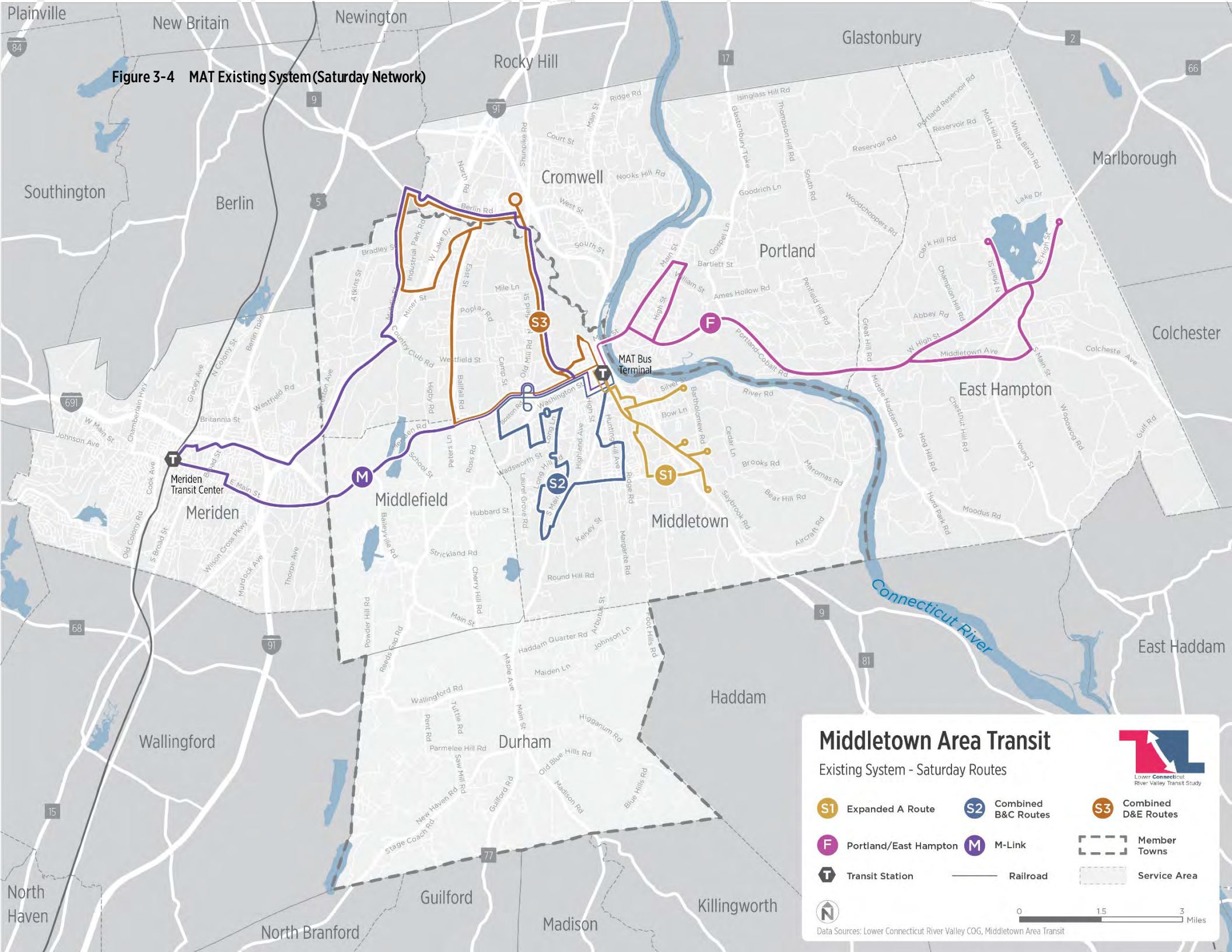


Figure 3-4 MAT Existing System (Saturday Network)



Fleet, Technology and Other Assets

MAT has a revenue fleet of 20 vehicles, with 10 transit buses used to operate fixed-route service and 10 body-on-chassis cutaway buses to operate rural, ADA paratransit, and demand-response services. Of these 20 vehicles, MAT maintains nine spare vehicles, including four transit buses for fixed-route service, four cutaway buses for ADA service, and one cutaway bus for rural demand-response service. The agency also maintains three non-revenue vehicles, including two trucks for office staff and one Braun accessible van for supervisors.

Figure 3-5 MAT 40' Gillig Transit Bus

Figure 3-6 MAT Cutaway Shuttle

MAT uses Genfare Odyssey fareboxes throughout its bus fleet. Genfare works with MAT staff to provide training on maintenance processes and perform onboard farebox repairs.

For its fixed-route service, MAT currently uses an automatic vehicle location (AVL) system by a local firm, Intellicorp. The agency's AVL/scheduling for its ADA paratransit service is RouteMatch. Intellicorp maintains a data server for RouteMatch, located in MAT's maintenance garage and remotely connected to the Middletown Terminal, as well as a local server in MAT's office.

MAT has security cameras with hard drives on all buses, which were purchased in 2014 and continue to be maintained by the vendor, SEON. A second security system is in use at the Middletown Terminal and maintenance garage, run by Intellicorp. All MAT vehicles are equipped with radios purchased from and maintained by a local vendor, Utility Communications.

Planned or Proposed Improvements

MAT has received $1.4 million in FTA Section 5307 capital funding for renovations to the downtown bus terminal. Preliminary design plans have been developed.

Section 5307 funds are also programmed to support other capital investments at MAT, including ongoing fleet replacement over the next seven years. Vehicle replacements include the purchase of two cutaway buses in FY2020 to provide rural, demand-response, and ADA paratransit service. Ongoing vehicle upgrades include $400,000 for engine overhauls on the fixed route fleet, and transmission overhauls on the ADA/demand-response/rural fleet. Funding is also programmed to acquire shelters, signage, and graphics; enhance administrative and maintenance facilities; and upgrade IT servers and security systems. Recent Section 5311 funds allocated to MAT for administrative expenses are primarily to be directed toward computer technology.

Over the longer term, MAT intends to upgrade its AVL system. MAT also plans over the longer term to replaces fareboxes with new equipment that is compatible with the statewide account based fare payment system, allowing riders to seamlessly transfer between transit systems. A new fare system is included in the State Transportation Improvement Program (STIP), but it is not yet known when this funding will be allocated as MAT's current fareboxes are relatively new.

Estuary Transit District (9 Town Transit)

Service

9 Town Transit serves the member towns of Chester, Clinton, Deep River, Essex, Killingworth, Lyme, Old Lyme, Old Saybrook, and Westbrook. It also operates service in the towns of Durham, East Haddam, East Lyme, Haddam, Madison, Middletown, and New London. Service is operated Monday to Friday, with limited service on Saturday; there is no service offered on Sundays or holidays.

Fixed Routes

9 Town Transit operates five fixed routes: three weekday-only routes and two Monday-Saturday routes (see system maps in Figure 3-8 and Figure 3-9). Service hours vary slightly by route, but roughly fall between 6:30 a.m. - 7:30 p.m. during weekdays and between 8 a.m. – 6 p.m. on Saturdays. Each route generally provides relatively long-distance, bidirectional service across several towns. Routes 641, 642, 643, and 644 originate at the Old Saybrook Train Station. Route 645 originates at the Scranton Gazebo in Madison and terminates at the MAT Bus Terminal in Middletown.

Figure 3-7 Existing 9 Town Transit Routes (Summer, 2019)

Route	Name	Service Description	Span of Service
641	Old Saybrook/Madison (Shoreline)	Westbrook, Clinton, and Madison	Weekdays, 6:20 AM to 7:40 PM Saturdays, 7:20 AM to 5:50 PM
642	Old Saybrook/Chester (Riverside)	Essex center, Deep River, and Chester Center	Weekdays, 6:25 AM to 7:35 PM Saturdays, 9:30 AM to 3:32 PM
643	Old Saybrook/New London (Southeast)	Old Lyme, East Lyme, Niantic, and New London	Weekdays Only 7:10 AM to 6 PM
644	Old Saybrook/Middletown (Midshore)	Essex, Deep River, Chester Center, Higganum Center, and Middletown	Weekdays Only 6:20 AM to 7 PM
645	Madison/Middletown (Route 81)	Clinton, Killingworth, Haddam, and Middletown	Weekdays Only 6:10 AM to 6 PM

Source: 9 Town Transit

Complementary ADA Paratransit

Complementary paratransit services are provided for those unable to access or utilize fixed route services. Service is provided Monday through Saturday during the same operating hours as the fixed route system. Individuals must be per-certified to be eligible for this service, live within ¾ mile of the fixed route system, and must reserve rides one day in advance. Customers may reserve trips by calling 9 Town Transit or by using a mobile or on-line application to pay by credit card and receive alerts regarding scheduled pick-ups.

Dial-A-Ride

9 Town Transit operates a door-to-door demand response service (Dial-A-Ride) for trips to or from destinations not within their fixed route service area as well as for riders requiring complementary paratransit service. This service is open to the general public.

Dial-A-Ride provides service anywhere within the towns of Chester, Clinton, Deep River, Durham, Essex, East Haddam, Haddam, Killingworth, Lyme, Old Lyme, Old Saybrook, and Westbrook. Limited service is provided to Middletown (e.g. the bus passenger terminal, the Senior Center and medical facilities) if trips that begin or end in one of the 12 towns served. Limited service is also provided to the Colchester Stop and Shop on request by East Haddam residents.

Service hours are 6 a.m. – 6 p.m., Monday-Friday. Reservations are required and must be made by 4 p.m. on the day prior to the requested trip. Reservations can be placed by phone or through an online booking system. Customers may use a mobile or on-line application to pay by credit card and to receive alerts regarding scheduled pick-ups. The app also shows real time bus location.

Taxi Voucher Program

9 Town Transit administer a taxi voucher program to provide accessible transportation beyond the hours and service area of regular ADA services. The service operates 24 hours per day, seven days per week, and is available to seniors and persons with disabilities. After successfully completing an eligibility and application process, participants mail in a voucher with a payment that is then credited to their account at twice the value, effectively halving the cost of taxi trips. Companions and Personal Care Attendants may ride for free with an eligible participant.

Trips must begin or end in Chester, Clinton, Deep River, Durham, Essex, East Haddam, Haddam, Killingworth, Lyme, Madison, Old Lyme, Old Saybrook or Westbrook. Reservations are required and must be made at least two days in advance. Reservations can be placed by calling the taxi provider between 9 a.m. and 1:30 p.m.

XtraMile Microtransit Pilot Program

9 Town Transit is piloting XtraMile, a free on-demand ridesharing service. The pilot started in May 2019 and is slated to operate through November. The service uses 9 Town Transit vehicles with unique XtraMile branding. Passengers are picked up by request and dropped off at any desired destination within an established pilot area covering Old Saybrook, Westbrook and the village of Centerbrook in Essex. Pick up requests can be made through a mobile application or by calling the 9 Town dispatch center. Passenger pick-up and drop-off locations are then programmed into on-board navigational software for the vehicle driver. Typical

passenger wait times are 10 to 15 minutes but can be longer. XtraMile also accepts walk-on riders at Old Saybrook Station; these riders must tell the driver where to be dropped off.

If made permanent, the service area may be expanded and fares will be collected.

