

Regional Value Capture Study

Existing Conditions

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Quality information

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1. Introduction

The Western Connecticut Council of Governments (WestCOG) commissioned the AECOM team to conduct a Regional Value Capture Study for the New Canaan and Danbury Lines. The purpose of the Study is to develop an implementation plan for accelerating improvements to the New Canaan and Danbury Lines, including estimating potential revenues from value capture and other funding sources that could contribute to needed investments. Value capture mechanisms (such as tax increment financing) are public financing tools that recoup some of the value generated by public infrastructure investments to help pay for those investments.

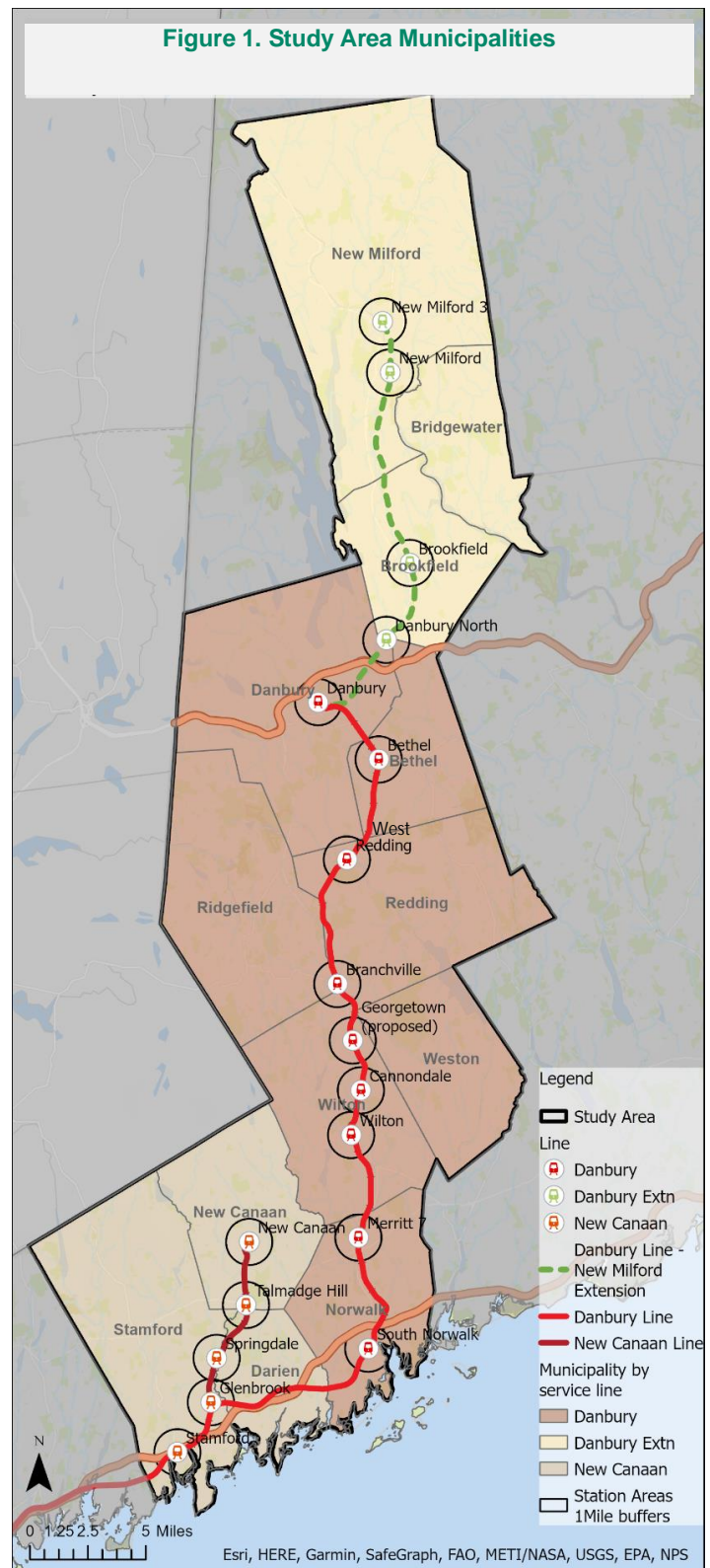
This report summarizes existing transportation, land use, and socioeconomic conditions along the New Canaan and Danbury Lines. The information in this report will be used to inform future tasks, including the development of transit improvement scenarios and analysis of the economic development benefits that would result from transit investments. The analysis presents key statistics for two study area geographies: municipalities within two miles of the of the existing rail lines and proposed Danbury Extension¹ (Figure 1), as well as station-specific data for areas within one mile of each station.

The remainder of this report is structured into the following sections:

- **Summary of Key Findings (Section 2):** Provides a high-level overview of key findings from the analysis.
- **Regional Context (Section 3):** Describes the study area's economic connections to the Greater New York Metro Area, and the geographies that are used to contextualize and compare the study area's transportation, demographic, and economic trends throughout this report (including the Metro Area, state, New Haven-Hartford corridor, and Northeast corridor).
- **Transportation (Section 4):** Analyzes existing rail, bus, and freight service, including the following metrics.

Rail Service: Existing service levels, parking utilization, planned capital improvements, and service planning initiatives.

Bus Service: Existing bus service near the study area stations for feeder connections.



¹ Station locations for the New Milford Extension are approximate and selected from proposed locations from previous studies ([10 Appendix C Danbury Branch TOD Report compressed.pdf \(ct.gov\)](#)). The proposed locations had multiple alternatives for each station (Danbury North 1 and 2, Brookfield 1 and 2, New Milford 1-5). For purposes of this analysis, an alternative was selected to demonstrate the general area and analyze the 1-mile station area with the understanding that the final location of the stations will be based on more detailed analysis.

Freight: Existing freight connections of the study area to the statewide network.

- **Socioeconomic Trends (Section 5):** Evaluates demographic, economic, and market trends in the study area municipalities, compared with benchmark geographies to understand historical trends and current dynamics. Summarizes one-mile station area population and employment counts.
- **Existing and Planned Development (Section 6):** Analyzes the distribution of residential and commercial development to identify station-level characteristics. Describes development plans and proposed development pipeline, to begin to identify areas undergoing change.
- **Station Area Typologies (Section 7):** Summarizes distinguishing factors among the station areas based on above topics and proposes broad station area typologies that start to describe where there is the most potential for future development that could drive value creation and capture.

2. Summary of Key Findings

The analysis described in this report suggests a preliminary set of opportunities and challenges for supporting increased transit ridership and economic development along the Danbury and New Canaan Lines. These initial observations are described below. Future phases of the Regional Value Capture Study will consider the potential for increased transit service and implications for economic development in more detail, building on these preliminary findings.

Opportunities for Increased Transit Ridership & Economic Development

- Recent (post-COVID) increases in study area population and housing demand have been driven by work-from-home and hybrid work opportunities. There is a post-COVID rebound in commuter rail ridership and station parking utilization, though rates remain below pre-COVID-19 levels. Ridership and parking will continue to evolve as new norms are set and worksites encourage staff to have an in-person element.
- Planned capital improvements identified in the 2022 – 2026 State Rail Plan will improve safety, reliability, and operational capacity of the Danbury and New Canaan Lines that could reduce travel times and attract additional riders. The Danbury Line will be included in the Connecticut Department of Transportation (CTDOT)'s recently started Electrification Feasibility Study as part of its goal to fully electrify the CTrail network.²
- Some study area municipal demographic trends are consistent with potential for higher transit ridership (increase in share of residents with a bachelor's degree or higher, increase in resident diversity).
- Recent employment growth in the study area municipalities outpaces statewide averages. Jobs in the study area are in generally high-paying sectors such as Healthcare and Social Services, Professional and Technical Services, and Finance. Median wages in the study area are higher than the state average.
- Existing jobs centers along the corridors, including Stamford, Merritt 7, South Norwalk, and Danbury, have attracted higher density mixed-use development and have significant development in the pipeline.
- Municipalities along the corridors have conducted significant TOD planning, including the Bethel Forward Plan, Branchville TOD Plan, Greater Wilton Center Masterplan, South Norwalk Station Area Study and SoNo Station Design District, Glenbrook-Springdale TOD Feasibility Study, and Downtown Danbury Transit-Oriented Development Study.
- Parking at rail stations remains underutilized, especially at stations on the New Canaan and Danbury Lines. Exceptions to this rule are stations on the New Haven Line, including Darien, Noroton Heights, and Stamford. At low utilization stations, there are likely many stations where parking could be repurposed or reused. Some municipalities including Danbury and Bethel, are adding residential development proximate to the rail stations.

Challenges for Transit Ridership & Economic Development

- Commuter rail ridership, bus ridership, and station parking utilization generally remain well below 2019 levels, despite recent increases. Bus ridership is more nuanced as fixed route ridership is down, but paratransit is up, and continuing to grow.
- Existing rail service on the Danbury and New Canaan Lines offers long travel times and limited-service options to New York City.
- In previous studies of the Danbury Line Extension to New Milford, CTDOT concluded that the capital costs relative to low incremental projected increases in ridership were not sufficient for further project advancement, though it stated that New Milford service remains a long-term goal in the corridor and the Department is preserving the option for further consider at a future time. This noted, it has been several years since these studies were conducted and market conditions may have changed, especially as it relates to Danbury, New Milford, and Brookfield.

² CTDOT is an active member of the PAC and has been engaged in this process. The project team has coordinated with them to incorporate relevant electrification information. It will continue to do so as the study advances.

- Long-term trend of population declines statewide, previous to the COVID-19 pandemic. It is too early to project long term post-COVID trends for the state as well as the study area municipalities.
- Recent decreases in the share of low-income households indicate risk of displacement as a result of increased overall housing demand. Ensuring an adequate supply of affordable housing is important for equity reasons, and to allow the highest utilization of transit infrastructure in the study area, as low-income households are most likely to take public transit.
- Many station areas are predominantly single-family in character, with limited station area parking utilization (50% or less), suggesting lower demand for transit.

Preliminary Station Area Typology

Based on existing service levels and development patterns (both existing and planned), preliminary station area typologies were developed as part of this research from a value capture perspective. This preliminary typology is intended for discussion with the Regional Value Capture Study Project Advisory Committee (PAC). In general, the value capture revenues are driven by value created from new development, making development potential a critical component of the Regional Value Capture Study. Table 1 presents the development context for each station area typology.

Table 1: Preliminary Station Area Typology and Development Context

Station Area Typology	Station Areas	Development Opportunity	Development Constraints/ Challenges
High Density Transformative	Stamford, Danbury, South Norwalk, Merritt 7	High demand and ongoing development, Infill opportunities, potential to combine underutilized areas in multiple parcels	Affordable housing and homeownership.
Town Center/ Mixed Use	New Canaan, Bethel, Glenbrook, Springdale, Wilton, Branchville	Good mix of uses; Potential to develop areas that are currently underutilized.	Transit investment; Transit oriented planning approach.
Low Density Residential	Cannondale, West Redding, Talmadge Hill, Georgetown (proposed)	Limited	Single use zoning/ land use; Limited transit

Source: AECOM.

3. Regional Context

The study area is unique in that it includes several notable urban centers, including Danbury, Downtown Stamford, New Canaan, and South Norwalk, connected via train to New York City. U.S. Census Bureau 2020 Longitudinal Employer-Household Dynamics (LEHD) data indicates that residents in this region take advantage of these connections, tending to work in corridors along the rail lines and urban centers, including Stamford, Bridgeport, New Haven, and New York City (Table 2 and Figure 2).⁴ Given the importance of these economic connections, this analysis presents trends in the study area in the context of both the State of Connecticut and the Greater New York Metro Area.⁵

In addition to Metro Area and state trends, the analysis also benchmarks growth in the study area municipalities against two other transit corridors: the New Haven-Hartford corridor and the Northeast corridor (shown in Figure 3). Compared to the Danbury and New Canaan Lines, the New Haven-Hartford corridor (via a New Haven Connection) and the Northeast corridor have a higher frequency of service connecting to New York City (via Amtrak direct or a Hartford Line connection in New Haven). This noted, the lines within the study area offer faster travel times to New York. Table 3 shows the average travel time to key employment destinations by corridor (travel times via rail depend on a variety of factors including one's origin, time of day, and Main Line versus line service). Improved connectivity has allowed these corridors to capture a larger share of the state's growth as compared to the Danbury and New Canaan Lines. Throughout this report, we compare travel patterns, demographic, and economic trends in the study area to the New Haven-Hartford and Northeast corridors.

Table 2: Work Destinations of Study Area Workers, 2020¹

City	Count	Share
Stamford, CT	32,479	16.6%
New York, NY	21,190	10.8%
Danbury, CT	18,108	9.3%
Norwalk, CT	17,139	8.8%
Greenwich, CT	5,879	3.0%
Bridgeport, CT	2,904	1.5%
Bethel, CT	2,286	1.2%
Hartford, CT	2,218	1.1%
Shelton, CT	2,193	1.1%
New Haven, CT	2,115	1.1%
Ridgefield, CT	2,069	1.1%
New Canaan, CT	2,041	1.0%
South Wilton, CT	1,993	1.0%
New Milford, CT	1,861	1.0%
White Plains, CT	1,822	0.9%
All Other Locations	67,918	34.7%

Source: LEHD, 2020.

Table 3: Approximate Travel Time to Employment Destinations by Corridor

Destination	New Haven Main Line (via Stamford Station)	Danbury Line	New Canaan Line	New Haven-Hartford ³
New York City	40 – 60 minutes	130 minutes	90 minutes	165 minutes
Bridgeport	50 minutes			90 minutes
New Haven	85 minutes		130 minutes	47 minutes
Stamford		66 minutes	18 minutes	112 minutes

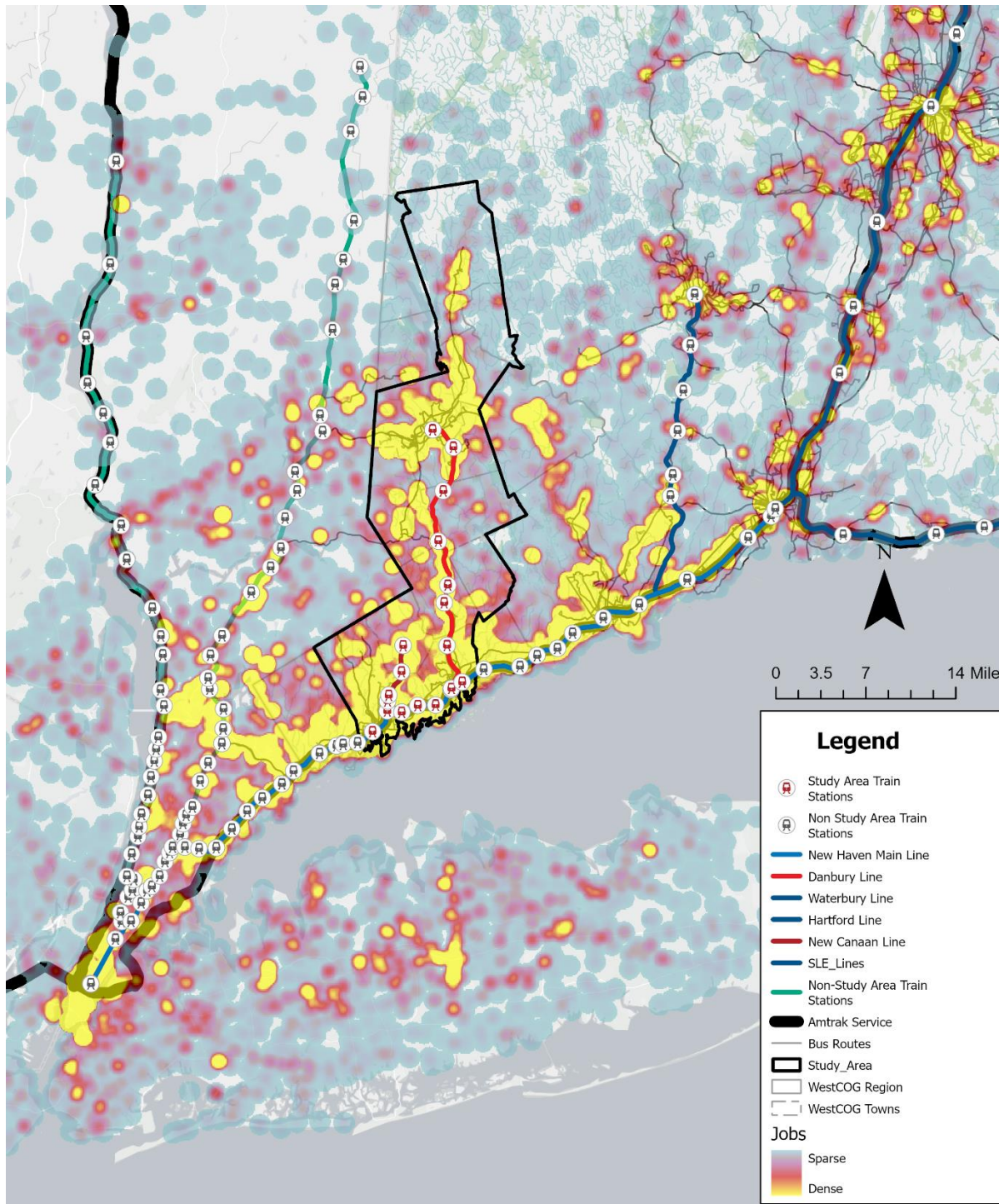
Source: Metro-North Railroad Schedule (Effective 6/11/23).

³ This corridor is operated by two intercity services, a different structure than commuter rail. Hartford is the assumed starting station.

⁴ Vijaykumar, N., El-Geneidy, A. M., & Patterson, Z. (2011). Driving to Suburban Rail Stations: Understanding Variables that Affect Driving Distance and Station Demand. Transportation Research Record: Journal of the Transportation Research Board, 2219(1), 97-103.

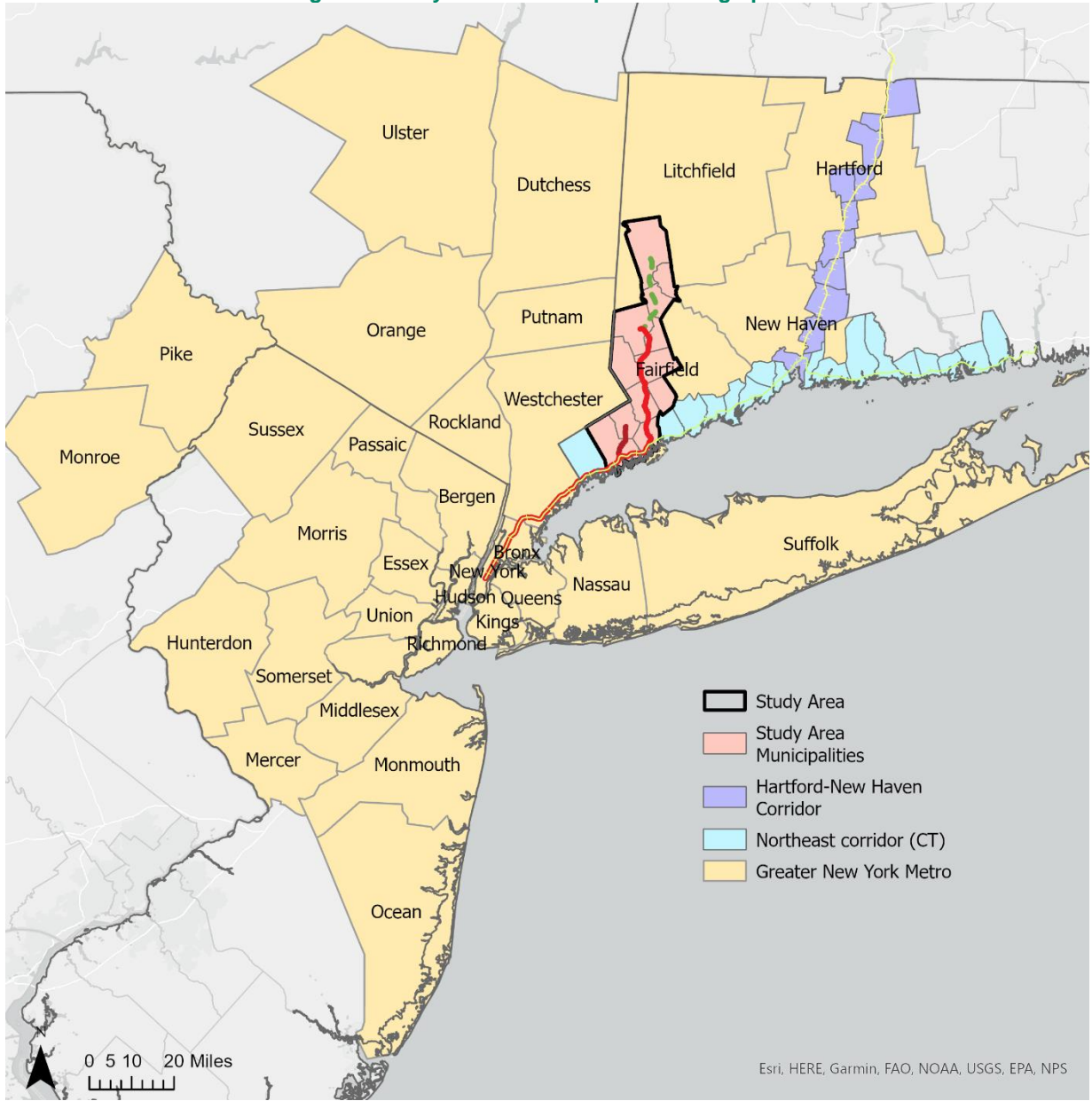
⁵ We use the New York Core Business Statistical Area (CBSA) geography along with Hartford County, CT for defining the 'Metro Area'. The CBSA includes Fairfield, Litchfield, and New Haven counties in CT. Hartford County was included to include Hartford, CT with other destinations for workers who live in the study area.

Figure 2: Work Locations for People Living Within 6 Miles of a Study Area Train Station



Source: LEHD, 2020.

Figure 3. Study Area and Comparison Geographies



Source: AECOM.

4. Transportation

This section includes a review of existing public transit and freight services within the study area including passenger rail lines and bus services. Specific information on each of these services includes elements like service levels, ridership and utilization is presented. Understanding that many users may drive and then use transit, this section also reviews parking facilities. Additional information including a more detailed review of intercity rail and transit services is available in the Appendix A.

Data informing this section comes from a variety of sources including WestCOG, CTDOT, Metro-North Railroad, Amtrak, freight companies, among others. Where possible, the project team attempted to use data that reflects post-COVID-19 travel trends and should 2023 data be unavailable, the project team used the most up-to-date and available data.⁶ Notable datasets and past studies that informed multiple components of this report include:

- The 2022-2026 Connecticut State Rail Plan
- 2023 CTDOT rail ridership data
- 2023 railroad timetables for Metro-North Railroad, CTrail Hartford Line, and Amtrak.
- 2023 Transit schedules for various regional providers
- 2023 WestCOG Parking Data

Passenger Rail Service

The study region is served by both commuter and intercity rail.⁷ Commuter rail service consists of the Metro-North Railroad (MNCW) New Haven Line, New Canaan Line, and Danbury Line. The MNCW system, including these lines, is one of the most used systems in the United States as it allows people to travel from southwest Connecticut towards New York City. Intercity rail service, operated by Amtrak, operates on the New Haven Line, connecting people who live and work in study region to cities as far north as Boston and as far south as Richmond, Virginia.

Commuter Rail Service

Ridership⁸

The commuter rail network is utilized by many people who live and work in the study area. Ridership trends in the period between 2013 and 2019, prior to the COVID-19 pandemic, differ by line:

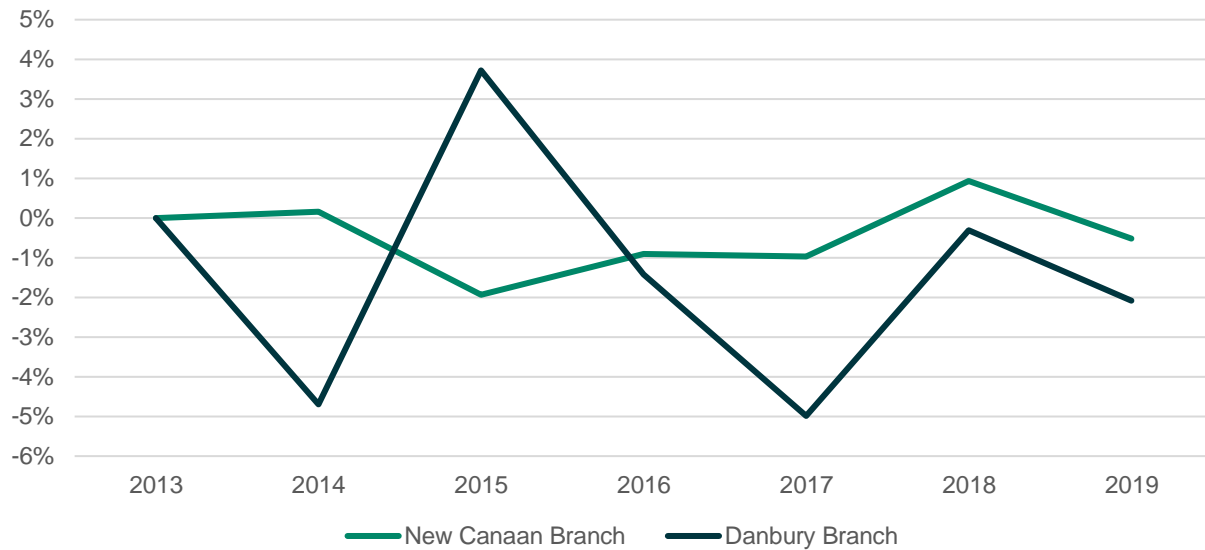
- New Canaan Line ridership was relatively constant, with an approximate 0.5% average percent decrease
- Danbury Line ridership experienced increases and decreases, with an approximate 1.6% average percent decrease

⁶ This implies that while conclusions and statements are data-informed, more up-to-date data, should it be provided may indicate different conclusions.

