Appendix F Inventory and Analysis of the Existing Transportation Environment

I-84 Danbury PEL Study

Prepared for: The Connecticut Department of Transportation

August 2025

I-84 Danbury

I-84 Danbury Project
NEPA Environmental Assessment

Inventory and Analysis of the Existing Transportation Environment

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MILONE & MACBROOM

I-84 Danbury Project

CONNECTICUT DEPARTMENT OF TRANSPORTATION

Prepared for:

The Connecticut Department of Transportation

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Introduction

This section describes the existing transportation system within the I-84 Danbury project area (from Exits 3 to 8) including roadways, transit and shuttle transportation, commuter parking, bicycle and pedestrian travel as well as incident response and emergency management.

Chapter 1 Existing Roadway Network

1.1 Roadways

Interstate 84, which is also known as "Yankee Expressway," is an east-west expressway that runs through the state of Connecticut and connects to New York State to the west and Massachusetts to the east. Within the project area, I-84 is characterized by six travel lanes (three lanes in each direction) with inside and outside shoulders, from Exists 3 to 7. Additionally, the eastbound and westbound directions are separated by a concrete median barrier. West of Exit 3, I-84 transitions from three lanes to two lanes in each direction between Exits 1 and 2 while east of Exit 7 I-84 transitions into a four-lane cross section (two lanes in each direction). The road has a wide grassy median east of Exit 7, measuring around 33 feet wide.

U.S. Route 7 is an expressway oriented in a north-south direction. Within the study area, Route 7 extends from Exit 7 (Miry Brook/Wooster Heights interchange) to the south, merges with I-84 for approximately 3.8 miles, and then peels off I-84 to Exit 11 on the north side of the merge. North and south of the I-84 merge, Route 7 is characterized by two lanes in each direction.

Route 53 (Main Street) is a minor arterial roadway that runs east-west and serves as the main connection from I-84 to Danbury's downtown. Several traffic signals are located along Route 53. This roadway is mostly two travel lanes in each direction with dedicated turn lanes at some intersections. Sidewalks run along both sides of Route 53, and land use along Main Street is a mix of institutional and commercial uses.

Route 39 (Clapboard Ridge Road) is classified as a minor arterial roadway. This roadway begins north of I-84 at Exit 5 and serves as the main connection to Danbury High School. Route 39 is characterized by a two-lane cross section (one travel lane in each direction) and 1- to 2-foot-wide shoulders. Land use along this roadway is predominantly residential with a few religious institutions.

Route 37 (North Street) is a minor arterial within the study area. This roadway is oriented north-south and stretches from its southern terminus at the intersection with Main Street northerly past the I-84 interchange at Exit 6. North and south of I-84, Route 37 consists mostly of one travel lane in each direction but widens into a four-lane cross section for a quarter-mile stretch in the vicinity of its intersection with the I-84 ramps at Exit 6 and its intersection with Hayestown Avenue.

Figure 1-1 shows the existing study area roadway system.

1.2 Traffic Volumes

The I-84 study corridor experiences significant congestion and delays, particularly during the morning and afternoon peak hours. Weekday traffic count data collected as part of the ongoing I-84 Danbury Project Needs and Deficiencies Study (N&D Study) being conducted by CDM Smith and sponsored by the Connecticut Department of Transportation (CTDOT) indicates a two-way Average Daily Traffic (ADT) volume of 109,220 vehicles (53,470 vehicles eastbound and 55,750 vehicles westbound) on I-84 between Exit 3 and Exit 7. Table 1-1 highlights existing I-84 daily and peak-hour traffic volumes. As illustrated in Table 1-1, peak-hour traffic flow within the I-84 study corridor is directional with peak morning traffic oriented westbound and peak afternoon traffic oriented in the eastbound direction.

Table 1-1: Existing (2016) I-84 Traffic Volumes

	Eastbound	Westbound	Total
Average Daily Traffic (Vehicles per day)	53,470	55,750	109,220
Weekday A.M. Peak Hour (Vehicles per hour)	2,810	4,970	7,780
Weekday P.M. Peak Hour (Vehicles per hour)	4,980	3,700	8,680

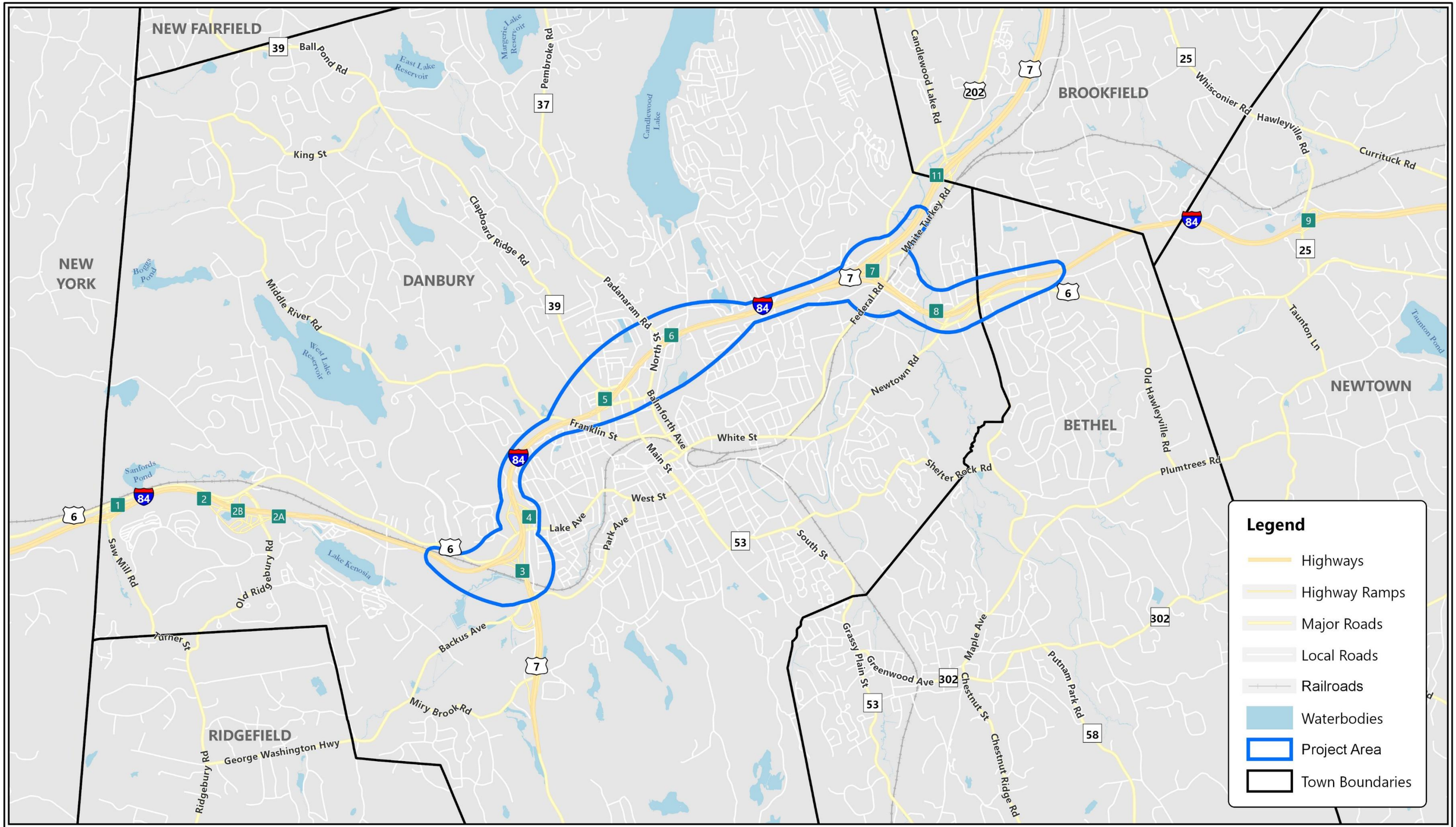
Source: CDM Smith based on Miovision count data

Truck percentages, as reported in the N&D Study, indicate daily truck volume ranging from 6 percent to 11 percent. Table 1-2 shows the truck volume percentage within the I-84 study corridor.

Table 1-2: Existing (2016) I-84 Truck Percentages

	Eastbound	Westbound
Weekday Daily	6-11%	7-11%
Weekday A.M. Peak Hour	10-14%	7-9%
Weekday P.M. Peak Hour	5-7%	7-10%

Source: CDM Smith based on Miovision count data



I-84 Danbury Project

Figure 1-1: Existing Roadway System

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Date: 6/6/2019

Data Sources:
DEMHS CTE911 Roads
Streetmap USA - Railroads
WestCOG - Waterbodies

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1.3 Capacity

Capacity of a roadway system is measured in terms of Level of Service (LOS), which is a qualitative measure of the amount of delay and inconvenience experienced by a motorist. LOS is depicted on a letter grade scale of A through F (LOS A indicating little to no delays and LOS F indicating overcapacity conditions with long delays). The following section discusses the LOS analysis for freeway segments as well as intersections within the study area.

1.3.1 Freeway Segments

LOS for freeway segments is based on maximum density and is represented in terms of passenger cars per mile per lane (pc/mi/ln). Table 1-3 depicts the LOS criteria for freeway segments.

