Comprehensive Service Analysis

FINAL REPORT – VOLUME I

OVERVIEW AND RECOMMENDATIONS

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CRCOG
CAPITOL REGION
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CTtransit

CONNECTICUT DEPARTMENT OF TRANSPORTATION

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OVERVIEW

The Capitol Region Council of Governments (CRCOG) and the Connecticut Department of Transportation (CTDOT) retained a consulting team led by Nelson\Nygaard Consulting Associates to prepare a Comprehensive Service Analysis (CSA) of CT***transit***'s Hartford Division. The aim of this study was to inventory the transit needs and transit potential of the Capitol Region, and to assess the effectiveness and efficiency of existing transit services. The CSA began in September 2014 and was completed in January 2017.

The CSA consisted of several large tasks, including a review of existing conditions, an assessment of the demand for transit service in the study area, outreach to stakeholders and members of the public, a detailed evaluation of existing fixed-route services, and the development of service improvement recommendations. These recommendations were developed as part of an open and transparent process, with numerous opportunities for stakeholder and public input. Overall, the recommendations were meant to accomplish the following:

- Improve transit service for the vast majority of current and prospective transit riders in the Capitol Region
- Complement recent and planned transit investments including CT***fastrak*** and the CT***rail*** Hartford Line
- Ensure that CT***transit*** operates as efficiently as possible by addressing under-performing routes and service redundancy

This document serves as a planning tool for future CT***transit*** bus service in the metro Hartford area. The recommendations of this study represent a potential scenario and are not a final service plan. The document will serve as an example for improved bus transit service in the Capitol Region and provide a potential blueprint for future service. Any service changes will need to be approved by CTDOT and further subjected to CT***transit***'s service change process including Title VI analysis, public hearings, and technical assessments. The public meetings conducted over the course of the CSA were intended to educate and inform the public and study team, but were not intended to replace CT***transit***'s public outreach process.

KEY FINDINGS

The CSA was a heavily data-driven process, but recommendations were also informed by the input of various stakeholders, including members of the public, representatives of service-area communities, and CT***transit*** and CTDOT staff. Key finding from the technical analysis included the following:

- Almost every part of the study area that has the minimum level of population and employment density to support fixed-route service (five people and/or jobs per acre) does currently have some level of service coverage (see Figure ES-1).
- The communities with the greatest concentrations of population groups that have a high propensity to use transit are Hartford and East Hartford. These communities have high transit need and relatively extensive transit coverage.
- Manchester and South Windsor have pockets of high transit need, concentrated in areas with large apartment complexes.
- Bloomfield shows high transit need, primarily due to a relatively high percentage of older adults.

- Travel flow data produced by the CRCOG Regional Travel Demand Model appears to validate the radial design of the CT***transit*** network serving the Capitol Region. Hartford is clearly the strongest regional hub, attracting heavy travel flows from neighboring communities such as East Hartford, West Hartford, and Wethersfield, as well as non-bordering towns such as Manchester and New Britain.
- The regional travel model also shows some relatively strong connections that are not well served by the existing CT***transit*** network, including trips between Newington and Wethersfield and between Manchester and South Windsor.
- An analysis of stop-by-stop ridership activity reveals several very strong transit corridors including include Franklin Avenue, Park Avenue, Farmington Avenue, Albany Avenue, and Main Street in Hartford, and to a lesser extent, Burnside Avenue in East Hartford (see Figure ES-2).

Conversations with stakeholders focused on a wide range of issues, but several recurring themes emerged from these discussions:

- Access to Jobs is Essential - Numerous stakeholders stated their belief that the transit network should be oriented towards providing access to employment as much as possible.
- Provide Better Customer Information - Both regular riders and representatives of social service providers expressed a strong and consistent need to make route and schedule information easier to find and understand.
- Demand has Shifted Away from the Historic Radial Transit Network – While there is consensus that downtown Hartford will continue to be the center of the region, stakeholders also talked about a desire for more and better regional connections and more crosstown service, or direct connections between suburban destinations.
- Need for More Service, Especially Increased Frequency - There is a desire for increased service frequency throughout the system, but especially in areas with existing high demand or corridors where future growth is desired and anticipated.
- Maintain On-Time Performance - Although many stakeholders agreed that CT***transit*** service runs reliably today, others stressed that maintaining this on-time performance should continue to be a top priority.
- Improved Airport Service - The Bradley Flyer service was called out by many as a route that has the potential for improvement and to attract more riders. Suggestions include better branding and marketing, user-friendly schedules and improved signage at the airport.
- CT***transit*** Should Capitalize on Regional Investments in Transit Infrastructure - Area stakeholders and residents are optimistic that the region is changing in positive ways (with CT***fastrak*** as an example), and see transit playing an important role in supporting continued economic growth.

FIGURE ES-1 | TRANSIT POTENTIAL

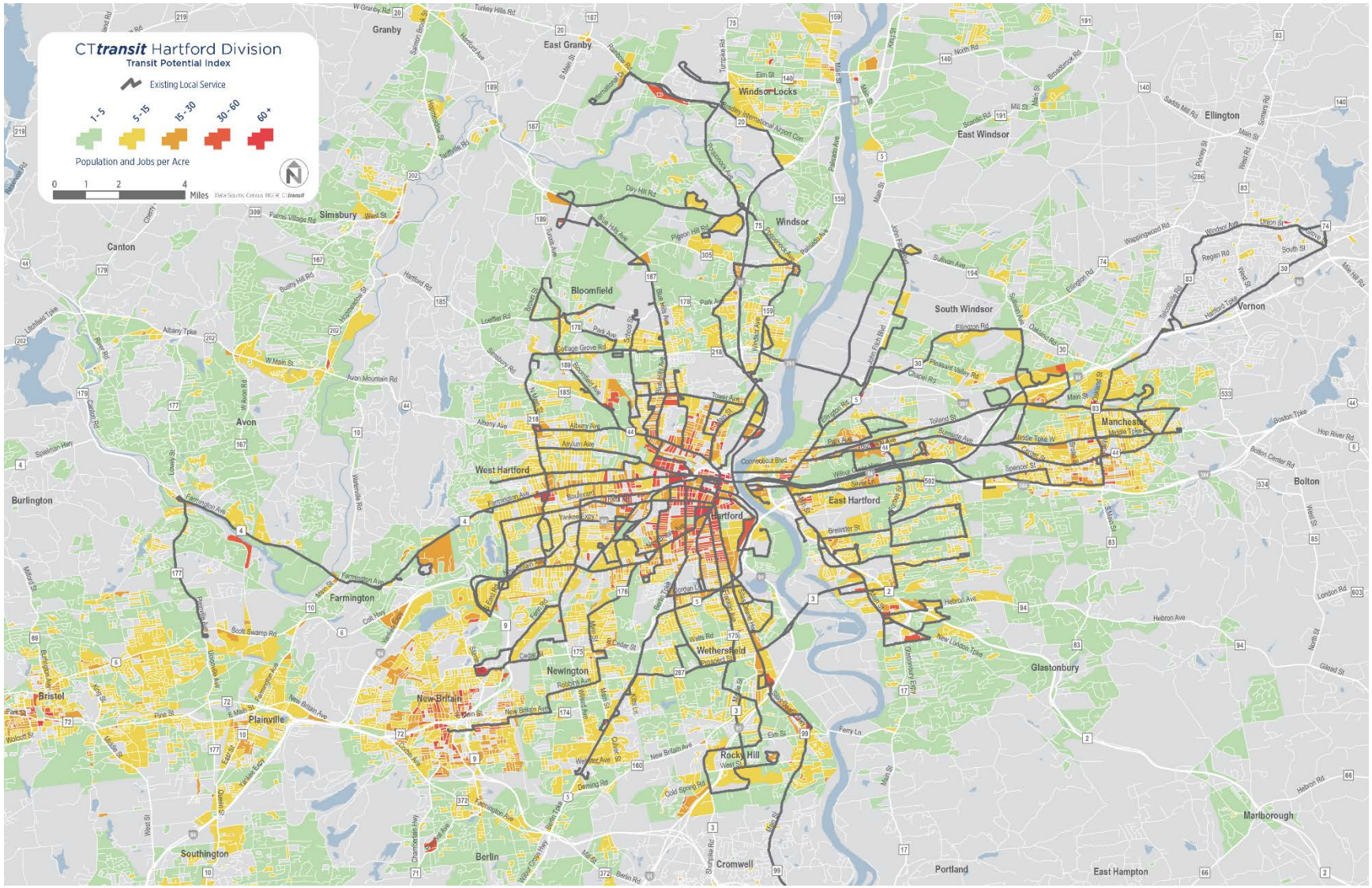
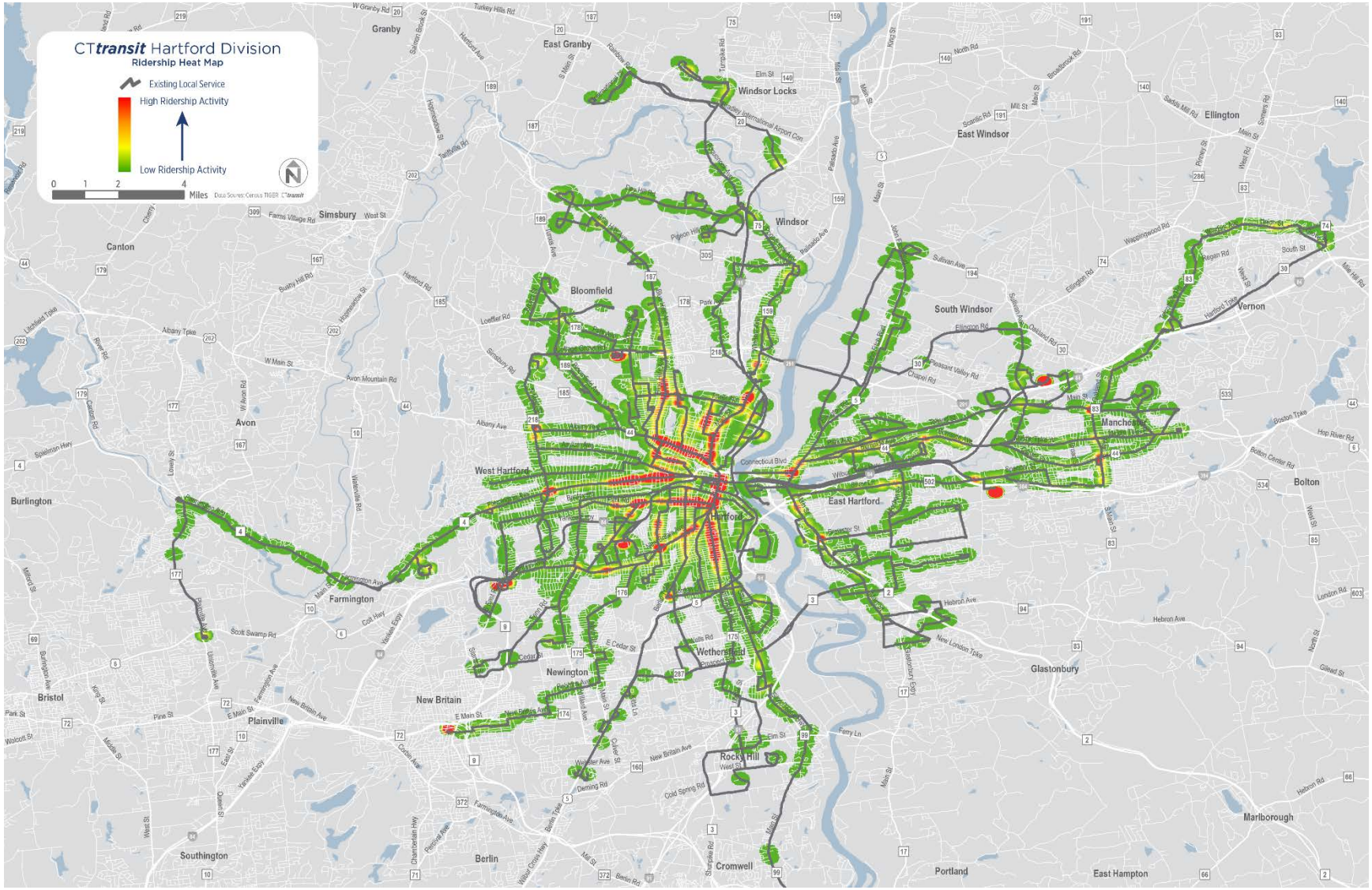


FIGURE ES-2 | RIDERSHIP HEAT MAP



Public input was also provided online. A total of 1,080 people participated in an online survey designed to gauge area residents' attitudes and opinions related to transit service. The survey revealed broad agreement among riders and non-riders on some issues, and disagreement on others:

FIGURE ES-3 | SURVEY TRADE-OFF QUESTIONS

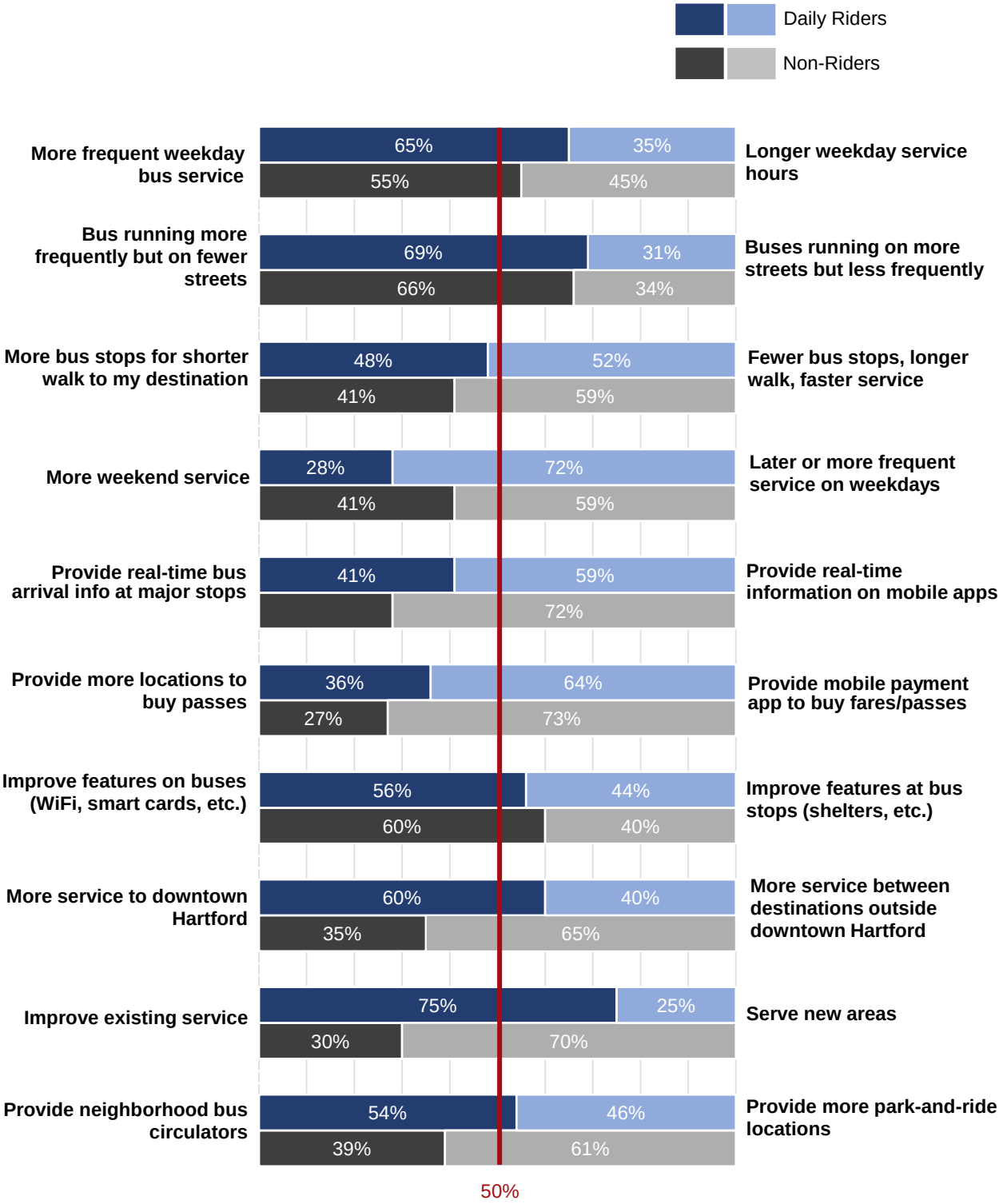
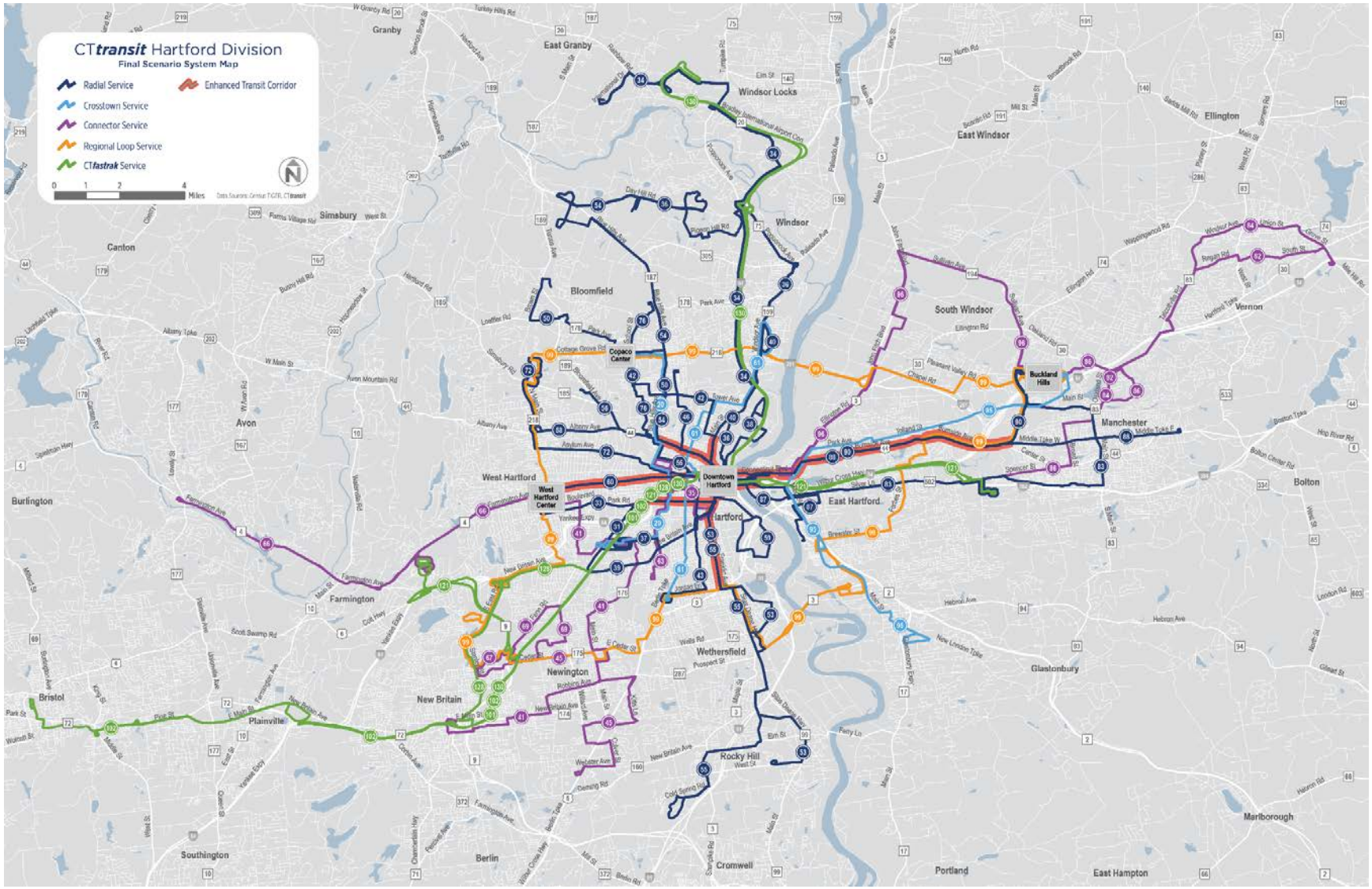


FIGURE ES-4 | PROPOSED SYSTEM MAP



RECOMMENDATIONS

Based on the technical analysis and stakeholder input, the Nelson\Nygaard team initially developed two distinct scenarios for redesigning transit service in the Capitol Region. Scenario I focused on relatively minor improvements to individual routes. These improvements were meant to directly address the issues and opportunities identified over the course of the existing service analysis.

Scenario II presented a fundamentally different vision of transit service in the Capitol Region, based on the concept of a core Bus Rapid Transit (BRT) network including the original CT***fastrak*** guideway service and new arterial BRT service along the key transit corridors identified in the market and service analyses. Under this scenario, most local routes would serve as feeders for the core BRT service but would not necessarily travel to downtown Hartford themselves.

After presenting both scenarios at a series of public meetings, the Nelson\Nygaard team developed a final recommended service scenario (see Figure ES-4), incorporating elements of both previous scenarios and reflecting the feedback received from stakeholders and members of the public. The recommended scenario features five service categories (not counting commuter express service):

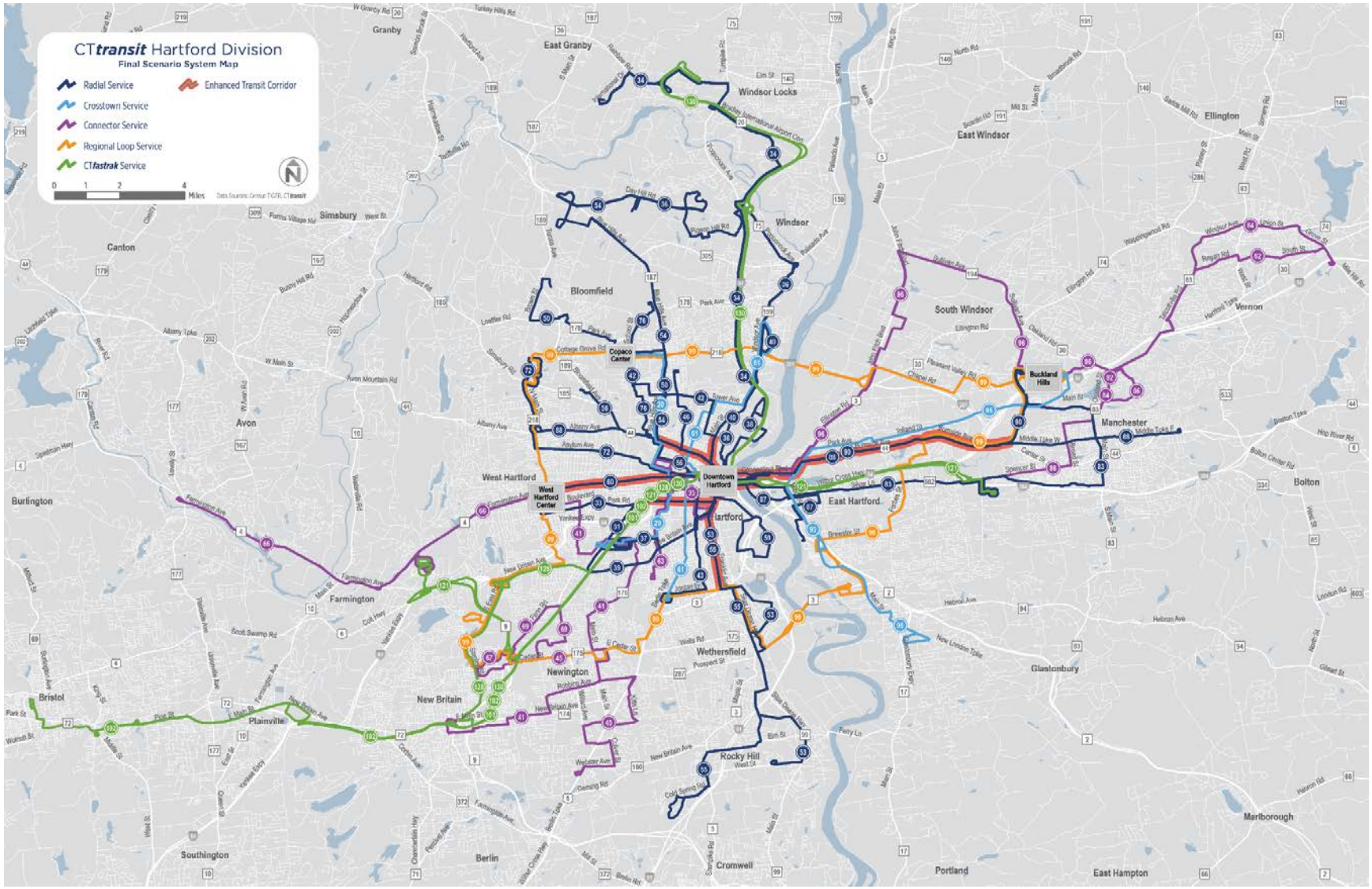
- **Radial Service:** Local routes operating to and from downtown Hartford.
- **Crosstown Service:** Local routes linking together key corridors and key regional destinations, without forcing passengers to travel through downtown Hartford.
- **Connector Routes:** Local routes providing "first mile / last mile" connections to and from regional transit hubs.
- **Regional Loop Service:** Local route linking together key destinations on the periphery of the service area and forming a continuous loop around the region.
- **CT*fastrak* Service:** Bus Rapid Transit service operating exclusively or primarily along a dedicated guideway, HOV lane, or limited-access highway.

The recommended scenario proposes to designate some current Flyer routes as CT***fastrak*** routes, while re-designating some existing CT***fastrak*** routes as other types of service. For example, the Route 30 Bradly Flyer could be extended from its current terminus at Union Station to New Britain via the CT***fastrak*** guideway and be re-branded as Route 130 (a 100-series route number designates CT***fastrak*** service). On the other hand, several current CT***fastrak*** routes do not operate along the CT***fastrak*** guideway at all. Labeling these routes as other service types would better reflect their role in the regional transit network. For example, Route 161, which connects St. Francis Hospital and Hartford Hospital to the Sigourney Street CT***fastrak*** station, would fit better in the Connector Route category than in the CT***fastrak*** category.

Rebranding the Bradley Flyer as a CT***fastrak*** route and offering airport service from CT***fastrak*** stations would heighten the visibility of the service and attract more choice riders traveling to and from Bradley International Airport. It could, however, impact parking availability at the CT***fastrak*** stations. The CSA report presents several options for alleviating the potential impact of long-term parking demand at CT***fastrak*** lots due to Bradley Flyer airport service:

- Restrict and monitor overnight parking at stations.
- Encourage long-term airport parking at Szczeny Garage only.
- Pursue long-term capital investment in park-and-ride capacity

FIGURE ES-5 | PROPOSED SYSTEM MAP



The proposed routes and schedules are designed to improve productivity and increase ridership. Compared to the current service, the recommended scenario would require 5% fewer peak vehicles on weekdays, but would results in 8% more weekday revenue hours. The increased revenue hours can be attributed to different things on different routes, including longer spans of service, higher off-peak frequencies, and longer peak periods. However, there may be opportunities to trim revenue hours on some CT***fastrak*** routes, which were not analyzed as part of this study. For example, if the Bradley Flyer is extended to New Britain via the CT***fastrak*** guideway, as recommended, some trips on Route 101 can likely be eliminated to account for the added capacity created by the proposed Route 130.

While the proposed scenario includes an approximately 8% increase in weekday revenue hours (if implemented in its entirety), it is projected to result in a 9% increase in weekday ridership (see Figure ES-5).

FIGURE ES-6 | WEEKDAY RIDERSHIP, SERVICE HOURS, AND PRODUCTIVITY

For a mature transit system the size of Hartford's, Saturday ridership is expected to be about half of weekday ridership. Similarly, Sunday ridership is expected to be about half of Saturday ridership. Currently, Saturday ridership in the Hartford Division is 52% of weekday ridership. However, Sunday ridership is only 33% of Saturday ridership. This lower than-expected Sunday ridership is a function of the very limited service available on most routes in the Capitol Region. The proposed service scenario recommends increasing Saturday revenue hours by 18% and Sunday revenue hours by 55% over current service levels.

If implemented, the proposed service network will result in very frequent transit service along several key corridors, including Franklin Avenue, Park Avenue, Farmington Avenue, Albany Avenue, and Main Street in Hartford, as well as Burnside Avenue in East Hartford. Over the long-term, these corridors will provide a focus for transit-supportive capital investments, which could include transit priority treatments, stop consolidation, and enhanced passenger amenities. These capital investments would complement high-frequency transit service and reinforce the image of each corridor as an enhanced transit corridor. At the same time, the proposed service network would result in the elimination of fixed-route service in some low-density residential areas that have not shown a strong demand for transit.

A new approach for providing mobility to residents of these and other difficult-to-serve neighborhoods is incorporating on-demand services, including subsidized Transportation Network Company (TNC) service, into the broader transit network. Transportation network companies (TNCs) such as Uber and Lyft

operate a technology platform that connects drivers of privately owned vehicles with potential passengers via a smartphone application. Passengers are charged a fare, and drivers are charged a service fee for use of the TNC platform. The CSA report presents several case studies of transit systems around the country that have partnered with TNCs to facilitate subsidized service, making trip costs comparable to transit fares.

TNC service has the potential to provide a more cost-effective solution for first/last mile connections to the regional transit network than the traditional approach of offering infrequent and often circuitous service using standard transit coaches. However, TNCs are not currently regulated in Connecticut, and thus may present challenges related to compliance with federal and state requirements governing the vetting and training of public transportation operators. To address these concerns, the CSA report also presents a case study for an alternate approach to innovative demand-response service using a dedicated fleet of transit agency-branded small vehicles.

Finally, many of the enhanced transit corridors proposed in the final recommended service scenario are anchored by major activity centers such as West Hartford Center, Copaco Center, and the Buckland Hills retail area. These activity centers already function as important regional transit hubs and this function will grow under the proposed service network, as well as with the implementation of other regional transit initiatives. The Buckland Hills Park-and-Ride, in particular, is envisioned as a key component of the future eastward expansion of CT***fastrak***. The CSA report presents several options that CT***transit*** and CTDOT could pursue to reach the goal of providing additional express service to the Buckland Hills Park-and-Ride while improving connectivity between express service and proposed local service.

1 BACKGROUND

1.1 INTRODUCTION

Fixed-route transit service in the Greater Hartford Region is operated by Connecticut Transit (CT***transit***), a division of the Connecticut Department of Transportation (CTDOT). The Hartford Division of CT***transit*** serves the City of Hartford and 26 surrounding towns, all of which are located within the Capitol Region.

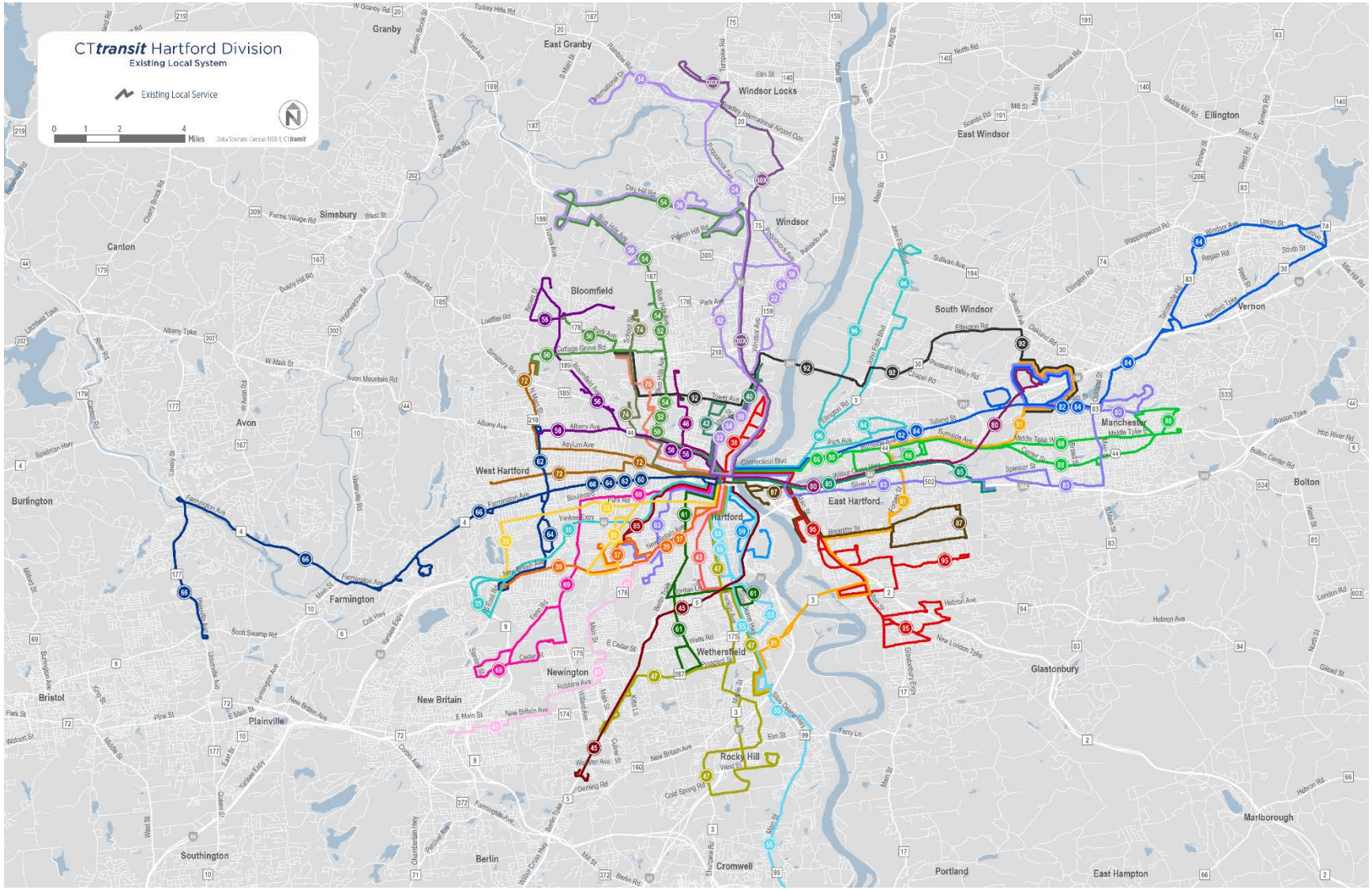
In recent years, the Connecticut Department of Transportation has focused significant resources on improving mobility in Greater Hartford and the Capitol Region. Recent investments include the newly opened CT***fastrak*** Bus Rapid Transit (BRT) service and the CT***rail*** Hartford Line, set to connect Hartford with Springfield and New Haven by 2018. Both of these projects have a regional focus and are key to addressing the peak-period congestion that affects thousands of weekday commuters traveling into and out of Hartford on a daily basis. However, the mission of CT***transit*** goes beyond facilitating peak-period commuter trips.

In addition to CT***fastrak***, the Hartford Division of CT***transit*** operates 49 routes making local stops throughout the Capitol Region (see Figure 1). The Comprehensive Service Analysis (CSA) is an assessment of the strengths and weaknesses of this local network. The overall goal of the CSA is to develop recommendations that:

- Improve transit service for the vast majority of current and prospective transit riders in the Capitol Region
- Complement recent and planned transit investments including CT***fastrak*** and the Hartford Line
- Ensure that CT***transit*** operates as efficiently as possible by addressing under-performing routes and service redundancy

This document serves as a planning tool for future CT***transit*** bus service in the metro Hartford area. The recommendations of this study represent a potential scenario and are not a final service plan. The document will serve as an example for improved bus transit service in the Capitol Region and provide a potential blueprint for future service. Any service changes will need to be approved by CTDOT and further subjected to CT***transit***'s service change process including Title VI analysis, public hearings, and technical assessments. The public meetings conducted over the course of the CSA were intended to educate and inform the public and study team, but were not intended to replace CT***transit***'s public outreach process.

FIGURE 1 | HARTFORD DIVISION EXISTING SYSTEM MAP



1.2 MARKET ANALYSIS

The success of transit service is determined as much by the environment in which the service operates as by the design of the service itself. Some environments are more conducive to transit service than others. The purpose of the Market Analysis is to understand both the need and potential for transit service by examining the following market characteristics:

- **Population and employment density**, which are the strongest indicators of transit demand. Put simply, larger numbers of people living and working in close proximity provide a stronger market for transit.
- **Socio-economic characteristics**, such as income, access to a vehicle, age, and disability status are characteristics indicative of a higher propensity to use transit, and thus are an essential part of market demand.
- **Regional travel patterns**, as determined by the 2014 CRCOG Regional Travel Demand Model, highlight key travel flows within the region regardless of mode. To be effective and to resonate with area residents, any redesign of the transit network must facilitate at least the most popular of these travel patterns.

Each of these factors indicates demand for transit, but ridership is also affected by urban form, land use, the pedestrian environment, and the convenience of other alternatives. For example, nearly all transit riders are also pedestrians on at least one end of their trip. Thus, the safety and comfort of the walking environment strongly affects ridership. Likewise, areas with minimal traffic congestion and ample (and cheap) parking will have a more difficult time attracting transit riders than areas with a variety of "pain points" for drivers.

The Market Analysis presented in this chapter is a starting point that broadly identifies regions, neighborhoods, and activity centers that may be supportive of transit service. Data sources for this analysis include the U.S. Census, the 2009-2013 American Community Survey, and online research. Additional market context was provided by reviewing previous planning documents and studies, included in Appendix A.

TRANSIT POTENTIAL

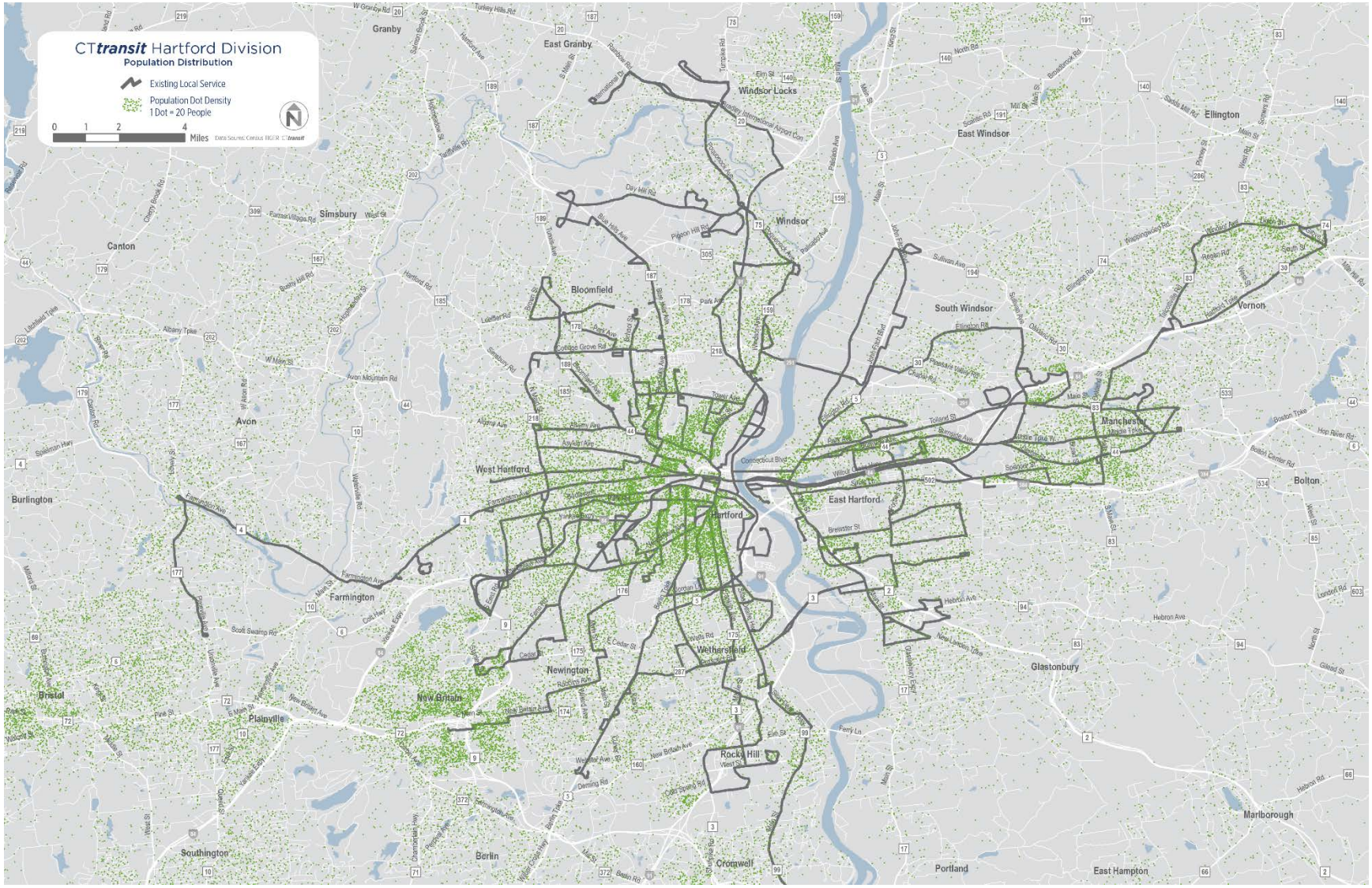
Transit service is generally most efficient in areas with high concentrations of people and jobs. Combining both residential and employment densities yields a transit potential index. This index shows where the conditions are most suitable for transit service based on the number of jobs and people per acre.

Population

The distribution and density of population is a key factor influencing the viability of transit service because most riders walk to or from a bus on at least one end of their trip. Nelson\Nygaard's analysis of population is based on block-level data from the 2010 US Census.

Figure 2 shows how population is distributed throughout the Capitol Region, relative to the existing transit network. Hartford has the highest population in the service area, followed by New Britain, West Hartford, East Hartford, and Manchester. Unsurprisingly, Hartford also has the highest concentration of CT***transit*** service, while West Hartford, East Hartford, and Manchester are also served by multiple routes. Although New Britain is only served by one CT***transit*** Hartford Division route, it has additional service operated by CT***transit***'s New Britain division.

FIGURE 2 | POPULATION

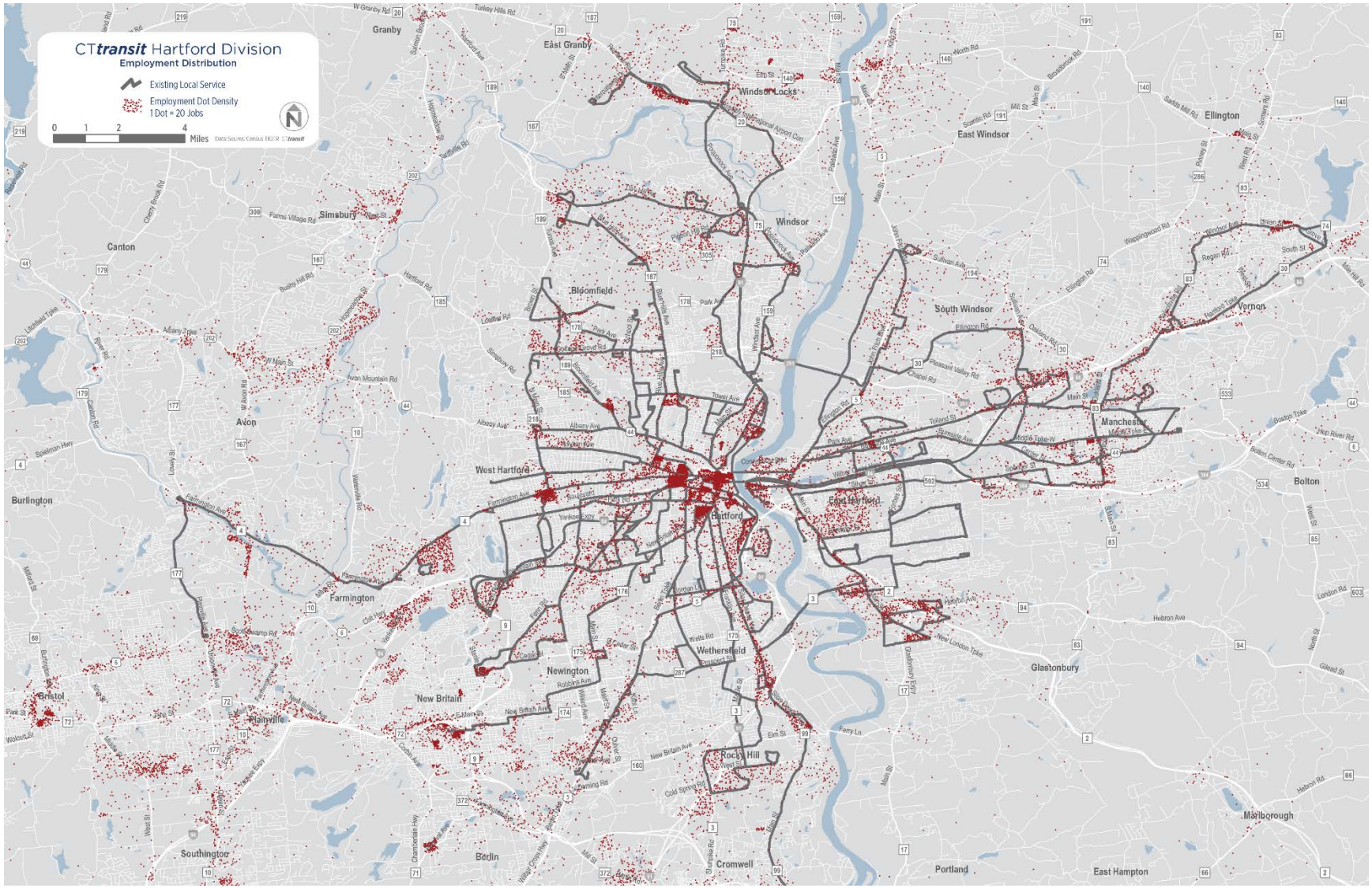


Employment

Nationally, work trips account for the largest share of transit trips. For most people, travel to and from work is highly repetitive, making these trips well-suited for fixed-route transit service. Thus, understanding how jobs are distribution throughout the region is also a critical part of understanding the demand for transit.

The study team used the US Census Bureau's Longitudinal Employer-Household Dynamics (LEHD) data to determine the number of employees per census block. Figure 3 shows that while Hartford is home to the largest proportion of jobs in the study area, there are also large concentrations of employment in West Hartford, East Hartford, Manchester, and in the vicinity of Bradley International Airport in Windsor Locks. Other employment-rich corridors include Silas Deane Highway through Wethersfield and Rock Hill, and south Main Street in Glastonbury. These are also important transit corridors.

FIGURE 3 | EMPLOYMENT



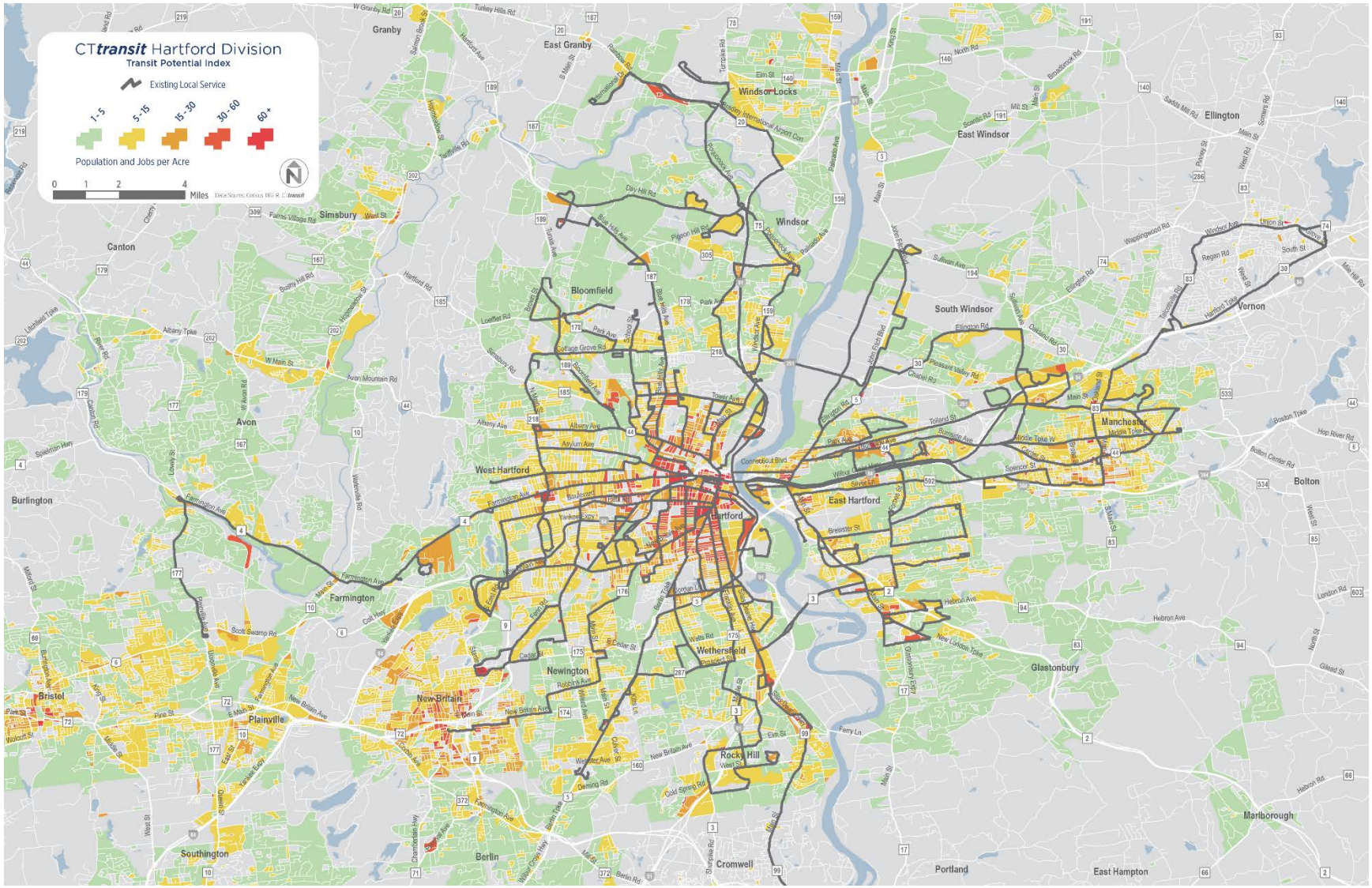
Transit Potential Index

The Transit Potential Index is a composite of population and employment densities, and is an indicator of the viability of fixed-route service in a particular area (see Figure 4). A higher Transit Potential Index score for a census block points to a higher likelihood of generating substantial transit ridership in that block. As a rule of thumb, a base level of fixed-route transit service (i.e., service every 60 minutes) begins to make sense for an area once it reaches a density of approximately five people and/or jobs per acre. Higher densities can support more frequent service, while lower density areas may be better suited for other service types including on-call or demand-response service. For the transit potential of an area to be fully realized, however, the area must also have transit-supportive infrastructure such as sidewalks and crosswalks. Actual ridership is also highly dependent on service characteristics such as schedule and routing.

A review of the Transit Potential Index for the study area suggests:

- Hartford is by far the most transit-supportive area in the study area. Most of the city has sufficient population and employment density to support a very high level of transit service, potentially as high as every 5 minutes during peak periods.
- Almost every part of the study area that has the minimum level of density to support fixed-route service (five people and/or jobs per acre) does currently have some level of service coverage.
- Areas that appear to be underserved include the Berlin Turnpike corridor, south of Prospect Street. While there is service on the Berlin Turnpike itself, the nature of the roadway makes it difficult for pedestrians to access from nearby neighborhoods. Sullivan Avenue in South Windsor and areas of Windsor, north of Putnam Highway, also appear to be somewhat underserved.
- New Britain appears to be underserved as well, but the city is in fact served by routes operated by the CT***transit*** New Britain Division.

FIGURE 4 | TRANSIT POTENTIAL INDEX



TRANSIT NEED

Above all else, public transportation is a mobility tool. Certain population subgroups are more likely to use transit than other modes as their primary means of local and regional transportation. These groups include:

- **Households without Access to a Vehicle**, whether it be by choice or due to financial or legal reasons, often have no other transportation options besides using transit.
- **Low Income Individuals**, typically because transit is less expensive than owning and operating a car.
- **Persons with Disabilities**, many of whom cannot drive and/or have difficulty driving.
- **Older Adults**, since people may become less comfortable or less able to operate a vehicle as they grow older.
- **Young Adults**, who in general have a significantly higher interest in using many transportation options such as transit, walking, and biking and a lower interest in driving.

Identifying areas with relatively high concentrations of these groups can help determine where the need for transit service is greatest. It should be noted, however, that high transit need does not necessarily mean that traditional fixed-route transit is ideal for an area. In some locations, the density of transit-dependent population is high, but the total population is still quite low, meaning that the transit potential of the area is also low.

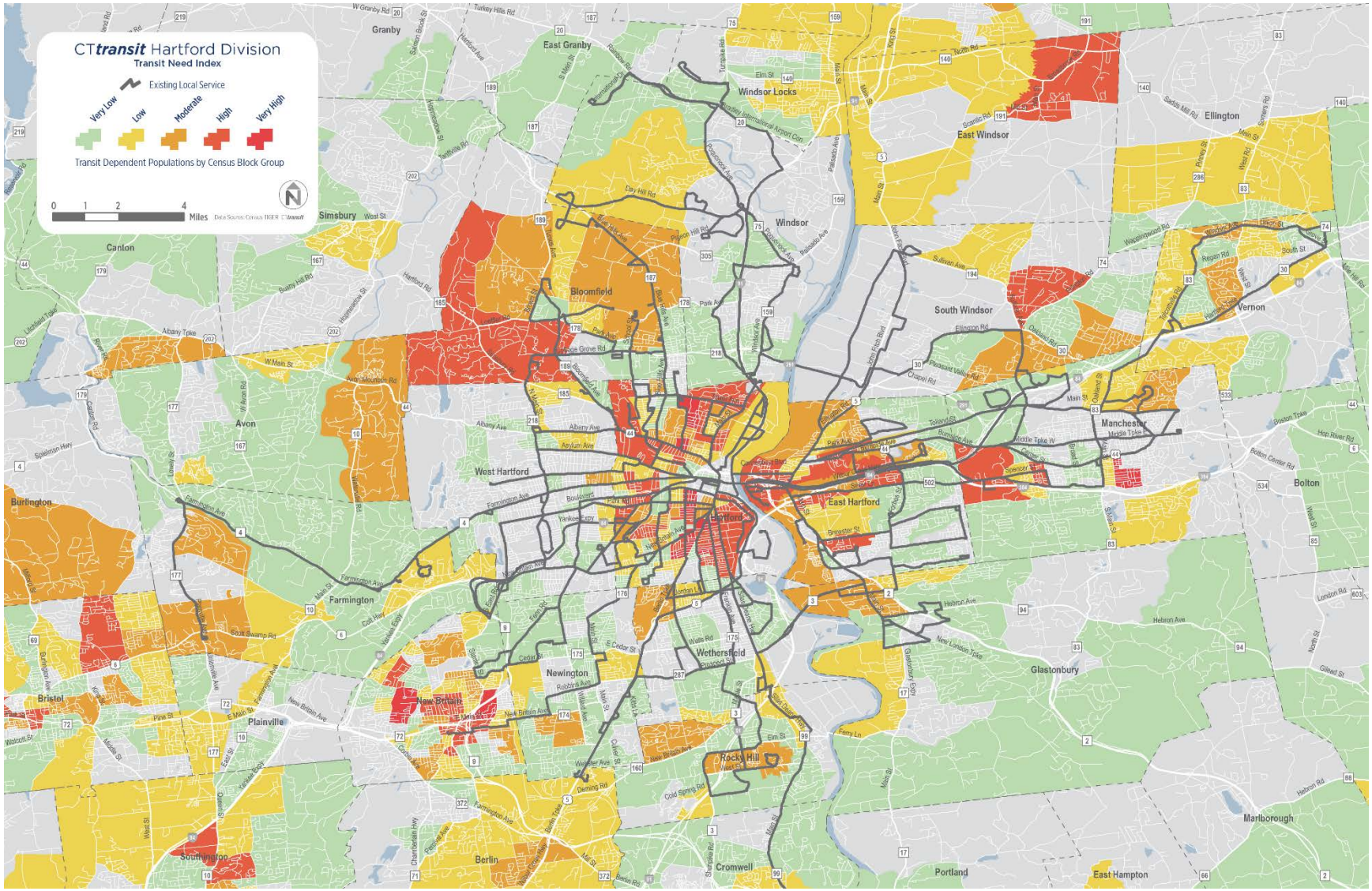
Transit Need Index

The Transit Need Index is a relative measure that highlights areas of the study area with higher and lower concentrations of the above population subgroups. Higher concentrations of these population subgroups indicates higher transit need, while lower concentrations indicate lower transit need. However, transit need does not necessarily equate to transit demand; rather, this analysis highlights areas of the community where high concentrations of people who typically rely on transit happen to live. Actual ridership is based upon additional factors such as route structure, frequency, reliability, convenience, and safe access serving these geographic areas.

Results of this analysis are shown in Figure 5. Key findings include:

- The communities with the highest transit need based on the Transit Need Index are Hartford and East Hartford.
- The pocket of high transit need in Manchester is primarily driven by two large apartment complexes: Square Village on Spencer Street and Brook Haven on Middle Turnpike.
- High transit need in Bloomfield is primarily driven by a relatively high percentage of older residents.
- A concentration of three large apartment complexes between Ellington Road and Sand Hill Road are responsible for the pocket of high transit need in South Windsor.

FIGURE 5 | TRANSIT NEED INDEX



TRAVEL PATTERNS

In general, transit users are interested in accessing the same regional destinations as all other travelers. As part of our understanding of the overall need for transit service, therefore, the study team analyzed major travel patterns in the Greater Hartford Region, regardless of mode. We used this information to be sure transit is matched with the overall travel patterns and is designed to take people where they want to go.

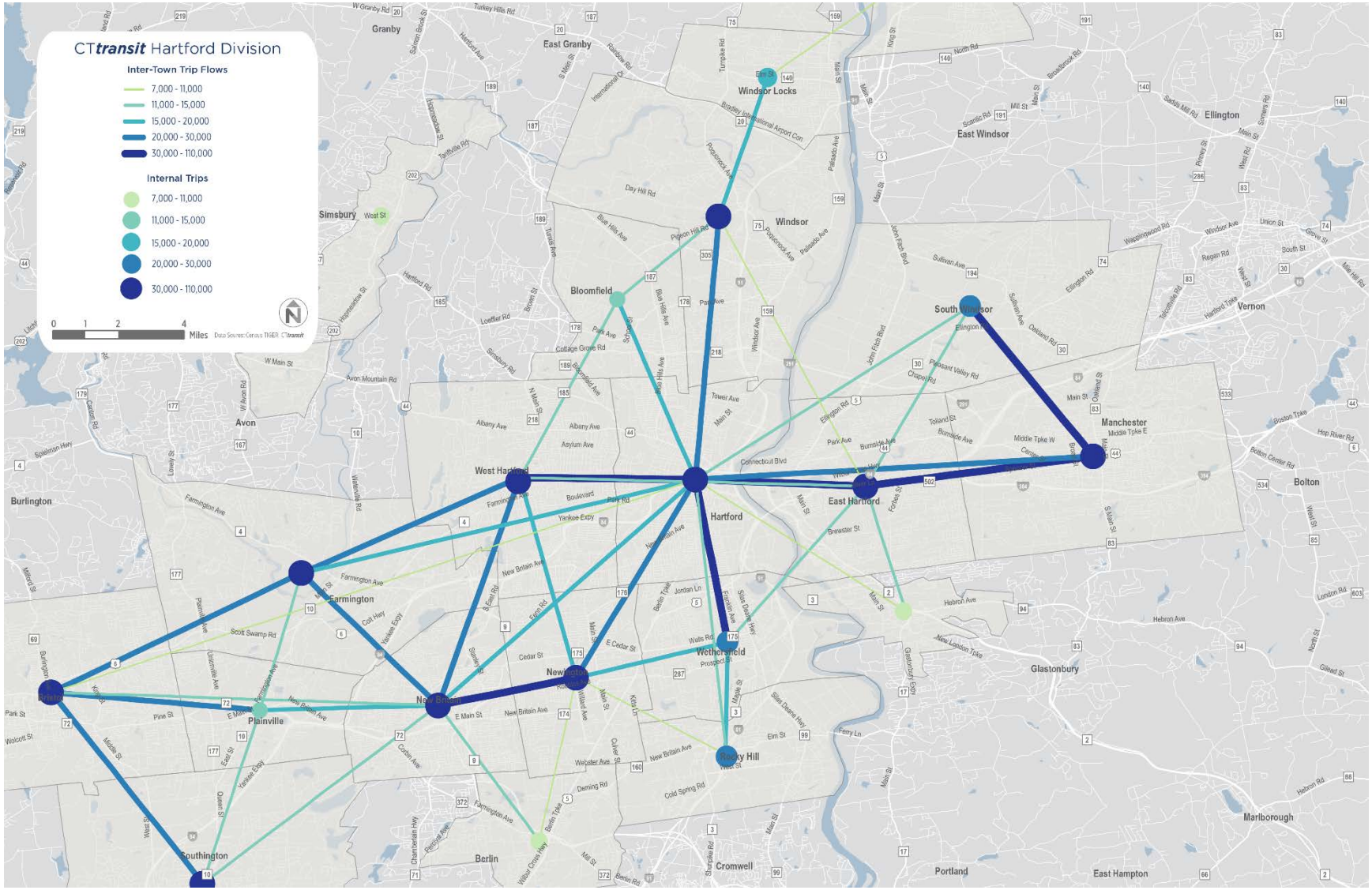
The Nelson\Nygaard team worked closely with CRCOG to create the analysis and relied on 2014 trip tables produced by the CRCOG Regional Travel Demand Model. The model is regularly "validated" and updated by CRCOG staff to ensure that it reflects real-world commuter behavior.

In viewing the travel flow maps, it is important to consider a few facts:

- Trips are not segregated by time of travel (i.e., peak versus off-peak) or by trip type (home-based work travel, home-based other, etc.). They represent all travel for the entire day.
- This point-to-point analysis does not illustrate how trips are assigned to available streets or transit routes. In viewing the data, it is helpful to think about how various point-to-point travel markets aggregate in actual travel corridors.

At the town level, travel flows appear to validate the overall design of the CT***transit*** network serving the Capitol Region. Hartford is clearly the strongest regional hub, attracting heavy travel flows from neighboring communities such as East Hartford, West Hartford, and Wethersfield, as well as non-bordering towns such as Manchester and New Britain. These travel patterns are reflected in the radial design of CT***transit***'s local and express networks serving the Capitol Region. The regional travel model also shows some relatively strong connections that are not well served by the existing CT***transit*** network, including trips between Newington and Wethersfield and between Manchester and South Windsor (see Figure 6).

FIGURE 6 | REGIONAL TRAVEL PATTERNS



1.3 SERVICE ANALYSIS

Not including CT***fastrak*** service, the Hartford Division of CT***transit*** operates three types of service in the study area, each with specific service characteristics:

- **Local Routes:** The majority of CT***transit***'s Hartford Division service consists of local routes, operating between downtown Hartford and the surrounding region. All except two of these routes originate in downtown Hartford and travel outward from downtown in a radial pattern. Route 91 Forbes Avenue and Route 92 Tower Avenue operate as crosstown routes, beginning and ending outside of downtown Hartford. Nearly all local routes operate on Saturdays, and most also operate on Sundays as well.
- **Flyer Routes:** CT***transit***'s "Flyer" routes provide limited stop service between downtown Hartford and specific destinations in the region. Route 30 Bradley Flyer provides limited-stop service between Hartford Union Station, downtown Hartford, and Bradley International Airport. Route 35 Westfarms Flyer operates directly between downtown Hartford and Westfarms Mall on weekends. Route 85 MCC Flyer links downtown Hartford with Manchester Community College when school is in session.
- **Express Routes:** CT***transit*** operates 12 of the 21 Express routes that serve the Greater Hartford Region. These routes provide nonstop or limited-stop service to downtown Hartford from park-and-ride facilities and other key locations in surrounding towns. Most Express routes operate only during peak hours, and are oriented towards commuters. With the exception of route 905 Enfield-Somers/Windsor Locks Express, all Express routes operate only on weekdays.

CT***transit*** follows a naming convention in the Capital Region by which local routes operating west of the Connecticut River are numbered from 30 to 79, while routes east of the river have numbers in the 80s and 90s. On the west side of the river, routes are further differentiated as operating on or north of Farmington Avenue (even numbered routes), or south of the Farmington Avenue (odd numbered routes).

CT***fastrak*** service is designated by a three-digit route number beginning with "1." Express routes also have three digits, but begin with the number "9." Figure 7 below describes all of the routes operating in the study area, not including CT***fastrak*** routes. CT***fastrak*** service was not yet operating when the Comprehensive Service Analysis began, and was thus not included in the study.