Clinton Seasonal Trolley Pilot Program

From July 3 to September 1, 2019, 9 Town Transit operated a seasonal Clinton Trolley. The Clinton Trolley was a free, tourist-oriented service provided through a collaboration of the Clinton Chamber of Commerce, the Clinton Economic Development Commission, and Clinton Placemakers. The service was operated as a pilot project; the vehicle used was donated by a local business and funding was sourced through advertisements on the vehicle. The trolley served key destinations in and around Clinton, including:

- Clinton Shore Line East train station
- Harborside Marina
- Clinton Crossing Premium Outlets
- Liberty Green
- Stop & Shop/Walgreens
- ShopRite
- East End

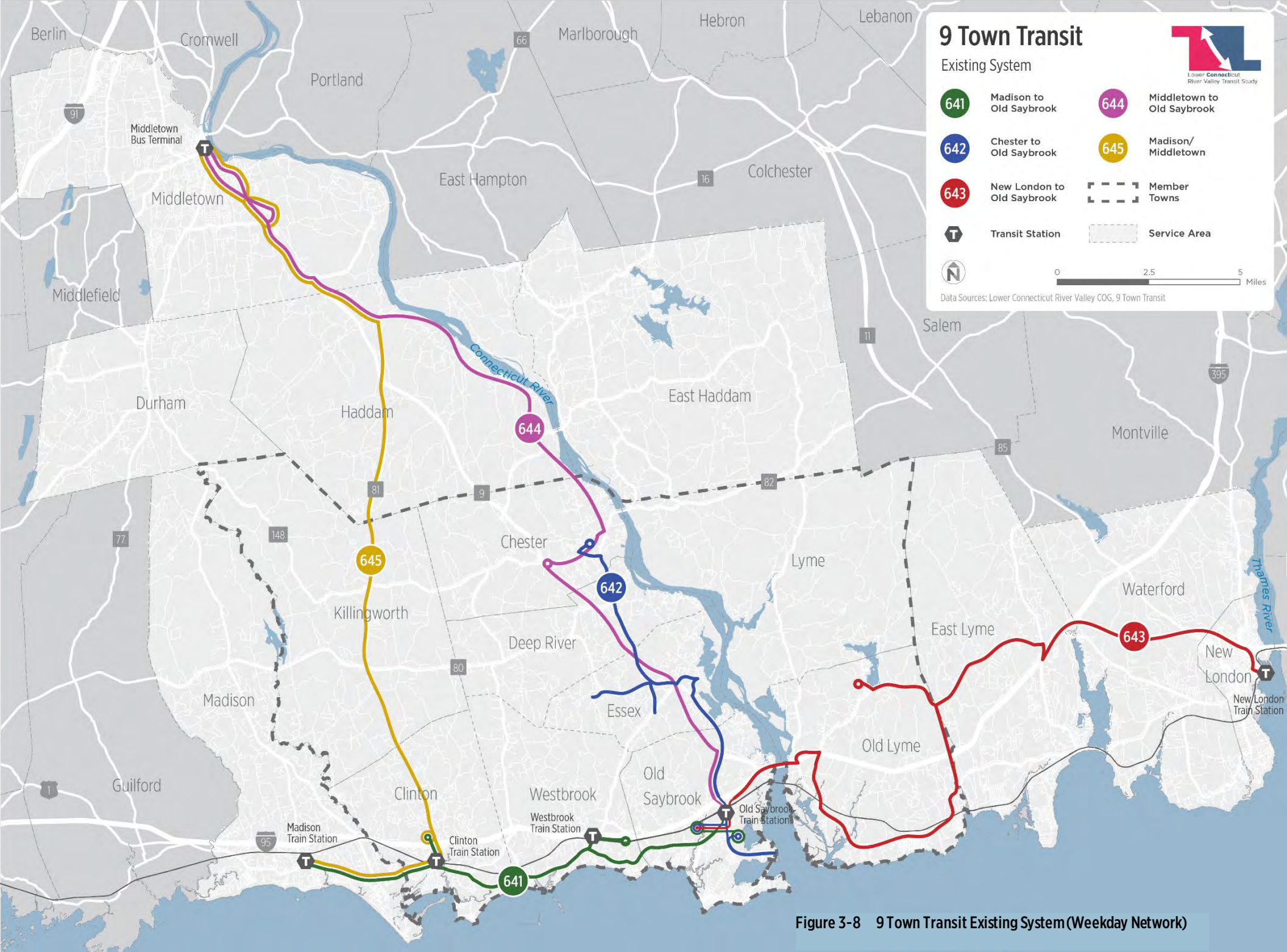


Figure 3-8 9 Town Transit Existing System (Weekday Network)

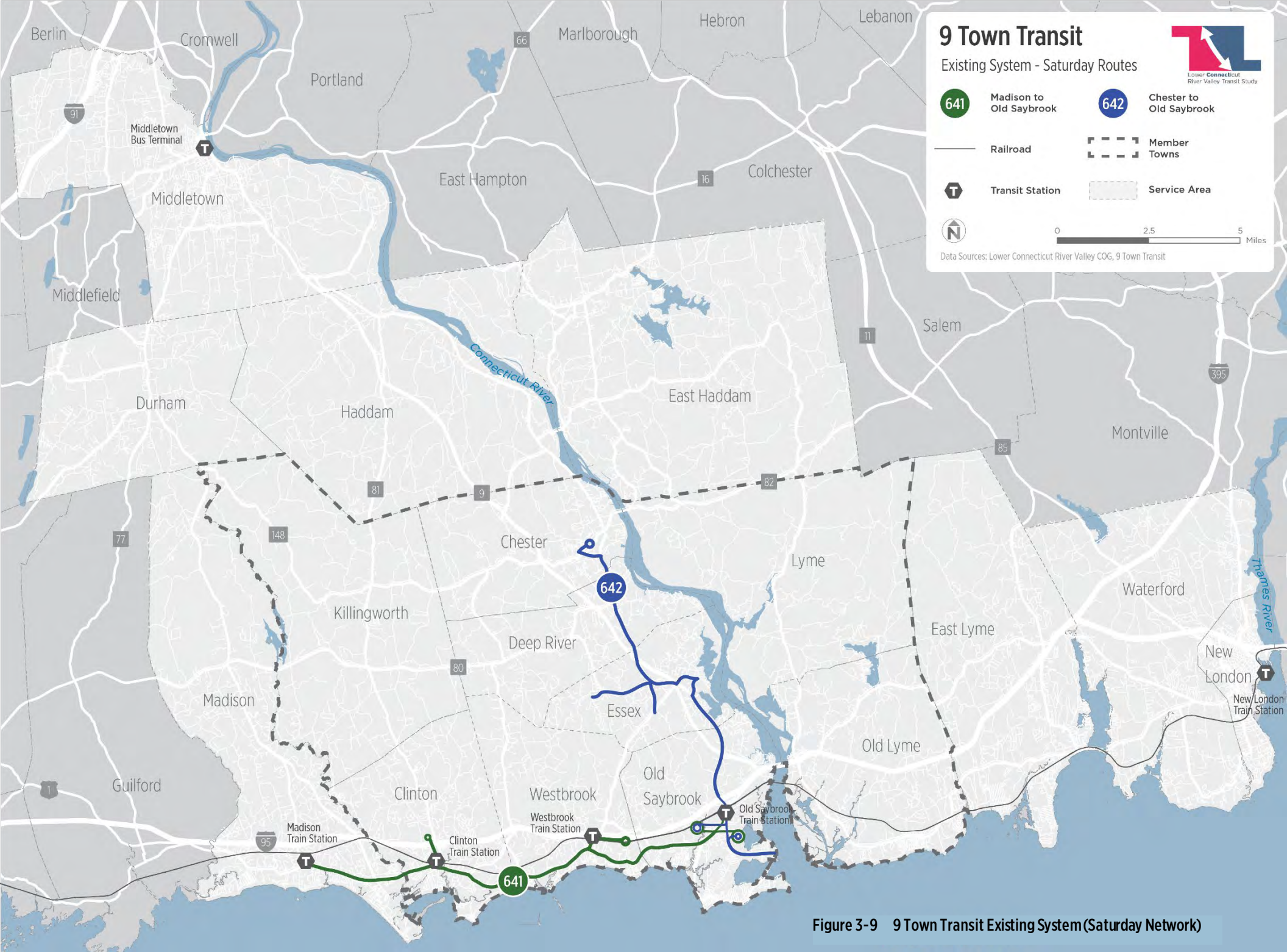


Figure 3-9 9 Town Transit Existing System (Saturday Network)

Facilities

Administrative Offices and Garage

9 Town Transit currently operates out of leased space in the Centerbrook Industrial Park in Centerbrook, CT. Their space houses an office for the administrator, open office space for other staff, a conference room, and restrooms. Dispatch also occurs from this office.

9 Town Transit's vehicle fleet is parked outdoors at this location overnight and dispatched from the facility for each shift. This fleet also includes several non-revenue vehicles used to drop off and pick up drivers during change over for buses on fixed routes.

Vehicle Maintenance

All vehicle maintenance is contracted out to a local mechanic shop. This shop provides pickup and dropoff service so that 9 Town Transit staff does not need to drive vehicles to and from the maintenance facility. The contractor performs regularly scheduled maintenance and repair and provides tow truck service in case of breakdowns on the road.

Bus Stops & Shelters

9 Town has twelve bus shelters located throughout its system. The system is operated as a flag stop system, but bus stops signs are posted in some locations, primarily on Route 1, Route 156 in Old Lyme, and Route 154 in Deep River.

Old Saybrook Station is the hub for four of 9 Town Transit's five routes. It serves as a transfer point between 9 Town Transit Routes 641, 642, 643, and 644, as well as Amtrak, CT*transit* express commuter Route 921, and Shore Line East commuter rail services. The XtraMile on-demand service piloted during the summer of 2019 was also based at the station. The bus stop has a shelter and bicycle rack and is adjacent to a commuter parking lot. The shelter is a short walking distance from the train station platform, restrooms and waiting areas.

Other major transfer locations include:

- **Scranton Gazebo:** Located in Madison center. Served by 9 Town Transit Routes 641 and 645 with a timed connection to CT*transit* Route 201 to New Haven.
- **New London Union Station:** Located in downtown New London. Served weekdays by 9 Town Transit Route 643 with timed connections to SEAT routes serving New London and Norwich. The train station is also served by Shore Line East (with service to New Haven) and Amtrak service to Boston and New York City.

Fleet, Technology and Other Assets

9 Town has a revenue fleet of 18 vehicles, with 14 cutaway buses and three transit buses and a trolley. This includes two older cutaway buses (2012 and 2013 models) used in the XtraMile on-demand transit pilot and four spare cutaway buses. A fourth transit bus will arrive in FY2020 bringing the fleet to 19 vehicles. The XtraMile buses seat fewer passengers (8-10) than other cutaway buses (14-20 passengers) and will need to be upgraded if the XtraMile pilot becomes permanent. 9 Town's larger transit buses accommodate up to 27 seated passengers. The agency also maintains three non-revenue SUV vehicles.

9 Town uses fareboxes that essentially function as cash boxes and require drivers to count passengers manually.

Like MAT, 9 Town uses SEON security cameras on all of its buses, which come standard in new vehicles. 9 Town maintains these cameras in-house; there is no service contract. A Passio AVL system is currently being installed and a GTFS feed is available on the agency's website.[2] 9 Town uses Ecolane software to coordinate demand-response service, send real-time arrival information via a mobile app, and process credit card transactions for these rides. Other software includes Transloc software for the XtraMile app, RTA software for maintenance and inventory tracking, and Zonar software for driver vehicle inspector reporting (DVIR).

Figure 3-10 9 Town Cutaway Shuttle

Figure 3-11 9 Town Cutaway Shuttle for Demand-Response

Figure 3-12 9 Town Transit Bus

[2] https://estuarytransit.org/developers/

Planned or Proposed Improvements

In 2017, 9 Town Transit developed a program for a new operations and maintenance facility. This work also included a site selection process to choose a preferred site for a potential facility.