Table 1-3: LOS Criteria for Freeway Segments

Level of Service	Pc/mi/Ln
A	11
B	18
C	26
D	35
E	45
F	>45

Source: *2010 Highway Capacity Manual*

Existing (2016) freeway capacity analyses conducted as part of the N&D Study confirmed the directional nature of existing traffic congestion patterns within the study area. The westbound direction was found to experience significantly longer delays and congestion during the morning peak hour while the reverse was seen in the afternoon peak hour with longer delays and congestion in the eastbound direction. The N&D Study identified the following freeway segments within the study area as operating at LOS E or F under existing (2016) peak-hour conditions:

I-84 Eastbound

During the afternoon peak hour, the following segments operate at LOS F:

- Exit 4 off ramp to Exit 4 on ramp
- Exit 4 on ramp to Exit 5 off ramp
- Exit 5 off ramp to Exit 5 on ramp
- Exit 5 on ramp to Exit 6 on ramp
- Exit 6 on ramp to Exit 7 off ramp

I-84 Westbound

During the morning peak hour, the following segments operate at LOS F:

- Exit 5 on ramp to Exit 4 off ramp
- Exit 7 on ramp to Exit 6 off ramp
- Exit 7 off ramp to Exit 7 on ramp
- Exit 8 off ramp to Exit 8 on ramp
- Exit 9 on ramp to Exit 8 off ramp

Route 7 Southbound

During the morning peak hour, the following segments operate at LOS F under existing conditions:

- Exit 10 on ramp to Exit 10W off ramp
- Exit 10E off ramp to Exit 10 on ramp
- Exit 11 on ramp to Exit 10E off ramp

During the afternoon peak hour, the following segment operates at LOS F under existing conditions:

- Exit 10 on ramp to Exit 10W off ramp

All the Route 7 northbound segments (Exits 7 to 11) were found to operate at an acceptable LOS (LOS D or better) under existing (2016) peak-hour traffic conditions.

1.3.2 Intersections

In all, 38 study area intersections (30 signalized and 8 unsignalized) were analyzed by CDM Smith using the *Synchro* model as part the N&D Study for the morning and afternoon peak hours. The capacity analysis results were presented in terms of LOS for intersections, which is based on delay per vehicle in seconds. The LOS criteria for signalized and unsignalized intersections are presented in Tables 1-4 and 1-5, respectively.

Table 1-4: LOS Criteria for Signalized Intersections

Level of Service	Control Delay per Vehicle (Seconds)
v/c≤ 1.0	
A	≤ 10
B	>10 and ≤20
C	>20 and ≤35
D	>35 and ≤55
E	>55 and ≤80
F	> 80

Source: *2010 Highway Capacity Manual;* v/c – Volume to capacity ratio

Table 1-5: LOS Criteria for Unsignalized Intersections

Level of Service v/c≤ 1.0	Control Delay per Vehicle (Seconds)
A	≤ 10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	> 50

Source: *2010 Highway Capacity Manual;* v/c – Volume to capacity ratio

Intersections with movements operating at LOS E or F were identified to be deficient.

Signalized Intersections

Of the 30 signalized intersections, the following five were identified to operate at an unacceptable v/c ratio (greater than 1) or LOS E or F based on analysis from the N&D Study.

- Lake Avenue at I-84 eastbound ramps and Segar Street
- Main Street at I-84 westbound ramps and Golden Hill Road
- Main Street at Downs Street and North Street
- North Street at Balmforth Avenue
- Newtown Road at Eagle Road and shopping plaza

Table 1-6 provides LOS information for the five signalized intersections currently experiencing poor LOS.

Table 1-6: Signalized Intersections with Poor LOS – Existing Peak-Hour Conditions

Intersection	Movement LOS	Deficient Movements
Lake Avenue at I-84 eastbound ramps at Segar Street	E (A.M.)/F (P.M.)	Segar Street northbound approach
Main Street at I-84 westbound ramps at Golden Hill Road	F (A.M.)/F (P.M.)	Several movements
Main Street at Downs Street and Golden Hill Road	F (P.M.)	Downs Street eastbound approach
North Street at Balmforth Avenue	F (P.M.)	North Street southbound left
Newtown Road at Eagle Road and shopping plaza	F (P.M.)	Newtown Road eastbound left

Source: I-84 Needs and Deficiencies Study – Traffic Operations White Paper

Unsignalized Intersections

Of the eight unsignalized intersections analyzed, the following three were identified to operate at an unacceptable v/c ratio (greater than 1) or LOS E or F:

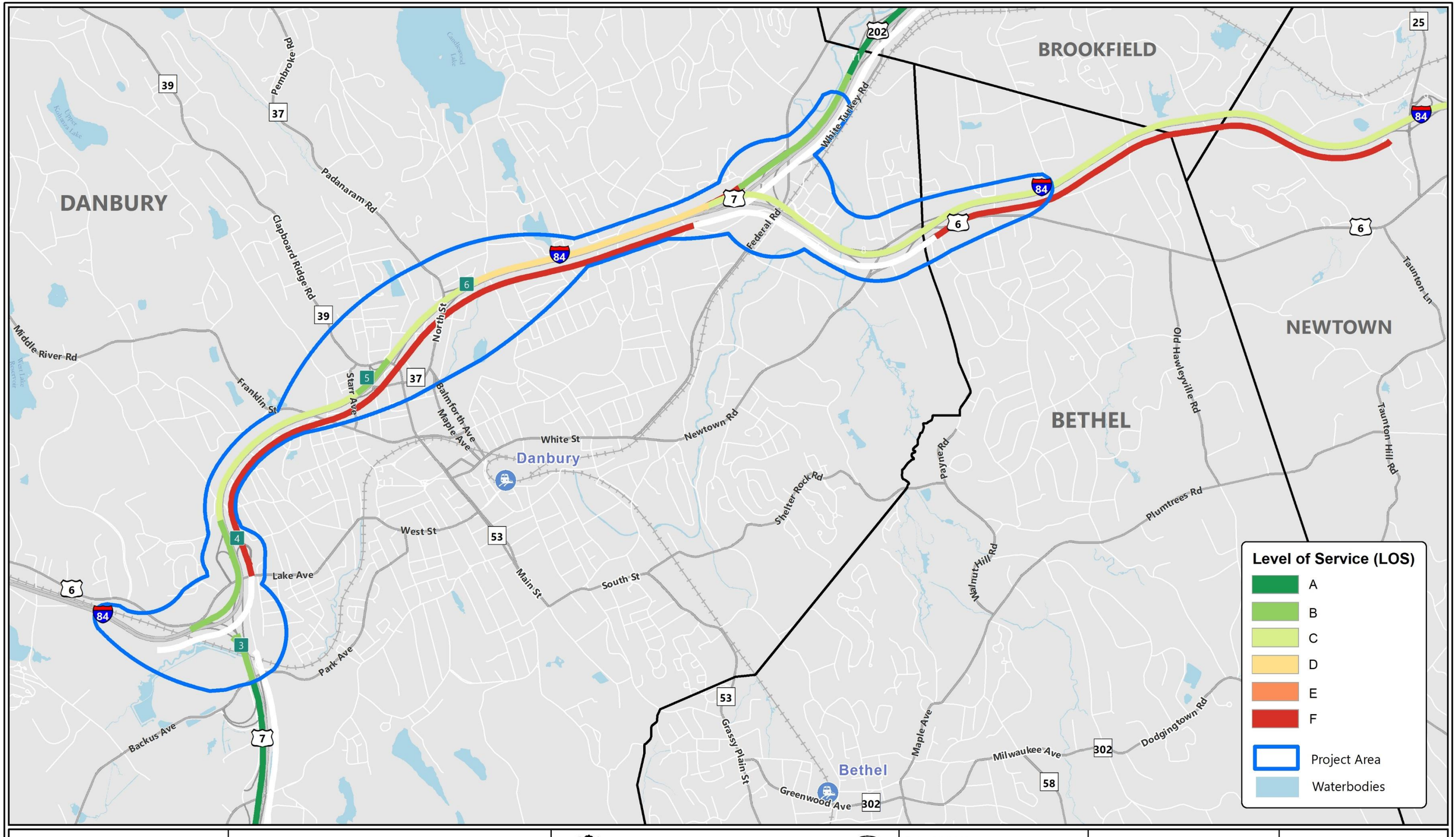
- Main Street at Cowperthwaite Road
- I-84 eastbound off ramp at Fairview and Downs Streets
- North Street (Route 37) at Walnut Street

Table 1-7 provides LOS information for the three unsignalized intersections currently experiencing poor LOS.