⁷ There are subtle differences between intercity and commuter rail service including regulations and safety requirements as well as service plans. Commuter rail service is typically designed to move people between a central city and surrounding communities. It involves reasonably high levels service during weekday morning and evening rush hours and service at regular intervals throughout the day. Intercity rail typically has a lower level of service and travels longer distances with fewer stops, largely connecting different cities, with minimal other destinations served. Additionally, these services are regulated differently, with the Federal Transit Administration (FTA) overseeing commuter rail whereas Federal Railroad Administration (FRA) largely oversees intercity rail.

⁸ Ridership statistics reflect the full line for each service, station level ridership is not available.

Figure 4. Annual Percent Change in Ridership 2013 to 2019



Source: CTDOT, 2023

Table 4 shows the ridership along the lines prior to the COVID-19 pandemic. As the region transitions into a post-pandemic world, ridership still lags behind pre-pandemic levels by 43% (New Haven Line), 55% (New Canaan Line), and 59% (Danbury Line).

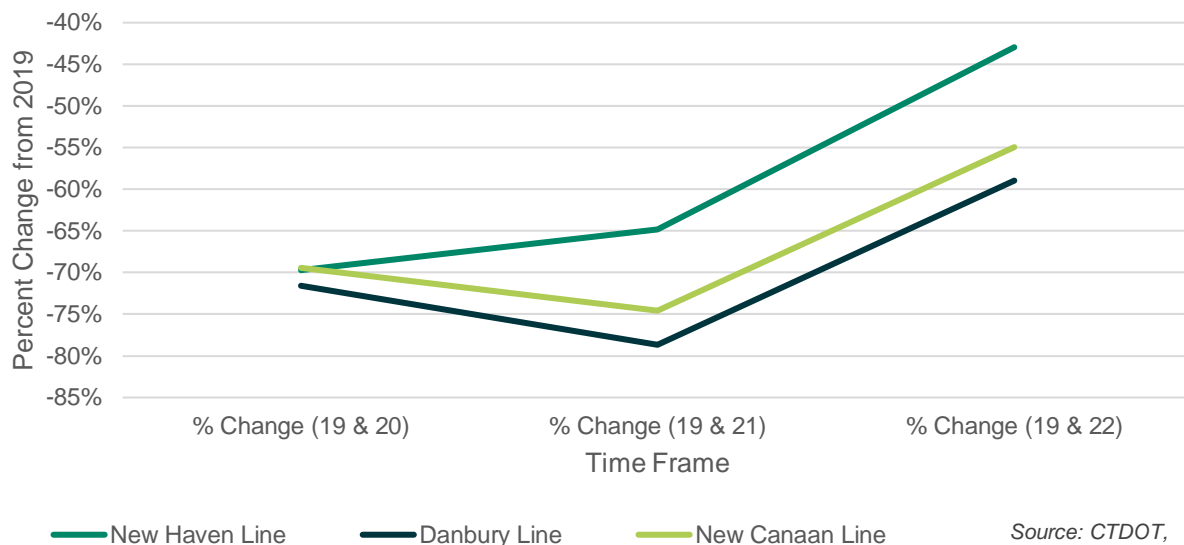
Table 4: Calendar Year Ridership by Line

Line	2019 Ridership	2022 Ridership	% Change
New Haven Line	40,234,512	22,953,927	-43%
Danbury Line	705,825	289,673	-59%
New Canaan Line	1,504,487	677,875	-55%

Source: CTDOT, 2023.

Comparison of monthly ridership data shows that between January 2019 and December 2020, Danbury Line ridership had the largest percent decrease (-72%) while the New Canaan Line had the smallest percent change (-69%). The New Canaan Line continued to retain higher ridership through December 2022 (experiencing only 55% reduced ridership compared to the Danbury Line's 59%). There are a variety of explanations for this, including proximity to New York City, land use, and service frequencies (explained further below).

Figure 5. Percent Change in Ridership Compared to 2019 During Pre-and Post-COVID Periods



Service Levels

Reliability and service frequency for rail impact ridership. Research has shown that a generally accepted threshold for service frequency is 15-20 minutes for suburban neighborhoods and predictable wait times (service reliability) improve transit use⁹. Service levels vary depending on time of day (Peak, Off-Peak, etc.) and the line.¹⁰ Average headways along the New Canaan and Danbury lines range from 40-80 minutes which is higher than the headway frequency for TOD-supportive level of service. Stations on the New Haven Line typically have higher frequencies and shorter headways, in both directions, as they are located on the Main Line. When viewed in the aggregate, stations on the New Haven Line have approximately three times as many weekday trains as stations on the lines (Table 5).

New Canaan Line service includes 30% more service (21 runs) compared to Danbury Line Service (14 runs). Additionally, New Canaan Line service operates average headways that are approximately 54 minutes whereas Danbury Line headways average 71 minutes.

For all lines, service is tailored to periods of high demand, with higher volumes during the AM and PM peak periods, followed by less frequent service in early mornings, throughout the day, and into the evenings. All three Metro-North Railroad services are oriented towards moving people in and out of New York City. Danbury and New Canaan service follows a constant stop pattern, always stopping at all line stations before terminating at stations on the New Haven Main Line. Danbury Line service is less robust than New Canaan service and this is most obvious during the midday periods (Table 5). New Haven service, while more frequent, has several different stop patterns consisting of limited-stop express trains as well as trains starting from different points along the main line.

Stamford is the most utilized station within the study area as it serves as a southern terminus for Danbury and New Canaan Line trains, functions as origin and destination for new trains, and serves other trains starting or finishing in New Haven.

⁹ "Transit-Oriented Communities: A Literature Review on the Relationship between Built Environment and Transit Ridership"; Dittmar, "Driving Growth through Transit Oriented Development."

¹⁰ Service analysis largely focuses on determining averages for the full line. For example, at Stamford Station, there are approximately 38 peak-hour departures, but there are only 13 departures at Old Greenwich. Additionally, at the time of this analysis, the New Canaan Line was operating buses as a substitute during operations and maintenance-related activities.

Table 5: Weekday Service Statistics

Line	Westbound (to New York City)			Eastbound (from New York City)		
	Danbury Line	New Canaan Line	New-Haven-Hartford Line	Danbury Line	New Canaan Line	New-Haven-Hartford Line
Total Daily Trains	14	20	21	14	21	20
Average Daily Headway (Minutes)	71	54	40	83	54	51
Total Early Morning Trains	0	0	1	0	0	0
Average Early Morning Headway (Minutes)	n/a	n/a	n/a	n/a	n/a	n/a
Total AM Peak Trains	5	5	6	2	2	5
Average AM Headway (Minutes)	36	39	36	106	56	46
Total Midday Trains	5	9	6	4	8	6
Average Midday Headway (Minutes)	96	55	36	110	58	51
Total PM Peak Trains	2	2	5	5	6	5
Average PM Peak Headways (Minutes)	89	80	50	40	34	42
Total Evening Trains	2	4	3	3	5	4
Average Evening Headways (Minutes)	75	58	62	102	70	55

Source: Metro-North Railroad Schedule (Effective 6/11/23), Hartford Line Schedule (Effective 8/1/23).

Weekend headways vary between lines as service changes each day (Table 6). The New Canaan Line experiences a 15% reduction in weekend service as compared to weekday service. The Danbury Line experiences a 57% reduction in service as compared to weekday service.

Table 6: Weekend Service Statistics

Line	Westbound (to New York City)		Eastbound (from New York City)	
	Danbury Line	New Canaan Line	Danbury Line	New Canaan Line
Total Weekend Trains	6	18	6	19
Average Weekend Headway	180	60	180	60

Source: Metro-North Railroad Schedule (Effective 6/11/23).

Rail Station Parking

The 2022-2026 Connecticut State Rail plan notes that prior to the COVID-19 pandemic, parking was a challenge through the rail network and could add significant time and cost to rail travel. This pattern has since changed as many no longer utilize rail service on a daily basis. As shown in Table 7, during the first year of the COVID-19 pandemic,

the average study area train station parking lot was approximately 8% full though the number has continued to rise as new norms have been established. The latest data from 2023 indicates that the average train station parking lot within the study area now operates at 52% capacity.

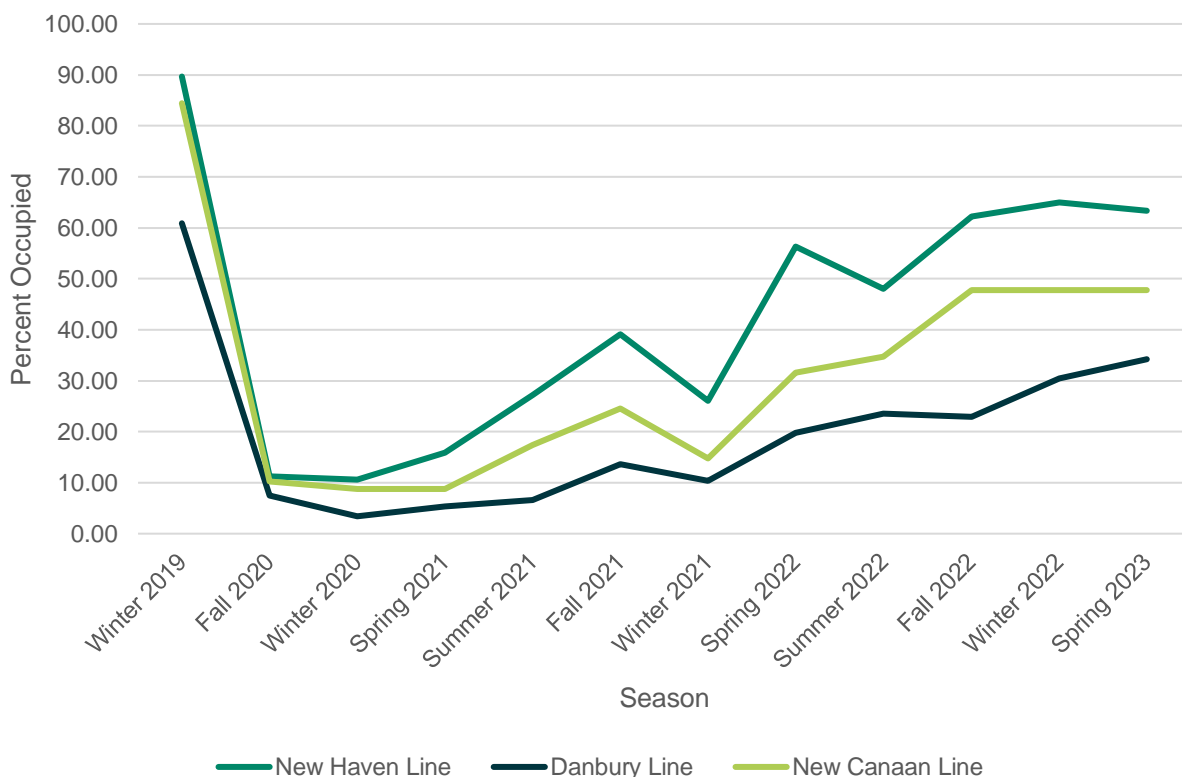
Table 7: Study Area Stations' Parking Lot Utilization

Season	Percent of Lot in Use				
	2019	2020	2021	2022	2023
Spring	X	X	12%	39%	52%
Summer	X	X	19%	36%	X
Fall	X	10%	29%	47%	X
Winter	80%	8%	19%	52%	X

Source: WestCOG, 2023.

This noted, parking lot utilization is not evenly distributed among New Haven, Danbury, and New Canaan Line stations. Between fall 2019 and spring 2023, New Haven Line parking lots within the study area have consistently been utilized at a higher rate than both the Danbury and New Canaan Line parking lots, increasing 451% since the first year of the pandemic (Figure 6). Of the two lines, New Canaan Line parking lots have a higher average utilization rate (47 percent full). This noted, both lines are utilized at a rate that is approximately 43.5% below pre-pandemic levels. Like ridership, this can be explained by a variety of factors including the travel time it takes to get from each line to major destinations (New Canaan is closer to Stamford and New York City) as well as the service levels on each line (the New Canaan Line runs more trains). One example of service levels impacting parking utilization occurs between the Danbury and New Canaan Lines. Anecdotal evidence from Wilton residents suggest that some choose to use the New Canaan Line, instead of the geographically closer Danbury Line, as it has more robust service.

Figure 6: Parking Lot Utilization by Line, Fall 2020 – Fall 2022



Danbury Line

In the early portion of the COVID-19 pandemic, Danbury Line stations had parking lots operating at as high as 30% capacity (Danbury) and as low as 1% capacity (Wilton). As of spring 2023, most Danbury Line parking lots remain below 26% occupied, indicating that parking supply exceeds demand at nearly every station on the line. From a

demand growth perspective, demand for parking at all Danbury Line stations has returned at different levels with Wilton and Cannondale having parking demand closest to pre-pandemic levels (28% and 22% respectively). Merritt 7 has the lowest return, with spring 2023 parking utilization rates more than 72% below the 2019 level.

New Canaan Line

In fall 2020, New Canaan Line stations within the study area had parking lots operating as high as 16% capacity (New Canaan) to as low as approximately 3% capacity (Talmadge Hill) (Table 8). As of spring 2023, all stations operate at approximately 51% or less capacity, with highest pre-pandemic return at Springdale (35 percent below pre-pandemic levels). Supply exceeds demand at these stations, which may be partially explained by the proximity of Stamford, a larger station that prior to spring 2023 had excess parking supply and express service to New York City.

New Haven Line

In the early portion of the COVID-19 pandemic, New Haven Line stations within the study area had parking lots operating as high as 35% capacity (Darien) and as low as 2% capacity (South Norwalk). As of spring 2023, the Darien and Stamford station parking lots operate close to capacity (92% and 91% occupied, respectively), but the parking lots at other stations average 58% full. Stations further from their 2019 parking utilization rate are Cos Cob and Riverside, 48% and 44% below 2019 respectively. This indicates that supply in many places exceeds demand. Stamford is a unique station in the study area as it serves both intercity and commuter rail services. This, coupled with its NYC-express services, partially explains why the station's demand has returned at a faster pace. Refer to Appendix A1 for more information on intercity rail service.

Table 8: Station Level Parking Occupancy (Percent Occupied), 2019-23

Line	Station	Winter 2019	Fall 2020	Fall 2021	Fall 2022	Spring 2023
Danbury	Danbury	31.5%	32.2%	11.6%	17.8%	19.9%
	Bethel	43.9%	3.7%	11.4%	23.6%	27.0%
	West Redding	53.7%	2.4%	14.6%	22.0%	25.6%
	Branchville	55.3%	3.7%	10.6%	24.8%	23.6%
	Cannondale	96.5%	5.0%	17.7%	40.4%	75.2%
	Wilton	61.4%	1.2%	15.5%	21.9%	44.2%
	Merritt 7	84.1%	4.6%	13.6%	10.2%	23.9%
	South Norwalk	93.6%	2.7%	20.2%	32.4%	54.0%
New Canaan	New Canaan	99.8%	16.5%	31.9%	56.3%	55.4%
	Talmadge Hill	86.1%	2.7%	21.5%	47.6%	47.8%
	Springdale	74.9%	14.2%	22.3%	47.4%	48.3%
	Glenbrook	76.9%	7.7%	22.4%	39.7%	37.2%
	Stamford	86.5%	6.8%	52.8%	93.2%	91.0%
New Haven	Darien	99.7%	35.9%	73.5%	99.4%	91.5%
	Noroton Heights	94.5%	10.5%	46.4%	73.5%	70.3%
	Cos Cob	89.2%	8.7%	21.1%	38.1%	46.5%
	Greenwich	93.6%	15.0%	38.1%	54.9%	67.6%
	Old Greenwich	63.9%	8.2%	31.9%	52.7%	51.8%
	Riverside	91.2%	8.5%	35.1%	50.5%	51.1%
	East Norwalk	87.6%	11.8%	32.8%	50.5%	50.0%
	Rowayton	98.5%	7.0%	39.4%	60.3%	56.4%
	Greens Farms	93.6%	5.0%	34.5%	63.8%	59.4%
Westport	86.5%	15.2%	43.2%	77.0%	91.0%	

Table 9: Rail Station Parking Lots Ownership and Operations Information

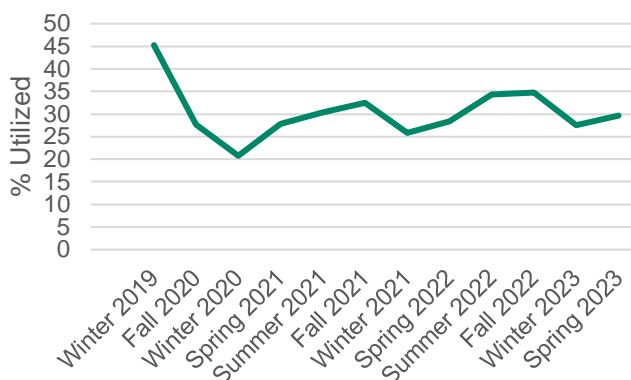
Line	Station	Station Lot Owner	Lot Manager	Notes
Danbury	Danbury	CTDOT	Danbury Parking Authority & Danbury DPW	
	Bethel	CTDOT	Town of Bethel.	
	West Redding	CTDOT	Redding Police, First Selectman's Office, DPW.	
	Branchville	CTDOT	Town of Ridgefield Parking Authority through the Town Human Resources Office	
	Cannondale	CTDOT	CTDOT	
	Wilton	CTDOT	CTDOT	
	Merritt 7	CTDOT	CTDOT	
	South Norwalk	Norwalk Parking Authority	Norwalk Parking Authority	
New Canaan	New Canaan	CTDOT	New Canaan Parking Bureau	
	Talmadge Hill	CTDOT	New Canaan Parking Bureau	
	Springdale	CTDOT/City of Stamford	Stamford Department of Traffic, Transportation and Parking	City of Stamford does own most (but not all) of the Springdale station lot.
	Glenbrook	CTDOT	Stamford Department of Traffic, Transportation and Parking	
	Stamford	CTDOT	CTDOT	
New Haven	Darien	CTDOT	Darien Parking Authority, DPW, Planning & Zoning	The state owns the parking lots nearest the Post Road and on the west (south) side of the tracks between the Post Road and Leroy Avenue. The town owns the "Leroy West" parking lot west of Leroy Avenue. The parking lot at the corner of West and Leroy Avenues is privately owned.
	Noroton Heights	CTDOT	Darien Parking Authority, DPW, Planning & Zoning	
	Cos Cob	CTDOT	Greenwich Department of Parking Services	
	Greenwich	Private Entity	Private Entity	Unnamed in 2007 CTDOT Station Report
	Old Greenwich	CTDOT	Greenwich Department of Parking Services	
	Riverside		Greenwich Department of Parking Services	
	East Norwalk	CTDOT	Norwalk Parking Authority	
	Rowayton	CTDOT	Rowayton Sixth Taxing District	The Rowayton Sixth Taxing District operates the parking lot on behalf of the State of Connecticut Department of Transportation (owner) under a long-term lease.
	Greens Farms	CTDOT	Town of Westport Office of the First Selectman, Westport Police Department	
	Westport	CTDOT	Town of Westport Office of the First Selectman, Westport Police Department	Lot 1 is owned by the City of Westport while all other lots are owned by the State of Connecticut. The State owns 77.4% of the commuter parking at the Westport Station.

Source: 2003-2007 CTDOT Individual Station reports, WestCOG 2018, City of Stamford

Non-Rail Station and Adjacent Parking

In addition to parking at rail stations, there are 19 park-and-ride lots located within the study region. Collectively, these park-and-rides are underutilized, averaging 30% occupancy in spring 2023 (Figure 7). This noted, they are utilized in a subtly different pattern compared to rail stations. Where rail station usage dipped in the early part of the pandemic, before increasing to approximately 36% below pre-pandemic levels, park-and-ride lots on average only remain 26% occupancy. This indicates that park-and-ride users may be more likely to be essential workers or people that may not have stopped doing in-person work or activities during the pandemic.¹¹

Figure 7. Average Occupancy at All Park-and-Rides, Fall 2020 - Fall 2022



Source: WestCOG, 2023.

Table 10: Park & Rides Within Study Area municipalities

Name	Location	Parking Authority
Ball Pond Firehouse Park and Ride	New Fairfield	Town of New Fairfield
Bark Park, Park and Ride	Ridgefield	Ridgefield Parks and Recreation Dept.
Company A Firehouse Park and Ride	New Fairfield	New Fairfield Volunteer Fire Department
Federal Rd. Park and Ride	Danbury	CTDOT
I-84 @ Exit 1 Park and Ride	Danbury	CTDOT
I-84 @ Exit 11 Park and Ride	Newtown	CTDOT
I-84 @ Exit 2 Park and Ride	Danbury	CTDOT
I-84 @ Exit 9 Park and Ride	Newtown	CTDOT
I-84 @ Segar St. Park and Ride	Danbury	CTDOT
I-95 @ Exit 16 Park and Ride	Norwalk	CTDOT
I-95 @ Exit 18 Park and Ride	Westport	CTDOT
Jesse Lee Church Park and Ride	Ridgefield	Jesse Lee Church, CTDOT
Miry Brook Park and Ride	Danbury	CTDOT
Route 15 @ Exit 35 Park and Ride	Stamford	CTDOT
Route 15 @ Exit 38 Park and Ride	Norwalk	CTDOT
Route 15 @ Exit 42 Park and Ride	Westport	CTDOT
Route 15 @ Route 33 Park and Ride	Westport	CTDOT
White Turkey Rd. Ext. Park and Ride	Danbury	CTDOT
Wolfpit Road Park and Ride	Wilton	CTDOT

Source: WestCOG, 2023.

¹¹ Further data on park & lot user demographics, including mode use, occupations would help clarify this, if available.

Passenger Rail Capital Improvements

To improve service, CTDOT and its partners have a series of planned capital improvements identified in the 2022-2026 State Rail Plan that will improve safety, reliability, and operational capacity. Collectively, these improvements, along with other factors, could reduce travel times and attract additional riders.

New Haven Line Improvements

Passenger rail capital improvements are unique in that improvements in one region can provide benefits in a separate region. For example, a capacity improvement in Stamford will improve service in Westport or Danbury. Many capital improvements for Metro-North Railroad service on the New Haven Line bring benefits to the lines as both the New Canaan Line and Danbury Line operate on the New Haven Line in between Stamford (New Canaan and Danbury) and South Norwalk (Danbury). Consequently, the below improvements all take place within study area.

These projects, once implemented collectively, will help CTDOT achieve its TIME FOR CT vision. TIME FOR CT is an actionable initiative for safe, reliable, and fast train service for Connecticut. The vision includes an \$8 to \$10 billion comprehensive investment program (introduced June 2021) that, when fully funded, can provide additional capacity and improve speeds, frequency, and reliability of trains throughout Connecticut. By 2035, the TIME FOR CT investments in service and infrastructure are expected to further reduce travel times by an additional 15 minutes for a total travel time savings of up to 25 minutes. The TIME FOR CT service, infrastructure, and fleet investments support social equity for all residents by providing improved access to jobs, educational opportunities, and civic life. TIME FOR CT investments support a more resilient rail network, reduction in GHG emissions, and a strengthened economy.

Figure 8: TIME FOR CT Service Goals

TIME FOR CT Service

Connecticut deserves rail service that is:



Fast



Frequent



Reliable

CTDOT is working with Amtrak & Metro-North Railroad to:



Offer residents 25 minutes of **travel time savings.**



Enhance **direct one-seat-ride access** to New York City



Improve intra-CT **connectivity**

Table 11: TIME FOR CT New Haven Line Travel Time Savings

Corridor	Trip Time Today	Objective in 2035	Time Savings
New Haven to Bridgeport	26 minutes	20 minutes	6 minutes
Bridgeport to Stamford	34 minutes	22 minutes	12 minutes
Stamford to New York City	52 minutes	45 minutes	7 minutes

Source: CTDOT, 2022

New Haven Line Bridge Program

The New Haven Line Bridge Program includes ongoing improvements to ballasted and timber bridges as well as freight bridge repair programs in coordination with Metro-North Railroad. These repairs will address gaps in service by allowing bridges to handle higher train speeds, decreasing travel times, and providing schedule-makers more operational flexibility. Additionally, these repairs will adapt the railroad to climate change by improving the useful lives of the bridges and adding infrastructure designed to handle the region's changing weather patterns.

New Haven Line Signals and Communications Program

Signal upgrades include a redesign of the New Haven Line signal system (including the New Canaan Line) to support higher capacity and safety. This ongoing project also includes upgrades to the communications network infrastructure along the New Haven Line by installing fiber optic communication cable and equipment to support security cameras at vulnerable passenger stations and bridges. This system will also be capable of supporting passenger information displays and other amenities at passenger stations. These investments, often invisible to the everyday rider, will improve travel times and the customer experience through reducing delays and providing additional opportunities to increase train speeds.