9 Town has an ongoing fleet replacement plan and will be receiving three smaller cutaway buses in fall 2019, as well as a larger 27-seat, fixed route bus and fourth new cutaway bus in early 2020.

FY2020 Section 5307 funding will be used to complete the transition to 9 Town's new Passio AVL system, including development of a real-time transit information app for fixed-route service. The AVL system will be installed on the fixed-route fleet and will be compatible with the State's AVL system, allowing for the future integration of real time transit data across systems. It is not clear yet whether the public will be directed to use a Passio app or the Transit app used by CT*transit* for real time information.

An interactive voice response (IVR) system will be introduced to coordinate demand-response and ADA paratransit scheduling. The IVR system will use an Enghouse server and a software interface powered by Ecolane.

9 Town will purchase and transition to a new radio system in FY2020, which will operate on the State Police radio system, providing statewide radio coverage. Estimated cost for 20 radios and base operations equipment is about $110,000.

A joint project with the Town of Madison will improve the area around the Scranton Gazebo so that three buses can berth at once; road access improvements will also be made. As part of a State project to upgrade the Clinton Train station, a new heated bus shelter will be installed on Route 81 in the southbound direction. There is also a project in the Statewide Transportation Improvement Program to improve the bus transfer area at Old Saybrook Station.

9 Town has been granted capital funding for farebox replacement; the State (CTDOT) will require that new equipment be interoperable with the statewide system. Planning and design for this upgrade will begin in 2020.

Regional Transit Services

CT*transit*

CT*transit* runs connecting fixed-route and commuter express bus services in the central Connecticut and New Haven areas (as well as additional contracted operations under this brand in other parts of the State).

- CT*transit* Hartford Route 55 connects Hartford and Middletown, and serves destinations within MAT's service area, overlapping with MAT Routes A, D, H, and I.
- CT*transit* New Haven Route 201 connects New Haven and Madison. This service connects with 9 Town routes 641 and 645.
- CT*transit* New Britain Route 512 connects Cromwell to New Britain and Newington. The service connects to MAT Routes E and I at Cromwell Walmart.
- CT*transit* Commuter Express bus service operated by DATTCO as Route 919 serving the Meriden Transit Center, and Route 921 serving Old Saybrook Station (and park-rides along Route 9 in Chester and Essex), with both operating express service into downtown Hartford. Route 906 also provides express service to downtown Hartford and intersects with MAT Routes D, E, and I along Berlin Road in Cromwell.

CT*rail*

CT*rail* consists of three passenger services: Shore Line East, the Hartford Line and the New Haven Line; these services are owned by CTDOT but operated by contractors. CT*rail* passengers can transfer to MTA Metro-North commuter rail at New Haven Union Station for service to New York City. CTDOT owns these services but contracts for operations.

Shore Line East is a commuter train operating along the Connecticut coast with service primarily between Old Saybrook and New Haven, and limited service to New London and Stamford. Stations in the service area are Madison, Clinton, Westbrook, Old Saybrook, and New London. The New Haven Line is a commuter rail service operated by Metro North as far east as New Haven.

The Hartford Line is an intercity rail line operating from New Haven to Springfield, MA. The line serves the Meriden Transit Center in the study area. Berlin Station is just outside of the study area.

SEAT

Southeast Area Transit (SEAT) is the transit district for New London County. Connecting fixed-route bus services operate from New London's Union Station, providing local service in New London and connecting service to Groton, Norwich and other communities. 9 Town's Route 643 meets SEAT's hourly pulse in New London, connecting with seven SEAT routes.

Amtrak

Northeast Regional

Amtrak operates the Northeast Regional service between Boston and Washington, DC with stops in New London, Old Saybrook and New Haven, as well as New York City. One trip a day operates between Springfield, MA and Washington, DC. Amtrak's Acela service stops only in New Haven.

Vermonter

The Vermonter provides daily service between Saint Albans, VT and Washington, DC, with stops in Meriden and New Haven.

Figure 3-13 Major Hubs and Transfer Locations (Summer, 2019)

Location	MAT Routes	9 Town Routes	Other Services
MAT Bus Terminal	All MAT Routes	644, 645	CT*transit* Route 55
Middlesex Community College	A, S1	644, 645	
Meriden Transit Center	M-Link		CT*transit* Routes 561, 563, 564, 565, 566, 919 (express) Hartford Line Amtrak Vermonter and Northeast Regional
Clinton Station		641, 645	Shore Line East
Madison Station		641	Shore Line East
Westbrook Station		641	Shore Line East
Old Saybrook Station		641, 642, 643, 644	Shore Line East Amtrak Northeast Regional CT*transit* Route 921 (express)
New London Union Station		643	SEAT Routes 1, 2, 3, 12, 13, 14, 15, 108 Shore Line East Amtrak Northeast Regional Greyhound
Scranton Gazebo, Madison		641, 645	CT*transit* Route 201
Cromwell Walmart	E, I, S3		CT*transit* Route 512
Chester Park & Ride		644	CT*transit* Route 921 (express)
Essex Park & Ride		644	CT*transit* Route 921 (express)

Source: Amtrak, CT*transit*; Middletown Area Transit, 9 Town Transit, Southeast Area Transit District

Fares

MAT Fares and Structures

MAT's fare structure is shown in Figure 3-14. Transfers between MAT routes are issued free of charge when requested by passengers upon boarding. The transfer must be used for the next scheduled connection (based upon the time marked on the transfer) at the first point where the routes intersect. MAT senior discounts begin at age 65 years.

9 Town Transit Fares and Structures

9 Town Transit's fare structure is shown in Figure 3-15. Transfers are issued upon request when riders board the bus. 9 Town Transit transfers are single-use, valid on the next connecting bus, and cannot be used for round trips. Member or contract town governments, including their school districts, are eligible to receive discount tickets and passes. 9 Town's senior discounts begin at age 60 years.

Cross Honored or Coordinated Fare Programs

The State of Connecticut manages the U-Pass program, which allows students at participating schools of higher education in the state to ride

Figure 3-14 MAT Fare Structure (Summer, 2019)

Middletown Area Transit Fare Type	Cost
Single Fares	
Base (ages 6-64)	$1.75
Elderly (65+) / Handicapped *	$0.85
Children (<6 years old)	Free
ADA / Dial-A-Ride (must pre-qualify)	$3.50
Passes	
All-Day Pass	$4.50
10 Ride Base (ages 6-64)	$15.75
10 Ride Elderly (65+) / Handicapped *	$7.65
Monthly Passes	
Ages 6 – 17	$38.00
Ages 18 - 64	$52.50
Elderly (65+) / Handicapped *	$25.50
Middlesex Community College Student	$35.00

*Must present a valid Medicare card of CTDOT Senior/Disabled Reduced-Fare Photo Id Card

Source: Middletown Area Transit

Figure 3-15 9 Town Transit Fare Structure (Summer, 2019)

9 Town Transit Fare Type	Cost
Single Fares	
Regular On-Route	$1.75
Senior (Age 60+) / Disabled On-Route	$0.85
Resident Senior (Age 60+) On-Route *	$0.85
Regular Off-Route, Dial-A-Ride	$3.50
Senior (Age 60+) Off-Route, Dial-A-Ride *	$1.75
Children (≤ 4 years old)	Free
Transfers (continuing one-way trip)	Free
Pre-Paid Fares	
10 Ticket Book	$15.75
Monthly Pass	$59.00
Senior / Disabled Monthly Pass *	$31.00

*In addition to the senior/disabled fare, seniors 60 and over residing in any of the 9 Town member towns may ride on a donation only basis. Senior transportation is made possible by a grant from the Senior Resources Agency on Aging with Title III funds made available under the Older Americans Act. To use the senior fare program on-route, a 9 Town Senior ID is required.

Source: 9 Town Transit

transit for free.[3] A valid student ID and U-Pass allow unlimited rides on local and express CT*transit* routes, CT*fastrak*, New Haven Line, Hartford Line, Shore Line East, and other participating systems including MAT and 9 Town Transit. Middlesex Community College participates in this free-fare program.

Transfers between CT*transit* routes and MAT routes are fully honored, with MAT accepting *CTtransit* daily and monthly passes, in addition to transfers. CT*transit* also accepts MAT fare products for trips into Hartford. Neither system accepts the other's 10-ride passes.[4]

Shore Line East customers whom present their valid "Monthly Plus Bus" ticket while boarding any 9 Town Transit bus may travel for free. Monthly passes, seven-day and one-day passes from all CT*transit* and MAT routes are also accepted. 9 Town Transit riders with a valid monthly pass can transfer for free to CT*transit* Route 201 at the Scranton Gazebo. Transfers between SEAT and 9 Town Transit are free at New London Union Station (valid for SEAT New London routes).

[3] https://ctrides.com/u-pass

[4] https://www.cttransit.com/fares/transfers

Service Performance

Ridership Statistics by Route

MAT Ridership by Route

Systemwide, Middletown Area Transit carries an average of 854 passengers per weekday. The average weekday ridership per route is 95 people. MAT has several high-ridership routes, well above the route average. Routes A, B, C, and D serve about 70% of MAT's riders. Routes E and M have moderate ridership and have both benefitted from recent redesigns to change alignments and eliminate underperforming segments. The daytime Route F and the evening Routes H and I have the lowest ridership, around one third of the route average. Figure 3-16 and Figure 3-17 show ridership statistics by route for MAT.

Figure 3-16: MAT Routes by Average Weekday Ridership, 2019

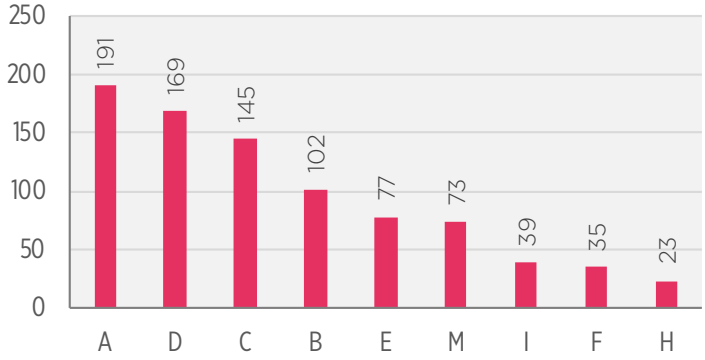


Figure 3-17 MAT Average Weekday Ridership, 2019

Route	Name	Weekday Ridership	Passengers per Revenue Vehicle Hour	Cost per Passenger
A	Saybrook Road	191	14.7	$2.64
B	Wesleyan Hills	102	7.8	$4.95
C	Washington Street	145	11.2	$3.48
D	Newfield Street	169	13.0	$2.99
E	Westlake Drive	77	5.9	$6.56
F	Portland-East Hampton	35	4.4	$8.88
H	South (PM Only)	23	5.8	$6.75
I	North (PM Only)	39	9.8	$3.98
M	M-Link	73	5.6	$6.91
	Route Average	**95**	**8.7**	**$5.24**

Source: MAT ridership data, June 2019

9 Town Transit Ridership by Route

Systemwide, 9 Town Transit carries 292 passengers per average weekday. The average weekday ridership per route is 58 people. 9 Town Transit has one very high-ridership route, the 641. With an average of 194 riders per weekday, the route has about triple the systemwide route average and carried more than 60% of 9 Town's weekday passengers in 2019. Routes 642, 643, and 644 have moderately low ridership, about half of the route average. Route 645 has very low ridership, carrying about 4% of the system's passengers each weekday. Figure 3-18 and Figure 3-19 show ridership statistics by route for 9 Town Transit