Table 1-7: Unsignalized Intersections with Poor LOS – Existing Peak-Hour Conditions

Intersection	Movement LOS	Deficient Movements
Main Street at Cowperthwaite Road	F (A.M.)/F (P.M.)	Cowperthwaite Road left and right turns
I-84 eastbound off ramp at Fairview and Downs Streets	F (P.M.)	I-84 eastbound off ramp
North Street (Route 37) at Walnut Street	F (A.M.)/F (P.M.)	Walnut Street approach

Source: I-84 Danbury Project Needs and Deficiencies Study – Traffic Operations White Paper



I-84 Danbury Project

Figure 1-2:

Congested Segments
During the Afternoon Peak Hour

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Date: 8/8/2019

Data Sources:
DEMHS CTE911 Roads
Streetmap USA - Railroads
WestCOG - Waterbodies

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1 inch = 2,500 feet

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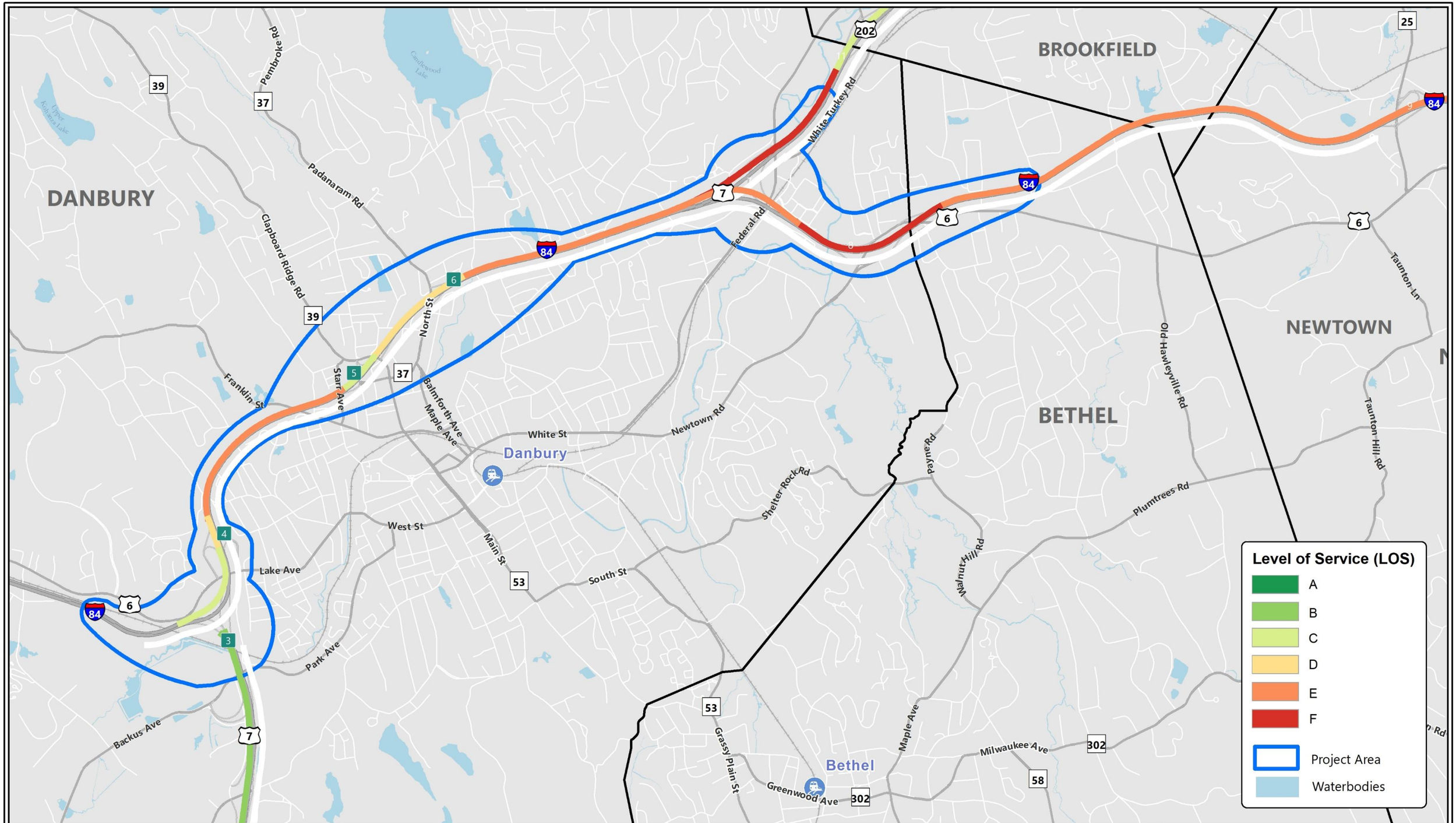

I-84 Danbury Project

Figure 1-3:

Congested Segments
During the Morning Peak Hour

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Date: 8/8/2019

Data Sources:
DEMHS CTE911 Roads
Streetmap USA - Railroads
WestCOG - Waterbodies

SCALE IN FEET
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1 inch = 2,500 feet

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1.4 Crashes

Traffic crash data for the latest 3-year period on record (2015 to 2017) on I-84 and Route 7 was obtained from the University of Connecticut's (UCONN) Connecticut Crash Data Repository. The sections below provide a summary of the crashes by location, rate, severity, and collision type.

1.4.1 I-84 Mainline Crashes

A total of 1,012 crashes were reported on the I-84 study corridor (Exits 3 to 8) in eastbound and westbound directions combined over the latest 3-year period on record. Six hundred thirty-three crashes occurred in the eastbound direction while 379 crashes occurred westbound. Table 1-8 provides a summary of the crashes on I-84 by direction.

Table 1-8: I-84 Crashes

Direction	2015	2016	2017	Total
Eastbound	220	214	199	633
Westbound	139	110	130	379
Total	**359**	**324**	**329**	**1012**

Source: UCONN Connecticut Crash Data Repository

As illustrated in Table 1-8, the total number of crashes on the I-84 study corridor has remained steady over the past 3 years, averaging between low to mid 300 crashes per year. The trend also shows that approximately two-thirds of all crashes over the past 3 years occur in the eastbound direction with the remaining third occurring in the westbound direction.

I-84 Crash Severity

Figure 1-4 summarizes the crash severity on I-84 from 2015 to 2017. Of the 1,012 total crashes reported during this 3-year period, approximately 20 percent of these collisions resulted in injuries while approximately 80 percent resulted in property damage only. There were two fatalities (one in each direction) recorded during this period on I-84.

I-84 Crash Type

The types of crashes on the I-84 mainline were also evaluated by direction. These crashes are presented in Figure 1-5. Rear-end crashes were the predominant crash type, constituting about 50 percent of all crashes, followed by sideswipe crashes, which represented about 25 percent of all crashes. These types of crashes are consistent with high-speed, limited-access facilities such as I-84.

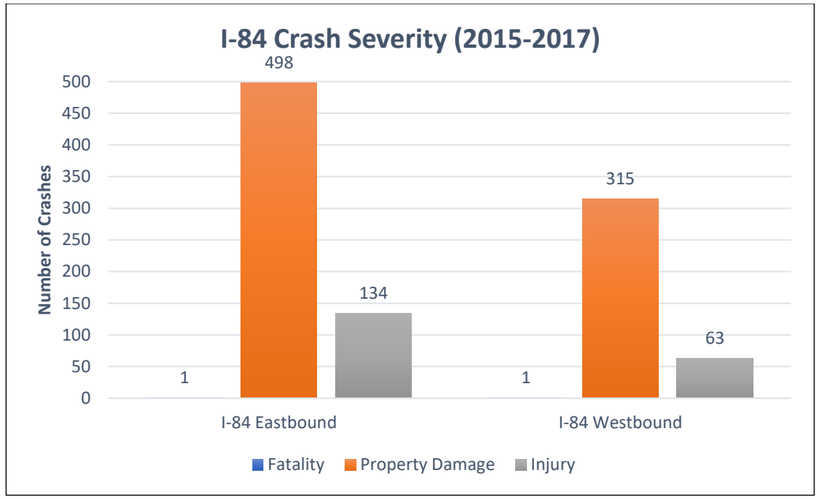


Figure 1-4: I-84 Crash Severity

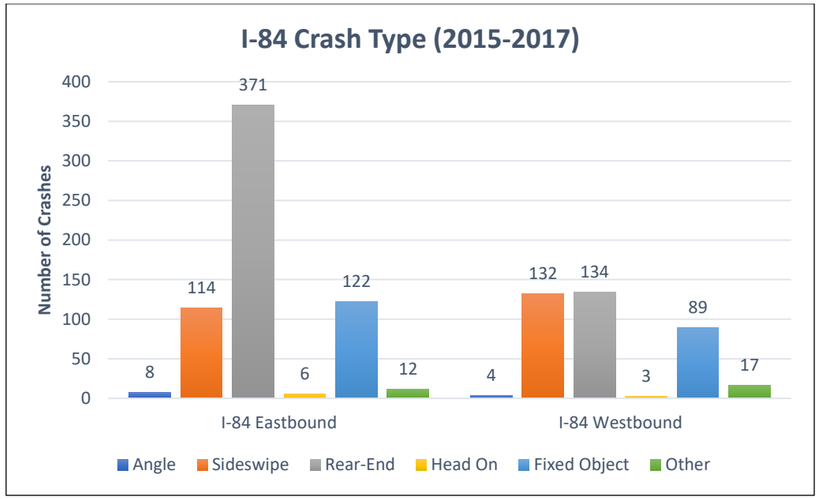


Figure 1-5: I-84 Crash Type

1.4.2 Route 7 Mainline Crashes

One hundred eighty-six total crashes occurred on the Route 7 study corridor from 2015 to 2017. Seventy-four crashes occurred in the northbound direction while 112 crashes occurred in the southbound direction. Table 1-9 provides a summary of the crashes on the Route 7 study mainline by direction.

Table 1-9: Route 7 Crashes

Direction	2015	2016	2017	Total
Northbound	26	21	27	74
Southbound	48	26	38	112
Total	**74**	**47**	**65**	**186**

Source: UCONN Connecticut Crash Data Repository

The general crash trend on Route 7 showed about a 30 percent decrease in the overall number of crashes from 2015 to 2016 followed by a 38 percent increase from 2016 to 2017.

Route 7 Crash Severity

Of the 186 crashes that occurred on the Route 7 study corridor from 2015 to 2017, approximately 24 percent of these collisions resulted in injuries with the remaining 76 percent resulting in property damage only. There were no fatalities reported during this time period. Figure 1-6 presents the crash severity for Route 7.