FIGURE 7 | CT*TRANSIT* FIXED ROUTE SERVICES

ROUTE	NAME	SERVICE TYPE	SERVICE DESCRIPTION
North-of-Farmington Routes			
30	Bradley Flyer	Flyer	Connects to Bradley International Airport
31	Park Street – New Park Avenue	Local	Connects to West Hartford Place Shopping Center
32	Windsor Avenue	Local	Connects to Windsor Center Park-and-Ride and Windsor Railroad Station
33	Park Street – Park Road	Local	Connects to West Hartford and Westfarms Mall
34	Windsor Avenue – Poquonock	Local	Connects to Windsor Railroad Station and International Drive

ROUTE	NAME	SERVICE TYPE	SERVICE DESCRIPTION
35	Westfarms Flyer	Flyer	Limited stop service to Westfarms Mall (weekends only)
36	Windsor – Day Hill Road	Local	Connects to Windsor Railroad Station and Griffin Center South
37	New Britain Avenue via Jefferson	Local	Connects to Charter Oak Marketplace and West Hartford Place
38	Weston Street	Local	Connects to *CTtransit* Offices and Hartford Correctional Center
39	New Britain Avenue via Retreat	Local	Connects to Elmwood and Westfarms Mall
40	North Main Street	Local	Connects to Windsor
41	New Britain/Hartford	Local	Local service to New Britain
42	Barbour Street	Local	Connects to North Hartford
43	Campfield Avenue	Local	Connects to Jordan Lane and CT Department of Labor
44	Garden Street	Local	Connects to Garden Street and Charlotte Street in North Hartford
45	Berlin Turnpike Flyer	Flyer	Limited stop service to Newington Park-and-Ride and Pascone Place Shopping Center
46	Vine Street	Local	Serves St. Francis/Mt. Sinai Medical Center, Northend Senior Center
47	Franklin Avenue	Local	Connects to Jordan Lane, Rocky Hill, and Pascone Place Shopping Center
50	Blue Hills Avenue – Cottage Grove Road	Local	Connects to Copaco Center, CIGNA/Metlife, and Bloomfield Center/Sacred Heart Park-and-Ride
52	Blue Hills Avenue	Local	Connects to Rockwell Corner and Wedgewood
53	Wethersfield Avenue	Local	Connects to Jordan Lane and Wethersfield Shopping Center
54	Blue Hills Avenue – Blue Hills Extension	Local	Connects to Rockwell Corner, Griffin Center South, and Poquonock Park-and-Ride
55	Middletown	Local	Connects to Middletown
56	Bloomfield Avenue	Local	Connects to Bloomfield Center, Sacred Heart Park-and-Ride, Woodside Village, and Federation Home
58	Albany Avenue	Local	Connects to Bishops Corner
59	Locust Street	Local	Connects to Regional Market and Brainard Industrial Park
South-of-Farmington Routes			
60	Farmington Avenue/West Hartford Center	Local	Connects to West Hartford Center
61	Broad Street	Local	Connects to Jordan Lane and Wethersfield
62	Farmington Avenue/Bishops Corner	Local	Connects to West Hartford Center and Bishops Corner
63	Hillside Avenue	Local	Connects to Mountain Street and Charter Oak Marketplace

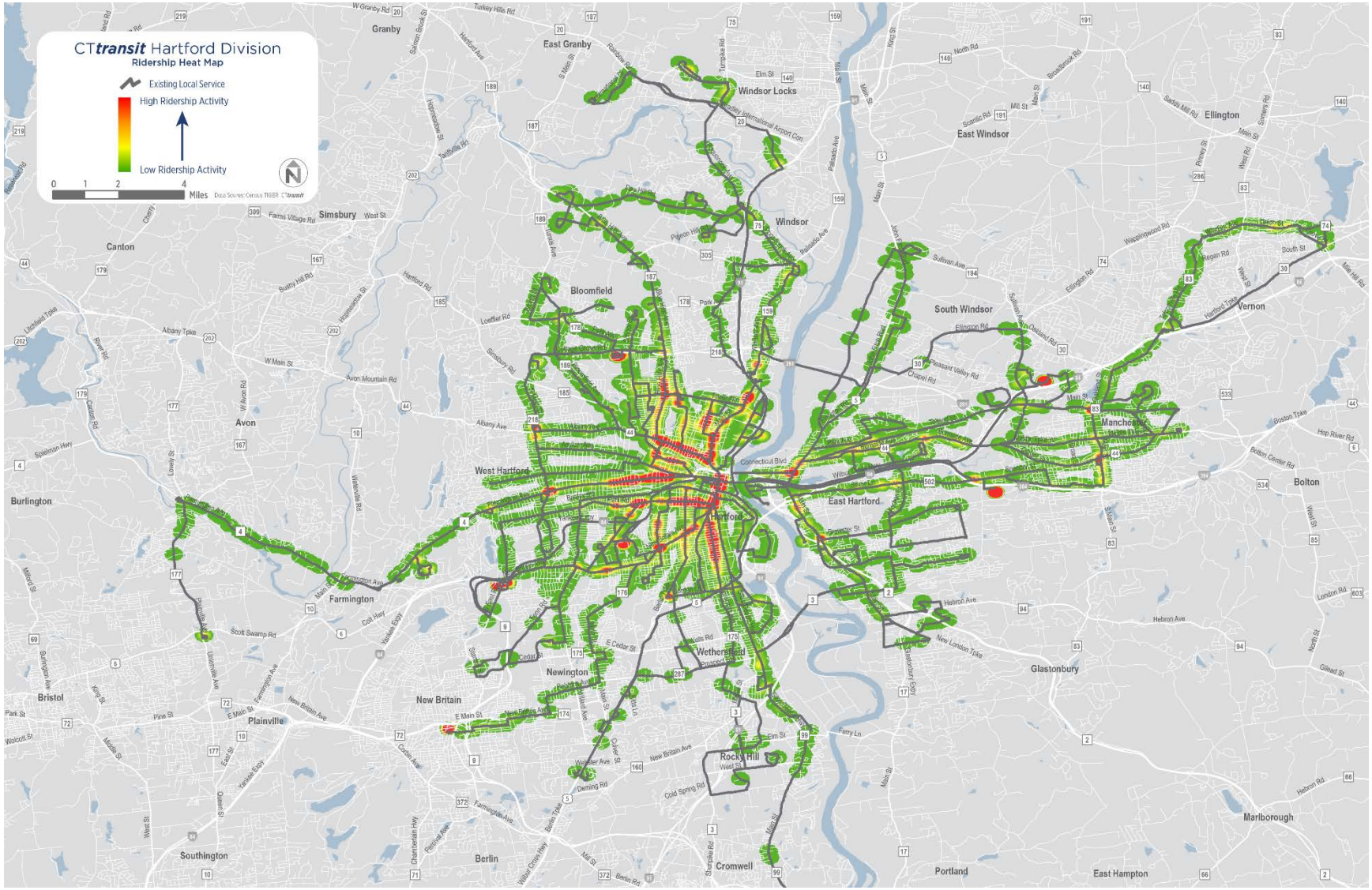
ROUTE	NAME	SERVICE TYPE	SERVICE DESCRIPTION
64	Farmington Avenue/Westfarms Mall	Local	Connects to West Hartford Center and Westfarms Mall
66	Farmington Avenue/UConn/ Unionville	Local	Connects to West Hartford Center, UConn Health Center, Farmington Center, Unionville, and Tunxis Community College
69	Capitol Avenue	Local	Connects to Elmwood Center, Veterans Hospital, and Central Connecticut State University
72	Asylum Avenue	Local	Connects to Fern Street, Bishops Corner, CIGNA, and MetLife
74	Granby Street	Local	Connects to St. Francis Hospital, Copaco Shopping Center, and Seabury Retirement Community
76	Ashley Street	Local	Connects to St. Francis Hospital and Copaco Shopping Center
East-of-the-River Routes			
80	Buckland Flyer	Flyer	Limited stop service to the Shoppes at Buckland Hills (Saturdays only)
82	Tolland Street – Buckland Hills	Local	Connects to Church Corner and Buckland Hills
83	Silver Lane	Local	Connects to Church Corner, Manchester Community College, Buckland Hills, Depot Square, and Manchester Business Park
84	Tolland Street – Rockville	Local	Connects to Church Corner and Rockville Center
85	MCC Flyer	Flyer	Limited stop service to Manchester Community College
86	Burnside Avenue – Mayberry Village	Local	Connects to Church Corner and Mayberry Village
87	Brewer Street	Local	Connects to Founders Plaza, Goodwin College, and East Hartford
88	Burnside Avenue	Local	Connects to Church Corner, Manchester Center, and CT Department of Social Services
91	Forbes Street Crosstown	Local	Provides service between Buckland Hills shopping centers, East Hartford, Glastonbury, and Wethersfield Shopping Center (does not serve downtown Hartford)
92	Tower Avenue Crosstown	Local	Provides service between Copaco Center, Windsor Shopping Center, and Buckland Hills shopping centers (does not serve downtown Hartford)
94	Park Avenue	Local	Connects to Church Corner and East Hartford
95	Glastonbury	Local	Connects to Church Corner, Millbrook Park, Welles Village, and Glastonbury Center
96	John Fitch Boulevard	Local	Connects to East Windsor Hill
Express Routes			
901	Avon-Canton Express	Express	Commuter express service from Canton and Avon
902	Corbins/Farm Springs Express	Express	Commuter express service from Farmington and New Britain

ROUTE	NAME	SERVICE TYPE	SERVICE DESCRIPTION
903	Manchester-Buckland Express	Express	Commuter express service from Manchester
904	Glastonbury-South Glastonbury Express	Express	Commuter express service from South Glastonbury and Glastonbury
905	Enfield-Somers/Windsor Locks Express	Express	Commuter express service from Windsor Locks and Enfield on weekdays; local service in East Windsor and express service to Enfield and Somers on weekends
906	Cromwell Express	Express	Commuter express service from Cromwell
907	Newington Express	Express	Commuter express service from Newington
909	Farmington-Unionville Express	Express	Commuter express service from Unionville and Farmington
910	Rocky Hill-Century Hills Express	Express	Commuter express service from Rocky Hill
912	Simsbury-Granby Express	Express	Commuter express service from Granby and Simsbury
914	Marlborough/Colchester Express	Express	Commuter express service from Colchester and Marlborough
915	Windsor Express	Express	Commuter express service from Windsor

ANALYSIS METHODOLOGY

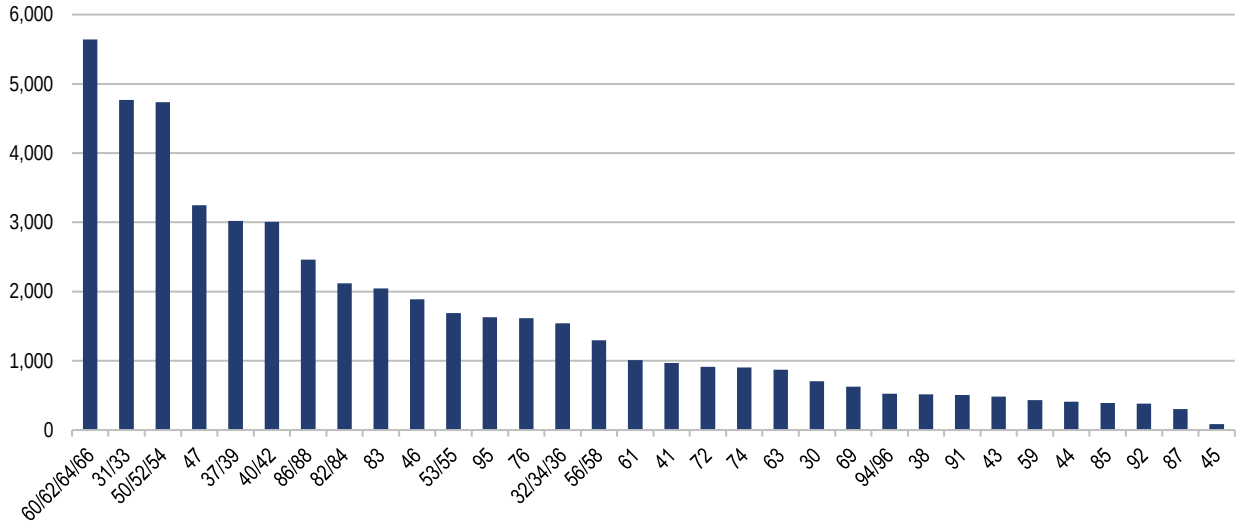
The effectiveness of transit service can be judged both quantitatively and qualitatively. A key quantitative metric of service performance is ridership. Figure 8 shows a heat map based on the total weekday boardings at each stop. The heat map reflects both volume and proximity; in other words, a “hot” area may be caused by a single stop with very heavy passenger activity, or several moderately used stops in close proximity to one another. The utility of a ridership heat map is its ability to highlight key transit corridors in the service area.

FIGURE 8 | RIDERSHIP HEAT MAP



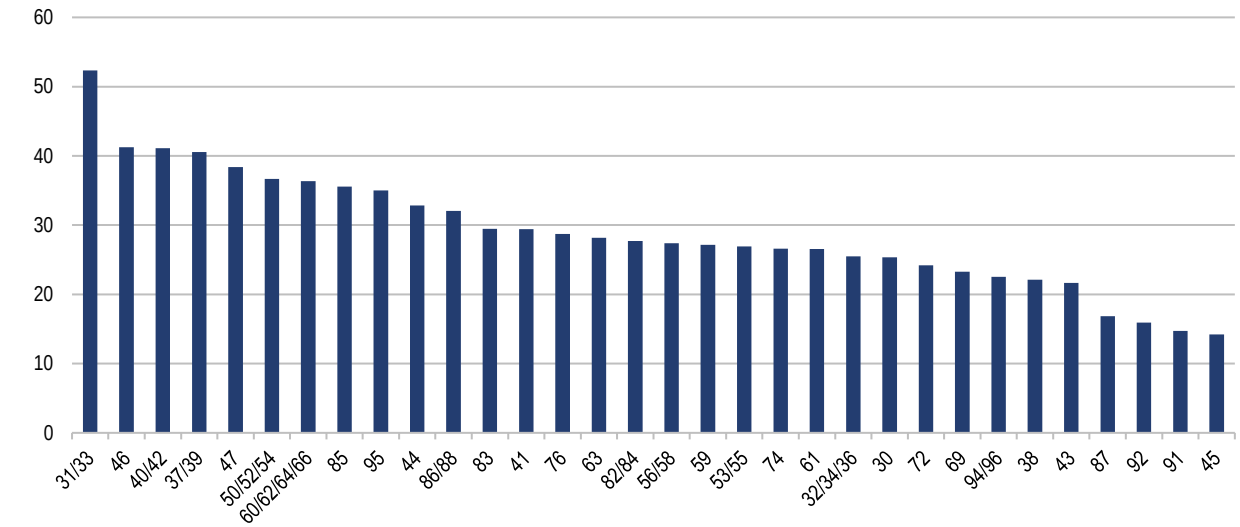
Corridors that stand out with particularly strong ridership include Franklin Avenue, Park Avenue, Farmington Avenue, Albany Avenue, and Main Street in Hartford, and to a lesser extent, Burnside Avenue in East Hartford. Similarly, the routes that operate in these corridors stand out compared to their peers, in terms of average daily ridership (see Figure 9).

FIGURE 9 | AVERAGE WEEKDAY RIDERSHIP



However, ridership does not tell the full story when it comes to service performance. Productivity is also important, as it is an indicator of a transit system's return on investment. Figure 10 below shows the average weekday ridership that is generated per each hour of transit service that is invested in a route. While Route 60/62/64/66 generates the highest total ridership in the Hartford Division, it is not even in the top five in terms of passengers per revenue hour. This suggests that while there are some very productive segments of this route group, other segments are relatively unproductive and pull down the overall productivity of the group. Identifying areas of unproductive service is central to the purpose of this analysis. By pinpointing the strengths and weaknesses of each route, recommendations can be developed to build on the strengths and address the weaknesses.

FIGURE 10 | WEEKDAY PASSENGERS PER REVENUE HOUR



Service performance measures such as ridership and productivity are often a function of service qualities like frequency, span of service, and service reliability. These qualities contribute to the appeal of a transit service. If service is unreliable, for example, prospective riders may try it once or twice, but will not return to the service on a regular basis.

For each route operated by CT***transit***'s Hartford Division, the Nelson\Nygaard team developed a detailed route profile to assess both the quantitative and qualitative characteristics of each route. Each profile includes the following elements:

- A description of the route, service type, and major markets served
- A description of the route's alignment and service patterns
- Service and operational characteristics, including frequency and span of service
- Ridership characteristics
- Productivity and performance characteristics, including financial effectiveness, on-time performance, and capacity utilization
- An overall assessment of the strengths and weaknesses of the route
- An initial list and descriptions of potential improvements

The complete set of route profiles is included as an appendix to Volume II of this report, Detailed Service Recommendations.

1.4 PUBLIC INPUT

The market and service analyses described above provide the technical foundation for developing service improvement recommendations. However, to ensure broad community support, the service recommendations must also be informed by public and stakeholder input. To solicit this input, the CSA included three primary outreach efforts:

- Stakeholder Meetings
- Online Survey
- Public Meetings

STAKEHOLDER MEETINGS

Stakeholder meetings were held early in the project, between October and December 2014. A total of 19 meetings were held and included a mix of interviews and focus groups. Interviews were generally conducted with representatives of organizations, major employers, regional advocacy groups, social service agencies, and others who work closely with transit riders on a daily basis, or who work for an institution that relies on transit service in some way (see Figure 11).

FIGURE 11 | STAKEHOLDER INTERVIEWS

GROUPS REPRESENTED IN STAKEHOLDER INTERVIEWS

- Connecticut Bureau of Rehabilitative Services
- Way to Go Connecticut
- Connecticut Public Transportation Commission (CPTC)
- Hartford Business Improvement District
- Metro Hartford Alliance
- Connecticut Coalition for Environmental Justice
- The Kennedy Center
- Partnerships for Strong Communities
- Capital Workforce Partners
- Transit for Connecticut Coalition
- Department of Economic and Community Development
- Connecticut Housing Coalition
- Capitol Region Council of Governments (CRCOG)
- Connecticut Association for Community Transportation (CATC)
- Connecticut Airport Authority/Bradley International Airport

Focus groups were organized around key ridership groups, especially groups that can be difficult to reach, such as young professionals, non-native English speakers, students, and older adults. Additionally, there were two focus groups aimed at engaging CT***transit*** front-line staff and major Hartford-area employers (see Figure 12).

FIGURE 12 | STAKEHOLDER FOCUS GROUPS

NAME OF GROUP	NUMBER/DESCRIPTION OF ATTENDEES
CT*transit* drivers and other front line staff	Fifteen (15) attendees ▪ Transportation (supervisors and drivers) ▪ Planning ▪ Customer Service
Students/Manchester Community College	Thirteen (13) students and one (1) faculty Three (3) had regular experience using bus
Spanish Speakers	Six (6) individuals ▪ Five residents of Hartford ▪ One resident of South Windsor ▪ All transit users
Hartford Young Professionals & Entrepreneurs (HYPE)	Nine (9) individuals ▪ 6 downtown residents ▪ 3 commuters to downtown ▪ 2 reverse commuters
Major Employers	Eight (8) individuals representing: ▪ Hartford Hospital, St. Francis Hospital, UConn Health ▪ Waste Management ▪ Aetna, The Hartford, Travelers, ▪ Goodwin College

Several key themes emerged from the stakeholder meetings, which are sumarized below. A more complete overview of the stakeholder input can also be found in Appendix B.

Access to Jobs is Essential

Numerous stakeholders stated their belief that the transit network should be oriented towards providing access to employment as much as possible. Stakeholders also recognize that the employment market has shifted away from traditional "9 to 5" office employment in downtown Hartford with less standardization in both the times and days of the week worked. Regional job growth has occurred in outlying areas and in the service, retail, hospitality, and warehousing industries. This shift has two implications for transit:

- More evening and late night service is needed to access 2nd and 3rd shift work
- Opportunities for reverse commutes to outlying employment sites are needed

The need for later evening service was echoed by those who are hoping to rely on transit for all or nearly all of their travel, including trips for after work activities and errands.

Provide Better Customer Information

Both regular riders and representatives of social service providers expressed a strong and consistent need to make route and schedule information easier to find and understand. The most common suggestions reflect a desire for mobile apps and real time bus arrival information.

Demand has Shifted Away from the Historic Radial Transit Network

There is consensus that downtown Hartford will continue to be the center of the region and merits the good transit service it receives. At the same time, stakeholders also talked about a desire for more and

better regional connections and more crosstown service, or direct connections between suburban destinations.

Need for More Service, Especially Increased Frequency

There is a desire for increased frequency throughout the system, with most stakeholders believing that resources should be primarily devoted to areas with existing high demand or to corridors where future growth is desired and anticipated.

Maintain On-Time Performance

Although many stakeholders explicitly mentioned that CT***transit*** service runs reliably today, others stressed that maintaining this on-time performance should continue to be a top priority.

Improved Airport Service

The Bradley Flyer service was called out by many as a route that has the potential for improvement and to attract more riders. Suggestions include: better branding and marketing, user-friendly schedules and improved signage at the airport.

CT*transit* Should Capitalize on Regional Investments in Transit Infrastructure

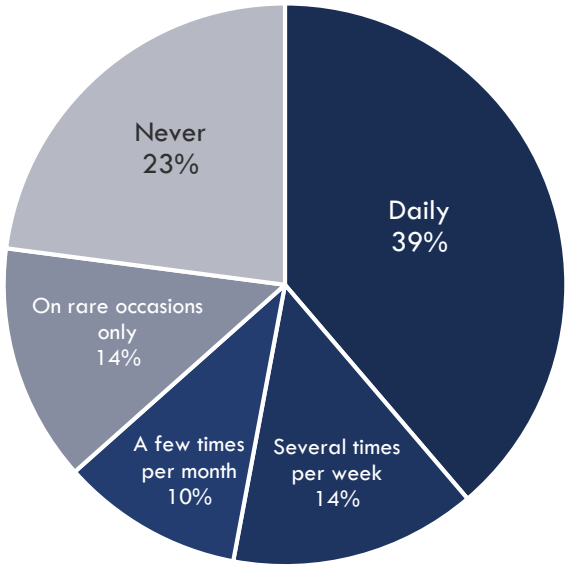
CT***fastrak*** came up repeatedly in discussions, along with other regional projects such as New Haven-Hartford-Springfield commuter rail, IQuilt, Union Station and downtown development. Area stakeholders and residents are optimistic that the region is changing in a positive way, and see transit playing an important role in supporting continued economic growth. They believe CT***transit*** must work with local and state partners to seize near-term opportunities to transform the system and attract more riders.

ONLINE SURVEY

Between July 2015 and February 2016, Hartford-area residents had the opportunity to participate in an online survey designed to collect information about their experience with and perception of CT***transit*** service. The online survey was posted on the CT***transit*** website, and paper surveys were distributed at Travelers headquarters in Hartford. Surveys were also available at public meetings and drop-in sessions conducted at various locations in the Capitol Region. The online survey was available in both English and Spanish.

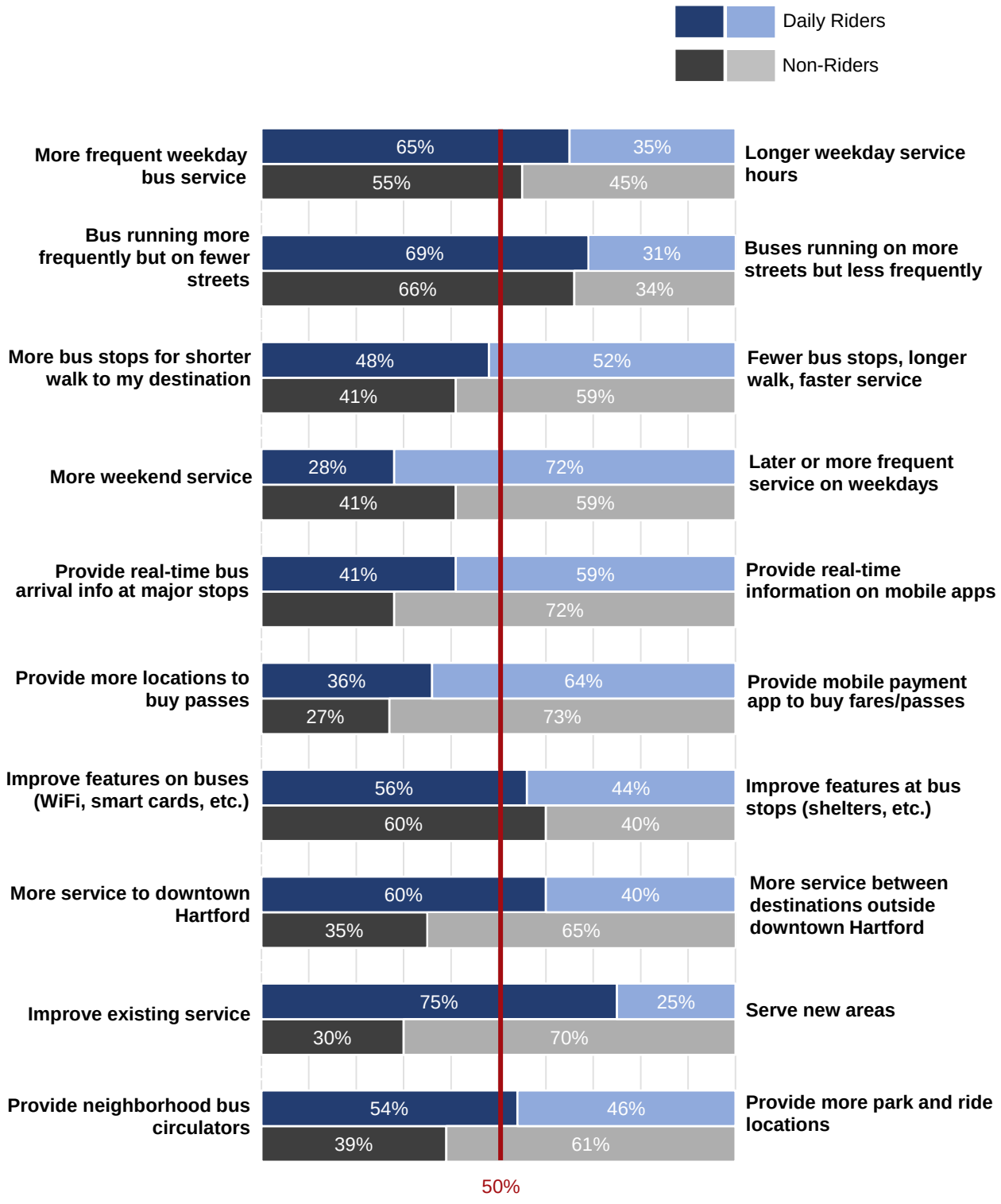
A total of 1,080 people responded to the survey, of which approximately 880 surveys, or 81% of the surveys, were completed online and the remaining 19% collected at Travelers or at public meetings. The majority of survey respondents reported being regular riders: 14% of respondents ride CT***transit*** at least several times a week, with 39% using the service daily (see Figure 13).

FIGURE 13 | RESPONDENTS' USE OF TRANSIT



In order to improve service for existing riders, while also attracting new riders, it is important to identify the issues that are important to both groups. The survey revealed broad agreement among riders and non-riders on some issues, and disagreement on others (see Figure 14).

FIGURE 14 | TRADE-OFF QUESTIONS, DAILY RIDERS AND NON-RIDERS



Most daily riders agreed with the majority of non-riders that more service frequency is a higher priority than longer hours. The largest segments of both groups also expressed a preference for service frequency over service coverage.

Given the choice of more bus stops and shorter walk distances, or fewer bus stops and faster service, the bulk of daily riders and non-riders preferred fewer stops with faster service. Similarly, both groups appear to prioritize the investment in weekday service over additional weekend service.

Daily riders and non-riders had similar responses on several non-service issues as well. For example, majorities in both groups preferred real-time bus arrival information on their personal mobile devices, rather than on displays at select bus stops. Most daily riders and non-riders also expressed support for developing mobile fare payment apps, rather than adding more retail outlets for pass sales. Finally, the bulk of daily riders and non-riders prefer to see improved vehicle features such as on-board WiFi and enhanced fareboxes rather than improved bus stop amenities such as benches and shelters.

On several issues, the prevalent views of daily riders and non-riders diverge. 60% of daily riders would like to see more service to downtown Hartford, while 65% of non-riders want more service between destinations other than downtown Hartford. This shows the potential to increase ridership by creating new cross-town connections. Similarly, it appears that non-riders may not be choosing transit because service is not available where they would like it to be. A final area of some disagreement between daily riders and non-riders is related to service access. While a small majority of daily riders prefer neighborhood circulators as a form of "first-mile/last-mile" connections, most non-riders prefer more park-and-ride locations.

The full overview of survey results is available in Appendix C.

PUBLIC MEETINGS

In January 2016, a series of open house meetings and rider information sessions were held throughout the Capitol Region (see Figure 15). The purpose of these meetings was to introduce new service concepts to area residents and to gauge their relative preferences for two different comprehensive service scenarios. The open house meetings included an initial presentation followed by questions and answers. The rider information sessions were more informal and involved conversations with riders at key bus stops and CT***fastrak*** stations.

FIGURE 15 | PUBLIC MEETINGS

DATE	LOCATION
Open House Meetings	
Tuesday, January 19	▪ Goodwin College (East Hartford) ▪ Whiton Memorial Library (Manchester)
Wednesday, January 20	▪ Hartford Public Library (Hartford) ▪ Elmwood Community Center (West Hartford)
Thursday, January 21	▪ Windsor Town Hall (Windsor)
Rider Information Sessions	
Tuesday, January 19	▪ Buckland Hills Mall CT*transit* Bus Stop
Wednesday, January 20	▪ CT*fastrak* Parkville Station ▪ Copaco Center CT*transit* Bus Stop
Thursday, January 21	▪ CT*fastrak* Flatbush Station ▪ Wethersfield Shopping Center CT*transit* Bus Stop

The two service scenarios presented at the January 2016 public meetings were **Scenario I - Streamline Service** and **Scenario II - Regional BRT Network**. Scenario I focused on relatively minor improvements to individual routes. These improvements were meant to directly address the issues and opportunities identified in the route profiles that were developed as part of the service analysis.

Scenario II presented a fundamentally different vision of transit service in the Capitol Region. This scenario proposed a core Bus Rapid Transit (BRT) network including the original CT***fastrak*** guideway service and new arterial BRT service along the key transit corridors identified in the market and service analyses. Under this scenario, most local routes would serve as feeders for the core BRT service but would not necessarily travel to downtown Hartford themselves. Figure 16 and Figure 17 illustrate the two proposed networks. Appendix D includes a side-by-side comparison of how each route would function under Scenario I and II.

FIGURE 16 | SCENARIO I MAP

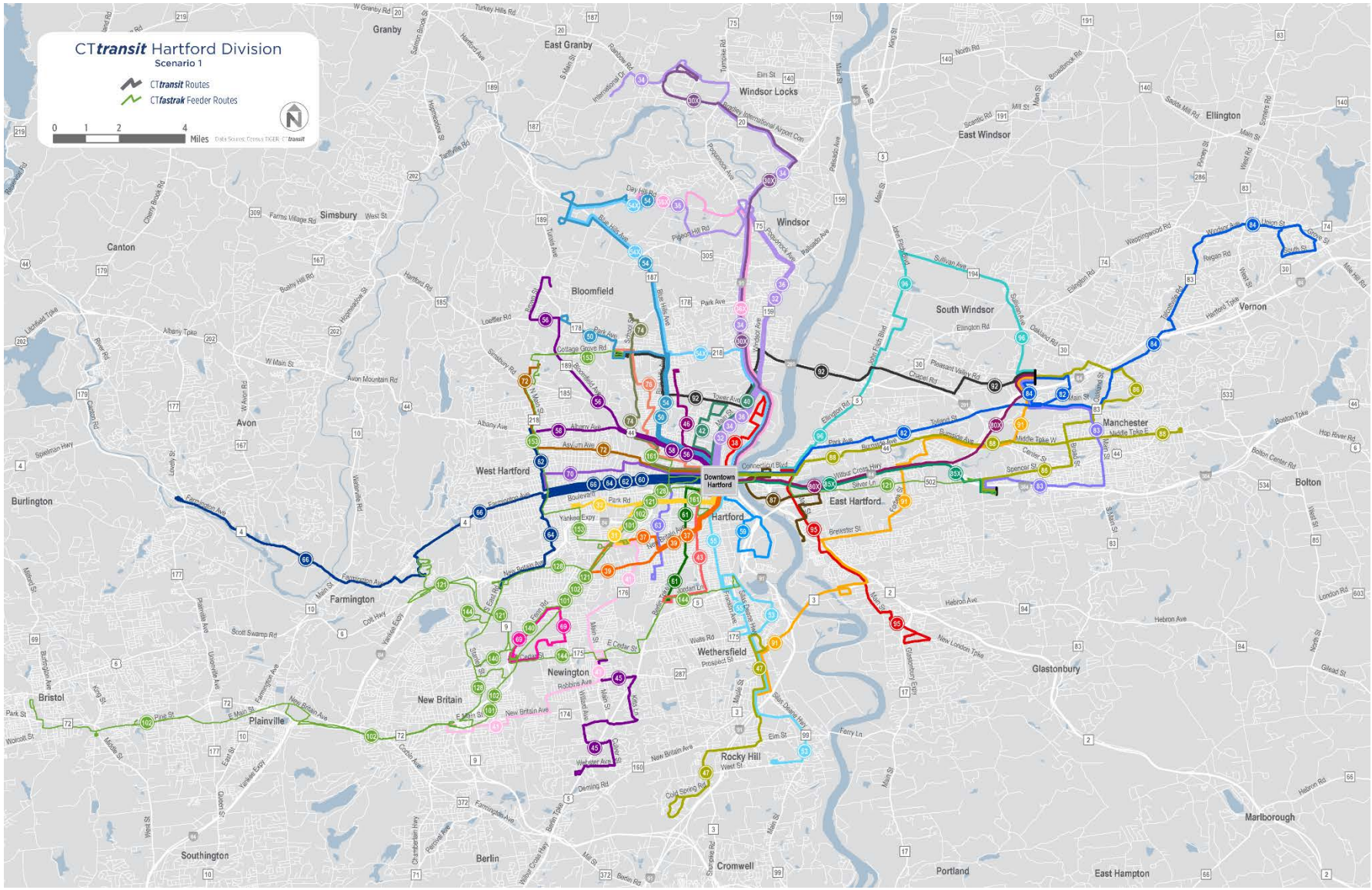
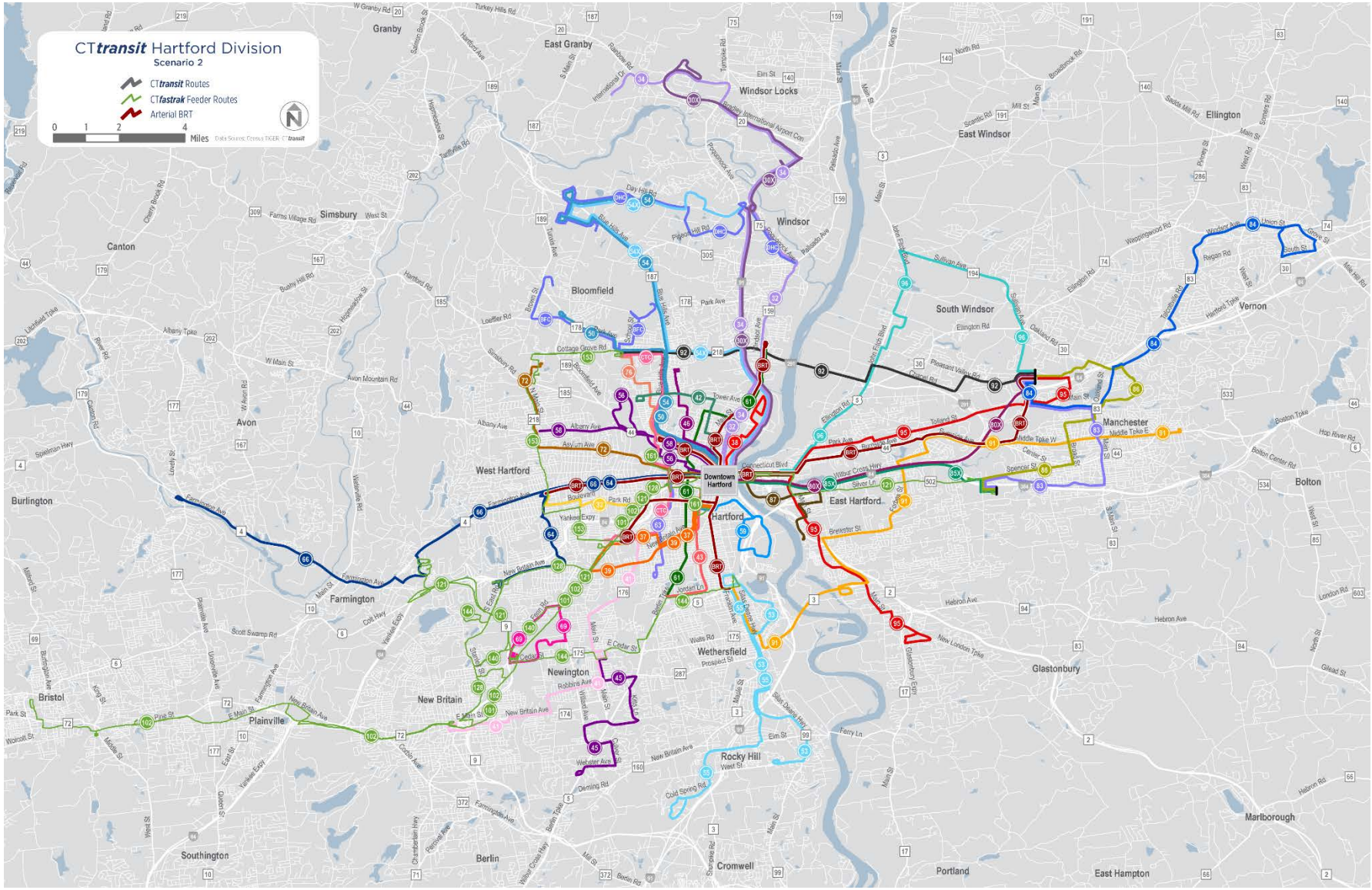


FIGURE 17 | SCENARIO II MAP



Comments received over the course of the public meetings revealed several key themes. Top among these was an overwhelming support for CT***fastrak*** service and the desire to see the continued expansion of CT***fastrak*** or similar high-capacity transit services. CT***fastrak*** has helped riders and non-riders see the opportunities that good transit service offers the region, and has made area residents more amenable to considering other changes. For example, there was general buy-in to the concept of arterial BRT or enhanced transit corridors, and agreement that these corridors should include Franklin Avenue, Park Avenue, Farmington Avenue, Albany Avenue, and Main Street in Hartford, as well as Burnside Avenue in East Hartford.

Other concepts that were well received by public meeting attendees included more crosstown-service and faster service both along key transit corridors and between key regional destinations such as downtown Hartford, Bradly International Airport, Manchester Community College, and several retail centers.

Another topic of discussion at the public meetings was the concept of "family of services." By presenting several clearly defined service types, a transit system can help manage expectations, both for riders and decision makers. For riders, different sub-brands can convey different service characteristics including frequency, stop spacing, passenger amenities, and even reliability. For decision makers, different sub-brands can be useful in judging the success of a particular route. For example, a local circulator route cannot be expected to generate the same level of ridership as an arterial BRT route operating in a key transit corridor. Thus, these service types should be judged against separate service standards.

The current CT***transit*** family of services includes uniquely branded local service, commuter express service, and CT***fastrak*** service. The project team asked public meeting participants to consider a broader family of services, including unique branding for Flyer routes, shuttle routes, circulator routes, cross-town routes, and even two tiers of local routes reflecting different operating environments (more transit-supportive corridors and less transit-supportive corridors). Public meeting feedback suggests that while riders generally support a family of services approach, too many service types can be counter-productive and create confusion.

A full overview of the feedback received from public meeting participants can be found in Appendix E. While some public meeting participants clearly preferred Scenario I or Scenario II, most preferred individual aspects of both. Based on this feedback, the study team developed a third and final scenario which is presented in detail in the following chapters.

An overview of public outreach and comments related to the final recommended scenario is presented in Chapter 2.44.

2 SERVICE OVERVIEW AND RECOMMENDATIONS

2.1 SUMMARY

Based on the feedback received in response to the two service scenarios presented to the public in January 2016, the Nelson\Nygaard team developed a final recommended service scenario for the Hartford Division. Figure 18 shows a system map of the final recommended service scenario, followed by additional sub-area and corridor maps.

There are several key differences between the recommended scenario and the two original service scenarios developed by the study team. First, the recommended scenario replaces the arterial BRT service proposed in Scenario II with enhanced transit corridors. In the short term, these corridors would primarily be defined by high service frequency, which can be achieved by coordinating the schedules of several local routes operating in each corridor. In the longer term, enhanced transit corridors provide a focus for capital investments, such as enhanced passenger amenities, which can help highlight and complement the high-frequency service already operating in these corridors.

In response to public meeting feedback, the recommended service scenario features five service categories (not counting commuter express service):

- **Radial Service:** Local routes operating to and from downtown Hartford.
- **Crosstown Service:** Local routes linking together key corridors and key regional destinations, without forcing passengers to travel through downtown Hartford.
- **Connector Routes:** Local routes providing "first mile / last mile" connections to and from regional transit hubs.
- **Regional Loop Service:** Local route linking together key destinations on the periphery of the service area and forming a continuous loop around the region.
- **CT*fastrak* Service:** Bus Rapid Transit service operating exclusively or primarily along a dedicated guideway, HOV lane, or limited-access highway.

The recommended scenario proposes to designate some current Flyer routes as CT***fastrak*** routes, while re-designating some existing CT***fastrak*** routes as other types of service. For example, the Bradly Flyer would be extended to New Britain and operate as Route 130 along the CT***fastrak*** guideway. The MCC Flyer would be merged with CT***fastrak*** Route 121 to provide service between the UConn Health campus and Manchester Community College via the CT***fastrak*** guideway and I-84.

CT***fastrak*** routes 144 and 153, which provide feeder service to the CT***fastrak*** guideway but do not actually enter the guideway themselves, would be rebranded and incorporated into the proposed Regional Loop service. Similarly, routes 140 and 161 would be rebranded as Connector Routes as they do not actually operate along the CT***fastrak*** guideway.

While some routes presented in the following chapters resemble their namesake in the existing CT***transit*** network, others share little in common with the current route of the same name. For reference purposes, Figure 29 shows the "donor routes" in the existing system that contributed to the design of each proposed route. The donor routes either directly share stops or route segments with their corresponding proposed route, or serve a nearby ridership market that will likely shift to the proposed routes. For further reference, the accompanying Volume II of this report, Detailed Service Recommendations, provides a full narrative arc of how each existing route spawned the proposed routes that are intended to replace it. Each chapter of this accompanying document makes the case for a specific set of recommendations by first presenting an overview of an existing route, including strengths and weaknesses, and then concluding with service recommendations that are aimed at addressing the issues and opportunities identified for each route.