Figure 3-18 9 Town Transit Routes by Average Weekday Ridership, 2019

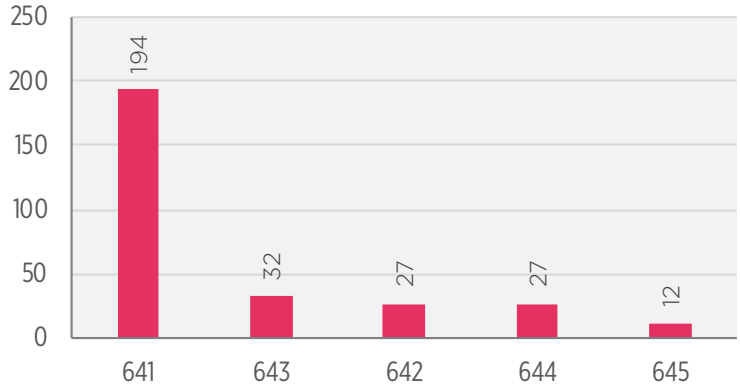


Figure 3-19 9 Town Transit Average Weekday Ridership, 2019

Route	Name	Weekday Ridership	Passengers per Revenue Vehicle Hour	Cost per Passenger
641	Old Saybrook/Madison	194	6.8	*Need to obtain from 9 Town*
642	Old Saybrook/Chester	27	2.1	
643	Old Saybrook/New London	32	2.9	
644	Old Saybrook/ Middletown	27	2.2	
645	Madison/Middletown	12	1.0	
	Route Average	**58**	**3.0**	

Source: 9 Town Transit ridership data, June 2019

Systemwide Ridership

Based on ridership-by-stop data collected from May to July 2017, patterns of ridership can be seen within each transit system. Stops with high ridership stops most often coincide with dense areas of population and employment and/or key activity centers. A detailed analysis of the regional transit market is found in the following chapter of this report (Chapter 4 Market Analysis).

MAT Ridership

The MAT bus system carries an average of 95 riders per route on weekdays. Figure 3-20 shows systemwide ridership for Middletown Area Transit based on 2017 passenger counts. The highest ridership is focused around downtown Middletown and the MAT Passenger Terminal, specifically. Other areas of high ridership include:

- Middletown/Cromwell border, around Cromwell Commons and Cromwell Square shopping centers
- Washington Street, at Middletown Plaza
- Meriden, near the Transit Center
- Saybrook Road, including medical complexes and Middlesex Community College

Within the system, areas with strong to moderate ridership include:

- Newfield Street
- West Lake Drive
- West Street and Long Lane corridor
- South Main Street, north of Wesleyan Hills Road

Notably, Figure 3-20 indicates several sections of the system with low to very low ridership:

- Portland and East Hampton
- East Street corridor
- South Main Street corridor, south of Wesleyan Hills Road

9 Town Transit Ridership

The 9 Town Transit system carries 58 riders average per route on a weekday, although it is significantly higher on Route 641 (194 passengers per weekday) and lower on all other 9 Town routes. Figure 3-21 shows systemwide ridership for 9 Town Transit, based on 2017 passenger counts. Most of the system's boardings and alightings are concentrated along US Route 1 and the coastline, where most population in the 9 Town district is concentrated. Highest boarding locations include the Scranton Gazebo in Madison (where connections to New Haven may be made) and Old Saybrook Center. Other areas with strong ridership include intermodal connection points as follows:

- New London Train Station
- Middletown Passenger Terminal
- Westbrook Center, including Westbrook Train Station
- Clinton Center, including Clinton Train Station

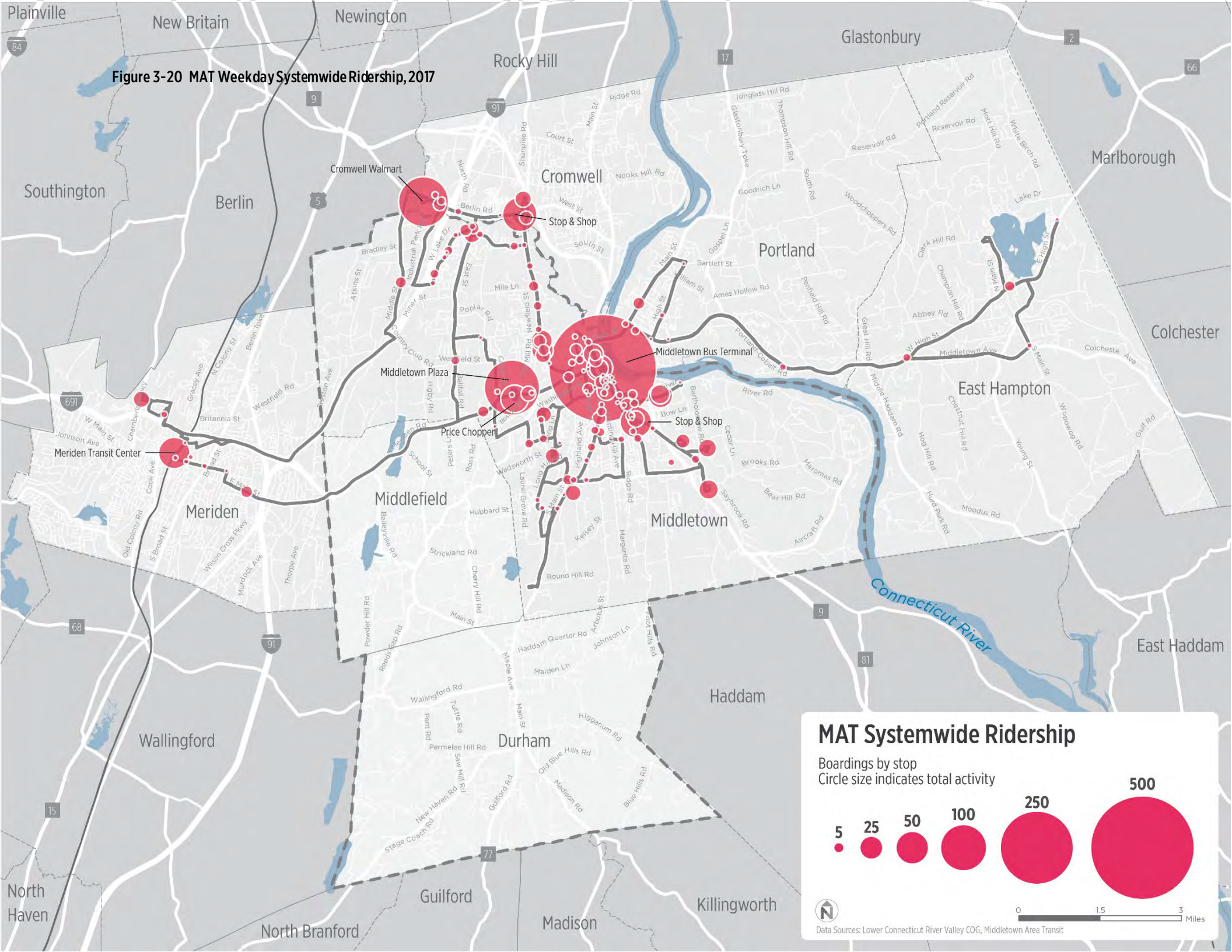
Areas with more moderate ridership include village centers and other points along the coast:

- Essex Village
- Deep River Center
- Chester Center
- Sections of Route 1 near Saybrook Manor, the Clinton/Westbrook border by the marinas, and the Madison/Clinton border by Hammonasset Beach State Park

Within the system, areas with low ridership include:

- Old Lyme and East Lyme
- Killingworth and Haddam
- Old Saybrook, north and west of the Train Station
- Clinton, north of Clinton Crossings Mall

Figure 3-20 MAT Weekday Systemwide Ridership, 2017



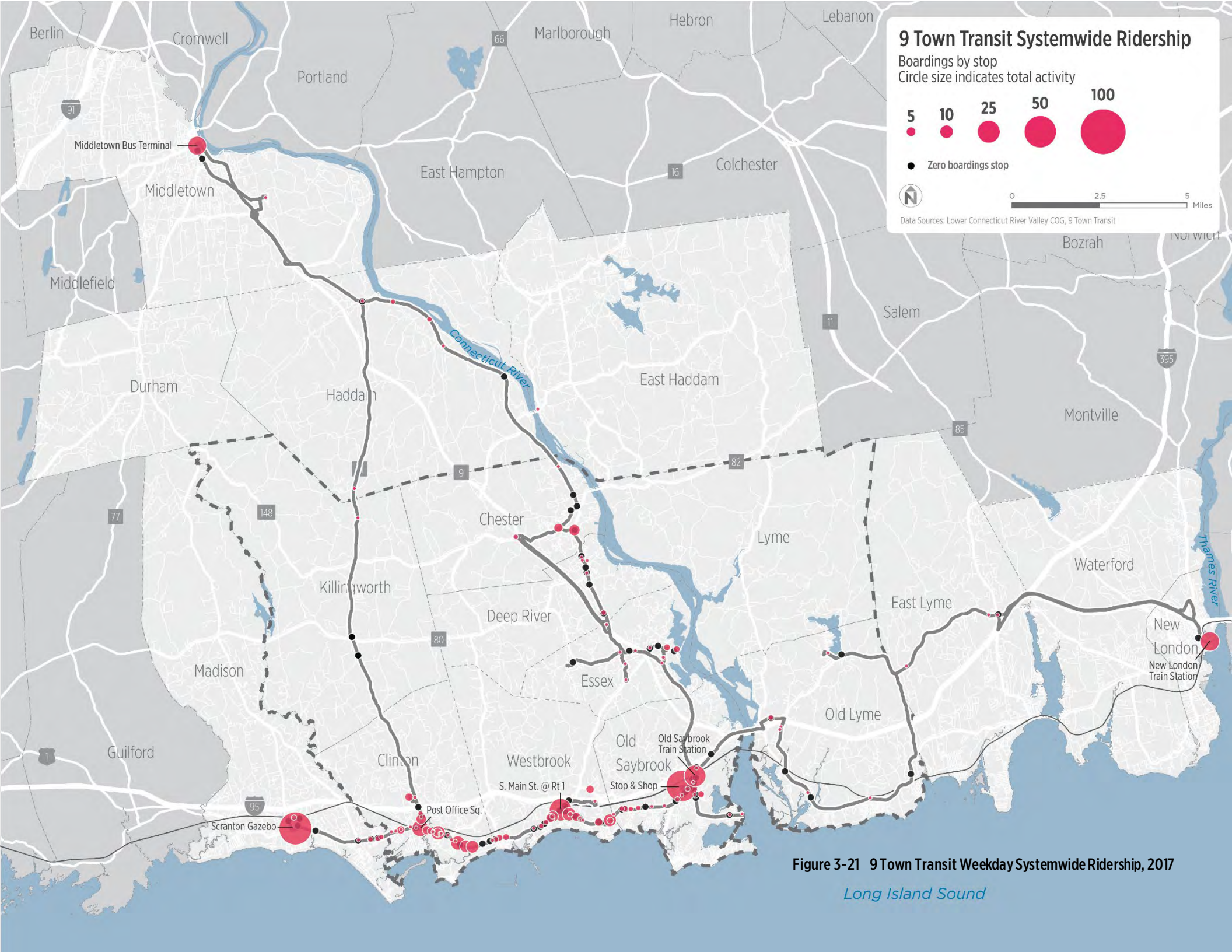


Figure 3-21 9 Town Transit Weekday Systemwide Ridership, 2017

4 Market Analysis

Overview

The underlying demand for transit is driven by several factors. For resident-based travel, the following four factors are particularly important, and are the major focus of this market analysis:

- **Population and Employment Density:** In places where larger numbers of people live and/or work in close proximity, transit demand is higher.
- **Socioeconomic Characteristics:** Different people have different "propensities" to use transit, with differences related to socio-economic characteristics. For example, people who live in households with one or more cars are much less likely to use transit than those without any access to a car. Conversely, older adults, younger people, minorities and individuals with disabilities are more likely to use transit.
- **Major Activity Centers:** Major activity centers are places that attract many people and may generate higher demand for transit service. These include major employers, medical facilities, universities, and shopping centers.
- **Travel Flows:** Travel flows show the places to and from which people travel, and the types of trips people make, indicating where people need to go within and outside of the region.