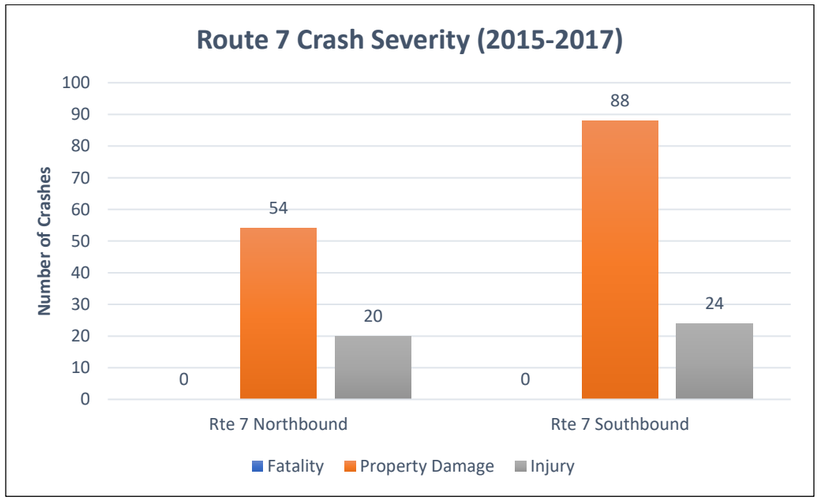


Figure 1-6: Route 7 Crash Severity

Route 7 Crash Type

Rear-end crashes were the predominant crash type, constituting about 68 percent of all crashes. Fixed-object and sideswipe crashes constituted approximately 16 percent and 13 percent of crashes on the Route 7 corridor, respectively. Figure 1-7 provides a summary of the types of crashes on Route 7.

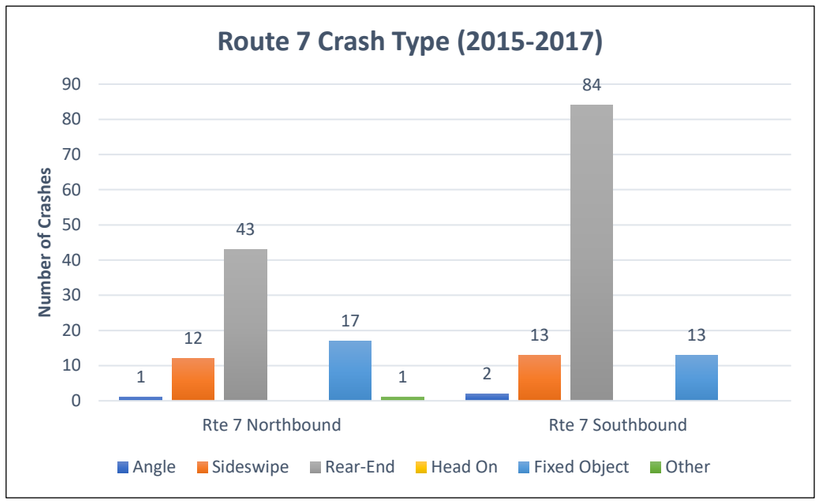


Figure 1-7: Route 7 Crash Type

Chapter 2 Transit Service/Shuttle Transportation

Bus Transit

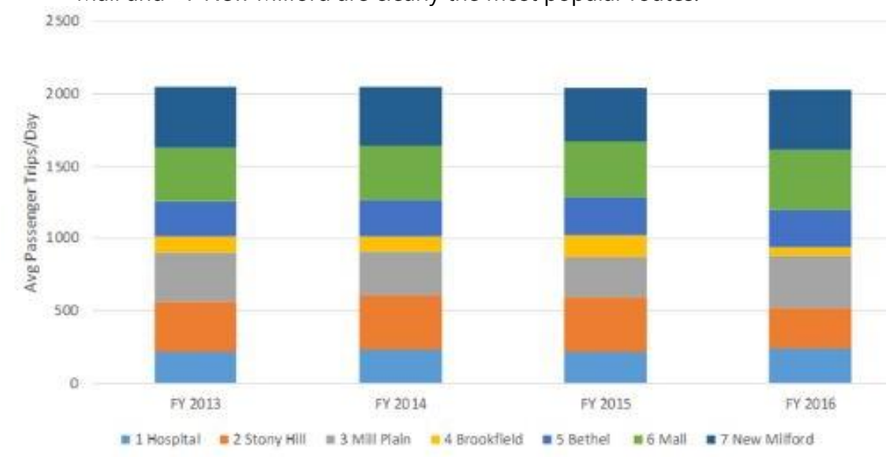
Bus transit is available in the Danbury area through the Housatonic Area Rapid Transit (HART) system. The HART system has seven routes connecting Danbury with neighboring towns including Bethel, Brookfield, and New Milford. The existing bus transit system is illustrated in Figure 2-1 on the following page and is described in more detail below.

2.1.1 Schedule

The HART system operates Monday through Saturday with 30-minute headways between buses during the morning and afternoon peak hours and one hour for all other times. HART operates a "pulse" system where transfers occur at the central bus station at Kennedy Park in Danbury.

2.1.2 Ridership

Based on information provided in the N&D Multimodal White Paper prepared by CDM Smith, ridership remained steady from FY 2013 to FY 2016, averaging around 2,000 passengers per day in total among all routes. On Saturdays, ridership averages 1,200 passengers per day in total for all routes. Of the individual routes, ridership was consistent with the exception of the #2 Stony Hill route and the #4 Brookfield route, which saw a drop off for FY 2016. Bus routes #6 Danbury Fair Mall and #7 New Milford are clearly the most popular routes.



HART Ridership (Source: N&D Study Multimodal White Paper)

2.1.3 Connectivity to Commuter Parking Lots

HART provides three additional shuttle routes to area commuter parking lots. These services are the New Fairfield-Southeast Shuttle, the Danbury-Brewster Shuttle, and the Ridgefield-Katonah Shuttle. These shuttle runs averaged 570 passengers per day in FY 2016.

Another transit service provider, Peter Pan, provides an interregional bus route with seven daily trips from Hartford to New York, which makes stops in Danbury among other locations.

2.2 Commuter Rail

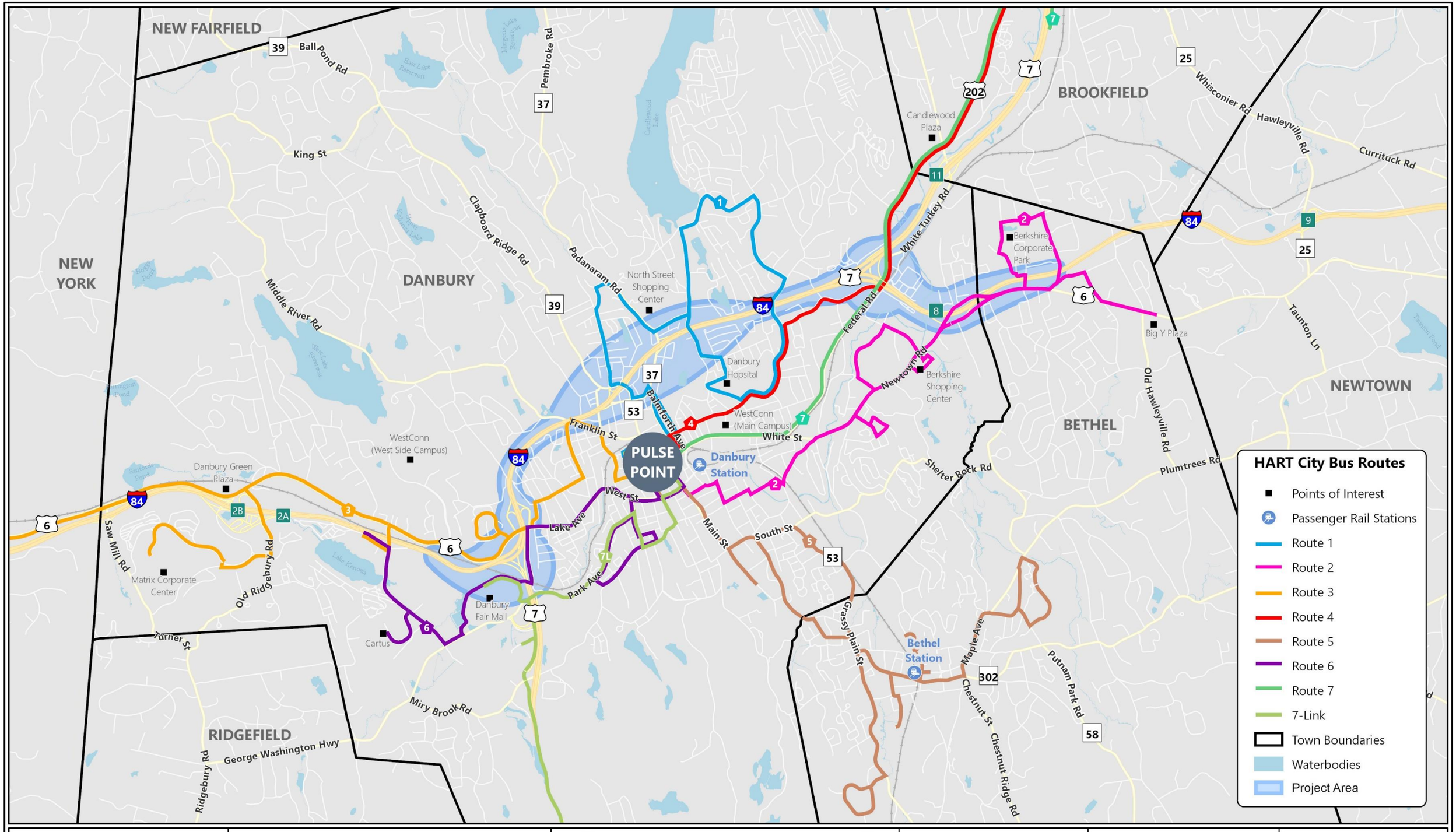
2.2.1 Routes, Schedule, and Ridership

Commuter rail service in the Greater Danbury area occurs via the Metro-North Danbury Branch Line, which is owned by CTDOT and operated by the New York Metropolitan Transportation Authority (MTA) under contract. This branch line transfers to the Metro-North New Haven Line in South Norwalk. The Danbury Branch Line makes 11 round trips per day with 1,300 riders daily on average[1]. Stations along the Danbury Branch Line include Bethel, Redding, Branchville, Cannondale, Wilton, Merrit 7, and South Norwalk.