FIGURE 18 | PROPOSED SYSTEM MAP

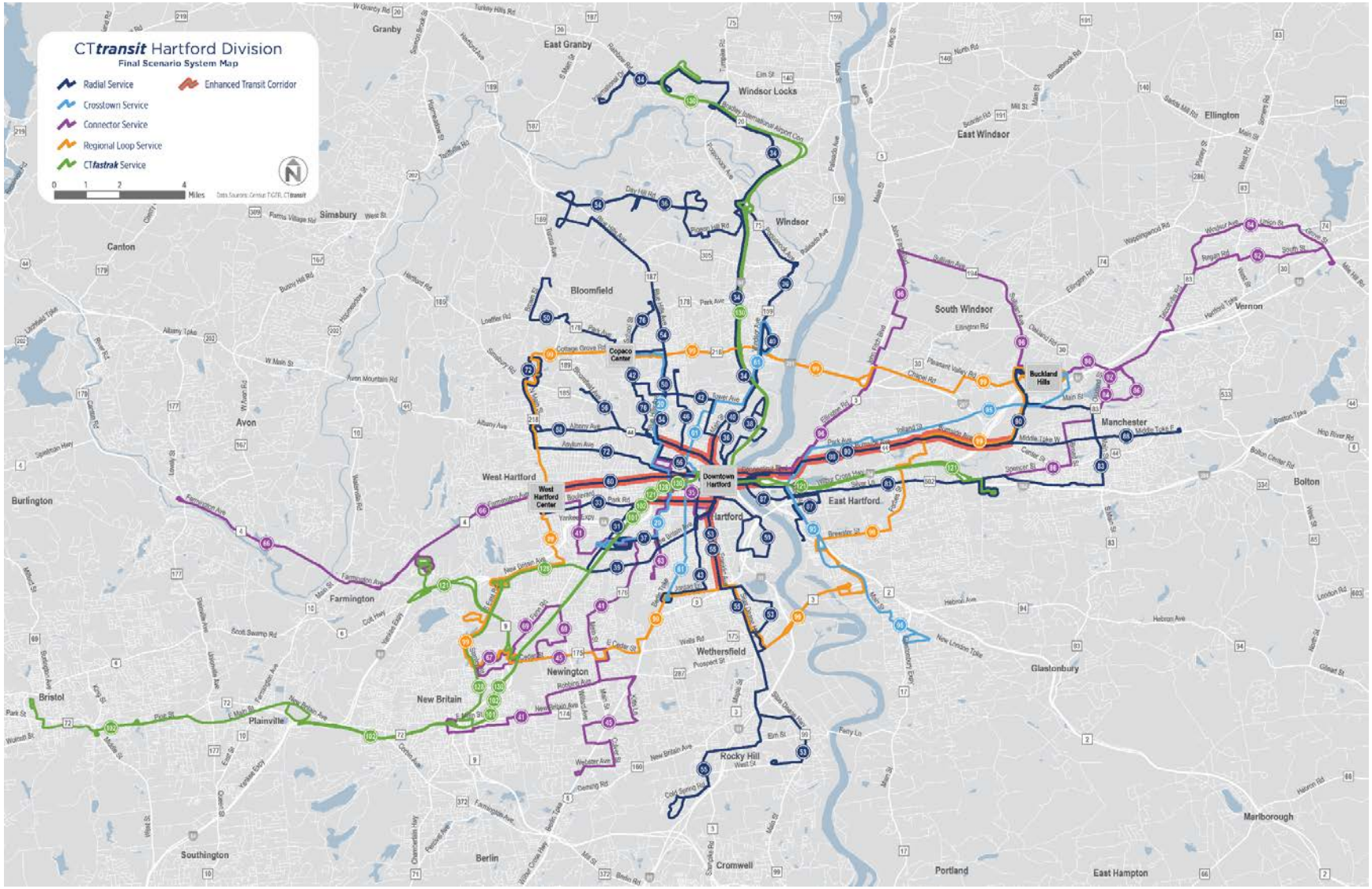


FIGURE 19 | PROPOSED CORE AREA SERVICE MAP

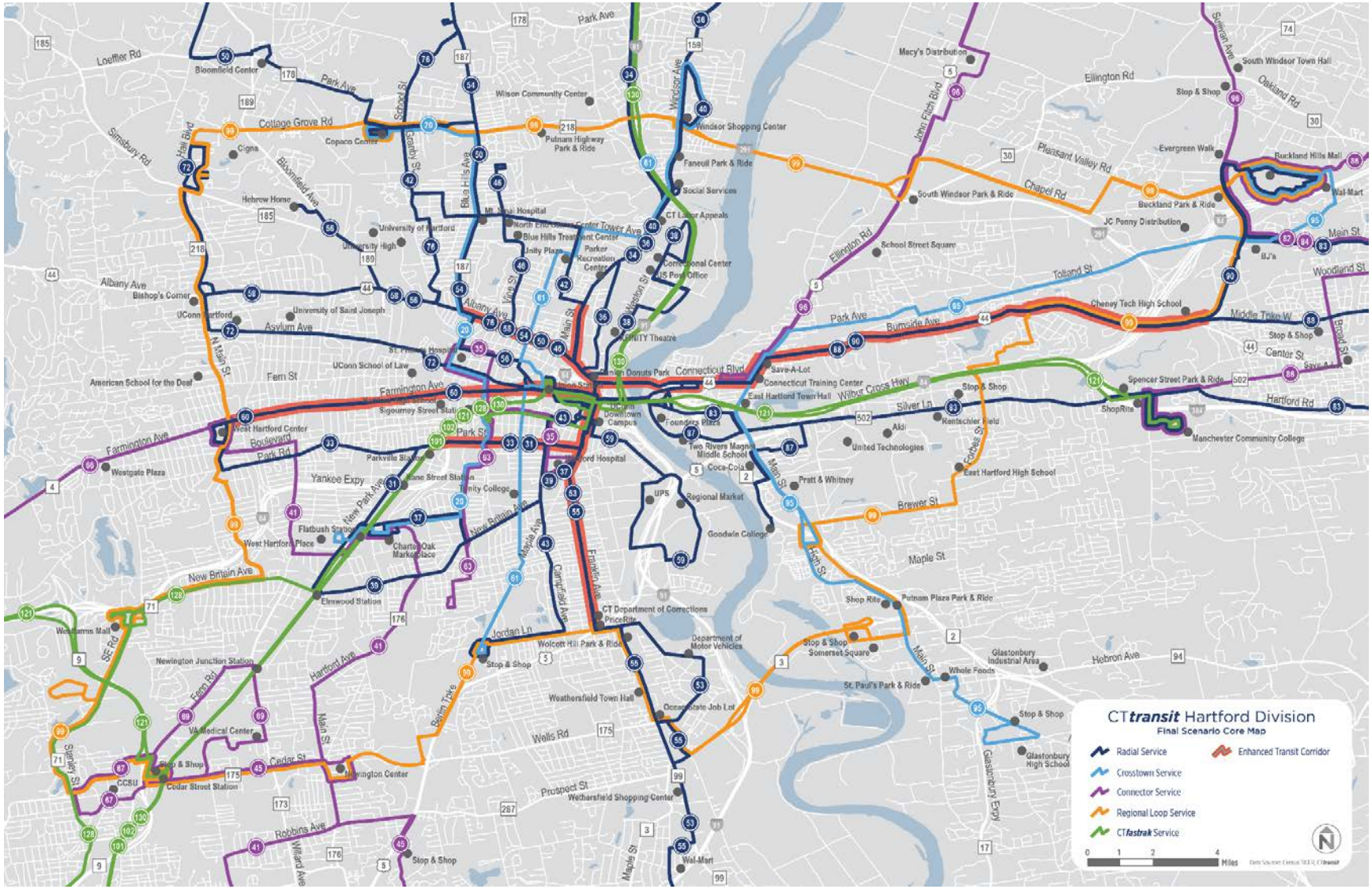


FIGURE 20 | ALBANY AVENUE ENHANCED TRANSIT CORRIDOR MAP

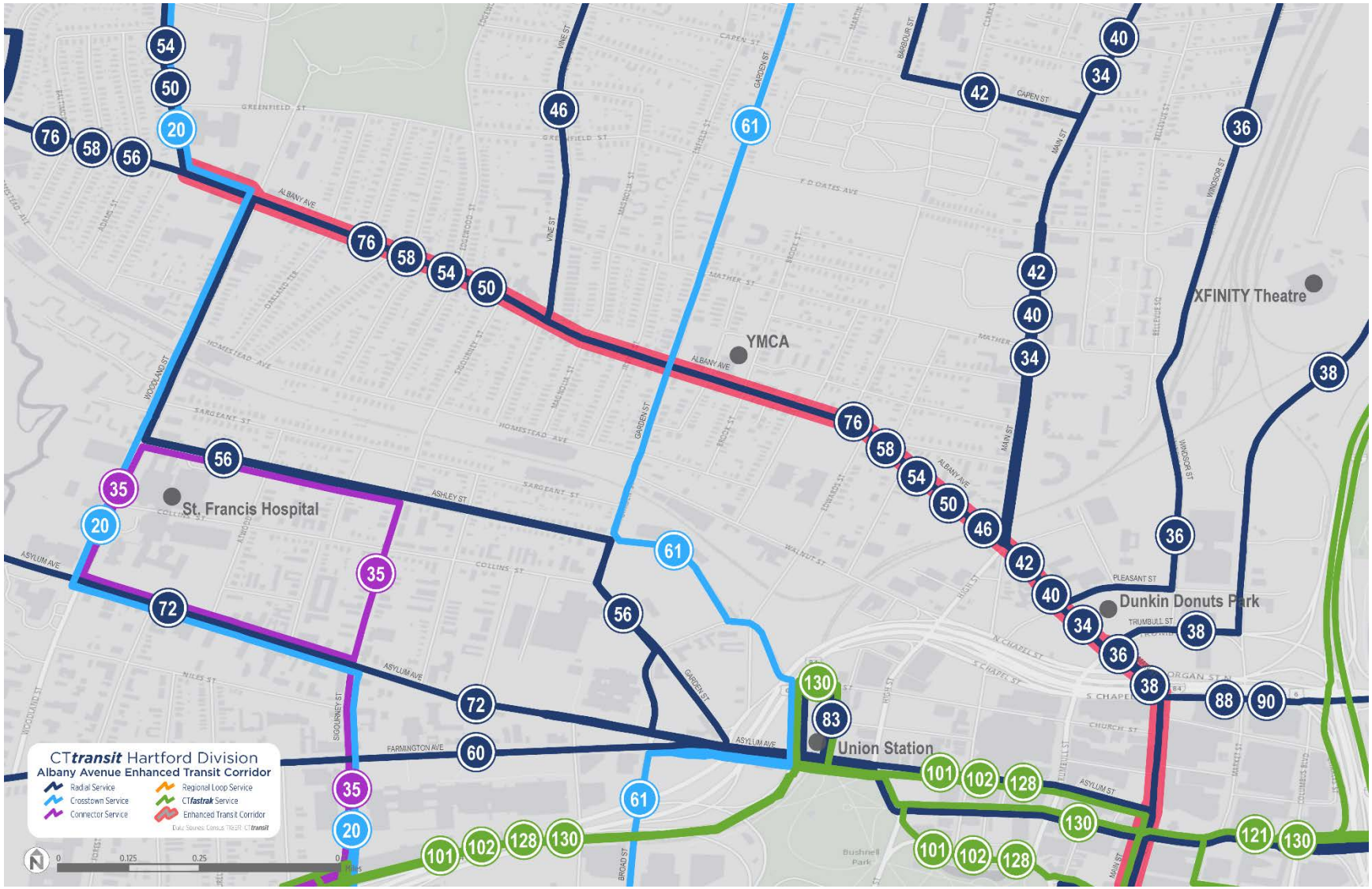


FIGURE 21 | BURNSIDE AVENUE ENHANCED TRANSIT CORRIDOR MAP

FIGURE 22 | FARMINGTON AVENUE ENHANCED TRANSIT CORRIDOR MAP

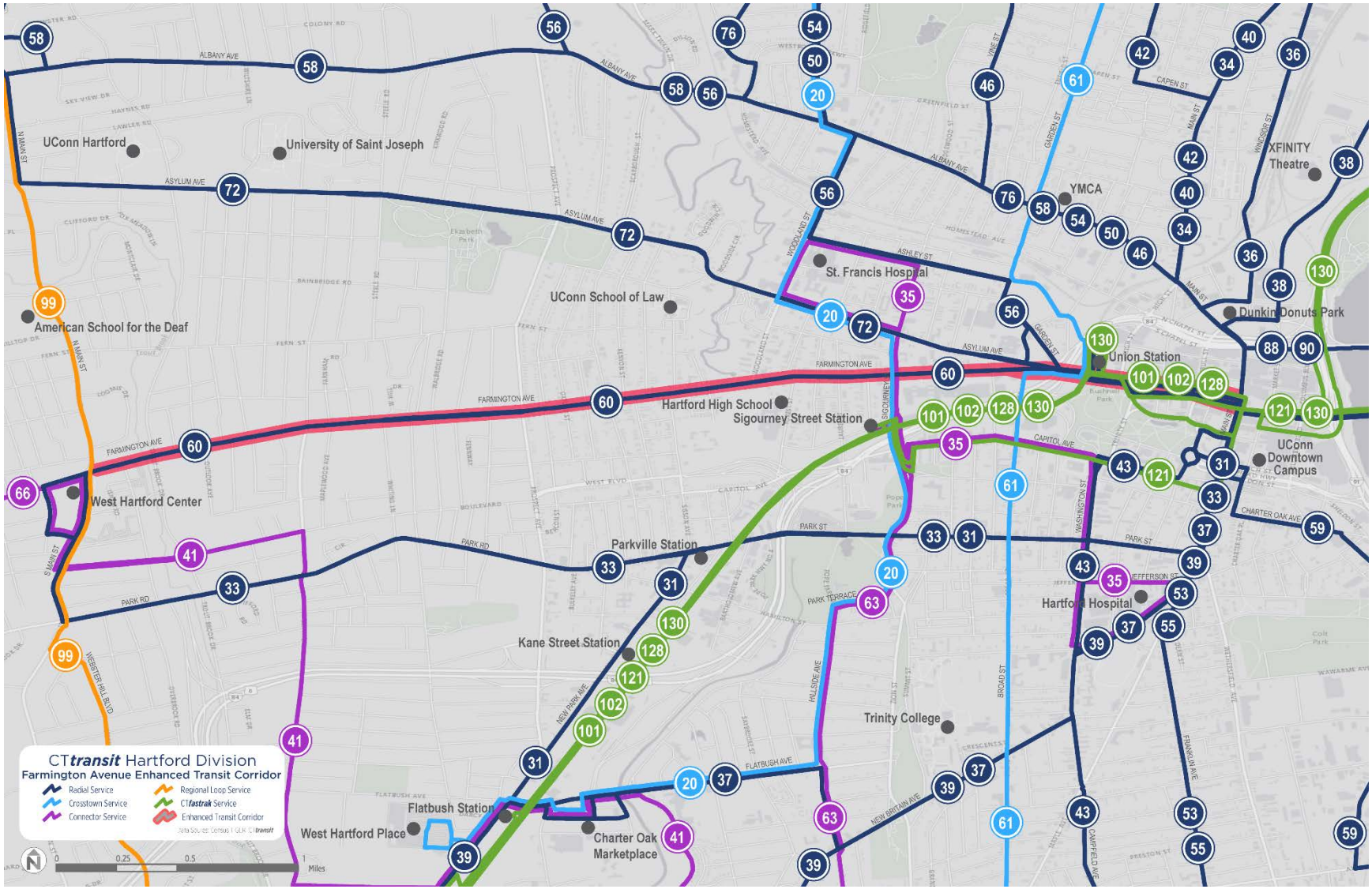


FIGURE 23 | FRANKLIN AVENUE ENHANCED TRANSIT CORRIDOR MAP

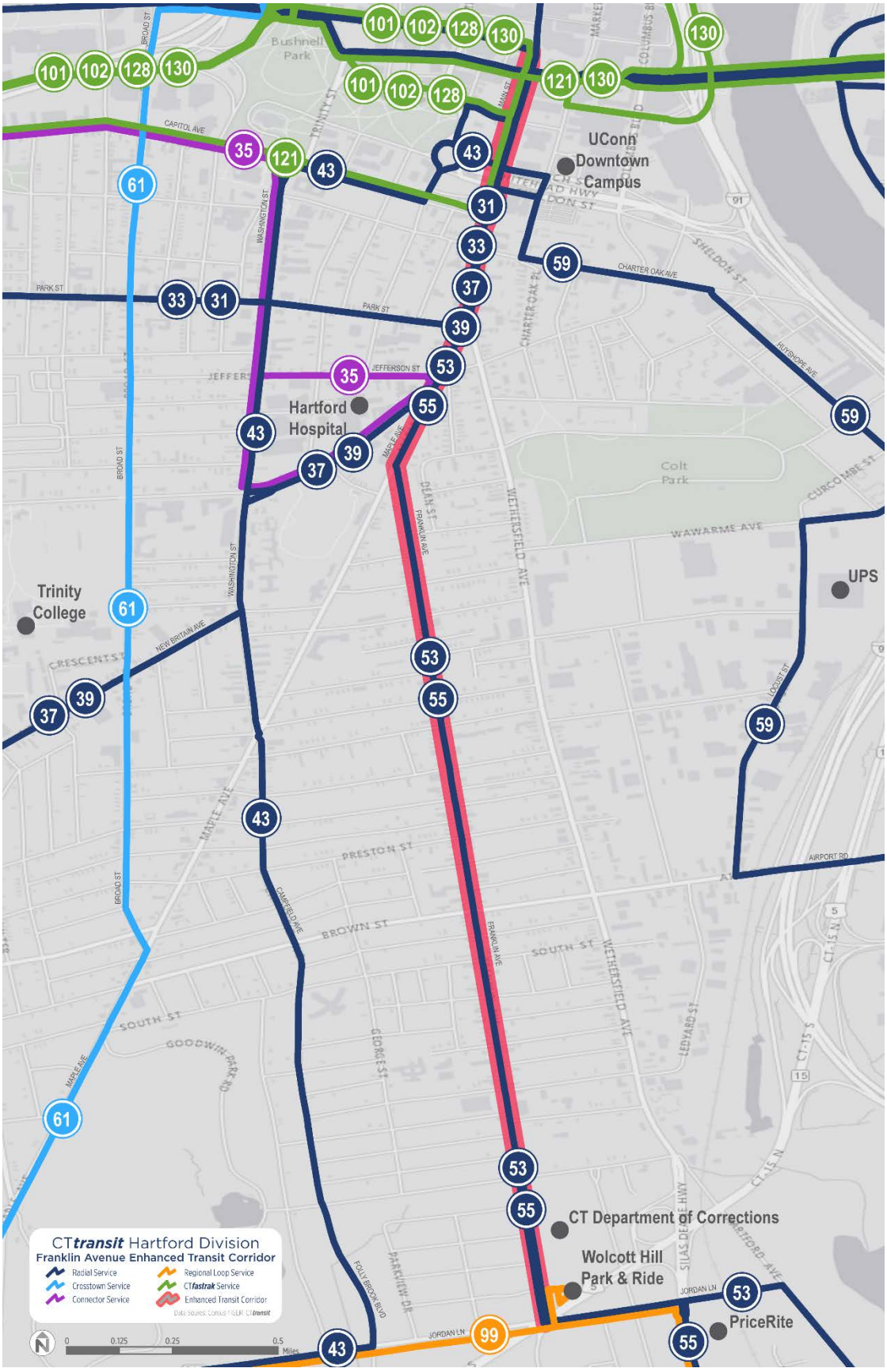


FIGURE 24 | MAIN STREET ENHANCED TRANSIT CORRIDOR MAP

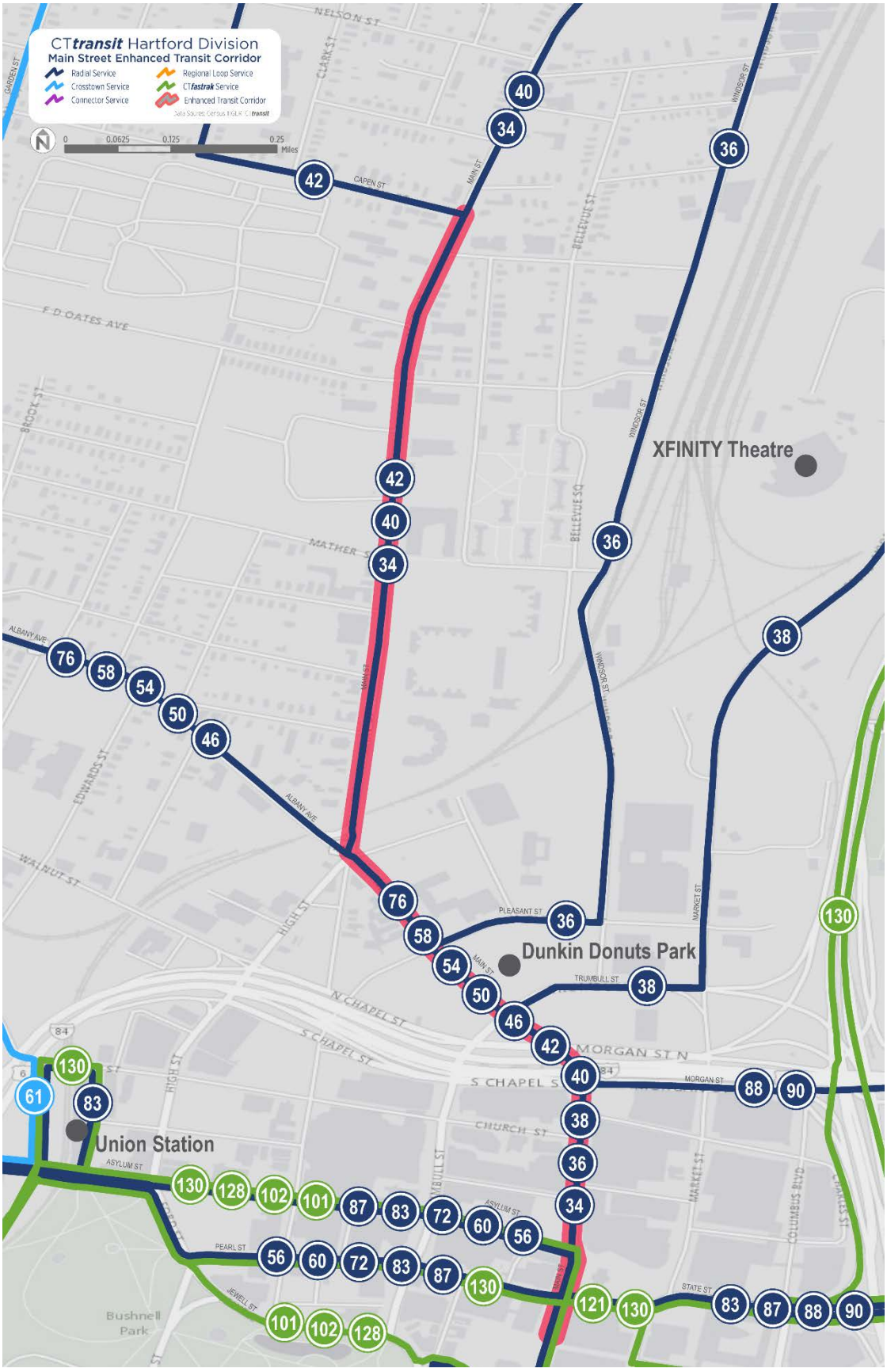


FIGURE 25 | PARK STREET ENHANCED TRANSIT CORRIDOR MAP

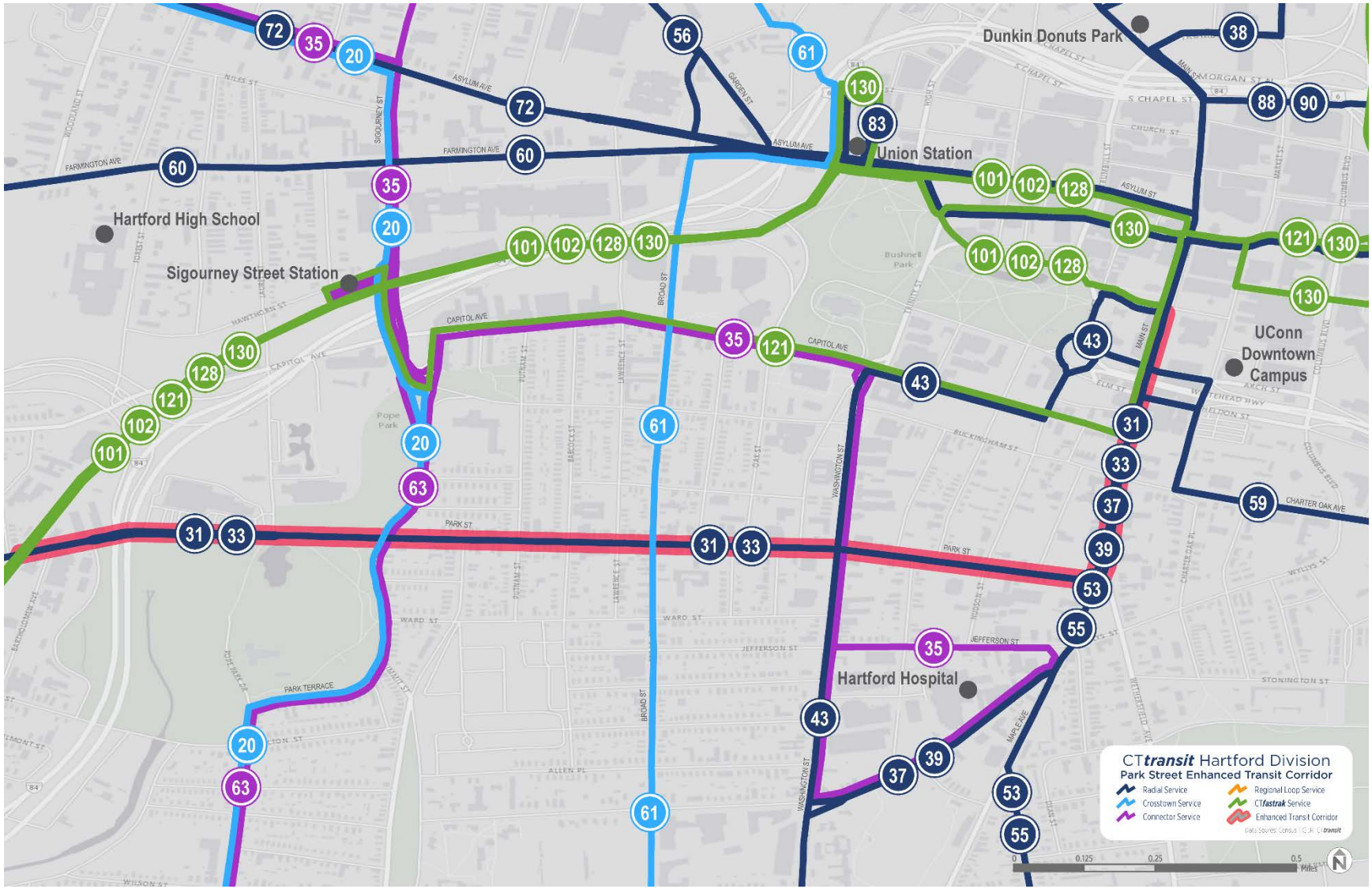


FIGURE 26 | PROPOSED BUCKLAND HILLS AREA SERVICE MAP

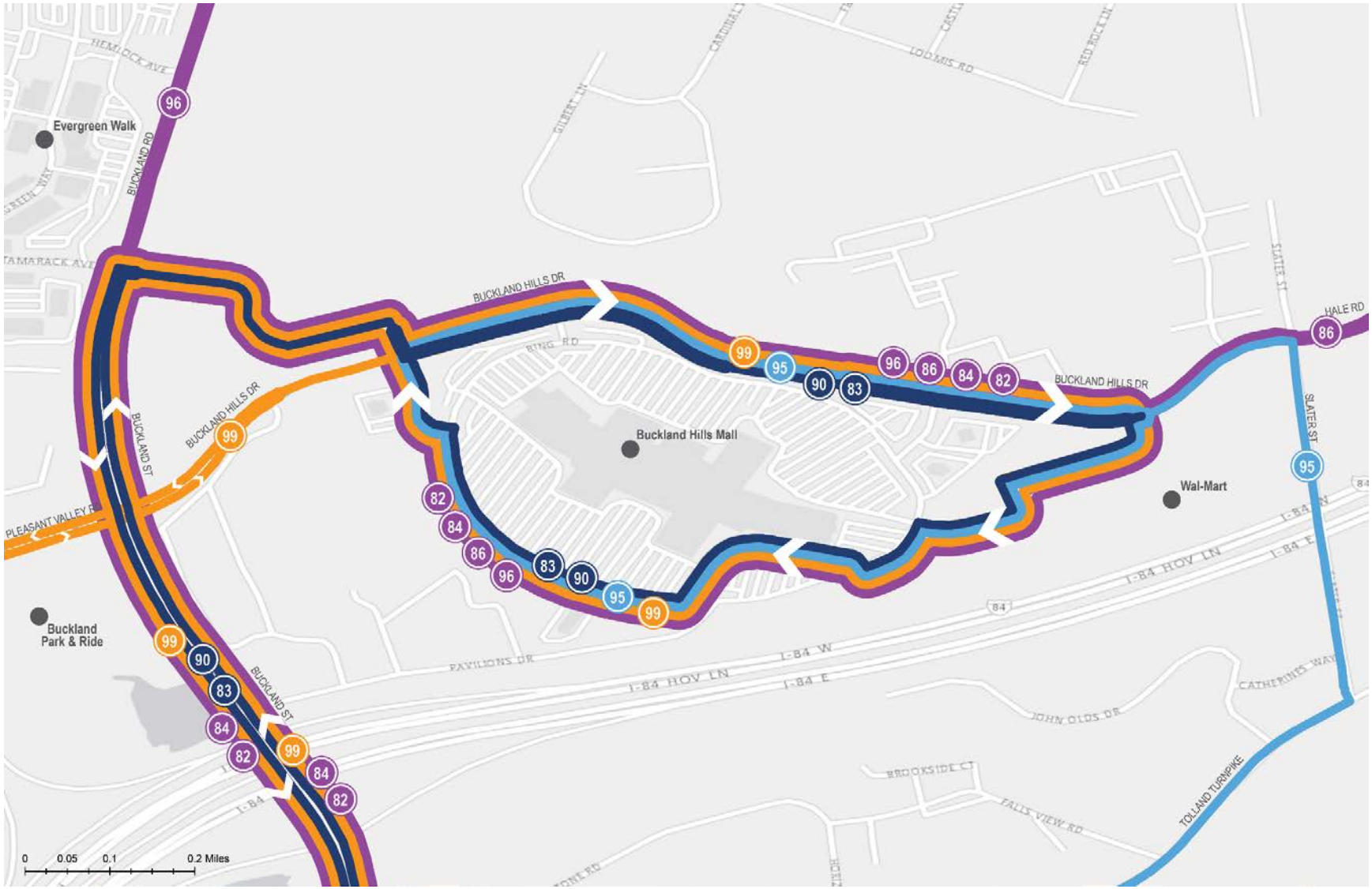


FIGURE 27 | PROPOSED COPACO AREA SERVICE MAP

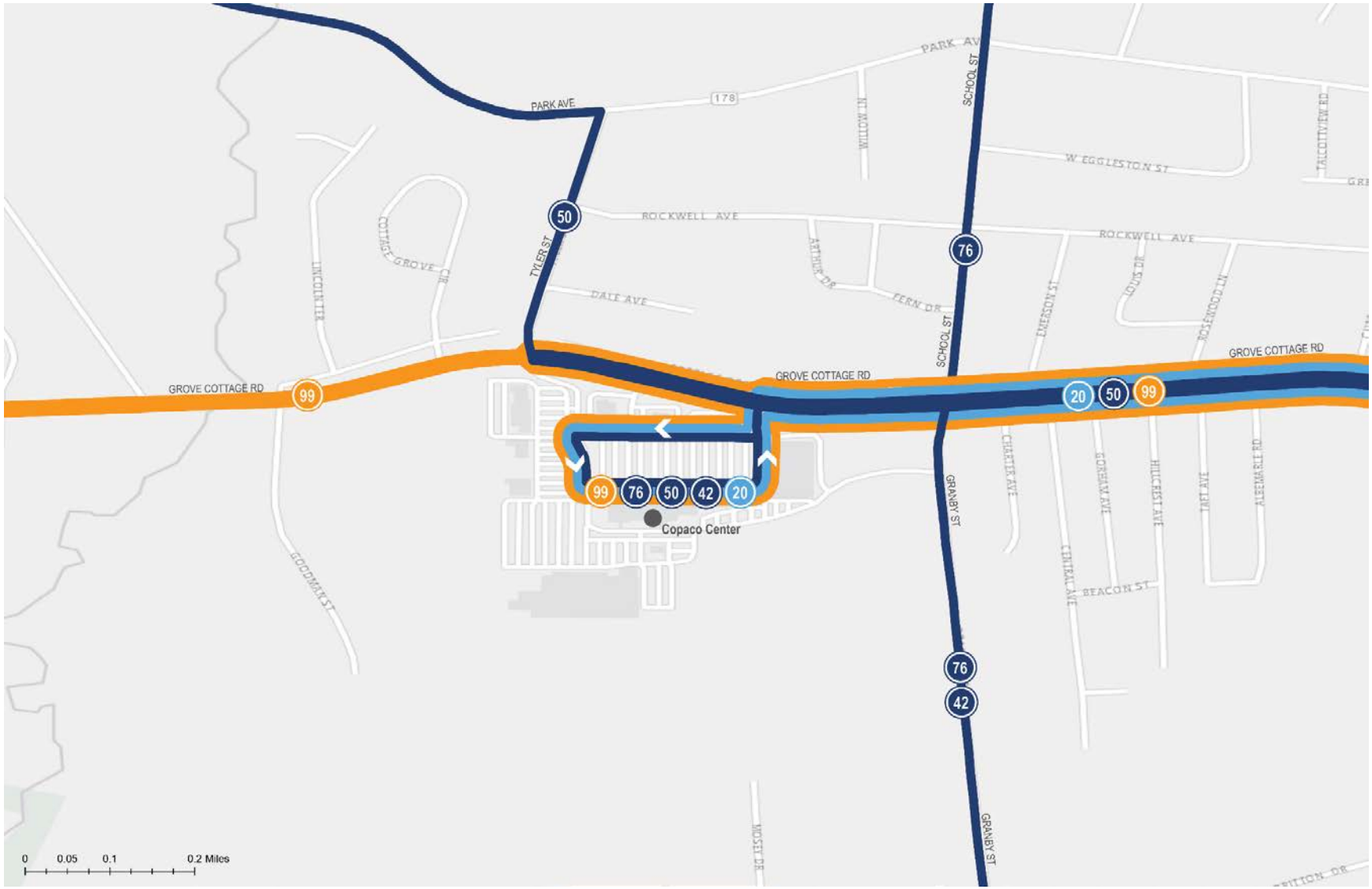


FIGURE 28 | PROPOSED WEST HARTFORD AREA SERVICE MAP

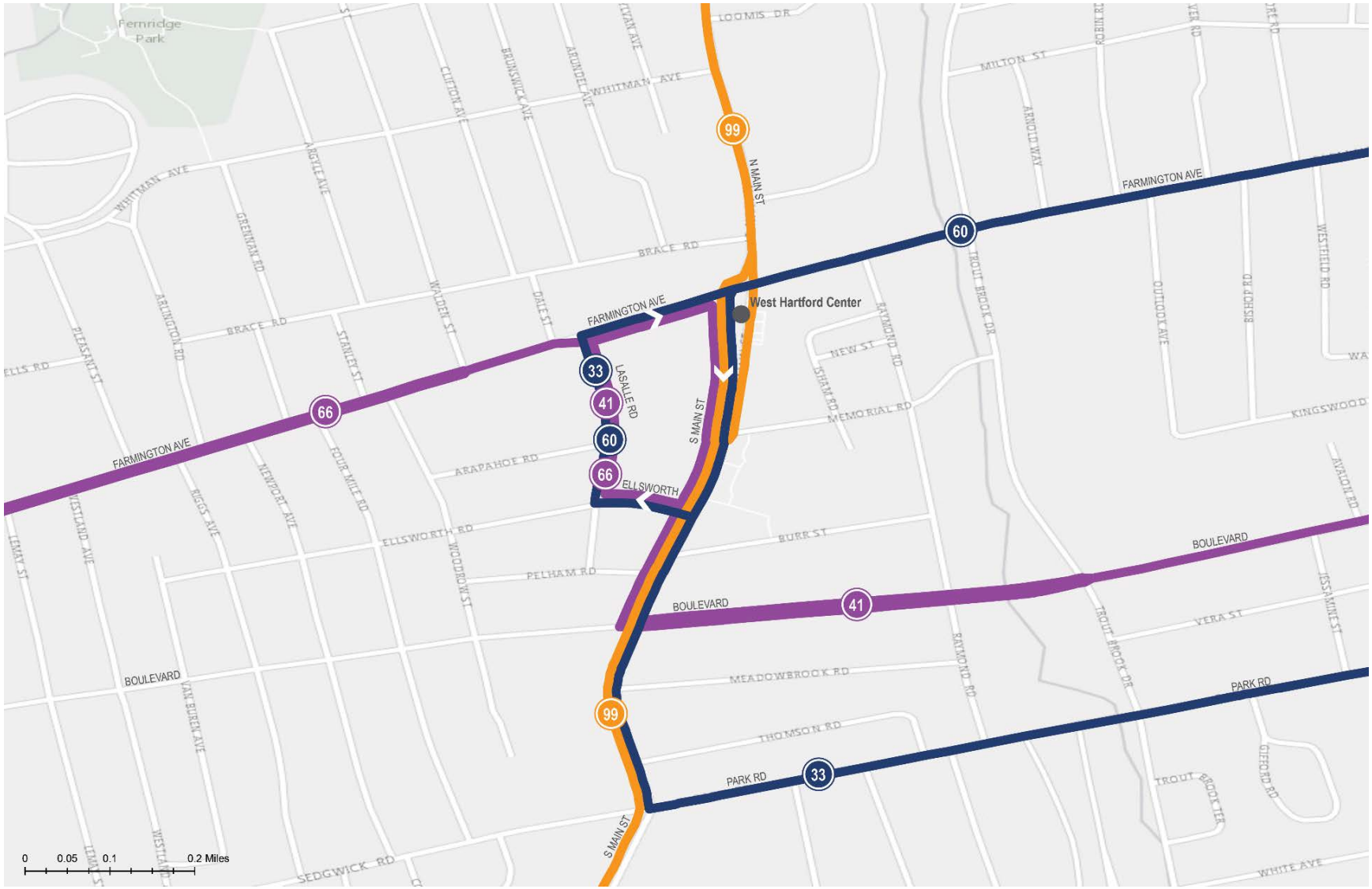


FIGURE 29 | PROPOSED ROUTES AND EXISTING DONOR ROUTES

ROUTE	DONOR ROUTES
20	37, 39, 50, 52, 54, 63, 76
31	31, 33
33	31, 33
34	30, 32,34,36
35	161
36	32, 34, 36
37	37, 39, 43, 63
38	38
39	37, 39, 43
40	32, 34, 36, 40, 42
41	41, 69, 153
42	40, 42, 44, 74, 92
43	43
45	41, 45, 47, 144
46	44, 46, 56, 58
50	44, 50,52, 54, 56, 58
53	47, 53, 55
54	44, 50, 52, 54, 56, 58
55	47, 53, 55, 91
56	56, 58, 74, 76
58	44, 56, 58
59	59
60	60, 62, 64, 66

ROUTE	DONOR ROUTES
61	40, 42
63	63
66	60, 62, 64, 66, 72
67	140
69	69, 140
72	72
76	44, 74, 76
82	82, 84
83	83
84	82, 84
86	83, 86, 88
87	83, 87
88	86, 88
90	82, 84, 86, 87, 88, 94, 96
95	94, 95, 96
96	92, 94, 96
99	43, 60, 62, 64, 66, 72, 91, 92, 144, 153
101	31, 33, 41, 69, 101
102	102
121	85, 121
128	37, 39, 128
130	30, 101

2.2 ROUTE 20

Service Design

Route 20 is a proposed new route that would provide crosstown service between Copaco Center and West Hartford Place via Blue Hills Avenue and Hillside Avenue. The route would allow passengers to travel directly between Bloomfield and West Hartford without having to make transfers or travel to downtown Hartford first. Route 20 would also provide a "bridge" between several emerging enhanced transit corridors including Albany Avenue, Farmington Avenue, and Park Street (see Figure 30). In addition, the route would serve CT***fastrak*** with on-street stops adjacent to Sigourney Street Station and Flatbush Station.

FIGURE 30 | PROPOSED ROUTE 20 ALIGNMENT

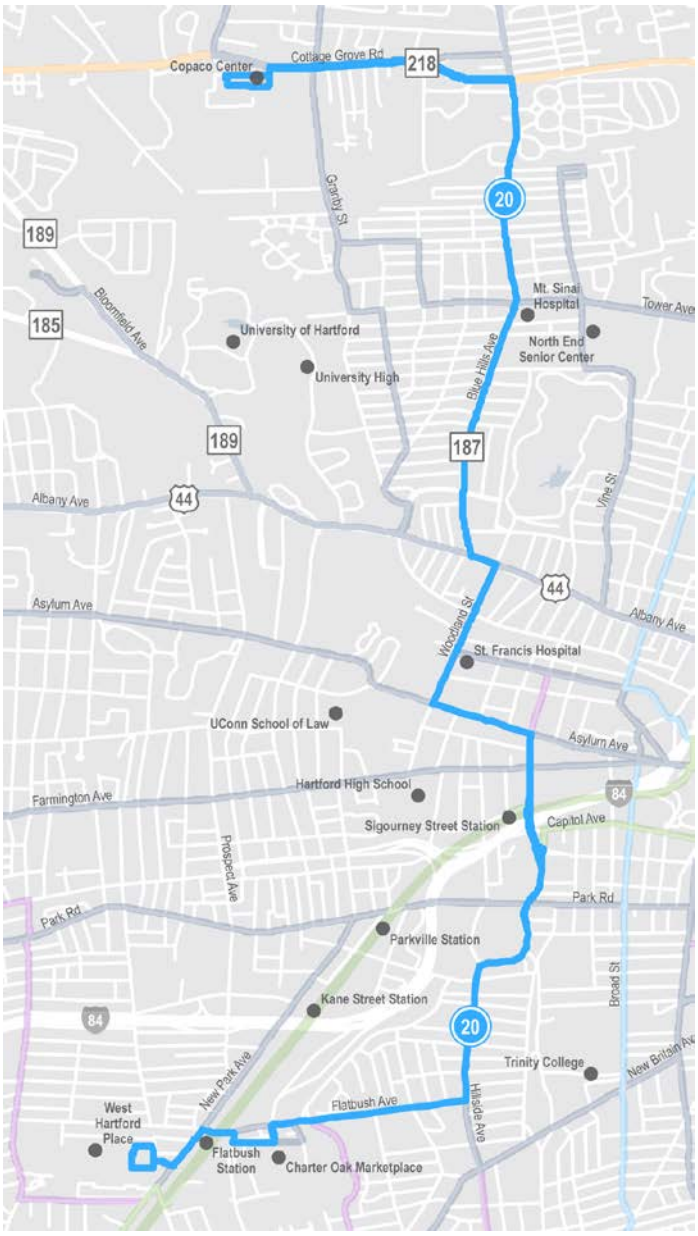
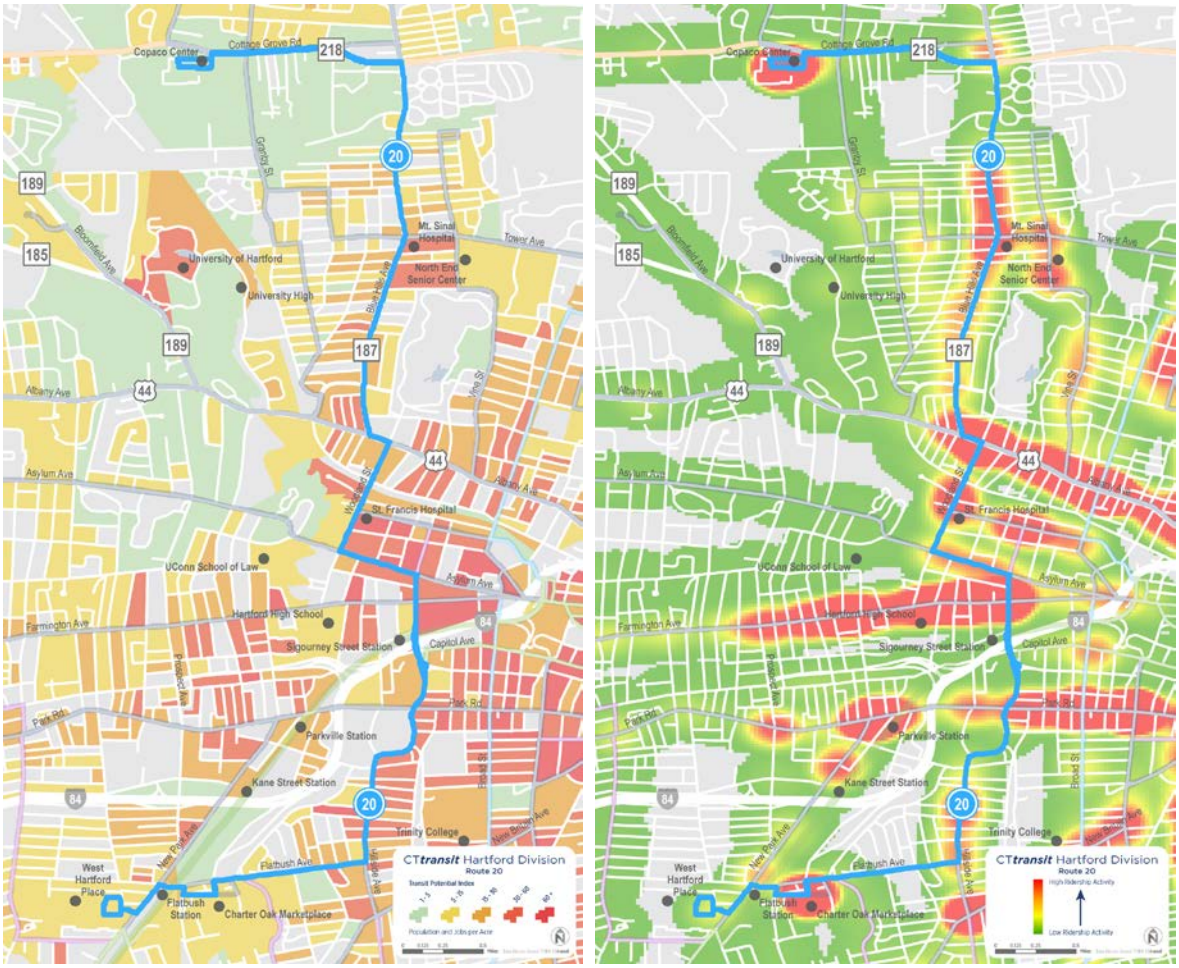


FIGURE 31 | ROUTE 20 TRANSIT POTENTIAL INDEX AND RIDERSHIP ACTIVITY MAP



Service Characteristics

The proposed Route 20 would operate every half hour throughout the service day to provide convenient and predictable connections between key corridors and key destinations (see Figure 32).

FIGURE 32 | PROPOSED ROUTE 20 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	5:00 AM – 10:00 PM	
Early	5:00 AM – 6:00 AM	30
AM Peak	6:00 AM – 9:00 AM	30
Midday	9:00 AM – 3:00 PM	30
PM Peak	3:00 PM – 6:00 PM	30
Evening	6:00 PM – 9:00 PM	30
Night	9:00 PM – 10:00 PM	30
Owl	–	–
Saturday	No Service	
Sunday	No Service	

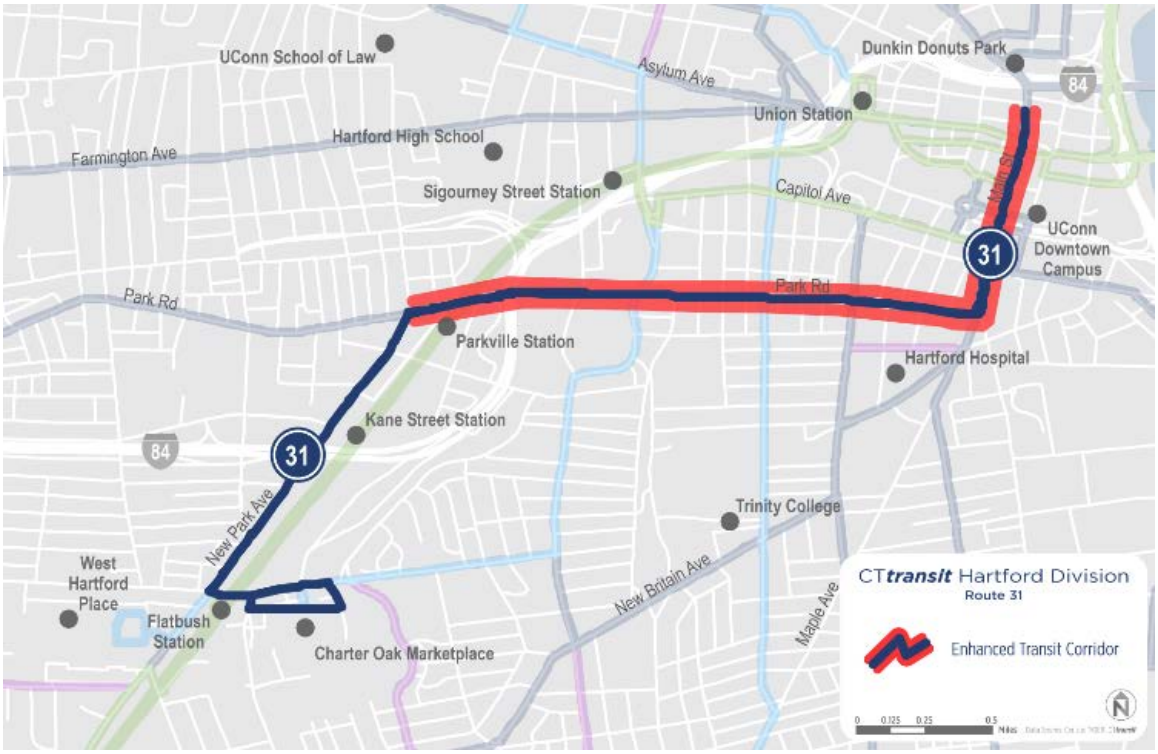
KEY DESTINATIONS
▪ Copaco Center
▪ Blue Hills Library
▪ Mt. Sinai Hospital
▪ St. Francis Hospital
▪ Sigourney Street Station
▪ Charter Oak Marketplace
▪ Flatbush Station
▪ West Hartford Place

2.3 ROUTE 31

Service Design

The proposed Route 31 would operate as a radial route between downtown Hartford and Charter Oak Marketplace, via Park Street and New Park Avenue. The route would serve several CT***fastrak*** stations from on-street stops adjacent to each station.

FIGURE 33 | PROPOSED ROUTE 31 ALIGNMENT

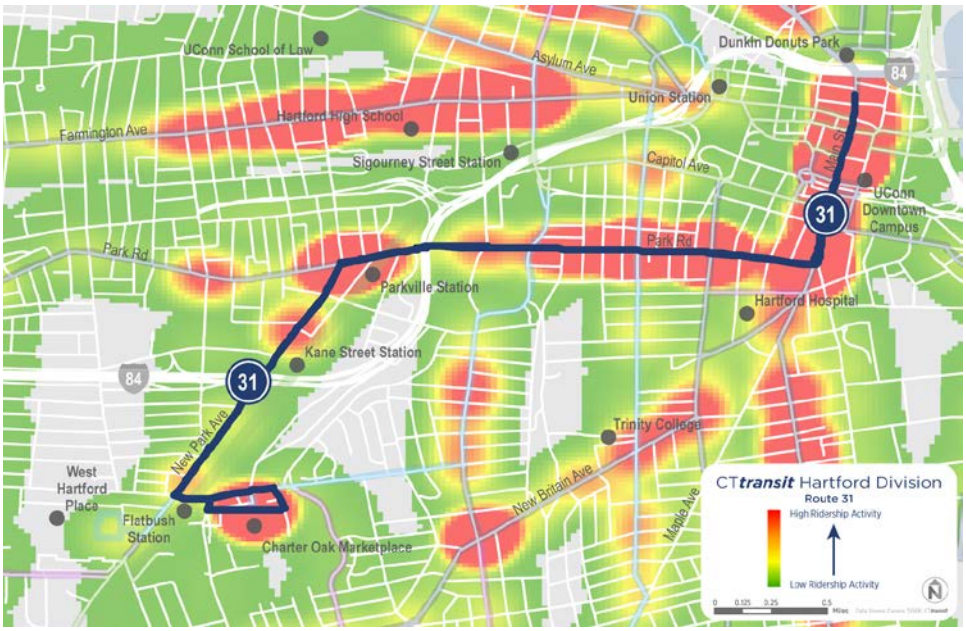


Together with Route 33, Route 31 would help establish an enhanced transit corridor along Park Street, where the two routes overlap. With both routes operating every 20 minutes during peak periods, an effective average frequency of a bus every 10 minutes can be provided along Park Street, between Main Street and New Park Avenue. Over the long-term, establishing an enhanced transit corridor provides a focus for future capital investments such as enhanced passenger amenities and transit-priority treatments.

The proposed Route 31 would serve a highly transit-supportive environment with high population and employment density and good pedestrian infrastructure (see Figure 34). To simplify the service, part-time variants such as the Kane Street alignment would be eliminated and service would be concentrated where ridership is highest (see Figure 35). This includes ending all trips at Charter Oak Marketplace instead of West Hartford Place. Connections to West Hartford Place could be made via the proposed Route 20 at Charter Oak Marketplace.

FIGURE 34| TRANSIT POTENTIAL ALONG PROPOSED ROUTE 31 ALIGNMENT

FIGURE 35| EXISTING TRANSIT RIDERSHIP ALONG PROPOSED ROUTE 31 ALIGNMENT



Service Characteristics

Route 31 could be interlined with proposed Route 33 in order to create a 2-hour cycle time and optimize layover time for both routes. Buses operating along the two routes would alternate between Route 31 service and Route 33 service every other trip. Drivers would change headsigns on Main Street near State House Square.

FIGURE 36 | PROPOSED ROUTE 31 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	5:00 AM – 11:00 PM	
Early	5:00 AM – 6:00 AM	30
AM Peak	6:00 AM – 9:00 AM	20
Midday	9:00 AM – 3:00 PM	30
PM Peak	3:00 PM – 6:00 PM	20
Evening	6:00 PM – 9:00 PM	30
Night	9:00 PM – 11:00 PM	60
Owl	–	–
Saturday	6:00 AM – 9:00 PM	
Daytime	6:00 AM – 6:00 PM	30
Evening	6:00 PM – 9:00 PM	60
Sunday	7:00 AM – 8:00 PM	60

KEY DESTINATIONS
▪ Downtown Hartford
▪ Hartford Hospital
▪ Parkville Station
▪ Super Stop & Shop
▪ Kane Street Station
▪ Flatbush Station
▪ Charter Oak Marketplace

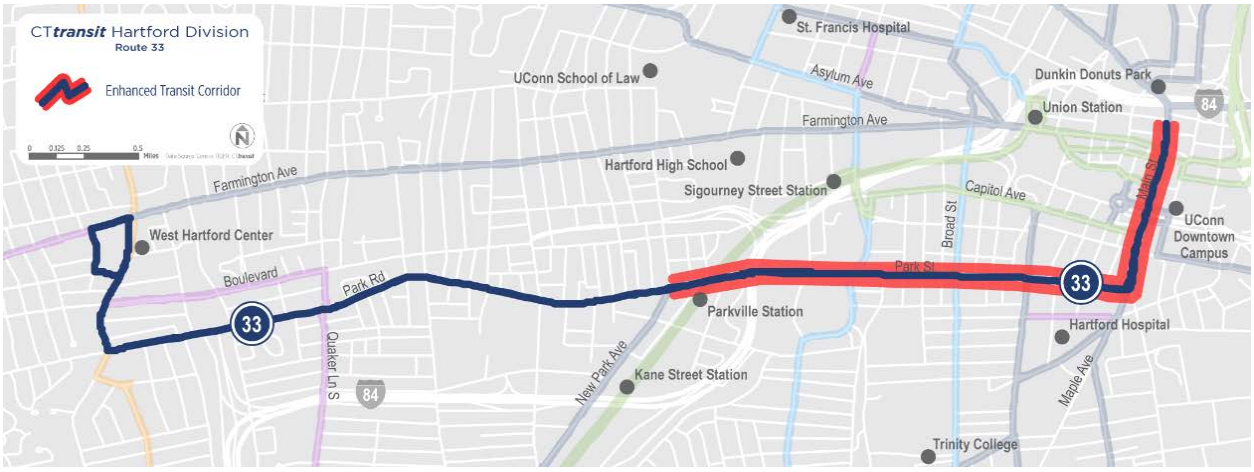
2.4 ROUTE 33

Service Design

The proposed Route 33 would operate as a radial route between downtown Hartford and West Hartford Center, via Park Street and Park Road. The route would serve the Parkville CT***fastrak*** station from an on-street stop adjacent to the station.

Together with Route 31, Route 33 would help establish an enhanced transit corridor along Park Street, where the two routes overlap. With both routes operating every 20 minutes during peak periods, an effective average frequency of a bus every 10 minutes during the peak would be provided along Park Street, between Main Street and New Park Avenue. Over the long-term, enhanced passenger amenities and transit-priority treatments could be added to the corridor.

FIGURE 37 | PROPOSED ROUTE 33 ALIGNMENT



With the introduction of Route 128 service to Westfarms Mall, Route 33 could be realigned to serve West Hartford Center instead. This would provide a strong outer anchor for the route, while also reducing the route's exposure to areas of low ridership and low transit potential (see Figure 38 and Figure 39).

FIGURE 38| TRANSIT POTENTIAL ALONG PROPOSED ROUTE 33 ALIGNMENT

FIGURE 39 | | EXISTING TRANSIT RIDERSHIP ALONG PROPOSED ROUTE 33 ALIGNMENT

Service Characteristics

Route 31 could be interlined with proposed Route 33 in order to create a 2-hour cycle time and optimize layover time for both routes. Buses operating along the two routes would alternate between Route 31 service and Route 33 service every other trip. Drivers would change headsigns on Main Street near State House Square.

FIGURE 40 | PROPOSED ROUTE 33 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	5:00 AM – 11:00 PM	
Early	5:00 AM – 6:00 AM	30
AM Peak	6:00 AM – 9:00 AM	20
Midday	9:00 AM – 3:00 PM	30
PM Peak	3:00 PM – 6:00 PM	20
Evening	6:00 PM – 9:00 PM	30
Night	9:00 PM – 11:00 PM	60
Owl	–	–
Saturday	6:00 AM – 9:00 PM	
Daytime	6:00 AM – 6:00 PM	30
Evening	6:00 PM – 9:00 PM	60
Sunday	7:00 AM – 8:00 PM	60

KEY DESTINATIONS
▪ Downtown Hartford
▪ Hartford Hospital
▪ Parkville Station
▪ West Hartford Center

2.5 ROUTE 34

Service Design

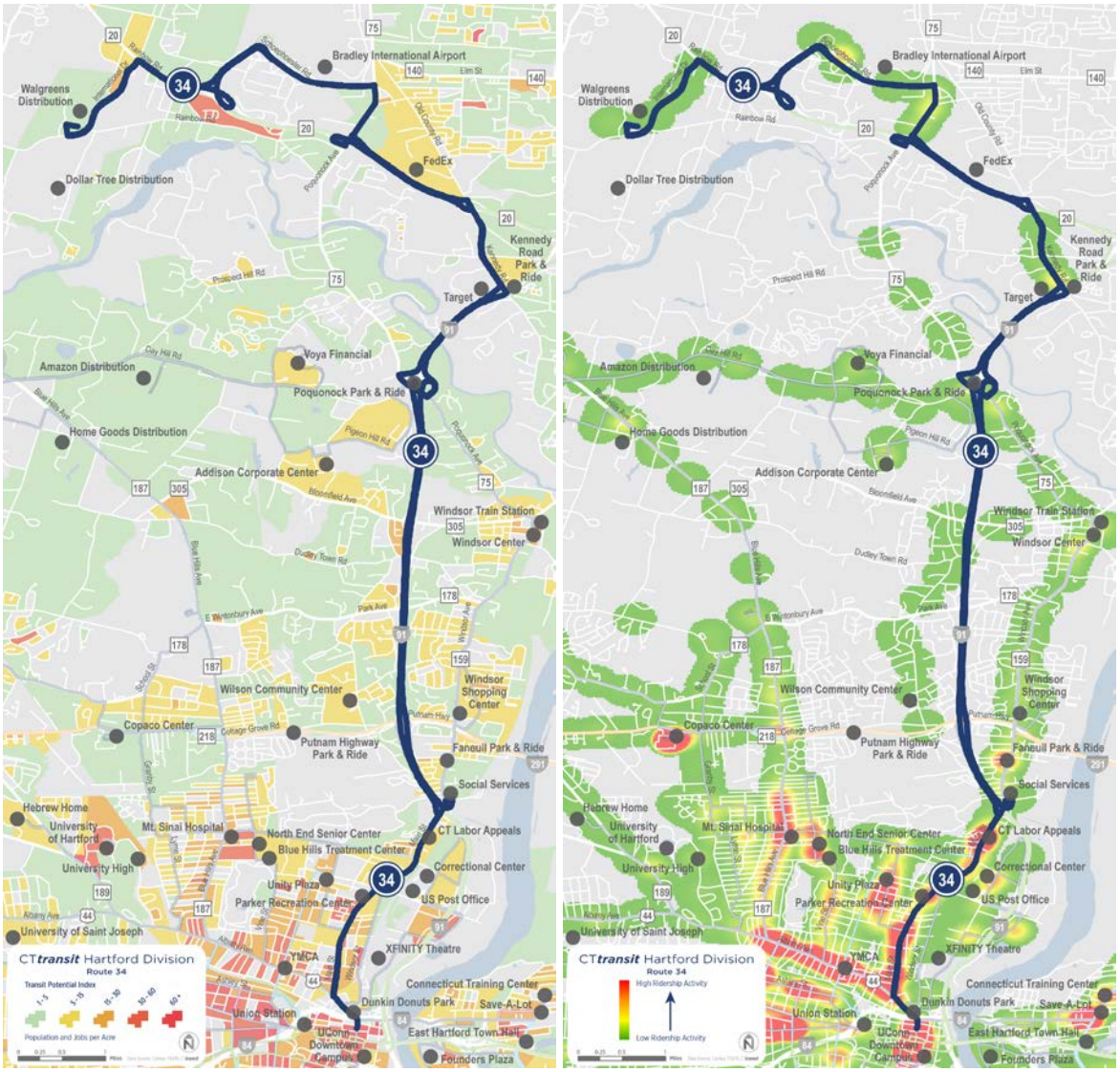
The proposed Route 34 would operate as a radial route between downtown Hartford and International Drive in Windsor via North Main Street, I-91, Kennedy Road and Bradley Airport (see Figure 41).

The route would offer local connections between downtown, the North End, and high concentrations of employment along Kennedy Road, Ella Grasso Turnpike and Rainbow Road in Windsor and Windsor Locks, as well as at Bradley Airport (Figure 42). By using Route 34 to serve these local destinations in the Airport area, the Route 130/Bradley Flyer can become a faster, limited stop, "airport-focused" service.

By using I-91 for a portion of the route (instead of traveling through Windsor Center), Route 34 would provide faster service to the employment areas near the Airport, and an extended service span would help support second shift and weekend workers in this area. The route would also stop at the Poquonock Park-and-Ride Lot, providing connections to Day Hill Road.

FIGURE 41 | PROPOSED ROUTE 34 ALIGNMENT

FIGURE 42 | ROUTE 34 TRANSIT POTENTIAL INDEX AND RIDERSHIP ACTIVITY MAPS



Service Characteristics

Route 34 would operate at 60-minute frequency all day, offering additional local connections from downtown Hartford and the North End to the Airport and other employment activities in that area (Figure 43). Service span would be extended and would include weekends, to better serve shift workers at the Airport, as well as along Kennedy Road, Rainbow Road and International Drive.

FIGURE 43 | PROPOSED ROUTE 34 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	5:00 AM – 11:00 PM	
Early	5:00 AM – 6:00 AM	60
AM Peak	6:00 AM – 9:00 AM	60
Midday	9:00 AM – 3:00 PM	60
PM Peak	3:00 PM – 6:00 PM	60
Evening	6:00 PM – 9:00 PM	60
Night	9:00 PM – 11:00 PM	60
Owl	–	–
Saturday	6:00 AM – 9:00 PM	60
Sunday	7:00 AM – 8:00 PM	60

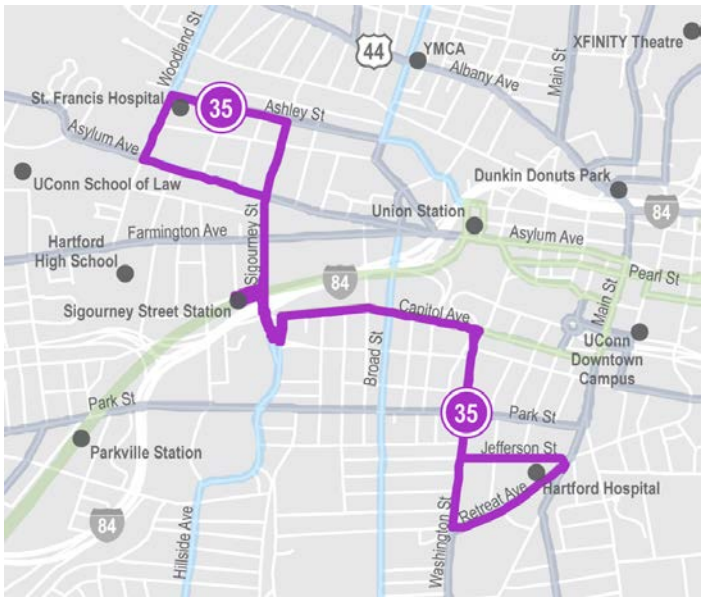
KEY DESTINATIONS
▪ Downtown Hartford ▪ Poquonock Park-and-Ride Lot ▪ FedEx, Kennedy Road ▪ Bradley Airport ▪ Dollar Tree & Walgreens distribution centers

2.6 ROUTE 35

Service Design

The introduction of CT***fastrak*** service included a new route, called Route 161, linking Hartford Hospital and St. Francis Hospital. Route 161 connects to Route 37 on Jefferson Street. The proposed Route 35 is a Connector route following the same alignment as Route 161, linking the two hospitals to each other and to the Sigourney Street CT***fastrak*** station. The proposed route has been rebranded as a Connector route to more accurately describe its role in the regional transit network. Unlike other CT***fastrak*** routes, the current Route 161 does not enter the CT***fastrak*** guideway. The proposed Connector category of service refers to routes, like the proposed Route 35, that provide feeder service to key transit hubs, but do not directly serve downtown Hartford.

FIGURE 44 | PROPOSED ROUTE 35 ALIGNMENT



Like the current Route 161, Route 35 would serve a very transit supportive environment with high density, good pedestrian connections, and very strong existing ridership (see Figure 45). The proposed route is well positioned for continued growth as it would not only link two major hospitals to CT***fastrak*** service, it would also connect together several proposed enhanced transit corridors, including Farmington Avenue, Park Street, Franklin Avenue.

FIGURE 45| TRANSIT POTENTIAL AND EXISTING TRANSIT RIDERSHIP ALONG PROPOSED ROUTE 35 ALIGNMENT

Service Characteristics

Route 35, would provide 15-minute service frequency for much of the service day, with lower frequency in the early morning and after the PM peak (see Figure 46).

FIGURE 46| PROPOSED ROUTE 35 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE
Weekdays	5:00 AM – 11:00 PM
Early	5:00 AM – 6:00 AM
AM Peak	6:00 AM – 9:00 AM
Midday	9:00 AM – 3:00 PM
PM Peak	3:00 PM – 6:00 PM
Evening	6:00 PM – 9:00 PM
Night	9:00 PM – 11:00 PM
Owl	–
Saturday	6:00 AM – 9:00 PM
Sunday	7:00 AM – 8:00 PM

2.7 ROUTE 36

Service Design

Route 36 would also operate as a radial route, and would be the primary route connecting downtown Hartford with Windsor Center, the Windsor Train Station and Day Hill Road. It would operate via Windsor Avenue, continuing north beyond Windsor Center to make connections with other services at the Poquonock Park-and-Ride and to serve Day Hill Road (see Figure 47).

The route would follow a direct and consistent alignment, staying on Windsor Avenue between downtown Hartford and Windsor Center. Deerfield Road would be served by an extension of Route 40 and Weston Street would be served by Route 38.

Service frequency would be reduced somewhat due to the shifting of Route 34 to I-91 and the introduction of commuter rail service to Windsor. Peak frequency of 30 minutes and off-peak service of 60 minutes would be maintained to serve the mix of residential and employment uses in this corridor (see Figure 48).

FIGURE 47 | PROPOSED ROUTE 36 ALIGNMENT

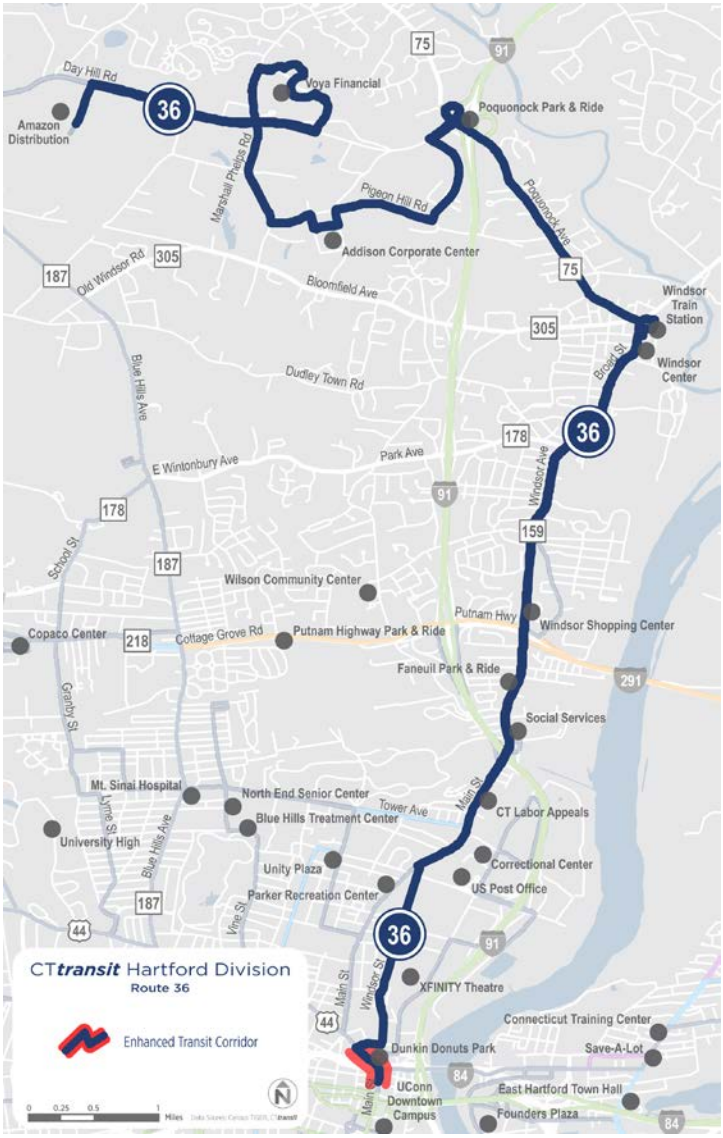
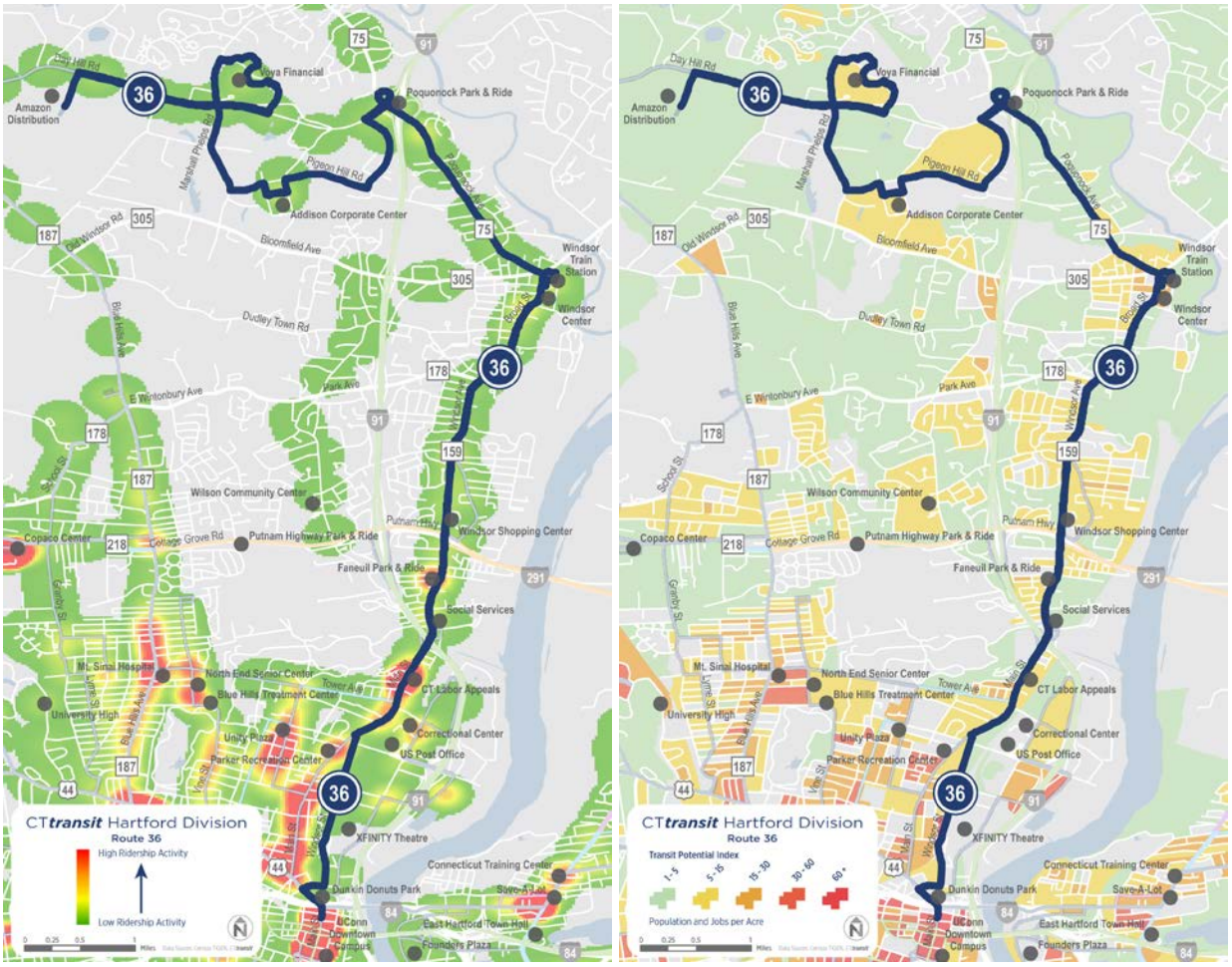


FIGURE 48 | ROUTE 36 TRANSIT POTENTIAL INDEX AND RIDERSHIP ACTIVITY MAPS



Service Characteristics

Currently, Route 36 is interlined with Route 54, and it is proposed that these routes continue to be paired. This would create a 5-hour cycle time and optimize layover time for both routes. Route 36 would operate outbound to the Amazon Distribution Facility off Day Hill Road via Windsor Center and return inbound as Route 54 via Blue Hills Avenue, changing headsigns at Amazon (and vice-versa).

The interlined routes would operate at 30-minute frequency during peak periods, and 60-minute frequency during the off-peak hours. By interlining with Route 54, more frequent service can be provided to Day Hill Road. Together, the two routes would provide 15-minute peak frequency to Day Hill Road and 30-minute service during off-peak hours. Off-peak service could be adjusted to meet or complement future train schedules at the Windsor Train Station and to meet Routes 130 and 34 at the Poquonock Park-and-Ride. Service span would be extended and would include weekends, to better serve shift workers along Day Hill Road.

FIGURE 49 | PROPOSED ROUTE 36 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	5:00 AM – 11:00 PM	
Early	5:00 AM – 6:00 AM	60
AM Peak	6:00 AM – 9:00 AM	30
Midday	9:00 AM – 3:00 PM	60
PM Peak	3:00 PM – 6:00 PM	30
Evening	6:00 PM – 9:00 PM	60
Night	9:00 PM – 11:00 PM	60
Owl	–	–
Saturday	6:00 AM – 9:00 PM	60
Sunday	7:00 AM – 8:00 PM	60

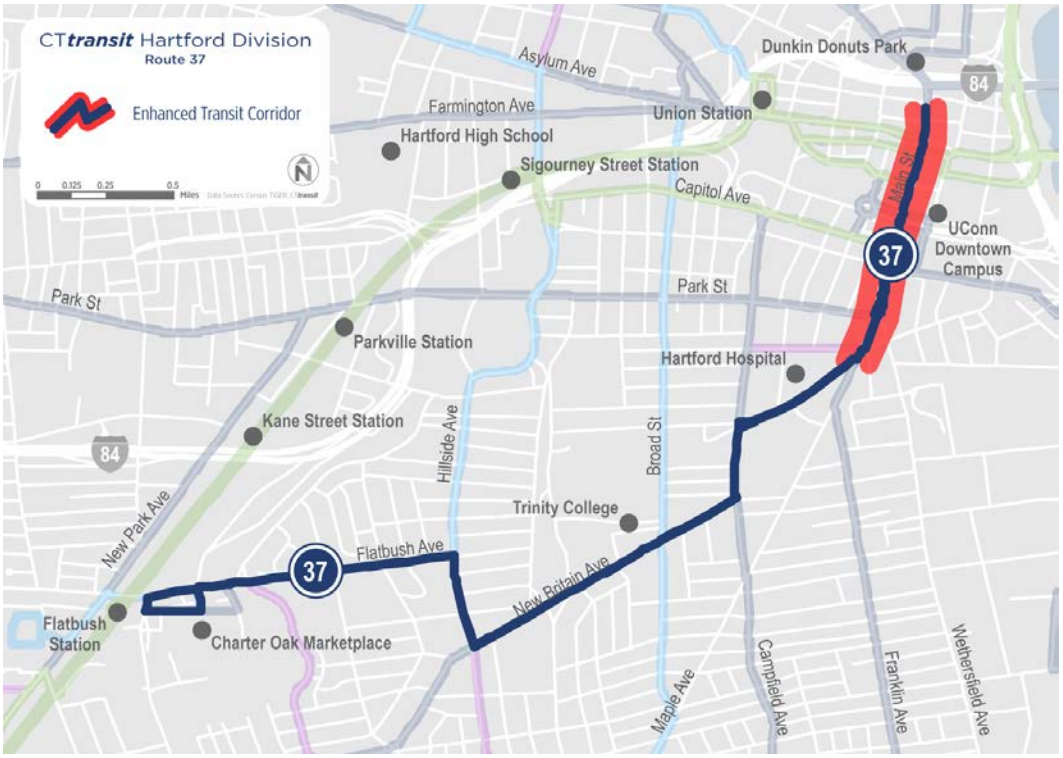
KEY DESTINATIONS
▪ Downtown North
▪ Anderson Parker Recreation Center
▪ Faneuil Street Park Ride
▪ CT Department of Social Services
▪ Windsor Shopping Center
▪ Windsor Center & Train Station
▪ Poquonock Park-and-Ride Lot
▪ Addison Corporate Center
▪ Voya Financial
▪ Amazon Distribution Center

2.8 ROUTE 37

Service Design

The proposed Route 37 would operate as a radial route between downtown Hartford and Charter Oak Marketplace via Hartford Hospital and Trinity College. The route would be interlined with proposed Route 39 to provide one-seat rides to Charter Oak Marketplace, Flatbush Station, West Hartford Place and Elmwood Station. Passengers traveling to any of these destinations would be able to stay on the same bus even as the bus transitions from Route 37 to Route 39.

FIGURE 50| PROPOSED ROUTE 37 ALIGNMENT



The proposed Route 37 would serve a highly transit-supportive environment with high population and employment density and good pedestrian infrastructure (see Figure 51). To streamline service and improve the route's ridership and productivity potential, the proposed alignment is shifted from Dart Street and Brookfield Street to Hillside Avenue and Flatbush Avenue. This alignment would provide better access to several apartment communities, still serve Al Prince Technical High School, and better align service with high ridership corridors such as Hillside Avenue (see Figure 52).

FIGURE 51 | TRANSIT POTENTIAL ALONG PROPOSED ROUTE 37 ALIGNMENT

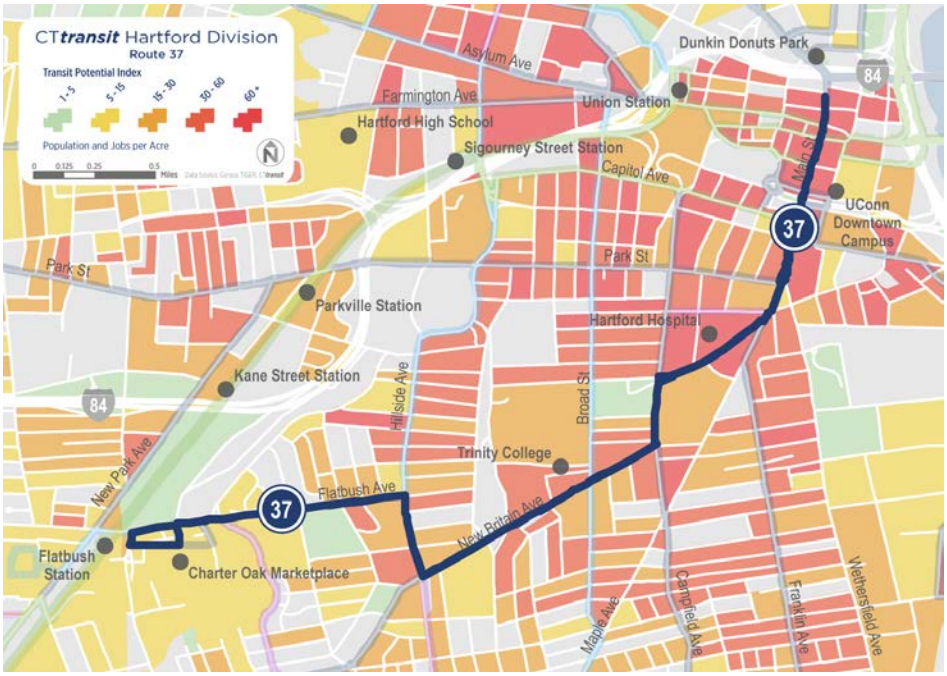


FIGURE 52 | EXISTING TRANSIT RIDERSHIP ALONG PROPOSED ROUTE 37 ALIGNMENT

Service Characteristics

Together with Route 39, Route 37 would help provide 15-minute service frequency along Retreat and New Britain Avenues, between Maple and Hillside Avenues, for most of the service day. Individually, both routes would operate every half hour from 5:00 AM to 9:00 PM (and then hourly after that until 11:00

PM). Where the routes overlap, between downtown and Hillside Avenue, the result would be an effective average frequency of a bus every 15 minutes.

Interlining Route 37 with Route 39 would create a 2-hour cycle time and optimize layover time for both routes. Buses operating along the two routes would alternate between Route 37 service and Route 39 service every other trip. Drivers would change headsigns on Main Street near State House Square, as well as at Charter Oak Marketplace.

FIGURE 53| PROPOSED ROUTE 37 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	5:00 AM – 11:00 PM	
Early	5:00 AM – 6:00 AM	30
AM Peak	6:00 AM – 9:00 AM	30
Midday	9:00 AM – 3:00 PM	30
PM Peak	3:00 PM – 6:00 PM	30
Evening	6:00 PM – 9:00 PM	30
Night	9:00 PM – 11:00 PM	60
Owl	–	–
Saturday	6:00 AM – 9:00 PM	60
Sunday	7:00 AM – 8:00 PM	60

KEY DESTINATIONS
▪ Downtown Hartford ▪ Hartford Hospital ▪ Trinity College ▪ Charter Oak Marketplace ▪ Flatbush Station ▪ West Hartford Place ▪ Elmwood Station

2.9 ROUTE 38

Service Design

The proposed Route 38 would operate as a radial route between downtown Hartford and North Meadows via Reverend Moody Overpass, Leibert Road, Jennings Road, Weston Street and West Service Road. Interlining the route with proposed Route 59 would allow for a one-seat ride between the North Meadows and Regional Market areas of Hartford (see Figure 54).

The proposed Route 38 alignment would be the same as the route's current alignment, which includes a deviation on Reverend Moody Overpass / Weston Street to serve the CT***transit*** offices and garage. This is a justified deviation, given that the garage is a major employment hub in the area and generates significant ridership (see Figure 55)

Service span would be extended on weekdays to better serve key activity centers in the area. It would also be adjusted to operate more frequently during peak periods, in part to replace Route 32A trips on Weston Street that are proposed for consolidation as part of a modified Route 36 on Windsor Avenue.

FIGURE 54 | PROPOSED ROUTE 38 ALIGNMENT

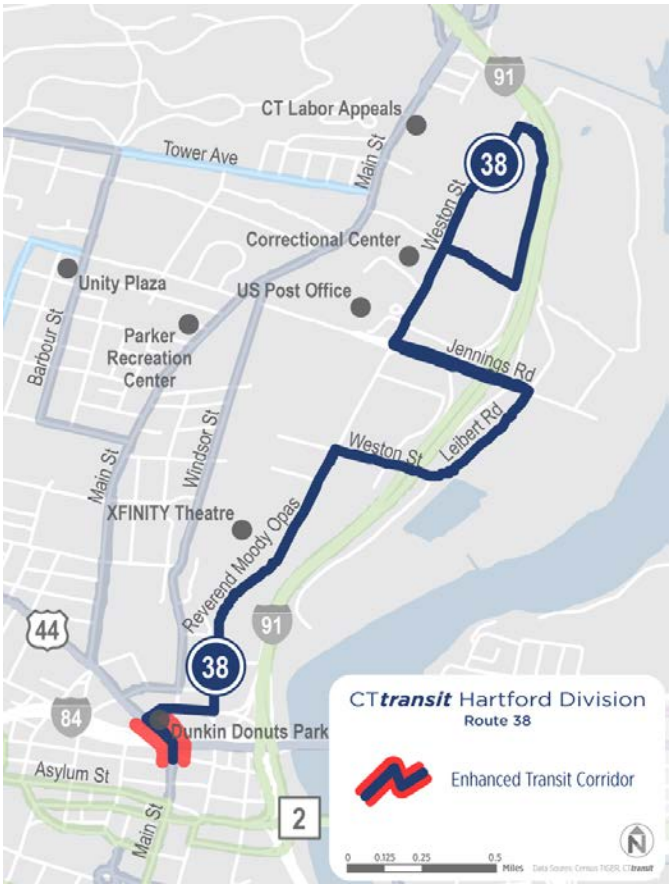
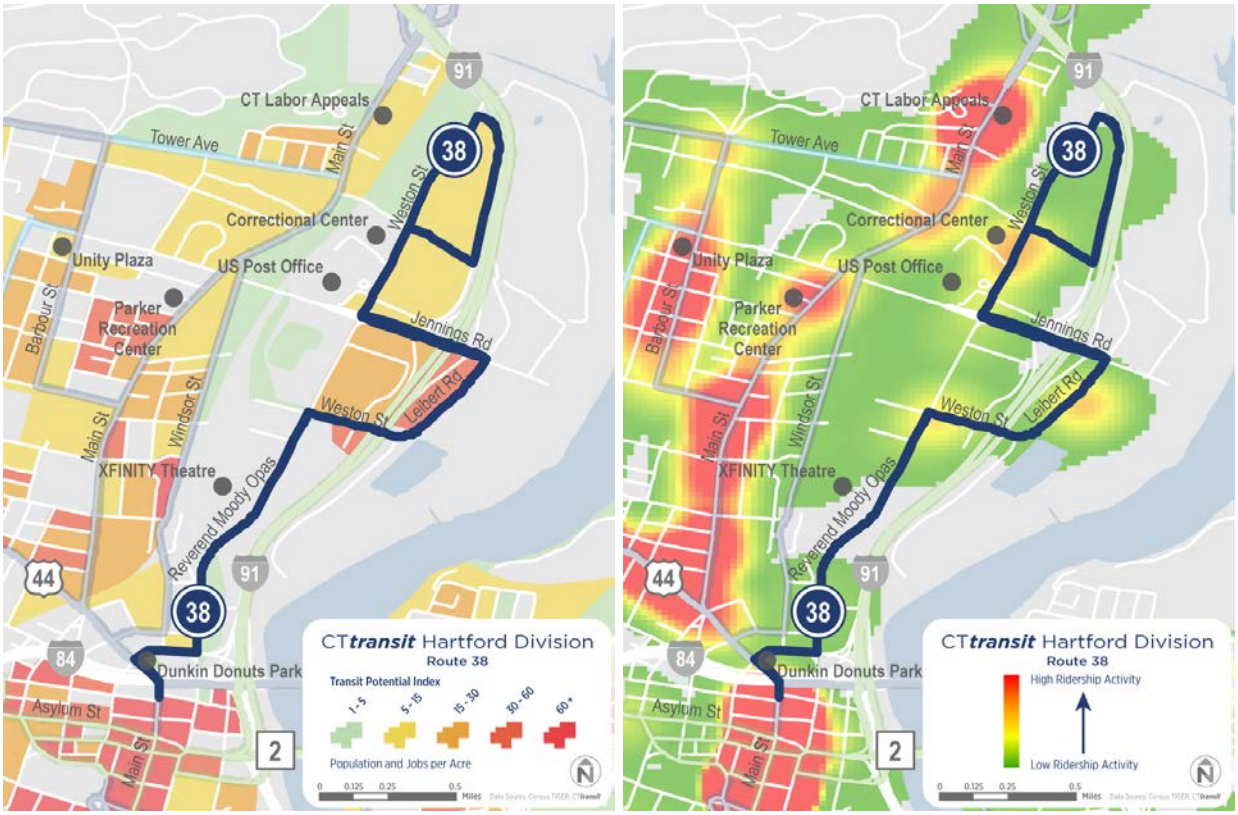


FIGURE 55| TRANSIT POTENTIAL AND EXISTING TRANSIT RIDERSHIP ALONG PROPOSED ROUTE 38 ALIGNMENT



Service Characteristics

The proposed Route 38 would operate every 20-minutes during peak periods, dropping to 40-minute service in the off-peak. This would make Route 38 one of only two proposed routes in the Hartford Division to have a non-clockface service frequency during part of the service day. Route 38 could be interlined with proposed Route 59 in downtown Hartford, resulting in a combined hour and 20-minute cycle that would optimize layover time for both routes.