These factors are the primary drivers of transit demand and, as such, provide strong indications of underlying transit demand. However, it should also be noted that other factors also influence transit demand, including:

- **Urban Form/Land Use:** While directly related to the population and employment densities of an area, the urban form or land use in an area should ideally go beyond providing density. Providing a diversity of uses at street-level, good connectivity of the multimodal network, major destinations along reasonably direct corridors, and comfortable and safe spaces for people all can influence transit demand.
- **Pedestrian Environment:** Nearly all transit riders are also pedestrians, and, thus, walking environments strongly impact ridership. In general, people will walk one-quarter of a mile to access transit. However, in comfortable pedestrian environments, many transit riders will walk longer distances; in uncomfortable environments, many will not walk even one-quarter of a mile.

Population and Employment

More than any other factors, population and employment density affect the underlying demand for transit. Transit needs to serve sufficiently high volumes of travelers to be cost-effective, and the density of development in an area determines the overall size of the travel market. Smaller, less-densely populated areas or those with fewer jobs can only support bus service at low frequency (e.g. every 60 minutes or longer). As density increases, bigger markets can support more frequent service.

Population Density

Overall population densities are low throughout the Lower Connecticut River Valley, and few areas are able to support even hourly service based on population density (see Figure 4-1). There are small pockets where population densities may be able to support transit service every 30 minutes, however, because these are small pockets scattered across a larger area, the potential level of service that can be supported overall may be much lower.

Within Middletown, population density is highest in the neighborhoods in and around downtown, as well as in the areas between Lake Drive and East Street at the western end of the Town. The density in these areas could potentially support hourly bus service. Throughout the rest of Middletown, less frequent service may be more appropriate given their lower population density. Outside of Middletown and the MAT district, there are pockets of higher population density in Meriden and Cromwell.

Within 9 Town Transit member towns, there is a small pocket of higher density in Old Saybrook that supports 60-minute transit services. Otherwise, population density supports transit service that operates less frequently than once an hour. Outside of the member towns, there is potential demand for hourly service in parts of New London.

Transit Propensity

In addition to population density, socioeconomic characteristics influence people's propensity to use transit. For example, some areas may have relatively low population density, but a higher likelihood of using transit due to lower vehicle ownership, lower household income, higher youth or elderly populations, or other factors. Conversely, areas with greater population density could be made up of people who are less likely to use transit.

Figure 4-1 illustrates the population densities across the study area based on the propensity of different groups to use transit. This is done using transit propensity factors which indicate how much more or less likely specific groups of people are to use transit for commuting compared to the overall population in the study area. The factors were used to adjust population and population density of block groups to better reflect the propensity of people within that block group to use transit.

Transit propensity factors were developed based on the following attributes:

- **Vehicle Ownership:** People living in households without a vehicle, either by choice or due to limited resources, are more likely to use transit than those with access to a car.
- **Poverty Level:** Owning and operating a car is expensive. Those living under the poverty line are more likely to use transit more regularly than other groups due to limited access to a vehicle, and they may rely on transit as their primary mode of transportation.
- **Race and Ethnicity:** Minority residents generally have higher rates of transit use, and the provision of effective transit service to minority populations is also particularly important to the Federal Transit Administration and is a requirement under Title VI of the Civil Rights Act of 1964.

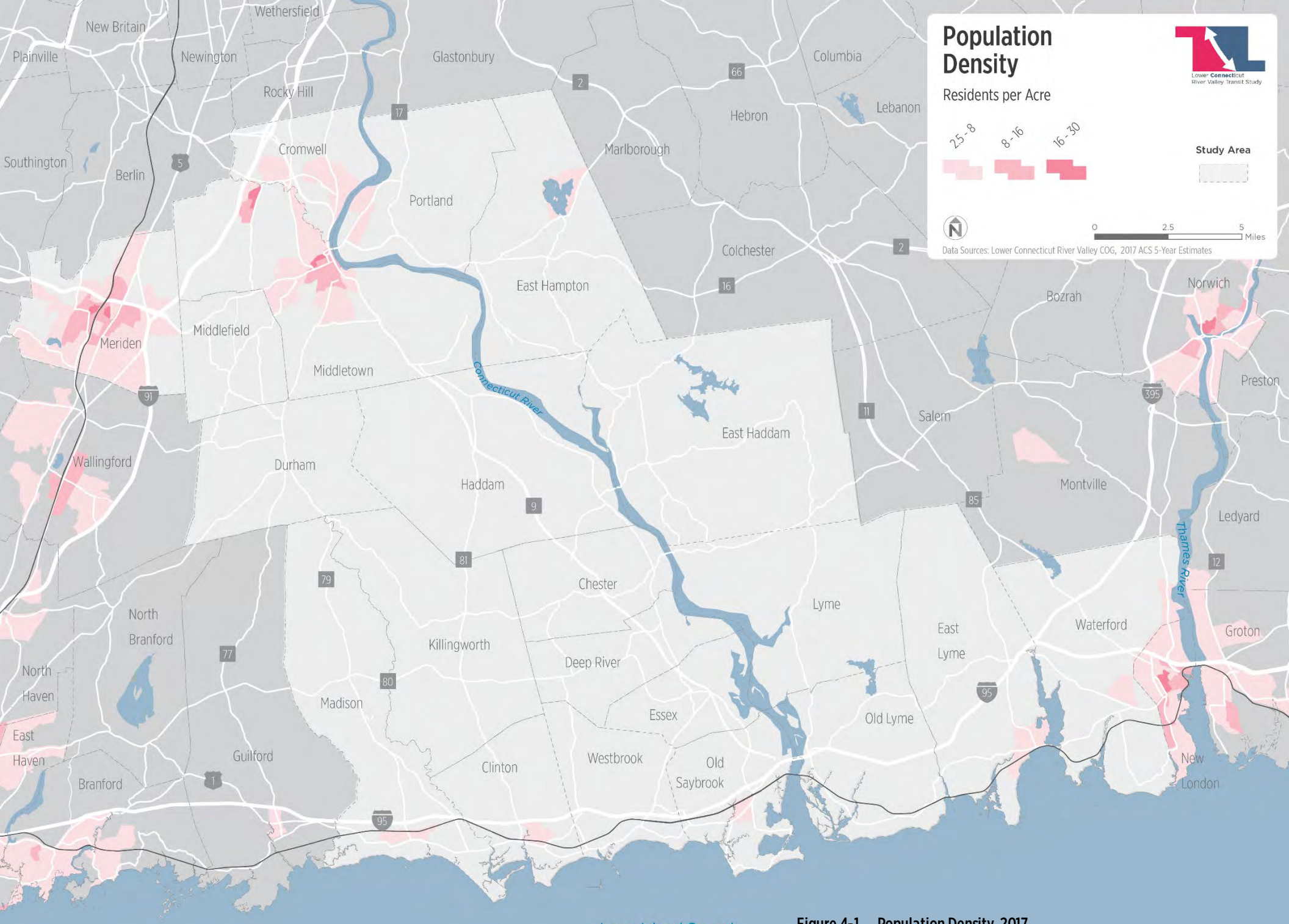


Figure 4-1 Population Density, 2017

Employment Demand

The concentration of jobs also affects transit demand. Like population density, the underlying demand for transit typically grows with an increase in employment density. In general, in an area with 4 to 8 jobs per acre, there is demand for hourly transit service. In an area with 8 to 16 jobs per acre, there is demand for transit service every thirty minutes. Understanding where there is a concentration of jobs is important when thinking about transit service because in many places, transit services are largely supporting trips to and from work.

Throughout the Lower Connecticut River Valley, employment density for transit is low (see Figure 4-2). There are pockets of demand throughout the region. Pockets within member communities of MAT and 9 Town Transit are found in the following places:

- Middletown has levels of employment density that support MAT service at least every half hour along the Main Street commercial Corridor and Wesleyan University.
- Old Saybrook has a pocket of employment density that could support hourly 9 Town service

Elsewhere, there is potential transit demand based on existing employment density in the following towns:

- Meriden
- New London
- Waterford
- Portland

Figure 4-2 Employment Density, 2015

Underlying Transit Demand

Population density and employment density each provide an indicator of potential transit demand, but when the two are combined and considered together, the demand in many areas will be significantly higher than when looking at each factor alone. This also captures areas with a mix of uses (residential, job centers and commercial areas) that can generate particularly high transit ridership.

To attract travelers who have other options, such as access to automobiles, transit must be relatively frequent (commonly defined as at least every 30 minutes). Below that, transit can be expected to serve only those who do not or cannot drive. When considering population density, demographic characteristics, and employment density together, the highest demand for transit emerges in the following areas as shown in Figure 4-3:

- In core areas of Middletown, around Main Street and Wesleyan University
- In Meriden, around Main Street and Interstate 691
- In and around downtown New London

Outside of these areas, there is very low demand for fixed route transit across the rest of the study area.

Major Activity Centers

Major activity centers are places such as employment centers, shopping destinations, universities, and medical facilities – locations that offer important services, draw a large swath of people, and generate demand for transit services. Within the study area, major activity centers are concentrated in Middletown, and along coastal communities and the Connecticut River (Figure 4-4) and many are served by existing bus and rail lines. Middletown hosts Wesleyan University, Middlesex Community College, Middlesex Hospital and a number of smaller medical offices, major employers such as FedEx, and several large retail centers. Several older village centers (Old Saybrook, Westbrook, Clinton and Madison) are concentrated along the coastline, along with medical offices, outlet shopping malls in Clinton and Westbrook.