Metro-North Commuter Rail Routes

Rail commuters from Danbury to New York also utilize the Metro-North Harlem Line. There is currently no direct rail connection to the Harlem Line from Danbury; however, the HART Danbury-Brewster Shuttle provides a connection to the Brewster station on the Harlem Line. The Harlem Line operates on a 13-minute headway and serves 4,000 passengers daily[1]. HART also provides shuttle service to the Southeast and Katonah stations on the Harlem Line. Figure 2-2 graphically depicts the existing railway network.

[1] I-84 Danbury Project Needs and Deficiencies Study – Multimodal White Paper



I-84 Danbury Project

Figure 2-1: Existing Bus Transit Network

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Date: 6/6/2019

Data Sources:
Roads - CTDEMHS
Railroad Stations - WestCOG
City Bus Routes - WestCOG, updated by MMI based on HART route maps

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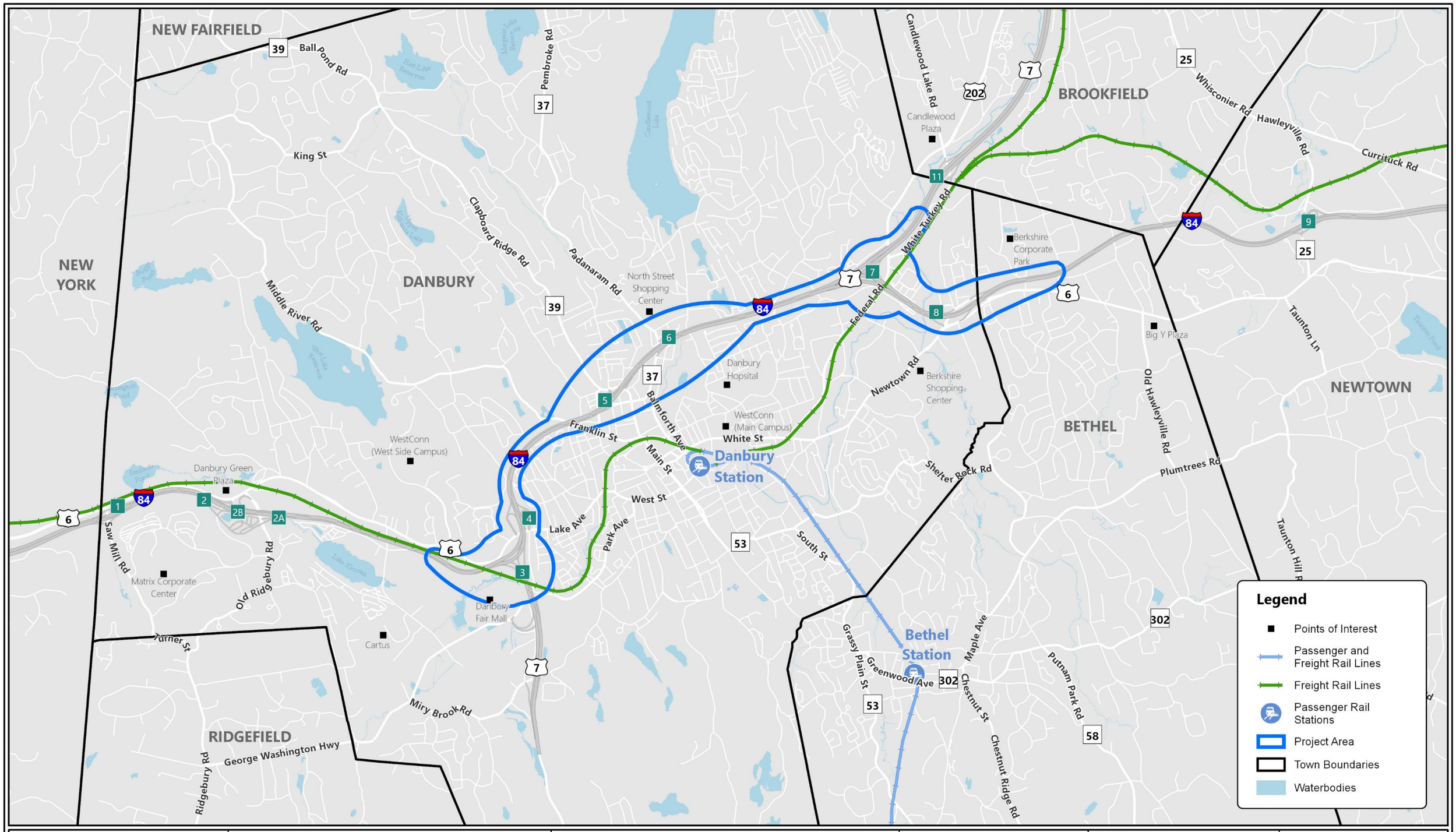

I-84 Danbury Project

Figure 2-2: Existing Railway Network

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Date: 6/6/2019

Data Sources:

DEMHS - CTE911 Roads
Streetmap USA - Railroad network
WestCOG - Railroad Stations

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Chapter 3 Commuter Parking

Danbury is a regional hub for employment, and as such, residents of neighboring municipalities commute into the city for work on a daily basis. Additionally, many Danbury residents also commute outbound to access employment in other places. This type of regional commuting culture can be enhanced by convenient and reliable access to both the city's transit service/shuttle transportation options as discussed in Chapter 2 as well as commuter parking facilities. This chapter highlights commuter parking facilities and utilization within the study area.

3.1 Park-and-Ride Lots

Presently, there are seven commuter parking lots in the study area, six of which provide access to either a HART fixed-route bus line or a HART Shuttle bus line. Through the use of these bus lines, these commuter park-and-ride lots provide access to the Danbury Train Station and Brewster Station on the Harlem Line in New York. Commuter lots are found on I-84 at Exits 1, 3, 4, and 9 as well as along Route 7 at the intersections of Miry Brook, Federal Road, and White Turkey Road. The lots range in size from 50 spaces to 171 spaces. The existing park-and-ride lots are shown in Figure 3-1 on the following page.

3.1.1 Park-and-Ride Lot Utilization

At present, there is plenty of supply to meet the current demand across Danbury's seven park-and-ride lots. Usage at these lots varies widely as illustrated in Table 3-1. The four park-and-ride lots found along I-84 have an average usage of 52 percent. Along Route 7, the average is slightly lower at 48 percent. The I-84 Danbury at Exit 2 lot has the highest occupancy at 70 percent while the I-84 lot at Exit 4 registers the lowest occupancy of 18 percent.

Table 3-1: Park-and-Ride Lots Utilization

Park-and-Ride Lot	Size	Occupancy
I-84 Danbury at Exit 1	160	55%
I-84 Danbury at Exit 2	112	70%
I-84 Danbury at Exit 4	50	18%
I-84 Danbury at Exit 9	56	65%
Route 7 at Miry Brook	171	30%
Route 7 at Federal Road	115	50%
Route 7 at White Turkey Road	75	65%