New Haven Line Station Improvement Program

The New Haven Line station improvement program includes improvements to Darien, South Norwalk, State Street, and New Haven Union stations, as well as customer service initiatives, real-time passenger information system upgrades, and fare collection improvements. These programs ensure stations are ADA-accessible, are safe, and have an effective user experience.

New Haven Line Track and Speed Improvements

The New Haven Line Track and Speed Improvements program includes several projects that will address gaps in service by increasing travel speeds and line capacity. Improvements include new electrified tracks, interlockings, and freight sidings that will raise the maximum speed profile for passenger trains. The package also includes drainage improvements and new sidings on the New Canaan Line. In addition to improving gaps, these investments will improve resiliency by developing infrastructure that is better equipped to handle flooding and other climate change impacts.

New Haven Line Traction Power Program

This program seeks to improve system reliability through the replacement of traction and signal power substations along the New Haven Line in six locations over four phases from 2022 to 2029.

New Haven Line Stations – Stamford Program

Improvements at Stamford Transportation Center including new elevators and escalators, station platforms, yard access, and parking upgrades. This will improve safety and accessibility for people using this station.

New Haven Line Shops and Yards Program

This program will address service gaps by increasing line capacity. It aims to do so through upgrading and expanding shops and yards on the New Haven Line to meet existing and future needs. Projects include a fueling facility at Danbury Yard, improvements to the Stamford MOE facility and passenger yard, as well as catenary maintenance vehicle sheds at Stamford and Bridgeport. These improvements will increase capacity by investing in infrastructure that allows CTDOT to store, maintain, and service trains more efficiently.

Walk Bridge Supporting Program

This is a package of projects necessary to replace the Walk Bridge, including Danbury Line Dockyard improvements, interlocking improvements, and utility work.

Saugatuck Bridge Interim Repairs

The Saugatuck Bridge is a rail bridge crossing the Saugatuck River in Westport, Connecticut. CTDOT plans to make near-term interim repairs that maintain bridge operation until the bridge is fully replaced with a fixed span bridge.

Saugatuck Bridge Interim Repairs



Walk Bridge Replacement

The purpose of the Walk Bridge Project is to replace the existing 125-year-old bridge with a resilient bridge structure that enhances the safety and reliability of rail service, offers operational flexibility and ease of maintenance, and provides for increased capacity and efficiencies of rail transportation along the Northeast Corridor (NEC), while maintaining or improving navigational capacity and dependability in the Norwalk River. Upgrades will increase bridge reliability, and incorporate bridge redundancy, thereby accommodating current and future rail and marine traffic.

Walk Bridge Replacement



Track Improvements and Mobility Enhancements (TIME) Projects

The TIME projects are a multi-part series of innovative approaches to project delivery that will enable more service, faster trains, and fewer delays. The approach involves track, station, bridge, and other critical infrastructure enhancements to efficiently deliver improved service while minimizing customer and community disruption and improving safety. TIME-2 and TIME-5 will take place within the WestCOG region. TIME-2 consists of railroad improvement projects at East Avenue, For Point Street, Osborne Avenue, and Strawberry Hill Avenue. TIME-5 consists of improvements in the Greenwich and Stamford area.

Northeast Corridor C37 Improvements

In November 2023, the Northeast Corridor Commission released CONNECT NEC 2037 (C37)—a 15-year plan that benefits from dedicated funding for the corridor’s most urgent capital repairs and improvements. Commission members representing the states, commuter agencies, Amtrak, and USDOT are now initiating an historic era of reinvestment in the Northeast Corridor (NEC) which will provide faster, more frequent, more reliable service for the millions of Americans that rely on this rail system to travel for work and leisure. Many of the above projects are listed in C37 and additional projects that impact the region include:

- Cos Cob Bridge Replacement & Interim Repairs
- TIME-6

Beyond these study-area specific plans, C37 includes many other projects that will generate travel time savings and on-time performance for intercity travelers heading north to Boston and south to Washington D.C.

Danbury Line Improvements

In addition to upgrades at Danbury Yard, CTDOT upgraded signalization on the Danbury Line in 2014 and plans to make several additional investments on the Line in the form of slope and track stabilizations. The Danbury Line will be included in the recently initiated Electrification Feasibility Study as part of CTDOT’s goal to fully electrify the CTrail network. Additionally, there is a fueling facility identified in the New Haven Line Shops & Yards Program that is slated to be added. CTDOT is constructing Merritt 7 Station to include a high-level platform. In concert, these projects will improve accessibility and the customer experience and reduce emissions.

Funding

The above improvements have different levels of funding (Table 12). Short-range projects are expected to occur over the first five years of the program (2022 to 2026).

Table 12: Passenger Rail Project Costs by Project (in millions of 2022\$)

Project	Previously Funded	Funded in 2022-2026 Capital Plan	Funding Beyond 2026	Total Budget
New Haven Line				
TIME 1-5	\$0	\$319.4	\$1,682	\$1,682
Walk Bridge Replacement	\$0	\$795.5	\$204.5	\$1,000
Walk Bridge Supporting Program	\$0	\$0	\$0	\$0
Saugatuck Bridge Interim Repairs	\$0	\$0	\$26.5	\$26.5
New Haven Line Bridge Program	\$0	\$166.1	\$11	\$177.1
New Haven Line Signals and Comms	\$23.4	\$55	\$247.1	\$325.5
New Haven Line Stations	\$48.5	\$326.9	\$34.6	\$410
New Haven Line Stations - Stamford	\$0	\$14	\$91.3	\$105.3
New Haven Line Track and Speed	\$0	\$123.7	\$48.7	\$172.4
New Haven Line Traction Power	\$0	\$152	\$0	\$152
New Haven Line Shops and Yards	\$0	\$168.8	\$0	\$168.8
Danbury Line				
Danbury Line Improvements	\$0	\$12.5	\$0	\$12.5
Systemwide				
Statewide	\$190.9	\$21.5	\$0	\$212.4
Related Projects (Amtrak)	\$0	\$0	\$1,263.4	\$1,263.4
Vision 2050	\$0	\$0	\$0	\$0
Planning Studies	\$0	\$0	\$0	\$0
CTrail Fleet	\$660	\$280	\$0	\$940
Metro-North Railroad Fleet	\$90	\$0	\$250	\$340

Source: 2022 – 2026 Connecticut State Rail Plan

Past and Present Service Planning Initiatives

In addition to proposed plans for capital improvements, CTDOT and several other railroad partners have developed a series of service-related plans that chart out possible extensions to new destinations as well as increases in service to existing destination. Below is a description of each, along with links, where available for additional information.

Vision 2050

In its 2022-2026 Connecticut State Rail Plan, CTDOT identifies that Vision 2050 is a plan for improvements that preserve and improve Connecticut's quality of life and support economic growth and climate initiatives with more frequent, higher-speed rail service. Realizing this vision will require service, infrastructure, and fleet improvements such as increased speeds on the Hartford Line between New Haven and Hartford, the New Haven Main Line between Greenwich and New Haven, and the Danbury Line; double track on the New Canaan Line; and expanded fleet, shops, and yard. Looking ahead the state will continue to partner with neighboring states and Amtrak to study ways to improve connectivity, speed, and the overall quality and convenience of Connecticut's rail service.

CONNECT NEC 2035

CONNECT NEC 2035 is an Amtrak-sponsored plan that is the first phase of the long-term vision for the Northeast Corridor (NEC) established in the Federal Railroad Administration's (FRA) 2017 NEC FUTURE Plan. The state governments of the Northeast, the federal government, eight commuter rail agencies, and Amtrak are working through the NEC Commission to develop a detailed and efficient sequencing of infrastructure investments over 15

years. CONNECT NEC is an ongoing, iterative process that will be refined as new projects, resources, and funding are identified. Connecticut worked with the NEC Commission to update the CONNECT NEC 2035 project list for inclusion in the FRA's NEC Project Inventory released on November 15, 2022. The NEC Project Inventory identifies sole-benefit intercity passenger rail or shared-benefit intercity passenger rail and commuter rail projects that are eligible or reasonably anticipated to be eligible for Federal-State Partnership funding authorized in the Bipartisan Infrastructure Law. Many of the improvements proposed in CONNECT NEC align with other documents, including the 2022 – 2026 Connecticut State Rail Plan, like bridge and track improvements along the Hartford Line, New Haven Line, and Amtrak-owned Shore Line East are included in the NEC Project Inventory for 2022-2024 (FRA 2022).

Danbury-New Milford Extension

In its 2016 Danbury Line Final Implementation Plan, CTDOT evaluated the possibility of extending commuter rail service to New Milford. The service extension to New Milford would have covered an additional 14 miles beyond downtown Danbury (11 miles north of the proposed Danbury North Station). Infrastructure improvements recommended for the New Milford Extension would have included track rehabilitation, track reconfiguration, construction of a high-level platform, parking lot rehabilitation, implementation of a signal and communication system. The cost for capital and maintenance improvements ranged from \$5.8 million if Housatonic Railroad (HRRC) designed and constructed the trackwork) to \$10.7 million, or \$7.4 million to \$13.6 million in 2023 inflation adjusted numbers. Operating costs were estimated to be \$2.9 million annually, or \$3.7 million in 2023 inflation adjusted numbers. CTDOT ultimately concluded that the capital costs relative to low incremental projected increases in ridership were not sufficient for further project advancement, though it stated that New Milford service remains a long-term goal in the corridor and the Department is preserving the option for future consideration.

Historically, this passenger connection has been a Housatonic Valley Metropolitan Planning Organization (HVMPO) priority for the WestCOG region, and is identified in the HVMPO 2019 – 2045 Long Range Transportation Plan.

Passenger Connection to Southeast, NY Metro-North Railroad Station

HRRC has proposed a passenger route that follows its freight rail line from Pittsfield to New Milford, Connecticut and then to Danbury and on to lower Fairfield County and Stamford. This differs from other similar proposals. Service might also continue west to Metro North's Harlem Line Southeast station. When HRRC trains reach Southeast, the railroad proposed that some trains continue on directly into Grand Central Station under the operational control of Metro-North Railroad, while others would stop at Southeast and passengers would cross a platform and board Metro North trains. This route enables the fastest transit times between The Berkshires/Litchfield Hills and Grand Central station. This proposal is not in further development at this time.

In a related effort, the New York Metropolitan Transportation Council (NYMTC) conducted a feasibility study for reinstating passenger service between Danbury, CT and Southeast, NY. This feasibility study was completed in late 2022 and it concluded that such a service would generate approximately 270-550 additional rail users, depending on the level of service integrated. Since publishing the study in 2022, the City of Danbury was subsequently awarded a 2023 Community Project Request totaling \$2 million for an Environmental Impact Study for a potential service.

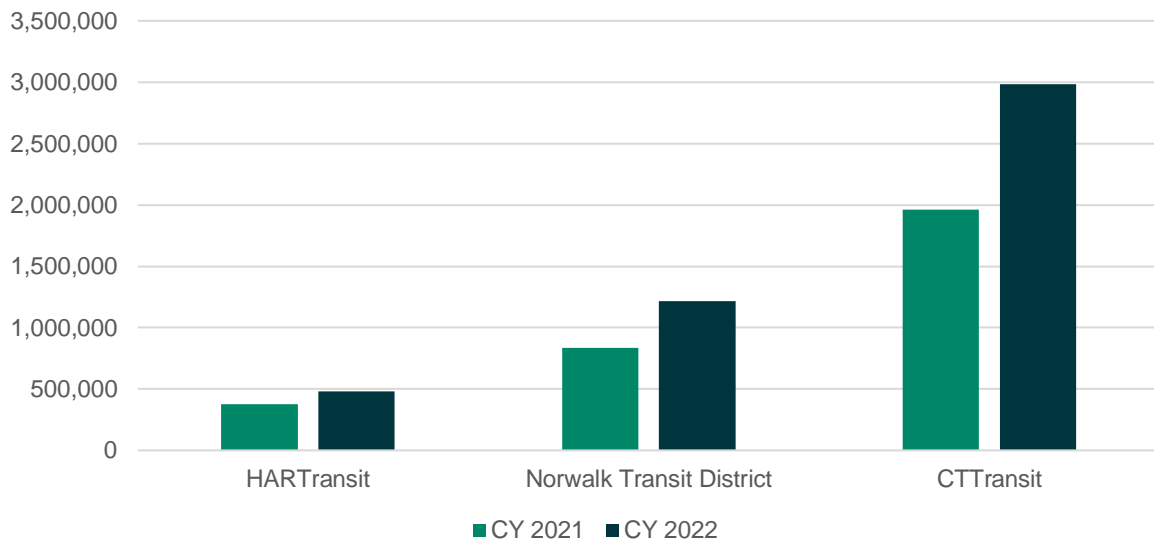
Bus Service

Bus service to the Danbury and New Canaan Lines' train stations is provided by the Housatonic Area Regional Transit (HARTransit), Norwalk Transit District (NTD), and CTTransit. These three systems operate 47 routes serving these lines, with CTTransit serving the New Canaan Line and NTD and HARTransit serving the Danbury Line. HARTransit operates CityBus Routes (numbered routes), Loop Routes, Commuter Rail Shuttles, and one Commuter Bus Route. NTD operates local fixed route, commuter shuttles, weekend/evening shuttles, and microtransit. CTTransit operates local fixed routes and express commuter buses. Figure 10 shows the bus service within the study area.

Ridership

Annual ridership between the three systems varies greatly with CTTransit-Stamford carrying five times more passengers than HARTransit and two times more than NTD (Figure 8). All three systems saw an increase in ridership in 2022 over 2021, the greatest of which was CTTransit's at 52%. CTTransit also has the greatest ridership per capita at 17.9 passenger trips per person,¹² slightly greater than NTD at 16.7 but nearly twice that of HARTransit (8.9 trips per person). This can be explained by the populations served, as CTTransit functions at a more regional level and operates in some of Connecticut's largest cities. HARTransit demand-response and ADA ridership trends show decreases associated with Covid-19 before increasing after. 2023 ADA ridership is approximately 8% lower than 2018 and 2023 ridership is approximately 1% higher. Additional information on bus service ridership by provider can be found in Appendix A2.

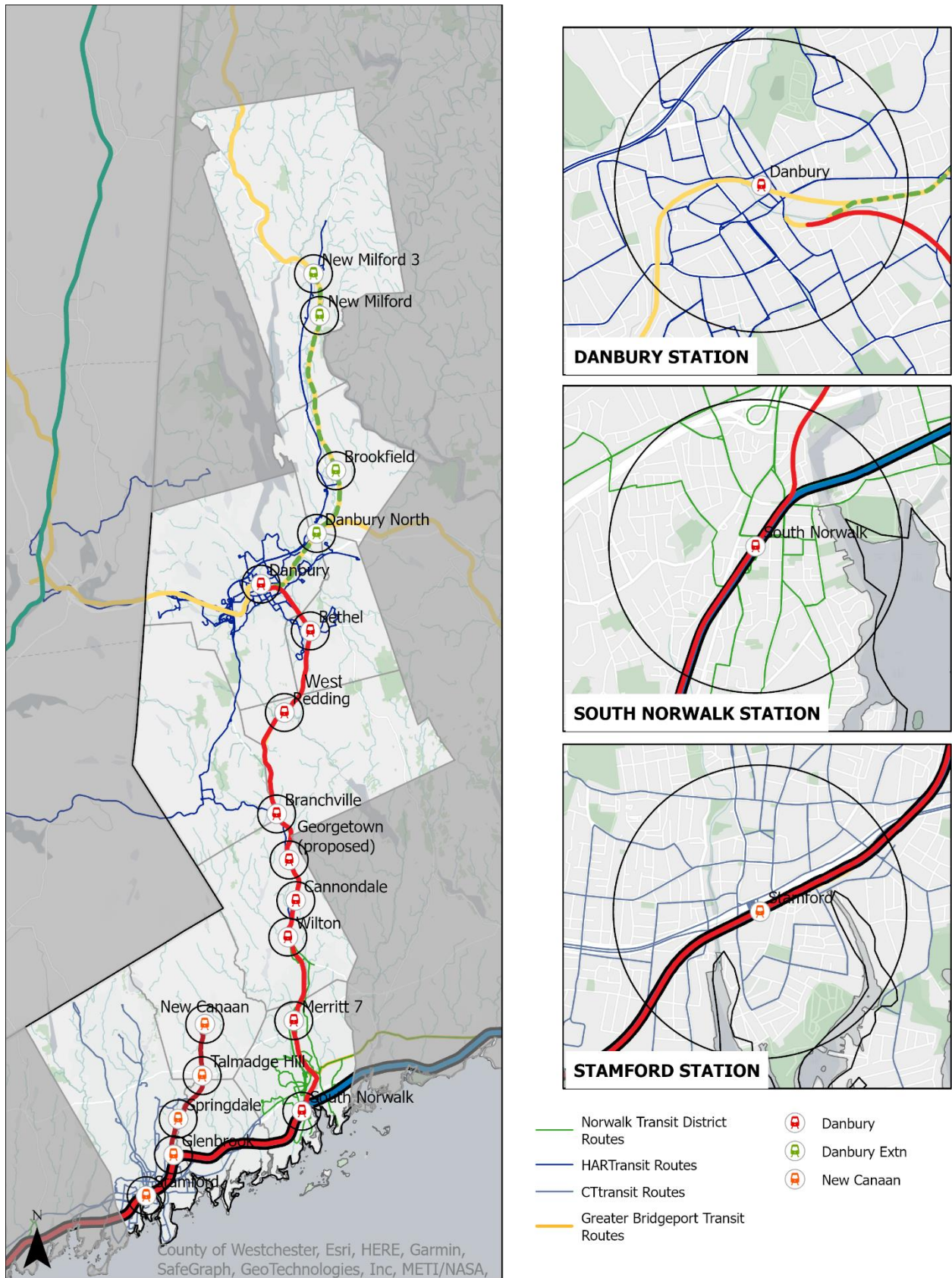
Figure 9. System Annual Ridership



Source: HARTransit, Norwalk Transit District, CTTransit email communications.

¹² Calculated based on the population within ¼ mile of a bus stop.

Figure 10: Bus Service Within the Study Area



Source: HARTransit, Norwalk Transit District, CTtransit, Greater Bridgeport Transit, Metro North Railroad.

Bus Transit & the New Canaan Line

The two most northern stations on the New Canaan Line (New Canaan and Talmadge Hill) do not have any bus service, and the two most southern stations (Glenbrook and Springdale) are each served by only one route (Table 13). At the Stamford Station the Stamford Transportation Center (STC) is a hub for all nineteen bus routes operated by CTTransit in Stamford. In addition to CTTransit service there are several privately funded shuttles between the STC and places of employment and residences.

Table 13: New Canaan Line Station Bus Service

Station	Transit Destinations
New Canaan	No Bus Service
Talmadge Hill	No Bus Service
Springdale	CTTransit <i>Route 334 - STC to Stamford's Springdale neighborhood via Hope Street</i>
Glenbrook	CTTransit <i>Route 344 - STC to Darien Railroad Station via Glenbrook Railroad Station and Noroton Heights Railroad Station</i>
Stamford	CTTransit <i>Route 311 – Operates between the STC and Liberty Square in Port Chester, NY</i> <i>Route 312 – Additional service between the STC and Stamford's West End supplementing the 311</i> <i>Route 313 – Operates between the STC and Alvord Lane in Stamford's West End</i> <i>Route 321 – Operates between the STC and West Avenue in Stamford's West End</i> <i>Route 324 – STC to the Waterside neighborhood via Fairfield Ave</i> <i>Route 326 – STC to Stamford's South End via Pacific Street</i> <i>Route 327 – Limited-stop service between Shippan Point and the STC</i> <i>Route 328 – STC to Stamford Cove</i> <i>Route 331 – Operates between the STC and the Stamford Museum & Nature Center via High Ridge Rd</i> <i>Route 333 – STC to Stamford's Belltown neighborhood via Newfield Avenue</i> <i>Route 334 – STC to Stamford's Springdale neighborhood via Hope Street</i> <i>Route 335 – STC to Stamford's Bulls Head district via Washington Boulevard</i> <i>Route 336 – STC to Stamford's Bulls Head district via Washington Boulevard</i> <i>Route 341 – STC to Norwalk WHEELS hub via Norwalk Community College</i> <i>Route 342 – STC to East Main Street</i> <i>Route 344 - STC to Darien Railroad Station via Glenbrook Railroad Station and Noroton Heights Railroad Station</i> <i>Route 345 – Express bus service from STC to Norwalk Community College</i> <i>Route 351 – Downtown Stamford route connect the central business district to STC</i> <i>Route 355 – STC to the UConn Stamford campus</i> <i>Route 371 – STC to White Plains, NY</i>

Source: CTTransit website maps and schedules.

Bus Transit & the Danbury Line

In Danbury, the pulse point for HARTransit is located on Kennedy Avenue at Kennedy Park, 1/3 of a mile away from the Danbury Station.¹³ All HARTransit routes except its three Commuter Rail shuttles serve the pulse point. The Metro North Commuter Shuttle routes provide peak period service only and connect areas within Connecticut to train stations over the border in New York City on the Hudson Line. On Sundays the Loop Routes are the only routes operated by HARTransit. The 7 Link is a commuter route between the Pulse Point and Norwalk with three trips in the morning and two in the afternoon.

NTD fixed routes converge at the WHEELS hub on Burnell Blvd in Norwalk. The hub is located adjacent to the Danbury Line but the closest rail station is the South Norwalk Station, a little over 1.5 miles away. Wheels2U is an on-demand microtransit service where riders can request a pick-up and drop-off anywhere within the service zone, which includes the Merritt 7 and South Norwalk stations. Wheels 2U supplements the weekend/evening shuttles and operates in the evenings and during the daytime on Sundays. The commuter shuttles operate on weekdays only and primarily serve the South Norwalk Station and not the hub.

As with of HARTransit's numbered (CityBus) routes, service is timed to enable a transfer at the pulse point and not aligned to the train schedules. The Bethel Station is served by the Route 5 and West Redding has no bus service. Branchville and Cannondale are both served by the 7 Link but it is not timed to facilitate transfers. Wilton is served by HARTransit 7 Link and NTDs Route 4. This station does not have weekend bus service. The Merritt 7 Station is served by NTDs Merritt 7 commuter shuttle, the Route 3, Main St weekend/evening Shuttle and Wheels 2U microtransit. Eleven of NTD's eighteen bus routes/on demand services operate within ½ mile of the South Norwalk Station, and seven of the eleven directly serve the station (Table 14).

¹³ A pulse point is defined as the central location where all buses converge and start/end routes.

Table 14: Danbury Line Station Bus Service

Station	Transit Destinations
Danbury	HARTransit
	<i>Route 1 – Downtown Danbury HART pulse to Town Park via Hospital, North St Center, Golden Hill</i>
	<i>Route 2 – Downtown Danbury HART pulse to Big Y via Newtown Rd</i>
	<i>Route 3 – Downtown Danbury HART pulse to Brewster via Mill Plain Road</i>
	<i>Route 4 – Downtown Danbury HART pulse to YMCA via Osborn, Sand Pit and Federal</i>
	<i>Route 5 – Downtown Danbury HART pulse to Bethel Center via Main St</i>
	<i>Route 6 – Downtown Danbury HART pulse to the Danbury Mall via Lake Ave</i>
	<i>Route 7 – Downtown Danbury HART pulse to New Milford via Route 7</i>
	<i>7 Link – Downtown Danbury HART pulse to Norwalk Via Route 7</i>
	<i>Route 17 – Loop route servicing Newtown Rd and Downtown Bethel</i>
	<i>Route 8 – Loop route servicing the hospital and Danbury Mall</i>
	<i>Route 9 – Downtown Danbury HART pulse to New Milford via Route 7 on nights, Sundays & holidays</i>
Bethel	HARTransit
	<i>Route 5 – Downtown Danbury HART pulse to Bethel Center via Main St</i>
West Redding	No Bus Service
Branchville	HARTransit
	<i>7 Link – Danbury to Norwalk Via Route 7</i>
Cannondale	HARTransit
	<i>7 Link – Danbury to Norwalk Via Route 7</i>
Wilton	HARTransit
	<i>7 Link – Danbury to Norwalk Via Route 7</i>
	Norwalk Transit District
	<i>Route 4 - WHEELS Hub to Wilton Center via W Rocks Rd and Route 7</i>
Merritt 7	Norwalk Transit District
	<i>Merritt 7 – South Norwalk Train Station to Merritt 7</i>
	<i>Main Ave – South Norwalk to Walmart via Main Ave</i>
	<i>Route 3 – WHEELS Hub to Glover/The CURB via Main Ave</i>
	<i>Wheels 2U – Microtransit serving South Norwalk, Maritime Aquarium, SoNo Collection, Wall Street Area, and Calf Pasture Beach</i>
South Norwalk	Norwalk Transit District
	<i>10-20 Westport Rd Shuttle – South Norwalk Train Station to 10/20 Westport Road (Wilton, CT)</i>
	<i>Conn Ave - South Norwalk to South Norwalk along Connecticut Ave and Norwalk Community College</i>
	<i>Norwalk Hospital – South Norwalk Train Station to Norwalk Hospital/Belden Avenue</i>
	<i>Main Ave – South Norwalk to Walmart via Main Ave</i>
	<i>Merritt 7 – South Norwalk Train Station to Merritt 7</i>
	<i>Route 9 – South Norwalk to the WHEELS hub via the hospital</i>
	<i>Route 10 – Wheels Hub to Wilson Ave via South Norwalk Train Station</i>
	<i>Route 11 – Wheels Hub to Norwalk Community College via South Norwalk Train Station</i>
	<i>SNRR – Norwalk Hub to South Norwalk Metro Railroad and Highland Avenue stops</i>
	<i>Wheels 2U – Microtransit serving South Norwalk, Merritt 7, the Maritime Aquarium, the SoNo Collection, Wall Street Area, and Calf Pasture Beach</i>

Source: HARTransit website maps and schedules, Norwalk Transit District website maps and schedules.