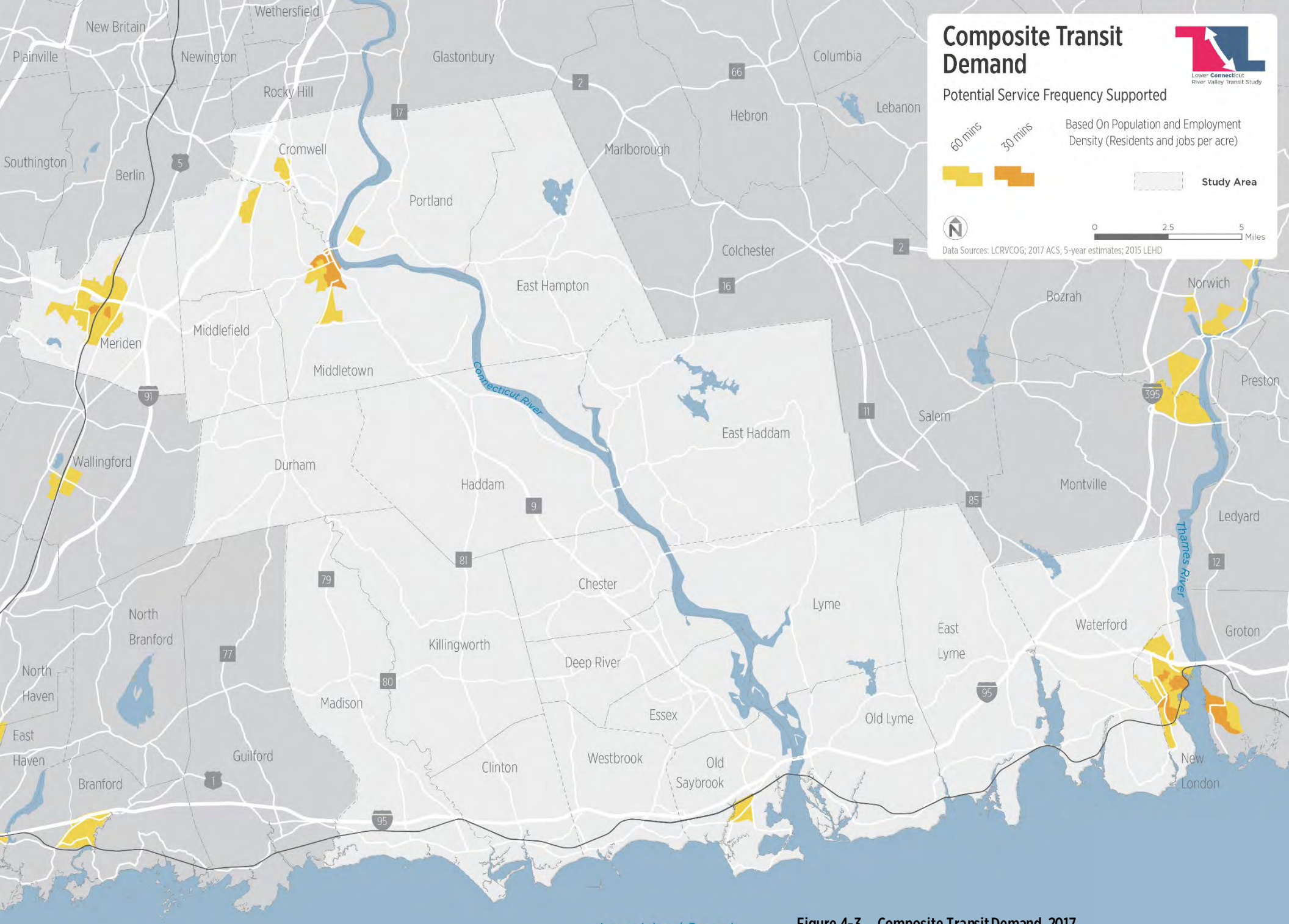


Figure 4-3 Composite Transit Demand, 2017

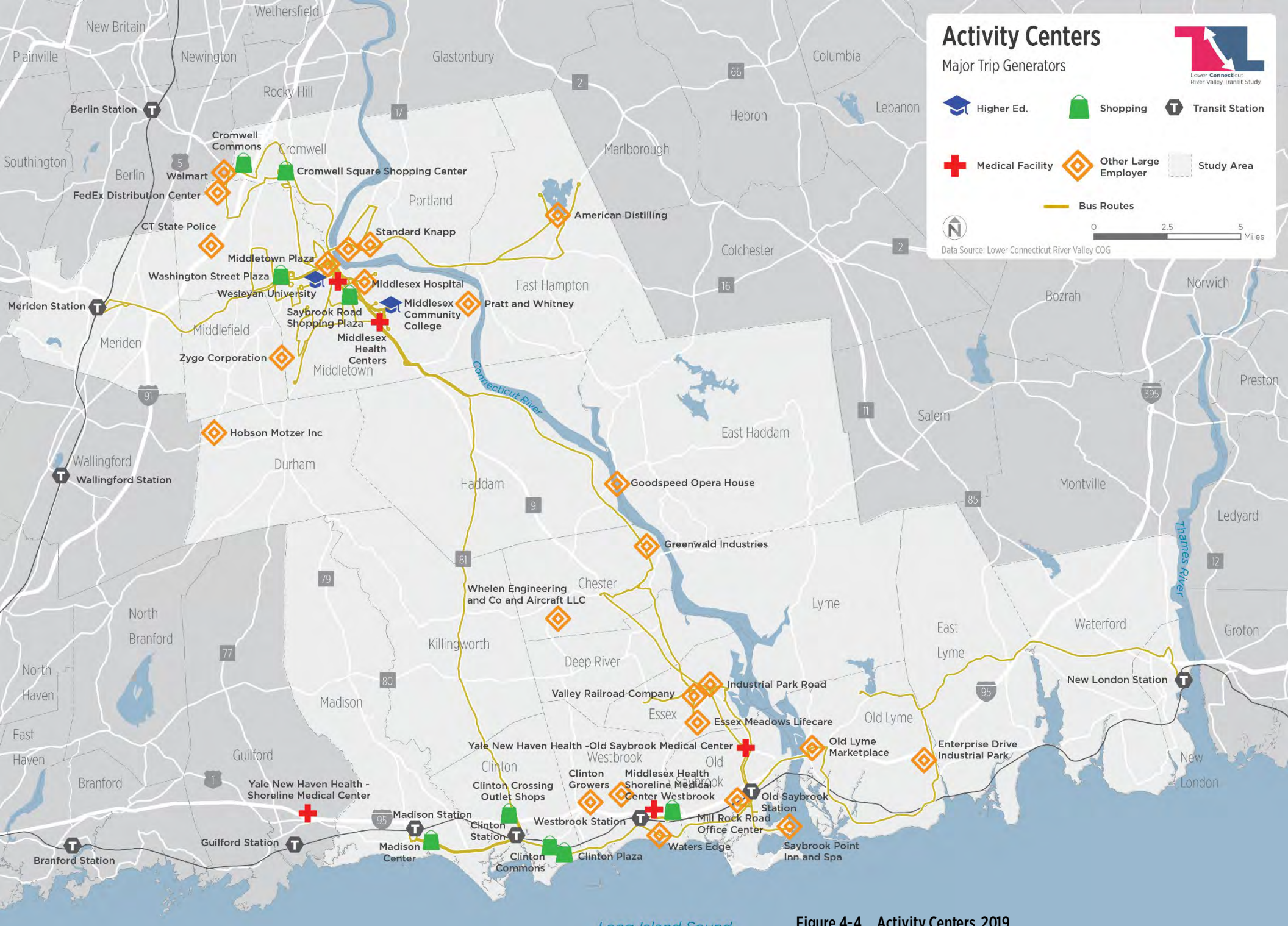


Figure 4-4 Activity Centers, 2019

Travel Patterns

Transit is most effective when it connects people to the places they would like to go. For scheduled transit to be successful, it must be direct, frequent, easy to access, and available when people need it.

Travel flows, which show the places that people travel to and from within the study area, are one resource to determine where direct or relatively easy connections should be made within an area. Two sources are used to evaluate travel flows in the Lower Connecticut River Valley. Home-based work trips are mapped using data from the United States Census Bureau, which pairs where people live and work. GPS-based location data from StreetLight, a private entity, is used to map travel patterns for all trip purposes.

Work Trips (Census)

Trips to and from work are completed frequently and regularly by large numbers of people in the study area. Many home-work trips are made between communities within the Lower Connecticut River Valley and metro areas adjacent to the study area, including Greater New Haven, the Greater New Britain, Greater Hartford, and Greater New London/Norwich. The travel flows with the largest volumes of average weekday work trips (see Figure 4-5) are between:

- Middletown and Greater Hartford (10,000+) and Greater New Haven (5,000 – 10,000 daily trips)
- Meriden and Greater New Haven (10,000+), Greater Hartford (5,000 – 10,000), and Greater New Britain (5,000 – 10,000)
- New London and Greater Norwich/New London (5,000 – 10,000)
- Waterford and Greater Norwich/New London (5,000 – 10,000)

Within the Lower Connecticut River Valley, the largest work-based travel flows are between:

- Middletown and Meriden (1,000 – 5,000 daily trips)
- Middletown and Cromwell (1,000 – 5,000)
- Between Waterford, East Lyme, and New London (1,000 – 5,000).

All Trips (StreetLight)

Data from StreetLight was used to analyze 2018 travel patterns within, to, and from the Lower Connecticut Valley. StreetLight Data, a private company, is one source for data on where people travel. The company uses location data from smartphone applications and other GPS-enabled devices to aggregate travel patterns. This data was used to understand the relative volume of trips being made between drawn zones for the region. The zones used in this analysis were derived from census block group geographies. Zones outside of the Lower Connecticut River Valley region were generated by town.

Within the study area, larger volumes of trips occur between places close to each other, rather than further from each other (see Figure 4-6). Larger volumes of trips occur within three areas:

- Cromwell, Meriden, and Middletown

- Along the coasts of Madison, Clinton, Westbrook, and Old Saybrook
- East Lyme, Waterford, and New London, with a large volume of travel within the City of New London itself.

There are also strong travel flows between the study area and regional employment centers such as the greater Hartford, New Haven, and New London/Norwich regions. Travel volumes are strongest between these regions and the towns closest to them (see Figure 4-7 Trips To/From Outside of Study Area (All Trip Types). Notable travel volumes are observed between:

- Middletown and Newington/Wethersfield/Rocky Hill/Glastonbury
- Meriden and:
  - Bristol/Plainville/Southington
  - North Haven/Wallingford/Hamden
- Cromwell and:
  - New Britain
  - Berlin
- Madison and Guilford/North Branford/East Haven/Branford
- Waterford and:
  - Groton
  - Montville/Ledyard
  - Norwich
- New London and:
  - Groton
  - Montville/Ledyard
  - Norwich