FIGURE 56| PROPOSED ROUTE 38 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE
Weekdays	6:00 AM – 9:00 PM
Early	–
AM Peak	6:00 AM – 9:00 AM
Midday	9:00 AM – 3:00 PM
PM Peak	3:00 PM – 6:00 PM
Evening	6:00 PM – 9:00 PM
Night	–
Owl	–
Saturday	7:00 AM – 7:00 PM
Sunday	9:00 AM – 5:00 PM

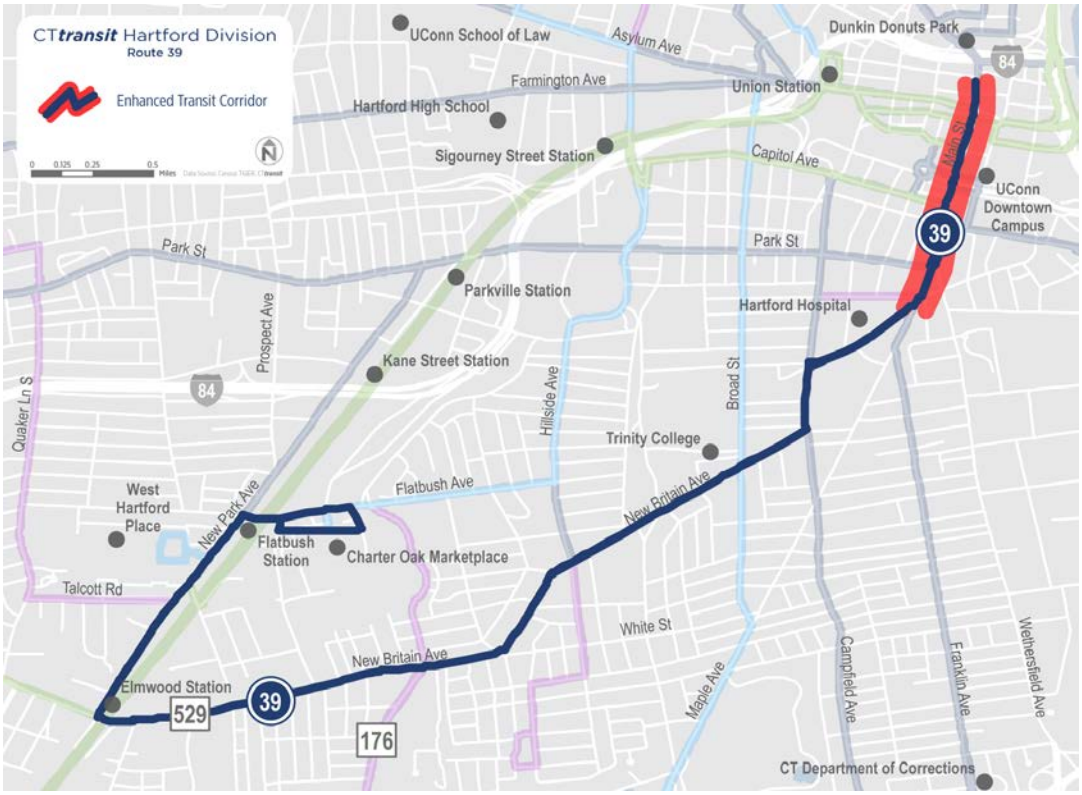
2.10 ROUTE 39

Service Design

The proposed Route 39 would also operate as a radial route between downtown Hartford and Charter Oak Marketplace via Hartford Hospital and Trinity College. On outbound trips, the route would diverge from Route 37 at Hillside Avenue, continuing west on New Britain Avenue to Elmwood Station and then Flatbush Station and Charter Oak Marketplace. At Charter Oak Marketplace, Route 39 buses would change their headsigns to Route 37 and continue inbound toward New Britain Avenue via Flatbush Avenue and Hillside Avenue.

Together with Route 37, Route 39 would help provide 15-minute service frequency along Retreat and New Britain Avenues, between Maple and Hillside Avenues, for most of the service day. Individually, both routes would operate every half hour from 5:00 AM to 9:00 PM (and then hourly after that until 11:00 pm). Where the routes overlap, between downtown and Hillside Avenue, the result would be an effective average frequency of a bus every 15 minutes.

FIGURE 57 | PROPOSED ROUTE 39 ALIGNMENT



With the introduction of Route 128 service to Westfarms Mall, Route 39 can be realigned to serve New Park Avenue and facilitate an interline with Route 37 at Charter Oak Marketplace. This will allow passengers of both routes to access Charter Oak Marketplace, Flatbush Station, West Hartford Place and Elmwood Station without a transfer. Eliminating service to Westfarms Mall helps address redundency

with Route 128 and reduces Route 39's exposure to segments of New Britain Avenue with low ridership and low ridership potential (see Figure 58 and Figure 59).

FIGURE 58| TRANSIT POTENTIAL ALONG PROPOSED ROUTE 39 ALIGNMENT

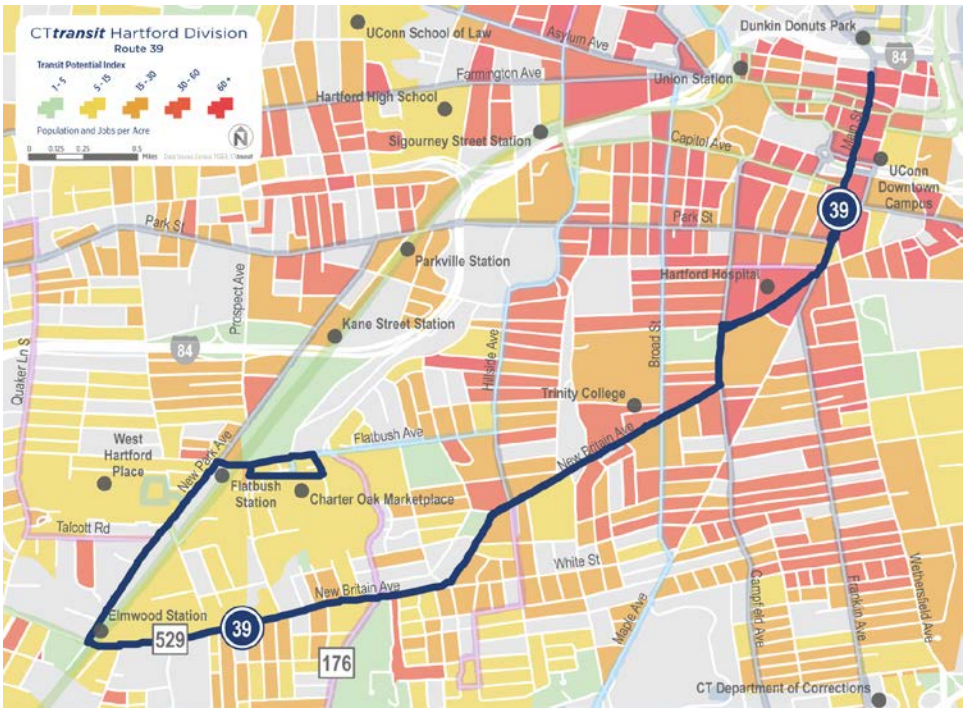
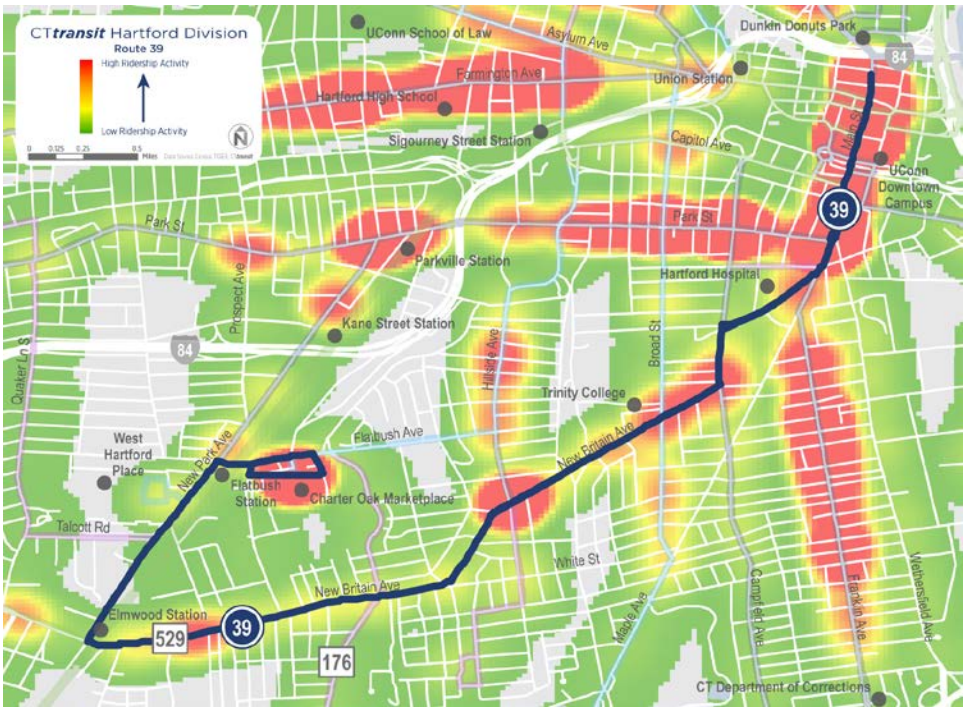


FIGURE 59| EXISTING TRANSIT RIDERSHIP ALONG PROPOSED ROUTE 39 ALIGNMENT



Service Characteristics

Together with Route 37, Route 39 would help provide 15-minute service frequency along Retreat and New Britain Avenues, between Maple and Hillside Avenues, for most of the service day. Individually, both routes would operate every half hour from 5:00 AM to 9:00 PM (and then hourly after that until 11:00 pm). Where the routes overlap, between downtown and Hillside Avenue, the result would be an effective average frequency of a bus every 15 minutes.

Interlining Route 39 with Route 37 would create a 2-hour cycle time and optimize layover time for both routes. Buses operating along the two routes would alternate between Route 39 service and Route 37 service every other trip. Drivers would change headsigns on Main Street near State House Square, as well as at Charter Oak Marketplace.

FIGURE 60 | PROPOSED ROUTE 39 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	5:00 AM – 11:00 PM	
Early	5:00 AM – 6:00 AM	30
AM Peak	6:00 AM – 9:00 AM	30
Midday	9:00 AM – 3:00 PM	30
PM Peak	3:00 PM – 6:00 PM	30
Evening	6:00 PM – 9:00 PM	30
Night	9:00 PM – 11:00 PM	60
Owl	–	–
Saturday	6:00 AM – 9:00 PM	60
Sunday	7:00 AM – 8:00 PM	60

KEY DESTINATIONS
▪ Downtown Hartford ▪ Hartford Hospital ▪ Trinity College ▪ Elmwood Station ▪ West Hartford Place ▪ Flatbush Station ▪ Charter Oak Marketplace

2.11 ROUTE 40

Service Design

The proposed Route 40 would operate as a radial route between downtown Hartford and Deerfield Road in Windsor. It would operate via North Main Street, Windsor Avenue and Deerfield Road (see Figure 61). This involves a one-mile extension north of the existing terminus in order to serve the Windsor Shopping Center and the residential neighborhood along Deerfield Road.

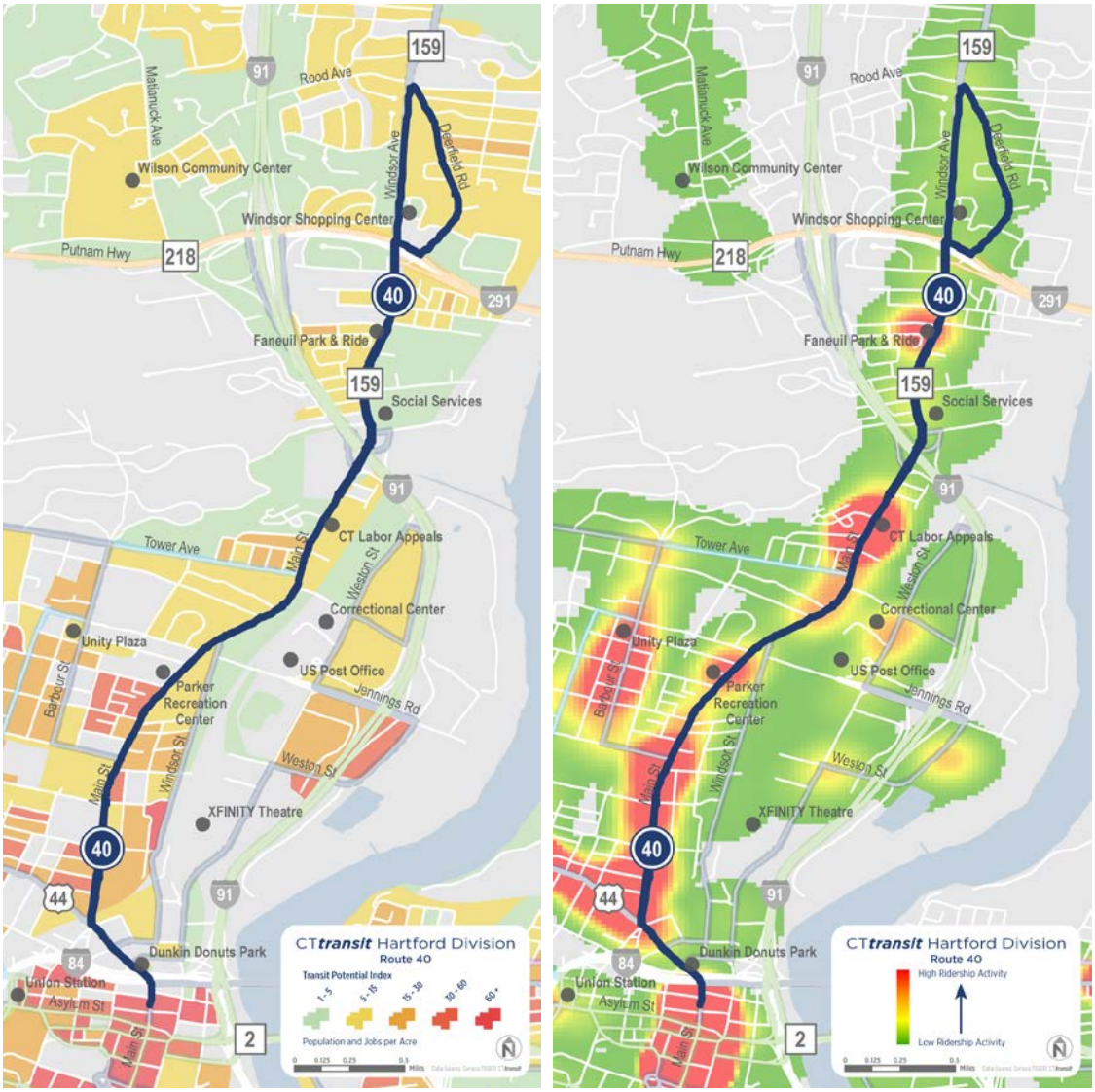
This alignment would provide North End residents with access to the supermarket in Windsor Shopping Center and the opportunity to connect with a realigned Route 92 serving South Windsor and Buckland Hills.

Together with Routes 42 and 34, Route 40 would help establish an enhanced transit corridor along North Main Street. The three routes would converge at Capen Street, offering 10-minute or better average service frequency to and from downtown Hartford during peak periods. Over the long-term, establishing an enhanced transit corridor provides a focus for future capital investments such as enhanced passenger amenities and transit-priority treatments.

The proposed Route 40 would serve a highly transit-supportive environment with high population and employment density (see Figure 62) and good pedestrian infrastructure.

FIGURE 61 | PROPOSED ROUTE 40 ALIGNMENT

FIGURE 62 | ROUTE 40 TRANSIT POTENTIAL INDEX AND RIDERSHIP ACTIVITY MAP



Service Characteristics

Route 40 would be interlined with proposed Route 55 in downtown Hartford to create a 3-hour cycle time and optimize layover time for both routes. Interlining the two routes would also provide a one-seat ride for passengers traveling between the Franklin Avenue and North Main Street corridors via downtown Hartford.

Route 40 would operate at 20-minute frequency during peak periods and 30-minute frequency during off-peak hours. Combined with Routes 42 and 34, peak frequency of 10 minutes or better would be provided along the North Main Street corridor south of Capen Street. When combined with Routes 50, 54, 58 and 76 coming in from Albany Avenue, very high levels of service would be provided on Main Street in Hartford's DoNo neighborhood. Service would be extended to include Sundays (see Figure 63).

FIGURE 63 | PROPOSED ROUTE 40 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	5:00 AM – 9:00 PM	
Early	5:00 AM – 6:00 AM	30
AM Peak	6:00 AM – 9:00 AM	20
Midday	9:00 AM – 3:00 PM	30
PM Peak	3:00 PM – 6:00 PM	20
Evening	6:00 PM – 9:00 PM	30
Night	–	–
Owl	–	–
Saturday	6:00 AM – 9:00 PM	
Daytime	6:00 AM – 6:00 PM	30
Evening	6:00 PM – 9:00 PM	60
Sunday	7:00 AM – 8:00 PM	60

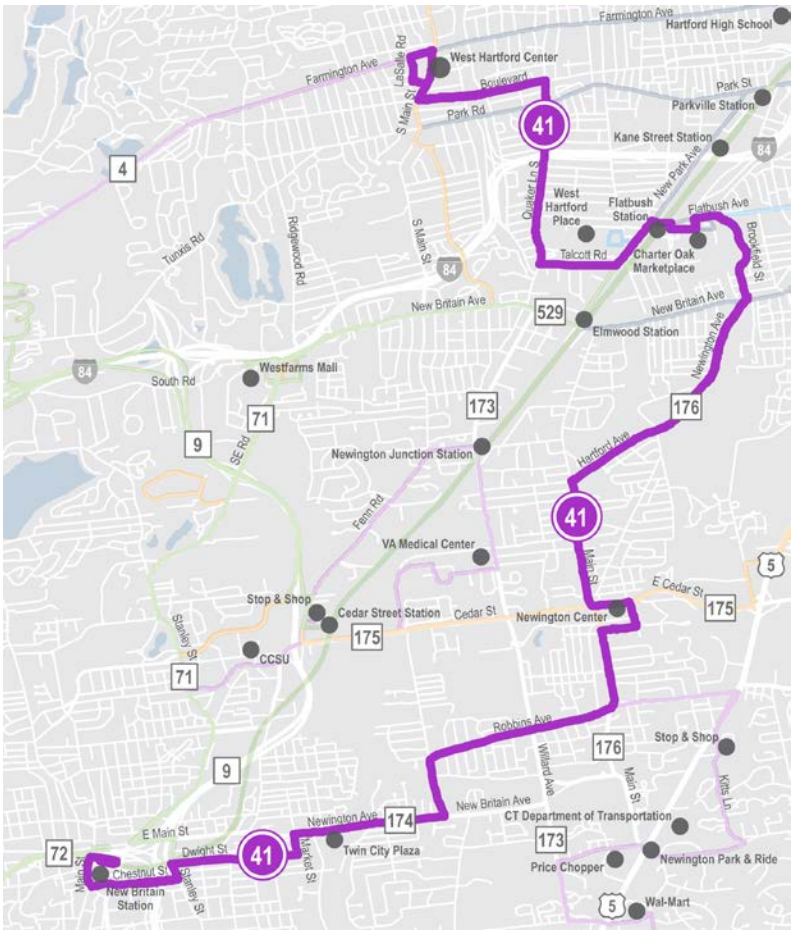
KEY DESTINATIONS
▪ Downtown Hartford
▪ Dunkin Donuts Park
▪ Save-A-Lot
▪ Anderson Parker Recreation Center
▪ CT Department of Labor
▪ CT Department of Social Services
▪ Faneuil Street Park-and-Ride
▪ Windsor Shopping Center

2.12 ROUTE 41

Service Design

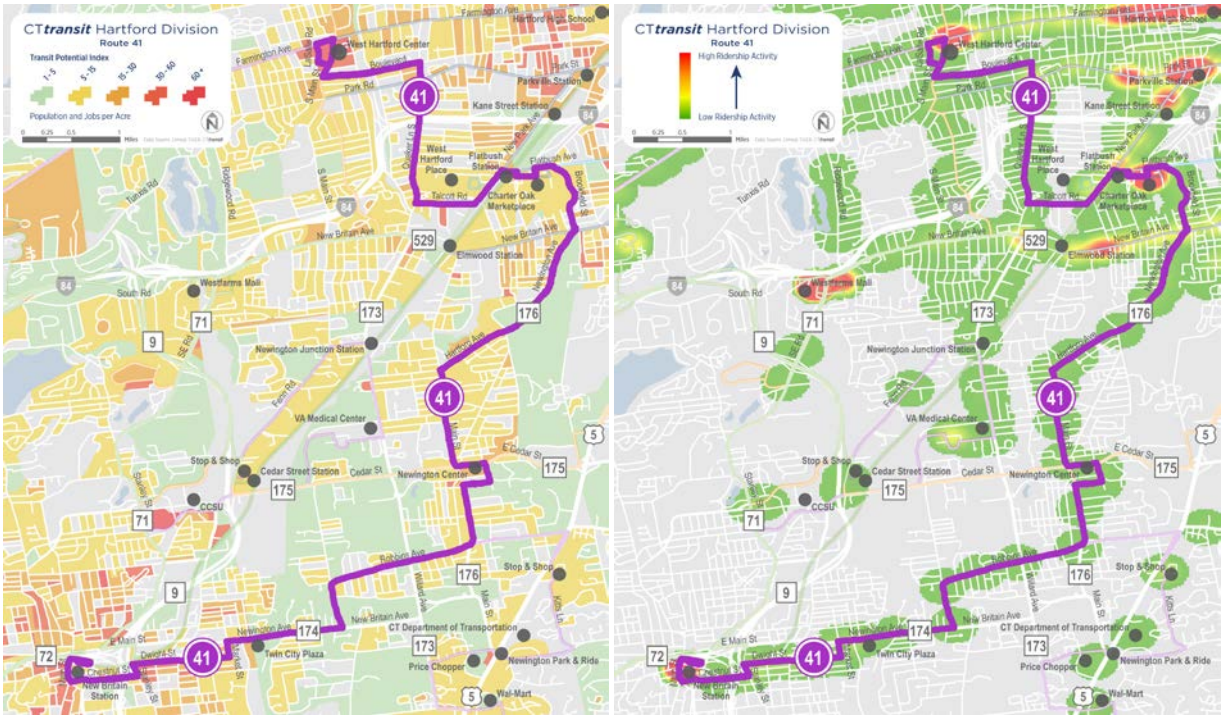
The proposed Route 41 would operate as a Connector Route linking residential areas in New Britain, Newington, Hartford, and West Hartford to nearby retail destinations and regional transit hubs. Transit hubs that would be served by the route include the New Britain and Flatbush CT***fastrak*** stations, as well as emerging hubs such as Newington Center and West Hartford Center where passengers would be able to make numerous bus connections. The proposed route would not serve downtown Hartford, however. Passengers wishing to travel to downtown Hartford could choose from multiple connection opportunities including CT***fastrak*** Routes 101 and 102.

FIGURE 64 | PROPOSED ROUTE 41 ALIGNMENT



Route 41 would continue to be a relatively long route, few passengers would likely use the service end-to-end. Instead, the route would facilitate many short trips between relatively high density residential areas and nearby transfer and activity centers (see Figure 65). Between Flatbush Station and West Hartford Center, Route 41 would operate along Quaker Lane to replace a segment of Route 69 recommended for elimination.

FIGURE 65 | TRANSIT POTENTIAL AND EXISTING TRANSIT RIDERSHIP ALONG PROPOSED ROUTE 41 ALIGNMENT



Service Characteristics

Route 41 would operate every half hour during peak periods, and hourly at all other times (see Figure 66). Interlining Route 41 with proposed Route 66 at West Hartford Center would create a 4-hour cycle time and optimize layover time for both routes. Given the different ridership demand of the two routes, particularly in the evenings, Routes 41 and 66 would be interlined from 5:00 AM until 8:00 PM only. After 8:00 PM, Route 66 would not operate, and Route 41 would operate as a stand-alone route between West Hartford Center and New Britain Station until 11:00 PM.

FIGURE 66 | PROPOSED ROUTE 41 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PR
Weekdays	5:00 AM – 11:00 PM
Early	5:00 AM – 6:00 AM
AM Peak	6:00 AM – 9:00 AM
Midday	9:00 AM – 3:00 PM
PM Peak	3:00 PM – 6:00 PM
Evening	6:00 PM – 9:00 PM
Night	9:00 PM – 11:00 PM
Owl	–
Saturday	6:00 AM – 8:00 PM
Sunday	No Service

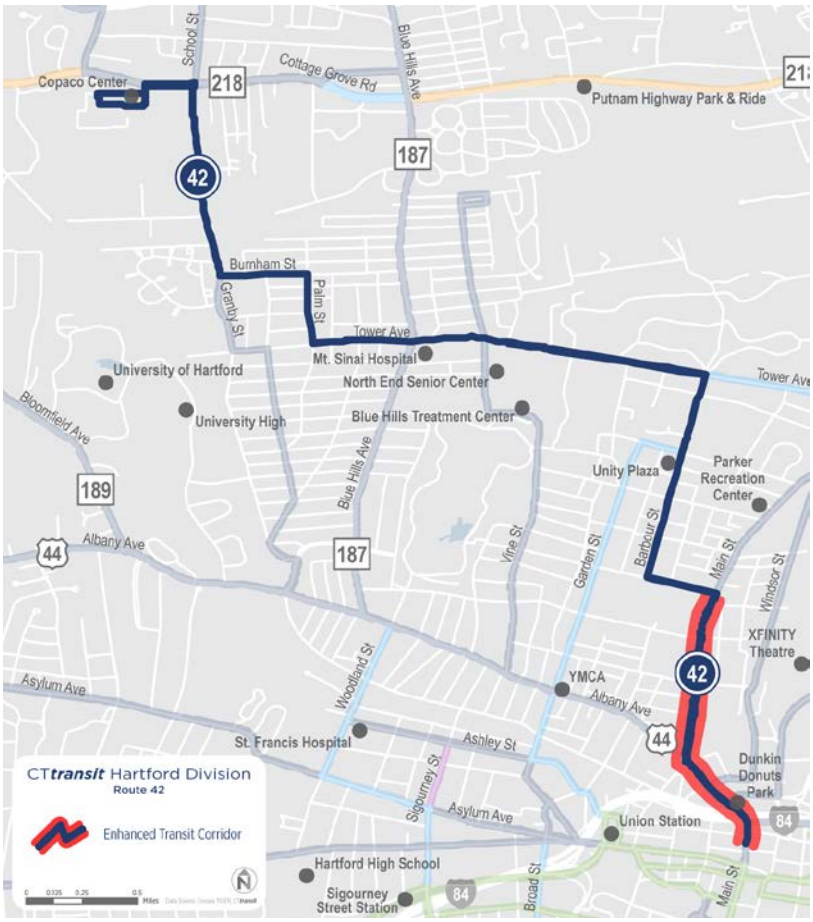
2.13 ROUTE 42

Service Design

The proposed Route 42 would operate as a radial route between downtown Hartford and Copaco Center in Bloomfield via North Main Street, Capen Street, Barbour Street, Palm Street, Burnham Street, Tower Avenue and Granby Street (see Figure 67).

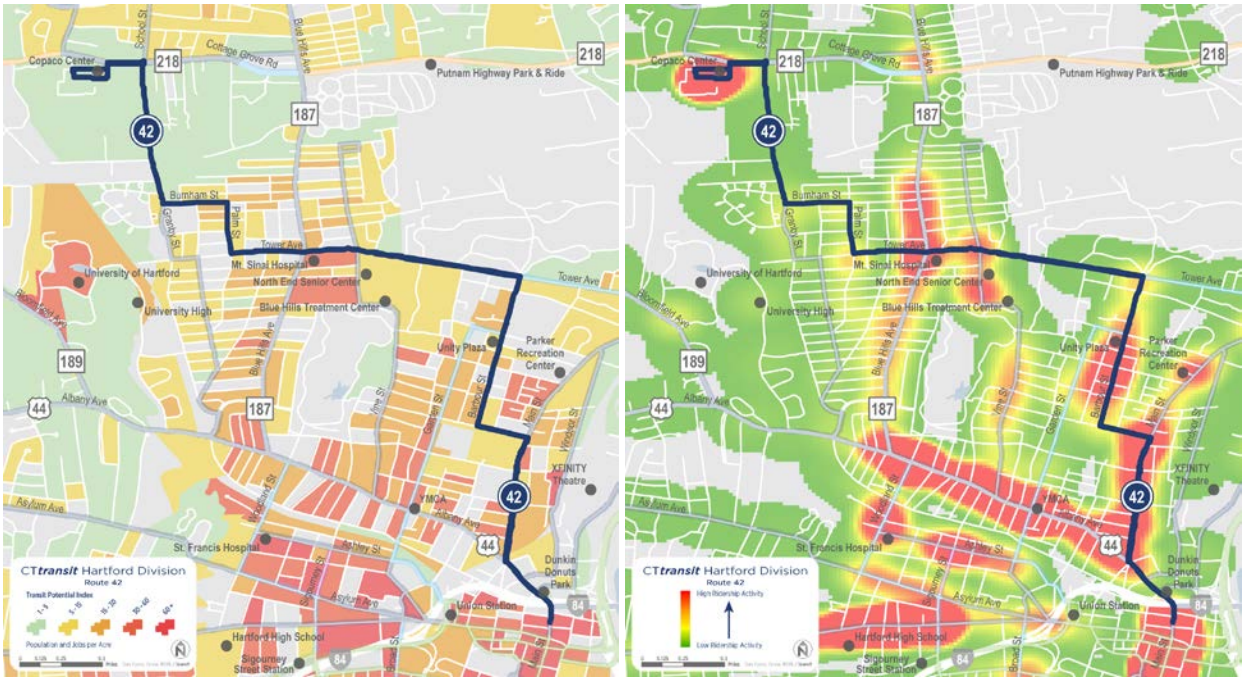
Together with Routes 40 and 34, Route 42 would help establish an enhanced transit corridor along North Main Street. The three routes would converge at Capen Street, offering 10-minute or better average service frequency to and from downtown Hartford during peak periods. Over the long-term, establishing an enhanced transit corridor provides a focus for future capital investments such as enhanced passenger amenities and transit-priority treatments.

FIGURE 67 | PROPOSED ROUTE 42 ALIGNMENT



The proposed Route 42 would serve a highly transit-supportive environment with high population and employment density and good pedestrian infrastructure (see Figure 68). To improve the route's ridership potential and to replace Route 92 Tower Avenue (which would transition to provide more direct crosstown service), the proposed alignment is extended along Tower Avenue to the west, ultimately serving Copaco Center. The route also connects residents living along Capen and Barbour Streets more directly with the North End Senior Center and services at Mt. Sinai Hospital.

FIGURE 68 | ROUTE 42 TRANSIT POTENTIAL INDEX AND RIDERSHIP ACTIVITY MAP



Service Characteristics

Route 42 would be interlined with proposed Route 53 in downtown Hartford to create a 3-hour cycle time and optimize layover time for both routes. Interlining the two routes would also provide a one-seat ride for passengers traveling between the Franklin Avenue corridor (and points south in Wethersfield and Rocky Hill), and the North Main Street corridor (and points north including Copaco Center) via downtown Hartford.

Route 42 would operate at 20-minute frequency during peak periods and 30-minute frequency during off-peak hours. Combined with Routes 40 and 34, peak frequency of 10 minutes or better would be provided along the North Main Street corridor south of Capen Street. When combined with Routes 50, 54, 58 and 76 coming in from Albany Avenue, very high levels of service would be provided on Main Street in Hartford's DoNo neighborhood. Service would be extended to include Sundays (see Figure 69).

FIGURE 69 | PROPOSED ROUTE 42 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	5:00 AM – 11:00 PM	
Early	5:00 AM – 6:00 AM	30
AM Peak	6:00 AM – 9:00 AM	20
Midday	9:00 AM – 3:00 PM	30
PM Peak	3:00 PM – 6:00 PM	20
Evening	6:00 PM – 9:00 PM	30
Night	9:00 PM – 11:00 PM	60
Owl	–	–
Saturday	6:00 AM – 9:00 PM	
	6:00 AM – 6:00 PM	30
	6:00 PM – 9:00 PM	60
Sunday	7:00 AM – 8:00 PM	60

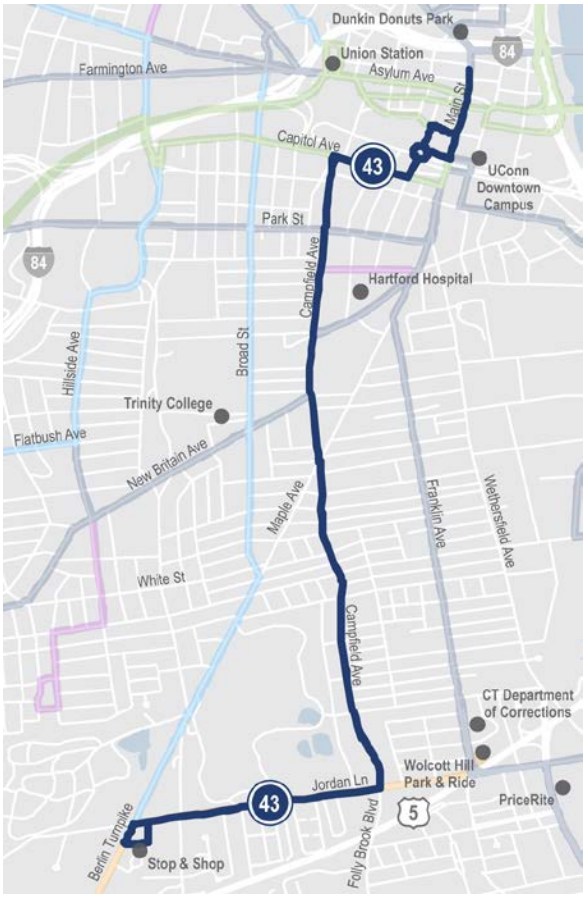
KEY DESTINATIONS
▪ Downtown Hartford
▪ Dunkin Donuts Park
▪ Unity Plaza
▪ Tower Avenue/Chappelle Garden Apartments
▪ Mt. Sinai Hospital
▪ Granby Street/Bowles Park Apartments
▪ Copaco Center

2.14 ROUTE 43

Service Design

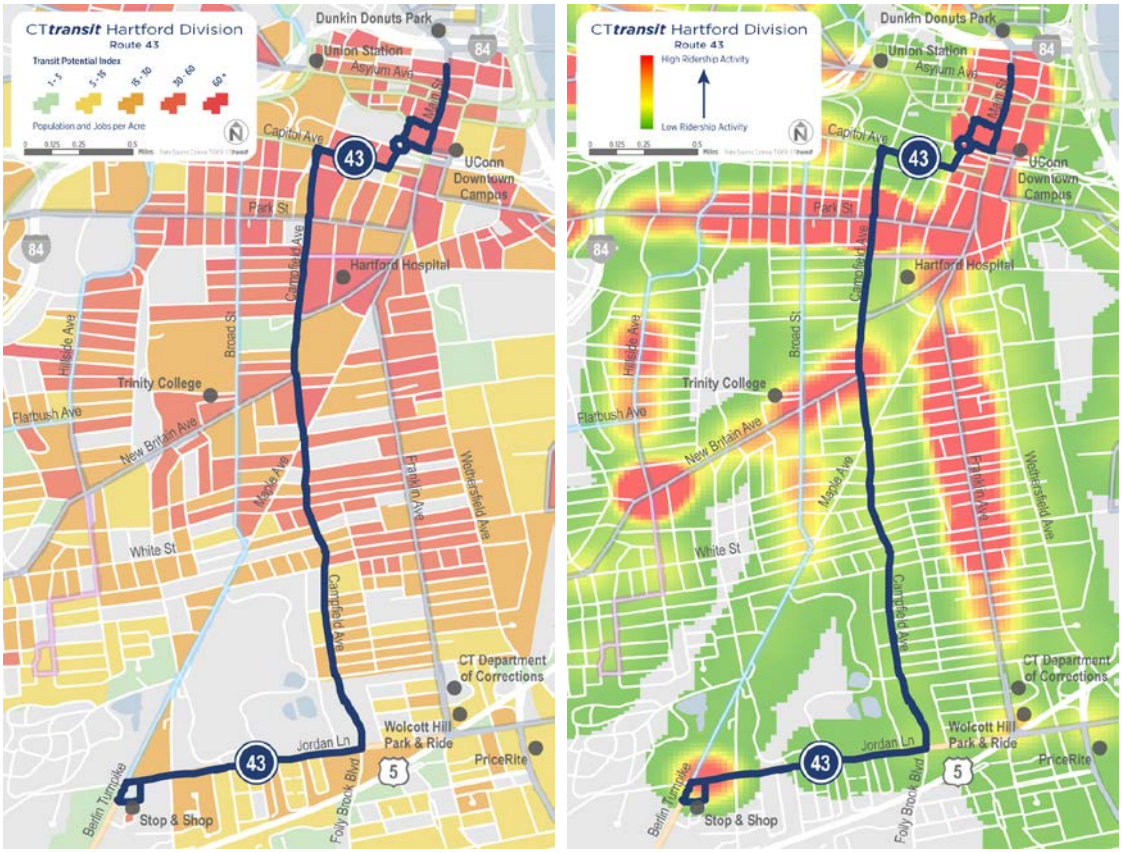
The proposed Route 43 would operate as a radial route between downtown Hartford and Jordan Lane Shopping Center via Washington Street and Campfield Avenue. The Jordan Lane Shopping Center, which includes a Super Stop & Shop, would create a strong outer anchor for Route 43 and would likely help generate more "reverse" direction trips from neighborhoods along Campfield Avenue. The proposed Route 43 alignment would shift from Maple Avenue and Main Street to Webster Street and Washington Street to reduce service redundancy on Maple Avenue and to facilitate more transfer opportunities with other routes on New Britain Avenue, Park Street, and Capitol Avenue.

FIGURE 70 | PROPOSED ROUTE 43 ALIGNMENT



The proposed Route 43 would continue to serve high-density residential neighborhoods along Campfield Avenue with high ridership and high ridership potential (see Figure 71). Extending the route to Jordan Lane Shopping Plaza would further boost ridership and facilitate new transfer opportunities to proposed Routes 61 and 99.

FIGURE 71 | TRANSIT POTENTIAL AND EXISTING RIDERSHIP ALONG PROPOSED ROUTE 43 ALIGNMENT



Service Characteristics

Route 43 would operate every half hour during peak periods and hourly at all other times (see Figure 72).

FIGURE 72 | PROPOSED ROUTE 43 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	6:00 AM – 7:00 PM	
Early	–	–
AM Peak	6:00 AM – 9:00 AM	30
Midday	9:00 AM – 3:00 PM	60
PM Peak	3:00 PM – 6:00 PM	30
Evening	6:00 PM – 7:00 PM	60
Night	–	–
Owl	–	–
Saturday	7:00 AM – 7:00 PM	60
Sunday	No Service	

KEY DESTINATIONS

- Downtown Hartford
- State Capitol
- Hartford Hospital
- Campfield Library
- Connecticut Department of Labor
- Jordan Lane Shopping Center

2.15 ROUTE 45

Service Design

The proposed Route 45 would operate as a Connector Route linking residential areas in Newington to nearby retail destinations and regional transit hubs. Transit hubs that would be served by the route include the Cedar Street CT***fastrak*** station and an emerging hub at Newington Center where passengers would be able to make numerous bus connections.

The Berlin Turnpike corridor in Newington is perhaps the most underserved transit market in the Hartford Division. The area includes more than a dozen apartment complexes and several large retail centers. It also includes the Connecticut Department of Transportation Headquarters, which could be served from a stop at the corner of Griswoldville Avenue and Berlin Turnpike (see Figure 74). While transit ridership in the corridor is currently low (see Figure 73), the potential for ridership is high. The proposed restructuring of Route 45 would help facilitate local trips as well as more convenient connections to regional service.

FIGURE 73 | PROPOSED ROUTE 45 ALIGNMENT

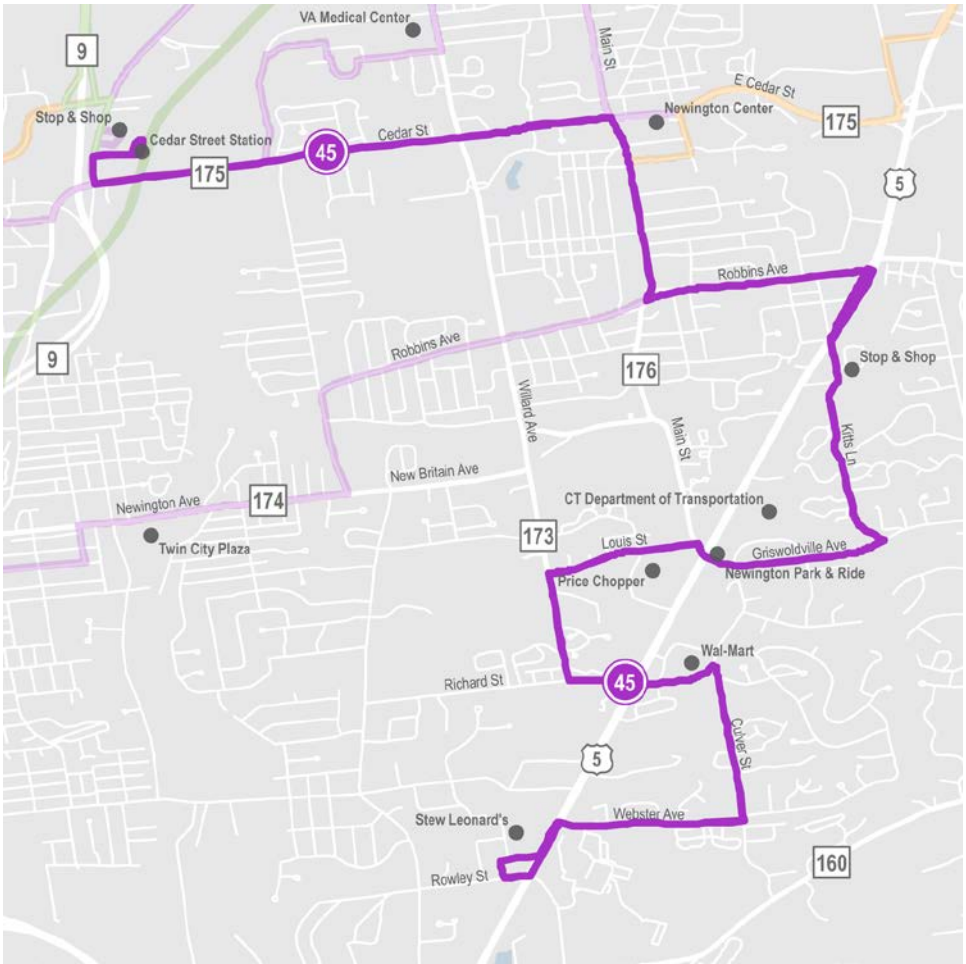
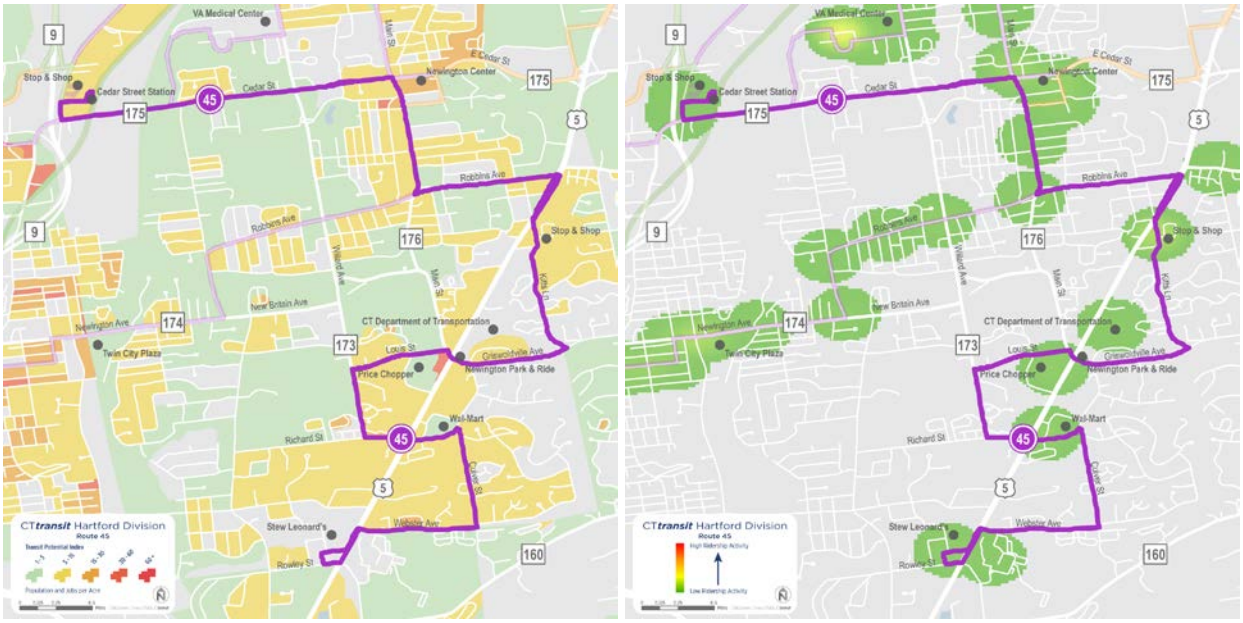


FIGURE 74 | TRANSIT POTENTIAL AND EXISTING RIDERSHIP ALONG PROPOSED ROUTE 45 ALIGNMENT



Service Characteristics

Route 45 would operate every 30 minutes from the morning peak period until the early evening. It would then transition to hourly service after 6:00 PM (see Figure 75).

Route 45 could be interlined with proposed Route 69 at Cedar Street Station in order to create a 2-hour cycle time and optimize layover time for both routes. Each Route 45 trip to Cedar Street Station would complete a clockwise loop on Route 69 before beginning its return trip on Route 45.

FIGURE 75 | PROPOSED ROUTE 45 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	6:00 AM – 10:00 PM	
Early	–	–
AM Peak	6:00 AM – 9:00 AM	30
Midday	9:00 AM – 3:00 PM	30
PM Peak	3:00 PM – 6:00 PM	30
Evening	6:00 PM – 9:00 PM	60
Night	9:00 PM – 10:00 PM	60
Owl	–	–
Saturday	6:00 AM – 9:00 PM	60
Sunday	7:00 AM – 8:00 PM	60

KEY DESTINATIONS
▪ Cedar Street Station
▪ Newington Center
▪ Stop & Shop
▪ Newington Park-and-Ride
▪ Price Chopper
▪ Walmart
▪ Stew Leonard's

2.16 ROUTE 46

Service Design

The proposed Route 46 would operate as a radial route between downtown Hartford and Elizabeth Avenue in Hartford's North End, via Albany Avenue, Vine Street and Coventry Street. The proposed alignment is the same as the route operated today (see Figure 76).

Weekend service is proposed to operate separately from Route 42, as an independent service along the Route 46 weekday alignment shown in Figure 76.

Together with Routes 50, 54, 58 and 76, Route 46 would help establish an enhanced transit corridor along Albany Avenue, providing 10-minute or better service frequency between Blue Hills Avenue and downtown Hartford during peak periods. As shown in Figure 77, this corridor has the density and existing ridership demand needed to support high frequency service. Over the long-term, establishing an enhanced transit corridor provides a focus area for future capital investments such as enhanced passenger amenities and transit-priority treatments.

FIGURE 76 | PROPOSED ROUTE 46 ALIGNMENT

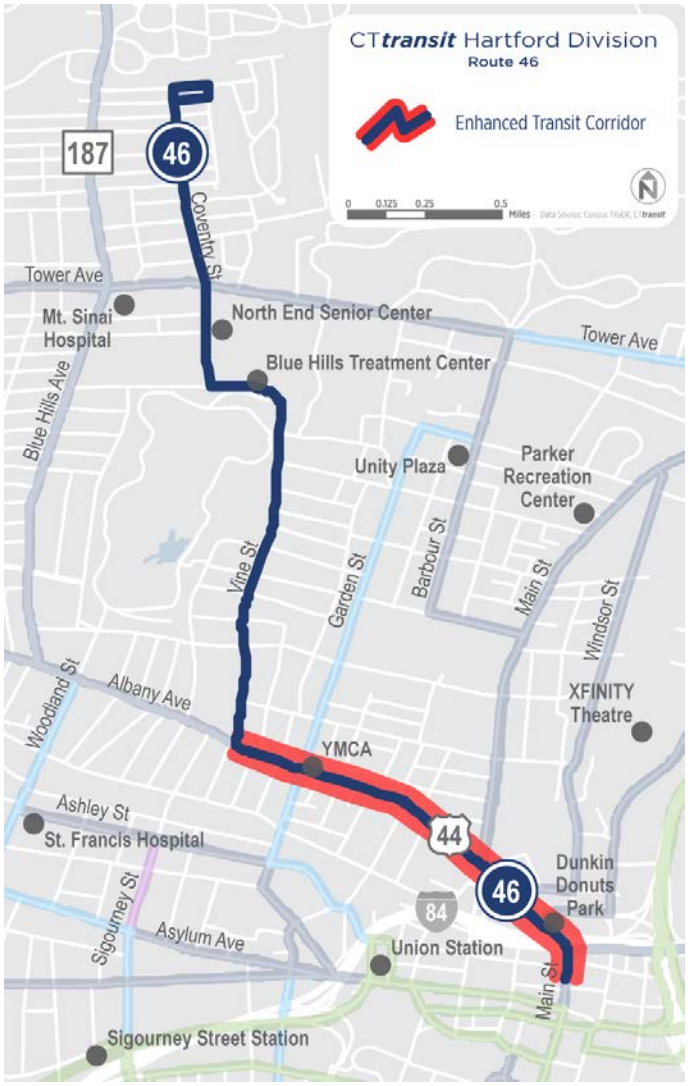
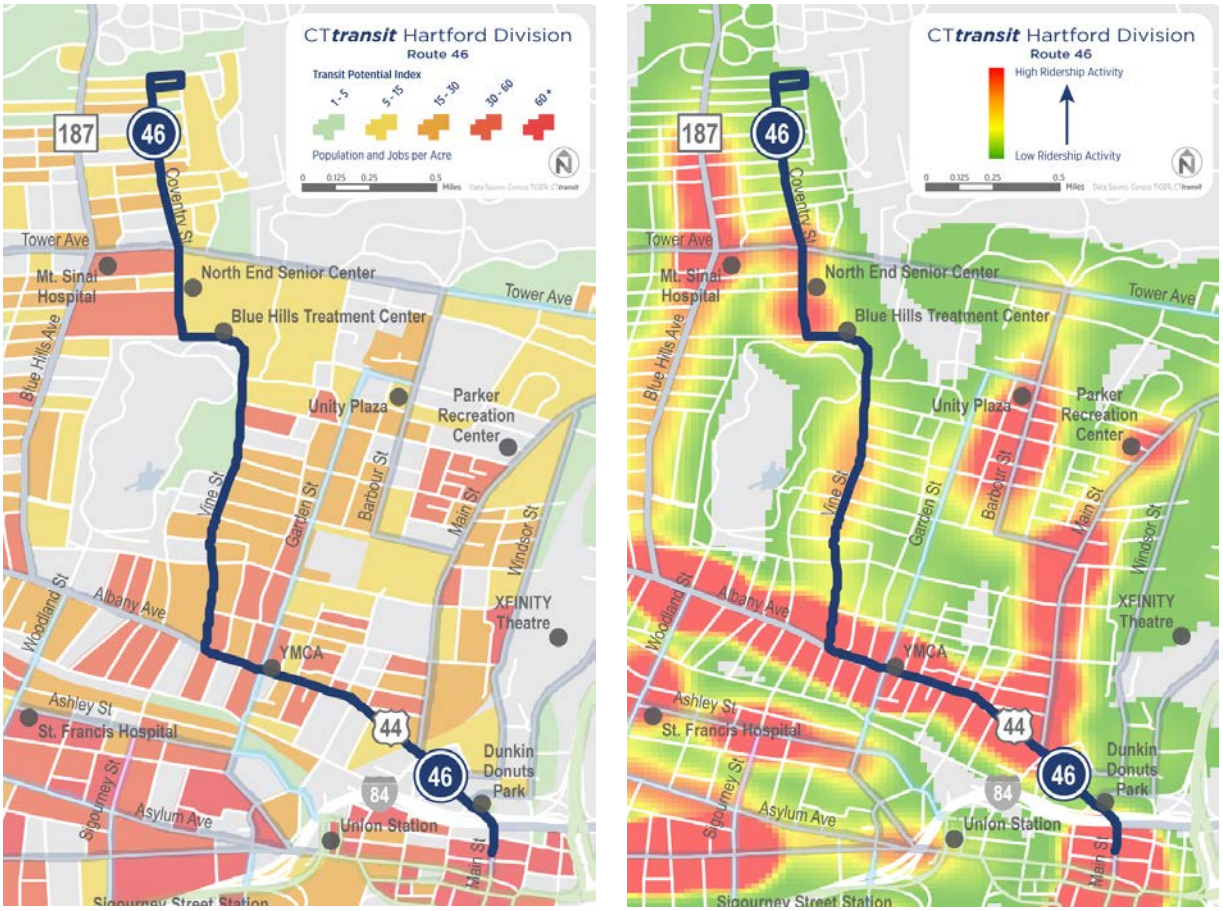


FIGURE 77 | TRANSIT POTENTIAL AND EXISTING TRANSIT RIDERSHIP ALONG PROPOSED ROUTE 46 ALIGNMENT



Service Characteristics

Route 46 would operate at 20-minute frequency during peak periods, 30-minute frequency during the midday, and hourly during early morning and late evening hours.

Route 46 would be interlined with proposed Route 50 in downtown Hartford to create a 3-hour cycle time and optimize layover time for both routes. Buses operating along the two routes would alternate between Route 46 service and Route 50 service every other trip. Drivers would change headsigns on Main Street south of I-84.

FIGURE 78| PROPOSED ROUTE 46 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE
Weekdays	5:00 AM – 11:00 PM
Early	5:00 AM – 6:00 AM
AM Peak	6:00 AM – 9:00 AM
Midday	9:00 AM – 3:00 PM
PM Peak	3:00 PM – 6:00 PM
Evening*	6:00 PM – 9:00 PM
Night	9:00 PM – 11:00 PM
Owl	–
Saturday	6:00 AM – 9:00 PM
Sunday	7:00 AM – 8:00 PM

* *Operates every 60 minutes after 8:00 pm*

2.17 ROUTE 50

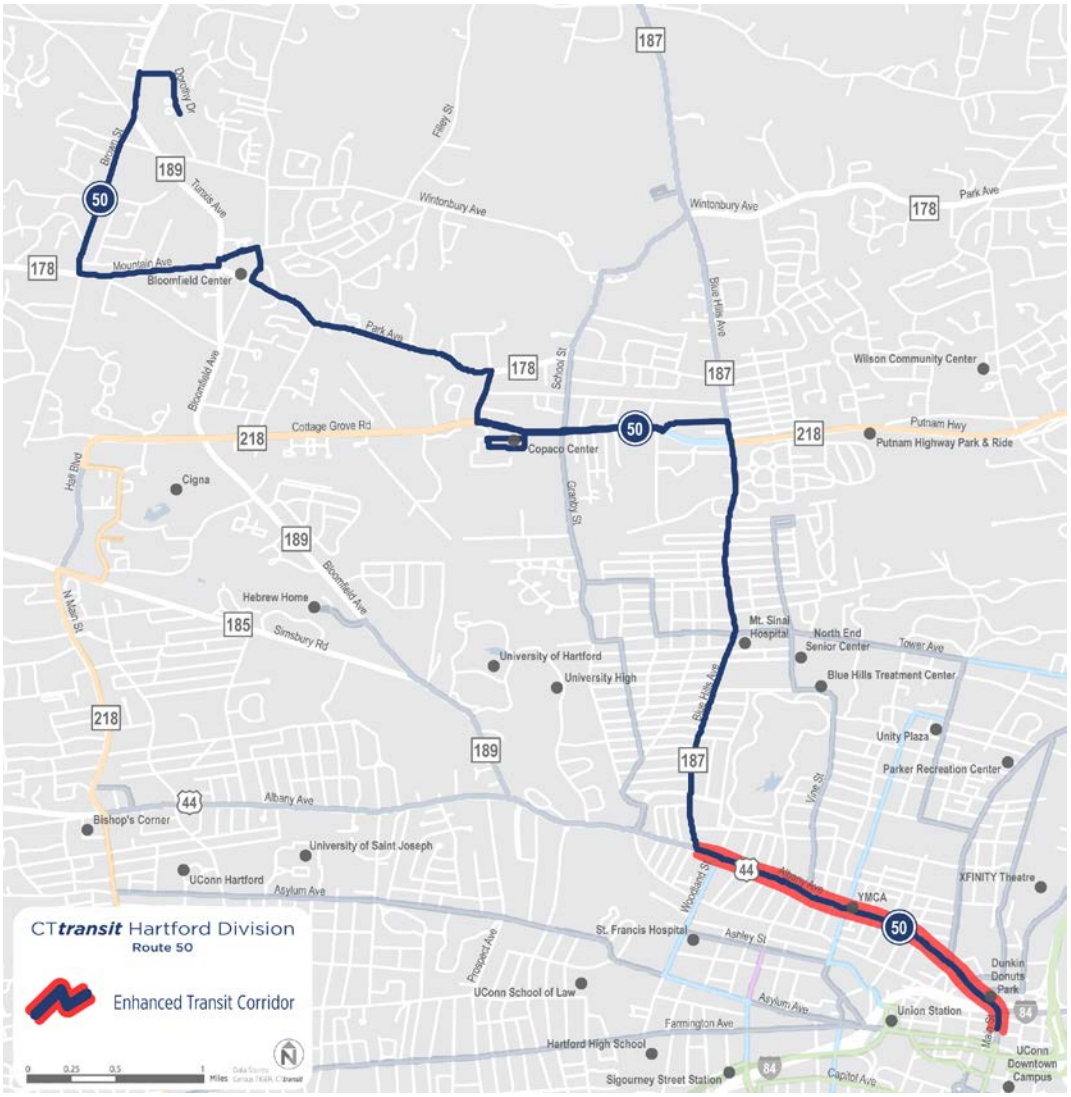
Service Design

The proposed Route 50 would operate as a radial route between downtown Hartford and Bloomfield Center via Albany Avenue, Blue Hills Avenue, Cottage Grove Road and Park Avenue. It would continue beyond Bloomfield Center to provide local Bloomfield service on Mountain Avenue, Brown Street and to the Woodside Apartments on Dorothy Drive (see Figure 79).

Route 50 would become the primary service to Bloomfield Center, replacing Route 56 which has low ridership between the University of Hartford and Bloomfield Center. In order to consolidate these services, Route 50 would be extended north of Bloomfield Center to provide bi-directional service on Mountain Avenue and Brown Street (rather than the loop followed by Route 56 today). Route 50A between Copaco Center and the Cigna/Met campus would be discontinued, as this segment attracts few riders and is now served by CT***fastrak*** Route 153.

Together with Routes 46, 54, 58 and 76, Route 50 would help establish an enhanced transit corridor along Albany Avenue, one of Hartford's most dense and transit-supportive corridors (see Figure 80 and Figure 81). Where they converge, these routes would provide 6-minute or better frequency during peak-periods, and 10-minute frequency during off-peak times. Along Blue Hills Avenue, Routes 50 would combine with Routes 20 and 54 to provide better than 10-minute frequency during peak periods, and about 12-minute frequency during off-peak hours. Over the long-term, establishing an enhanced transit corridor provides a focus for future capital investments such as enhanced passenger amenities and transit-priority treatments.

FIGURE 79| PROPOSED ROUTE 50 ALIGNMENT



Service Characteristics

Route 50 would operate at 20-minute frequency during peak periods and at 30-minute frequency during the off-peak. During the very early morning hours, hourly service would be provided.

Route 50 could be interlined with proposed Route 46 in downtown Hartford to create a 3-hour cycle time and optimize layover time for both routes. Buses operating along the two routes would alternate between Route 46 service and Route 50 service every other trip.