Source: CDM Smith

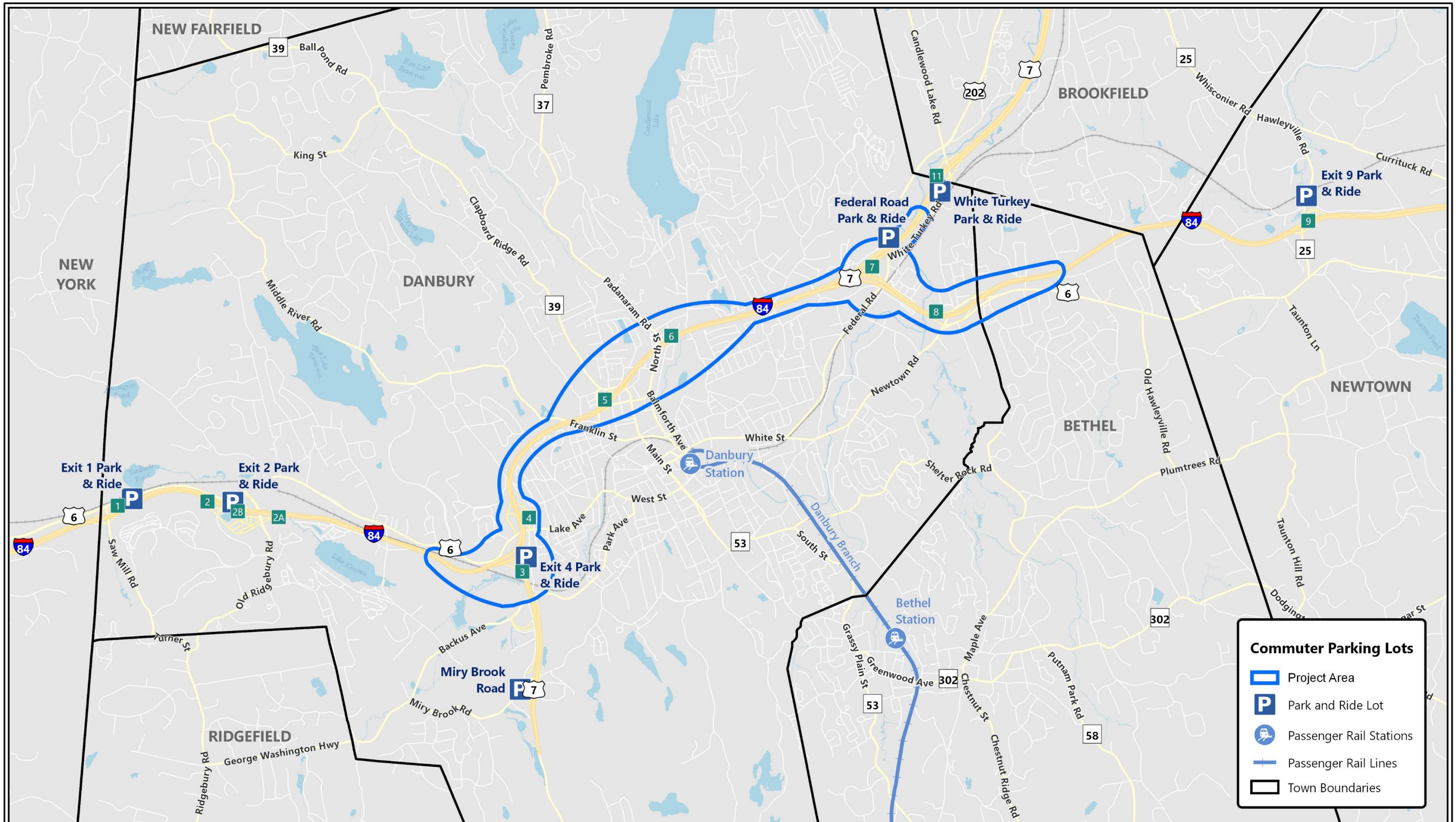
3.2 Danbury Train Station

Commuter parking is available at the Danbury Train Station in a parking lot managed by Metro-North. This parking lot has a total of 146 spaces including 129 permit spaces, 12 10-hour metered spaces, and 5 handicapped spaces. Additional parking is available adjacent to the station in the Terence E. McNally Patriot Garage, which is controlled by the Danbury Parking Authority. This garage has a total of 550 parking spots, 540 of which are permitted, and the remaining 10 are designated Americans with Disabilities Act spaces. Parking rates at the garage are $1.25 per hour or $50 monthly. Additionally, there is a daily parking rate of $9. Naugatuck Valley Community College validates parking in the Terence E. McNally Patriot Garage, and approximately 150 students utilize the garage on a daily basis[2]. The garage restricts parking overnight but is otherwise open Monday through Thursday from 5:00 a.m. to 2:00 a.m., on Friday and Saturday from 5:00 a.m. to 3:00 a.m., and on Sundays from 8:00 a.m. to 2:00 a.m.

3.2.1 Danbury Station Parking Utilization

Despite the fact that the Metro-North controlled commuter lot at the Danbury Station has sold 120 percent of its capacity of permitted parking, the supply of parking is able to accommodate demand due to the infrequent usage by permit holders. At the Terence E. McNally Patriot Garage, the average usage totals approximately 255 permitted vehicles per month, equaling an approximate utilization rate of 50 percent.

[2] I-84 Danbury Project Needs and Deficiencies Study – Multimodal White Paper



I-84 Danbury Project

Figure 3-1: Existing Commuter Parking Lots

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Date: 6/6/2019

Data Sources:

Railroad Stations - WestCOG
Rail Lines - StreetMap USA
Park & Rides - WestCOG, updated by MMI based on HART maps

SCALE IN FEET
0 1,750 3,500
1:45,000

For general planning purposes only. Deliniations may not be exact

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3.3 Commuter Lot - Transit Service Connections

With the exception of the park-and-ride lot at Exit 9, the remaining six park-and-ride lots in Danbury are connected to either a HART fixed-route bus service or a HART Shuttle bus service. Information regarding transit connections to commuter lots can be seen in Table 3-2 below and on Figure 3-2 on the following page.

Table 3-2: Commuter Lot – Transit Service Connections

Park-and-Ride Lot	Service Code	Express Bus	Local Bus
I-84 Danbury at Exit 1	PLS	Brewster Shuttle (HART Shuttle route)	#3 Mill Plain Road
I-84 Danbury at Exit 2	PLSB	Brewster Shuttle (HART Shuttle route)	#3 Mill Plain Road
I-84 Danbury at Exit 4	LB	-	#6 Lake Avenue
I-84 Danbury at Exit 9	-	-	-
Route 7 at Miry Brook	PL	-	7 LINK "Norwalk"
Route 7 at Federal Road	PLB	Brewster Shuttle (HART Shuttle route)	#4 Brookfield #7 New Milford
Route 7 at White Turkey Road	PL	Brewster Shuttle (HART Shuttle route)	-

Key to Codes: P = Paved, L = Lighted, S = Shelter, B = Local Bus Service
Source: HART Transit

The park-and-ride facilities at I-84 Exits 1 and 2, as well as Route 7 at the Miry Brook and Federal Road lots, are serviced by the Brewster Shuttle and connect these commuter lots with the Brewster Metro-North Station in Brewster, New York, as well as the HART Pulse Point. This connection is incredibly important as the Brewster Station is on the Metro-North's Harlem Line, which provides direct and better service to New York City and whose ridership greatly outpaces that on the Metro-North's Danbury Line. With such demand to commute on the Harlem Line, the utilization for parking at the park-and-ride facility at Brewster Station is at 96 percent. As such, it is important that commuters have other options such as the four park-and-ride facilities serviced by the Brewster Shuttle bus.

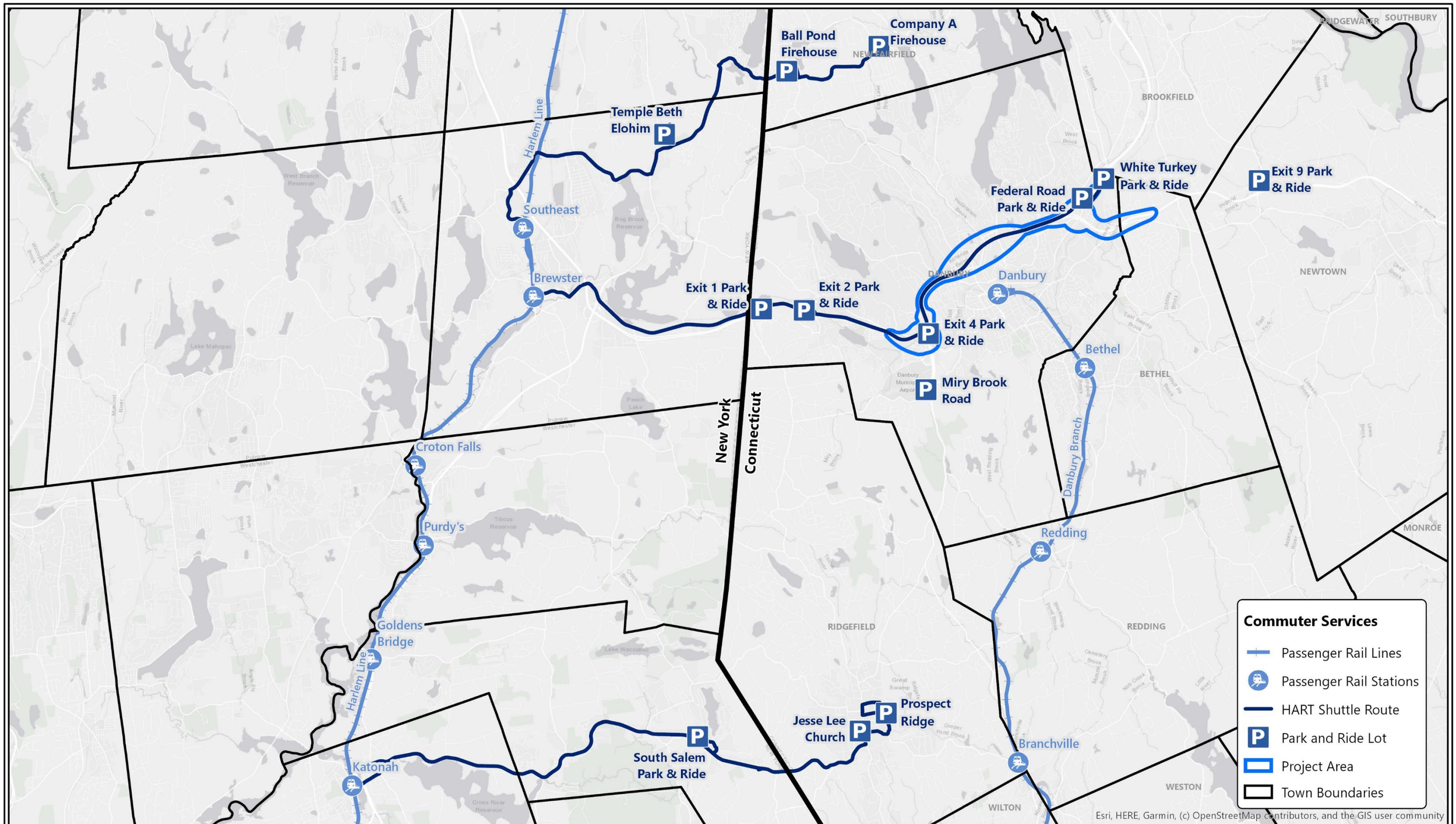
The park-and-ride facilities at I-84 Exits 1 and 2, as well as the Route 7 at Federal Road, are serviced by HART bus fixed-route service lines. Connected bus routes include the #3 Mill Plain Road line, which connects to Brewster, New York; the #4 Brookfield line, which connects to the neighboring municipality of Brookfield, Connecticut; the #6 Lake Avenue line, which connects to the Danbury Mall; and the #7 New Milford line, which runs along Route 7 connecting to the neighboring municipalities of Brookfield and New Milford, Connecticut. Additionally, limited connection is also provided to the 7 LINK "Norwalk Service" through the Route 7 at Miry Brook park-and-ride lot during the afternoon peak hours only. 7 LINK "Norwalk Service" is a regional bus, which connects Danbury to Norwalk, Wilton, and the HART Pulse Point.