Freight Service

Connecticut's rail freight industry is operated by the private sector for profit and for public benefit under federal common carrier regulations. There are ten private freight railroad companies operating in Connecticut, and they originated 1.5 million tons and terminated 1.4 million tons of freight in 2019. The primary freight commodities handled by Connecticut's railroads include non-metallic minerals, food and consumer products, waste¹⁴ and scrap, primary metals, lumber and wood, and petroleum products. Railroads have different freight capacities and while the national standard is 286,000-pound rail cars, the majority of Connecticut's freight system does not meet the standard, limiting the types and quantities of goods shipped through the state. Additionally, bridge clearances do not allow for double stacking, making expansion of rail freight operations unlikely without major infrastructure updates.

Within the study area, freight service is operated sparingly by CSX on the New Haven Line with the majority of freight being operated by the Housatonic Railroad Company (HRRC, Figure 11). A Class III railroad, HRRC operates two lines: the 50-mile Berkshire Branch between Danbury and North Canaan and the 32-mile Maybrook Branch between Derby and Danbury. As of 2019, traffic primarily consists of 7,500 carloads of lumber, plastic, wood pulp, and alcohol inbound as well as limestone and construction debris outbound.¹⁵ HRRC works with the Pan Am Southern in Derby and with Providence & Worcester Railroad in Danbury via the latter railroad's overhead rights. Trains are dispatched from the Dispatching and Operations Center in Canaan, and equipment is maintained at the Engine Repair and Maintenance Facility also in Canaan.

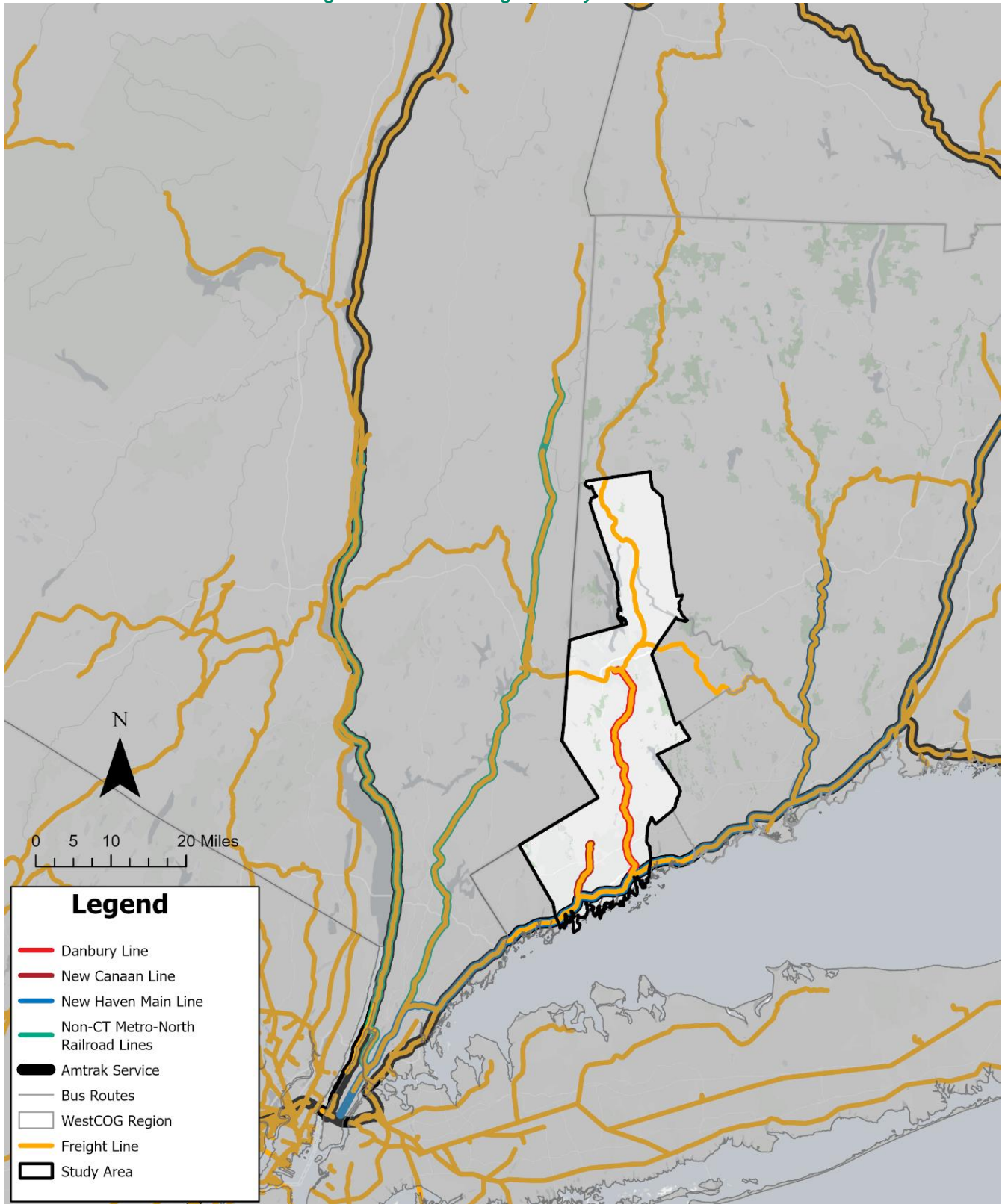
The Maybrook Line traverses 33.5 miles between Derby and Danbury, CT. Consequently, the Maybrook Line is a key supply chain component as commercial freight rail customers depend on it for the movement of commodities and large or oversized specialized goods, such as power transformers and high-tension power line poles. Track classifications on the Maybrook Line range from excepted track to Class 2, resulting in varied speeds and associated speed-restricted service.

The railroad has a lumber distribution facility in Hawleyville. The Maybrook Line recently received up to \$5.3 million in awarded funding from the Consolidated Rail Infrastructure and Safety Improvements (CRISI) Program that will fund final design and construction activities for various track-related improvements and upgrades to multiple bridges. The project will restore a portion of HRRC's rail line that is out of service and improve approximately eighteen miles of rail line to increase freight rail capacity and improve operational safety. Also, the project will help HRRC maintain its connection with Pan Am Southern/CSX Transportation and Metro-North.

¹⁴ As noted in the 2022-2026 Connecticut State Rail Plan, waste freight, due to its weight and cost per ton, is an ideal commodity to divert from trucks to rail transport.

¹⁵ Railroads are classified by size, with Class I being the largest and Class III being the smallest and it is determined on the volume of goods shipped. This is different from track classifications which are on a scale of 1 to 6, based on speed limits.

Figure 11: Current Freight Rail System



5. Socioeconomic Trends

This part of the analysis focuses on the people who live and work in the study area. The analysis is presented for the two geographies: the study area municipalities and the one-mile station areas. For the municipal data, the analysis compares the population and economic data to other benchmark geographies as shown in Figure 3 above. Due to data availability constraints, any analysis of population and worker characteristics is limited to the study area municipalities. The one-mile station area data presents the distribution of population, workers, and employers.

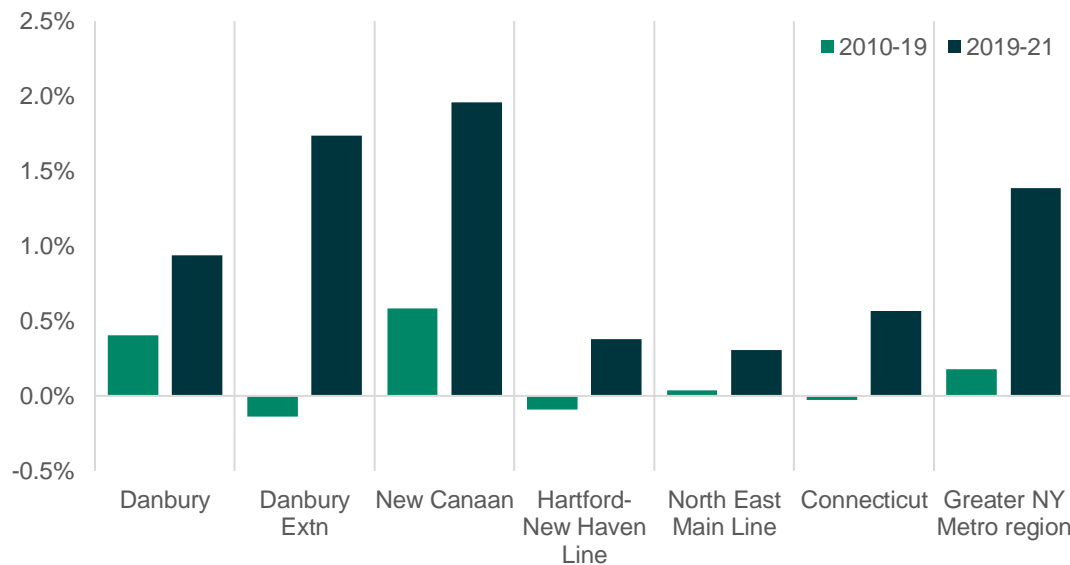
Demographic Trends

Population in the Study Area Municipalities

The western and central parts of Connecticut¹⁶ are home to approximately 18% of the population of the Greater New York Metro Area. The state's population decreased between 2010 and 2019 while the Metro Area's population increased during this period. However, post-COVID work-from-home trends have reversed the trend of declining population and, as shown in Figure 11, the annual growth rate of the state's population is now trending upwards.

The study area is home to 13% of Connecticut residents, and the comparison geographies of the New Haven-Hartford corridor and Northeast corridor are home to 16% and 20% of the state's population, respectively. Figure 12 shows the average annual growth rate of the study area's population change from 2010 to 2019 and from 2019 to 2021.

Figure 12: Population Average Annual Growth Rate, CT Statewide and Select Corridors, 2010-21

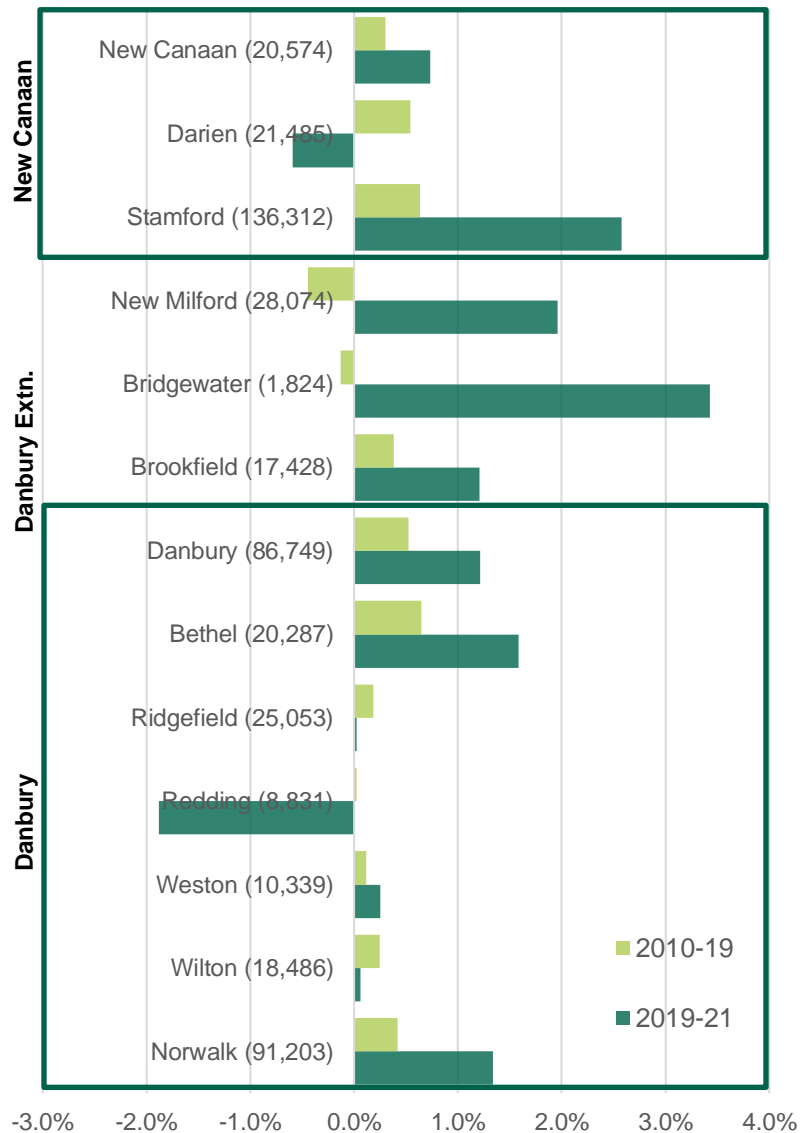


Source: Census 2010, ACS 2019, 2021 estimates

The distribution of residents in the study area is concentrated at the ends of both lines, with 75% of the total population along the New Canaan Line living in Stamford and with 35% of the residents along the Danbury Line living in Norwalk. The Danbury Line is also anchored at the north by the City of Danbury, the 86,000 residents of which account for 33% of the corridor's population. The municipalities along the proposed Danbury Extension have approximately 47,000 residents. Figure 13 shows the 2021 population and the annual growth rates for municipalities in the study area.

¹⁶ Fairfield, Litchfield, New Haven, and Hartford counties.

Figure 13: Population Annual Growth Rate, Municipalities in the Study Area by Corridor, 2010-21



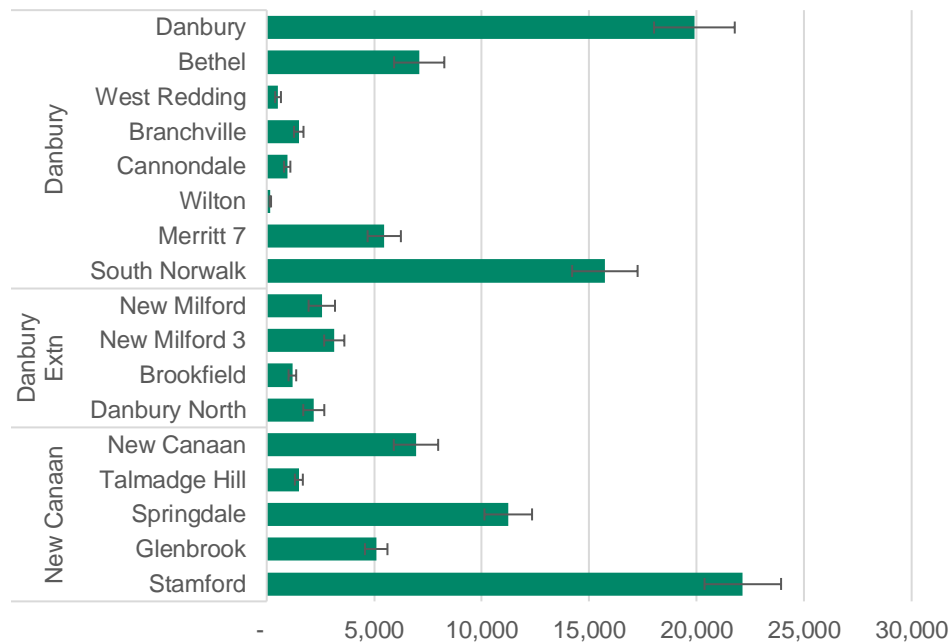
Numbers with municipal names show 2021 population.
 Source: Census 2010, ACS 2019, 2021 estimates

Population in the One-Mile Station Areas

Areas within a mile of the stations along each train line are estimated to have around 50,000 residents (51,300 ($\pm 2,800$ ¹⁷) for the Danbury Line and 46,900 ($\pm 2,400$) for the New Canaan Line). The population living within the one-mile buffers of the stations has decreased by about 7,200-9,000 residents since 2010. Figure 14 shows the 2021 population estimates for the stations along the two lines. Danbury and South Norwalk on the Danbury Line are estimated to have over 15,000 residents within a mile of each station, while Stamford on the New Canaan Line is estimated to have over 20,000 people living within a mile of the station.

¹⁷ The change is estimated based on American Community Survey (ACS) estimates. The ACS is an annual survey administered by the Census Bureau to about 5% of the population. Because this is a sample of the total population, the estimates for the whole population are derived and have a 90% confidence interval. The ACS estimates are published with a margin of error which gives a range of the lower and higher end of the estimate.

Figure 14: Population Estimates – 1 Mile Station Areas, 2021



1-mile population estimates derived from ACS 2021 block group estimates. Error bars show margin of error for 90% confidence interval.

Demographic Characteristics in the Study Area Municipalities

As Figure 13 and Figure 14 show, the population along the Danbury and New Canaan Lines have grown at higher rates than those of the state and along the New Haven-Hartford and Northeast corridors. However, whether these trends in population growth will result in higher ridership for the lines depends on key demographic characteristics. The American Public Transit Association's research on transit riders' demographics describes key demographic factors that align with higher transit use. Their research finds that worker income, race, age, and access to a vehicle are primary determinants for transit use.¹⁸ Comparison of Connecticut transit commuters with the national profile shows that transit commuters in the state tend to have higher earnings, are relatively older, and have a higher share of non-Hispanic white commuters than the national average.

The existing conditions analysis used U.S. Census and American Community Survey data to analyze how key demographic indicators compare to the comparison geographies and the state (Table 15). Key findings include:

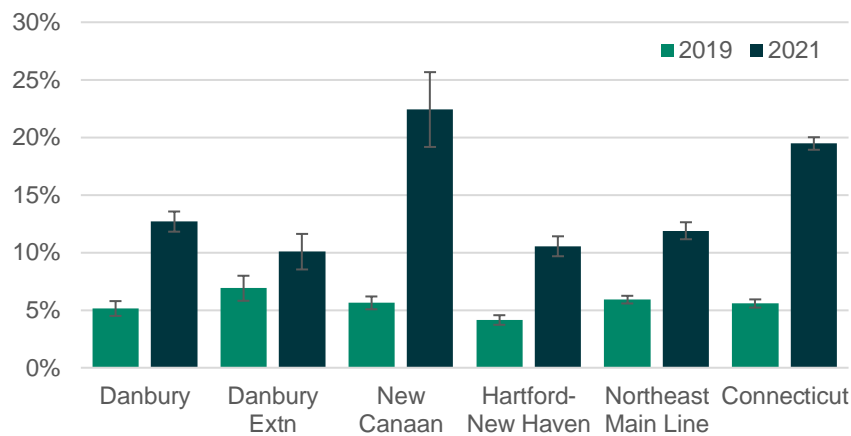
- A higher share (36%) of Connecticut transit commuters is with higher incomes compared to national averages (25%). The study area has a higher than state average share of transit commuters with annual earnings above \$75,000. Except for the Hartford corridor, most transit riders in the state's rail corridors have a higher share of transit commuters who earn above \$75,000.
- Workers in Connecticut choose to take transit even with access to a vehicle at higher rates than national average. About a quarter of transit commuters in the state have no access to a vehicle compared to almost 40% nationwide. For the study area, the share of transit riders with access to a vehicle is lower than the state average at 10-11%.
- Since 2010, the diversity (share of non-white population) in the CT population has increased. Except for the Hartford line, the transit commuters in the state's rail corridors have a higher share of non-Hispanic white commuters than the state average.
- The cost-of-living index for the Danbury and New Canaan Lines is higher than the state average. In addition, existing housing costs in the study area show that over a third (34% for Danbury and New Canaan Lines) of

¹⁸ American Public Transit Association, "Who Rides Public Transportation."

the owners along the study area are cost-burdened, i.e., paying more than 30% of their income towards housing costs. For renters, about half (51% (±8) for Danbury and 46% (±9) for New Canaan) are cost burdened. These are generally higher than the statewide average of 26% (±1) owner households and 49% (±2) renter households estimated to be cost-burdened. Among the study area's cost-burdened households, half pay over 50% of their income for rent and are classified as severely cost burdened households.

- Based on 2020 LEHD data, 64% of the workers in the Danbury Line and 70% of the workers who live along the New Canaan line work outside the respective areas. However, travel behavior has significantly shifted due to COVID-19. A much higher share of workers either work from home or commute occasionally into work in the post-COVID economy. While this trend has likely contributed to more people residing in the state, it is not yet clear what the long-term impact on transit use for commuting will be. Figure 15 shows the increase in workers working from home between 2019 and 2021. The New Canaan Line, in particular, has a higher-than-state-average share of workers who work from home in 2021, while the Danbury Line's share is comparable to the Northeast and New Haven-Hartford corridors.

Figure 15: Percentage of Workers Working from Home, Selected Corridors and Statewide, 2019 and 2021



Source: ACS estimates 2019, 2021

Table 15: Transit User Demographic Characteristics for Study Area and Comparison Geographies, 2021

Demographic characteristics of public transit commuters (US)	28% of public transit commuters have annual earnings above \$75,000.	100 refers to US as the base	73% of transit commuters identify as non-white/ minority	Median Age of transit commuter is 39 years	48% of transit commuters are between the age of 25-44 years	39% of transit commuters have no access to vehicle
Demographic characteristics of public transit commuters (CT)	36% of public transit commuters have annual earnings above \$75,000.	126.5	67% of transit commuters identify as non-white/ minority	Median Age of Transit commuter is 38-41 years	40% of transit commuters are between the age of 25-44 years	25% of transit commuters have no access to vehicle
Metric	Income (Percent of public transit commuters with annual earnings above \$75,000)	Cost of Living Index	Race/ Ethnicity (Percent of commuters that identify as non-white/ -minority)	Age (Median Age of transit commuters)	Age (Percent of transit commuters between 25-44 years age)	Vehicle Access (Percent of transit commuters with no access to vehicle)
Geography						
Danbury Line	56%	145.2	48%	41-57 yrs	40%	10%
Danbury Extension	52%	135.6	35%	45-47 yrs	41%	0%
New Canaan Line	60%	145.2	45%	35-47 yrs	47%	11%
New-Haven-Hartford	9%	125	86%	31-53 yrs	46%	43%
Northeast Corridor	49%	130.3	50%	36-61 yrs	36%	15%

Source: "Who Rides Public Transportation" APTA 2017, US Census 2010, American Community Survey estimates (2021,2022), EMSI Lightcast

Economic Trends

Employment in the Study Area Municipalities

The state's economy, particularly the economy of its western half, is intrinsically linked to that of the Greater New York Metro Area. The state's annual rate of employment change (year-over-year) slowed after 2015 and trended downward even before the COVID-19 recession in 2020. Recent recovery has been stronger with the preliminary 2023 employment estimates almost fully recovered to 2019 employment levels. Similar to statewide trends, employment growth in the study area was slow pre-COVID – lower than state average and with a marginal decline between 2016 and 2019. However, recovery since 2020 has seen jobs added to the region at a higher rate than the statewide average. Table 16 shows the total employment and annual rate of change for the state and study area.

Table 16: Employment Trends, CT State and Study Area

Year	State		Study Area	
	Jobs (in thousands)	Y-o-Y	Jobs (in thousands)	Y-o-Y
2013	1,714.4		219.6	
2014	1,734.2	0.7%	222.9	1.5%
2015	1,742.4	0.8%	224.4	0.7%
2016	1,746.4	0.3%	223.6	-0.3%
2017	1,747.4	0.2%	222.6	-0.5%
2018	1,750.4	0.2%	223.5	0.4%
2019	1,747.8	-0.2%	222.5	-0.4%
2020	1,627.6	-7.4%	205.5	-7.7%
2021	1,673.9	2.9%	212.7	3.5%
2022	1,718.9	3.1%	221	3.9%
2023*	1,741.5	1.2%	224.5	1.6%

*2023 data is preliminary projections. Source: EMSI Lightcast, AECOM.

Table 17 shows the top industries along the Danbury and New Canaan Lines, and proposed Danbury Line Extension and the Northeast and the New Haven-Hartford corridors. Health Care and Social Assistance is one of the top three industries by job count along all five comparison geographies. Retail Trade is one of the top three industries along both the Danbury Line and the proposed Danbury Line Extension. Professional, Scientific, and Technical Services is a top industry along both the Danbury and New Canaan Lines, while Government is a top industry along both the Northeast and the New Haven-Hartford corridors.

Table 17: Total Job Count and Top Industries by Line

Geography*	Total Job Count	Top Industries (2-Digit NAICS)	Industry Job Count	% of Total
Danbury Line	120,418	Health Care & Social Assistance	19,287	16%
		Retail Trade	15,177	13%
		Professional, Scientific, & Technical Services	10,839	9%
Danbury Line Ext.	15,776	Retail Trade	2,837	18%
		Health Care & Social Assistance	2,379	15%
		Accommodation & Food Services	1,624	10%
New Canaan Line	88,267	Health Care & Social Assistance	12,190	14%
		Finance & Insurance	10,723	12%
		Professional, Scientific, & Technical Services	9,840	11%
Northeast Corridor	312,445	Health Care & Social Assistance	48,283	15%
		Government	44,630	14%
		Manufacturing	35,233	11%
New Haven-Hartford Corridor	417,050	Health Care & Social Assistance	77,101	18%
		Educational Services	41,186	10%
		Government	38,568	9%
Connecticut	1,719,591	Health Care & Social Assistance	275,642	16%
		Government	236,542	14%
		Retail Trade	167,712	10%

*Note: The geographies under consideration are comprised of the ZIP codes intersecting each line.

Source: EMSI Lightcast, AECOM.