FIGURE 80 | TRANSIT POTENTIAL ALONG PROPOSED ROUTE 50 ALIGNMENT

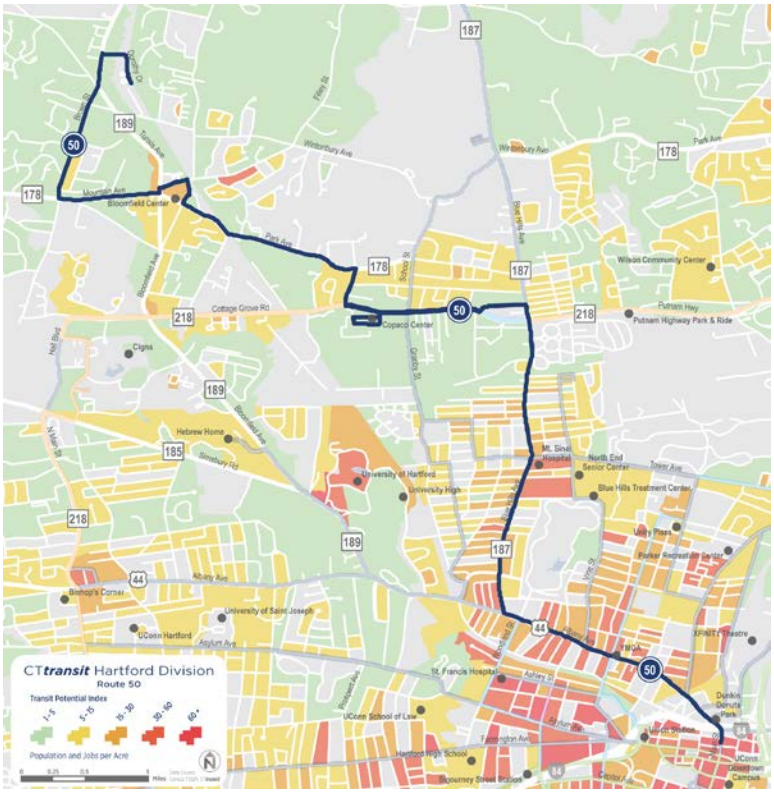


FIGURE 81 | EXISTING TRANSIT RIDERSHIP ALONG PROPOSED ROUTE 50 ALIGNMENT

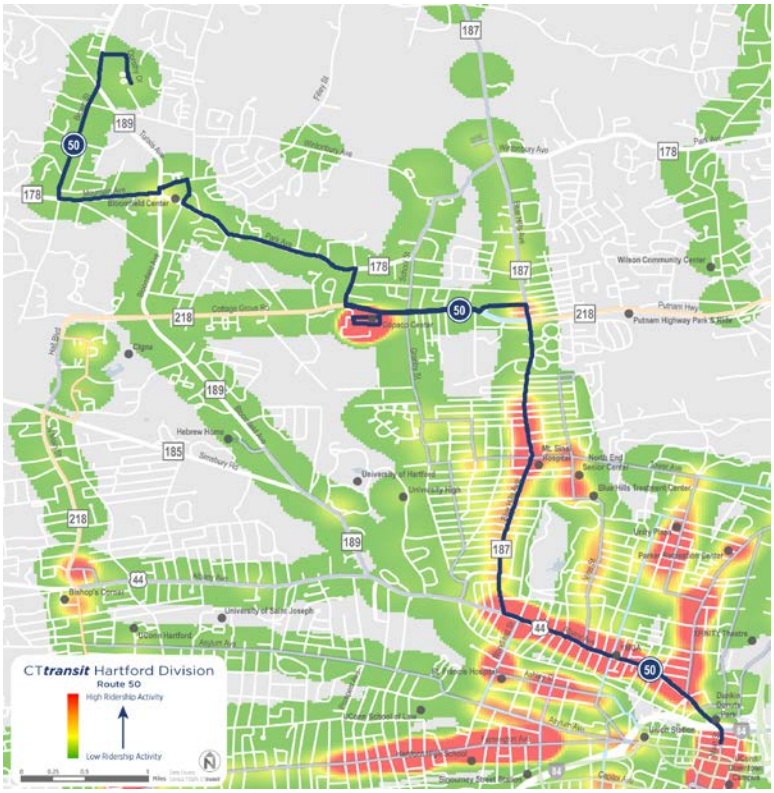


FIGURE 82 | PROPOSED ROUTE 50 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	5:00 AM – 8:00 PM	
Early	5:00 AM – 6:00 AM	60
AM Peak	6:00 AM – 9:00 AM	20
Midday	9:00 AM – 3:00 PM	30
PM Peak	3:00 PM – 6:00 PM	20
Evening*	6:00 PM – 8:00 PM	30
Night	–	–
Owl	–	–
Saturday	6:00 AM – 9:00 PM	30
Sunday	7:00 AM – 8:00 PM	60

KEY DESTINATIONS
▪ Downtown Hartford
▪ Community Health Center / YMCA
▪ Mount Sinai Hospital
▪ Blue Hills Library
▪ Copaco Center
▪ Bloomfield Center
▪ Woodside Village Apartments

2.18 ROUTE 53

Service Design

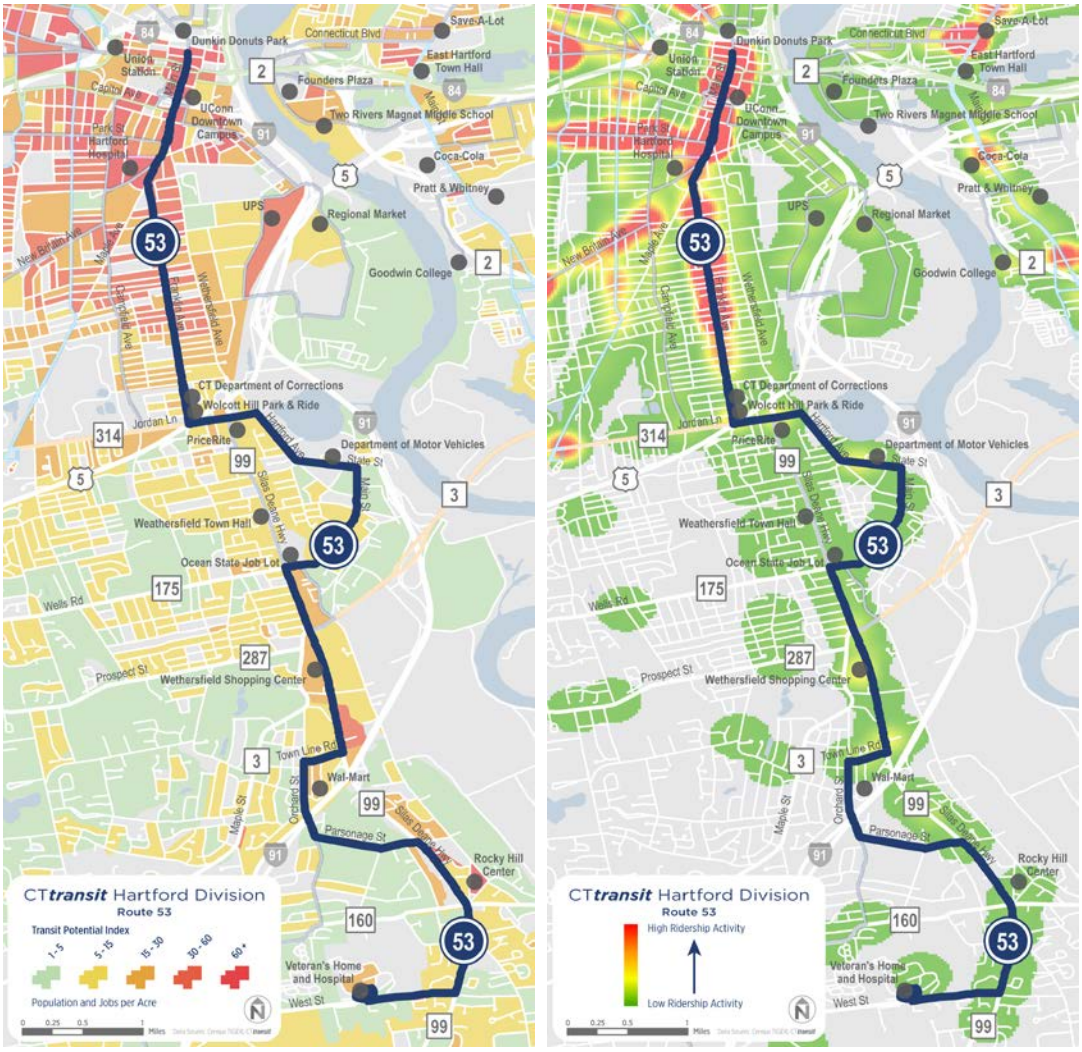
The proposed Route 53 would operate as a Radial Route between downtown Hartford and the Veterans Home and Hospital in Rocky Hill via Franklin Avenue, State Street in Wethersfield, Silas Deane Highway, and West Street in Rocky Hill (see Figure 83). The route would also serve the Connecticut Department of Motor Vehicles office in Wethersfield.

Together with Route 55, Route 53 would help establish an enhanced transit corridor along Franklin Street. With both routes operating every 20 minutes during peak periods, an effective average frequency of a bus every 10 minutes could be provided along Franklin Avenue, between Jordan Lane and downtown Hartford. Over the long-term, establishing an enhanced transit corridor would provide a focus for future capital investments such as enhanced passenger amenities and transit-priority treatments.

From Jordan Lane to downtown Hartford, the proposed Route 53 would serve a highly transit-supportive environment with high population and employment density and good pedestrian infrastructure (see Figure 84). South of Jordan Lane, the environment is more suburban and less transit-supportive. The convergence and divergence of Routes 53 and 55 would be designed to provide the highest level of transit service in the most transit-supportive segment of the corridor, while also providing a one-seat ride to downtown Hartford from any stop on Route 53 and Route 55.

FIGURE 83 | PROPOSED ROUTE 53 ALIGNMENT

FIGURE 84 | ROUTE 53 TRANSIT POTENTIAL INDEX AND RIDERSHIP ACTIVITY MAP



Service Characteristics

Route 53 would be interlined with proposed Route 42 in downtown Hartford to create a 3-hour cycle time and optimize layover time for both routes. Interlining the two routes would also provide a one-seat ride for passengers traveling between the Franklin Avenue corridor (and points south in Wethersfield and Rocky Hill), and the North Main Street corridor (and points north including Copaco Center) via downtown Hartford.

Route 53 would operate at 20-minute frequency during peak periods and 30-minute frequency during off-peak hours. Combined with Route 55, an average peak frequency of every 10 minutes would be provided along Franklin Avenue and portions of Silas Deane Highway (see Figure 85).

FIGURE 85 | PROPOSED ROUTE 53 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	5:00 AM – 9:00 PM	
Early	5:00 AM – 6:00 AM	30
AM Peak	6:00 AM – 9:00 AM	20
Midday	9:00 AM – 3:00 PM	30
PM Peak	3:00 PM – 6:00 PM	20
Evening	6:00 PM – 9:00 PM	30
Night	–	–
Owl	–	–
Saturday	6:00 AM – 9:00 PM	
Daytime	6:00 AM – 6:00 PM	30
Evening	6:00 PM – 9:00 PM	60
Sunday	7:00 AM – 8:00 PM	60

KEY DESTINATIONS
▪ Downtown Hartford ▪ Hartford Hospital ▪ CT Department of Corrections ▪ Wolcott Hill Park-and-Ride ▪ Price Rite ▪ CT Department of Motor Vehicles ▪ Wethersfield Shopping Center ▪ Walmart ▪ Rocky Hill Center ▪ Veterans Home and Hospital

2.19 ROUTE 54

Service Design

The proposed Route 54 would operate as a Radial Route between downtown Hartford, Griffin Center Office Park in Bloomfield, and Day Hill Road in Windsor, via Blue Hills Avenue. Together with Route 36, Route 54 would help provide 15-minute service frequency to Day Hill Road during peak periods.

Together with Routes 46, 50, 58 and 76, Route 50 would provide 6-minute or better frequency during peak-periods along Albany Avenue, and 10-minute frequency during off-peak times. Along Blue Hills Avenue, Routes 54 would combine with Routes 20 and 50 to provide better than 10-minute frequency during peak periods, and about 12-minute frequency during off-peak hours.

As one of Hartford's most dense and transit-supportive corridors, Albany Avenue can support the proposed high service frequencies (see Figure 87). Over the long-term, establishing an enhanced transit corridor along Albany Avenue provides a focus for future capital investments such as enhanced passenger amenities and transit-priority treatments. Future investments along Blue Hills Avenue may also be warranted.

FIGURE 86 | PROPOSED ROUTE 54 ALIGNMENT

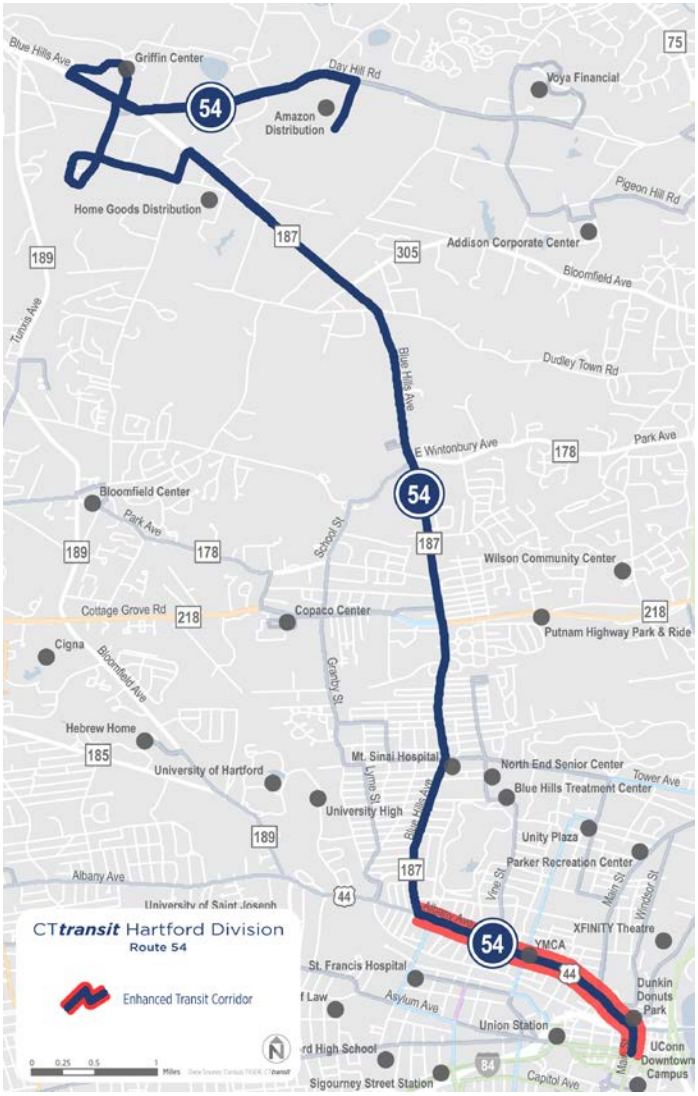
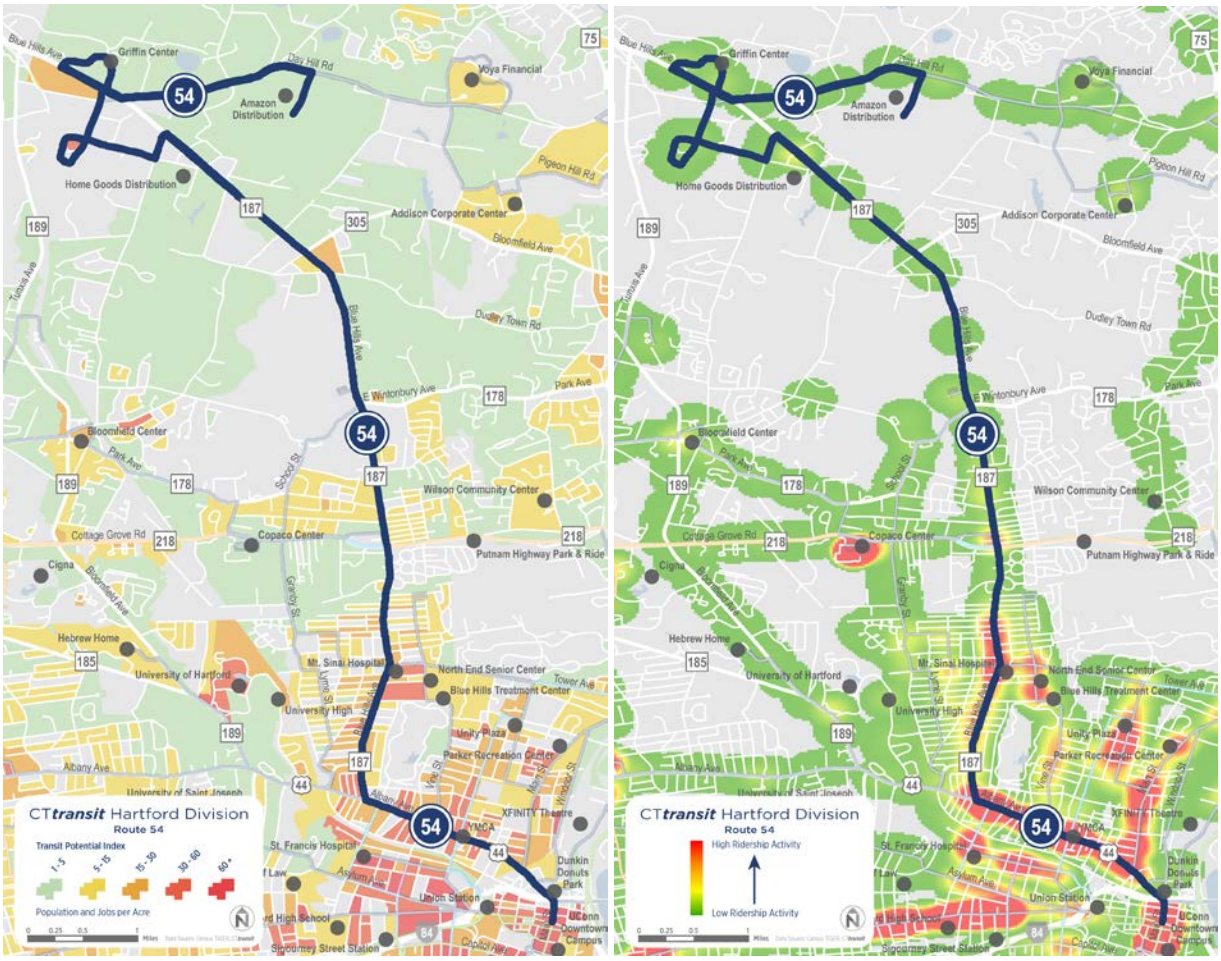


FIGURE 87 | TRANSIT POTENTIAL AND EXISTING TRANSIT RIDERSHIP ALONG PROPOSED ROUTE 54 ALIGNMENT



Service Characteristics

Route 54 would operate at 30 minute frequency during peak periods, and 60 minute frequency during the off-peak hours (see Figure 88). By interlining with Route 36, more frequent service can be provided to Day Hill Road. Together, the two routes would provide 15-minute peak frequency to Day Hill Road and 30-minute service during off-peak hours. Service span would be extended and would include weekends, to better serve shift workers along Day Hill Road.

Interlining Route 54 with Route 36 would create a 5-hour cycle time and optimize layover time for both routes. Route 54 would operate outbound to the Amazon Distribution Facility off Day Hill Road via Blue Hills Avenue and return inbound as Route 36 via Windsor Center and Windsor Avenue, changing headsigns at Amazon (and vice-versa). Route 54 and 36 schedules can be coordinated to meet Routes 130 and 34 at the Poquonock Park-and-Ride Lot.

FIGURE 88 | PROPOSED ROUTE 54 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	5:00 AM – 11:00 PM	
Early	5:00 AM – 6:00 AM	60
AM Peak	6:00 AM – 9:00 AM	30
Midday	9:00 AM – 3:00 PM	60
PM Peak	3:00 PM – 6:00 PM	30
Evening	6:00 PM – 9:00 PM	60
Night	9:00 PM – 11:00 PM	60
Owl	–	–
Saturday	6:00 AM – 9:00 PM	60
Sunday	7:00 AM – 8:00 PM	60

KEY DESTINATIONS
▪ Downtown North
▪ Community Health Services/Albany Avenue
▪ YMCA/Albany Avenue
▪ Blue Hills Avenue
▪ Home Goods Distribution Center
▪ Griffin Center/The Hartford
▪ Amazon Distribution Center/Day Hill Road

2.20 ROUTE 55

Service Design

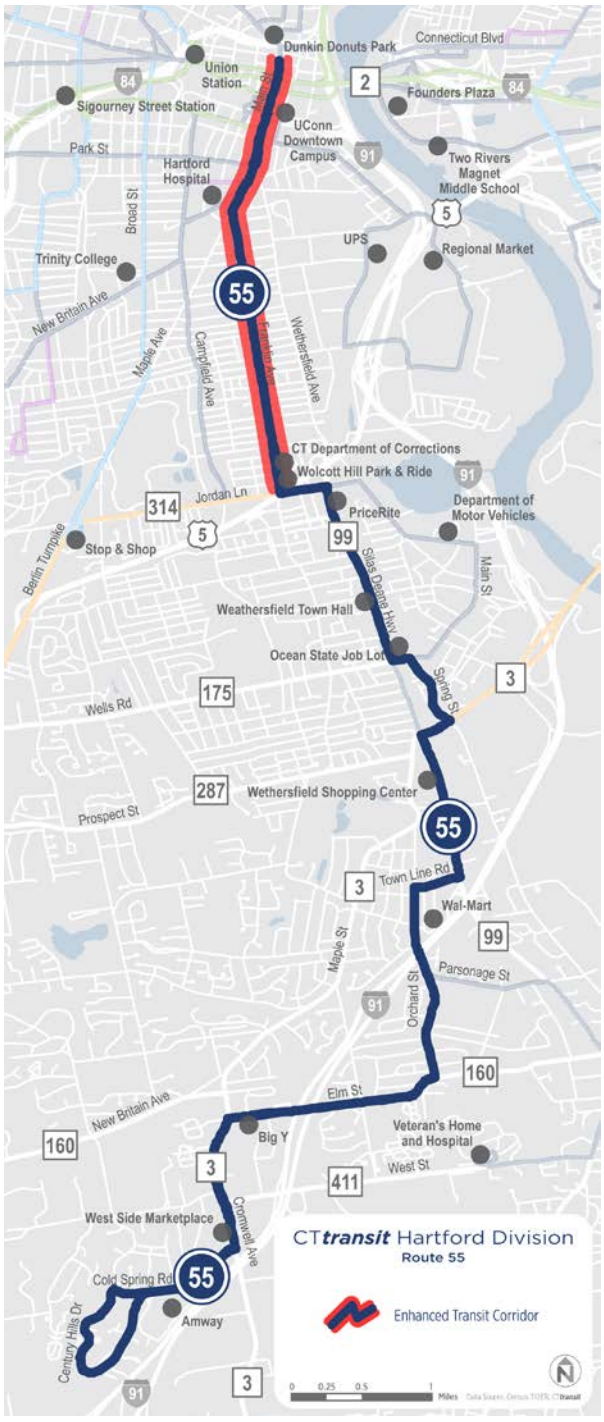
The proposed Route 55 would operate as a Radial Route between downtown Hartford and the Century Springs neighborhood in Rocky Hill via Franklin Avenue, Spring Street in Wethersfield, Silas Deane Highway, Elm Street, Cromwell Avenue, and Century Springs Drive in Rocky Hill (see Figure 89).

Together with Route 53, Route 55 would help establish an enhanced transit corridor along Franklin Street. With both routes operating every 20 minutes during peak periods, an effective average frequency of a bus every 10 minutes can be provided along Franklin Avenue, between Jordan Lane and downtown Hartford. Over the long-term, establishing an enhanced transit corridor would provide a focus for future capital investments such as enhanced passenger amenities and transit-priority treatments.

From Jordan Lane to downtown Hartford, the proposed Route 55 would serve a highly transit-supportive environment with high population and employment density and good pedestrian infrastructure (see Figure 90). South of Jordan Lane, the environment is more suburban and less transit-supportive. The convergence and divergence of Routes 53 and 55 would be designed to provide the highest level of transit service in the most transit-supportive segment of the corridor, while also providing a one-seat ride to downtown Hartford from any stop on Route 53 and Route 55.

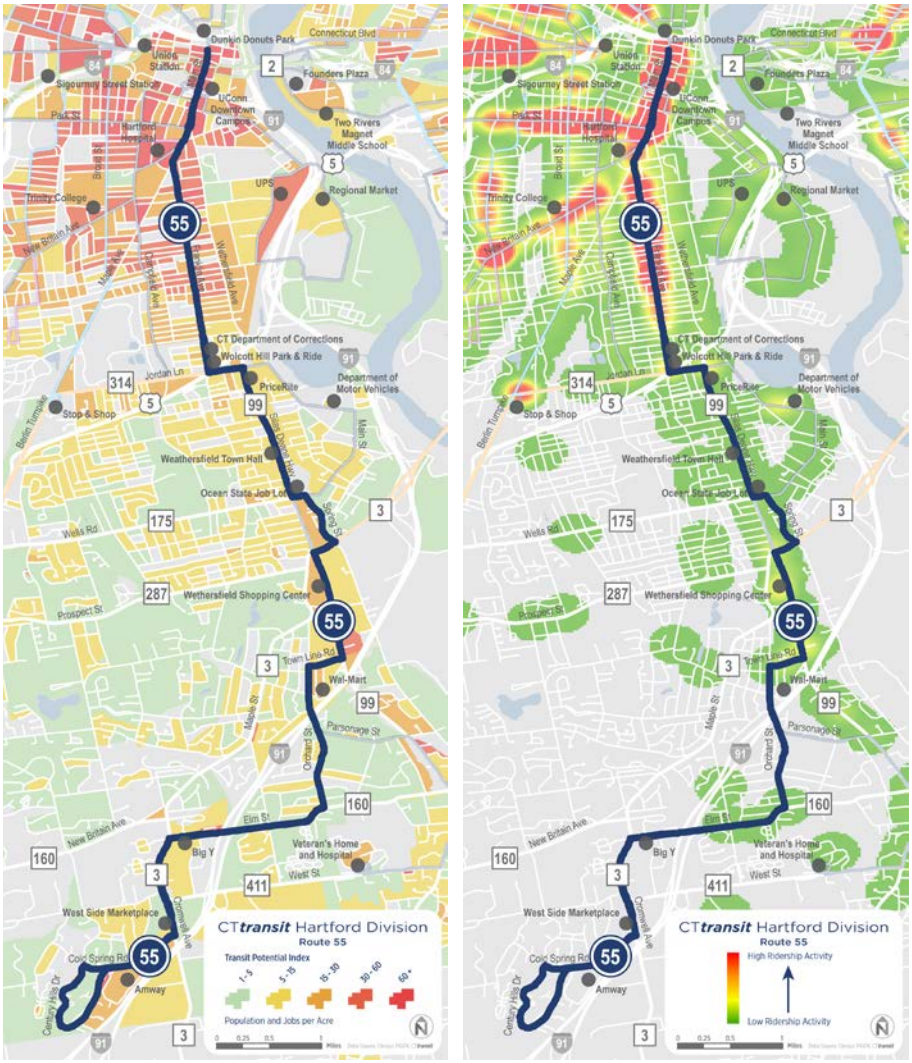
The proposed Route 55 would no longer serve Middletown. Current ridership patterns suggest that Middletown riders could be served through a combination of expanded service on Express Route 921, serving Hartford and Middletown, and improved feeder service to the Silver Street Park-and-Ride in Middletown by Middletown Area Transit. Alternatively, a new Express route could be considered between Middletown and Hartford. Unlike Route 921, the new route could serve downtown Middletown, as well as the Silver Street

FIGURE 89 | PROPOSED ROUTE 55 ALIGNMENT



Park-and-Ride to better connect to Middletown Area Transit (MAT) routes that do not serve the Silver Street facility. In general, the Middletown to Hartford connection is a more appropriate function for Express service than for local service of the CT***transit*** Hartford Division.

FIGURE 90 | ROUTE 55 TRANSIT POTENTIAL INDEX AND RIDERSHIP ACTIVITY MAP



Service Characteristics

Route 55 would be interlined with proposed Route 40 in downtown Hartford to create a 3-hour cycle time and optimize layover time for both routes. Interlining the two routes would also provide a one-seat ride for passengers traveling between the Franklin Avenue and North Main Street corridors via downtown Hartford.

Route 55 would operate at 20-minute frequency during peak periods and 30-minute frequency during off-peak hours. Combined with Route 53, an average peak frequency of every 10 minutes would be provided along Franklin Avenue and portions of Silas Deane Highway (see Figure 91).

FIGURE 91 | PROPOSED ROUTE 55 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	5:00 AM – 9:00 PM	
Early	5:00 AM – 6:00 AM	30
AM Peak	6:00 AM – 9:00 AM	20
Midday	9:00 AM – 3:00 PM	30
PM Peak	3:00 PM – 6:00 PM	20
Evening	6:00 PM – 9:00 PM	30
Night	9:00 PM – 11:00 PM	–
Owl	–	–
Saturday	6:00 AM – 9:00 PM	
Daytime	6:00 AM – 6:00 PM	30
Evening	6:00 PM – 9:00 PM	60
Sunday	7:00 AM – 8:00 PM	60

KEY DESTINATIONS
▪ Downtown Hartford
▪ Hartford Hospital
▪ CT Department of Corrections
▪ Wolcott Hill Park-and-Ride
▪ Price Rite
▪ Wethersfield Town Hall
▪ Wethersfield Shopping Center
▪ Walmart
▪ Big Y
▪ Century Hills

2.21 ROUTE 56

Service Design

The proposed Route 56 would operate as a radial route between downtown Hartford and the Hebrew Home in Bloomfield via Asylum Avenue, Ashley Street, Woodland Street, and Bloomfield Avenue. The route would also serve the University of Hartford and Union Station where connections could be made to the CT***fastrak*** network (see Figure 92).

The new alignment is designed to better connect key activity centers in this corridor (see Figure 93 and Figure 94). It would provide new direct connections between the Hebrew Home and St. Francis Hospital, as well as between the University of Hartford and Union Station. Route 76, which currently operates via Ashley Street, Woodland Street, Cornwall Street and Copaco Center, would be realigned to operate via Albany Avenue. Service to Bloomfield Center would be consolidated on Route 50 via Copaco, rather than via the underutilized segment of Route 56 north of the Hebrew Home.

FIGURE 92 | PROPOSED ROUTE 56 ALIGNMENT

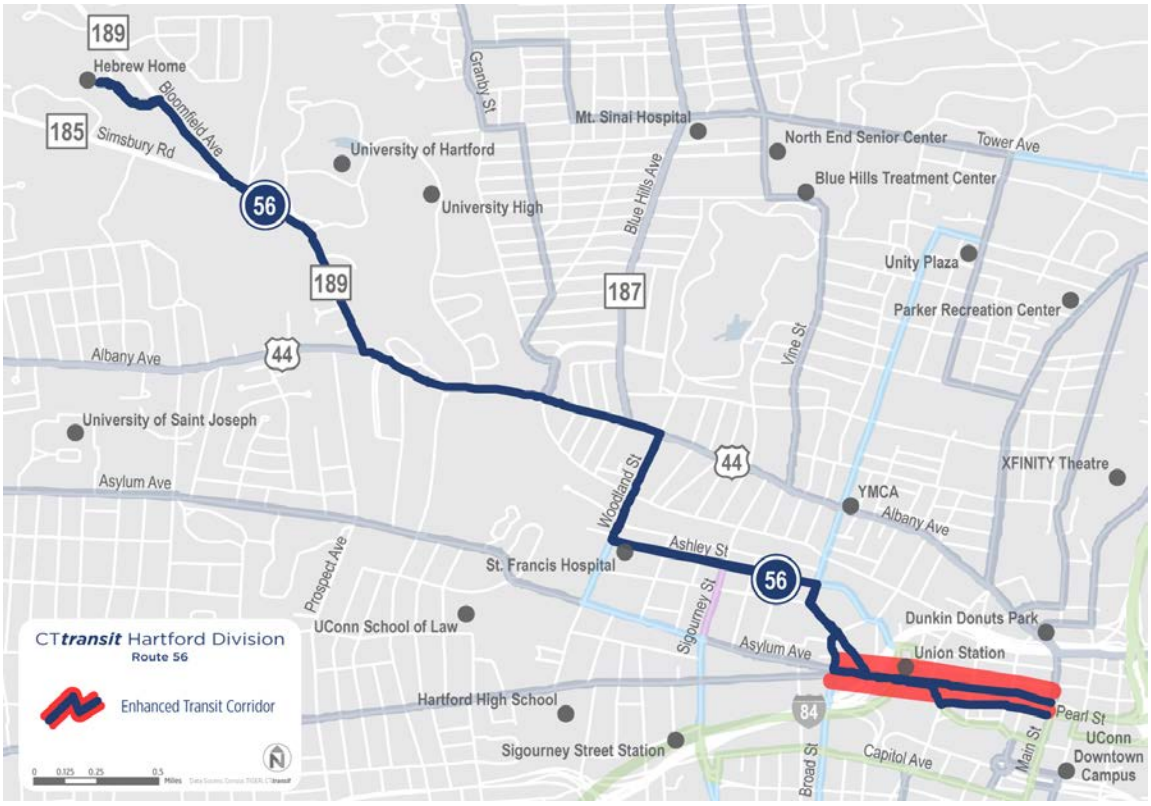


FIGURE 93 | TRANSIT POTENTIAL ALONG PROPOSED ROUTE 56 ALIGNMENT

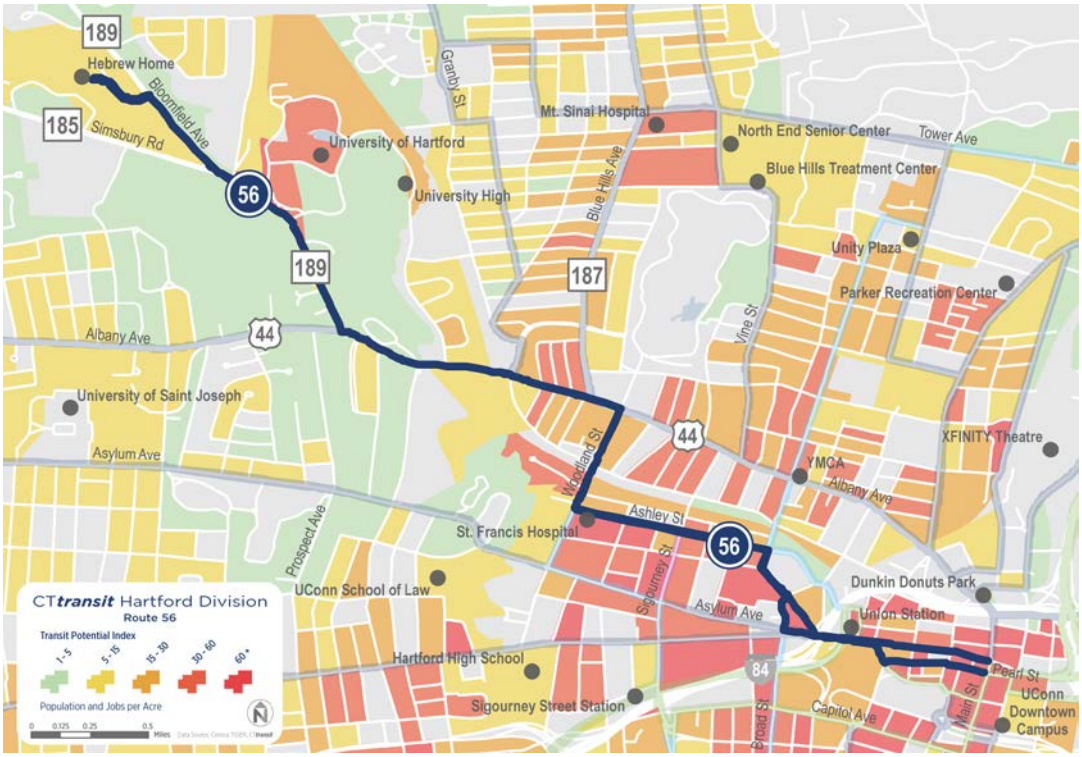


FIGURE 94 | EXISTING TRANSIT RIDERSHIP ALONG PROPOSED ROUTE 56 ALIGNMENT

Service Characteristics

Route 56 would operate at 30-minute frequency for most of the day, including the mid-day period (when it operates hourly today). During the early morning and late evening hours, service would be hourly (see Figure 95).

Route 56 could be interlined with proposed Route 87 in downtown Hartford to create a 2-hour cycle time and optimize layover time for both routes. This would also create a one-seat ride between the University of Hartford, East Hartford, and Goodwin College.

FIGURE 95 | PROPOSED ROUTE 56 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	5:00 AM – 9:00 PM	
Early	5:00 AM – 6:00 AM	60
AM Peak	6:00 AM – 9:00 AM	30
Midday	9:00 AM – 3:00 PM	30
PM Peak	3:00 PM – 6:00 PM	30
Evening	6:00 PM – 9:00 PM	60
Night	–	–
Owl	–	–
Saturday	6:00 AM – 9:00 PM	60
Sunday	No Service	

KEY DESTINATIONS
▪ Downtown Hartford
▪ Union Station
▪ St. Francis Hospital
▪ Westbrook Village
▪ University of Hartford
▪ Jewish Community Center
▪ Hebrew Home

2.22 ROUTE 58

Service Design

The proposed Route 58 would operate as a radial route between downtown Hartford and Bishops Corner in West Hartford, via Albany Avenue. The alignment would be unchanged from the current Route 58 alignment (see Figure 96). The route would continue to serve the densely populated and high ridership corridor along Albany Avenue, as well as the major retail destination in Bishop's Corner (see Figure 97). At Bishop's Corner, connections could be made to West Harford Center, CT***fastrak***'s Flatbush Station, the Cigna/Met campus and Copaco Center.

Route 58 would continue to be an important component of high frequency service along the high ridership Albany Avenue corridor (see Figure 98). Together with Routes 46, 50, 54 and 76, Route 58 would provide 6-minute or better frequency during peak-periods along Albany Avenue, and 10-minute frequency during off-peak times. Over the long-term, establishing an enhanced transit corridor provides a focus for future capital investments such as enhanced passenger amenities and transit-priority treatments. Limiting the number of bus stops along this busy corridor would also help improve the speed and flow of transit service.

FIGURE 96 | PROPOSED ROUTE 58 ALIGNMENT

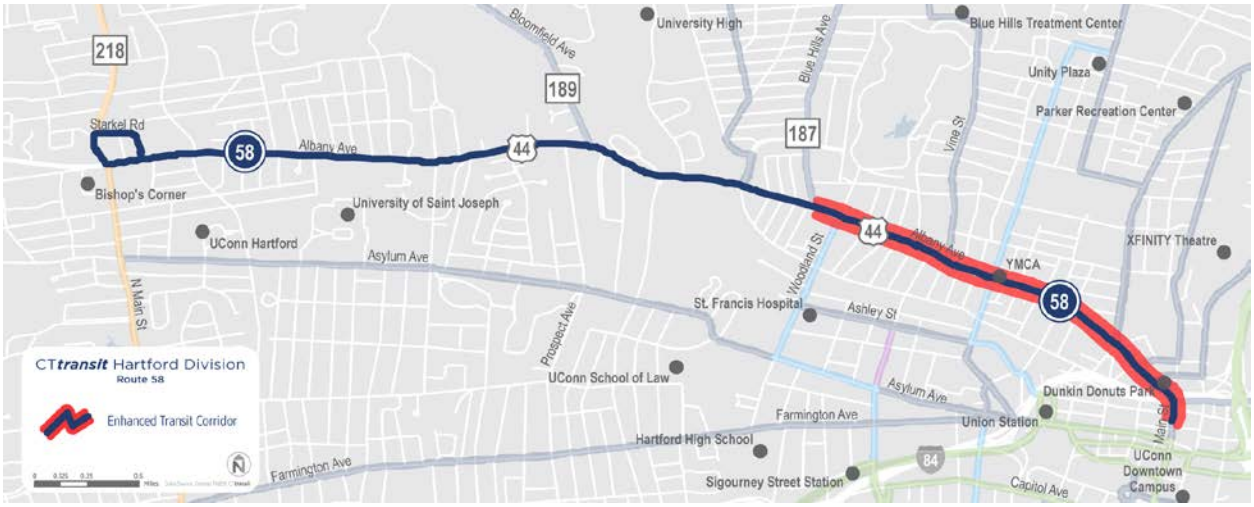


FIGURE 97 | TRANSIT POTENTIAL ALONG PROPOSED ROUTE 58 ALIGNMENT

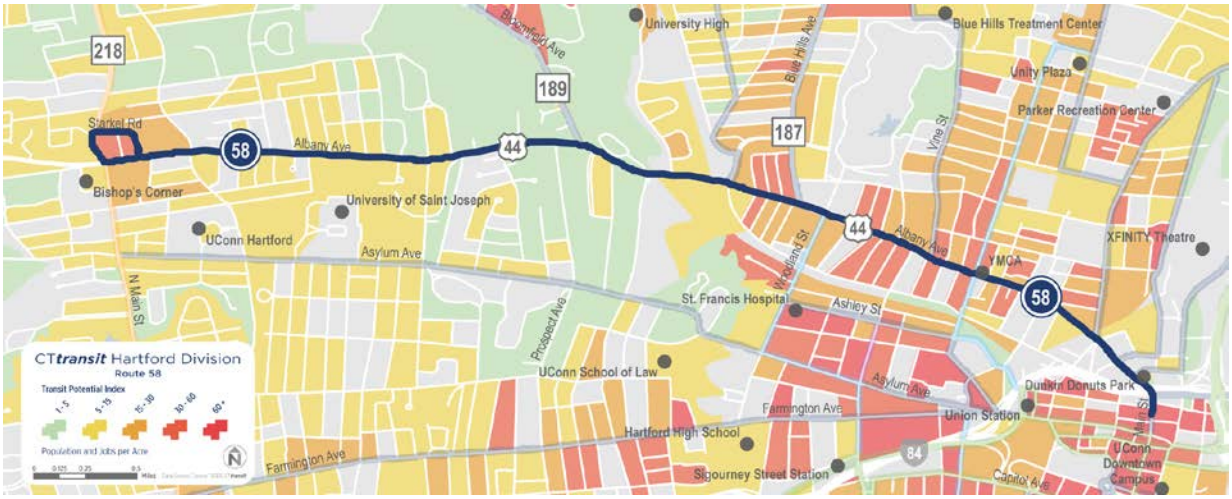


FIGURE 98 | EXISTING TRANSIT RIDERSHIP ALONG PROPOSED ROUTE 58 ALIGNMENT

Service Characteristics

Route 58 would operate at a 30-minute frequency during peak periods and at a 60-minute frequency during off-peak times (see Figure 99). This is the same as operated today.

Route 58 could be interlined with proposed Route 72 in downtown Hartford to create a 2-hour cycle time and optimize layover time for both routes. Buses operating along the two routes would alternate between Route 58 service and Route 72 service every other trip. Drivers would change headsigns on Main Street near State House Square.

FIGURE 99 | PROPOSED ROUTE 58 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	5:00 AM – 10:00 PM	
Early	5:00 AM – 6:00 AM	60
AM Peak	6:00 AM – 9:00 AM	30
Midday	9:00 AM – 3:00 PM	60
PM Peak	3:00 PM – 6:00 PM	30
Evening	6:00 PM – 9:00 PM	60
Night	9:00 PM – 10:00 PM	60
Owl	–	–
Saturday	6:00 AM – 9:00 PM	60
Sunday	7:00 AM – 8:00 PM	60

KEY DESTINATIONS
▪ Downtown North
▪ Community Health Center, Albany Street
▪ Hartt Community School
▪ Westbrook Village
▪ University of Saint Joseph
▪ Bishops Corner

2.23 ROUTE 59

Service Design

The proposed Route 59 would operate as a radial route between downtown Hartford and the South Meadows / Brainard Airport area via Charter Oak Avenue, Huyshope Avenue, and Locust Street. The southern end of the route would operate as a one-way clockwise loop beginning and ending at Huyshope Avenue and Wawarme Avenue (see Figure 100).

While bi-directional service is generally preferable to a one-way loop, an exception is warranted in the case of Route 59 because the route primarily serves to connect passengers transferring from other routes in downtown Hartford to employment opportunities on the southern end of the route (see Figure 101). Very few passengers are traveling between stops south of Wawarme Avenue. By closing the existing gap along Reserve Road between Regional Market and Wawarme Avenue to create a loop, a significant amount of time could be shaved off the route, improving the route's service productivity.

FIGURE 100 | PROPOSED ROUTE 59 ALIGNMENT

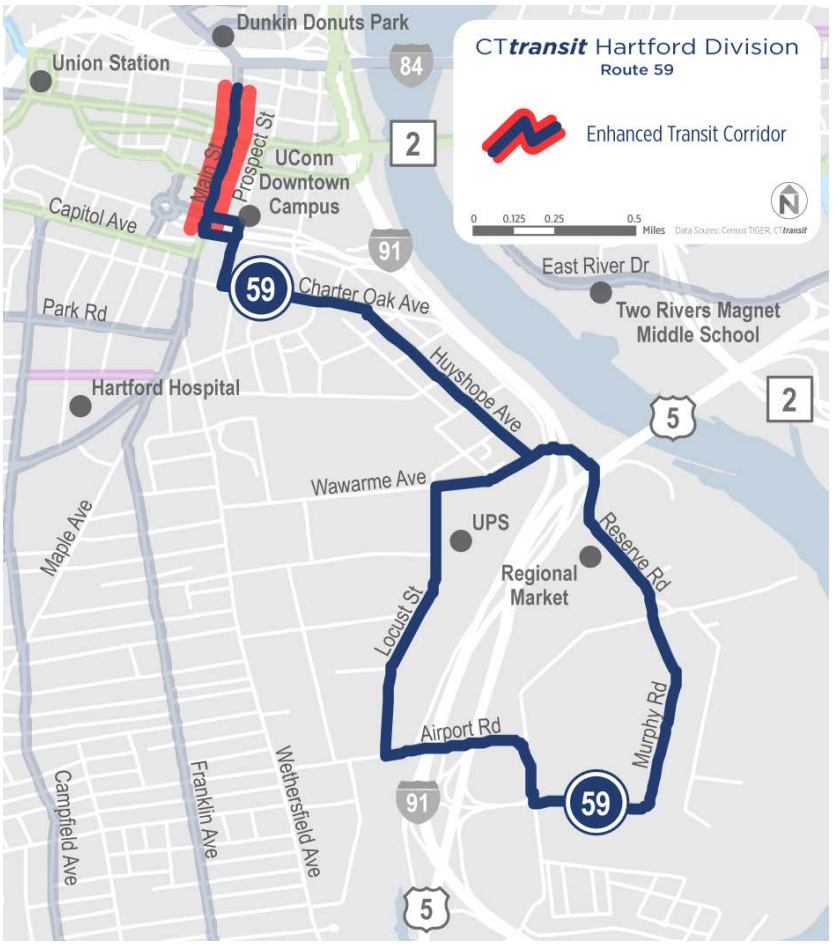
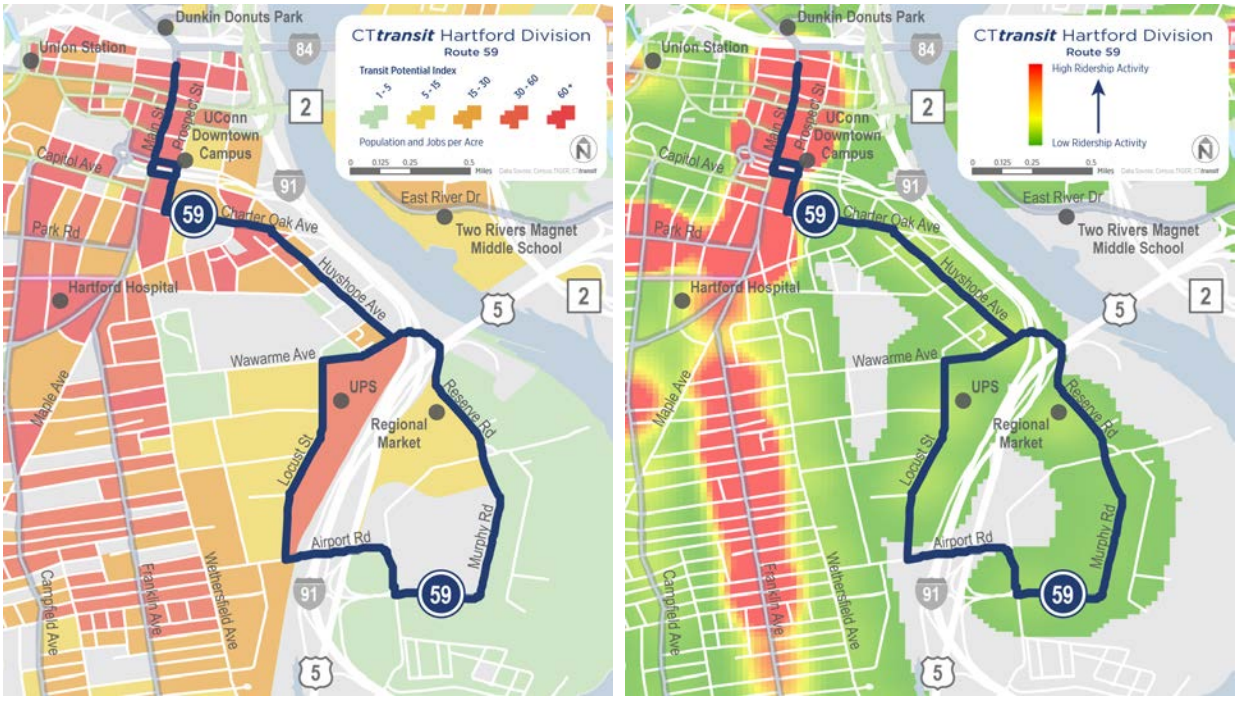


FIGURE 101 | TRANSIT POTENTIAL AND EXISTING TRANSIT RIDERSHIP ALONG PROPOSED ROUTE 59 ALIGNMENT



Service Characteristics

The proposed Route 59 would operate every 20-minutes during peak periods, dropping to 40-minute service in the off-peak. This would make Route 59 one of only two proposed routes in the Hartford Division to have a non-clockface service frequency during part of the service day.

Route 59 could be interlined with proposed Route 38 in downtown Hartford, resulting in a combined hour and 20-minute cycle that would optimize layover time for both routes.

FIGURE 102 | PROPOSED ROUTE 59 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	6:00 AM – 9:00 PM	
Early	–	–
AM Peak	6:00 AM – 9:00 AM	20
Midday	9:00 AM – 3:00 PM	40
PM Peak	3:00 PM – 6:00 PM	20
Evening	6:00 PM – 9:00 PM	40
Night	–	–
Owl	–	–
Saturday	7:00 AM – 7:00 PM	80
Sunday	9:00 AM – 5:00 PM	80

KEY DESTINATIONS
▪ Downtown Hartford ▪ UPS ▪ Brainard Airport ▪ Regional Market

2.24 ROUTE 60

Service Design

The proposed Route 60 would operate as a radial route between downtown Hartford and West Hartford Center via Farmington Avenue (see Figure 103). Service would be operated every 10 minutes during peak periods and every 15 minutes during the off-peak. This high level of service is warranted to serve the density of development along Farmington Avenue (see Figure 104), as demonstrated by current transit demand (see Figure 105).

West Hartford Center would become a key transit hub, where passengers could make multiple connections, including to routes serving Bishops Corner, the Cigna/MetLife campus on Hall Boulevard, Westfarms Mall, Charter Oak Marketplace, CCSU, UConn Health Center, and Unionville.

Together with Routes 88 and 90, Route 60 would help establish a continuous enhanced transit corridor from West Hartford Center to I-84 in Manchester via Farmington Avenue, downtown Hartford, and Burnside Avenue. Over the long-term, establishing an enhanced transit corridor along Farmington Avenue would provide a focus for future capital investments such as enhanced passenger amenities and transit-priority treatments. Limiting the number of bus stops along these busy corridors would also help improve the speed and flow of transit service. Future corridor improvements along Burnside Avenue should also be considered.

FIGURE 103 | PROPOSED ROUTE 60 ALIGNMENT

FIGURE 104 | TRANSIT POTENTIAL ALONG PROPOSED ROUTE 60 ALIGNMENT

FIGURE 105 | EXISTING TRANSIT RIDERSHIP ALONG PROPOSED ROUTE 60 ALIGNMENT

Service Characteristics

Route 60 would be interlined with proposed Routes 88 and 90 in downtown Hartford to create a 6-hour cycle time and optimize layover time for these routes. Buses would operate from West Hartford Center to downtown Hartford then continue east, alternating to serve either Buckland Hills Mall or Middle Turnpike in Manchester.

During peak periods, 10-minute service frequency would be available between West Hartford Center and I-84, where buses would diverge to serve either Buckland Hills Mall or Middle Turnpike in Manchester. Service would be available every 15 minutes during off-peak periods.

FIGURE 106 | PROPOSED ROUTE 60 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	4:00 AM – 11:00 PM	
Early	4:00 AM – 6:00 AM	15
AM Peak	6:00 AM – 9:00 AM	10
Midday	9:00 AM – 3:00 PM	15
PM Peak	3:00 PM – 6:00 PM	10
Evening	6:00 PM – 9:00 PM	15
Night	9:00 PM – 11:00 PM	30
Owl	–	–
Saturday	5:00 AM – 10:00 PM	
Daytime	5:00 AM – 9:00 PM	30
Evening	9:00 PM – 10:00 PM	60
Sunday	6:00 AM – 9:00 PM	
Daytime	6:00 AM – 6:00 PM	30
Evening	6:00 PM – 9:00 PM	60

KEY DESTINATIONS
▪ Downtown Hartford
▪ Union Station
▪ Aetna
▪ Hartford High School
▪ West Hartford Center
▪ Blue Back Square

2.25 ROUTE 61

Service Design

The proposed Route 61 would operate as a crosstown route between Jordan Lane Shopping Center in Wethersfield and Windsor Shopping Center in Windsor via Maple Avenue, Broad Street, Garden Street, Tower Avenue and Windsor Avenue (see Figure 107). This new alignment would pick up much of the service coverage of existing Routes 44 and 61.

The route would give passengers a one-seat ride from Wethersfield and south Hartford to north Hartford and Windsor. It would also serve several key destinations including Trinity College, Union Station, and the Connecticut Department of Social Services. In addition, the proposed crosstown route would provide a "bridge" between several emerging enhanced transit corridors including North Main Street, Albany Avenue, Farmington Avenue, and Park Street (see Figure 108). Connections to CT***fastrak*** service would be available at Union Station.

FIGURE 107 | PROPOSED ROUTE 61 ALIGNMENT

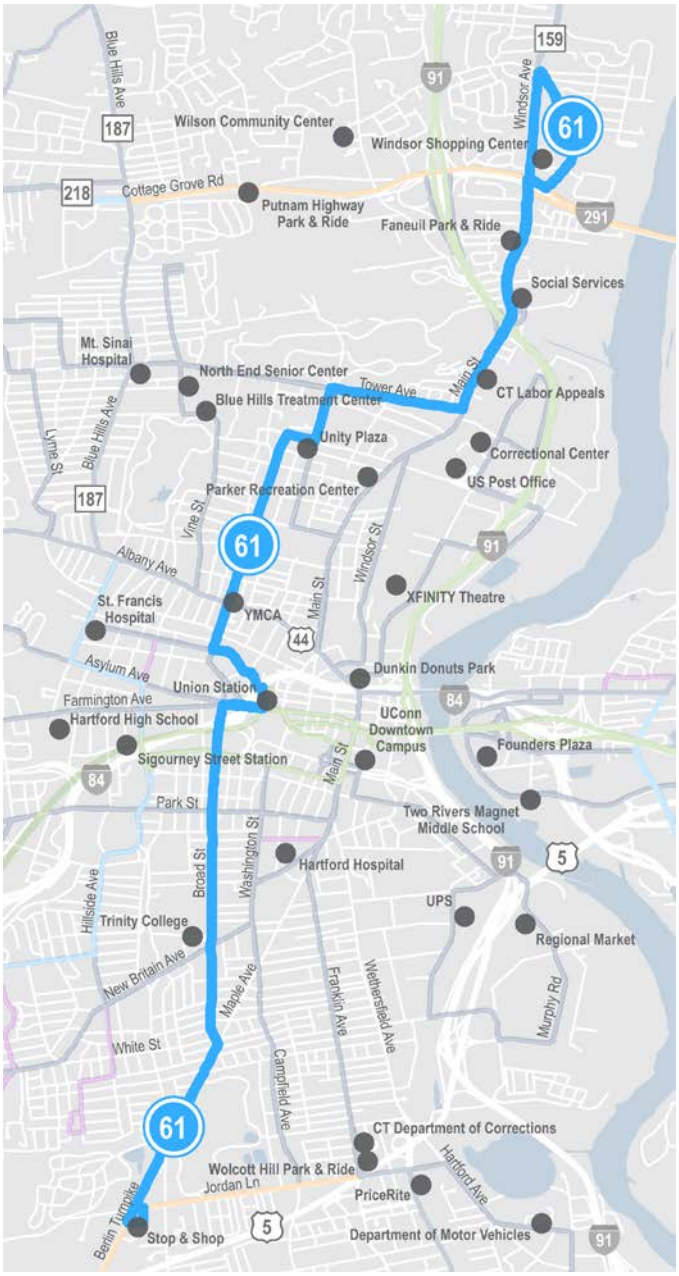
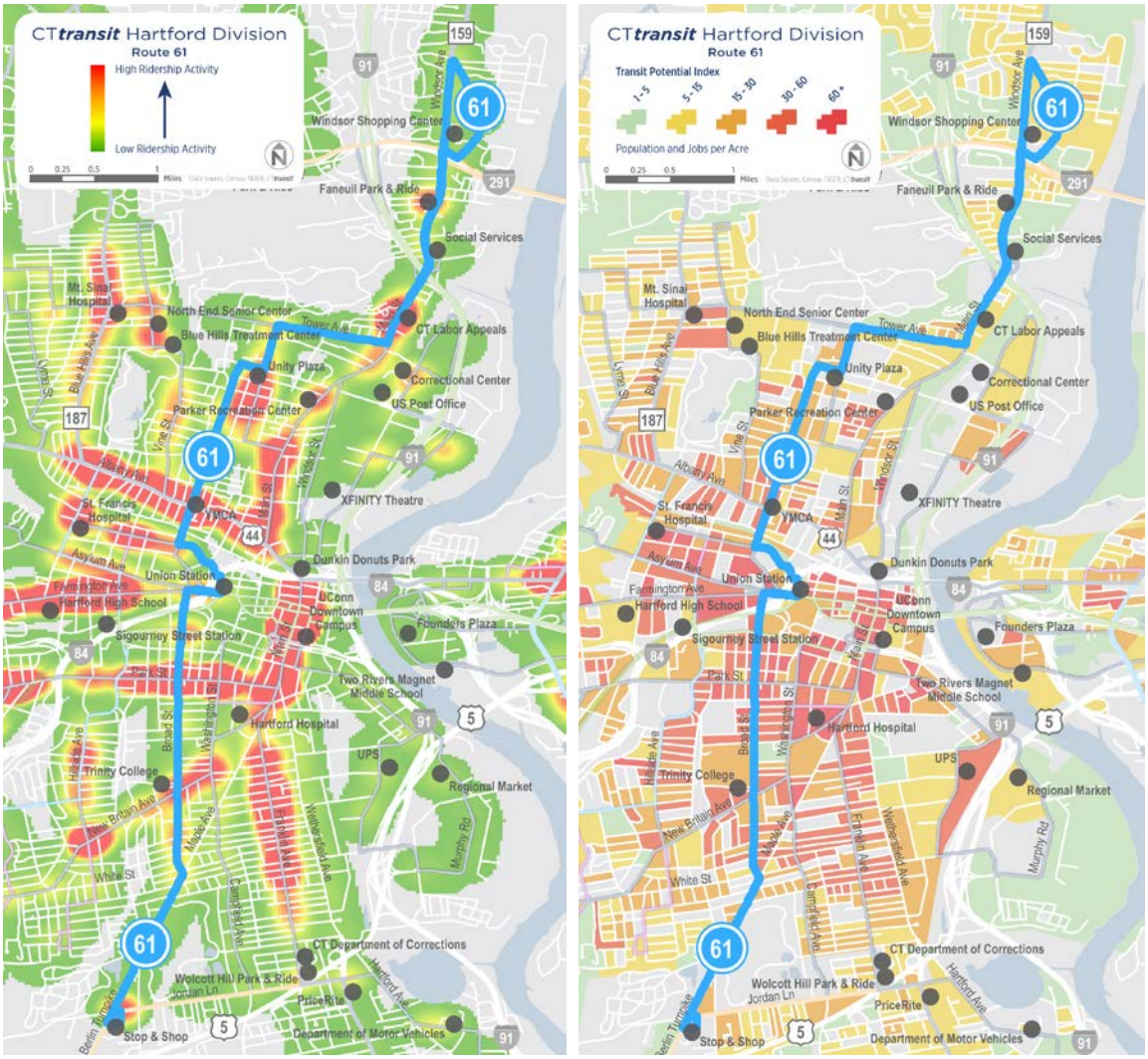


FIGURE 108 | TRANSIT POTENTIAL AND EXISTING TRANSIT RIDERSHIP ALONG PROPOSED ROUTE 61 ALIGNMENT



Service Characteristics

The proposed Route 61 would operate every 30 minutes for much of the service day, with the exception of hourly service in the early morning and after the evening peak (see Figure 109). Service frequency of 30 minutes would provide convenient and predictable connections between key corridors and key destinations.

FIGURE 109 | PROPOSED ROUTE 61 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

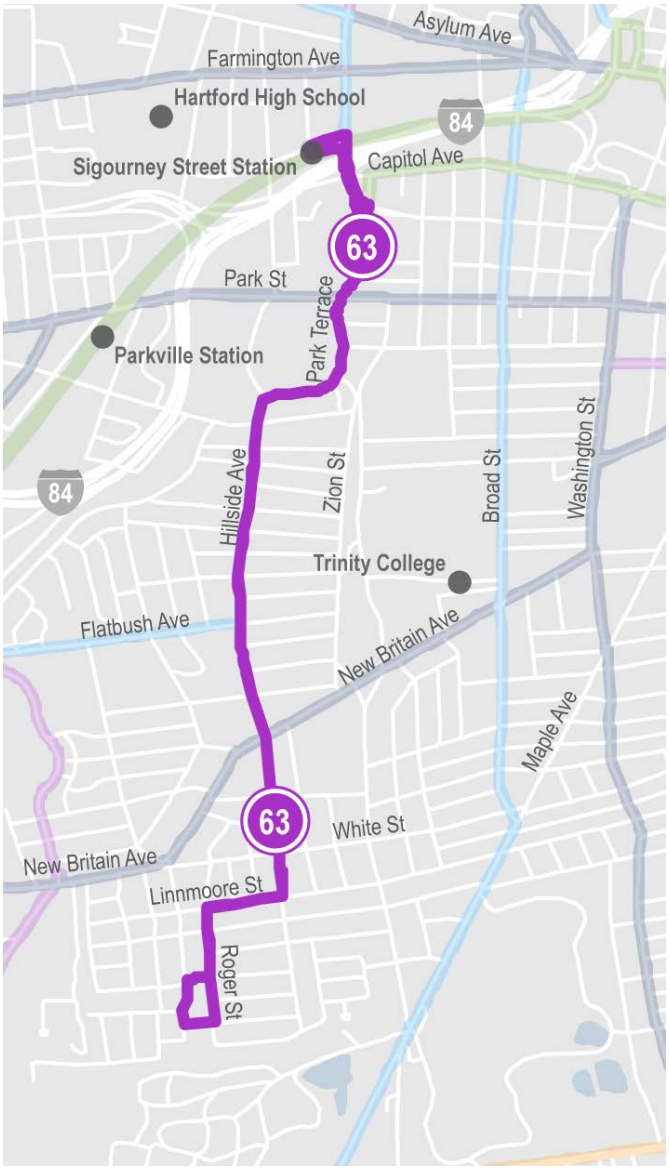
SERVICE PERIOD	PROPOSED SPAN OF SERVICE
Weekdays	6:00 AM – 9:00 PM
Early	5:00 AM – 6:00 AM
AM Peak	6:00 AM – 9:00 AM
Midday	9:00 AM – 3:00 PM
PM Peak	3:00 PM – 6:00 PM
Evening	6:00 PM – 9:00 PM
Night	
Owl	–
Saturday	6:00 AM – 9:00 PM
Midday	6:00 AM – 6:00 PM
Evening	6:00 PM – 9:00 PM
Sunday	7:00 AM – 8:00 PM

2.26 ROUTE 63

Service Design

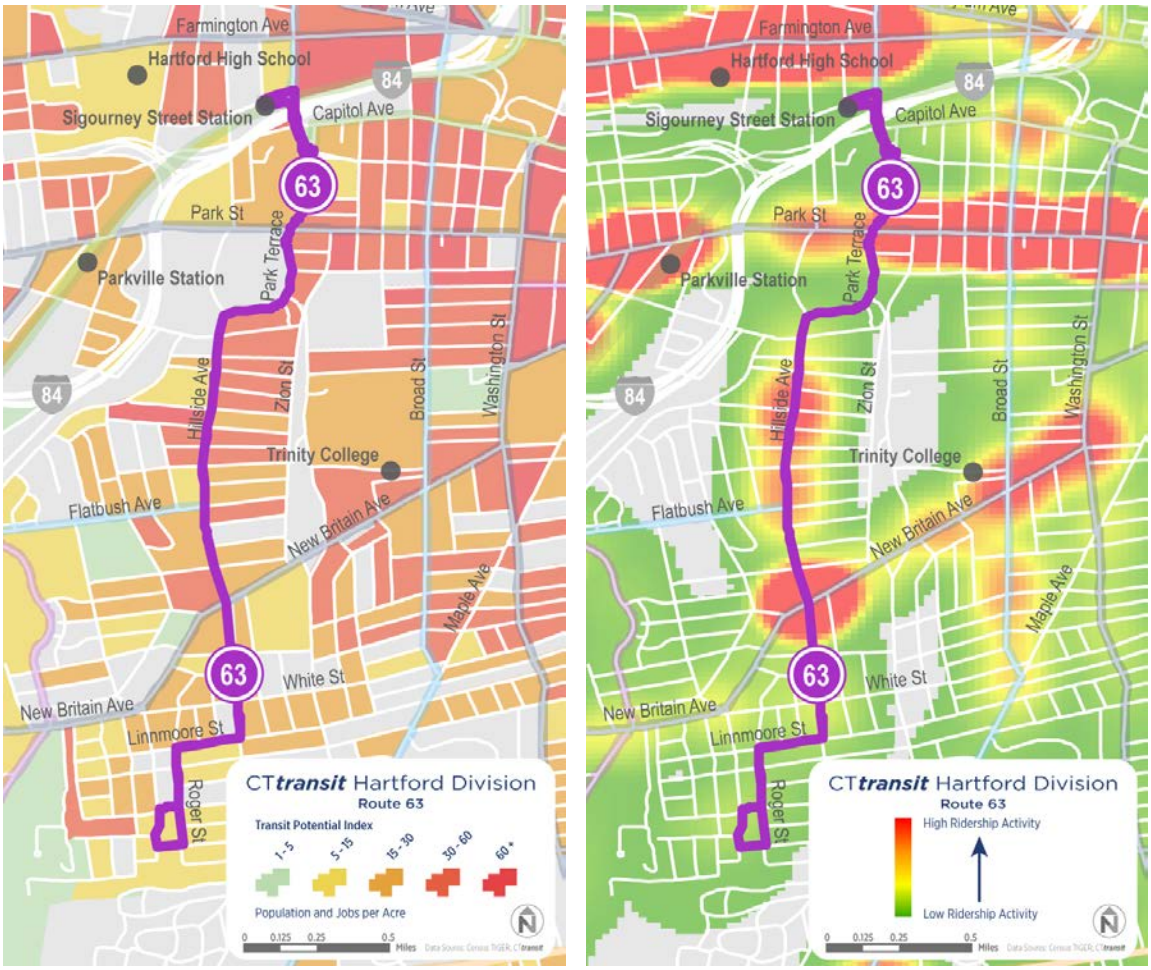
The proposed Route 63 would operate as a Connector Route linking residential areas along Hillside Avenue in Hartford with the Sigourney Street CT***fastrak*** station (see Figure 110). The route would also facilitate transfers to other routes operating along New Britain Avenue and Park Street. The proposed route would not, however, serve downtown Hartford. Passengers wishing to travel to downtown Hartford could choose from multiple connection opportunities including CT***fastrak*** Routes 101 and 102 at Sigourney Street Station.

FIGURE 110 | PROPOSED ROUTE 63 ALIGNMENT



The proposed 63 would serve a highly transit-supportive environment with high population and employment density and good pedestrian infrastructure. To simplify the service, the Charter Oak Marketplace variant (63A) would be eliminated and service would be concentrated where ridership is highest (see Figure 111). Frequent connections to Charter Oak Marketplace would be available at Hillside Avenue and Flatbush Avenue via the proposed Routes 20 and 37.

FIGURE 111 | TRANSIT POTENTIAL AND EXISTING TRANSIT RIDERSHIP ALONG PROPOSED ROUTE 63 ALIGNMENT



Service Characteristics

Route 63 would operate every 30 minutes during peak periods, and hourly at all other times (see Figure 112).