3.4 Commuter Parking Needs and Deficiencies

There is a general lack of "First-Mile, Last-Mile" connections within the Danbury transportation system. A significant number of commuters drive to commuter parking facilities to use public transit. Providing viable and reliable travel alternatives to the car will help alleviate some of the parking demands at commuter parking facilities.

A key deficiency associated with Danbury's commuter parking facilities is the distance between the Metro-North Danbury Train Station and HART Pulse Point. With a total distance of one-half mile, it is slightly longer than a comfortable walking distance for many commuters and prohibits shared parking facilities.

It would be much easier for commuters who need to make this connection for the HART buses to stop directly at the Danbury Train Station. However, even though two separate bus routes (Route 2 and Route 7) run in close proximity to the Metro-North Danbury Train Station, they both do not have stops at the station. The ongoing Downtown Danbury Transit-Oriented Development Study is exploring the possible co-location of the bus pulse point and the train station. Relocating the bus pulse facility to be closer to, or even within the same site as, the Danbury Train Station has the potential to greatly enhance multimodal transportation in the city.



I-84 Danbury Project

Figure 3-2: Existing Commuter Parking Shuttles

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Date: 6/6/2019

Data Sources:

Railroad Stations - WestCOG
Rail Lines - StreetMap USA
HART Shuttle Routes and Park & Rides - WestCOG, updated by MMI based on HART maps

SCALE IN MILES
0 0.5 1 2
1:106,195

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Chapter 4 Bicycle and Pedestrian Travel

4.1 Bicycle and Pedestrian Overview

For the purposes of this assessment, nonmotorized transportation refers to both bicycle and pedestrian travel. Presently, many deficiencies exist across both modes throughout Danbury as well as in proximity to the I-84 corridor. The current local street network has been designed mostly for vehicular traffic with little accommodations for nonmotorized transportation users.

Common roadway features in the study area that contribute to the creation of a high-stress environment for nonmotorized transportation users include narrow travel lanes, high vehicular traffic volumes, and fast vehicular travel speeds. Additional safety and connectivity concerns are posed by the intersections that connect the local streets to the exits and interchanges of the I-84 corridor.

Although the current roadway network is not very supportive of nonmotorized transportation users, there are opportunities to improve nonmotorized transportation modes around the I-84 Danbury corridor based on the current land use patterns. Dense development can be found on both sides of the I-84 corridor throughout Danbury. A wide array of land uses can be seen in this area including retail, commercial, religious, educational, medical, and residential.

Improving bicycle-pedestrian travel throughout the project area will reduce reliance on automobile travel leading to environmental benefits, improve first mile-last mile connections, and enhance overall community cohesion.

Furthermore, many of the residential developments in the area are home to substantial Environmental Justice (EJ) communities including immigrant, minority, low-income, and limited English-proficiency populations. The presence of EJ communities is significant as these populations often have lower levels of car ownership and are therefore more likely to utilize other forms of transportation including both nonmotorized transportation and transit. Ensuring access to multimodal transportation facilities for EJ communities is essential to helping create a more equitable community.

4.1.1 Pedestrian Facilities

Danbury's city center has a well-connected network of pedestrian amenities, including sidewalks and crosswalks, which facilitate safe pedestrian travel. However, these amenities become sparse as you move further away from the downtown area. As the I-84 corridor traverses through Danbury nearly one-half mile from the downtown area, it is too far to be served by the same level of pedestrian amenities seen in the city center. Figure 4-1 on the following page shows the existing pedestrian sidewalk network within the study area. As part of the I-84 Danbury Project N&D Study conducted by CDM Smith, 19 intersections within the study area were surveyed with respect to pedestrian and bicycle amenities. Twelve of the 19 intersections surveyed in the study area had no pedestrian amenities at all. Of the seven that did have amenities, only three had both sidewalks and crosswalks.

4.1.2 Bicycle Facilities

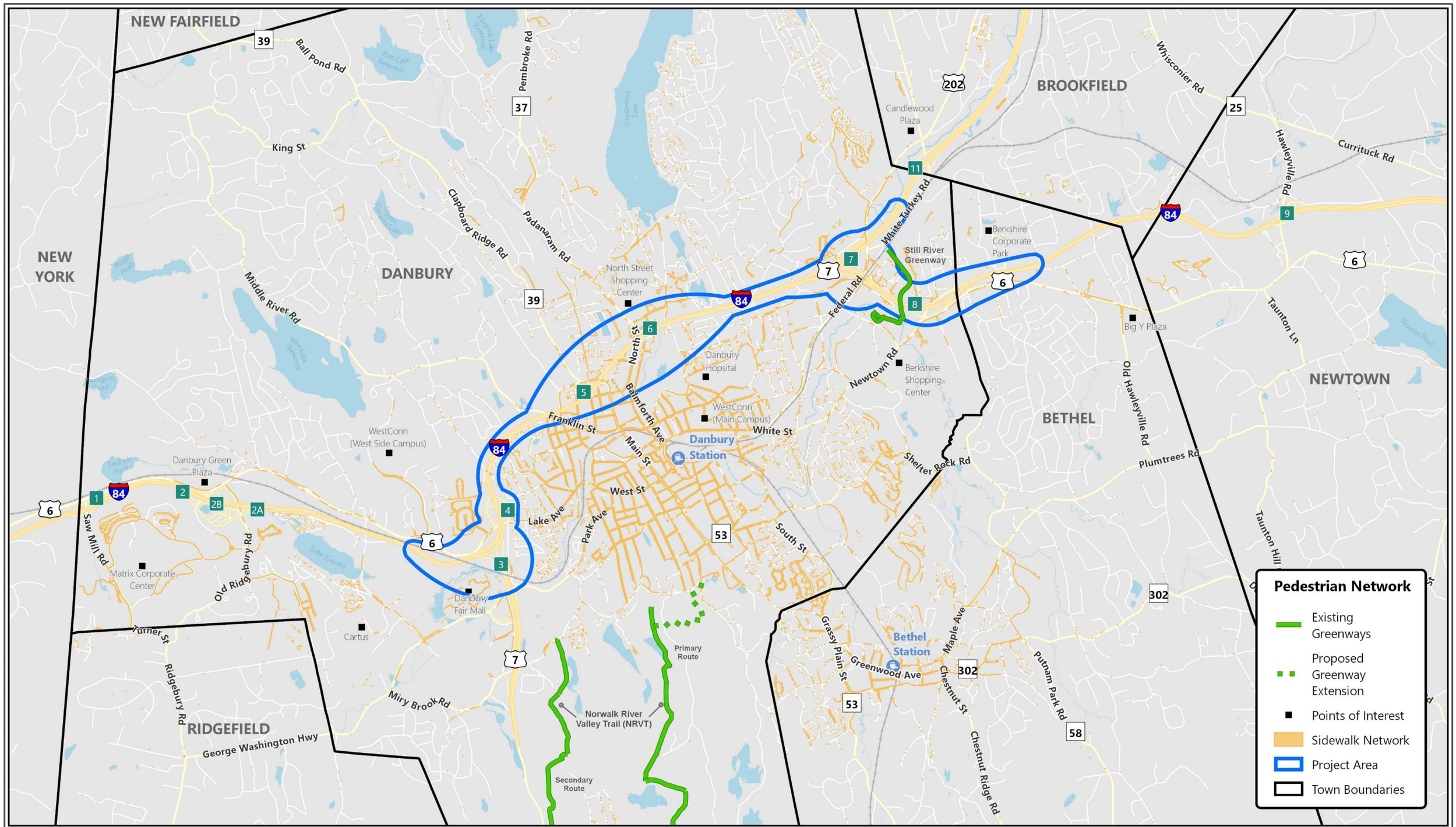
Presently, there are no on-street bicycle amenities within the city of Danbury. Although bicycles are, of course, welcome to travel on any street aside from limited access roadways, many of the city's roadways are not designed to create a safe environment for bicyclists. In fact, only a small portion of the state roads in proximity to the I-84 Danbury corridor have been determined to be suitable for bicyclists by CTDOT.