To analyze the mix of industries in the study area and their positioning for future growth, a statewide industry's location quotient (LQ) was calculated. LQ is a measure of the state's industry specialization relative to that of the United States. A lower LQ means that the state has a lower relative concentration of the industry as compared to the nation, while a higher LQ means that the industry is more specialized and accounts for a higher share of jobs in the state compared to the nation. Table 18 shows how each Connecticut industry cluster is positioned for growth as of 2022. Implications for growth in the study area are discussed below.

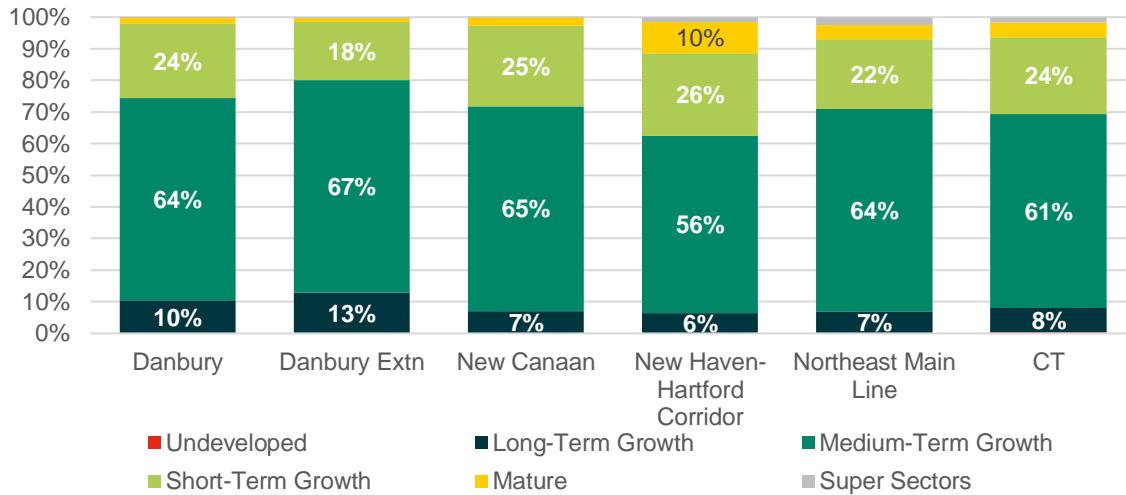
Table 18: Connecticut Jobs Cluster and Growth Outlook Summary, 2022

Growth Classification / Location Quotient (LQ)*	Growth Trends Description	Connecticut Jobs Cluster
Undeveloped (LQ <0.4)	Cluster job LQs below 0.4 are viewed as undeveloped and have very low probability of large job increases.	Agriculture & Related Mining
Long-Term Growth (LQ 0.4 - 0.8)	Clusters with LQs between 0.4 and 0.8 are considered long-term growth clusters, meaning that the clusters have growth potential, but are currently underdeveloped, and organic job creation is less likely without policy intervention.	Construction Energy Food Fossil Fuels IT: Hardware & Software Manufacturing: Other Textiles & Apparel Wood & Paper
Medium-Term Growth (LQ 0.8 - 1.21)	Job growth tends to be most consistent in LQs between 0.8 and 1.2, which are considered intermediate-term growth (medium-term) clusters.	Automotive Chemicals Consumer Retail & Services Electronics & HVAC Manufacturing & Retail Government Management, Scientific, & Technical Consulting Services Media & Telecommunications Other Services R&D Real Estate Tourism & Recreation Transportation Utilities Warehousing & Storage
Short-Term Growth (LQ 1.21 - 1.61)	Cluster with LQs between 1.2 and 1.6 are considered short-term growth clusters, which tend to already be well concentrated locally relative to the U.S. average and can expect higher rates of development and job creation.	Finance & Insurance Services Healthcare Machinery & Metal Manufacturing & Retail
Mature / Fully Developed Clusters (LQ 1.61 - 4)	Clusters with job LQs between 1.6 and 4 are considered mature or developed in context with U.S. averages. While these clusters can continue to develop, in statistical terms, volatility in job creation is increasingly common (i.e., job losses as well as increases).	Education
Super Sectors	Markets not limited by regional / national constraints. Industry clusters are unique to the study area with dramatically higher levels of industry concentration, as defined by LQs between 4 and 10 and called Super Sectors. This is linked to a unique ability to access global markets, which in principle should support significantly higher growth rates. In context with this specialization, related industries could see benefits and grow at a faster pace.	Aerospace & Defense

*Location Quotient (LQ) is an analytical statistic that measures a region's industrial specialization relative to a larger geographic unit. AECOM's analysis leverages job creation data across the top 30 US Metropolitan Statistical Areas (MSA) based on job growth and industry concentration to reinforce clear trends for clusters locally that are best positioned for near-term growth.

To understand how the study area's industry mix compares with Connecticut as a whole, our analysis looked at the number of jobs in each of the state's clusters' growth classifications. As shown in Figure 16, the Danbury Line Extension has a relatively low percentage of jobs in Connecticut industries positioned for short-term growth (18%). No Connecticut Super Sector industries exist along the Danbury and New Canaan Lines, and proposed Danbury Line Extension. The Danbury Line and proposed Danbury Line Extension have a relatively high proportion of jobs in Connecticut industries positioned for long-term growth (10% and 13%, respectively), while the New Canaan Line's proportion is on par with the three comparison geographies. Since 2001, the study area municipalities have attracted more sectors with medium-term growth potential overtime.

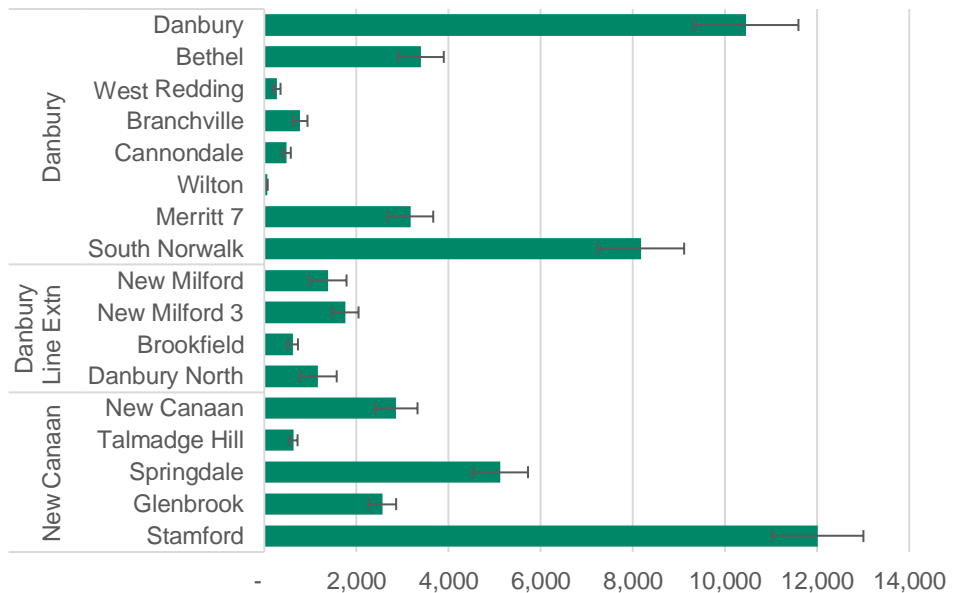
Figure 16: Distribution of Jobs Among Connecticut Clusters' Growth Classifications, 2022



Workers in the One-Mile Station Areas

Within the one-mile radius of the lines, there are three major job centers: Stamford and Danbury (each with over 10,000 estimated workers) and South Norwalk (with over 8,000 workers). Springdale, Bethel, and Merritt 7 Stations are estimated to have between 3,000 and 5,000 workers within a mile of each of the stations. Figure 17 shows the estimated counts of workers within a mile of the study area stations.

Figure 17: Employment estimates- One-Mile Station Areas, 2021



1-mile worker estimates derived from ACS 2021 block group estimates. Error bars show margin of error for 90% confidence interval.

Major Employers

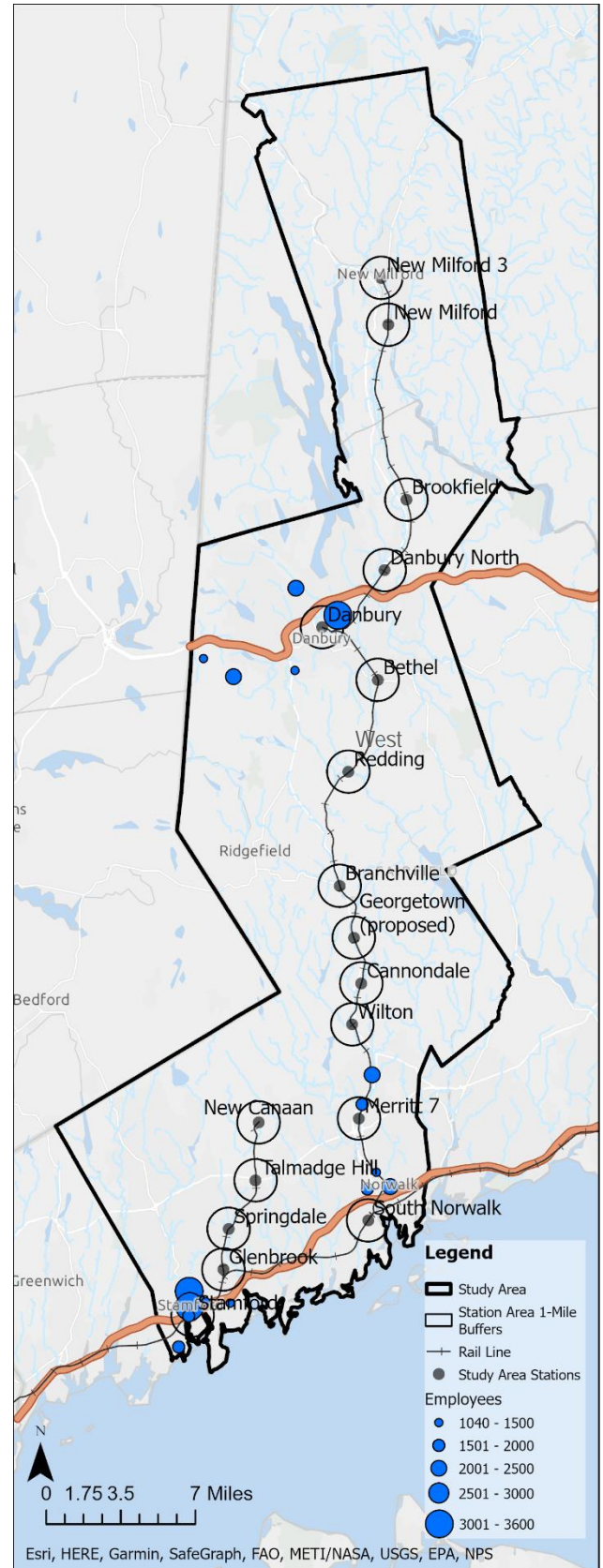
Within the study area, there are eighteen employers with employee counts greater than 1,000. Table 19 lists the major employers in the study area and Figure 18 shows their locations. Consistent with the distribution of employment, the cities of Stamford, Danbury, and Norwalk have most of the major employers. Four top employers are located within one mile of the Stamford Station: the City of Stamford, Charter Communications, Indeed.com, and Deloitte. FactSet Research is located within one mile of the Merritt 7 Station. Western CT Health Network is located within one mile of the Danbury Station.

Table 19: Major Employers

Employer	Employee Count	City	Nature of Business
Stamford Health	3,600	Stamford	Hospital/Health Services
Western CT Health Network – Danbury	3,300	Danbury	Hospital/Health Services
City of Stamford (including Board of Education)	3,292	Stamford	Municipal Government
Boehringer-Ingelheim Pharmaceuticals	2,500	Danbury	Pharmaceuticals
Danbury School Systems	2,400	Danbury	Municipal Government
City of Norwalk	2,323	Norwalk	Municipal Government
Boehringer-Ingelheim, Inc.	2,200	Ridgefield	Pharmaceuticals
ASML Lithography Systems	2,118	Wilton	Manufacturing
FactSet Research	2,000	Norwalk	Research Systems
Charter Communications	2,000	Stamford	Broadband Connectivity
Gartner	1,650	Stamford	Consulting
Nuvance Health (Norwalk Hospital)	1,504	Norwalk	Hospital/Health Services
Cartus (formerly Cendant Mobility)	1,300	Danbury	Consulting
Indeed.com	1,200	Stamford	Corporate
Altice USA	1,180	Norwalk	Cable Line Installation
Deloitte	1,150	Stamford	Consulting
NBC Sports Group & NBC Universal	1,075	Stamford	Media
IQVIA Holdings	1,040	Danbury	Data Processing

Source: Municipal CAFR review.
 Information is not available on share of employees working on-site vs. remote/hybrid.

Figure 18: Major Employers (>1,000 Employees)



6. Existing and Planned Development

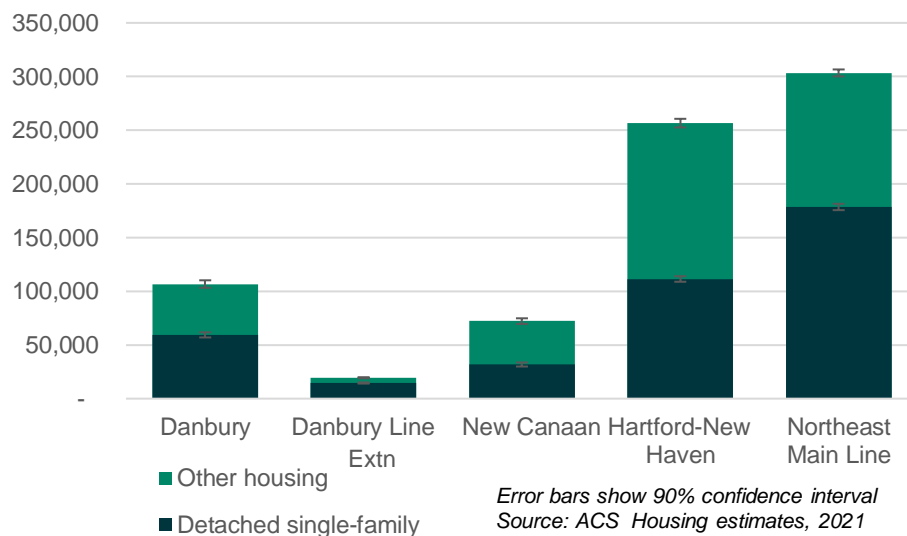
This section takes a closer look at the distribution of different types of existing development along each corridor. We use one-mile station areas when reporting any station level characteristics or counts. Overall, the southern ends of the New Canaan Line and the two ends of the Danbury Line anchor residential and office spaces while retail is relatively dispersed.

Existing Development Patterns in the Study Area Municipalities

Residential

The existing housing stock in the study area municipalities consists of over 100,000 units in the municipalities on the Danbury Line and over 70,000 units in Stamford, Darien, and New Canaan along the New Canaan Line. The City of Stamford has the majority of the housing units along the New Canaan Line with over 50,000 units. The cities of Danbury and Norwalk have the bulk share of housing along the Danbury Line with over 30,000 units each. More than half of the housing units for these cities are multifamily (54% for Norwalk, 56% for Danbury, and 65% for Stamford) which is the majority of the multifamily housing stock in the study area municipalities. Housing stock in other municipalities in the study area is primarily detached single-family. Figure 19 shows the housing stock for the study area and comparable geographies.

Figure 19. Housing Stock by Corridor, 2021



The analysis focuses on multifamily residential development trends as multifamily development supports transit-oriented development (TOD) by allowing both a density of units and mix of homeowners and renters that are more likely to use transit for commuting or other purposes. Housing construction between 2010 and 2022 in the study area municipalities was concentrated primarily in Stamford, Danbury, and Norwalk as shown in Figure 19. Municipalities in the study area permitted approximately 15,000 units between 2010 and 2022, with about two-thirds of the units permitted being multifamily units. With the exception of Danbury and Stamford, post-COVID housing activity has increased in other study area municipalities (Stamford's 2015-19 average is high due to a large number of units permitted in 2019).

The study area’s multifamily housing stock is generally newer than the stock along the Northeast and New Haven-Hartford corridors, with a majority of existing properties constructed between 2000 and 2019. A majority of multifamily housing stock along the Northeast and New Haven-Hartford Line was constructed prior to 1980 (Table 20).

Table 20: Age of Existing Multifamily Stock

Line	Pre-1980	1980-1999	2000-2019	2020-Present
Danbury	26%	14%	55%	6%
Danbury Extension	32%	3%	63%	2%
New Canaan	20%	12%	55%	13%
Northeast Corridor	59%	15%	18%	8%
New Haven-Hartford Corridor	71%	11%	13%	5%

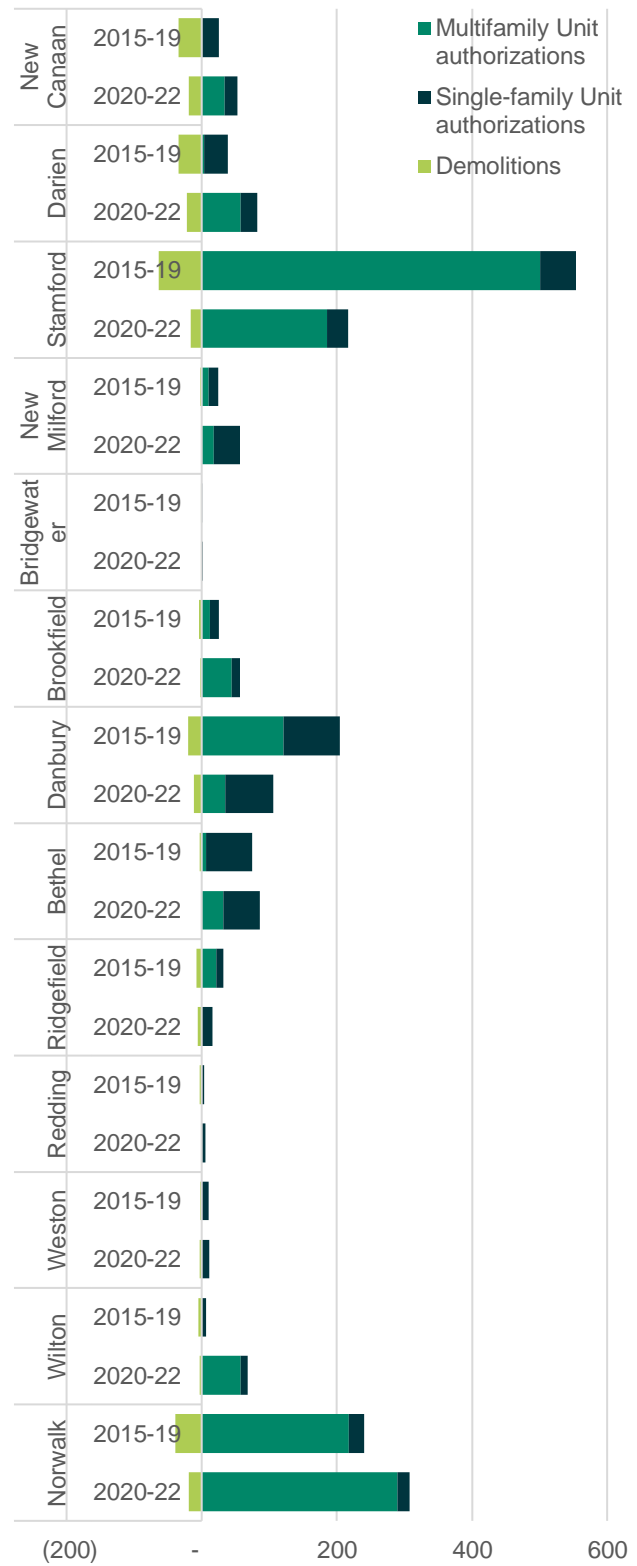
Source: CoStar, AECOM.

A multifamily stock with a mix of income ranges supports affordability and is a critical factor to support transit use. There are a total of 18,848 assisted units¹⁹ within the study area’s municipalities, comprising 10.9% of all assisted units within Connecticut. Of these units, 41% (7,863 units) are located in Stamford, 27% (5,085 units) are located in Norwalk, and 18% (3,544 units) are located in Danbury.

Table 21 shows the affordable multifamily housing supply within each study area municipality. Affordable housing is defined here as units counted under Connecticut’s Affordable Housing Land Use Appeals Act (Section §8-30g). Any privately-owned housing where prices are affordable but are not receiving any form of assistance or not deed restricted do not count as affordable housing under Section §8-30g. The different types of affordable units are:

- Government assisted housing includes properties that were developed using state or federal financial assistance that requires the provision of housing to low-income households, such as the federal Low Income Housing Tax Credit (LIHTC) or the state Competitive Housing Assistance for Multifamily Properties (CHAMP).
- Tenant rental assistance refers to units or properties occupied by households receiving housing assistance, such as Section 8 vouchers.

Figure 20: Average annual residential permit activity by study area municipality, 2015-22



Source: CT DECD

¹⁹ Assisted units include public housing, tenant-based vouchers, and privately owned project-based vouchers.

- Single-family properties that were purchased using a USDA or CHFA mortgage is also considered affordable housing.
- Deed-restricted properties are legally restricted to occupancy by low-income households for at least 40 years after initial occupancy (Office of Legislative Research, 2017).

To be exempt from the appeals requirement of Section §8-30g, a municipality's housing stock must be at least 10% affordable as defined by the four categories (Office of Legislative Research, 2017). Within the study area, the municipalities that are exempt include Danbury, Norwalk, and Stamford. Across Connecticut, as of 2022 there was a total of 29 exempt municipalities (CT169Strong, 2023).

Table 21: Affordable Multifamily Housing Supply (units counted under Connecticut's Affordable Housing Land Use Appeals Act (Section 8-30g))

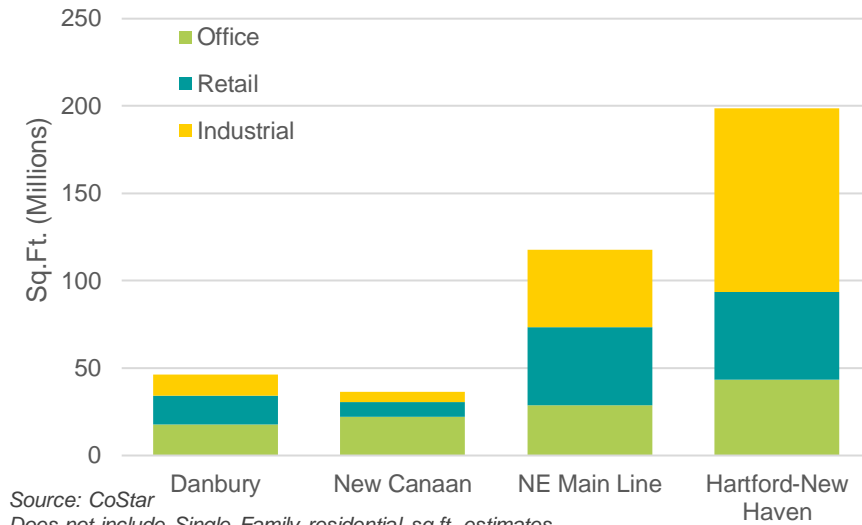
Municipality	Line	Government Assisted	Tenant Rental Assistance	Single Family CHFA/ USDA Mortgages	Deed Restricted Units	Total Affordable Units per §8-30g	2022 Affordable Units per §8-30g as % of Total Housing Stock
Danbury	Danbury	1,652	1,292	390	210	3,544	11%
Bethel	Danbury	192	34	119	84	429	6%
Ridgefield	Danbury	175	6	23	79	283	3%
Redding	Danbury	0	3	14	0	17	0%
Weston	Danbury	0	1	5	0	6	0%
Wilton	Danbury	158	10	12	51	231	4%
Norwalk	Danbury	2,423	1,619	345	698	5,085	14%
New Milford	Danbury Extension	319	42	139	20	520	4%
Bridgewater	Danbury Extension	0	0	1	0	1	0%
Brookfield	Danbury Extension	155	23	83	112	373	6%
New Canaan	New Canaan	175	19	6	0	200	3%
Stamford	New Canaan	4,217	2,033	345	1,268	7,863	16%
Darien	New Canaan	161	17	1	117	296	4%
Total		9,627	5,099	1,483	2,639	18,848	

Source: Connecticut Department of Housing, AECOM.

Commercial

Figure 21 shows total office, retail, and industrial square footage. The study area has significantly less commercial development compared to the New Haven-Hartford and Northeast corridors. The Danbury Line municipalities have a balanced distribution of the different commercial real estate types while the New Canaan Line has mostly office spaces with some retail and industrial areas. By comparison, the New Haven-Hartford and the Northeast Corridors have a larger share of industrial and retail spaces.