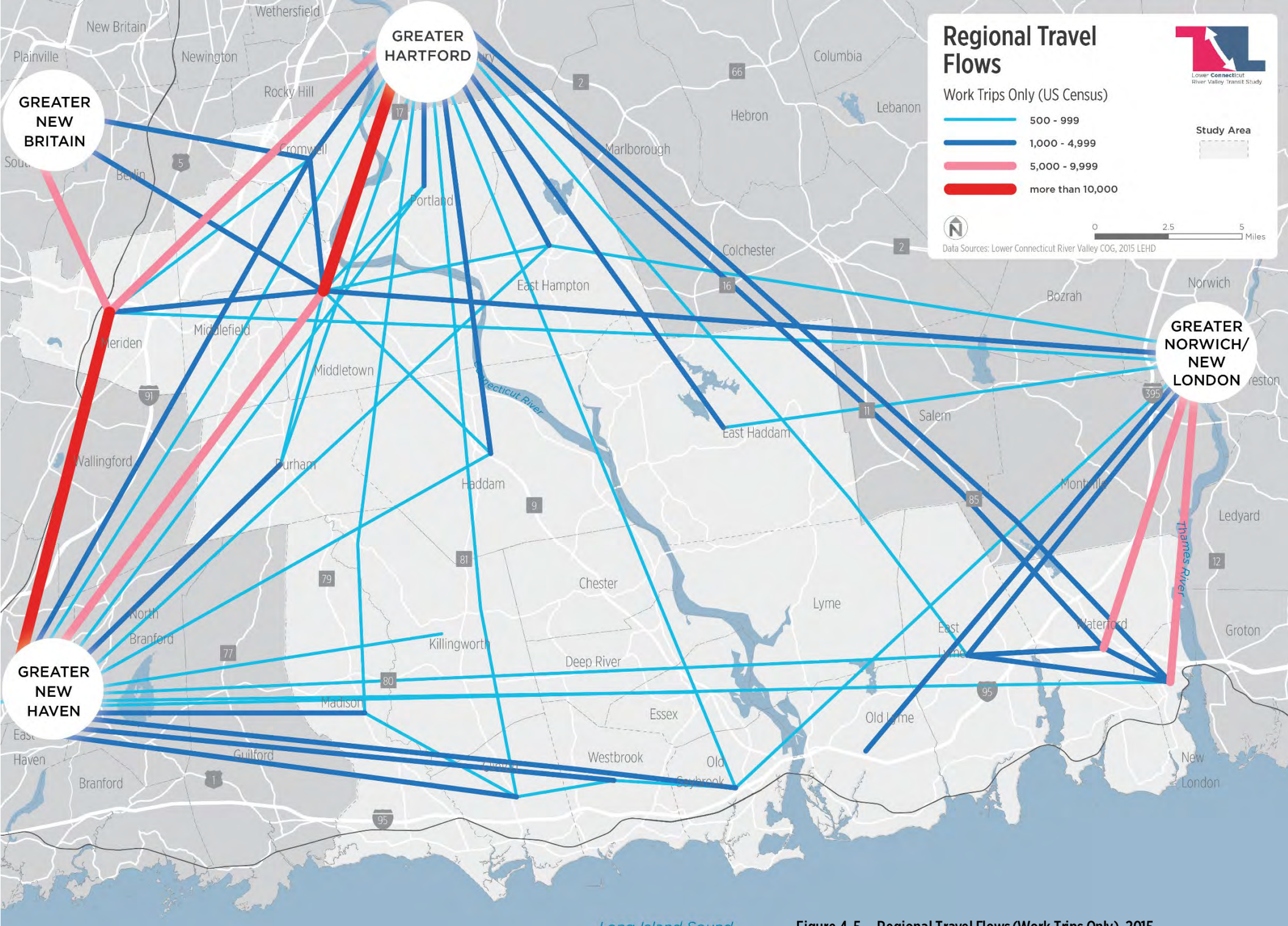


Figure 4-5 Regional Travel Flows (Work Trips Only), 2015

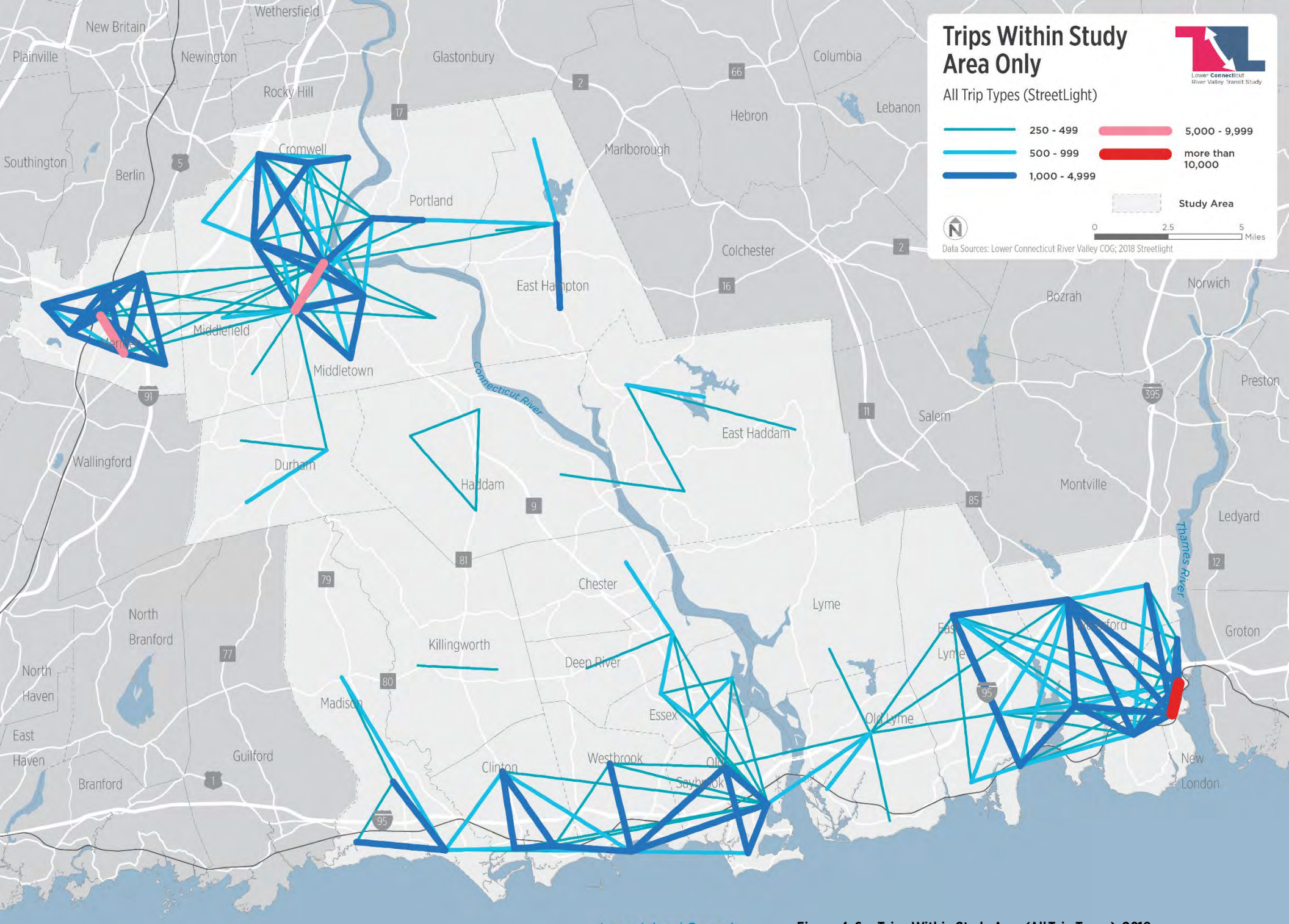


Figure 4-6 Trips Within Study Area (All Trip Types), 2018

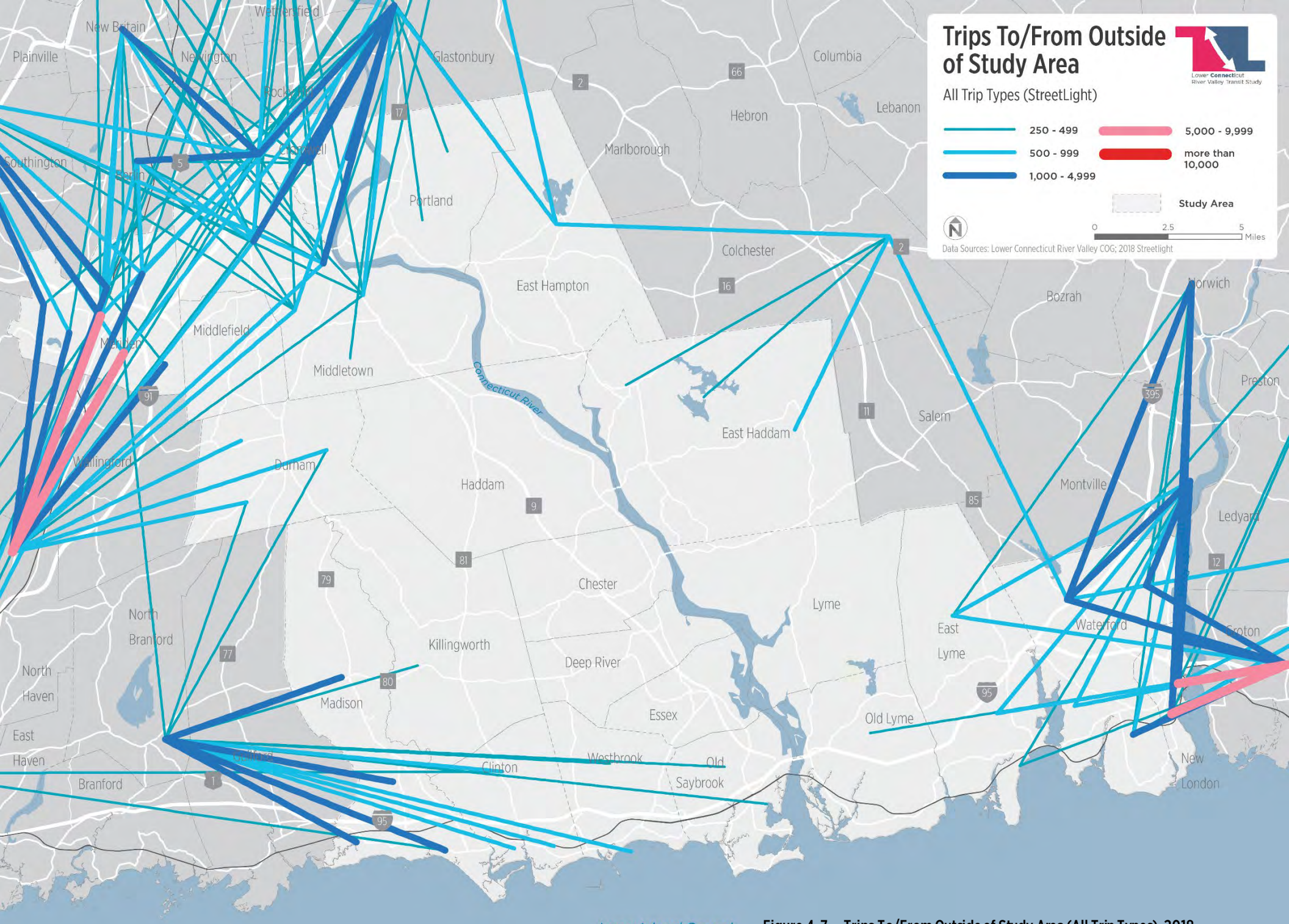


Figure 4-7 Trips To/From Outside of Study Area (All Trip Types), 2018

Summary

Throughout the Lower Connecticut River Valley, demand for transit is relatively low due to lower densities of people and jobs throughout the region. There are some pockets of high demand in denser areas, such as Middletown and Old Saybrook, where frequencies of 30 minutes could be supported, while some more suburban areas may be able to support hourly service.

Most major activity centers are located in the more developed areas of the region, however, there are large employers, medical facilities and other destinations that are more isolated. For example, these include Pratt & Whitney in Middletown, Hobson Motzer in Durham and Whelen Engineering in Chester. Such isolated centers of activity are typically efficiently served only if they fall along an established transit route.

In general, outlying segments of the study area do not have sufficient population or concentrations of employment large enough to support traditional fixed-route bus service (note that Meriden and New London are outside the LCRV region). In response, MAT and 9 Town have implemented Dial-A-Ride services to serve these less developed areas, and 9 Town has tested an on-demand microtransit service. Fixed-route deviations have also been utilized to provide occasional service to less dense areas off normal fixed routes.

In terms of travel flow data obtained from Streetlight, local trips (whether by car, bus or other mode) within the region appear to be focused in and around Middletown or along the coastline. Trips into and out of the region indicate strong flows between Middletown and the greater New Haven, New Britain and Hartford areas, strong flows from between coastline communities and Branford. Municipalities east of the Connecticut River tend to have travel flows oriented more towards New London, Colchester and Hartford.

Given this information, it would be important to support more local trips within Middletown and Old Saybrook, and along the coastline, allowing people to use transit service to reach in-demand places within their communities and the region. It is also important to offer connections to key activity centers just outside the region, including Meriden, New London, Hartford and New Haven.

5 Summary of Findings and Potential Opportunities

There are two local transit districts serving the LCRV. The member municipalities have expressed interest in enhancing the efficiency and attractiveness of public transit service to better meet the needs of local residents, workers, and visitors to the region. In addition, several ex-officio municipalities have expressed interest in joining as new members of one of these districts, which could provide opportunities to enhance the delivery of service across the region.