Off-road bicycle routes do exist in and near the city of Danbury; however, these facilities are generally meant for recreation as opposed to transportation or general commuting and are housed within parks or other open spaces.

Table 4-1: Pedestrian and Bicycle Amenities

Intersection	Pedestrian Facilities	Bicycle Facilities	Street Lighting
Wooster Heights – Miry Brook Road at Sugar Hollow Road	None	None	None
Backus Avenue – Park Avenue at Sugar Hollow Road	None	None	None
Segar Street at Mall Access Road	None	None	Spotty or poor
Lake Avenue at Segar Street	None	None	Under bridge
Westville Avenue at Scuppo Road	None	None	One side
Franklin Street at Davis Street	None	None	Spotty or poor
Starr Avenue – Downs Street at Fairview Avenue	None	None	At intersection
Main Street at Golden Hill Road	Sidewalks and Crosswalks	None	Both sides, under bridge
Madison Avenue at Juniper Ridge Drive	Sidewalks	None	Spotty or poor
North Street at Exit 6 Off Ramp	Sidewalks and Crosswalks	None	Both sides, under bridge
Tamarack Avenue at Hayestown Avenue	Crosswalks	None	Under bridge
Great Plain Road at Carolyn Avenue	None	None	Under bridge
Rockwell Road at Sand Put Road	None	None	Under bridge
Federal Road at White Turkey Road	None	None	Under bridge
Federal Road at Brookfield Road	Sidewalks and Crosswalks	None	Under bridge
Federal Road at Starr Road	Sidewalks	None	Under bridge
Eagle Road at Executive Drive	Sidewalks	None	Under bridge
Newtown Road at Exit 8 Off Ramp	None	None	None
Stony Hill Road at Exit 8 Off Ramp	None	None	None

Source: CDM Smith



I-84 Danbury Project

Figure 4-1: Existing Pedestrian Network

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Date: 6/6/2019

Data Sources:

Sidewalks - WestCOG
Rail Lines - StreetMap USA
Still River Greenway - Digitized by MMI
NRVT - Norwalk River Valley Trail

SCALE IN FEET
0 1,750 3,500
1:45,000

For general planning purposes only. Deliniations may not be exact

MILONE & MACBROOM

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4.2 Existing Bicycle and Pedestrian Connectivity Gaps

As there is a general lack of facilities for both bicycles and pedestrians in Danbury, it is not surprising that many prominent connectivity gaps exist. These gaps are particularly cumbersome when considering the local crossing above or under the I-84 Danbury corridor. It is not uncommon for limited access highways to act as barriers to bicycle and pedestrian connectivity in cities, and this is no exception. To remove this barrier and develop a network with better connectivity, it is important that these gaps crossing I-84 be filled.

Concerning bicycles, Danbury's narrow public rights-of-way and steep hills create an environment with many connectivity gaps that are stressful for bicyclists. As there currently are not many bicyclists utilizing the roadways in Danbury, there is a perceived lack of demand for bicycling facilities. However, the land uses and development patterns in the area indicate an environment that could facilitate this type of travel.

The N&D Study identified eight desired pedestrian and bicycle routes, which are referred to as "desire lines," traversing the I-84 Danbury corridor. These "desire lines" are the most direct or potentially desirable routes between an origin and a destination that would attract a significant number of pedestrians and bicyclists. It is recommended that the identified desire lines be shown to stakeholders and residents in Danbury in order to confirm current travel patterns and nonmotorized transportation connectivity issues as well as identify which routes are currently most utilized.

The I-84 Danbury Project N&D Study also identified seven priority bicycle and pedestrian routes based on an analysis that weighed these "desire lines" with the presence of EJ communities and low scores according to CDM Smith's Pedestrian and Bicycle Compatibility Index (PBCI). Priority routes include Lake Avenue, Westville Avenue, Franklin Street, Starr Avenue, Main Street, North Street, and Tamarack Avenue.

Construction of the Norwalk River Valley Trail is currently ongoing. The trail project when completed will provide a network of recreational trails connecting Norwalk with Wilton, Redding, Ridgefield, and Danbury. Additionally, the New York State Department of Transportation (NYSDOT) is looking to extend the existing Maybrook Trailway from its current eastern terminus at I-684 further east to the western boundary of the city of Danbury. Once completed, these two trail projects will provide additional opportunities and improvements for bicycle and pedestrian travel within the area.

Chapter 5 Incident and Emergency Management

5.1 Emergency Diversion Plans

In 2011, Emergency Diversion Plans for I-84 (Danbury, Bethel, Newtown) and Route 7 (Danbury, Brookfield) were developed for the Housatonic Valley Council of Elected Officials (now Western Connecticut Council of Governments), the Department of Emergency Management and Homeland Security (DEMHS) Region 5, and other local municipalities. The goal of the plans was to accomplish the following:

- Reduce incident response times.
- Reduce the amount of time that lanes were blocked.
- Increase safety and efficiency in the response.
- Better manage the resultant congestion of the diversion to the local road network.

The diversion plans will be called for by the incident commander and referenced by code for each individual plan. The plans specify whether the diversion is needed for a general closure of the road, or if the diversion is needed because of a hazardous material incident that requires a larger evacuation. The plans also note if there is a secondary diversion route and any special requirements needed in consideration for the setup or execution of the plan. Each plan notes the following:

- Location of the closure
- Route of diverted vehicles
- Direction of diverted traffic (for cars, trucks, or all vehicles)
- Placement of diversion route signs (for cars, trucks, or all vehicles)
- Intersections for police monitoring (signalized and unsignalized)

Figure 5-1 shows an example of an emergency diversion plan for the I-84 Danbury Project area.

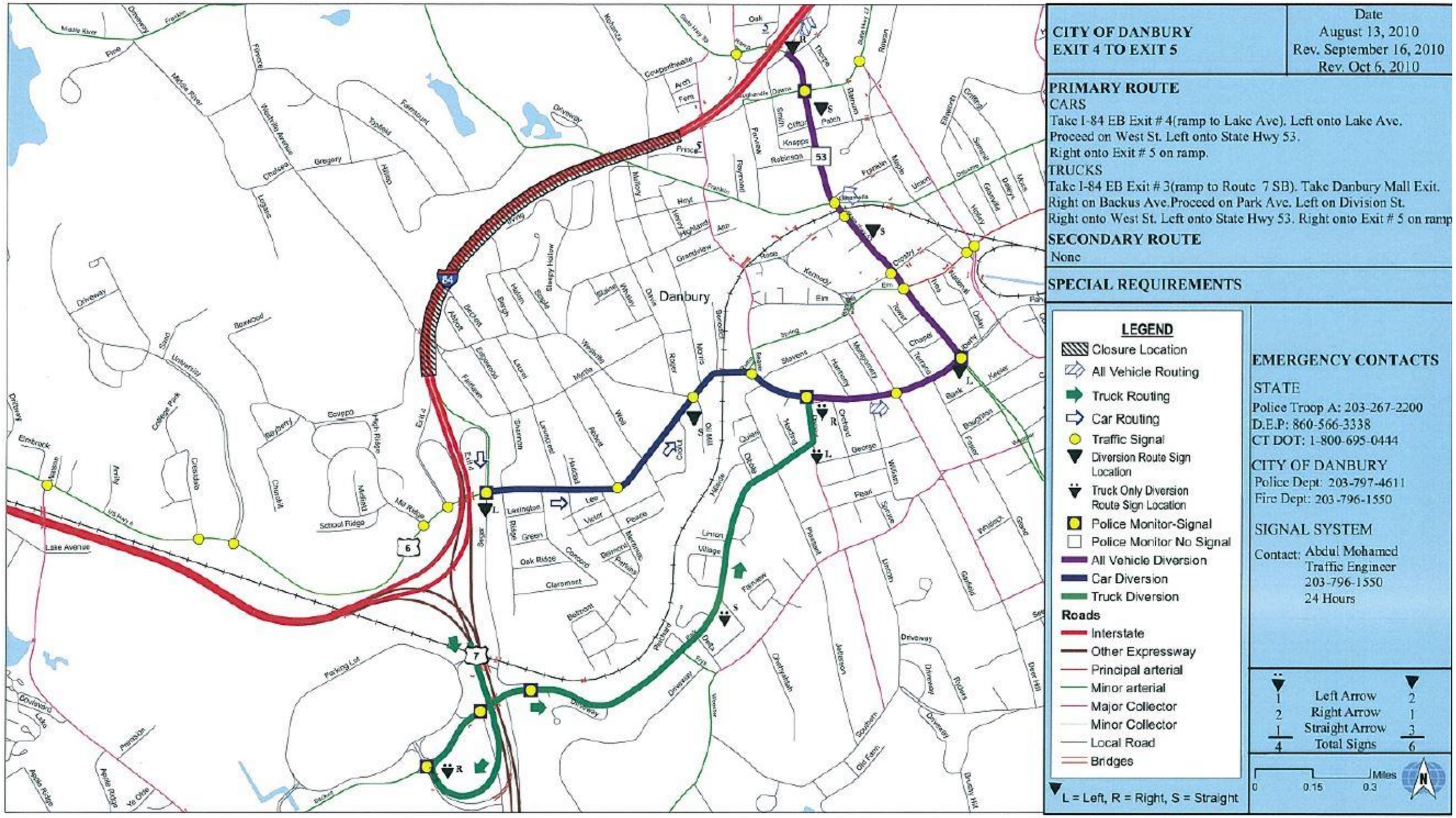

Figure 5-1: Sample Emergency Diversion Plan
Source: WilburSmith