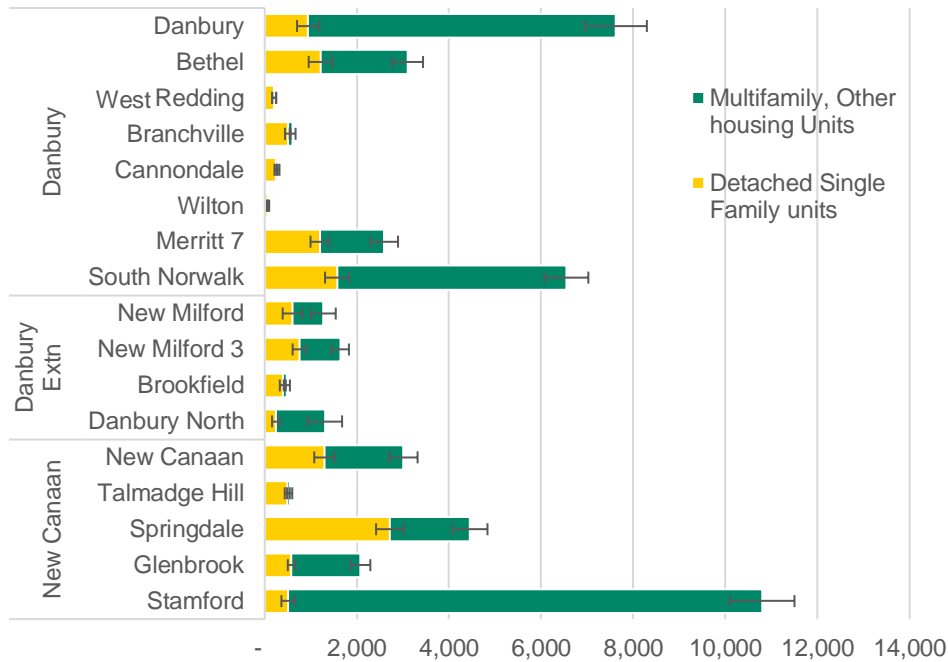
Figure 21 Real Estate Square Feet by Development Type, Select Corridors, 2022



Existing Development Patterns in the One-Mile Station Areas

Each of the Danbury and New Canaan Lines have approximately 20,000 housing units within one mile of their respective stations. About a third of these units are detached single family units. Similar to the distribution of the population, residential density is higher towards the southern ends of both lines, with the Danbury Line also having a higher number of housing units at its north end. Figure 22 shows the housing units and estimated single family units within 1 mile of each station. Along the Danbury Line, the South Norwalk, Merritt 7, Bethel, and Danbury stations, at the south and north ends, respectively, have a more diverse housing stock, while the total housing units along other stations are low and primarily detached single family units. Along the New Canaan Line, the housing mix varies – the Stamford Station has over 10,000 housing units within a mile of the station, with over 90% of the units being multi-family/other unit types, while Talmadge Hill is estimated to have about 500 units, most of which are single family detached units.

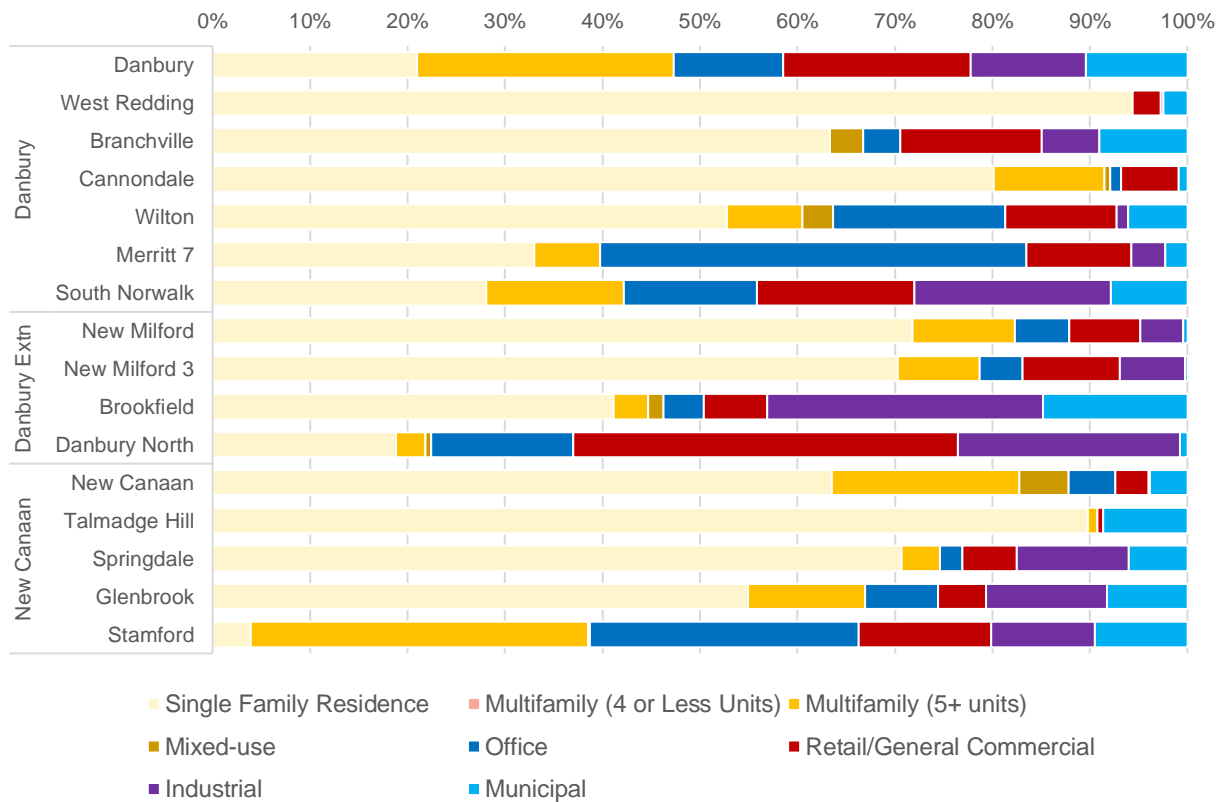
Figure 22: Housing Units Estimates – 1 Mile Station Areas, 2021



1-mile population estimates derived from ACS 2021 block group estimates.

Most of the areas within one mile of the stations are primarily residential, with the exception of the Merritt 7, South Norwalk, and Stamford Stations, which have a higher share of commercial uses, and the Danbury Station which has an even split between residential and commercial (office, retail, industrial) uses. Figure 23 shows the distribution of built space within a mile of the stations.

Figure 23: Real Estate Distribution (Building SF) by Land Use Within 1-Mile of Stations



Office development is the biggest non-residential use occupying the study area's real estate inventory. The Danbury and New Canaan Lines have approximately 6.4 million and 7.9 million square feet of total office space, respectively. For individual stations along the New Canaan Line, office space ranges from 6.6 million square feet within one mile of the Stamford Station to 141,000 square feet within one mile of the Springdale Station (the Talmadge Hill Station has no office space within one mile of the station). Along the Danbury Line, the Merritt 7 Station has 3.4 million square feet of office space within one mile of the station, while the South Norwalk and Danbury Stations have 1.3 million square feet and almost 1 million square feet, respectively.

In terms of retail stock, the New Canaan corridor has a total of 4.7 million square feet of retail space. The Stamford Station has 3.5 million square feet of retail space within a mile of the station, the Danbury Line has 5.5 million square feet of retail inventory with over 1.5 million square feet each within a mile of the Danbury and South Norwalk Stations.

In terms of industrial use, the Danbury Line has 3.5 million square feet of industrial inventory and the New Canaan corridor has 4.9 million square feet of industrial space. The Danbury Line Extension corridor has 1.9 million square feet of industrial space.

Figure 24 through 26 show the detailed land use by stations for each line based on data provided by WestCOG with updates based on comments received from individual municipalities in the study area. Appendix B show the distribution of office, multifamily, retail, and industrial spaces in the study area municipalities and half and quarter mile station area building square foot (SF) summaries.

Figure 24: Land Use Within 1 Mile of Each Station - Danbury Line

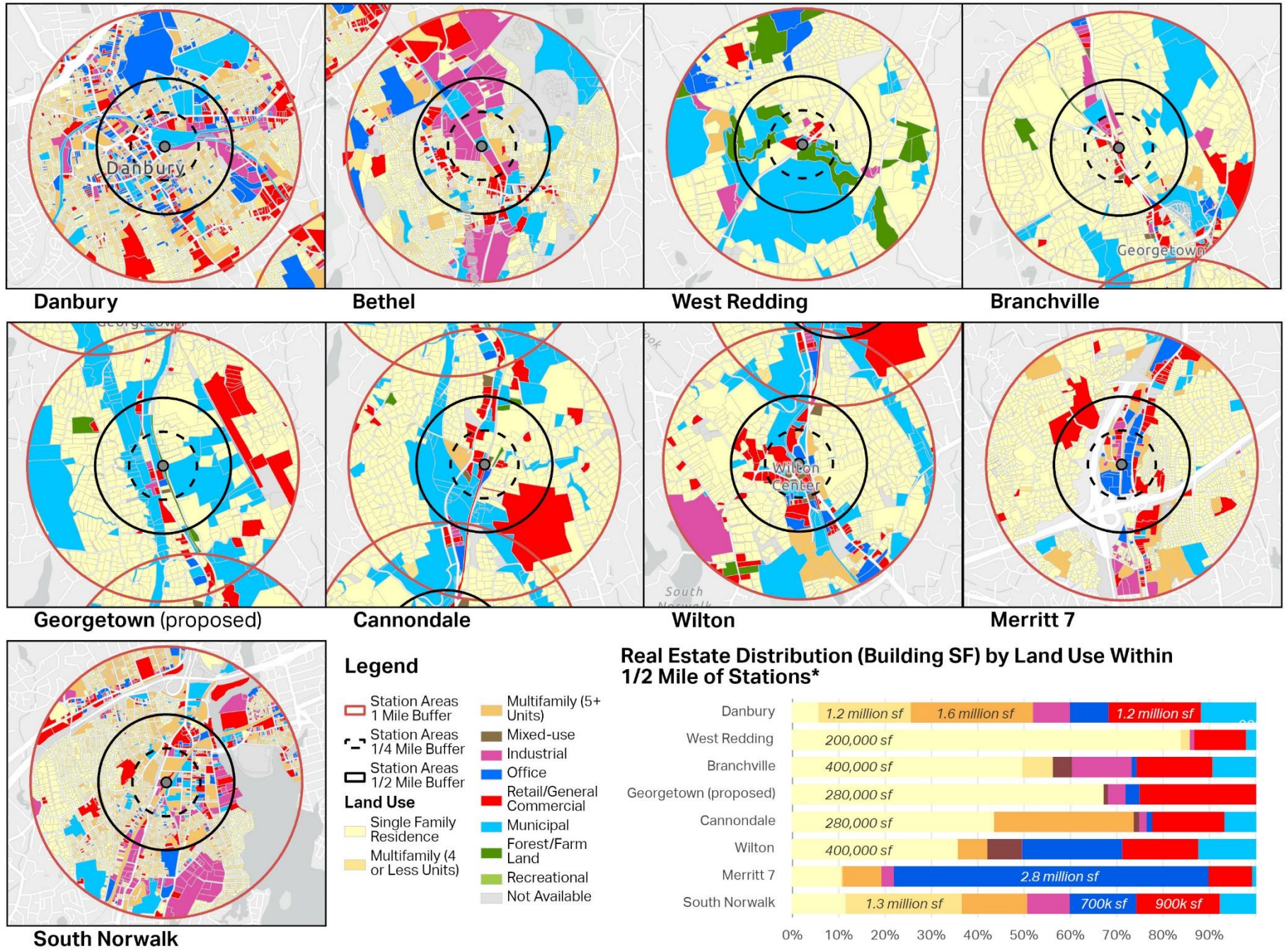
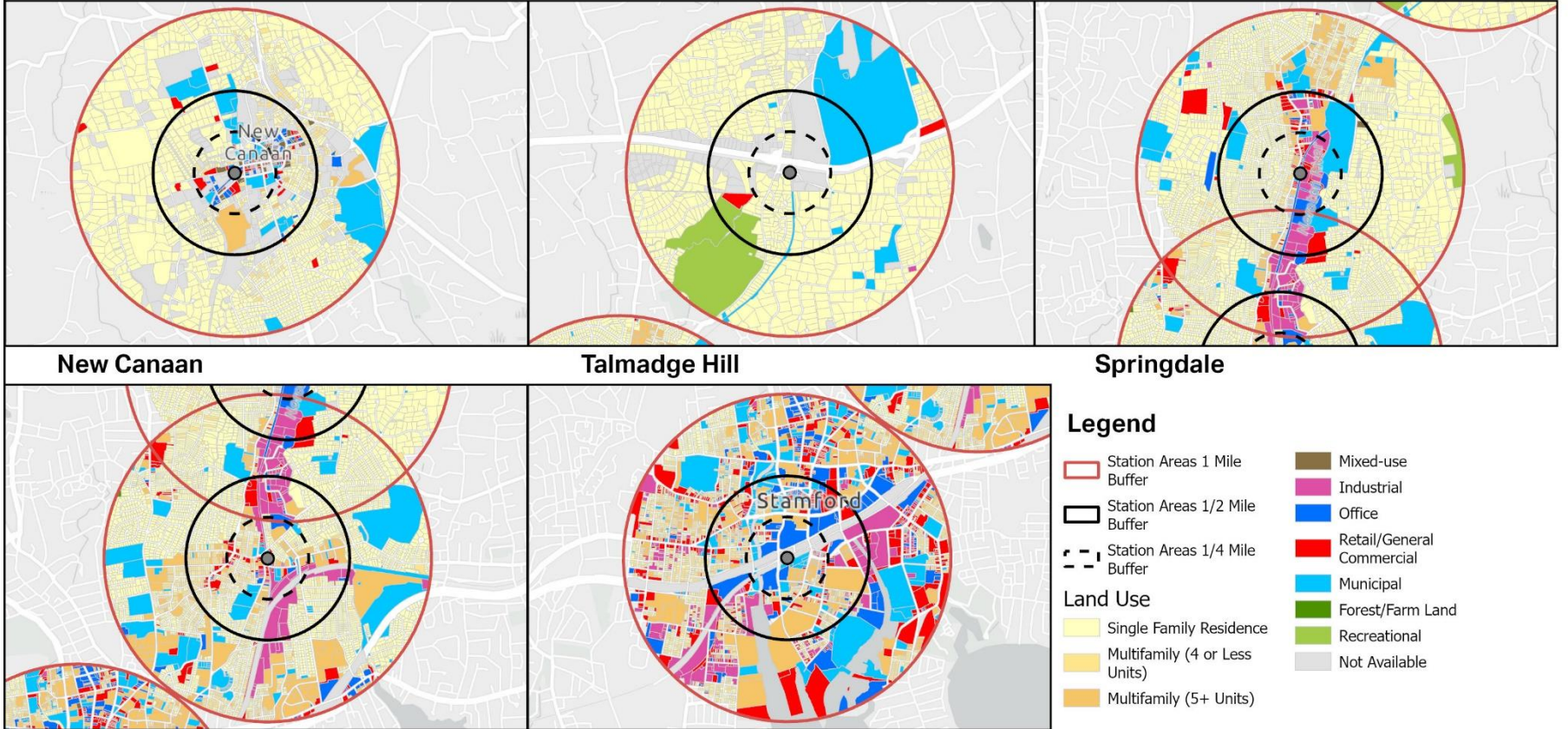


Figure 25: Land Use Within 1 Mile of Each Station – New Canaan Line



Real Estate Distribution (Building SF) by Land Use Within 1/2 Mile of Stations*

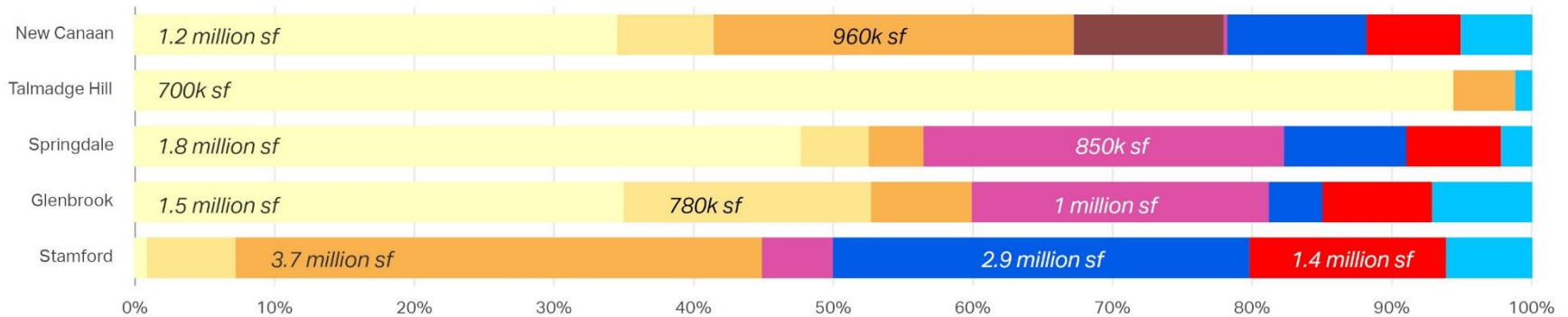
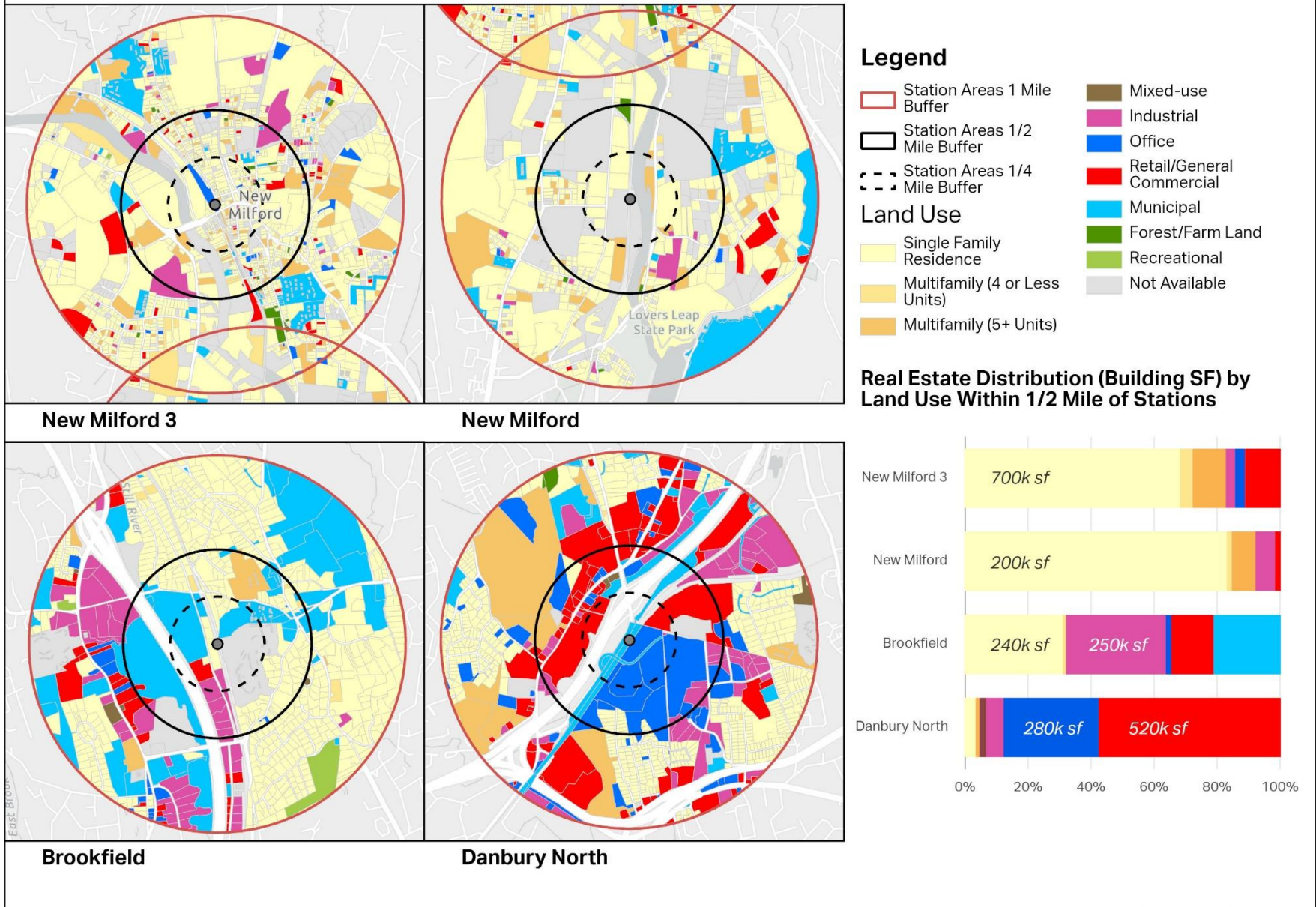


Figure 26: Land Use Within 1 Mile of Each Station – Danbury Line Extension



Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS

Recent and Proposed Development in the One-Mile Station Areas

The study area's development pipeline shows a strong residential pipeline with a total of 54 residential or mixed-use developments within one mile of the stations. The projects are expected to add over 9,400 units along the lines. In addition, about 2.1 million square feet of commercial space is in the pipeline along the study area stations. Figure 27 shows the distribution of proposed projects in the study area and Table 22 summarizes the developments within one mile of the stations. Highlights include:

- **Stamford Station** has the bulk of residential and mixed-use projects with over 4,500 units in the pipeline. Major developments near the station include development of 471 units at 100 Clinton Ave²⁰ and over 700 Harbor Point apartments.²¹ In addition, 385,000 square feet of office space is approved for construction at Station Place within walking distance from the station.
- **Merritt 7 Station** has major residential development with the North 7 development²² estimated to add almost 1,000 multifamily units.
- **South Norwalk Station** has over 1,000 residential units in the pipeline with key projects including the replacement of 136 units with higher density mixed income residential units at Soundview Landing Phase 3.²³
- **Danbury Station** has over 300 units proposed or planned which include 79 senior affordable units at 70 Main St. and 150 market rate apartments at Brookview West²⁴

Table 22: Planned/Proposed/Under Construction Development Within 1 Mile of Study Area Stations

Line	Station	Municipality	Residential Units		Commercial SF	
			Total	Percent in Mixed Use Projects	Total	Percent in Mixed Use Projects
Danbury	Danbury	Danbury	536	28%	--	--
	Bethel	Bethel	200	0%	--	--
	West Redding	Redding	--	--	--	--
	Branchville	Ridgefield	--	--	--	--
	Cannondale	Wilton	--	--	--	--
	Wilton	Wilton	510	45%	-	--
	Merritt 7	Norwalk	2,221	0%	169,506	14%
	South Norwalk	Norwalk	1,031	62%	724,788	100%
New Canaan	New Canaan	New Canaan	215	0%	-	--
	Talmadge Hill	New Canaan	--	--	--	--
	Springdale	Stamford	--	--	--	--
	Glenbrook	Stamford	--	--	--	--
	Stamford	Stamford	4,646	55%	1,938,105	2%

Source: WestCOG, AECOM

²⁰ "One of Stamford's Last Vacant Downtown Lots Could Become a 2-Building, Seven-Story Apartment Complex."

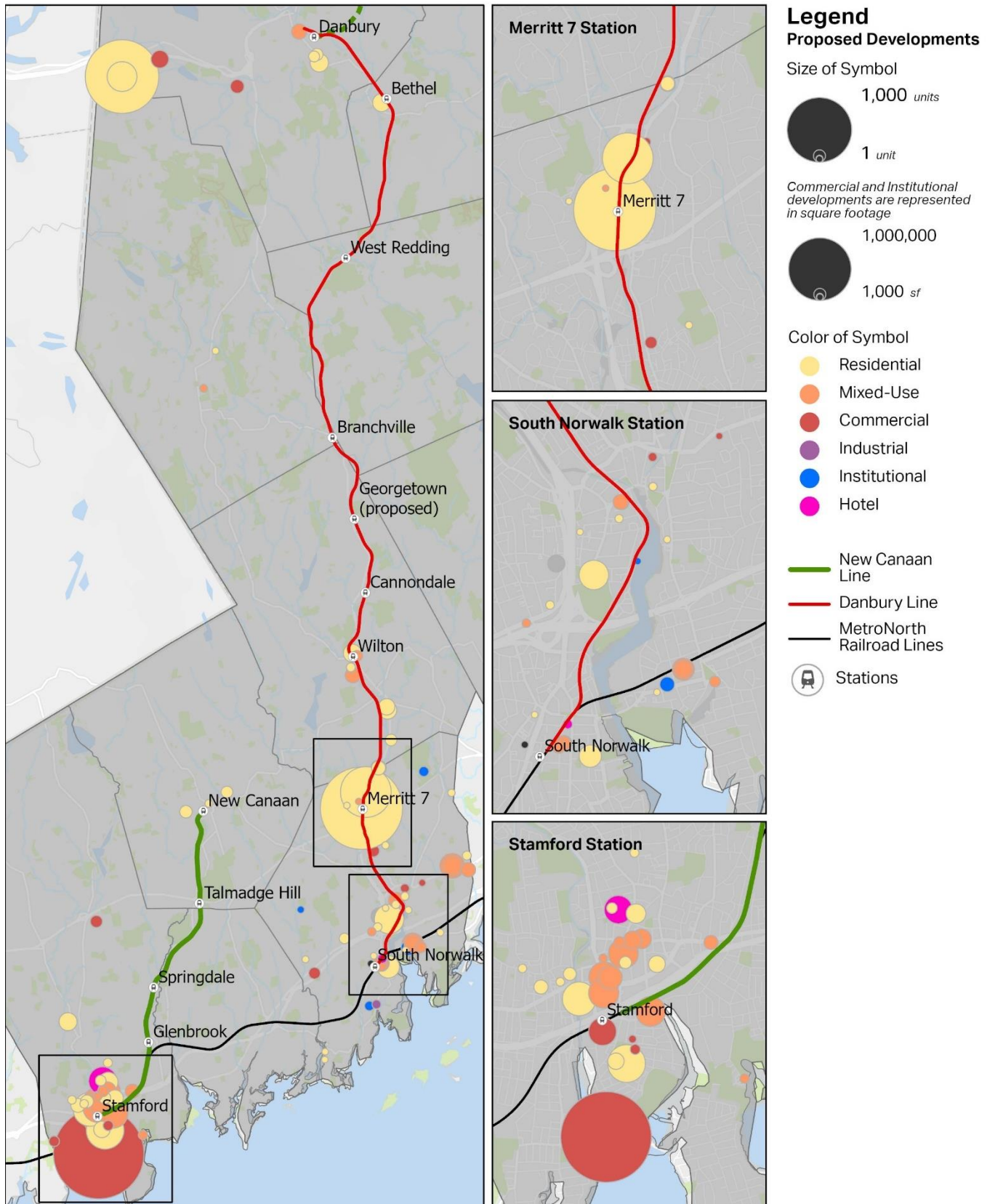
²¹ "Stamford Developer Plans to Build 714 New Harbor Point Apartments Following a CT Supreme Court Decision."