This section summarizes initial findings from the assessment of existing conditions and highlights key opportunities that can be considered as part of any plan to make modifications or enhancements to the delivery of transit service in the region.

Service and Market Demand

The MAT and 9 Town districts serve distinct parts of the LCRV region. MAT service is focused on Middletown, five towns surrounding Middletown, and connections to CT*rail* Hartford Line and CT*transit* in Meriden. 9 Town Transit service is focused in Old Saybrook and population centers along the coastline; provides longer distance regional connections to Middletown, New London, and Madison; and provides connections to CT*rail* Shore Line East stations. Each day, MAT provides about 20% more service than 9 Town Transit (94 vs 77 total revenue vehicle hours per day, based on 2019 average weekday)

Key Findings/Issues/Constraints

- Many parts of the region do not have the density to support fixed route bus service.
  - 9 Town Transit serves these areas using Dial-a-Ride, with productivity near average for that system.
  - MAT provides coverage to a few low-density areas through the use of one-way loop routes. To date, the loop routes have not produced consistent ridership, with most boardings and alightings generally taking place at stops along one side of a loop, with low numbers of ons and offs characterizing stops on the other side.
- Regional connections rely on transfers between services in Middletown, Old Saybrook, Madison, Meriden and New London, but the running times required for pulsing constrain route design, and some needed pulses cannot be provided with current routes and running times. The services perform well, but heavily deviated and looping route alignments undermine efficiency and convenience. Major activity centers are in the more developed areas of the region, however, there are large employers, including schools and medical facilities, outside of these places.
- While CT*transit* routes offer regional connections to MAT and 9 Town Transit riders, redundancies have lowered productivity and could involve bunching of vehicles that affect service performance.

- According to managers and drivers at 9 Town Transit, riders who alight in Middletown are traveling directly to medical appointments or senior services and don't often connect to the MAT system.

Opportunities

- Market demand and travel flow findings correlate fairly well with existing service, with opportunities to better serve nearby communities such as Cromwell, Durham, East Haddam, and East Lyme, and to enhance regional connections to New Haven, New Britain, and greater Hartford.
- Data obtained from cell phone records (Streetlight) identified relatively large travel flows in and out of Middletown and along the coastline, with opportunities to enhance existing services to better serve in-demand places within these communities.
- The strong travel flows between communities in the region and larger centers outside of the region illustrate the importance of providing connections to other transit systems that serve major employment and activity centers outside of the study area.
- Based on (a forthcoming analysis of) ridership data for 9 Town Transit's XtraMile pilot, the service appears to have been successful as a free service. Other new service delivery models are being piloted around the US, and the potential to test or implement new models in the region should continue to be assessed.
- Dial-A-Ride service performs on par with the system average for 9 Town Transit. This demand-response service successfully serves low-density areas of the Lower Connecticut River Valley. This is a model that potentially could be explored to serve other low-density areas in the region.

Fares, Passenger Information, and Other Amenities

Key Findings/Issues/Constraints

- The flag stop system currently used by MAT and 9 Town Transit has limitations. Restricting flagging and moving toward designated stops could increase operator and rider convenience, help highlight the presence of transit along routes, and streamline service.

Opportunities

- Simplifying fare products and media to bring them in line with systems used across the state (CTtransit) and moving towards an account-based system would improve the customer experience.
- Support branding of any service changes and/or system integration to communicate benefits to riders, organizations, and the community.

Support Facilities

MAT owns a downtown passenger terminal and a maintenance and administration facility. 9 Town leases office space and contracts for maintenance.

Key Findings/Issues/Constraints

- MAT's maintenance/storage facility is located on a constrained site and while functional, challenges the effectiveness of MAT operations. The layout of the maintenance building does not lend itself to expansion. If fleet size and service are expanded, MAT would likely need to consider major retrofits and/or alternate locations with more capacity.
- Conversely, MAT's Pease Avenue storage facility is underutilized and the administration suite in the maintenance facility are underutilized.
- The downtown terminal is well situated, but also lacks the ability to accommodate future system expansion.
- 9 Town has recently been classified as an urban transit system, has expanded its fleet to include larger transit buses, and is interested in performing its own fleet maintenance. However, the district does not own a facility to accommodate these tasks.

Opportunities

- MAT has funding to renovate the downtown passenger terminal, upgrading mechanicals and other facility elements within the same building footprint.
- 9 Town has developed a proposal for a new 9 Town Transit operations and maintenance facility and a 2017 site selection process identified a potential site for such a facility. The State has indicated it would be a supportive partner in developing a facility to meet 9 Town maintenance needs, but is interested in exploring whether there is potential to address needs on a more regional basis.
- MAT would like to transition away from a flag stop system; 9 Town is also interested in identifying additional bus stops along key routes, but believes that more rural parts of the service area are better suited for a flag system.

Fleet, Technology and Other Assets

Both transit districts have a capital program funded through Federal and State transit programs. Funding is requested from the State (CTDOT) on an annual basis to replace vehicles, procure or upgrade other assets, and make other capital improvements.

Key Findings/Issues/Constraints

- Both MAT and 9 Town are making ongoing fleet replacements and upgrades. MAT will have a fleet of 22 vehicles in 2020, following the purchase of two additional cutaway vehicles. 9 Town will accept delivery of an additional Gillig transit bus, bringing their fleet up to 21 vehicles. Both fleets have a mix of larger capacity transit buses, as well as body-on-chassis cutaway buses with capacity of 14 to 20 passengers. MAT's fleet contains nine spare vehicles, a relatively high ratio.
- Both transit districts have purchased AVL technology, although MAT's is not operational and does not handle GTFS feeds. 9 Town's AVL system is being installed and will include real-time information provided by Passio, and will be able to read and

export live GTFS feeds from other systems. 9 Town will be able to integrate and share data with CT*transit's* real time information system. Integration with MAT or the Southeast Area Transit District (SEAT) systems will not be feasible until these neighboring system upgrade to offer the capability to handle GTFS feeds.

- 9 Town recently was granted funding to upgrade its fare payment system to be compatible with the State's open payment system. MAT hopes to upgrade in the future, particularly to introduce compatibility and more seamless transfers with CT*transit*. Ultimately, having both districts utilize an account-based open payment fare system will allow for fare integration with other bus and rail transit providers across the state, as well as making transit more convenient and accessible to riders.
- 9 Town is moving towards becoming part of the statewide radio network; MAT remains on an independent two-way network for now.

Opportunities

- MAT has an interest in upgrading their AVL and paratransit scheduling to similar or compatible platforms as used by 9 Town.
- CT*transit* is implementing an account-based fare payment system on all its bus systems; CTDOT is planning to expand this system to all bus operators across the State and has allocated funding for new fareboxes that will be compatible with open-standard equipment (also known as open payment). This technology is designed to collect fares from contactless fare cards, credit/debit cards, or mobile phones. Planning for this system will begin in 2020 and MAT and 9 Town will be allocated funding for new fare equipment which will facilitate transfers and fare integration across districts (e.g. between MAT and 9 Town, and with CT*transit* and SEAT).
- 9 Town has employed new software programs and mobile applications for Dial-A-Ride and ADA paratransit trips to allow for on-line booking and advance credit card payments, and to provide trip arrival time updates. These applications greatly enhance customer convenience and are of interest to MAT.
- 9 Town utilized Transloc software for the reservation and scheduling of XtraMile trips during the pilot program. The use of this software or similar programs presents opportunities for expanding microtransit in other parts of the region. A September 2019 survey found that XtraMile users have somewhat different profiles than other 9 Town riders: XtraMile riders tend to be younger and more likely to have access to autos for their travel, and 25% were entirely new to 9 Town Transit.

Administration, Governance and Funding

Transit districts in Connecticut are governed under the Connecticut General Statutes Chapter 103a Transit Districts (§7-273b-o).[5] This statute enables the formation of districts by municipalities and specifies the operation, powers and responsibilities of such districts, including the ability to operate or contract for service, participate in collective bargaining agreements, issue bonds, and apply for grants or loans. Additional transit district bylaws and

[5] https://www.cga.ct.gov/current/pub/chap_103a.htm

board rules may be established outside the state statute (e.g. rules of order, what constitutes a board quorum) to help achieve equity and efficiencies in the delivery of service.

Key Findings/Issues/Constraints

- Both transit districts have similar-sized operating budgets. MAT has a budget of approximately $2.7 million, while 9 Town has a budget of $2.4 million. Both districts receive the majority of their operating revenues from State grants, with respective State shares of 62% and 64%.
- Both transit districts are run by contracted administrators via First Transit. First Transit is contracted to provide active day-to-day management of both agencies, including of the following functional areas: administration and operations, equipment maintenance, scheduling, labor relations, and employee selection and training.
- Fare recovery ratios in both districts are relatively low. MAT had a higher farebox recovery ratio of about 16% in FY2018, compared to 9 Town Transit's 9%. This difference is likely due to MAT's greater orientation to more productive fixed-route service hours, as a share of total revenue service hours, compared to 9 Town
- Both districts are relatively small compared to peer agencies in CT and around the state. There are difficulties in terms of obtaining and redundancies in terms of providing management services, software, technology and other services.
- MAT drivers are represented by the Teamsters Local 671, while 9 Town Transit drivers are unaffiliated.

Opportunities

- The legislative body of a municipality (Common Council or Town Meeting) may vote to establish a new district or join an existing district, contingent upon the subsequent approval of the transit district board. New member municipalities have expressed interest and, although are already contributing to existing service, would provide new opportunities to broaden support and planning for effective local transit services.
- A review of peer transit agencies[6] around the US offers some shared lessons:
  - Other small transit districts in New England and neighboring Mid-Atlantic states have merged operations to improve overall efficiency. These include:
    - Northwestern Vermont where three agencies merged into Green Mountain Transit (GMT) in 2016;
    - Ulster County, New York, where a municipal system was merged into county operations;
    - Northeastern Pennsylvania, where two county transit operators merged into Luzerne County Transit Authority in 2012; and,
    - Northeastern Connecticut where the Windham Regional Transit District and UConn's Husky Transit have recently agreed to merge operations.

[6] Peer agencies reviewed include Green Mountain Transit (Northwestern Vermont), Ulster County Area Transit (Ulster County, New York), Luzerne County Transportation Authority (Northeastern Pennsylvania), Dutchess County Public Transit (Dutchess County, New York), and Windham Regional Transit District (Windham County and Storrs, Connecticut).

- The most successful mergers were phased in over time with deliberate planning. Working together on certain administrative or other functions allows stakeholders to see the benefits of integration and trust the process and individuals involved. In all cases, the state DOTs provided guidance and approval.
  - In Vermont, individual agency brands were retained for several years before rebranding as GMT, and the new entity operated the absorbed district through a management contract.
  - In Ulster County, New York, the merger was phased in by assigning certain tasks to each of two districts, before eventually consolidating as a new entity.
- Significant operating cost savings are not likely to be realized from integration. Cost savings are more likely to be realized on administration and capital programming.
  - The Vermont merger creating GMT saved about $200,000 annually due the elimination of redundant positions and other efficiencies. Ulster County, New York estimated a similar level of savings, while a merger of Poughkeepsie and Dutchess County transit districts led to more than $1 million in savings due to the consolidation of largely redundant services.
  - Luzerne County, Pennsylvania gained efficiencies from bringing all outsourced maintenance in house, sharing of information technology and other services.
  - Other benefits include the creation of a more seamless regional transit network.
- Communication is key, which includes informing the community about what is happening, why, and how they may be potentially impacted. Communication with municipal leaders is also key as they need to be supportive of any changes and must understand any expected benefits or impacts.