FIGURE 112 | PROPOSED ROUTE 63 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	5:00 AM – 8:00 PM	
Early	5:00 AM – 6:00 AM	60
AM Peak	6:00 AM – 9:00 AM	30
Midday	9:00 AM – 3:00 PM	60
PM Peak	3:00 PM – 6:00 PM	30
Evening	6:00 PM – 8:00 PM	60
Night	–	–
Owl	–	–
Saturday	To Be Determined	
Sunday	To Be Determined	

KEY DESTINATIONS
▪ Sigourney Street Station ▪ Goodwin Memorial Branch Library ▪ South West Hartford

2.27 ROUTE 66

Service Design

The proposed Route 66 would operate as a Connector Route, linking West Hartford Center with Unionville via Farmington Avenue (see Figure 113). The route would also serve the UConn Health Center in Farmington and Westgate Plaza and apartments in West Hartford. At West Hartford Center, passengers would be able to make multiple connections, including to routes serving Bishops Corner, the Cigna/MetLife campus on Hall Boulevard, Westfarms Mall, CCSU, Charter Oak Marketplace, and downtown Hartford.

West of UConn Health Center, the density of land uses in the Farmington Avenue corridor drops significantly (see Figure 114). However, there are some apartments, residential areas and other potential trip generators in Farmington Center and Unionville. Service beyond Unionville to Tunxis Community College would be provided only via CT***fastrak*** service and New Britain Route 503.

FIGURE 113 | PROPOSED ROUTE 66 ALIGNMENT

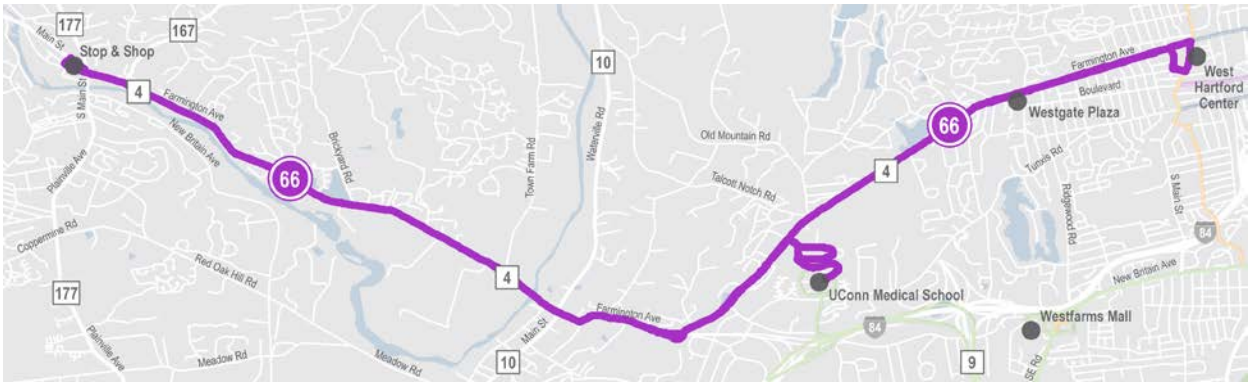


FIGURE 114 | TRANSIT POTENTIAL ALONG PROPOSED ROUTE 66 ALIGNMENT

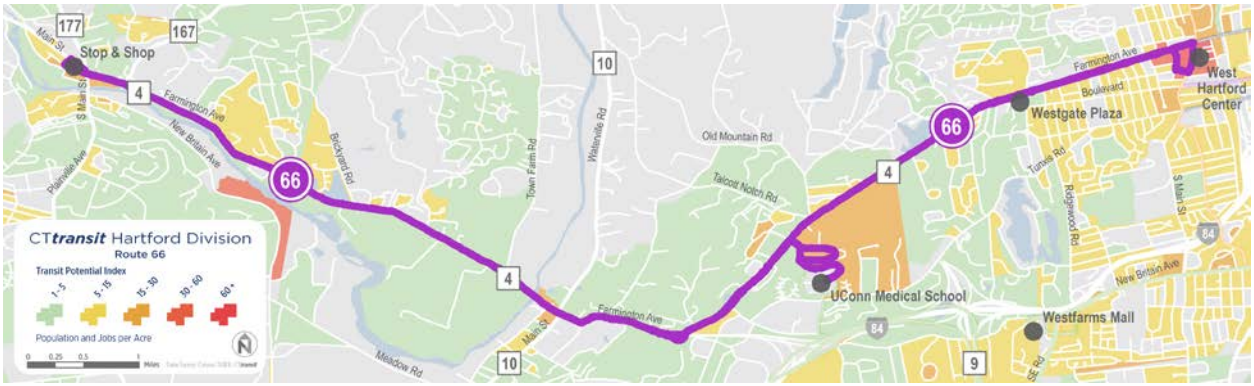
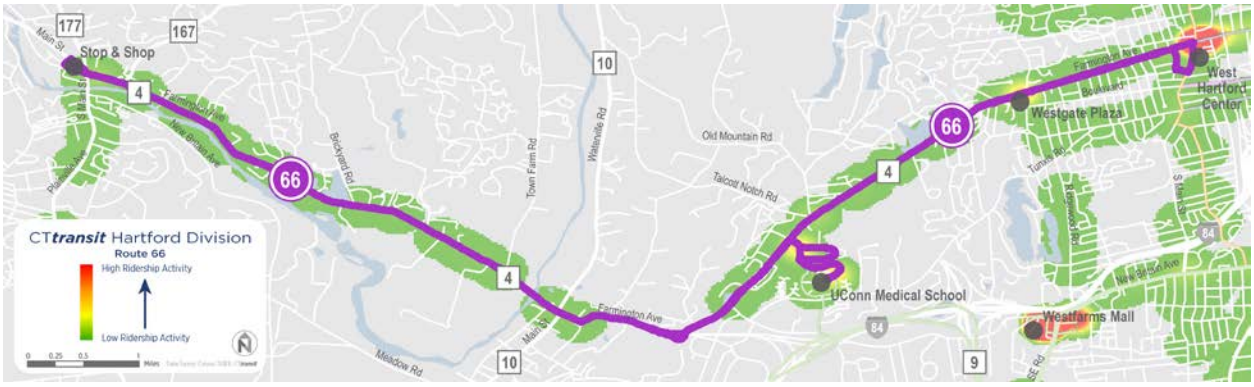


FIGURE 115 | EXISTING TRANSIT RIDERSHIP ALONG PROPOSED ROUTE 66 ALIGNMENT



Service Characteristics

Route 66 would operate every 30 minutes during peak hours and every 60 minutes during off-peak hours. Service would end at 8:00 pm, with later evening service to UConn Health Center provided via CT***fastrak*** Route 121.

Route 66 would be interlined with proposed Routes 41 in West Hartford Center to create a 4-hour cycle time and optimize layover time for these routes. This would also provide a direct one-seat ride between various locations in West Harford and Newington, including the Flatbush CT***fastrak*** station, and would complement CT***fastrak*** Route 121, which serves UConn Health Center via the Cedar Street CT***fastrak*** station.

FIGURE 116 | PROPOSED ROUTE 66 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	5:00 AM – 8:00 PM	
Early	5:00 AM – 6:00 AM	60
AM Peak	6:00 AM – 9:00 AM	30
Midday	9:00 AM – 3:00 PM	60
PM Peak	3:00 PM – 6:00 PM	30
Evening	6:00 PM – 8:00 PM	60
Night	–	–
Owl	–	–
Saturday	6:00 AM – 8:00 PM	60
Sunday	No Service	

KEY DESTINATIONS
▪ West Hartford Center
▪ Blue Back Square
▪ Westgate Shopping Center
▪ UConn Health Center
▪ Farmington City Hall & Library
▪ Unionville

2.28 ROUTE 67

Service Design

The proposed Route 67 would replace the current CT***fastrak*** Route 140, which connects the CCSU campus to the nearby Cedar Street CT***fastrak*** station. The Route would operate clockwise, following a similar, but more streamlined alignment through the CCSU (see Figure 117). Rebranding this service as a Connector Route more accurately describe its role in the regional transit network. The proposed Connector category of service refers to routes, like the proposed Route 67, that provide feeder service to key transit hubs, but do not directly serve downtown Hartford. Service to downtown Hartford is available via a transfer to several CT***fastrak*** routes at Cedar Street Station.

CCSU is a key regional destination and has the density and land-use to support frequent transit service (see Figure 118). Ridership on the CCSU campus has historically not been high very (see Figure 119), but the potential for ridership is now much stronger given the convenience and appeal of nearby CT***fastrak*** service. It should be noted that the intersection of Cedar Street and Fenn Road experiences heavy congestion during peak periods, and this could impact the on-time performance of Route 67 during peak times. Given the localized nature of this congestion, this intersection is well suited for a pilot program to test the effectiveness of transit priority treatments. The trend in transportation planning now is to consider the intersection throughput of people rather than vehicles. A simplified CCSU shuttle (proposed Route 67) serving a CT***fastrak*** station has very strong ridership potential, and would very likely justify prioritization at this intersection. In addition, signal prioritization for transit vehicles at this intersection would benefit proposed route 69, 99, and 121, in addition to Route 67.

FIGURE 117 | PROPOSED ROUTE 67 ALIGNMENT

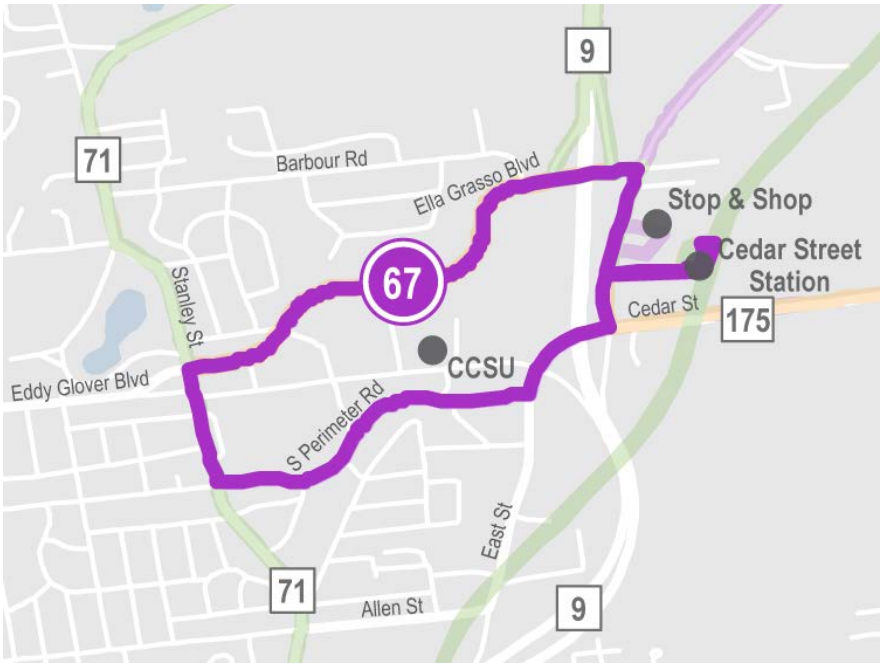


FIGURE 118 | TRANSIT POTENTIAL ALONG PROPOSED ROUTE 67 ALIGNMENT

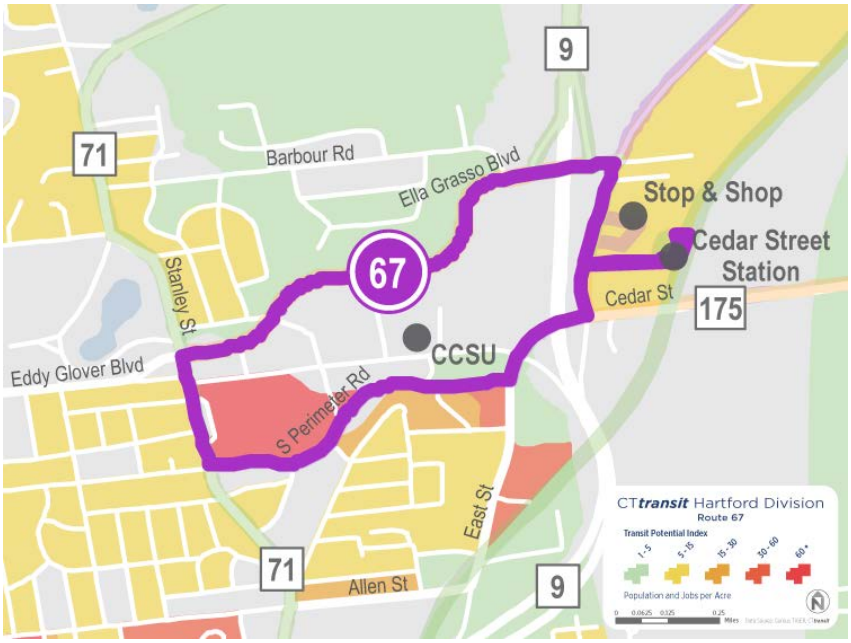
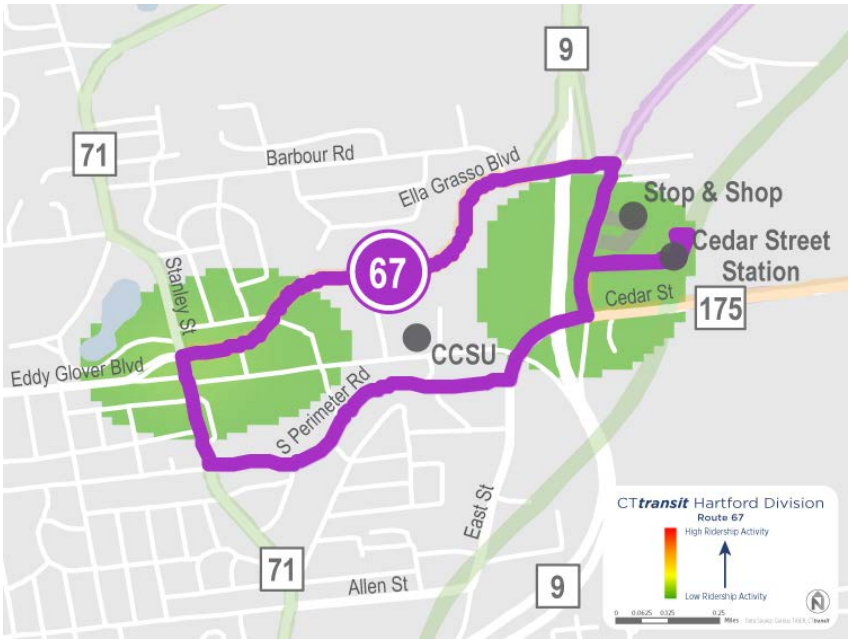


FIGURE 119 | EXISTING TRANSIT RIDERSHIP ALONG PROPOSED ROUTE 67 ALIGNMENT



Service Characteristics

Route 67 would operate every 15 minutes for its entire service day, providing both on-campus circulation and connections to CT***fastrak*** and other services at Cedar Street Station (see Figure 120).

FIGURE 120 | PROPOSED ROUTE 67 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	6:00 AM – 11:00 PM	
Early	–	–
AM Peak	6:00 AM – 9:00 AM	15
Midday	9:00 AM – 3:00 PM	15
PM Peak	3:00 PM – 6:00 PM	15
Evening	6:00 PM – 9:00 PM	15
Night	9:00 PM – 11:00 PM	15
Owl	–	–
Saturday	To Be Determined	
Sunday	To Be Determined	

KEY DESTINATIONS
▪ CCSU ▪ Super Stop & Shop ▪ Cedar Street Station

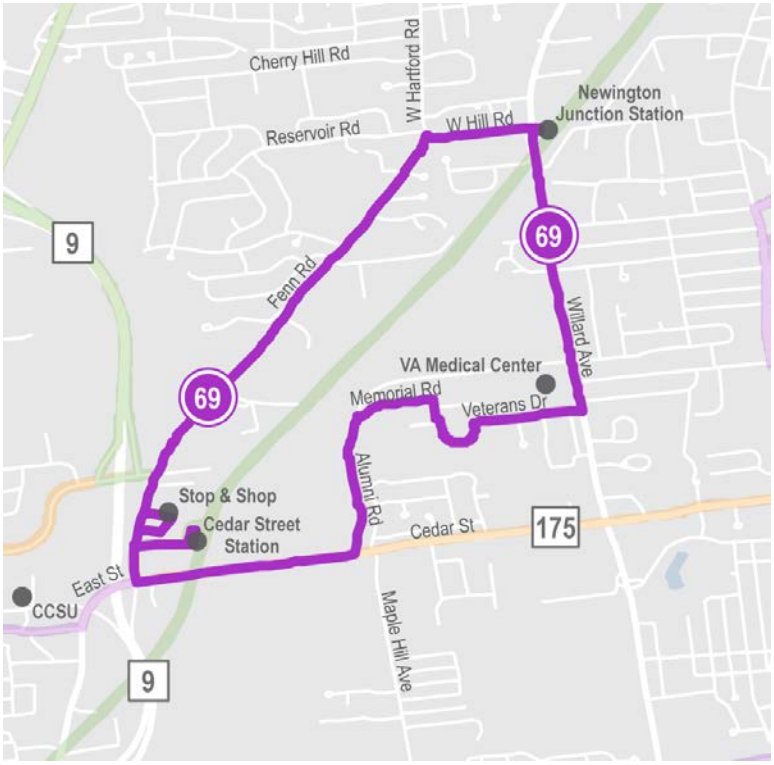
2.29 ROUTE 69

Service Design

The proposed Route 69 would operate as a Connector Route linking residential areas along the Fenn Road and Willard Avenue corridors in Newington with nearby retail destinations, medical facilities, and regional transit hubs (see Figure 121). Transit hubs that would be served by the route include the Cedar Street and Newington Junction CT***fastrak*** stations. The route would also serve Newington High School and the Veterans Affairs Connecticut Healthcare Center. Route 69 would not serve downtown Hartford, Newington Road, Quaker Lane, or Boulevard. Passengers traveling to downtown Hartford can do so via CT***fastrak***. Ridership along Newington Road is extremely low and the corridor can be accessed from West Hill Road to the south and New Britain Avenue to the north. Quaker Lane coverage would be provided via the proposed Route 41. Route 69 ridership along Boulevard is also very low, and Route 33 service is available on Park Road, one block to the south.

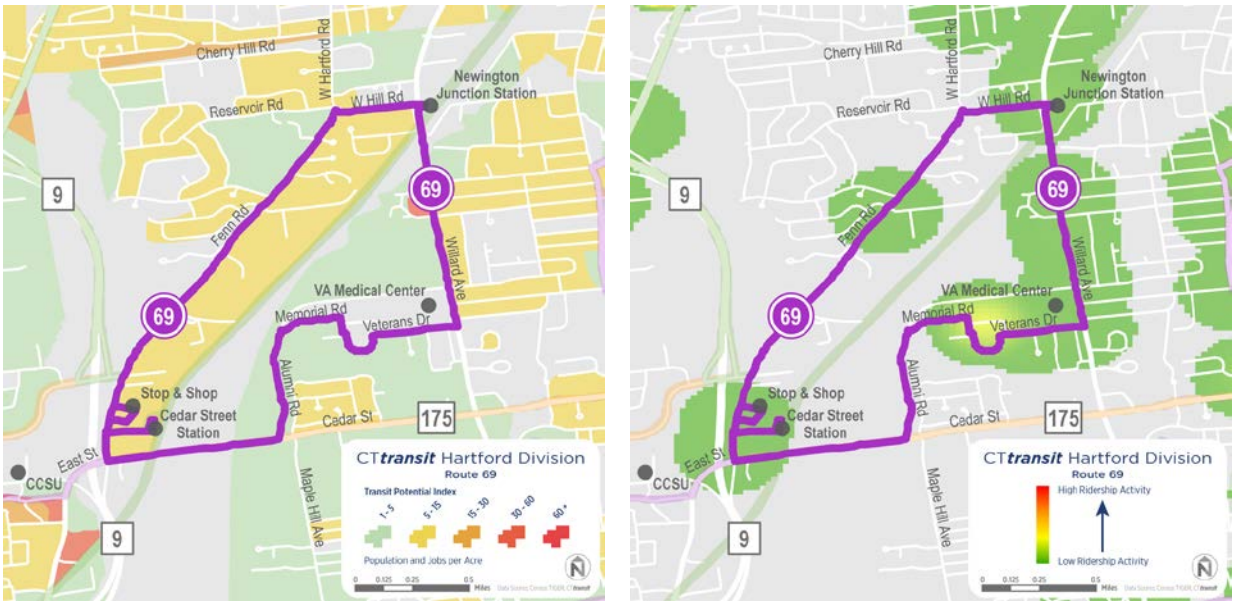
The proposed Route 69 would operate as a one-way loop. While bi-directional service is generally preferable to a one-way loop, an exception is warranted in the case of Route 69 because the loop is relatively short and connections to CT***fastrak*** service can be made at two opposite points on the loop. For example, a passenger traveling from downtown Hartford to the VA Medical Center could take CT***fastrak*** to Cedar Street Station and then connect to Route 69 for the last mile connection to the medical center. On the return trip, the same passenger could take Route 69 north to Newington Junction Station to connect to CT***fastrak*** service back to downtown Hartford.

FIGURE 121 | PROPOSED ROUTE 69 ALIGNMENT



Compared to the current Route 69, the proposed route would be very short and would concentrate service where the potential for ridership is highest (see Figure 122). Several apartment complexes line both Willard Road and Fenn Road, and key destinations along the route include the VA Medical Center, Newington High School, and Stop & Shop. Connections to CCSU would also be available via the proposed Route 67.

FIGURE 122 | TRANSIT POTENTIAL AND EXISTING RIDERSHIP ALONG PROPOSED ROUTE 69 ALIGNMENT



Service Characteristics

Route 69 would operate every half hour from the morning peak until early evening. Service would be hourly after 6:00 PM. The route could be interlined with proposed Route 45 at Cedar Street Station in order to create a 2-hour cycle time and optimize layover time for both routes. Each Route 45 trip to Cedar Street Station would complete a clockwise loop on Route 69 before beginning its return trip on Route 45.

FIGURE 123 | PROPOSED ROUTE 69 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	6:00 AM – 10:00 PM	
Early	–	–
AM Peak	6:00 AM – 9:00 AM	30
Midday	9:00 AM – 3:00 PM	30
PM Peak	3:00 PM – 6:00 PM	30
Evening	6:00 PM – 9:00 PM	60
Night	9:00 PM – 10:00 PM	60
Owl	–	–
Saturday	6:00 AM – 9:00 PM	60
Sunday	7:00 AM – 8:00 PM	60

KEY DESTINATIONS
▪ Newington Junction Station
▪ Newington High School
▪ VA Connecticut Healthcare Center
▪ Cedar Street Station
▪ CCSU
▪ Super Stop & Shop

2.30 ROUTE 72

Service Design

The proposed Route 72 would operate as a radial route between downtown Hartford and the Cigna/MetLife campus in Bloomfield. The route would operate primarily along Asylum Avenue and North Main Street (see Figure 124). This alignment would be the same as Route 72A operated by CT*transit* today. The Route 72F variant is proposed for discontinuation due to low ridership.

Route 72 would serve a high concentration of employment near Asylum Hill, including The Hartford and St. Francis Hospital (see Figure 125), residential neighborhoods and the University of Saint Joseph along Asylum Avenue, and at Bishops Corner. It would also connect the insurance businesses on Asylum Hill with the Cigna/MetLife campus in Bloomfield while serving several other high-ridership destinations such as Bishops Corner, St. Francis Hospital, and Union Station. While the UConn Hartford campus off Asylum Avenue will be relocating to downtown Hartford in 2017, the UConn School of Law off Elizabeth Street will remain and is about one-quarter mile from the proposed Route 72 alignment.

FIGURE 124 | PROPOSED ROUTE 72 ALIGNMENT

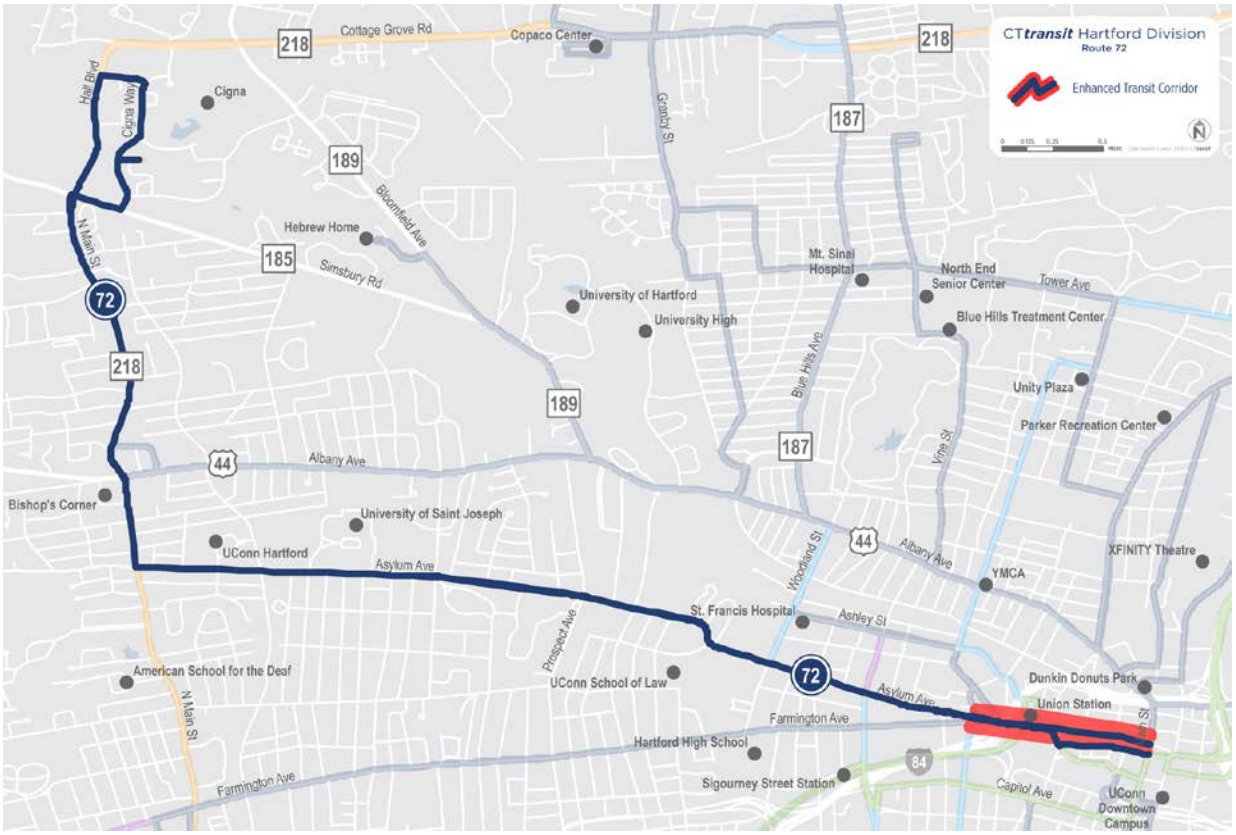


FIGURE 125 | TRANSIT POTENTIAL ALONG PROPOSED ROUTE 72 ALIGNMENT

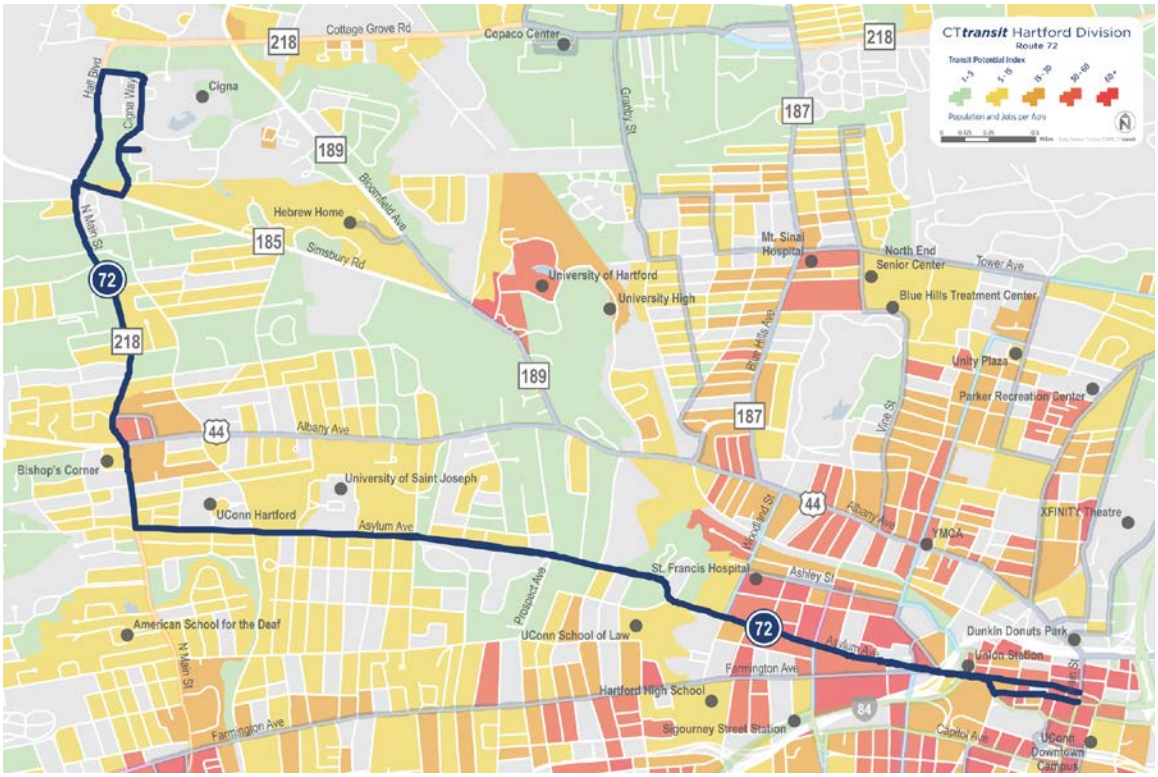
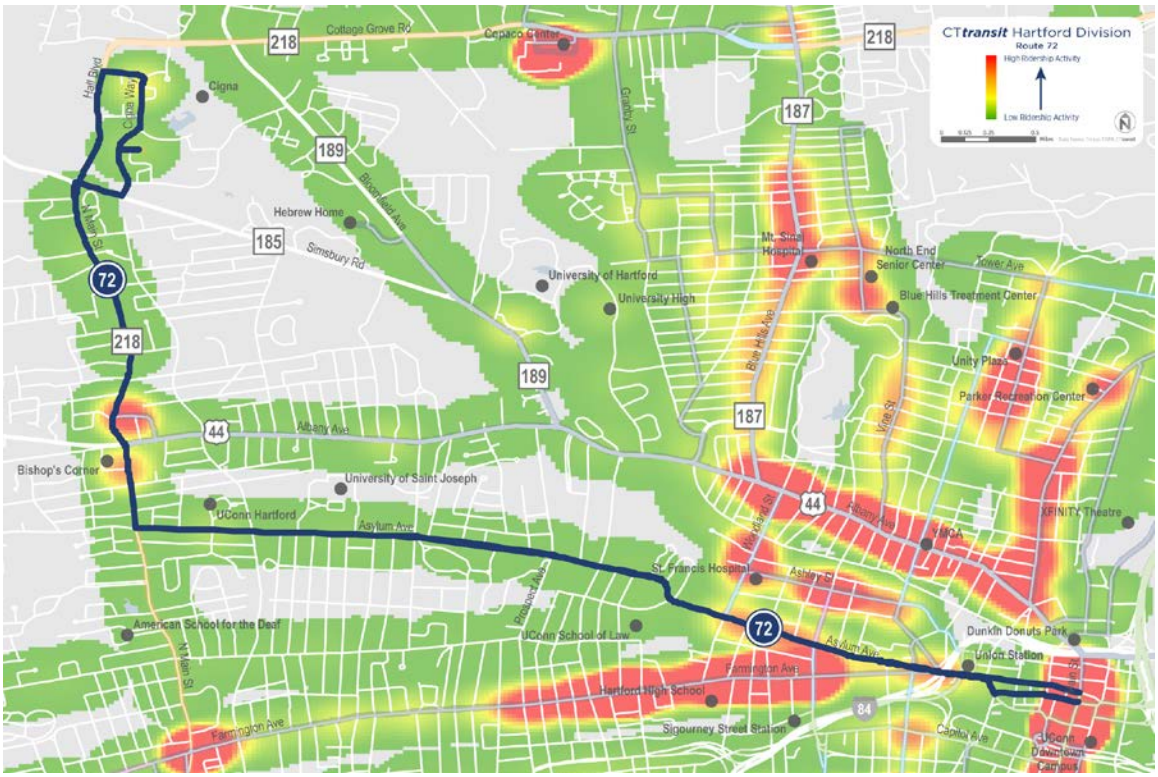


FIGURE 126 | EXISTING TRANSIT RIDERSHIP ALONG PROPOSED ROUTE 72 ALIGNMENT



Service Characteristics

Route 72 would operate every 30 minutes during peak periods and every 60 minutes during the off-peak. Service would be extended to 10 PM on weekday evenings to better serve the universities, retail destinations, and other activity centers along the route.

Route 72 would be interlined with proposed Route 58 in downtown Hartford to create a 2-hour cycle time and optimize layover time for both routes. Buses operating along the two routes would alternate between Route 72 service and Route 58 service every other trip. Drivers would change headsigns when approaching Union Station.

FIGURE 127 | PROPOSED ROUTE 72 SERVICE CHARACTERISTICS KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	5:00 AM – 10:00 PM	
Early	5:00 AM – 6:00 AM	60
AM Peak	6:00 AM – 9:00 AM	30
Midday	9:00 AM – 3:00 PM	60
PM Peak	3:00 PM – 6:00 PM	30
Evening	6:00 PM – 9:00 PM	60
Night	9:00 PM – 10:00 PM	60
Owl	–	–
Saturday	6:00 AM – 9:00 PM	60
Sunday	7:00 AM – 8:00 PM	60

KEY DESTINATIONS
▪ Downtown Hartford
▪ Union Station
▪ The Hartford
▪ Asylum Hill
▪ St. Francis Hospital
▪ University of Saint Joseph
▪ UConn Hartford (current campus)/School of Law
▪ Bishops Corner
▪ Cigna/MetLife campus

2.31 ROUTE 76

Service Design

The proposed Route 76 would operate as a radial route between downtown Hartford, Copaco Center and the Wedgewood Village Apartments in Bloomfield. The route would operate primary along Albany Avenue, Lyme Street, Granby Street, and School Street (see Figure 128).

The route's alignment would be modified or shifted along several segments to become more direct and to better coordinate with parallel services. It would be redirected to operate along Albany Avenue, rather than via Ashley Street and Woodland Street. CT***fastrak*** Route 161 and proposed Route 56 would provide connections between downtown and St. Francis Hospital. A proposed new Route 20 Crosstown Connector would also connect Blue Hills Avenue with St. Francis and Sigourney Street.

North of Albany Street, Route 76 would shift to serve Lyme and Granby Street, rather than Cornwall. This pulls service further to the west in this corridor and reflects the proposed discontinuation of Route 74, extension of Route 42 via Tower and Palm, and the high frequency of service operated on Blue Hills Avenue.

Together with Routes 46, 50, 54, and 58, Route 76 would help establish an enhanced transit corridor along Albany Avenue, providing 10-minute or better service frequency between Blue Hills Avenue and downtown Hartford during peak periods. As shown in Figure 129, this corridor has the density and existing ridership demand needed to support high frequency service. Over the long-term, establishing an enhanced transit corridor would provide a focus for future capital investments such as enhanced passenger amenities and transit-priority treatments.

Service Characteristics

Route 76 is proposed to operate at a consistent 30-minute frequency all day (see Figure 130).

FIGURE 128 | PROPOSED ROUTE 76 ALIGNMENT

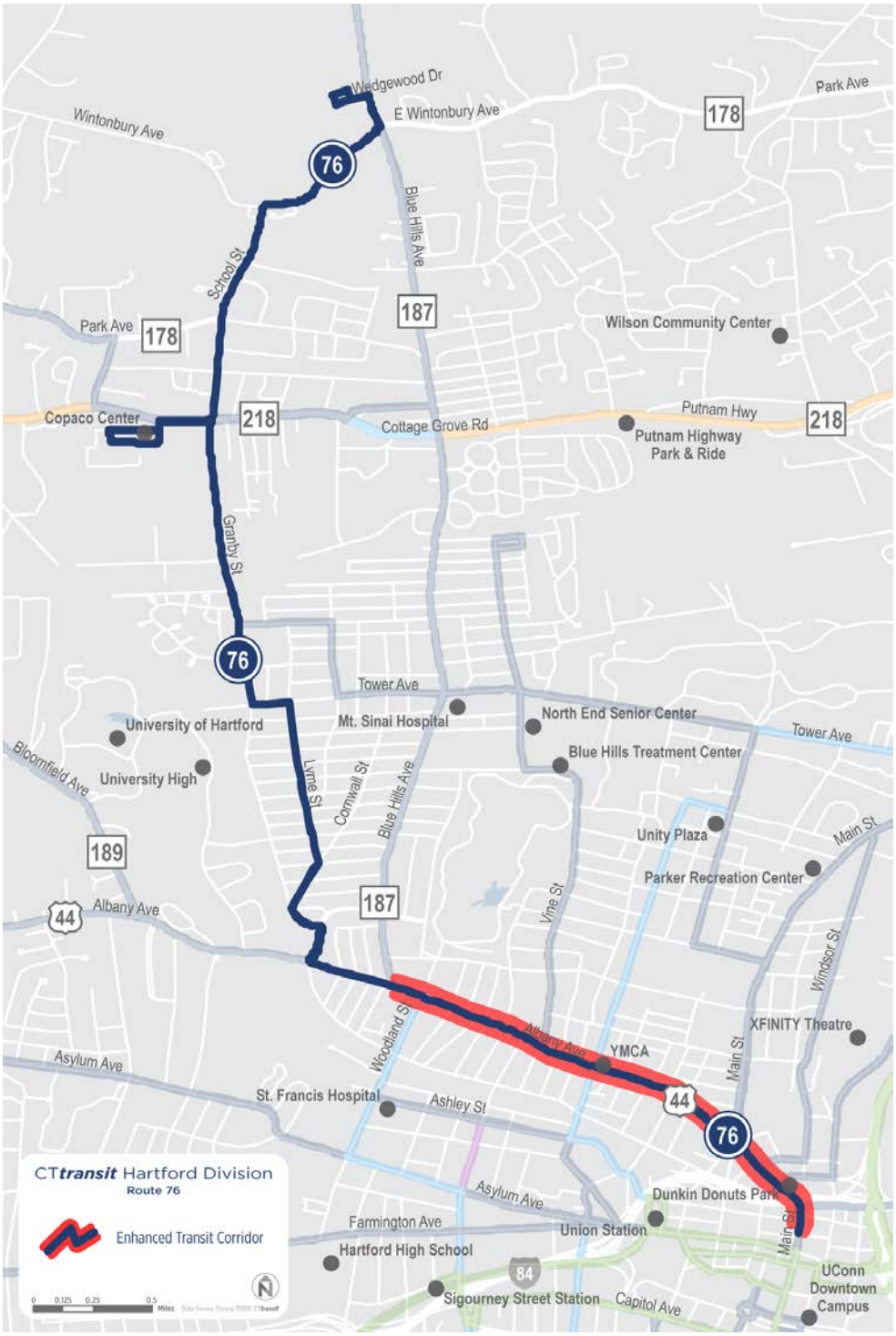


FIGURE 129 | TRANSIT POTENTIAL AND EXISTING TRANSIT RIDERSHIP ALONG PROPOSED ROUTE 76 ALIGNMENT

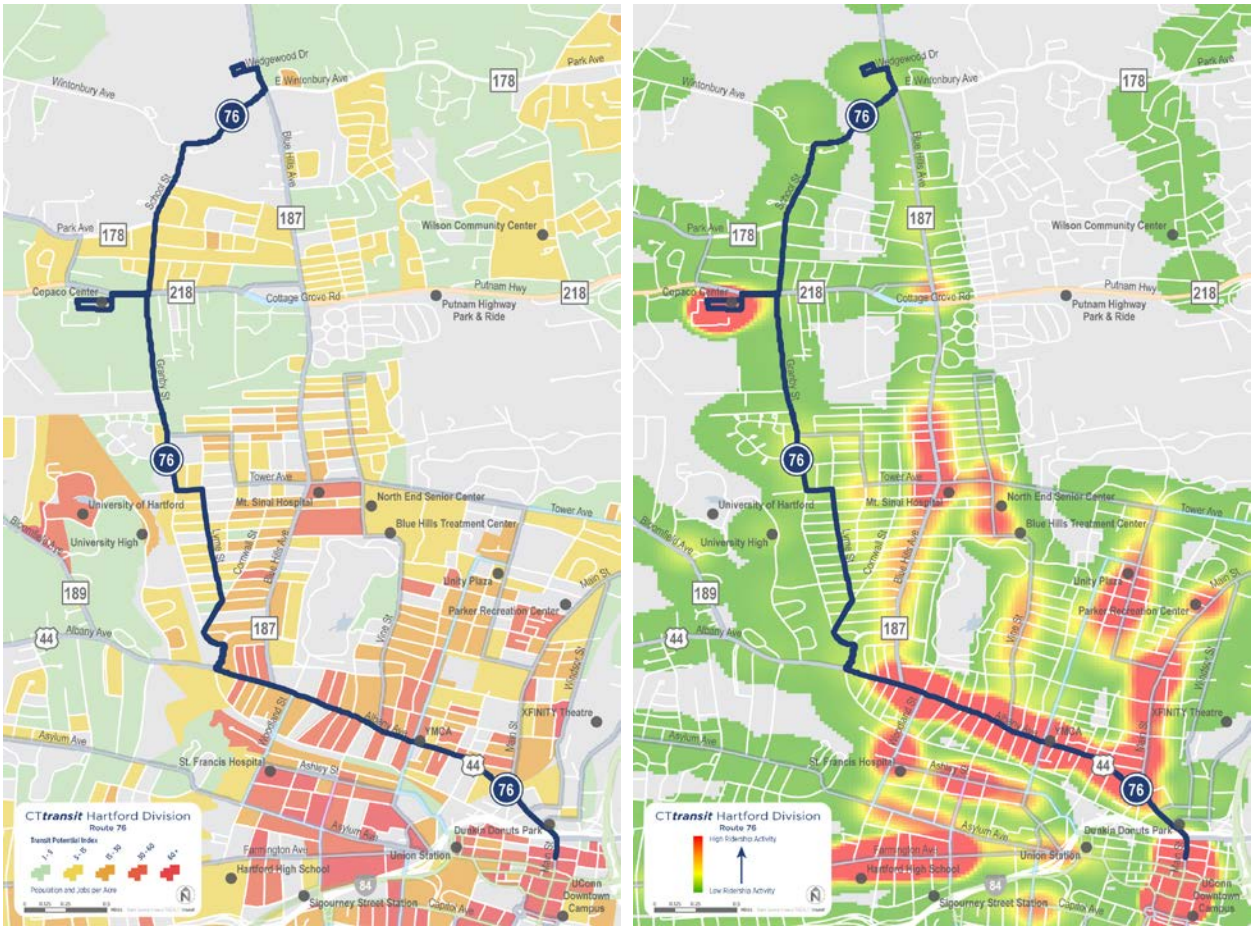


FIGURE 130 | PROPOSED ROUTE 76 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	5:00 AM – 11:00 PM	
Early	5:00 AM – 6:00 AM	30
AM Peak	6:00 AM – 9:00 AM	30
Midday	9:00 AM – 3:00 PM	30
PM Peak	3:00 PM – 6:00 PM	30
Evening	6:00 PM – 9:00 PM	30
Night	9:00 PM – 11:00 PM	30
Owl	–	–
Saturday	6:00 AM – 9:00 PM	30
Sunday	7:00 AM – 8:00 PM	45

KEY DESTINATIONS
▪ Downtown Hartford ▪ Community Health Center / YMCA ▪ Weaver High School ▪ University of Hartford (via proposed new pedestrian crossing at Tower Avenue) ▪ Bowles Park Apartments ▪ Copaco Center ▪ Wedgewood Village Apartments

2.32 ROUTE 82

Service Design

The proposed Route 82 would operate as a Connector Route between the Rockville Park-and-Ride Lot and Buckland Hills Mall via South Street in Vernon, Talcottville Road, Hartford Turnpike, Oakland Street, North Main Street, and Buckland Street in Manchester (see Figure 131). The route would connect residential areas of Vernon and Manchester to nearby retail destinations and regional transit hubs. Transit hubs that would be served by the route include the Rockville Park-and-Ride, Vernon Park-and-Ride, and Buckland Hills Park-and-Ride. The route would also serve Buckland Hills Mall, which is an emerging transit hub as well.

The proposed Route 82 would not directly serve downtown Hartford, but would provide more connection opportunities than the current Route 82 to facilitate convenient transfers to both local and Express routes serving downtown. For example, in Vernon, the proposed route would be extended to the Rockville Park-and-Ride to facilitate transfers to Express Route 917. Frequent connections to downtown Hartford would also be available at Buckland Hills Mall, including Routes 90 and 95.

The longer a route is, the more opportunities it has to encounter traffic-related delays. Truncating Route 82 at Buckland Hills Mall rather than extending it to Hartford would improve the route's reliability. In addition, splitting the route at Buckland Hills Mall (with Route 95 serving Tolland Street and Route 90 serving downtown Hartford) would allow each new route to have the level of service that is most appropriate for the market it serves.

Between Buckland Hills Mall and much of the Talcottville Road corridor, Routes 82 and 84 would follow the same alignment to provide higher effective service frequency where there is the highest ridership and highest ridership potential (see Figure 132 and Figure 133). The routes would diverge near Rockville High School, with Route 82 providing new service along South Street, where there is a significant concentration of multi-family housing.

FIGURE 131 | PROPOSED ROUTE 82 ALIGNMENT

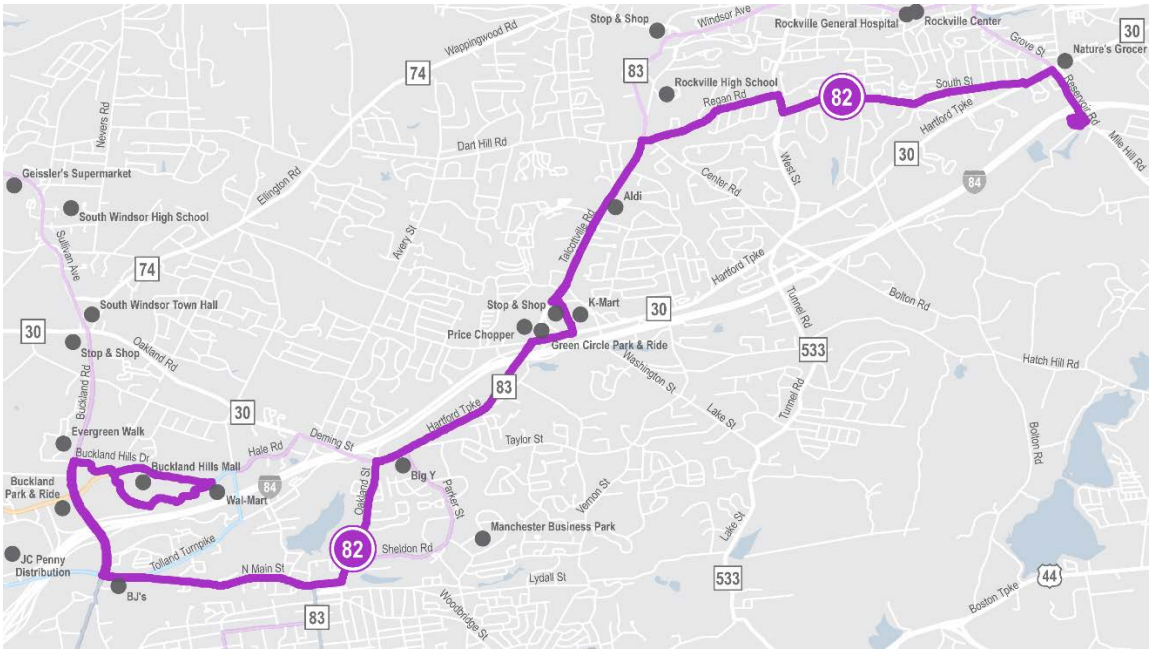


FIGURE 132 | TRANSIT POTENTIAL ALONG PROPOSED ROUTE 82 ALIGNMENT

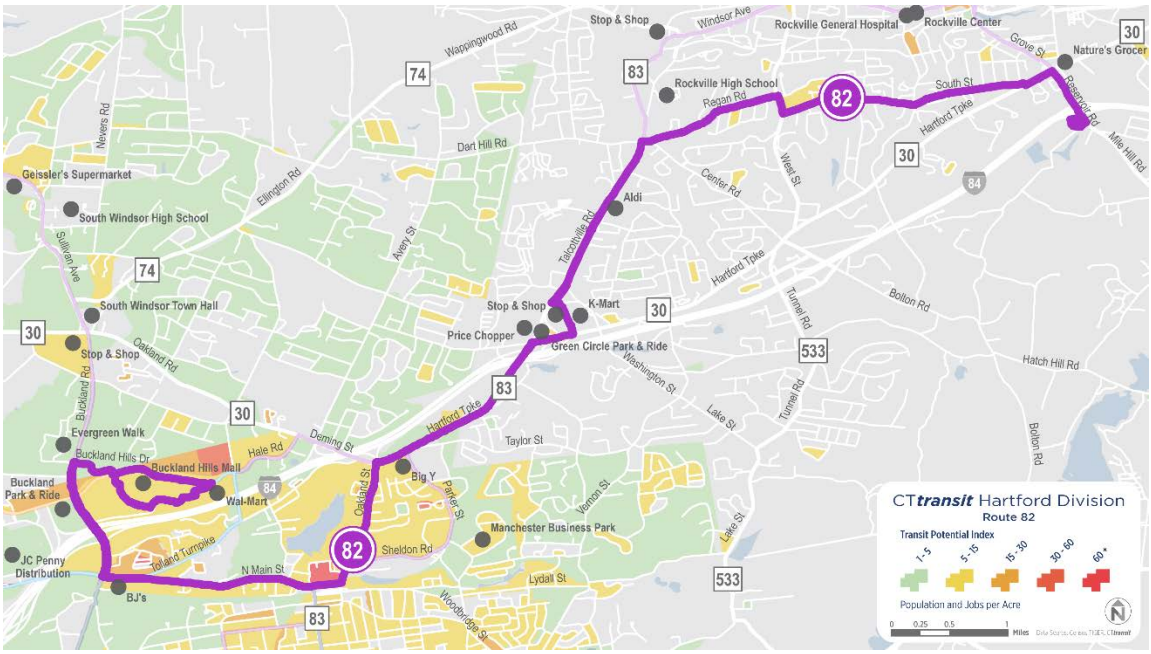
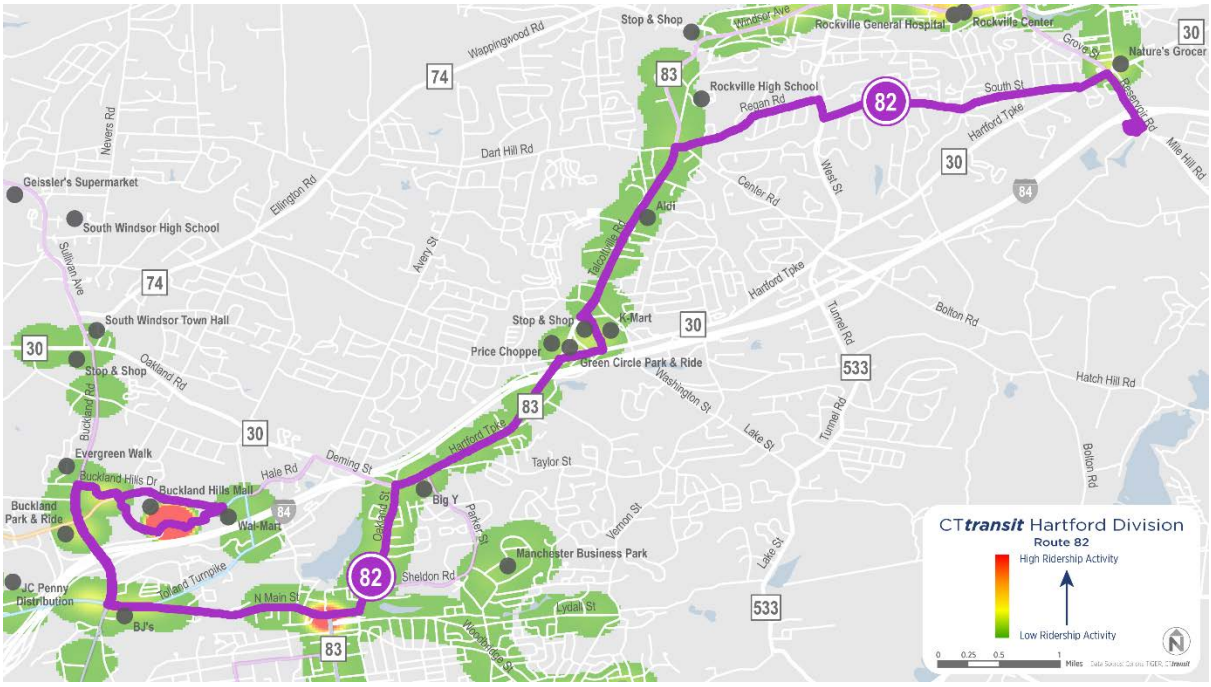


FIGURE 133 | EXISTING TRANSIT RIDERSHIP ALONG PROPOSED ROUTE 82 ALIGNMENT



Service Characteristics

Route 82 could be interlined with proposed Route 84 at both the Rockville Park-and-Ride and at Buckland Hills Mall to create a 5-hour cycle time and optimize layover time for both routes. With both routes operating hourly, service could be staggered to provide 30-minutes frequency where the two routes overlap between Buckland Hills and Reagan Road in Talcottville (see Figure 134). Destinations in Vernon would also be served every 30 minutes, on average, but with buses operating in opposite directions. Thus, passengers could catch a westbound bus from Rockville Center to Buckland Hills, or an eastbound bus approximately 30 minutes later that would also serve Buckland Hills after first serving the Rockville Park-and-Ride.

FIGURE 134 | PROPOSED ROUTE 82 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	5:00 AM – 10:00 PM	
Early	5:00 AM – 6:00 AM	60
AM Peak	6:00 AM – 9:00 AM	60
Midday	9:00 AM – 3:00 PM	60
PM Peak	3:00 PM – 6:00 PM	60
Evening	6:00 PM – 9:00 PM	60
Night	9:00 PM – 10:00 PM	60
Owl	–	–
Saturday	6:00 AM – 9:00 PM	60
Sunday	7:00 AM – 8:00 PM	60

KEY DESTINATIONS
▪ Buckland Hills Park-and-Ride
▪ Buckland Hills Mall
▪ Big Y
▪ Vernon Park-and-Ride
▪ Price Chopper
▪ Stop & Shop
▪ Nature's Grocery
▪ Rockville Park-and-Ride

2.33 ROUTE 83

Service Design

The proposed Route 83 would operate as a radial route between downtown Hartford and Buckland Hills Mall via Manchester Community College (MCC). The route would operate primarily along Silver Lane, Hartford Road, Main Street, and Buckland Street in Manchester. Along its alignment, Route 83 would serve dozens of major employers and provides transfer opportunities to routes serving destinations throughout the Greater Hartford region (see Figure 135).

Compared to the current Route 83 alignment, the proposed route would be streamlined to include just one consistent alignment. Service along West Center Street, currently served by the Route 83C and 83D variants, would instead be served by proposed Route 86. Route 86 would also serve the Manchester Industrial Park, which is currently served by the Route 83A and 83B variants. The simplified Route 83 would consist of the strongest portions of the existing route in terms of existing ridership and ridership potential (see Figure 136 and Figure 137).

FIGURE 135 | PROPOSED ROUTE 83 ALIGNMENT

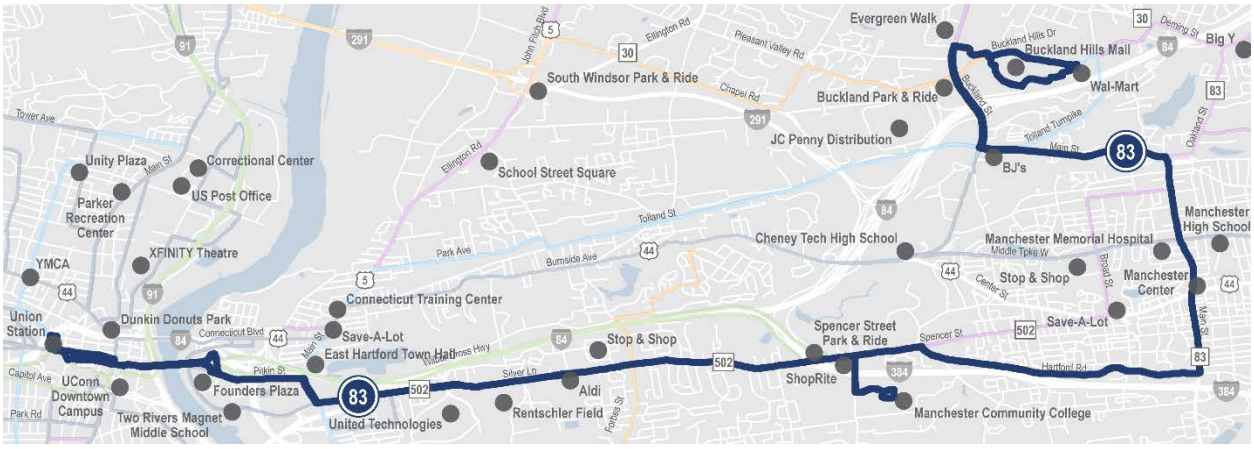


FIGURE 136 | TRANSIT POTENTIAL ALONG PROPOSED ROUTE 83 ALIGNMENT

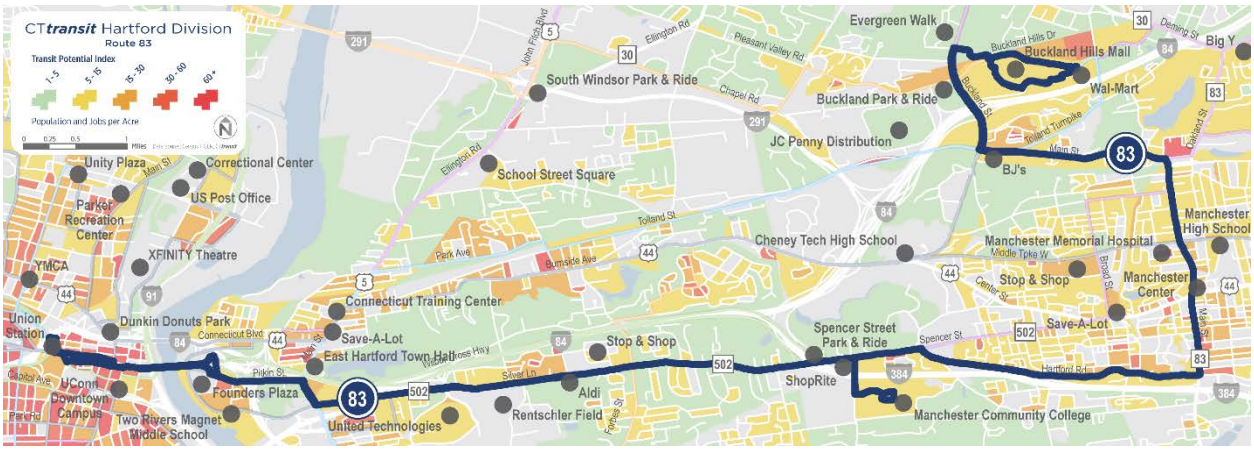
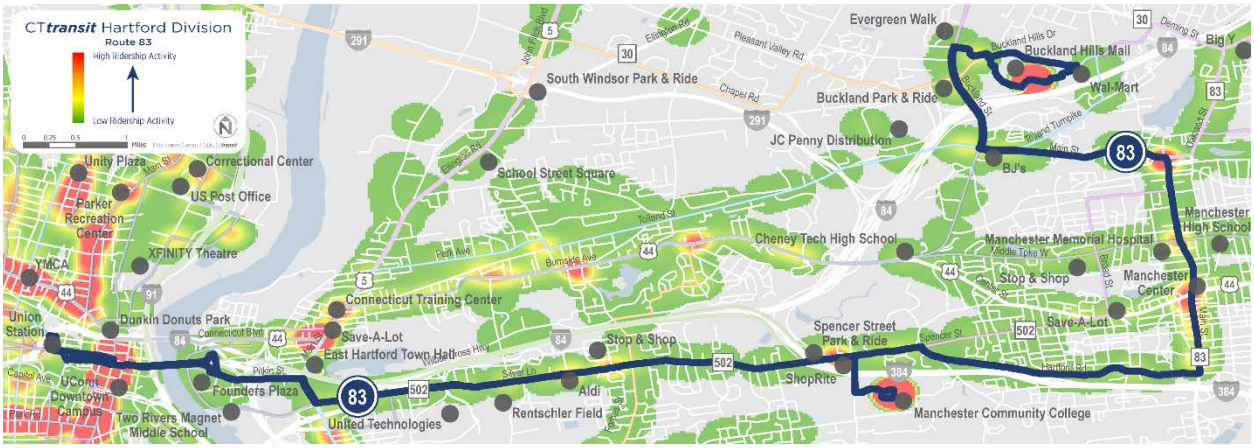


FIGURE 137 | EXISTING TRANSIT RIDERSHIP ALONG PROPOSED ROUTE 83 ALIGNMENT



Service Characteristics

The proposed Route 83 would operate every 20 minutes during peak periods and every half hour during most of other time periods until 9:00 PM. After 9:00 PM, the route would operate hourly (see Figure 138).

FIGURE 138 | PROPOSED ROUTE 83 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	5:00 AM – 11:00 PM	
Early	5:00 AM – 6:00 AM	30
AM Peak	6:00 AM – 9:00 AM	20
Midday	9:00 AM – 3:00 PM	30
PM Peak	3:00 PM – 6:00 PM	20
Evening	6:00 PM – 9:00 PM	30
Night	9:00 PM – 11:00 PM	60
Owl	–	–
Saturday	To Be Determined	
Sunday	To Be Determined	

KEY DESTINATIONS
▪ Downtown Hartford
▪ Founders Plaza
▪ United Technologies
▪ Super Stop & Shop
▪ Shop Rite
▪ Manchester Community College
▪ Manchester Center
▪ Manchester Memorial Hospital
▪ BJ's
▪ Buckland Hills Mall

2.34 ROUTE 84

Service Design

Like Route 82, the proposed Route 84 would operate a Connector Route between the Rockville Park-and-Ride Lot and Buckland Hills Mall. Both routes would serve Buckland Street, North Main Street, and Oakland Street in Manchester, as well as Hartford Turnpike and Tallcottville Road, but Route 84 would serve Windsor Avenue, Union Street, Main Street, and Grove Street in Vernon (see Figure 139).

The proposed Route 84 would not directly serve downtown Hartford, but would provide more connection to the Rockville Park-and-Ride to facilitate transfers to Express Route 917. Frequent connections to downtown Hartford would also be available at Buckland Hills Mall, including Routes 90 and 95.

Between Buckland Hills Mall and much of the Talcottville Road corridor, Route 84 will follow the same alignment as Route 82 to provide higher effective service frequency where there is the highest ridership and highest ridership potential (see Figure 140 and Figure 141). The routes diverge near Rockville High School, with Route 84 serving Rockville Center, where there is a significant existing ridership.