²² <https://bitliveworkplay.com/apartments/norwalk/north-seven/>

²³ "Phase Three of Norwalk's Soundview Landing Officially Launched."

²⁴ <https://www.brt.com/brookview-west>

Figure 27: Proposed Developments Along Study Area



TOD Plans

Recent planning efforts in the study area municipalities include a number of station-area level Transit-Oriented Development (TOD) plans. These are summarized below:

- The **Bethel Forward Plan**²⁵ identifies areas near downtown Bethel for the highest density and a diversity of housing options, utilizing the available infrastructure. The plan created a TOD overlay zone within a quarter mile of the train station allowing for higher densities and mix of uses with lower parking requirements. The overlay zone has added 6 developments since 2018 with two developments awaiting construction.²⁶
- The **Branchville TOD plan**²⁷ studied the area within a half-mile of the Branchville Station and recognized the environmental constraints (floodplains) within the defined station area. The plan identified potential for a total of 68,000 square feet of commercial space, 189 apartment units, and 260 townhouse units if fully built out. Infrastructure improvements addressing pedestrian access based on the study recommendations have been initiated²⁸. Additional local planning efforts include review of the Branchville neighborhood zoning by the Town of Ridgefield's Planning & Zoning Commission and an EPA infrastructure study by WestCOG to analyze the possibility of connecting the Branchville section of Ridgefield to the Georgetown sewer plant in Redding²⁹.
- The **Greater Wilton Center Masterplan**³⁰ identifies connectivity issues, lower parking utilization, and commercial vacancy in its study area which extends to the east and southeast of the train station. The proposed planning and development strategy includes the use of form-based code to regulate future infill development, allowing higher density residential development and a greater mix of uses while protecting existing uses.
- The South Norwalk train station area is zoned as **SoNo Station Design District (SSDD)**. The intent of the SSDD is to enhance transit use by establishing a higher density and a greater mix of uses to complement the transit use. The **South Norwalk Station Area Study**³¹ completed in fall 2022 recognized the need to balance real estate demand with affordability (particularly affordable homeownership) in the station area.
- The **Stamford Transportation Center Master Plan**³² and the **Stamford Station Area Rezoning**³³ are two recent efforts by the City of Stamford to improve station connectivity and allow higher density development near the station with higher FAR, additional building height, and maintaining the below market rate requirement (10%)
- The **Downtown Danbury Transit-Oriented Development Study**³⁴ identified areas for new or higher intensity development near the station which could potentially add 1,200 net new housing units within 10-minute walk from the station. The study proposes changes to parking requirements, the height limits for downtown buildings, the mix of uses and pedestrian-friendly form along the White Street corridor, and continuing to require ground floor uses that promote street activity.
- The **Glenbrook/ Springdale Transit Oriented Development Feasibility Study**³⁵ summarized the TOD opportunities and challenges for the Glenbrook and Springdale stations along the New Canaan Line. The study identified underutilized sites and availability of regulatory tools as opportunities to meet the strong demand for residential development near the stations and outlined the need for transit improvements, public financing, and station access improvements as challenges for TOD.
- Although over 10 years old, the **Four Corners Brookfield Town Center Revitalization Plan**³⁶ presented a TOD approach recognizing the proximity of the Brookfield town center to the proposed Danbury Line Extension station.

Overall, planning efforts in the study area recognize recent increase in demand (particularly for residential real estate) and are making efforts to capitalize on the transportation infrastructure near the stations.

²⁵ "Town of Bethel-Plan of Conservation and Development."

²⁶ "As Downtown Bethel Develops, Some Worry Town's 'character' Is Changing: 'We're Not a City.'"

²⁷ "Branchville TOD Plan."

²⁸ "Branchville TOD Project Brings Improvements to the Branchville Area."

²⁹ "Could Ridgefield's Branchville Neighborhood Become a Population Center? Strategic Review to Study Area."

³⁰ "Greater Wilton Center Master Plan."

³¹ "South Norwalk Station Area Study."

³² [Stamford Transportation Center Master Plan \(stcmasterplan.com\)](http://stcmasterplan.com)

³³ "Stamford Station Area Rezoning."

³⁴ "Danbury Transit Oriented Development Plan."

³⁵ "Glenbrook- Springdale TOD Feasibility Study."

³⁶ "Four Corners Brookfield Town Center Revitalization Plan."

7. Preliminary Station Area Typologies

This section summarizes the existing conditions analysis and develops preliminary typologies for the one-mile station areas from an economic-development-for-value-capture perspective.

Research has shown that approximately 15 to 30 people and jobs per acre is the minimum level of density suggested to support frequent, cost-effective rail service³⁷. The study area municipalities and the one-mile station areas present a variety of contexts each with accompanying opportunities and challenges for value capture strategies. Table 23 shows the normalized summary statistics for the one-mile station areas highlighting the range of station area types in the study area. The residential development is anchored at the south ends for the Danbury and New Canaan Lines with the high density of jobs and housing units. The north ends for both lines have substantial density of jobs and residential development with the Danbury Station area having an estimated density of 5 units per acre (residential) and 15 jobs per acre (commercial) and the New Canaan Station having 15 jobs per acre (commercial) within one mile of the respective stations. Some other stations along the lines (Bethel, West Redding, Branchville, Springdale, and Glenbrook) present town center characteristics with a mix of residential and commercial development at lower densities. A significant pipeline of residential and commercial development is either planned, proposed, or under construction for the one-mile station areas.

Table 23: Station Area Land Development / Utilization Summary Statistics

Line	Station	Municipality	Housing Units per acre of residential land	Employment per acre of commercial land	Station Parking Utilization (Fall 2022)	Residential units in pipeline as % of existing stock	Commercial development in pipeline as % of existing stock
Danbury	Danbury	Danbury	4.7	15.5	17.8%	7.0%	0.0%
	Bethel	Bethel	3.4	5.1	23.6%	6.4%	NA
	West Redding	Redding	0.3	1.4	22.0%	NA	NA
	Branchville	Ridgefield	0.4	1.7	24.8%	0.0%	0.0%
	Cannondale	Wilton	0.3	1.4	40.4%	NA	NA
	Wilton	Wilton	0.1	0.1	21.9%	615.2%	0.0%
	Merritt 7	Norwalk	2.4	17.9	10.2%	85.6%	3.8%
	South Norwalk	Norwalk	9.0	16.2	32.4%	15.7%	14.7%
Danbury Extn	New Milford	New Milford	0.9	42.9	NA	NA	NA
	New Milford 3	New Milford	1.2	14.5	NA	NA	NA
	Brookfield	Brookfield	0.5	0.8	NA	NA	NA
	Danbury North	Danbury	1.7	1.6	NA	NA	NA
New Canaan	New Canaan	New Canaan	2.2	15.2	56.3%	7.1%	0.0%
	Talmadge Hill	New Canaan	0.4	2.3	47.6%	NA	NA
	Springdale	Stamford	4.8	28.0	47.4%	NA	NA
	Glenbrook	Stamford	2.0	6.3	39.7%	NA	NA
	Stamford	Stamford	24.5	23.2	93.2%	43.0%	15.3%

Note: All calculations use a 1-mile buffer around the station

Source: AECOM

³⁷ Cervero and Guerra, "Urban Densities and Transit: A Multi-Dimensional Perspective, 2011."

Based on existing service levels and development patterns (existing and planned), the station areas fall into distinct typologies. Table 24 shows the summary of the typologies defined below.

- High Density Transformative station areas:** These station areas are characterized as anchors of development in the study area. They are the commercial centers with a majority of the jobs and access to major employers in the study area. The real estate pipeline of these stations is strong with significant demand for residential and commercial space within a mile of these stations and planning efforts to maximize on the available transit infrastructure (higher frequency of train service and network of bus feeder service). In terms of economic development for value capture, these station areas have the opportunity to utilize underutilized parcels and support transit use by using innovative parking solutions (reduced parking, shared parking for different uses etc.). In terms of challenges, the stations areas' planning efforts are focusing on affordability aspects to achieve equitable outcomes with the planned growth.
- Town Center/ Mixed use station areas:** These stations areas have a lower density of existing development but present opportunities to leverage value capture strategies to capture property value increases from future/planned developments with a mix of residential, retail, office, and industrial spaces. A key challenge for these stations is limited availability of transit with little or no feeder bus service and long headways for train service. A number of these stations have planning efforts and a key strategy to spur transit-oriented development in these station areas would address transit and access improvements to complement planned/ proposed development.
- Low Density Residential station areas:** These station areas present limited potential for accommodating additional development with primarily single-family zoning within the one-mile station areas.

Table 24: Preliminary Station Area Typology

Station Typology	Stations	Transit Service	Relative Development Intensity and Mix*	Development Pipeline	Development Opportunity
High Density Transformative	Stamford, Danbury, South Norwalk, Merritt 7	Train (higher frequency in some stations), Multiple bus connections	High development intensity; High employment levels; High share of commercial development	Strong pipeline and strong demand	Infill opportunities, potential to combine underutilized areas in multiple parcels
Town Center/ Mixed Use	New Canaan, Bethel, Glenbrook, Springdale, Wilton, Branchville	Train, Limited bus in some stations	Medium intensity of development; Balance of commercial and residential uses	Limited	Potential to develop larger areas that are currently underutilized
Low Density Residential	Cannondale, West Redding, Talmadge Hill, Georgetown (proposed)	Train	Low intensity development; Primarily low density residential	Minimum	Limited

*Intensity refers to total number of people/sf. of development, Mix refers to the type of development (commercial/ residential)

Source: AECOM.

The existing conditions research will provide a framework for applying value capture strategies that are informed by the opportunities and address the challenges for the different station area typologies. Further tasks will use these preliminary typologies to assess development capacity and apply value capture tools which conform to the context of specific station areas.

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Appendix A

A.1 Intercity Rail Service

Intercity rail service within the study region consists of Amtrak service operating along the New Haven Line, a segment that is part of the larger Northeast Corridor. Stamford is the only station serviced by Amtrak with the following services (Table A.1-1):

- Northeast Regional
- Vermonter (Twice Daily)
- Acela

Table A.1-1. Summary of Amtrak Services in CT

Route	Distance	CT Stations ³⁸	Trains/ Weekday	FRA Track Class	Shared with Freight?
Acela Express (Washington, DC - Boston)	457	3	34	8, 7	Local Only
Northeast Regional (Washington, DC - Boston)	682	13	56	8, 7	Local Only
Vermonter (Washington, DC - St. Albans)	606	4	1	4, 4	Yes

Source: 2022 – 2026 CT State Rail Plan, 2022

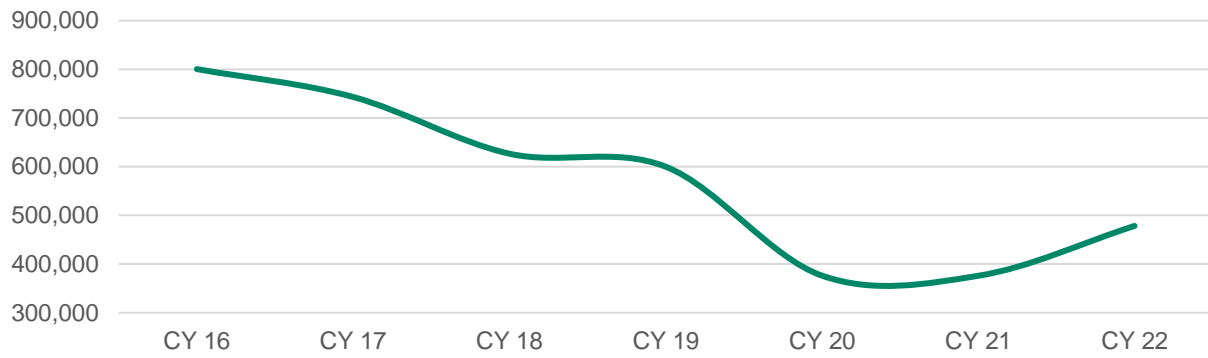
A.2 Bus Service Ridership

HARTransit

HARTransit fixed route ridership is at 80 percent of pre-pandemic levels and prior to the COVID-19 pandemic ridership was declining (Figure A.2-1). The CityBus routes have the highest ridership, this is as expected given they operate weekdays and Saturdays, have the most service hours, and provided improved headways during the peak periods. Between 2021 and 2022 systemwide ridership increased by 28 percent. The Commuter Rail Shuttle routes had the greatest ridership increase, with the Ridgefield-Katonah Shuttle having over a 100% increase (Figure A.2-3). The Commuter Rail Shuttle routes had the greatest ridership increase, with the Ridgefield-Katonah Shuttle having over a 100% increase (Figure A.2-3).

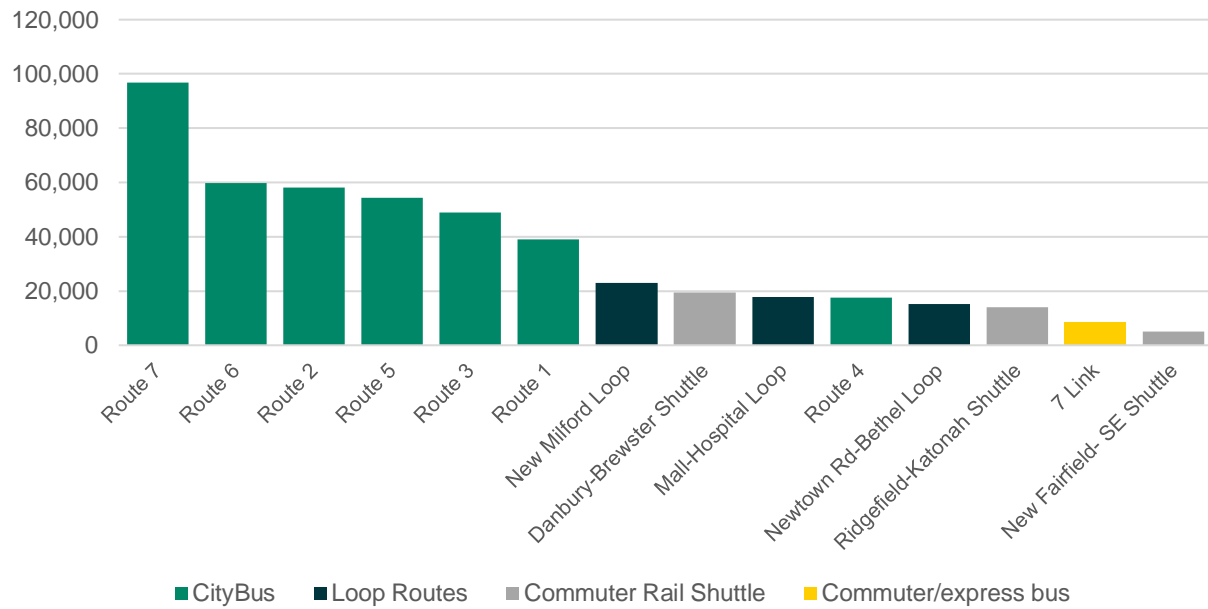
³⁸ Stamford is the only station in the WestCOG region.

Figure A.2-1. HARTransit Annual Ridership by Calendar Year (CY)



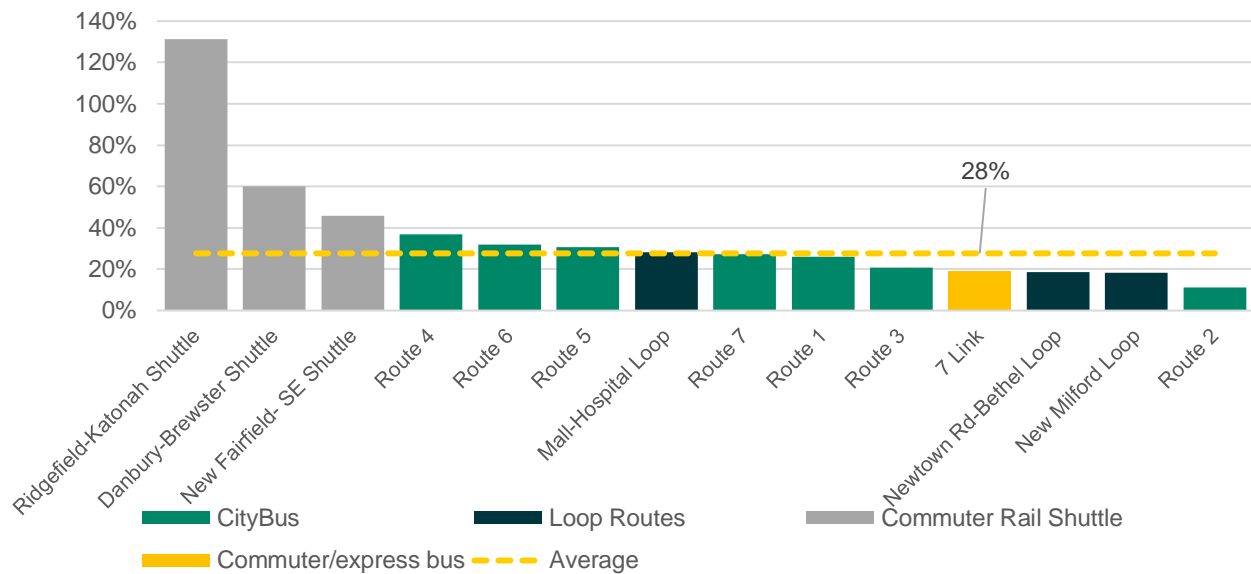
Source: HARTransit email communications

Figure A.2-2. HARTransit 2022 Annual Ridership by Route



Source: HARTransit email communications.

Figure A.2-3. HARTransit Change in Ridership by Route, 2021-2022

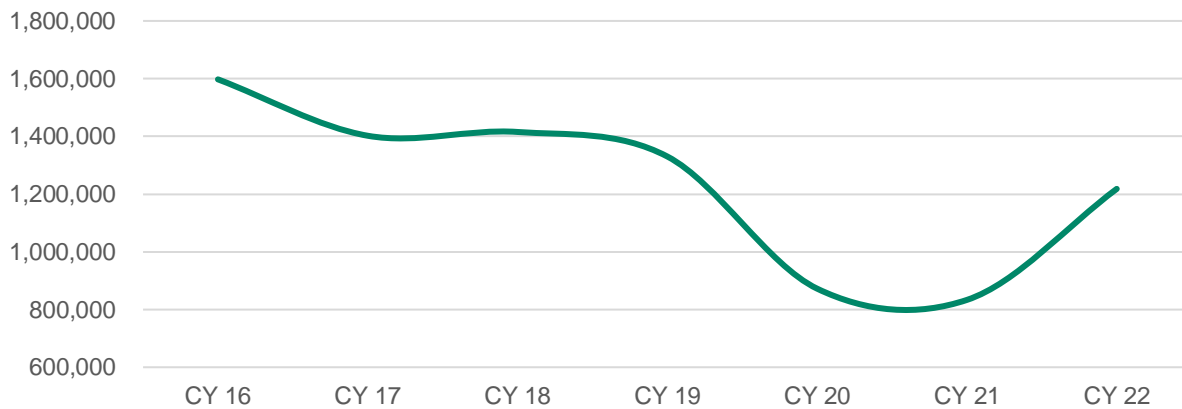


Source: HARTransit email communications.

Norwalk Transit District

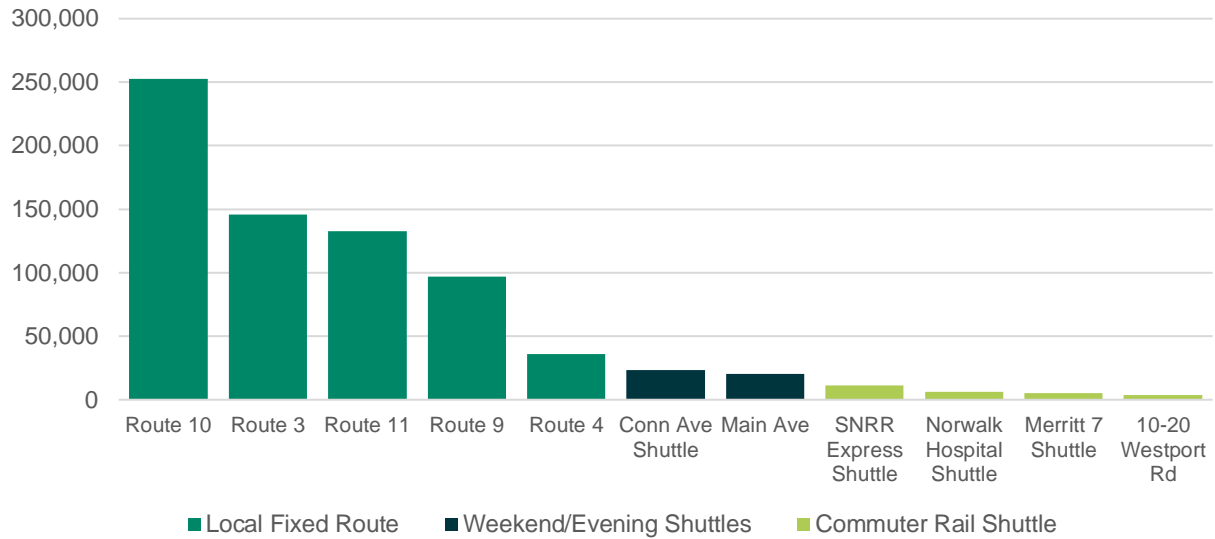
NTD systemwide fixed route ridership is at 92 percent of pre-pandemic levels and prior to the COVID-19 pandemic ridership was declining (Figure A.2-4). Of the NTD routes that serve commuter rail stations on the Danbury Line the local fixed routes have the highest ridership this is as expected given they operate weekdays and Saturdays, have the most service hours, and more frequent service. On both evening/weekend shuttles, over half of the ridership is on Sundays. The Commuter Rail Shuttles have the least ridership, but also have the least number of trips weekly. Between 2021 and 2022 ridership on these routes increased by 50%. The Commuter Rail Shuttle routes had the greatest ridership increase, with two having over a 400% increase (Figure A.2-6).

Figure A.2-4. NTD Annual Ridership



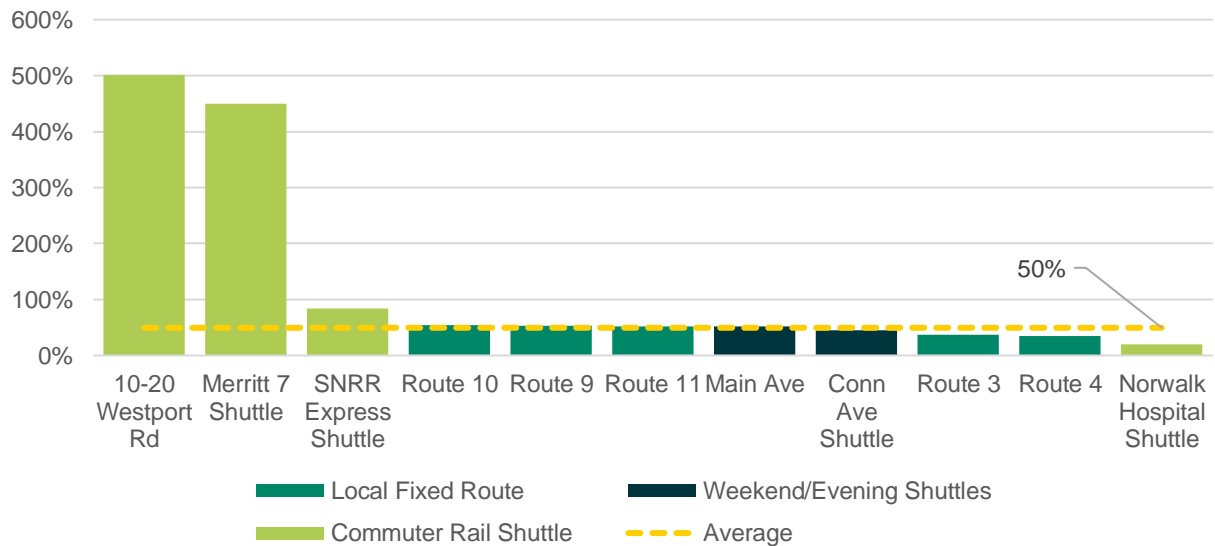
Source: Norwalk Transit District email communications.

Figure A.2-5. NTD 2022 Annual Ridership by Route



Source: Norwalk Transit District email communications.

Figure A.2-6. NTD Change in Ridership by Route

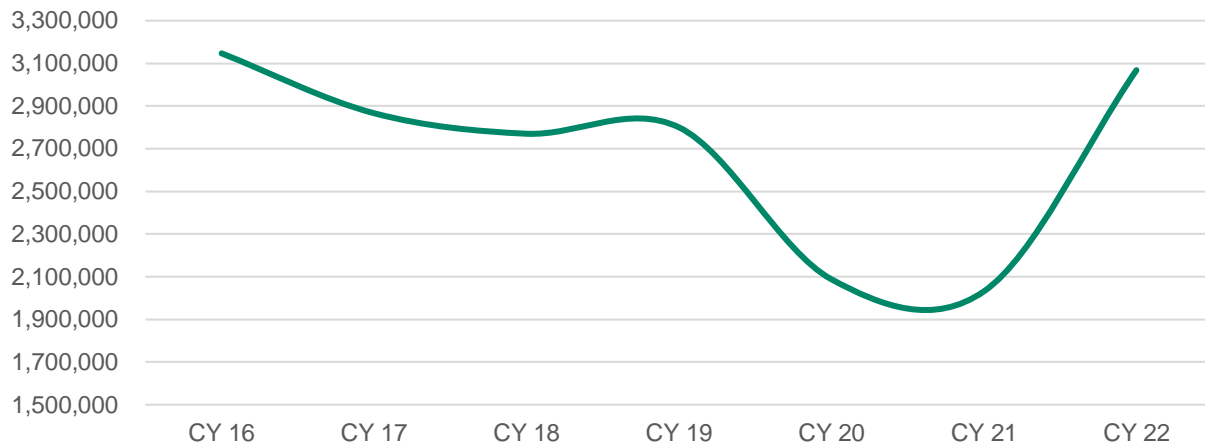


Source: Norwalk Transit District email communications.

CTTransit Stamford

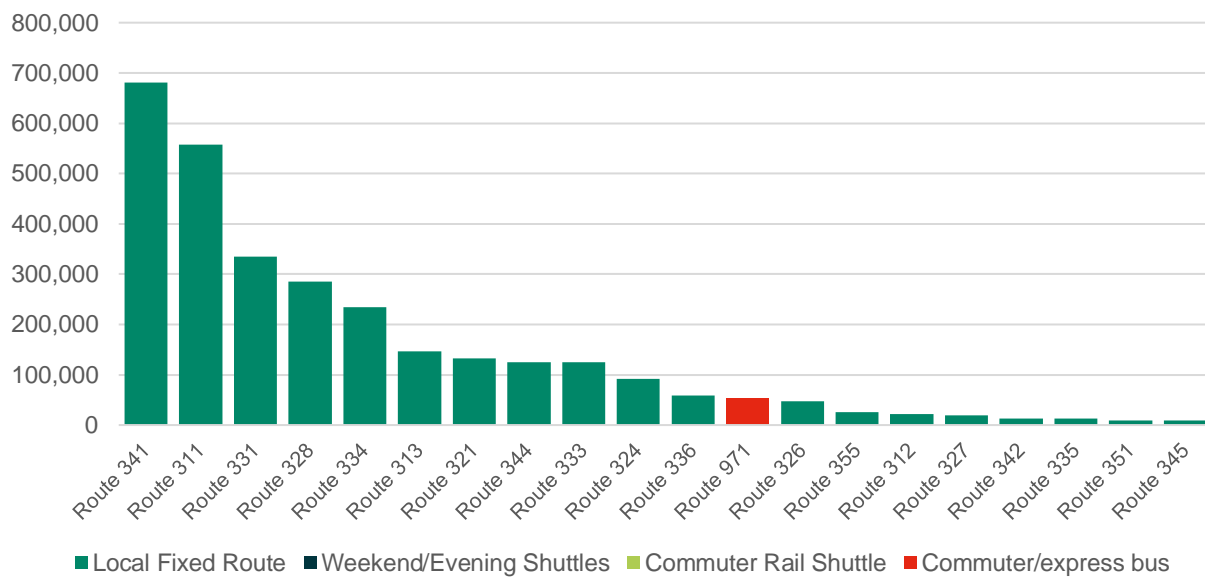
CTTransit Stamford systemwide fixed route ridership has surpassed pre-pandemic levels. Prior to the COVID-19 pandemic ridership was declining slightly but it has rebounded to almost 2016 levels (Figure A.2-6). The Routes 341 and 311 have the highest ridership, these two routes run east-west along the coast, parallel to the commuter rail. Interestingly these two routes each carry more passengers than the routes that have better headways and more service. There is only one commuter/express bus, the Route 971, it carries more passengers annually than 8 local fixed routes. Between 2021 and 2022 ridership for CTTransit Stamford increased by 53% (Figure A.2-9). The Route 336 and 335, experienced the greatest increase in ridership, both of these routes operate along Washington Boulevard and serve the University of Connecticut Stamford Campus.

Figure A.2-7. CTTransit Stamford Annual Ridership



Source: CTTransit email communications.

Figure A.2-8. CTTransit Stamford 2022 Annual Ridership by Route



Source: CTTransit email communications.

Figure A.2-9. CTTransit Stamford Change in Ridership by Route



Source: CTTransit email communications.

Appendix B

Figure B1. Existing Retail Establishments Density

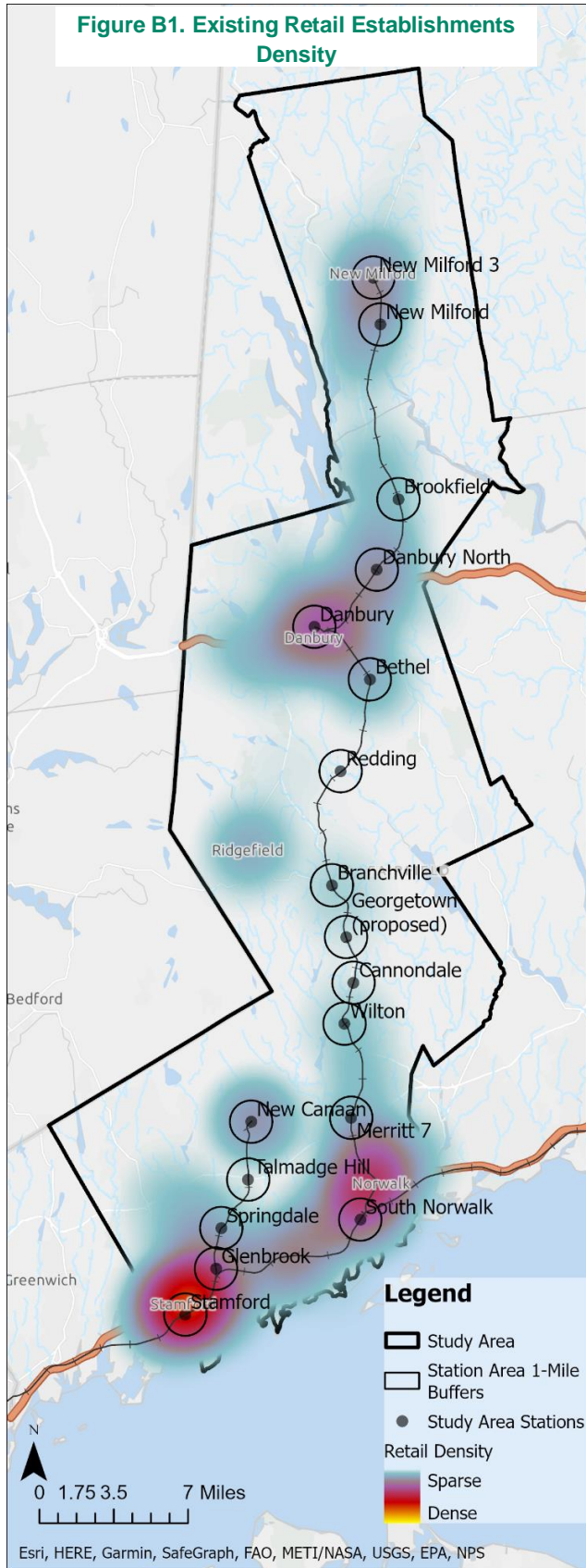
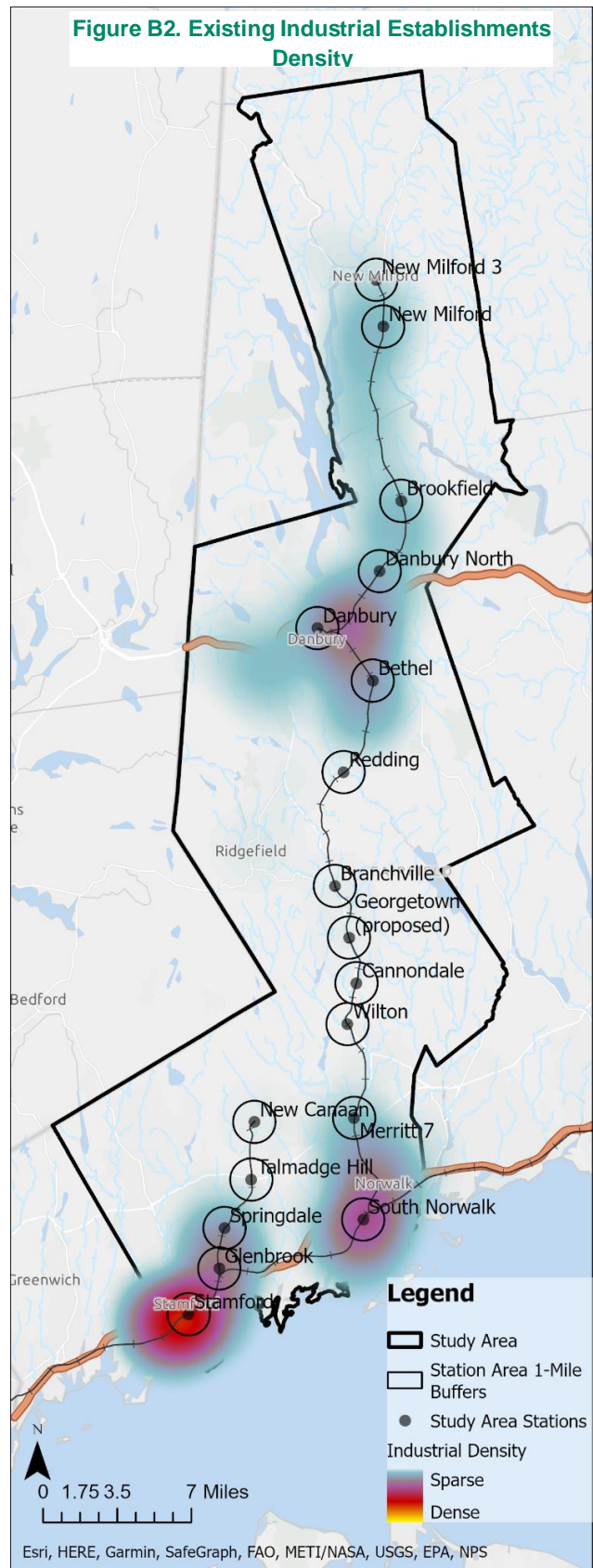


Figure B2. Existing Industrial Establishments Density



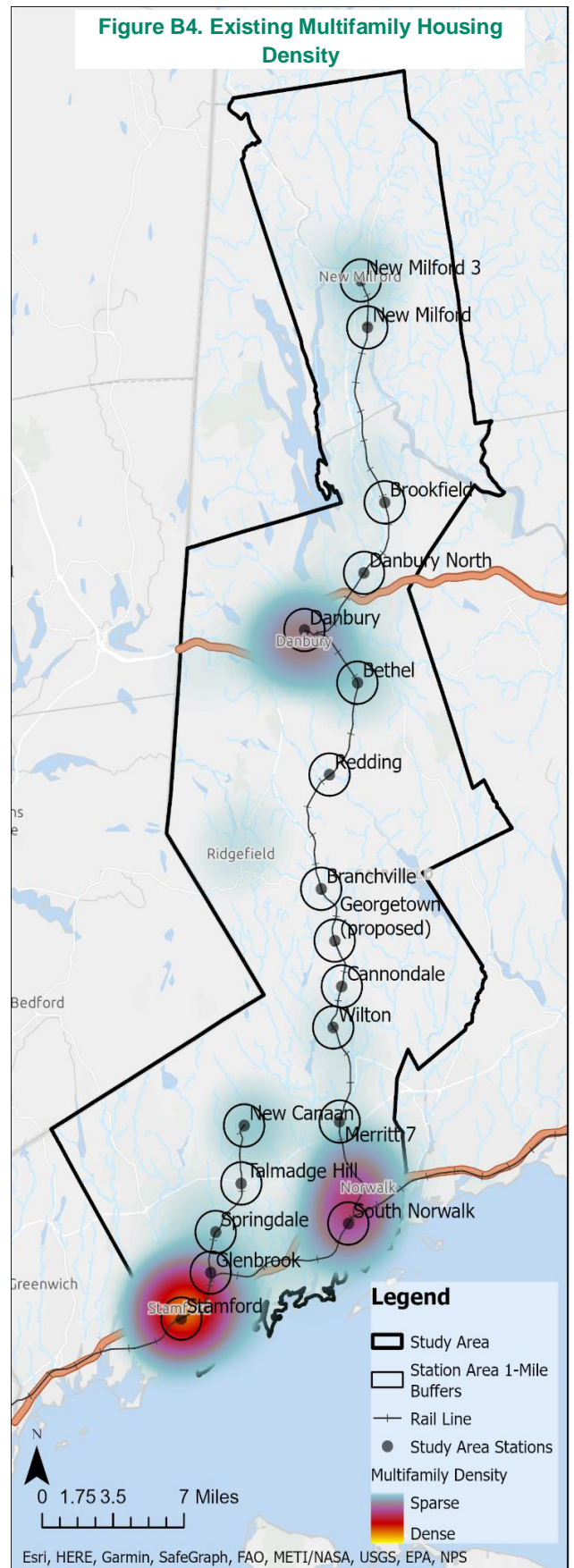
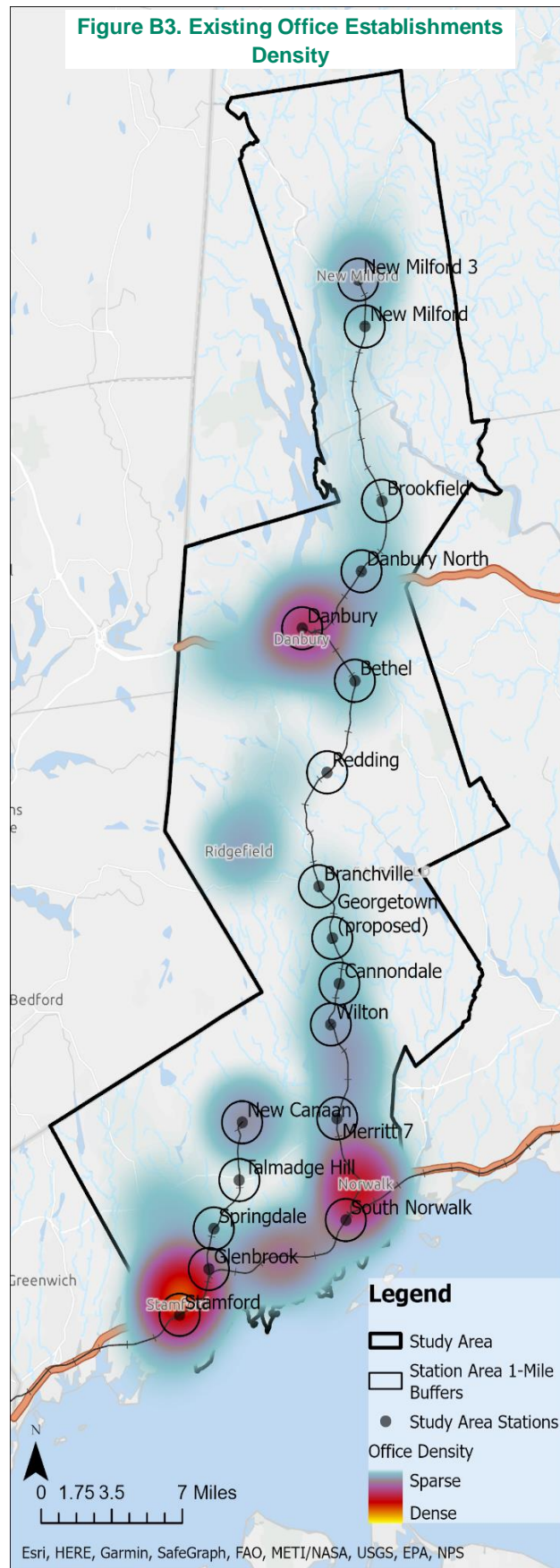


Figure B5: Half mile Station area building SF summary.

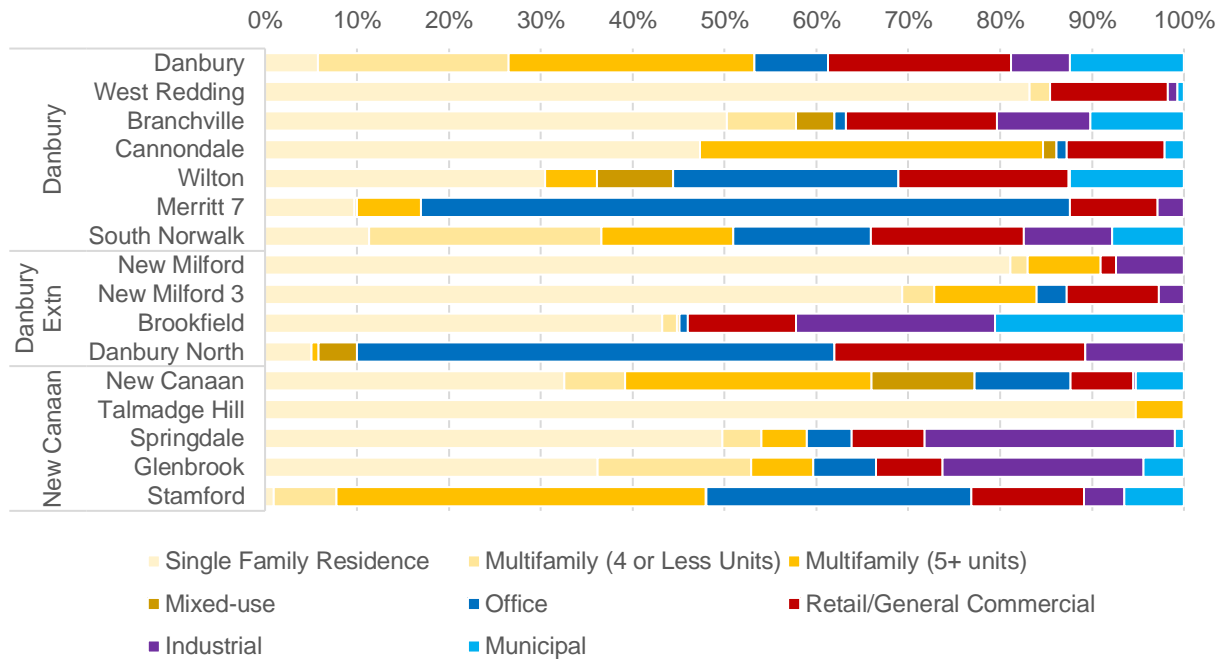
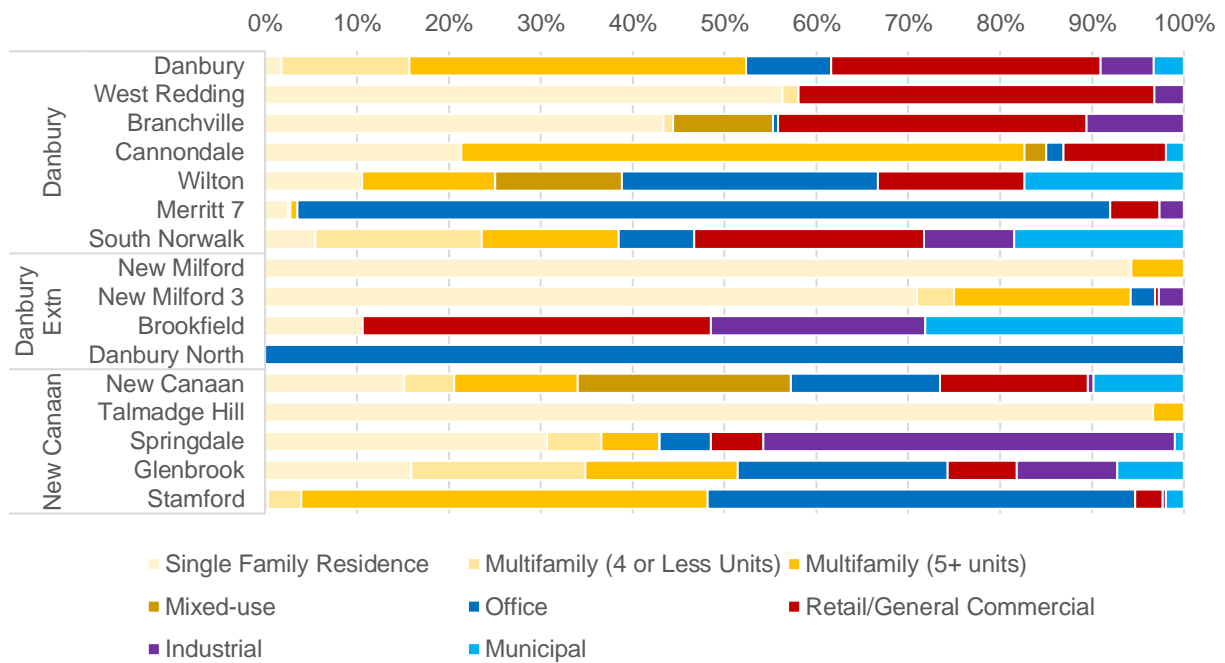


Figure B6: Quarter mile Station area building SF summary.



AECOM GENERAL LIMITING CONDITIONS

- a) AECOM devoted the level of effort consistent with (i) the level of diligence ordinarily exercised by competent professionals practicing in the area under the same or similar circumstances, and (ii) consistent with the time and budget available for the Services to develop the Deliverables. AECOM also represents that during the conduct of due diligence as reflected in its proposal, it determined that the time and budget available is sufficient to perform the Services and Deliverables required by this Agreement and that AECOM employs competent employees who shall comply with this standard.

The Deliverables are based on estimates, assumptions, information developed by AECOM from its independent research effort, general knowledge of the industry by the competent professionals in the employ of or under contract to AECOM, and information provided by and during consultations with Client and Client's representatives. Subject to the standard of care and associated level of diligence set forth above, no responsibility is assumed for inaccuracies in data provided by the Client, the Client's representatives used in preparing or presenting the Deliverables. AECOM assumes no duty to update the information contained in the Deliverables following final submission of said Deliverables unless such additional services are separately retained pursuant to a written amendment to this agreement signed by AECOM and Client.

- b) AECOM's findings represent its professional judgment. Neither AECOM nor its parent corporations, nor their respective affiliates or subsidiaries ("AECOM Entities") make any warranty or guarantee, expressed or implied, with respect to any outcomes as may be set forth in the Deliverables pertaining to the improvement of the Danbury and New Canaan Lines of the Metro-North Railroad.
- c) The Deliverables shall not be used as a basis for any public or private offering of securities, debt, equity, or other similar purpose where it may be relied upon to any degree by any person other than the Client.
- d) Possession of the Deliverables does not carry with it any right of publication or the right to use the name of "AECOM" in any manner without the prior express written consent of AECOM. No third party may reference AECOM with regard to any abstract, excerpt or summarization of the Deliverables without the prior written consent of AECOM. Any changes made to the Deliverables, or any use of the Deliverables not specifically identified in the Agreement between the Client and AECOM or otherwise expressly approved in writing by AECOM, shall be at the sole risk of the party making such changes or use.
- e) The Deliverables were prepared solely for the use by the Client, member municipalities, and special purpose entities created by member municipalities in furtherance of this Agreement. No third party may rely on the Deliverables unless expressly authorized by AECOM in writing (including, without limitation, in the form of a formal reliance letter). Any third party expressly authorized by AECOM in writing to rely on the Deliverables may do so only on the Deliverable in its entirety and not on any abstract, excerpt or summary. Entitlement to rely upon the Deliverables is conditioned upon the entitled party accepting full responsibility for such use, strict compliance with this Agreement and not holding AECOM liable in any way for any impacts on the forecasts or the earnings resulting from changes in "external" factors such as changes in government policy, in the pricing of commodities and materials, changes in market conditions, price levels generally, competitive alternatives to the project, the behavior of consumers or competitors and changes in the Client's policies affecting the operation of their projects.
- f) The Deliverables may include "forward-looking statements". These statements relate to AECOM's expectations, beliefs, intentions or strategies regarding the future. These statements may be identified by the use of words like "anticipate," "believe," "estimate," "expect," "intend," "may," "plan," "project," "will," "should," "seek," and similar expressions. The forward-looking statements reflect AECOM's views and assumptions with respect to future events as of the date of the Deliverables and are subject to future economic conditions, and other risks and uncertainties. Actual and future results and trends could differ materially from those set forth in such statements due to various factors, including, without limitation, those discussed in the Deliverables. These factors are beyond AECOM's ability to control or predict. Accordingly, where the report includes a specific and appropriate qualification, AECOM makes no warranty or representation that any of the projected values or results contained in the Deliverables will actually occur or be achieved. The Deliverables are qualified in their entirety by, and should be considered in light of, these limitations, conditions, and considerations.