FIGURE 139 | PROPOSED ROUTE 84 ALIGNMENT

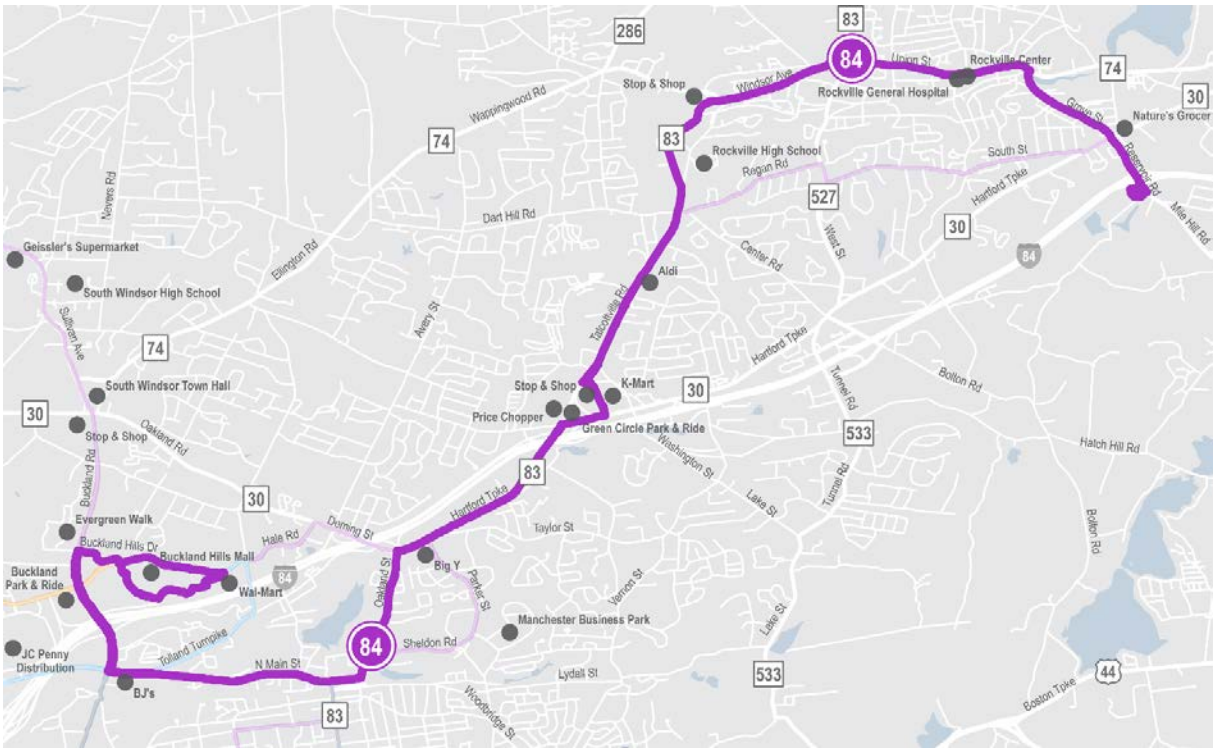


FIGURE 140 | TRANSIT POTENTIAL ALONG PROPOSED ROUTE 84 ALIGNMENT

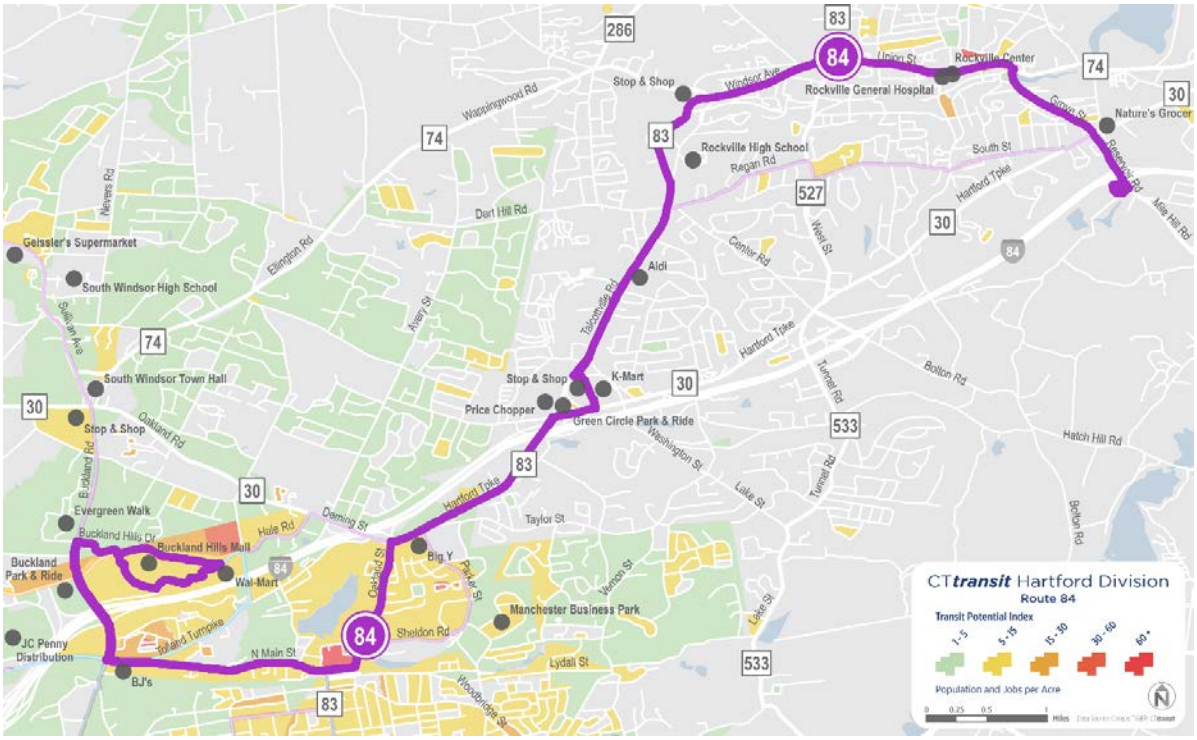
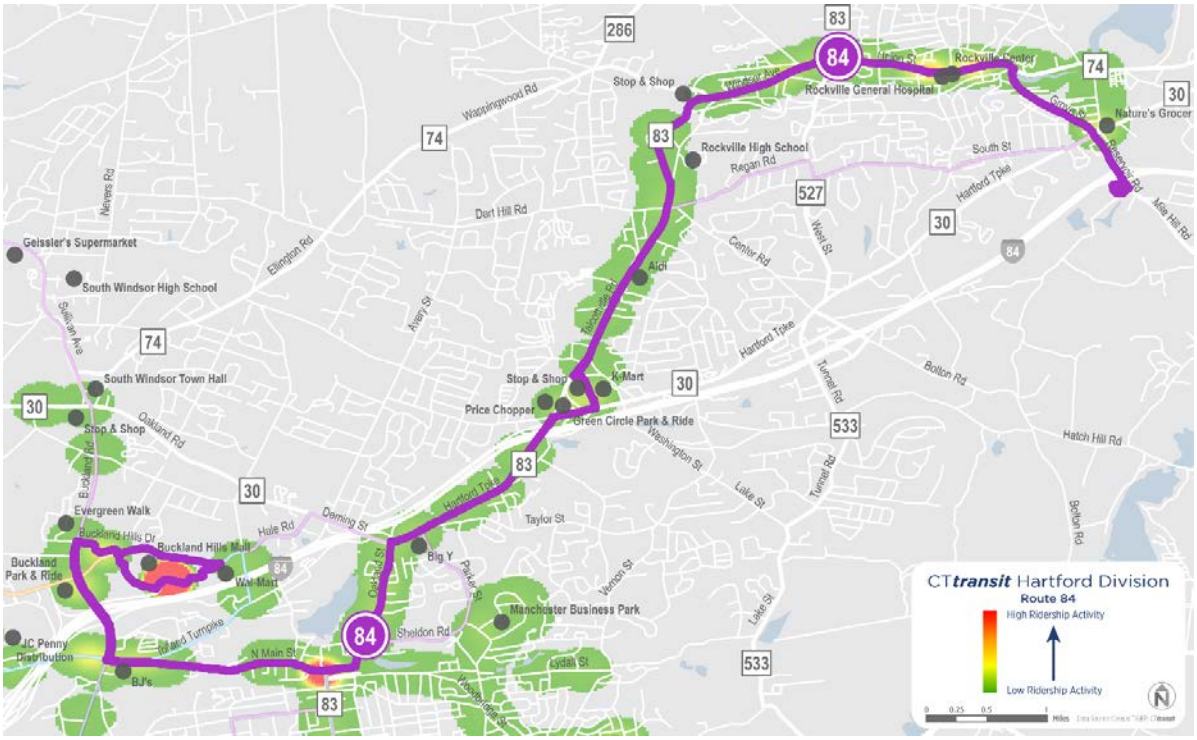


FIGURE 141 | EXISTING TRANSIT RIDERSHIP ALONG PROPOSED ROUTE 84 ALIGNMENT



Service Characteristics

Route 84 could be interlined with proposed Route 82 at both the Rockville Park-and-Ride and at Buckland Hills Mall to create a 5-hour cycle time and optimize layover time for both routes. With both routes operating hourly, service could be staggered to provide 30-minute frequency where the two routes overlap between Buckland Hills and Reagan Road in Talcottville (see Figure 142). Destinations in Vernon would also be served every 30 minutes, on average, but with buses operating in opposite directions. Thus, passengers could catch a westbound bus from Rockville Center to Buckland Hills, or an eastbound bus approximately 30 minutes later that would also serve Buckland Hills after first serving the Rockville Park-and-Ride.

FIGURE 142 | PROPOSED ROUTE 84 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	5:00 AM – 10:00 PM	
Early	5:00 AM – 6:00 AM	60
AM Peak	6:00 AM – 9:00 AM	60
Midday	9:00 AM – 3:00 PM	60
PM Peak	3:00 PM – 6:00 PM	60
Evening	6:00 PM – 9:00 PM	60
Night	9:00 PM – 10:00 PM	60
Owl	–	–
Saturday	6:00 AM – 9:00 PM	60
Sunday	7:00 AM – 8:00 PM	60

KEY DESTINATIONS
▪ Buckland Hills Park-and-Ride
▪ Buckland Hills Mall
▪ Big Y
▪ Vernon Park-and-Ride
▪ Stop & S hop
▪ Rockville High School
▪ Rockville General Hospital
▪ Rockville Center
▪ Nature's Grocery
▪ Rockville Park-and-Ride

2.35 ROUTE 86

Service Design

The proposed Route 86 would operate as a Connector Route between Buckland Hills Mall and Manchester Community College. The route would travel primarily along Hale Road, Sheldon Road, Broad Street, and Center Street in Manchester (see Figure 143). It would link residential areas of Manchester with nearby employment, retail, and educational destinations. It would also provide transfer opportunities to other routes serving destinations throughout the Greater Hartford region.

Route 86 would pick up coverage from Route 83 along West Center Street and in the vicinity of Manchester Industrial Park. The route would also provide new coverage in parts of Manchester that have high ridership potential but no current service. This includes Broad Street, Woodland Street, and Hale Road (see Figure 144 and Figure 145).

FIGURE 143 | PROPOSED ROUTE 86 ALIGNMENT

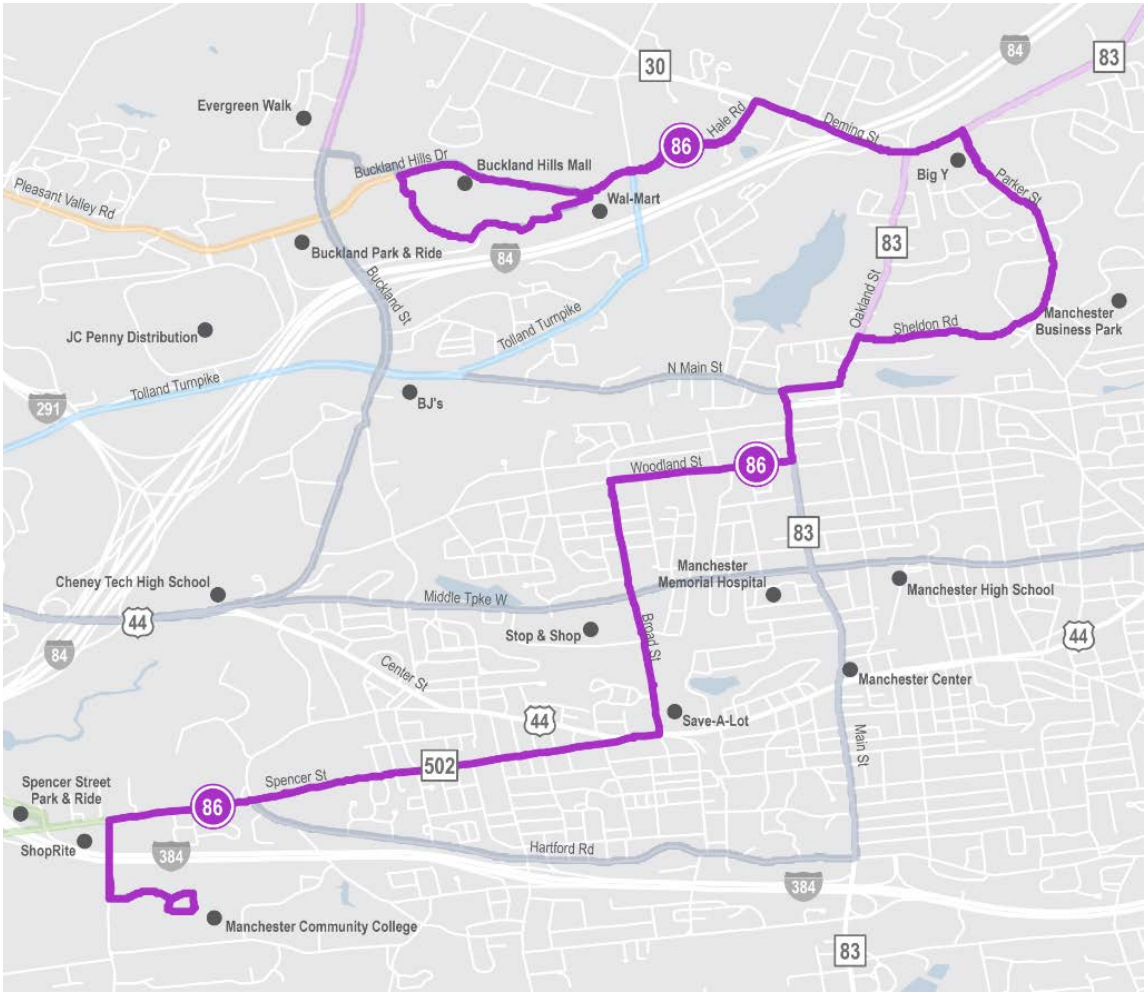


FIGURE 144 | TRANSIT POTENTIAL ALONG PROPOSED ROUTE 86 ALIGNMENT

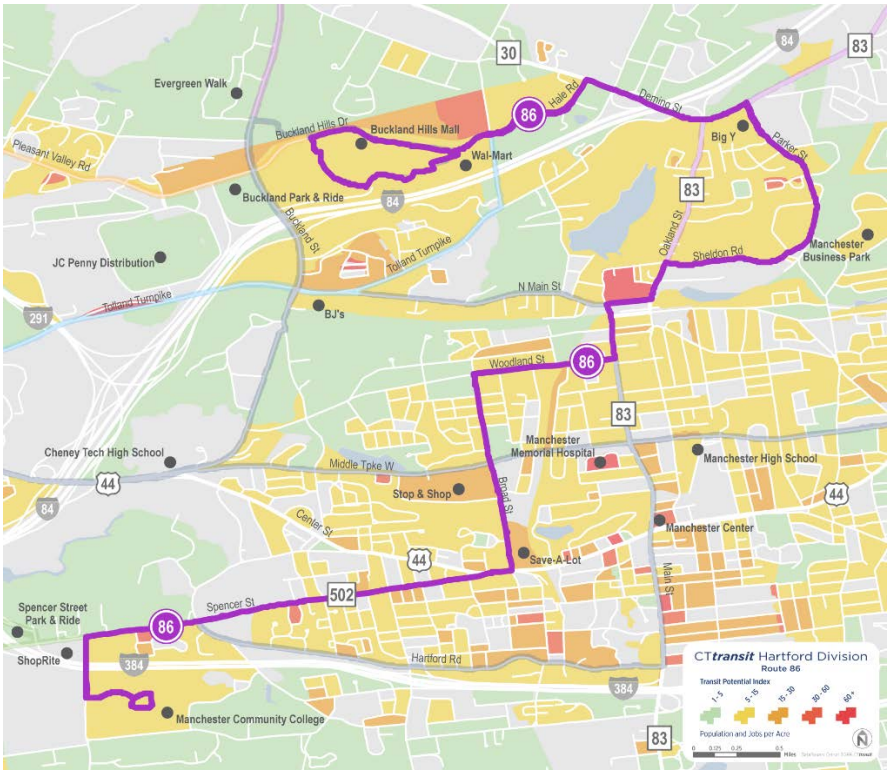
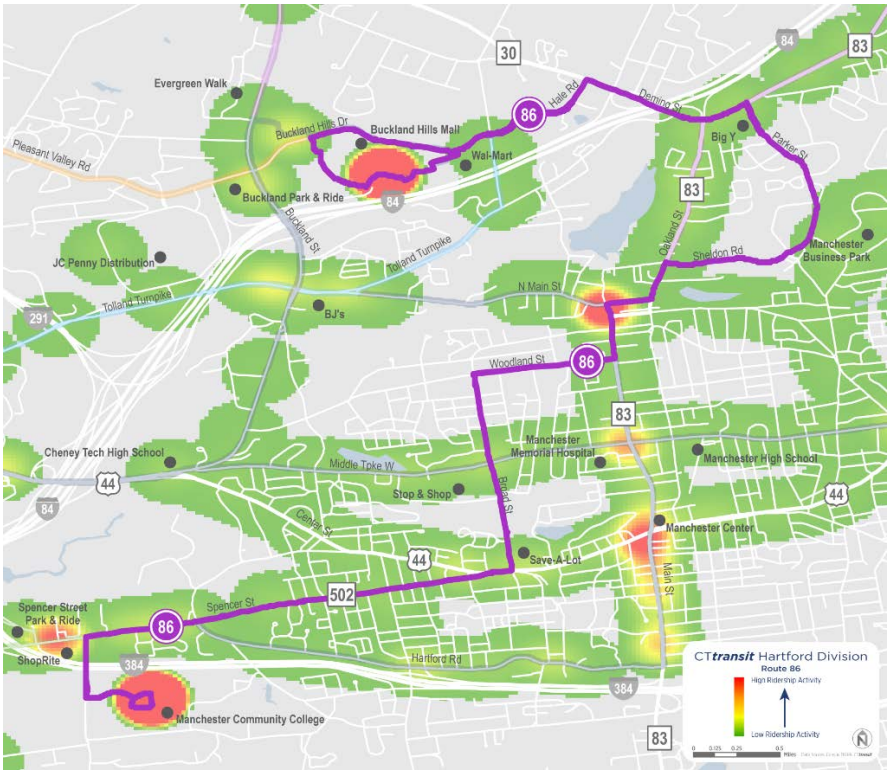


FIGURE 145 | EXISTING TRANSIT RIDERSHIP ALONG PROPOSED ROUTE 86 ALIGNMENT



Service Characteristics

The proposed Route 86 would operate every half hour during peak periods and hourly at all other times (see Figure 146). The route could be interlined with proposed Route 96 at Buckland Hills Mall to create a 4-hour cycle time and optimize layover time for both routes. This interlined pair would provide a one-seat ride between South Windsor and Manchester Community College.

FIGURE 146 | PROPOSED ROUTE 83 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	5:00 AM – 9:00 PM	
Early	5:00 AM – 6:00 AM	60
AM Peak	6:00 AM – 9:00 AM	30
Midday	9:00 AM – 3:00 PM	60
PM Peak	3:00 PM – 6:00 PM	30
Evening	6:00 PM – 9:00 PM	60
Night	–	–
Owl	–	–
Saturday	6:00 AM – 9:00 PM	
Daytime	6:00 AM – 6:00 PM	30
Evening	6:00 PM – 9:00 PM	60
Sunday	7:00 AM – 8:00 PM	60

KEY DESTINATIONS

- Manchester Community College
- Shop Rite
- Save-A-Lot
- Stop & Shop
- Manchester Business Park
- Big Y
- Walmart
- Buckland Hills Mall

2.36 ROUTE 87

Service Design

The proposed Route 87 would be a radial route operating between downtown Hartford and Goodwin College in East Hartford via Founders Bridge, East River Drive, Silver Lane, Whiting Road, Main Street in East Hartford, and Riverside Drive (see Figure 147).

The proposed route would substantially simplify service by eliminating both variants serving Oak Street and truncating service at Goodwin College. This alignment concentrates service where transit potential is highest, including adding service along Mercer Avenue and Whiting Street where there is a high concentration of multi-family housing, but currently no service (see Figure 148). A truncated route would leave some high-ridership stops along Main Street without Route 87 service (see Figure 149). However, these stops would be served by proposed Route 95.

Areas of Route 87 that would lose service altogether are primarily low-density residential neighborhoods that currently generate very little ridership on Route 87. Some residents of these neighborhoods who use transit may be driving to the Spencer Street Park-and-Ride where there is considerably better service frequency than is offered by Route 87. Low-density residential neighborhoods are inherently difficult to service with traditional fixed-route transit service, and many transit agencies have begun exploring other service options including subsidized Uber, Lyft, and taxi service. This approach can be explored in parts of East Hartford that lack the density or land-use to support fixed-route service. For more information about this type of service and how it has been employed within other transit systems, see Chapter 3.3 Subsidized Transportation Network Company (TNC) Service.

FIGURE 147 | PROPOSED ROUTE 87 ALIGNMENT

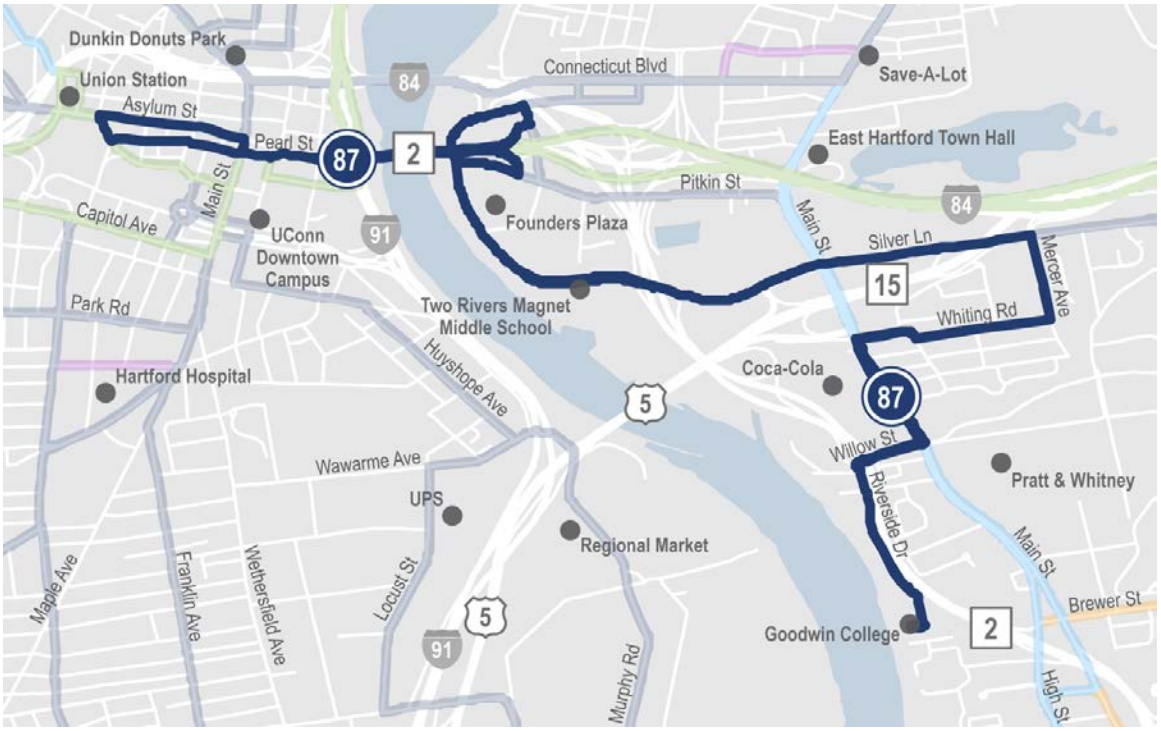


FIGURE 148 | TRANSIT POTENTIAL ALONG PROPOSED ROUTE 87 ALIGNMENT

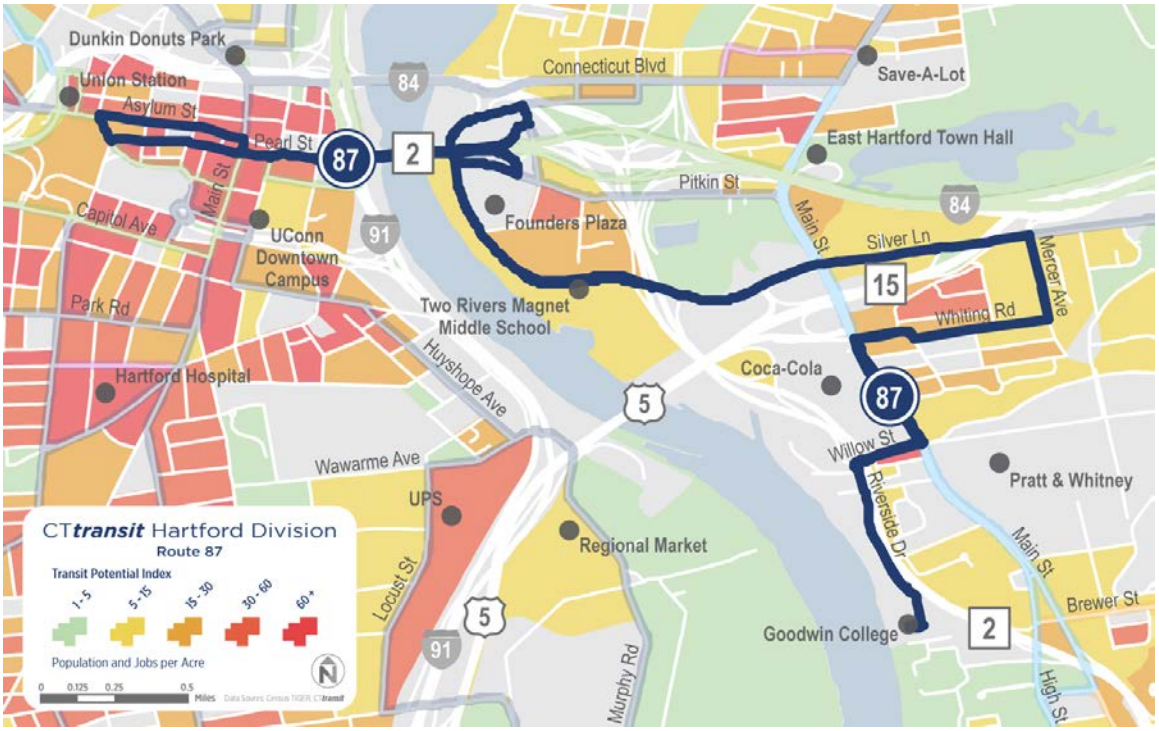
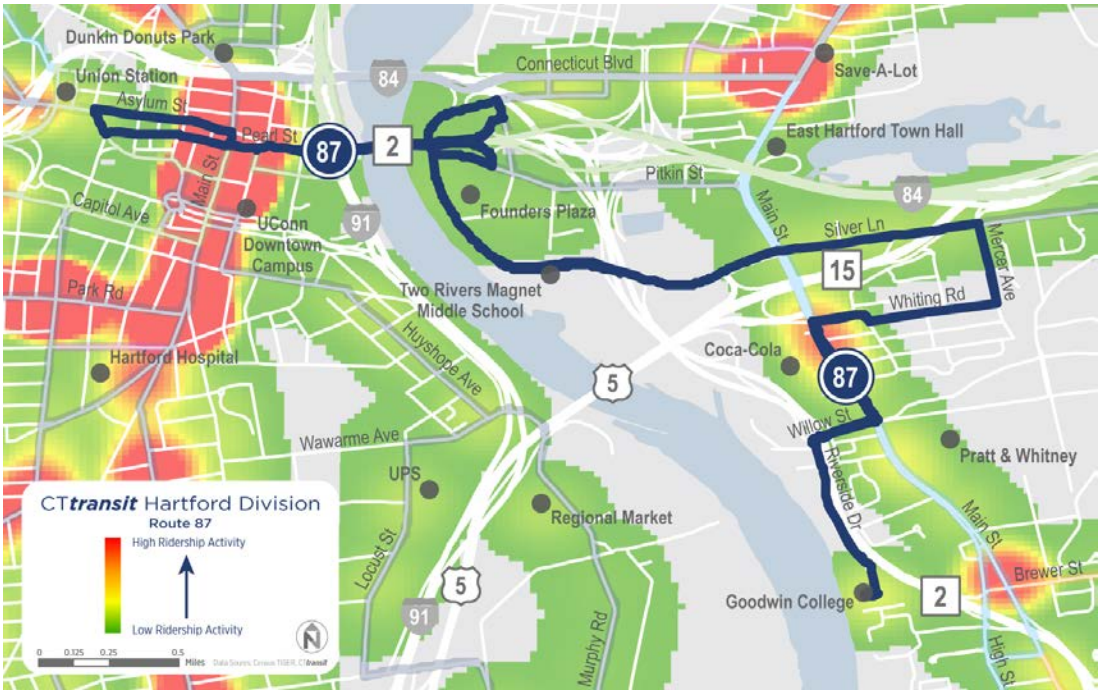


FIGURE 149 | EXISTING TRANSIT RIDERSHIP ALONG PROPOSED ROUTE 87 ALIGNMENT



Service Characteristics

The proposed Route 87 would operate every thirty minutes from the morning peak until early evening. During the early morning and late evening hours, service would be hourly (see Figure 150).

Route 87 could be interlined with proposed Route 56 in downtown Hartford to create a 2-hour cycle time and optimize layover time for both routes. This interlined pair would provide a one-seat ride between the University of Hartford, East Hartford, and Goodwin College.

FIGURE 150 | PROPOSED ROUTE 87 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	5:00 AM – 9:00 PM	
Early	5:00 AM – 6:00 AM	60
AM Peak	6:00 AM – 9:00 AM	30
Midday	9:00 AM – 3:00 PM	30
PM Peak	3:00 PM – 6:00 PM	30
Evening	6:00 PM – 9:00 PM	60
Night	–	–
Owl	–	–
Saturday	6:00 AM – 9:00 PM	60
Sunday	No Service	

KEY DESTINATIONS
▪ Downtown Hartford
▪ Founders Plaza
▪ Coca-Cola Bottling Plant
▪ Pratt & Whitney
▪ Goodwin College

2.37 ROUTE 88

Service Design

The proposed Route 88 would operate as a radial route between downtown Hartford and the Department of Social Services in Manchester via Connecticut Boulevard, Burnside Avenue and Middle Turnpike (see Figure 151).

The Burnside Avenue corridor is one of the strongest transit corridors east of the Connecticut River, based on density and existing ridership (see Figure 152 and Figure 153). Together with Routes 60 and 90, Route 88 would help establish a continuous enhanced transit corridor from West Hartford Center to I-84 in Manchester via Farmington Avenue, downtown Hartford, and Burnside Avenue. Over the long-term, establishing an enhanced transit corridor provides a focus for future capital investments such as enhanced passenger amenities and transit-priority treatments.

FIGURE 151 | PROPOSED ROUTE 88 ALIGNMENT

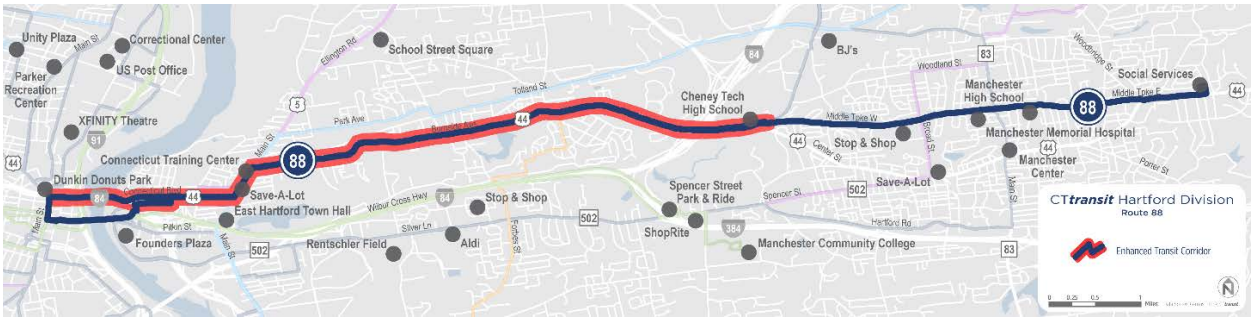


FIGURE 152 | TRANSIT POTENTIAL ALONG PROPOSED ROUTE 88 ALIGNMENT

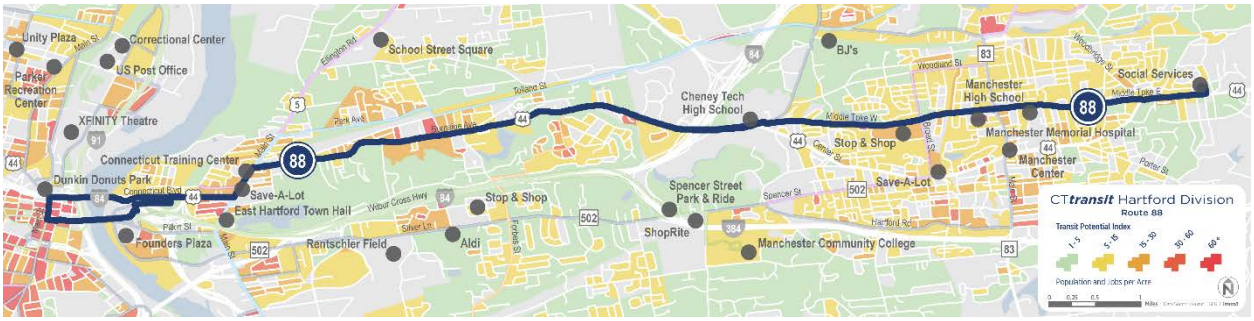


FIGURE 153 | EXISTING TRANSIT RIDERSHIP ALONG PROPOSED ROUTE 88 ALIGNMENT

Service Characteristics

During peak periods, 10-minute service frequency would be available between West Hartford Center and I-84, where buses would diverge to serve either Buckland Hills Mall or Middle Turnpike in Manchester. Service would be available every 15 minutes during off-peak periods.

Route 88 could be interlined with proposed Routes 60 and 90 in downtown Hartford to create a 6-hour cycle time and optimize layover time for these routes. Interlining the three routes would also provide riders with a one-seat ride between destinations in West Hartford and Manchester.

FIGURE 154 | PROPOSED ROUTE 88 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE
Weekdays	4:00 AM – 11:00 PM
Early	4:00 AM – 6:00 AM
AM Peak	6:00 AM – 9:00 AM
Midday	9:00 AM – 3:00 PM
PM Peak	3:00 PM – 6:00 PM
Evening	6:00 PM – 9:00 PM
Night	9:00 PM – 11:00 PM
Owl	–
Saturday	5:00 AM – 10:00 PM
Daytime	5:00 AM – 9:00 PM
Evening	9:00 PM – 10:00 PM
Sunday	6:00 AM – 9:00 PM
Daytime	6:00 AM – 6:00 PM
Evening	6:00 PM – 9:00 PM

2.38 ROUTE 90

Service Design

The proposed Route 90 would operate as a radial route between downtown Hartford and Buckland Hills Mall in Manchester via Connecticut Boulevard, Burnside Avenue and Middle Turnpike (see Figure 155).

The Burnside Avenue corridor is one of the strongest transit corridors east of the Connecticut River, based on density and existing ridership (see Figure 156 and Figure 157). The Buckland Hill retail area further complements the corridor by providing a strong anchor. Together with Routes 60 and 88, Route 90 would help establish a continuous enhanced transit corridor from West Hartford Center to I-84 in Manchester via Farmington Avenue, downtown Hartford, and Burnside Avenue. Over the long-term, establishing an enhanced transit corridor provides a focus for future capital investments such as enhanced passenger amenities and transit-priority treatments.

FIGURE 155 | PROPOSED ROUTE 90 ALIGNMENT

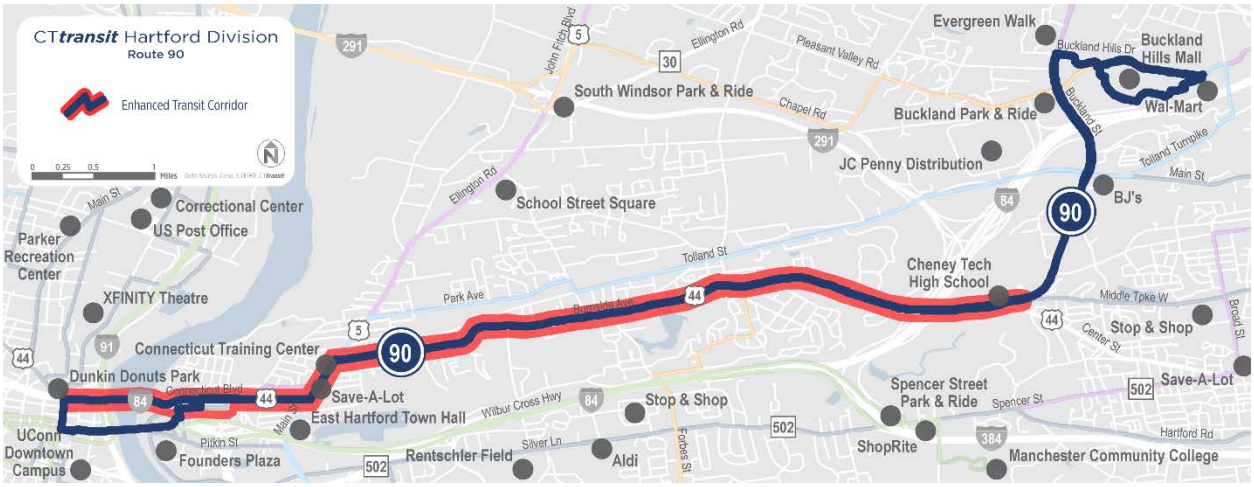


FIGURE 156 | TRANSIT POTENTIAL ALONG PROPOSED ROUTE 90 ALIGNMENT

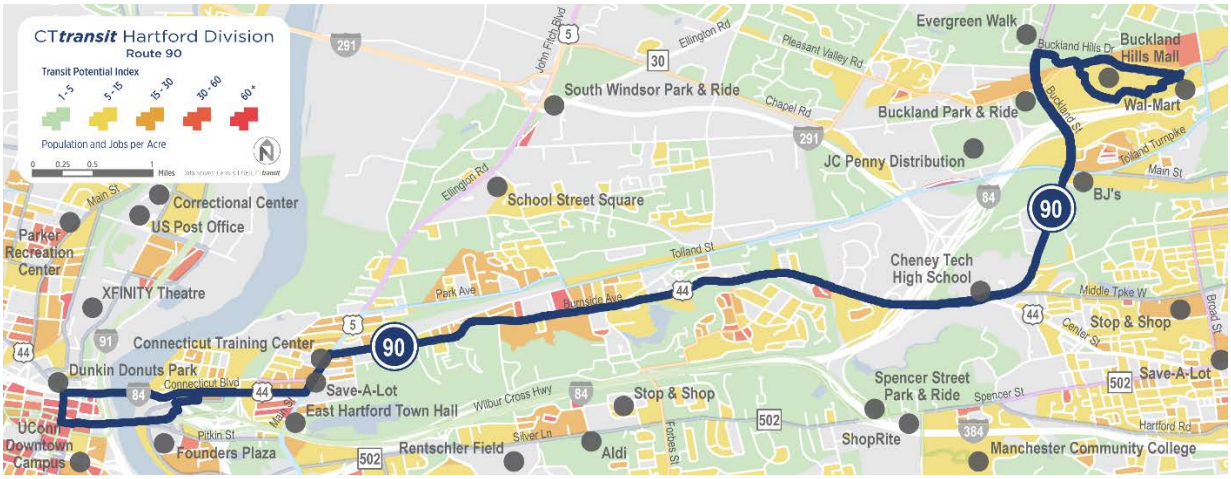
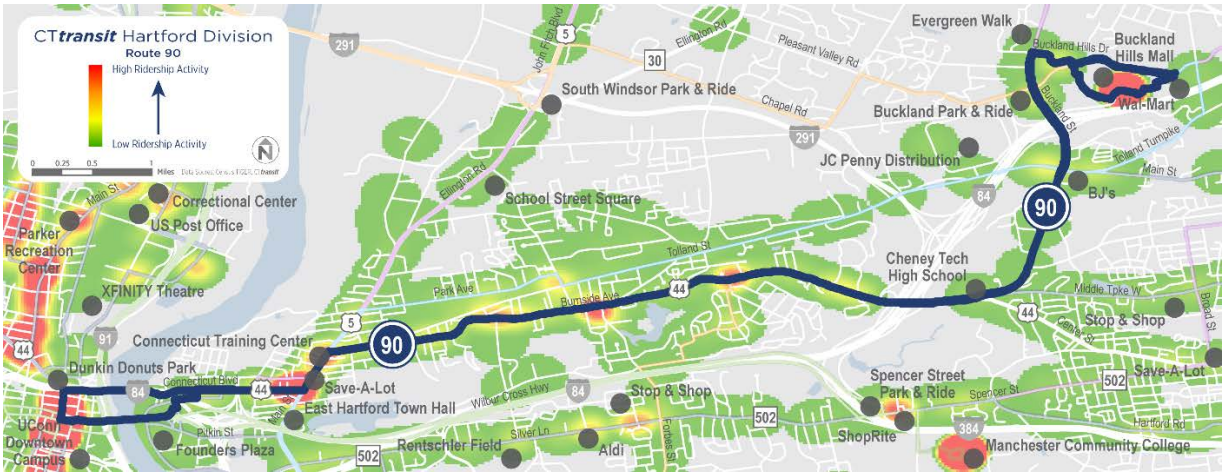


FIGURE 157 | EXISTING TRANSIT RIDERSHIP ALONG PROPOSED ROUTE 90 ALIGNMENT



Service Characteristics

During peak periods, Route 90 would operate every 20 minutes (see Figure 158). Together with Routes 60 and 88, Route 90 would help establish a 10-minute peak-period frequency between West Hartford Center and I-84, where buses would diverge to serve either Buckland Hills Mall or Middle Turnpike in Manchester. Service in this corridor would be available every 15 minutes during off-peak periods.

Route 90 could be interlined with proposed Routes 60 and 88 in downtown Hartford to create a 6-hour cycle time and optimize layover time for these routes. Interlining the three routes would also provide riders with a one-seat ride between destinations in West Hartford and Manchester. Buses would operate from West Hartford Center to downtown Hartford then continue east, alternating to serve either Buckland Hills Mall or Middle Turnpike in Manchester.

FIGURE 158 | PROPOSED ROUTE 90 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	4:00 AM – 11:00 PM	
Early	4:00 AM – 6:00 AM	30
AM Peak	6:00 AM – 9:00 AM	20
Midday	9:00 AM – 3:00 PM	30
PM Peak	3:00 PM – 6:00 PM	20
Evening	6:00 PM – 9:00 PM	30
Night	9:00 PM – 11:00 PM	60
Owl	–	–
Saturday	5:00 AM – 10:00 PM	
Daytime	5:00 AM – 9:00 PM	30
Evening	9:00 PM – 10:00 PM	60
Sunday	6:00 AM – 9:00 PM	
Daytime	6:00 AM – 6:00 PM	30
Evening	6:00 PM – 9:00 PM	60

KEY DESTINATIONS
▪ Downtown Hartford
▪ Save-A-Lot
▪ Connecticut Training Center
▪ Cheney Tech High School
▪ BJ's
▪ Buckland Hills Park-and-Ride
▪ Walmart
▪ Buckland Hills Mall

2.39 ROUTE 95

Service Design

The proposed Route 95 would operate as a crosstown route between Glastonbury High School and Buckland Hills Mall in Manchester via East Hartford (see Figure 159). The route would operate primarily along Main Street in Glastonbury and East Hartford; Park Avenue and Tolland Street in East Hartford; and Tolland Turnpike in Manchester. The route would give passengers a one-seat ride between Glastonbury and Manchester. The route would also serve to replace Routes 82 and 84 service along Tolland Street in East Hartford.

The proposed Route 95 would not directly serve downtown Hartford, but would provide connection opportunities to several routs serving downtown Hartford including Routes 88 and 90, which together would provide downtown service every ten minutes during peak periods.

While the existing Routes 82 and 84 operate along Tolland Street and Burnside Avenue toward East Hartford Center, the proposed Route 95 would instead operate along Tolland Street and Park Avenue. Shifting service to Park Street would reduce redundancy along a portion of Burnside Avenue that would already be served every ten minutes during peak periods by the proposed Routes 88 and 90. Additionally, it would provide direct connections from the high-density residential areas along Park Street to retail and employment destinations in Manchester and Glastonbury (see Figure 160 and Figure 161).

FIGURE 159 | PROPOSED ROUTE 95 ALIGNMENT

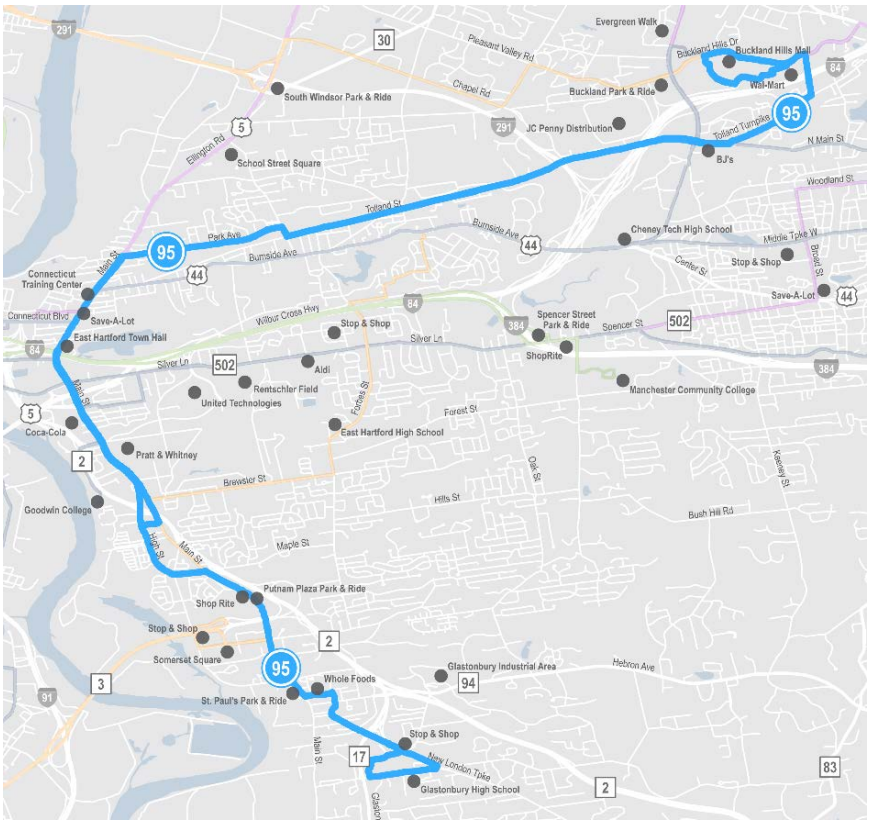


FIGURE 160 | TRANSIT POTENTIAL ALONG PROPOSED ROUTE 95 ALIGNMENT

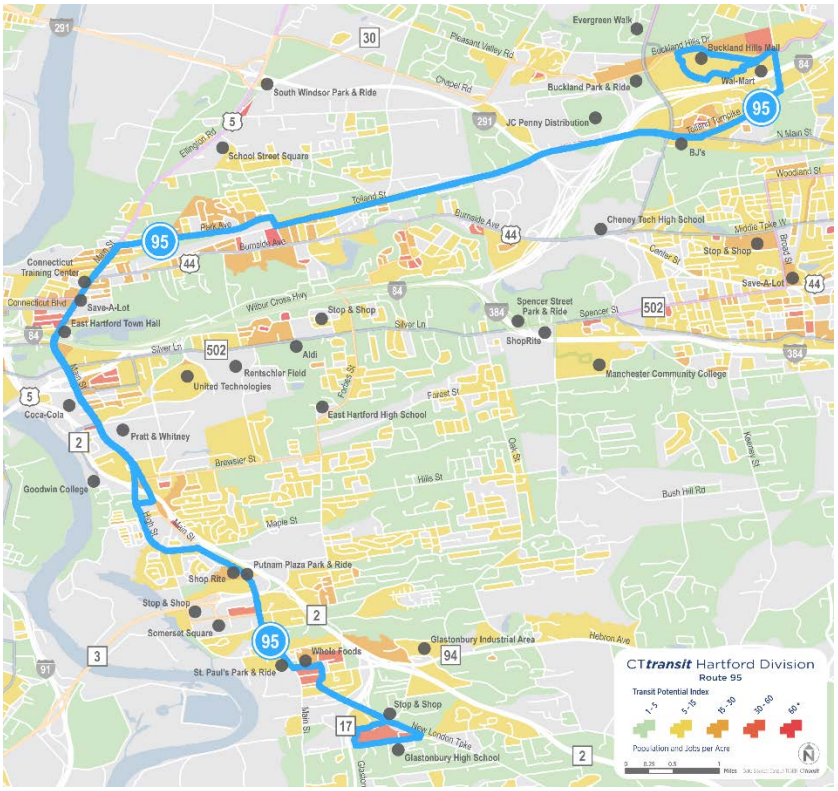


FIGURE 161 | EXISTING TRANSIT RIDERSHIP ALONG PROPOSED ROUTE 95 ALIGNMENT

Service Characteristics

The proposed Route 95 would operate every 30 minutes from the morning peak until early evening, and hourly at all other times (see Figure 162).

FIGURE 162 | PROPOSED ROUTE 95 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	5:00 AM – 11:00 PM	
Early	5:00 AM – 6:00 AM	60
AM Peak	6:00 AM – 9:00 AM	30
Midday	9:00 AM – 3:00 PM	30
PM Peak	3:00 PM – 6:00 PM	30
Evening	6:00 PM – 9:00 PM	60
Night	9:00 PM – 11:00 PM	60
Owl	–	–
Saturday	6:00 AM – 9:00 PM	
Daytime	6:00 AM – 6:00 PM	30
Evening	6:00 PM – 9:00 PM	60
Sunday	7:00 AM – 8:00 PM	60

KEY DESTINATIONS
▪ Buckland Hills Mall
▪ JC Penney Distribution
▪ Connecticut Training Center
▪ East Hartford Town Hall
▪ Coca-Cola Bottling Plan
▪ Pratt & Whitney
▪ Putnam Plaza
▪ Whole Foods
▪ St. Paul's Park-and-Ride
▪ Glastonbury High School

2.40 ROUTE 96

Service Design

The proposed Route 96 would operate as a Connector Route between Buckland Hills Mall in Manchester and Connecticut Boulevard in East Hartford via Buckland Road, Sullivan Avenue and John Fitch Boulevard in South Windsor (see Figure 163). Extending the route beyond the John Fitch corridor to serve the Buckland Hills retail area via Sullivan Avenue and South Windsor Center would allow the proposed Route 99 to provide more streamlined cross-town service between major hubs like Buckland Hills Mall and Copaco Center.

The proposed Route 96 would connect residential areas of South Windsor and East Hartford with nearby retail and employment destinations. Route 96 would not provide direct service to downtown Hartford, but frequent connections to downtown would be available both on Connecticut Boulevard and at Buckland Hills Mall. Avoiding downtown congestion would help ensure strong on-time performance and reliability for Route 96.

The proposed route would concentrate service where ridership and ridership potential are highest. Thus, service along Main Street in South Windsor is proposed for elimination (see Figure 164 and Figure 165).

FIGURE 163 | PROPOSED ROUTE 96 ALIGNMENT

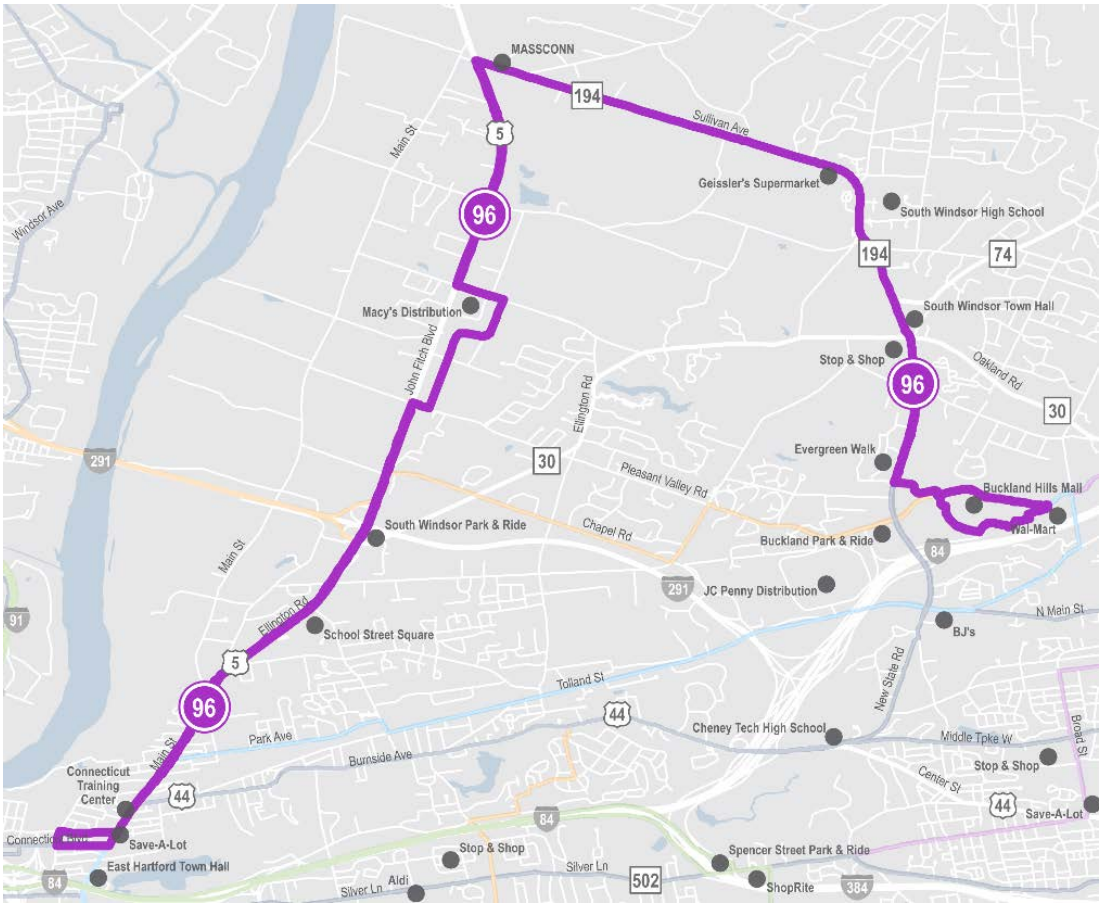


FIGURE 164 | TRANSIT POTENTIAL ALONG PROPOSED ROUTE 96 ALIGNMENT

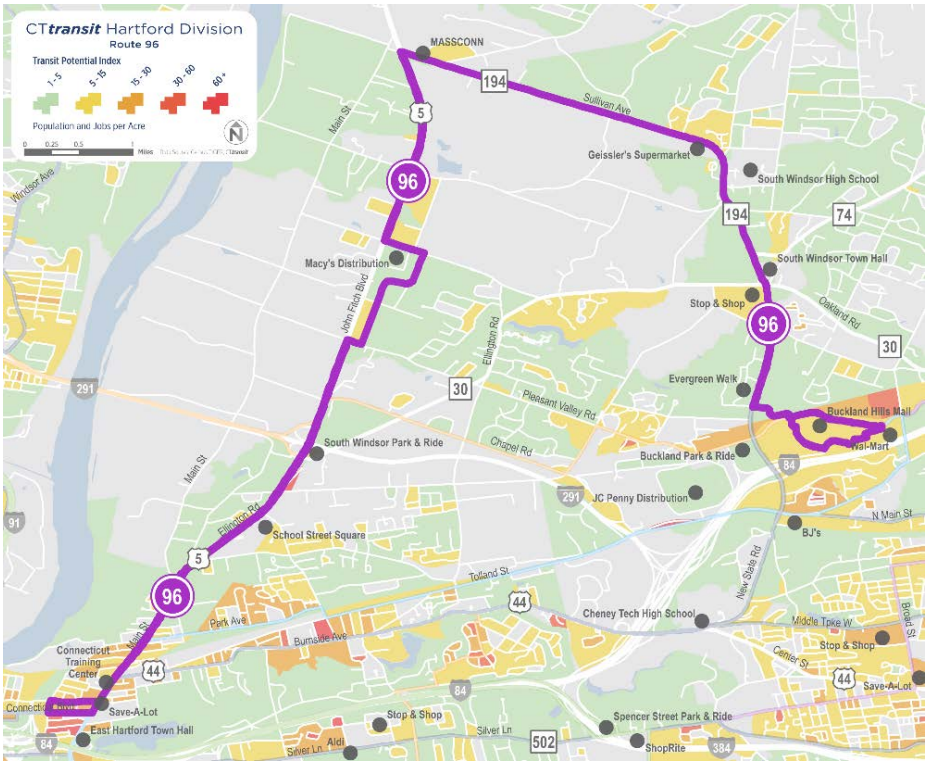
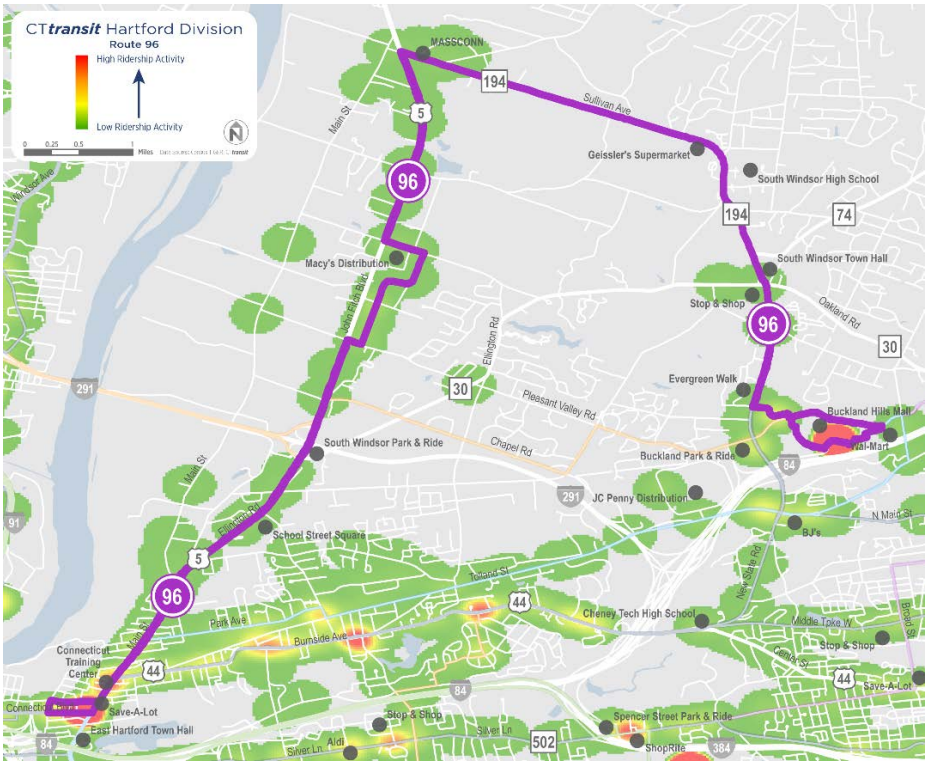


FIGURE 165 | EXISTING TRANSIT RIDERSHIP ALONG PROPOSED ROUTE 96 ALIGNMENT



Service Characteristics

The proposed Route 96 would operate every half hour during peak periods and hourly at all other times (see Figure 166). The route would be interlined with proposed Route 86 at Buckland Hills Mall to create a 4-hour cycle time and optimize layover time for both routes. This interlined pair would provide a one-seat ride between South Windsor and Manchester Community College.

FIGURE 166 | PROPOSED ROUTE 96 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	5:00 AM – 9:00 PM	
Early	5:00 AM – 6:00 AM	60
AM Peak	6:00 AM – 9:00 AM	30
Midday	9:00 AM – 3:00 PM	60
PM Peak	3:00 PM – 6:00 PM	30
Evening	6:00 PM – 9:00 PM	60
Night	–	–
Owl	–	–
Saturday	6:00 AM – 9:00 PM	60
Sunday	7:00 AM – 8:00 PM	60

KEY DESTINATIONS

- Buckland Hills Mall
- Evergreen Walk
- South Windsor Town Hall
- MASSCON
- South Windsor Park-and-Ride
- School Street Square
- Connecticut Training Center

2.41 ROUTE 99

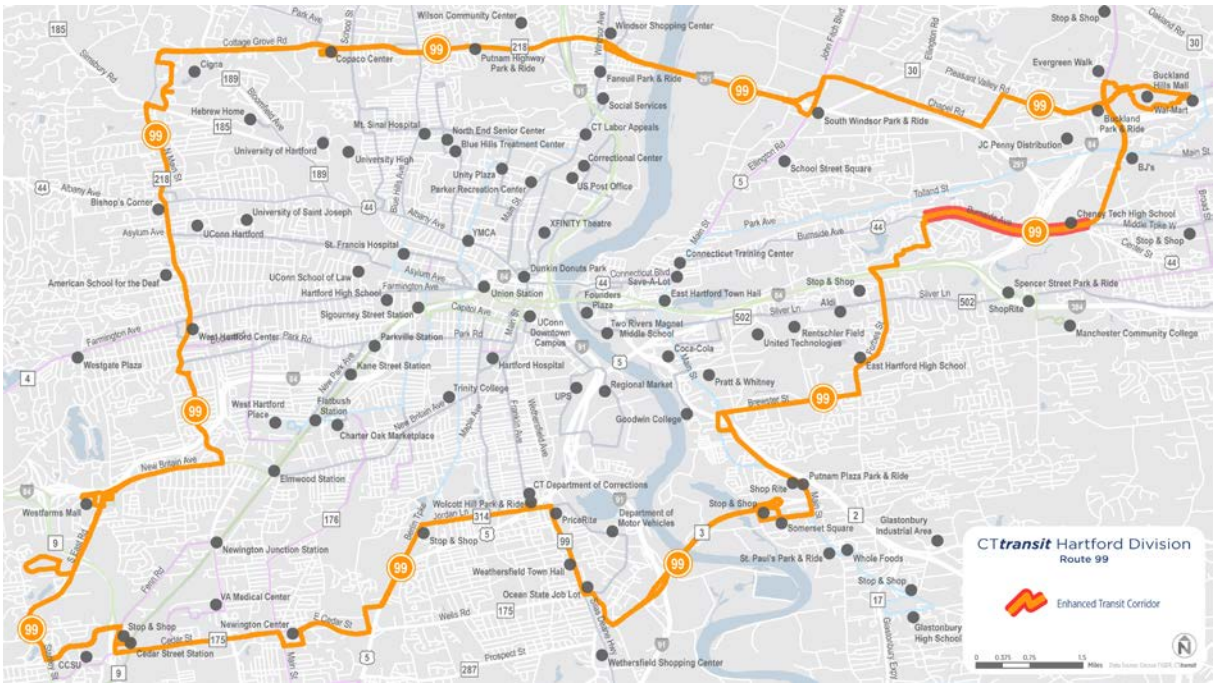
Service Design

Route 99 would incorporate segments of several existing routes including 91, 92, 144 and 153 to create a new Regional Loop Route (see Figure 167). This new route would provide bi-directional service and more directly link major destinations on the periphery of the Greater Hartford region.

Traveling in a clockwise direction beginning at Copaco Center in Bloomfield, the route would follow Cottage Grove Road and Route 218 to the Windsor Shopping Center on Windsor Avenue. It would then use I-291 and travel across the Connecticut River to South Windsor via John Fitch Boulevard, Chapel Road and Pleasant Valley Road. It would circulate through the Shoppes at Buckland Hills and serve the Buckland Park-and-Ride lot, continuing through Manchester via Buckland Street and New State Road. In East Harford, it would follow Burnside Avenue and then serve the Sunset Hills neighborhood, Forbes Street, Brewer Street and Main Street. The Loop would again cross the river using Route 3 in Glastonbury, after serving Somerset Square.

In Wethersfield, the Loop would head north on Silas Deane Highway to Jordan Lane and the Berlin Turnpike. Heading south on the Berlin Turnpike to Cedar Street, the route would serve Newington Center and the Cedar Street CT***fastrak*** station. It would serve Central Connecticut State University via Ella Grasso Boulevard, then follow Stanley Road and SE Road to the Westfarms Mall in West Harford. From the Mall, the route would follow New Britain Avenue to South Main Street and West Hartford Center, then North Main Street to the Cigna campus and back to Copaco Center on Cottage Grove Road in Bloomfield.

FIGURE 167 | PROPOSED REGIONAL LOOP ALIGNMENT



The Regional Loop would allow passengers to more easily travel between key corridors and key outlying destinations without having to travel to downtown Hartford first (see Figure 168 and Figure 169). The route would intersect with dozens of other routes, including CT***fastrak*** service, to provide a wide range of transfer opportunities.

FIGURE 168 | TRANSIT POTENTIAL ALONG PROPOSED REGIONAL LOOP

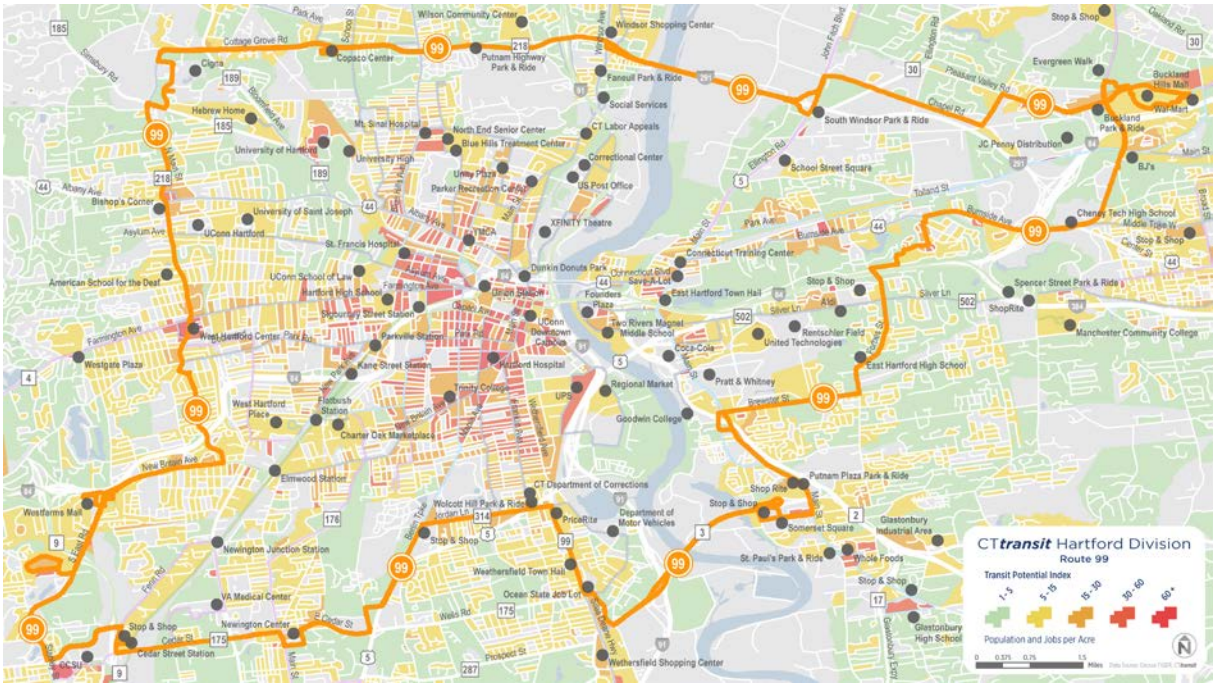
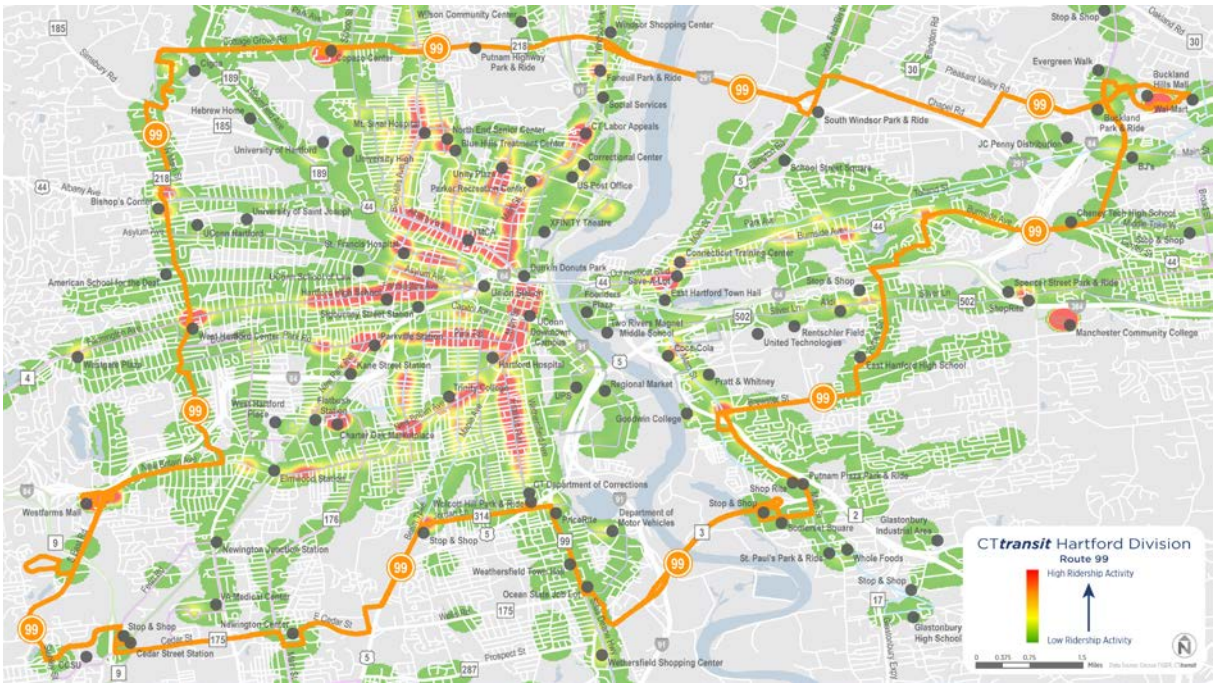


FIGURE 169 | EXISTING TRANSIT RIDERSHIP ALONG PROPOSED REGIONAL LOOP



Service Characteristics

The Regional Loop would operate at 30 minute frequency during peak periods and every 60 minutes during the off peak, in both directions (see Figure 170).

FIGURE 170 | PROPOSED REGIONAL LOOP SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	5:00 AM – 10:00 PM	
Early	5:00 AM – 6:00 AM	60
AM Peak	6:00 AM – 9:00 AM	30
Midday	9:00 AM – 3:00 PM	60
PM Peak	3:00 PM – 6:00 PM	30
Evening	6:00 PM – 9:00 PM	60
Night	9:00 PM – 10:00 PM	60
Owl	–	–
Saturday	6:00 AM – 9:00 PM	60
Sunday	No Service	

KEY DESTINATIONS
▪ Buckland Hills Mall
▪ Copaco Center
▪ Cigna
▪ Bishop's Corner
▪ West Hartford Center
▪ Westfarms Mall
▪ Cedar Street Station
▪ Jordan Lane Shopping Center
▪ Putnam Plaza
▪ East Hartford High School

2.42 ROUTE 121

Service Design

The proposed Route 121 would operate as a CT***fastrak*** service between the UConn Health campus in Farmington and Manchester Community College (MCC) via downtown Hartford. The route would be similar to the current Route 121 but would operate along I-84 rather than Silver Lane between downtown Hartford and MCC (see Figure 171). This approach would make the service faster and more fitting of the CT***fastrak*** brand.

The proposed Route 121 would operate closed-door between MCC and downtown Hartford. Closed-door service generally reduces a route's ridership potential, but this approach is justifiable in the case of a very strong anchor like MCC that can generate substantial ridership on its own (see Figure 172 and Figure 173). In fact, there is the potential to generate more ridership when limited-stop service is offered, as transit trips to a destination will be faster and more attractive for more residents throughout the region. In addition, shifting MCC service from Silver Lane to I-84 would reduce redundancy with Route 83 and allow for the discontinuation of the current Route 85x (MCC Flyer).

FIGURE 171 | PROPOSED ROUTE 121 ALIGNMENT

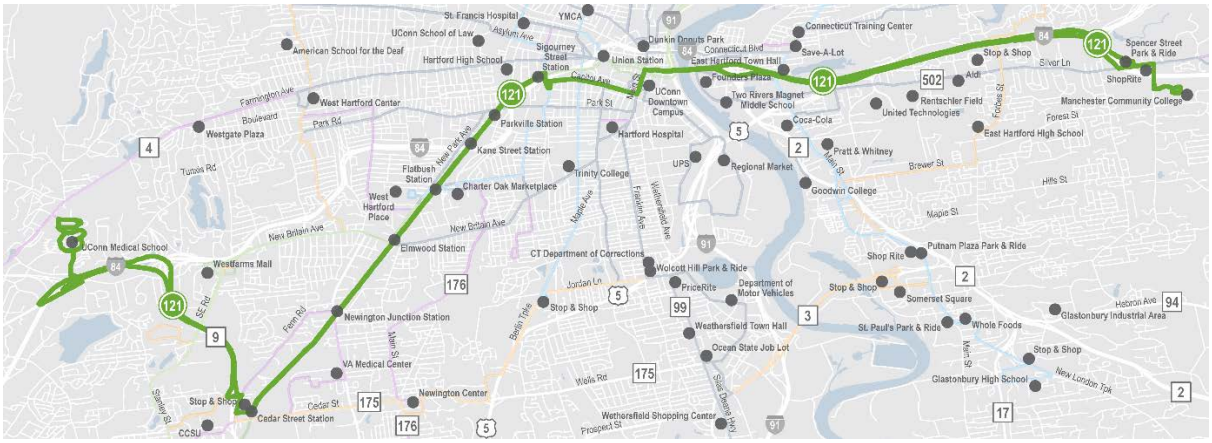


FIGURE 172 | TRANSIT POTENTIAL ALONG PROPOSED ROUTE 121 ALIGNMENT

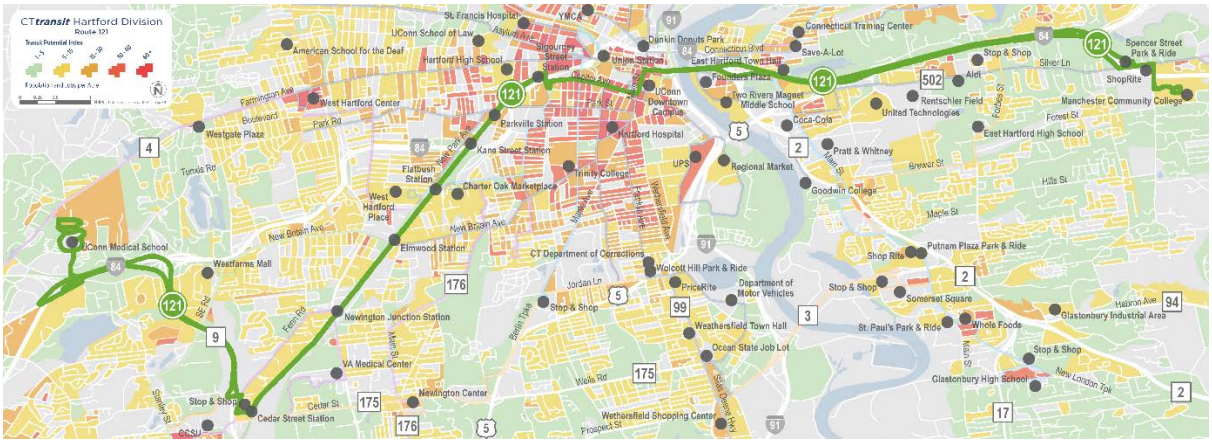
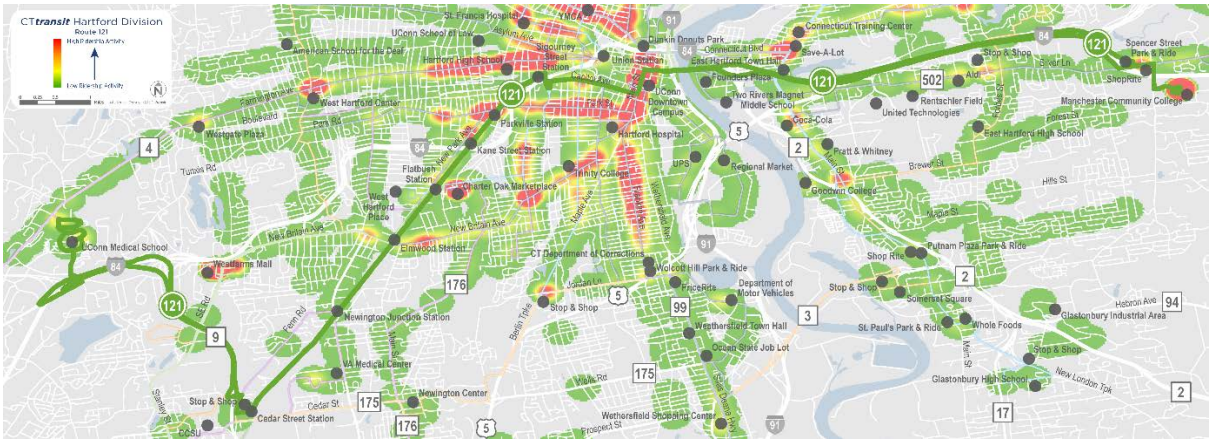


FIGURE 173 | EXISTING TRANSIT RIDERSHIP ALONG PROPOSED ROUTE 121 ALIGNMENT



Service Characteristics

The proposed Route 121 would operate every twenty minutes during peak periods, every half hour in the midday and hourly at all other times (see Figure 174).

FIGURE 174 | PROPOSED ROUTE 121 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	5:00 AM – 11:00 PM	
Early	5:00 AM – 6:00 AM	60
AM Peak	6:00 AM – 9:00 AM	20
Midday	9:00 AM – 3:00 PM	30
PM Peak	3:00 PM – 6:00 PM	20
Evening	6:00 PM – 9:00 PM	60
Night	9:00 PM – 11:00 PM	60
Owl	–	–
Saturday	To Be Determined	
Sunday	To Be Determined	

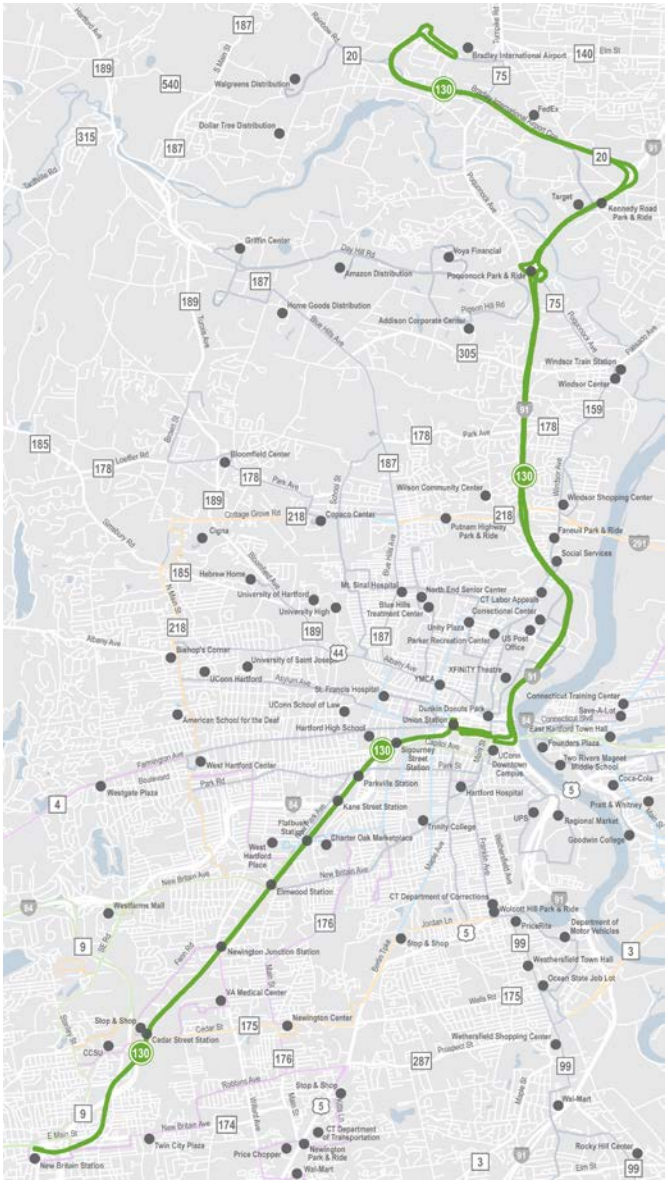
KEY DESTINATIONS
▪ UConn Health
▪ CCSU
▪ Downtown Hartford
▪ Spencer Street Park-and-Ride
▪ MCC

2.43 ROUTE 130

Service Design

The proposed Route 130 would be a CT***fastrak*** branded service operating between downtown New Britain and Bradley International Airport in Windsor Locks. From downtown New Britain, the route would use the CT***fastrak*** guideway, serving all stations, and then continue through downtown Hartford, and north on I-91 and CT-20 to Bradley Airport (see Figure 175). Buses traveling between Union Station and I-91 could operate eastbound on Pearl Street, Central Row, and Bob Steel Street; and westbound on State Street, Central Row, and Asylum Street. However, the exact downtown alignment for this and every other proposed route must be field-tested by **CT*transit*** safety and operations staff to ensure suitability for bus operations.

FIGURE 175 | ROUTE 130 ALIGNMENT



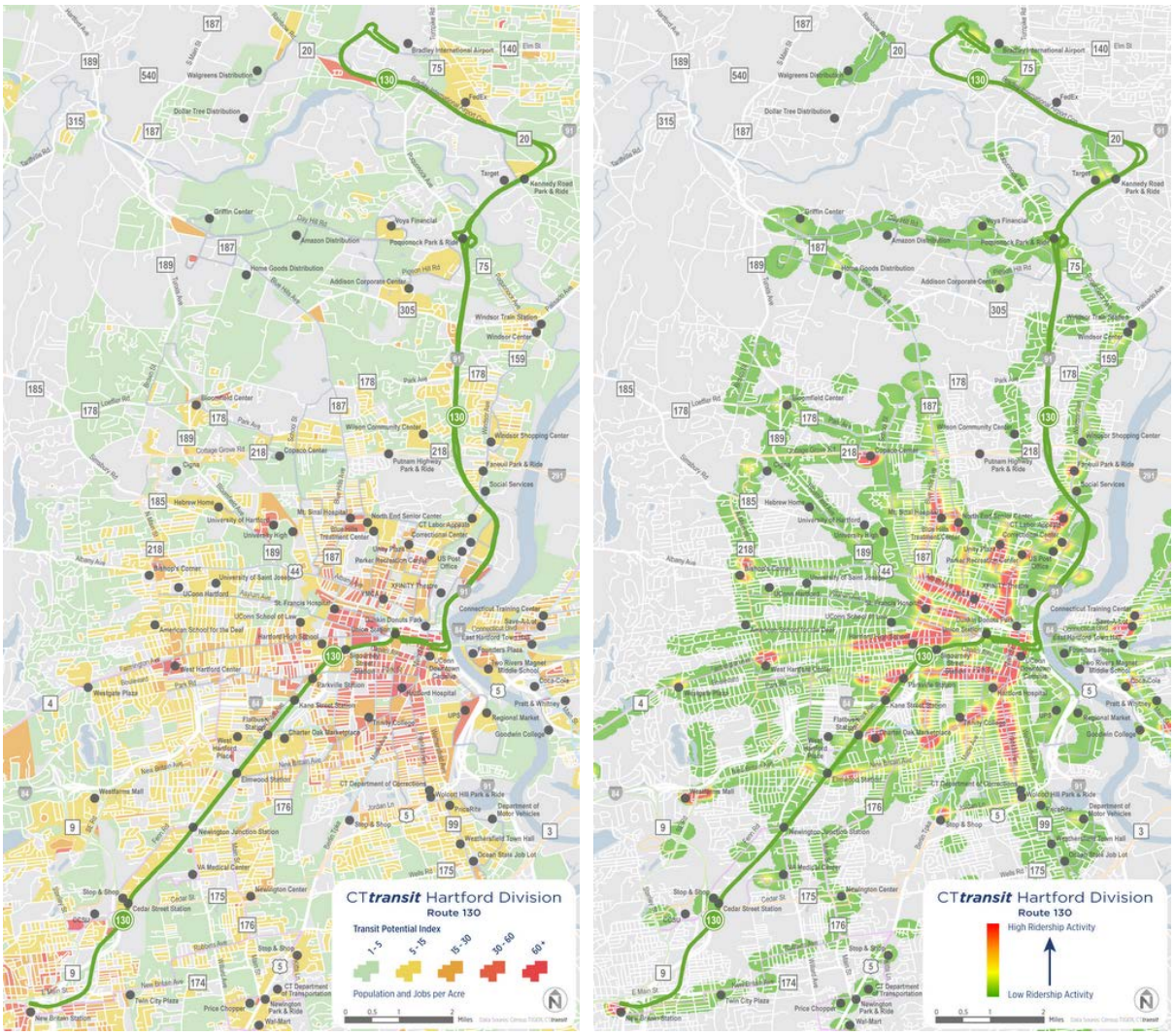
The proposed Route 130 would offer fast airport service for more Hartford-area residents, while continuing to serve passengers traveling between the airport and downtown Hartford. The route would also serve the Poquonock Park-and-Ride Lot to facilitate connections to local service in the Day Hill Road corridor.

While parts of Route 130 serve highly transit-supportive environments with high population and employment density and good pedestrian infrastructure (i.e. downtown New Britain and Hartford, and along the CT***fastrak*** guideway), other segments operate in less supportive environments (see Figure 176). However, this is a unique route tailored to provide fast, frequent service to Bradley Airport for both employees and travelers from throughout the region.

To reclassify the route as a CT***fastrak*** service, local segments along North Main Street (30N), Kennedy Road, and Ella Grasso Turnpike would be served by Route 34. Riders on Route 130 could make connections to the Day Hill Road area and other Windsor locations via Route 36 at the Poquonock Park-and-Ride Lot.

In addition to rebranding this as a CT***fastrak*** route, Bradley flyer branding and signage should be installed at CT***fastrak*** stations, at Union Station, other downtown Hartford locations and at the Airport.

FIGURE 176 | ROUTE 130 TRANSIT POTENTIAL INDEX AND RIDERSHIP ACTIVITY MAP



Service Characteristics

Route 130 would operate between New Britain and Bradley Airport. Trips would be scheduled every 60 minutes to provide convenient and predictable airport access. Some departures times may need to be adjusted slightly to facilitate connections with future CT***rail*** service at Union Station in Hartford, but delaying departures by more than ten minutes is not recommended as this would inconvenience non-rail passengers and detract from the predictability of the proposed service.

Additional parking needs that could be generated by instituting the Bradley Flyer as a CT***fastrak*** service is a point of concern given the limited parking availability along the CT***fastrak*** guideway. This issue is addressed in Chapter 3.2, Airport Transit & Related Parking Concerns.

FIGURE 177 | PROPOSED ROUTE 130 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

SERVICE PERIOD	PROPOSED SPAN OF SERVICE	PROPOSED SERVICE FREQUENCY (MIN)
Weekdays	5:00 AM – 11:00 PM	
Early	5:00 AM – 6:00 AM	60
AM Peak	6:00 AM – 9:00 AM	60
Midday	9:00 AM – 3:00 PM	60
PM Peak	3:00 PM – 6:00 PM	60
Evening	6:00 PM – 9:00 PM	60
Night	9:00 PM – 11:00 PM	60
Owl	–	–
Saturday	To Be Determined	
Sunday	To Be Determined	

KEY DESTINATIONS
▪ Downtown New Britain
▪ Flatbush Station
▪ Union Station
▪ Downtown Hartford
▪ CT Convention Center
▪ Poquonock Park-and-Ride Lot
▪ Bradley International Airport

2.44 PUBLIC COMMENTS

The recommended scenario was presented to the public at a series of open house meetings in November and December of 2016 (see Figure 178). The meetings included a formal presentation as well as informal discussions around large system map display boards showing the proposed service network. Overall, most meeting attendees responded positively to the proposed network. One went so far as to say, "Let's not wait to implement these changes. Let's just do it. What are we waiting for?"

FIGURE 178 | FINAL PUBLIC MEETINGS

DATE	LOCATION
Open House Meetings	
Tuesday, November 29, 2016	Whiton Memorial Library (Manchester)
Wednesday, November 30, 2016	Elmwood Community Center (West Hartford)
Thursday, December 1, 2016	Christ Church Cathedral (Hartford) (Midday and Evening Meetings)

The proposal that generated the highest number of comments was Route 99 – the Regional Loop. Three written comments were submitted in support of the proposal. One additional spoken comment was supportive of the route, but cautioned about low population density along the segment of the loop between Copaco Center and South Windsor. The proposed extension of the Bradly Flyer along the CT***fastrak*** guideway was also well received, with one written comment and one spoken comment in support of the proposal.

There were no comments specifically opposing any of the proposed routes, but there was some concern about the use of TNC services in place of dedicated fixed-route service. One speaker asked what would happen if a TNC service was used to supplement transit service, and then went out of business or left the Hartford market.

In addition to the comments received at the public meetings, additional written comments were sent to CRCOG with feedback about existing transit service hours, on-time performance, vehicle cleanliness, and ridership data. The study recommendations were also presented to the CRCOG Transportation Committee on March 20, 2017, and were generally well received with not specific comments provided.

A full summary of public comments received on the final study recommendations is shown in Appendix E.

2.45 RIDERSHIP AND REVENUE HOUR ESTIMATES

In addition to addressing the issues and opportunities identified for each route, the service recommendations described in the previous chapters are based on a set of guiding principles. These principles, described below, are aimed at improving the over-all user experience and thus promoting ridership growth.

- **Service Should be Simple:** First and foremost, for people to use transit, service should be designed so that it is easy to use and intuitive to understand. This applies not only to the routing

and scheduling of service, but also to the information presented to customers at the stop and on passenger information materials.

- **Routes Should Be as Direct as Possible:** Routes should not deviate from the most direct alignment unless there is a compelling reason, such as to provide service to a major ridership generator. In such cases, the benefits of a deviation must be weighed against the inconvenience caused to passengers already on board.
- **Routes Should Be Symmetrical:** Routes should operate along the same alignment in both directions to make it easy for riders to know how to get back to where they came from. In cases where such operation is not possible due to one-way streets or turn restrictions, routes should be designed so that the opposite directions parallel each other as closely as possible.
- **Routes Should Serve Well Defined Markets:** To make service easy to understand and to eliminate service duplication, routes should be developed to serve clearly defined markets. Ideally, corridors should be served by only one route unless the routes are complementary (such as providing greater over-all service frequency where it is warranted), or serve different functions in the transit network (such as local vs. express trips).
- **Service Should be Well Coordinated:** At major transfer locations, schedules should be coordinated to the greatest extent possible to minimize connection times. In corridors with multiple routes, schedules should be strategically staggered to avoid bus bunching and to maximize the over-all service frequency in the corridor.
- **Service Should Operate at Regular Intervals:** In general, people can easily remember repeating patterns, but have difficulty remembering irregular sequences. For this reason, routes should operate at regular frequencies to the extent possible.

With the exception of the last one, these principles primarily refer to the alignment of each route. The last principal, Operate at Regular Intervals, is a principle that is reflected in the proposed schedules. Figure 179, Figure 180, and Figure 181 show the proposed service characteristics of each route, including peak frequency and daily revenue hours for weekdays, Saturdays, and Sundays. Routes that are shown together in one row are proposed for interlining. Interlining is the practice of operating a single bus or group of buses on multiple routes. Interlining is often used to optimize cycle times and recovery times[1]. For example, if one route has insufficient recovery time while another has excessive recovery time, interlining the routes can result in a cycle time has an optimal mix of running time and recovery time.

Cycle times that are multiples of 60 allow for the greatest range of clock-face schedules. Clock-face schedules are schedules that result in buses serving a particular stop at the same time or times past every hour (e.g. 1:10, 2:10, 3:10, etc., or 1:00, 1:30, 2:00, 2:30, etc.). Clock-face frequencies make it easy for riders to remember schedules, and make it easier to coordinate connections at key hubs. These factors are most important for transit services that operate less often than every 15 minutes. When service runs more frequently than every 15 minutes, riders tend to pay little attention to schedules at all, since buses are expected to arrive within a short period of time, regardless of when the passenger reaches a bus stop. Additionally, clock-face frequencies are less critical for systems that provide real-time bus arrival information to passengers at bus stops or via mobile application. However, even with real-time arrival information, passengers tend to prefer the simplicity of clock-face schedules, especially those passengers who may not have access to a mobile device or who have limited-use cellular plans.

[1] *Recovery time is the time between trips that allows a driver to use the restroom or just prepare for the next trip. For a given trip, cycle time is the running time plus recovery time.*

FIGURE 179 | PROPOSED OPERATING CHARACTERISTICS (WEEKDAY)

Weekday												
Proposed Route	Service Type	Avg Round Trip Miles	Estimated Speed	Run Time	Min Recovery	Min Cycle	Even Cycle	Actual Recovery	Actual % Recovery	Peak Frequency	Peak Vehicles	Revenue Hours
20	Crosstown	16.8	12.5	1:20	0:08	1:28	1:30	0:09	10%	0:30	3.0	51:00
31 + 33	Radial	18.1	11	1:38	0:09	1:48	2:00	0:21	18%	0:15	8.0	80:00
34	Radial	34.7	20	1:44	0:10	1:54	2:00	0:15	13%	1:00	2.0	36:00
35	Connector	6.3	11	0:34	0:03	0:37	0:45	0:10	24%	0:15	3.0	46:00
36 + 54	Radial	56.1	13	4:18	0:25	4:44	5:00	0:41	14%	0:30	10.0	120:00
37 + 39	Radial	18.9	11	1:43	0:10	1:53	2:00	0:16	14%	0:20	6.0	68:00
38 + 59	Radial	13.3	12	1:06	0:06	1:13	1:20	0:13	17%	0:20	4.0	42:00
40 + 55	Radial	32.8	12.5	2:37	0:15	2:53	3:00	0:22	13%	0:20	9.0	114:00
41 + 66	Connector	50.2	14	3:35	0:21	3:56	4:00	0:24	10%	0:30	8.0	90:00
42 + 53	Radial	32.7	12.5	2:36	0:15	2:52	3:00	0:23	13%	0:20	9.0	120:00
43	Radial	9.4	11	0:51	0:05	0:56	1:00	0:08	15%	0:30	2.0	19:00
45 + 69	Connector	23.3	13	1:47	0:10	1:58	2:00	0:12	10%	0:30	4.0	56:00
46 + 50	Radial	26.9	11	2:26	0:14	2:41	3:00	0:33	18%	0:15	12.0	111:00
56 + 87	Radial	20.1	12	1:40	0:10	1:50	2:00	0:19	16%	0:30	4.0	56:00
58 + 72	Radial	22.6	12.5	1:48	0:10	1:59	2:00	0:11	10%	0:30	4.0	46:00
60 + 88 + 90	Radial	57.7	11	5:14	0:31	5:46	6:00	0:45	13%	0:20	18.0	252:00
61	Crosstown	18.7	11.5	1:37	0:09	1:47	2:00	0:22	19%	0:30	4.0	56:00
63	Connector	9.4	11.5	0:49	0:04	0:53	1:00	0:10	18%	0:30	2.0	21:00
67	Connector	3	13.5	0:13	0:01	0:14	0:15	0:01	11%	0:15	1.0	17:00
76	Radial	16.3	12	1:21	0:08	1:29	1:30	0:08	9%	0:15	6.0	54:00
82 + 84	Connector	50.4	12.5	4:01	0:24	4:26	5:00	0:58	19%	1:00	5.0	85:00
83	Radial	32	12	2:40	0:16	2:56	3:00	0:20	11%	0:20	9.0	120:00
86 + 96	Connector	45.2	12.5	3:36	0:21	3:58	4:00	0:23	10%	0:30	8.0	88:00
95	Crosstown	29.1	12	2:25	0:14	2:40	3:00	0:34	19%	0:30	6.0	90:00
99	Regional Loop	103.1	15	6:52	0:41	7:33	8:00	1:07	14%	0:30	16.0	184:00
101	CT*fastrak*	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	9.0	133:07
102	CT*fastrak*	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	5.0	67:07
121	CT*fastrak*	40.1	25	1:36	0:09	1:45	2:00	0:23	20%	0:20	6.0	72:00
128	CT*fastrak*	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	5.0	89:52
130	CT*fastrak*	51.8	29	1:47	0:10	1:57	2:00	0:12	11%	1:00	2.0	36:00
										Proposed	190.0	2420:06
										Current	200.0	2234:49
										Difference	-10.0	185:17
										% Difference	-5%	8%

FIGURE 180 | PROPOSED OPERATING CHARACTERISTICS (SATURDAY)

Saturday												
Proposed Route	Service Type	Avg Round Trip Miles	Estimated Speed	Run Time	Min Recovery	Min Cycle	Even Cycle	Actual Recovery	Actual % Recovery	Peak Frequency	Peak Vehicles	Revenue Hours
20	Crosstown	16.8	12.5	1:20	0:08	1:28	1:30	0:09	10%	0:00	0.0	0:00
31 + 33	Radial	18.1	11	1:38	0:09	1:48	2:00	0:21	18%	0:30	4.0	54:00
34	Radial	34.7	20	1:44	0:10	1:54	2:00	0:15	13%	1:00	2.0	30:00
35	Connector	6.3	14	0:27	0:02	0:29	0:30	0:03	10%	0:30	1.0	15:00
36 + 54	Radial	56.1	13	4:18	0:25	4:44	5:00	0:41	14%	1:00	5.0	75:00
37 + 39	Radial	18.9	11	1:43	0:10	1:53	2:00	0:16	14%	1:00	2.0	30:00
38 + 59	Radial	13.3	12	1:06	0:06	1:13	1:20	0:13	17%	1:20	1.0	12:00
40 + 55	Radial	32.8	12.5	2:37	0:15	2:53	3:00	0:22	13%	0:30	6.0	81:00
41 + 66	Connector	50.2	14	3:35	0:21	3:56	4:00	0:24	10%	1:00	2.0	28:00
42 + 53	Radial	32.7	12.5	2:36	0:15	2:52	3:00	0:23	13%	0:30	6.0	81:00
43	Radial	9.4	11	0:51	0:05	0:56	1:00	0:08	15%	1:00	1.0	12:00
45 + 69	Connector	23.3	13	1:47	0:10	1:58	2:00	0:12	10%	1:00	2.0	30:00
46 + 50	Radial	26.9	11	2:26	0:14	2:41	3:00	0:33	18%	0:30	6.0	90:00
56 + 87	Radial	20.1	12	1:40	0:10	1:50	2:00	0:19	16%	1:00	2.0	30:00
58 + 72	Radial	22.6	12.5	1:48	0:10	1:59	2:00	0:11	10%	1:00	2.0	26:00
60 + 88 + 90	Radial	57.7	11	5:14	0:31	5:46	6:00	0:45	13%	0:30	12.0	198:00
61	Crosstown	18.7	11.5	1:37	0:09	1:47	2:00	0:22	19%	0:30	4.0	54:00
63	Connector	9.4	11.5	0:49	0:04	0:53	1:00	0:10	18%	1:00	1.0	12:00
67	Connector	3	13.5	0:13	0:01	0:14	0:15	0:01	11%	0:15	1.0	16:00
76	Radial	16.3	12	1:21	0:08	1:29	1:30	0:08	9%	0:30	3.0	45:00
82 + 84	Connector	50.4	12.5	4:01	0:24	4:26	5:00	0:58	19%	1:00	5.0	75:00
83	Radial	32	12	2:40	0:16	2:56	3:00	0:20	11%	0:30	6.0	81:00
86 + 96	Connector	45.2	12.5	3:36	0:21	3:58	4:00	0:23	10%	1:00	4.0	60:00
95	Crosstown	29.1	12	2:25	0:14	2:40	3:00	0:34	19%	0:30	6.0	81:00
99	Regional Loop	103.1	15	6:52	0:41	7:33	8:00	1:07	14%	1:00	8.0	120:00
101	CT*fastrak*	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	5.0	99:33
102	CT*fastrak*	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	3.0	49:29
121	CT*fastrak*	40.1	25	1:36	0:09	1:45	2:00	0:23	20%	1:00	2.0	30:00
128	CT*fastrak*	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	4.0	65:53
130	CT*fastrak*	51.8	29	1:47	0:10	1:57	2:00	0:12	11%	1:00	2.0	36:00
										Proposed	108.0	1616:55
										Current	107.0	1369:01
										Difference	1.0	247:54
										% Difference	1%	18%

FIGURE 181 | PROPOSED OPERATING CHARACTERISTICS (SUNDAY)

Sunday												
Proposed Route	Service Type	Avg Round Trip Miles	Estimated Speed	Run Time	Min Recovery	Min Cycle	Even Cycle	Actual Recovery	Actual % Recovery	Peak Frequency	Peak Vehicles	Revenue Hours
20	Crosstown	16.8	12.5	1:20	0:08	1:28	1:30	0:09	10%	0:00	0.0	0:00
31 + 33	Radial	18.1	11	1:38	0:09	1:48	2:00	0:21	18%	1:00	2.0	26:00
34	Radial	34.7	20	1:44	0:10	1:54	2:00	0:15	13%	1:00	2.0	28:00
35	Connector	6.3	11	0:34	0:03	0:37	0:45	0:10	24%	0:30	1.5	13:00
36 + 54	Radial	56.1	13	4:18	0:25	4:44	5:00	0:41	14%	1:00	5.0	70:00
37 + 39	Radial	18.9	11	1:43	0:10	1:53	2:00	0:16	14%	1:00	2.0	26:00
38 + 59	Radial	13.3	12	1:06	0:06	1:13	1:20	0:13	17%	1:20	1.0	8:00
40 + 55	Radial	32.8	12.5	2:37	0:15	2:53	3:00	0:22	13%	1:00	3.0	42:00
41 + 66	Connector	50.2	14	3:35	0:21	3:56	4:00	0:24	10%	0:00	0.0	0:00
42 + 53	Radial	32.7	12.5	2:36	0:15	2:52	3:00	0:23	13%	1:00	3.0	39:00
43	Radial	9.4	11	0:51	0:05	0:56	1:00	0:08	15%	0:00	0.0	0:00
45 + 69	Connector	23.3	13	1:47	0:10	1:58	2:00	0:12	10%	1:00	2.0	26:00
46 + 50	Radial	26.9	11	2:26	0:14	2:41	3:00	0:33	18%	1:00	3.0	39:00
56 + 87	Radial	20.1	12	1:40	0:10	1:50	2:00	0:19	16%	0:00	0.0	0:00
58 + 72	Radial	22.6	12.5	1:48	0:10	1:59	2:00	0:11	10%	1:00	2.0	26:00
60 + 88 + 90	Radial	57.7	11	5:14	0:31	5:46	6:00	0:45	13%	0:30	12.0	162:00
61	Crosstown	18.7	11.5	1:37	0:09	1:47	2:00	0:22	19%	1:00	2.0	26:00
63	Connector	9.4	11.5	0:49	0:04	0:53	1:00	0:10	18%	0:00	0.0	0:00
67	Connector	3	13.5	0:13	0:01	0:14	0:15	0:01	11%	0:15	1.0	13:00
76	Radial	16.3	12	1:21	0:08	1:29	1:30	0:08	9%	0:45	2.0	26:00
82 + 84	Connector	50.4	12.5	4:01	0:24	4:26	5:00	0:58	19%	1:00	5.0	65:00
83	Radial	32	12	2:40	0:16	2:56	3:00	0:20	11%	1:00	3.0	39:00
86 + 96	Connector	45.2	12.5	3:36	0:21	3:58	4:00	0:23	10%	1:00	4.0	52:00
95	Crosstown	29.1	12	2:25	0:14	2:40	3:00	0:34	19%	1:00	3.0	39:00
99	Regional Loop	103.1	15	6:52	0:41	7:33	8:00	1:07	14%	0:00	0.0	0:00
101	CT*fastrak*	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	3.0	54:15
102	CT*fastrak*	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	3.0	33:48
121	CT*fastrak*	40.1	25	1:36	0:09	1:45	2:00	0:23	20%	0:00	0.0	0:00
128	CT*fastrak*	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	2.0	29:22
130	CT*fastrak*	51.8	29	1:47	0:10	1:57	2:00	0:12	11%	1:00	2.0	36:00
										Proposed	68.5	918:25
										Current	47.0	591:26
										Difference	21.5	326:59
										% Difference	46%	55%

Clock-face schedules are proposed for nearly all of the recommended routes, and recovery times are projected to fall between 10% and 20% of total cycle time for all but two routes. When recovery time is less than 10% of total cycle time, there is a high risk of poor on-time performance because there is insufficient buffering between trips. With insufficient recovery time, one late trip can lead to another, causing a bus to get further and further behind schedule. On the other hand, if there is more than 20% recovery time in a schedule, buses are sitting unproductively for long periods of time.

The proposed routes and schedules are designed to improve productivity and increase ridership. Compared to the current service, the recommended scenario would require 5% fewer peak vehicles on weekdays, but would results in 8% more weekday revenue hours. The increased revenue hours can be attributed to different things on different routes, including longer spans of service, higher off-peak frequencies, and longer peak periods. However, there may be opportunities to trim revenue hours on some CT***fastrak*** routes, which were not analyzed as part of this study. For example, if the Bradley Flyer is extended to New Britain via the CT***fastrak*** guideway, as recommended, some trips on Route 101 can likely be eliminated to account for the added capacity created by the proposed Route 130.

While the proposed scenario includes an approximately 8% increase in weekday revenue hours (if implemented in its entirety), it also includes a projected 9% increase in weekday ridership (see Figure 182).

Ridership estimates for the proposed network were developed using a three-step process:

- Existing transit ridership[2] was re-distributed to the proposed route network based on geographic coverage, creating a new ridership baseline.
- For areas losing service, ridership was assumed to be lost. For areas gaining new service, ridership was added based on the ridership observed in other areas with similar land-use characteristics.
- For each proposed route, the ridership baseline was adjusted to include ridership gain or loss, as described above, and to factor in the impacts of various service characteristics such as changes in service frequency, making routes more direct, and establishing clockface headways (see Figure 183 for detailed impact calculations).

The anticipated impacts of various service characteristics were based on the following impact assessments gathered from industry research (TCRP 66 - Fixed-Route Transit Ridership Forecasting and Service Planning Methods) and Nelson\Nygaard's national project experience:

- Increasing service frequency will increase ridership by up to 50%
- Straightening a route or making it more direct will increase ridership by up to 10%
- Establishing clock-face service frequencies will increase ridership by up to 3%
- Decreasing service frequency will reduce ridership by up to 50%

For a mature transit system the size of Hartford's, Saturday ridership is expected to be about half of weekday ridership. Similarly, Sunday ridership is expected to be about half of Saturday ridership. Currently, Saturday ridership in the Hartford Division is 52% of weekday ridership. However, Sunday ridership is only 33% of Saturday ridership. This lower than expected Sunday ridership is a function of the very limited service available on most routes in the Capitol Region. The proposed service scenario recommends increasing both Saturday and Sunday service as shown in Figure 180 and Figure 181.

[2]*Existing ridership numbers are based on data collected at the beginning of the study and used throughout the analysis, and may not represent the most current ridership data available.*

FIGURE 182 | PROJECTED DAILY WEEKDAY RIDERSHIP

ROUTE	DONOR ROUTES	ESTIMATED DAILY RIDERS (BASELINE)	ESTIMATED ADDED DAILY RIDERS (NEW COVERAGE)	ESTIMATED TOTAL DAILY RIDERS (PRE-IMPACT)	ASSUMED IMPACT (SEE FIGURE 183)	TOTAL PROJECTED RIDERSHIP	% INCREASE
20	37, 39, 50, 52, 54, 63, 76	1,807		1,807	0.13	2,042	13%
31	31, 33	2,145	5	2,150	0	2,150	0%
33	31, 33	2,208		2,208	0.1	2,428	10%
34	30, 32,34,36	398		398	0.65	656	65%
35	161	607	50	657	0	657	8%
36	32, 34, 36	1,156		1,156	0.05	1,214	5%
37	37, 39, 43, 63	1,493		1,493	0.13	1,688	13%
38	38	517		517	0.53	791	53%
39	37, 39, 43	1,256		1,256	0.13	1,419	13%
40	32, 34, 36, 40, 42	1,960		1,960	0	1,960	0%
41	41, 69, 153	573		573	0.05	601	5%
42	40, 42, 44, 74, 92	1,638		1,638	0.6	2,620	60%
43	43	362	50	412	0.1	453	25%
45	41, 45, 47, 144	319		319	0.65	527	65%
46	44, 46, 56, 58	2,050		2,050	-0.5	1,025	-50%
50	44, 50,52, 54, 56, 58	2,592	5	2,597	0.5	3,896	50%
53	47, 53, 55	2,058	50	2,108	0	2,108	2%
54	44, 50, 52, 54, 56, 58	1,597		1,597	0.5	2,395	50%

ROUTE	DONOR ROUTES	ESTIMATED DAILY RIDERS (BASELINE)	ESTIMATED ADDED DAILY RIDERS (NEW COVERAGE)	ESTIMATED TOTAL DAILY RIDERS (PRE-IMPACT)	ASSUMED IMPACT (SEE FIGURE 183)	TOTAL PROJECTED RIDERSHIP	% INCREASE
55	47, 53, 55, 91	2,239		2,239	0.1	2,463	10%
56	56, 58, 74, 76	1,616		1,616	0.03	1,664	3%
58	44, 56, 58	268		268	0	268	0%
59	59	432		432	0.5	648	50%
60	60, 62, 64, 66	4,229		4,229	0	4,229	0%
61	40, 42	1,242		1,242	0	1,242	0%
63	63	392		392	0	392	0%
66	60, 62, 64, 66, 72	610		610	0.03	628	3%
67	140	65		65	0.1	72	10%
69	69, 140	389		389	0.6	622	60%
72	72	821		821	0.03	845	3%
76	44, 74, 76	845	30	875	0.5	1,312	55%
82	82, 84	848		848	0.1	933	10%
83	83	1,634		1,634	0.1	1,798	10%
84	82, 84	424	15	439	0.1	483	14%
86	83, 86, 88	696	10	706	0	706	1%
87	83, 87	432		432	0	432	0%
88	86, 88	1,475		1,475	0.1	1,623	10%
90	82, 84, 86, 87, 88, 94, 96	1,453		1,453	0.1	1,598	10%

ROUTE	DONOR ROUTES	ESTIMATED DAILY RIDERS (BASELINE)	ESTIMATED ADDED DAILY RIDERS (NEW COVERAGE)	ESTIMATED TOTAL DAILY RIDERS (PRE-IMPACT)	ASSUMED IMPACT (SEE FIGURE 183)	TOTAL PROJECTED RIDERSHIP	% INCREASE
95	94, 95, 96	1,650	15	1,665	0.1	1,832	11%
96	92, 94, 96	358	35	393	0.65	648	81%
99	43, 60, 62, 64, 66, 72, 91, 92, 144, 153	1,805		1,805	0.1	1,986	10%
101	31, 33, 41, 69, 101	5,124		5,124	0	5,124	0%
102	102	1,046		1,046	0	1,046	0%
121	85, 121	498		498	0.1	548	10%
128	37, 39, 128	1,918	25	1,943	0	1,943	1%
130	30, 101	799	25	824	0.13	931	17%

Total Existing Ridership[3]	59,214
Total Projected Ridership	64,644
% Increase in Ridership	9%

[3] *Existing ridership numbers are based on data collected at the beginning of the study and used throughout the analysis, and may not represent the most current data available.*

FIGURE 183 | RIDERSHIP IMPACT ELASTICITIES AND CALCULATIONS BY ROUTE

ROUTE	INCREASED FREQUENCY	STRAIGHTEN ROUTE/ MORE DIRECT	ESTABLISH REPEATING HEADWAYS	ESTABLISH CLOCKFACE HEADWAYS	DECREASE FREQUENCY	TOTAL ASSUMED IMPACT
	0.5*	0.1**	0.02**	0.03**	-0.5*	
20		x		x		0.13
31						0
33		x				0.1
34	x	x	x	x		0.65
35						0
36			x	x		0.05
37		x		x		0.13
38	x			x		0.53
39		x		x		0.13
40						0
41			x	x		0.05
42	x	x				0.6
43		x				0.1
45	x	x	x	x		0.65
46					x	-0.5
50	x					0.5
53						0
54	x					0.5
55		x				0.1
56				x		0.03
58						0
59	x					0.5
60						0
61						0
63						0
66				x		0.03
67		x				0.1
69	x	x				0.6
72				x		0.03
76	x					0.5
82		x				0.1

ROUTE	INCREASED FREQUENCY	STRAIGHTEN ROUTE/ MORE DIRECT	ESTABLISH REPEATING HEADWAYS	ESTABLISH CLOCKFACE HEADWAYS	DECREASE FREQUENCY	TOTAL ASSUMED IMPACT
	0.5*	0.1**	0.02**	0.03**	-0.5*	
83		x				0.1
84		x				0.1
86						0
87						0
88		x				0.1
90		x				0.1
95		x				0.1
96	x	x	x	x		0.65
99		x				0.1
101						0
102						0
121		x				0.1
128						0
130		x		x		0.13

** - Elasticity from TCRP 66 Fixed-Route Transit Ridership Forecasting and Service Planning Methods*

*** - Elasticity reflects industry/NN experience*

2.46 TITLE VI ADVISORY

Title VI of the Civil Rights Act of 1964 ensures that "no person in the United States shall, on the basis of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." CT***transit*** has committed to the Federal Transit Administration (FTA) objectives set forth in Circular 4702.1B. These objectives work to ensure that FTA-assisted benefits and related services are made available and are equitably distributed without regard to race, color, or national origin. The Connecticut Department of Transportation most recently updated its Title VI Program in December 2015. The program states that when instituting major service changes, CT***transit*** should conduct a Service Equity Analysis to determine potential disparate impact and disproportionate burden to minority and low-income residents.

If implemented in their entirety, the services changes proposed in the recommended scenario would constitute a Major Service Change under the CTDOT Title VI Program. When implementing significant service changes, FTA strongly prefers that agencies utilize rider demographic surveys to determine which routes are disproportionately utilized by minority and low-income riders. CT***transit*** does not currently have a recent, statistically significant ridership survey for Hartford Division routes. This Title VI Advisory therefore utilized demographic data from the US Census to provide guidance on potential compliance issues that could arise while implementing the CSA recommendations. The findings from this process, as well as an overview of the data and analysis process needed to complete a formal Title VI, are described below.

FORMAL TITLE VI ANALYSIS

Before implementation of recommendations from this CSA, a more in-depth equity analysis should be undertaken, in consultation with the FTA. As described above, the proposed service changes would constitute a Major Service Change under the CTDOT Title VI policies. The preferred data source for the equity analysis would be from surveys of existing riders which obtain data about actual travel patterns, method of payment, and demographic information. This information can be used to more accurately measure the impacts of service changes on existing riders, and would be used instead of any analysis based on Census data, at least for the existing service area.

The rider survey is required by FTA to be completed at least every five years, and FTA gives specific guidance to transit agencies on sampling methodology and survey questions before the survey process begins. Ideally, the survey results can be compiled in time to inform the equity analysis for these proposed service changes. Otherwise, population data from the Census would be used, similar to the preliminary analysis presented in this memo.

Regarding levels of service, the number of weekday trips serving each Census block group have been used in this preliminary analysis, as a proxy for vehicle revenue hours as described in CTDOT's Title VI policies. As CT***transit*** moves closer to implementation, and it is known whether rider or population data will be used, a methodology which uses existing and proposed vehicle revenue hours should be formulated.

Nevertheless, the preliminary analysis described here provides useful guidance to keep in mind during the planning process as the proposed changes get refined before implementation.

TITLE VI ADVISORY METHODOLOGY

This Title VI Advisory measures the impacts of recommended service changes on both minority and low-income populations within the current CT***transit*** Hartford Division. Express bus routes operated by

CT***transit*** in the Greater Hartford area were not evaluated. CT***transit*** New Britain-Bristol routes were also not evaluated. While two neighborhoods where Hartford Division services are proposed to be eliminated will continue to be served by New Britain-Bristol Division services, their omission does not fundamentally affect the findings described below.

Data concerning minority and low-income populations were obtained from the 2010-2014 Five-Year American Community Survey (ACS). Individuals who identified as non-Hispanic White on the ACS were considered "minority." The US Census Bureau defines individuals who reside in households where total household income is equal to or less than 80% of the area median income as living below the poverty threshold. Individuals living under this threshold were considered "low-income."

For the purposes of this analysis, the CT***transit*** "service area" is defined as census block groups that are within ¼ mile of existing Hartford Division fixed-route services. Most riders typically find this ¼ mile distance a comfortable walk for accessing transit services. Block groups are the smallest geographic unit for which current minority and low-income population data is available. Some block groups comprise a relatively large portion of the CT***transit*** service area, reflecting the lower population density of many suburban Hartford neighborhoods. As a result, some individuals residing in block groups within the "service area" likely live farther than a ¼ mile from an existing CT***transit*** service.

Each existing and current route was assigned a "total trips per weekday" figure based on existing and proposed service levels. The trips per weekday metric generally reflects the number of times a rider will be able to access transit from a given location. Each block group was assigned the sum of the total trips per weekday of all existing routes that passed through it. Block groups were similarly assigned service levels based on the proposed service plan. The existing trips per weekday figure was then subtracted from the proposed trips per weekday figure to determine the change in service.

In limited circumstances, trips were not assigned to block groups that were within ¼ mile of an existing or proposed fixed-route service. Trips were primarily excluded when the area served by a given route represented less than 5% of the total area of a given block group. In these cases, it was assumed that the vast majority of block group residents and destinations would be outside of the area served by the specific route.

The CTDOT Title VI Program includes four definitions of major service changes. Three definitions focus on changes to frequency, span, and coverage of individual bus routes. The fourth focuses on total changes at the system level, and defines a major service change as a greater than 10% increase or decrease in a system's overall vehicle revenue hours. To provide the broadest overview of the potential Title VI implication of the recommended services changes, this fourth definition was adapted to the methodology utilized for this analysis (Figure 184). Any block group that would have an increase in trips above 10% was considered to have "increased service." Any block group that would see a decrease in trips above 10% was considered to have "decreased service."

FIGURE 184 | SERVICE CHANGE DEFINITIONS

SERVICE CHANGE CATEGORY	DEFINITION
Increased Service	More than 10% increase in trips per day
Minimal Service Change	Between 10% decrease and 10% increase in trips per day
Decreased Service	More than 10% decrease in trips per day

This Title VI advisory analyzed the impacts of recommended service changes on both minority and low-income populations within the current CT***transit*** Hartford Division using two methodologies:

- **Change in Service Area Analysis:** An evaluation comparing the demographic composition of the existing service area to the proposed service area. This analysis focuses on identifying whether the minority and/or low-income population would be disproportionately affected in areas where service is proposed to be eliminated entirely.
  - *Disparate Impact*: If the proportion of minority residents in the eliminated service area is over fifteen percentage points greater than in the existing service area overall.
  - *Disproportionate Burden*: If the proportion of low-income residents in the eliminated service area is over fifteen percentage points greater than in the existing service area overall.
- **Change in Weekday Service Analysis:** An evaluation comparing the demographic composition of areas where weekday service levels will be increased, maintained, or decreased. This analysis focuses on identifying whether the minority and/or low-income population would be disproportionately affected by changes in service levels.
  - *Disparate Impact*:
    - If the proportion of minority residents in the decreased service area is over fifteen percentage points greater than in the existing service area overall.
    - If the proportion of minority residents in the increased service area is over fifteen percentage points less than in the existing service area overall.
  - *Disproportionate Burden*:
    - If the proportion of low-income residents in the decreased service area is over fifteen percentage points greater than in the existing service area overall.
    - If the proportion of low-income residents in the decreased service area is over fifteen percentage points less than in the existing service area overall.

Change in Service Area Analysis

The recommended service plan maintains access to the vast majority of neighborhoods served by CT***transit*** Hartford Division bus routes, and expands service to select neighborhoods northeast and southwest of Hartford (Figure 186). The proposed network will maintain local bus service to 89% of the existing service area population.

Most neighborhoods where service is recommended to be eliminated are located in Glastonbury and along CT-99 south of Rocky Hill. Providing fixed-route transit service to these neighborhoods requires long and/or circuitous routes that have historically generated poor ridership. Some neighborhoods in Manchester, Wethersfield, South Windsor, and West Hartford will lose access to local bus service within ¼ mile walk. However, many residents in these areas will remain within a reasonable walking distance to transit and/or within a short drive of a park-and-ride facility. Hartford Division service will also be eliminated in part of Farmington, though residents of these neighborhoods will continue to have access to CT***transit*** New Britain-Bristol Division service.

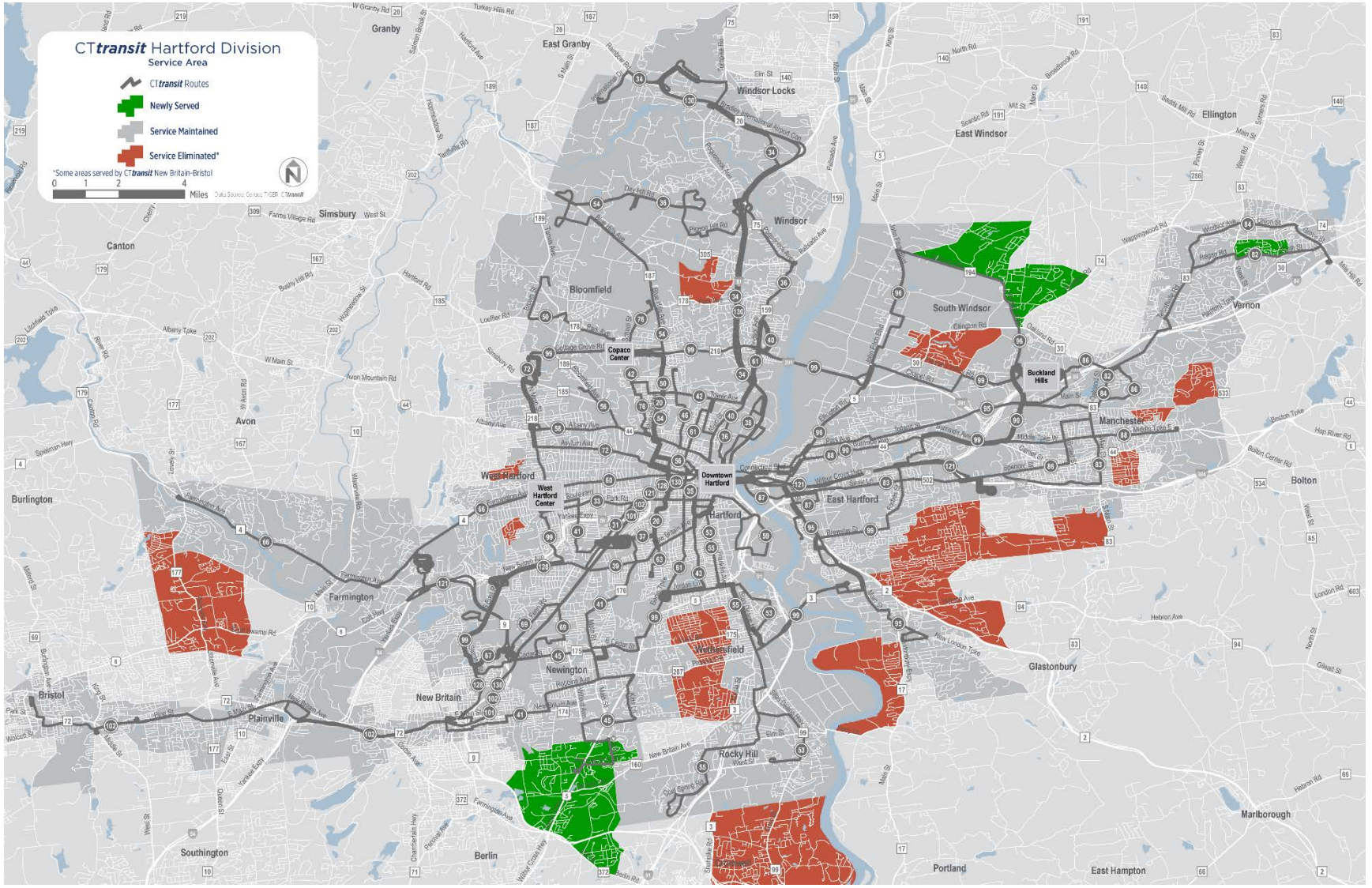
Residents in neighborhoods where service will be eliminated are more likely to be white and live in households with incomes above the poverty line. Newly served neighborhoods also have a higher rate of white residents and households with incomes above the poverty line. Changes to the Hartford Division's geographic coverage ultimately result in a net increase in the proportion of both low-income and minority residents in the overall service area (Figure 185).

Based on these findings, the proposed changes to the Hartford Division service area do not appear to have a disproportionate burden or disparate impact on the low-income or minority residents of Greater Hartford.

FIGURE 185 | EXISTING AND PROPOSED SERVICE AREA DEMOGRAPHICS

SERVICE AREA	TOTAL POPULATION	% LOW-INCOME	% MINORITY
Existing Service Area	575,605	15.8%	46.1%
Total Proposed Service Area	523,979	16.5%	47.9%
New Service Area	11,537	6.5%	15.9%
Eliminated Service Area	63,163	8.5%	26.4%

FIGURE 186 | CHANGE IN SERVICE AREA MAP



Change in Weekday Service Analysis

The recommended service plan concentrates transit service on the strongest corridors, while also creating new cross-town service options that allow for more direct travel to important employment and retail destinations outside of the central core. Nearly all routes will operate with clockface headways, allowing for the coordination of schedules along common corridors. In some neighborhoods, this schedule design results in a net loss in total trips per day, while actually providing comparable service to local residents. For example, Farmington Avenue is currently served by Routes 60, 62, 64, and 66 (as well as others in some segments). During the morning peak period, inbound buses arrive at stops at irregular frequencies ranging from 5 to 10 minutes. Consequently some trips arrive in quicker succession than demand would justify, resulting in relatively low ridership trips mixed with high ridership trips. By contrast, the proposed Route 60 would serve the same corridor with a regular 10-minute peak frequency. New crosstown service, connectors to CT***fastrak*** stations, and the proposed regional loop would all help manage demand for Route 60 by diverting trips or allowing for shorter trips within the Farmington Avenue corridor. Thus, even with fewer trips per hour along some corridors (Figure 188), the utility that the proposed network would offer riders is as good, if not better (for non-radial trips) than the current route network.

Just over 38% of the existing and proposed service area population will see increased service under the recommended scenario (Figure 187). Around 23.5% of residents will experience minimal change in service, while 38.5% will see decreased transit service. Residents of neighborhoods with increased transit service are less likely to live in a low-income household and are less likely to be white than the existing service area population. However, the difference in the proportion of low-income and minority residents between areas with increased service and the existing service area is less than fifteen percentage points. Residents of neighborhoods with decreased transit service are slightly more likely to live in a low-income household, but are somewhat more likely to be white. The difference in the proportion of minorities in the decreased service area and the existing service area is about one percentage point.

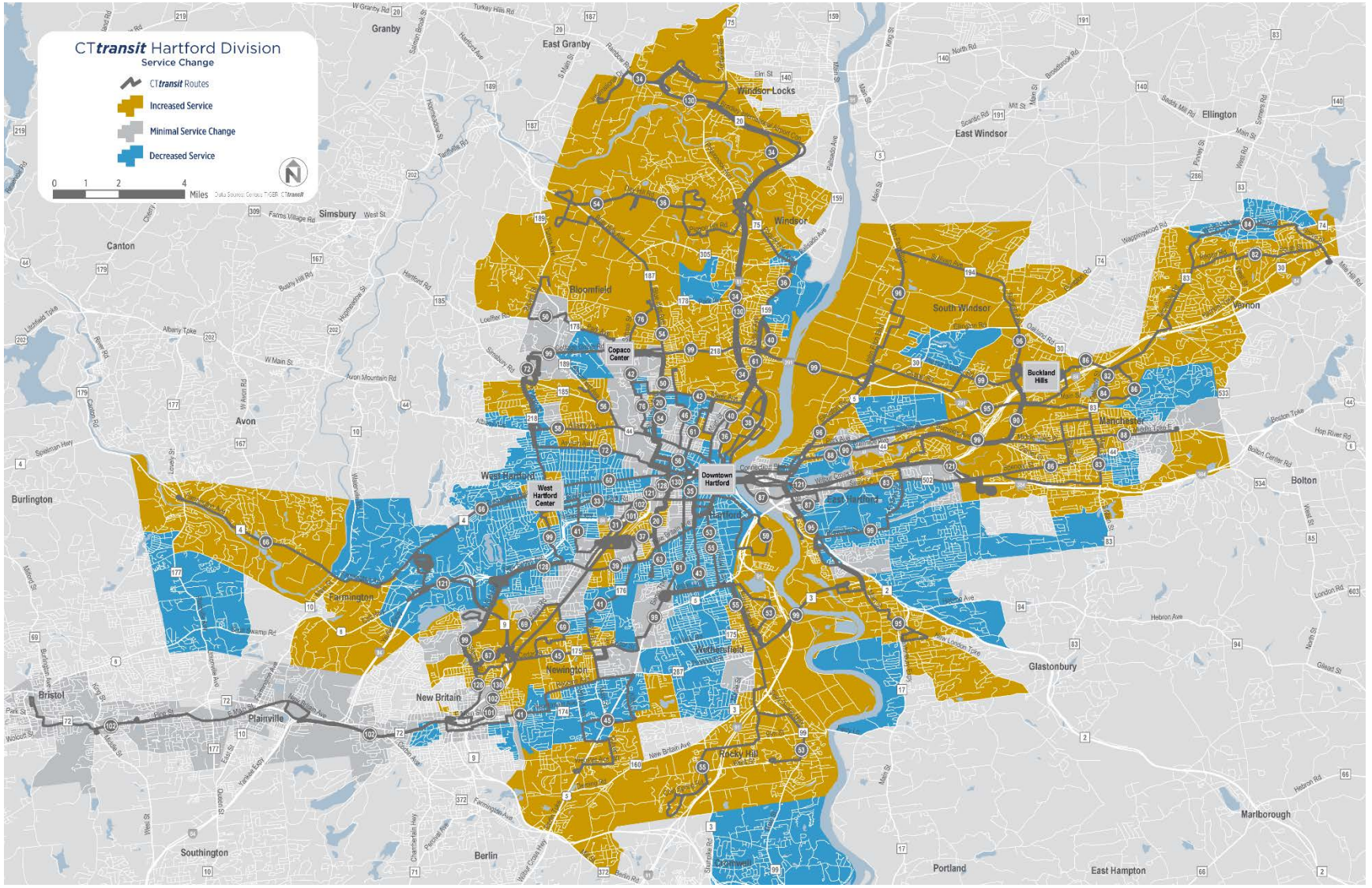
Based on these findings, the proposed service changes do not appear to have a disproportionate burden or disparate impact on the low-income or minority residents of the Capitol Region.

FIGURE 187 | RESIDENT DEMOGRAPHICS BY WEEKDAY SERVICE CHANGE

SERVICE AREA	TOTAL POPULATION[1]	% LOW-INCOME	% MINORITY
Existing Service Area	575,605	15.8%	46.1%
Increased Service (10%+)	222,943	10.6%	39.6%
Minimal Service Change	137,177	23.3%	55.8%
Decreased Service (-10%+)	227,022	15.9%	45.2%

[1]Includes block groups where service will be introduced or eliminated. Therefore the total population of Increased Service, Minimal Service Change, and Decreased Service block groups is greater than the total population of the Existing Service Area.

FIGURE 188 | CHANGE IN SERVICE MAP



3 OTHER CONSIDERATIONS

3.1 CAPITAL IMPROVEMENTS

The service recommendations described in the previous chapters contribute to the establishment of enhanced transit corridors along Franklin Avenue, Park Avenue, Farmington Avenue, Albany Avenue, and Main Street in Hartford, as well as Burnside Avenue in East Hartford. With the proposed service changes, each of these corridors would feature very frequent transit service. Over the long-term, these corridors will provide a focus for branding and transit-supportive capital investments, complementing the high-frequency service in each corridor and solidifying each as an enhanced transit corridor.

This chapter provides an overview of capital improvement opportunities along the designated enhanced transit corridors. These improvements include:

- Transit Priority Strategies
- Stop Consolidation
- Passenger Amenities and Shelters

TRANSIT PRIORITY STRATEGIES

Transit service is most attractive when it is faster than driving, or when the time differences are reasonable. To make transit faster, it can be given priority over regular traffic. This can be done through the use of various measures:

- **Exclusive bus lanes**, which can be developed in medians or in curb lanes.
- **Queue jump lanes**, which typically substitute a short stretch of parking for a curbside bus lane that allows buses to jump to the front of the queue at bus stops or traffic signals.
- **Transit signal priority** that extends green signals for approaching buses, which allows them to pass through the intersection before the light turns red and provides them with an early green signal.

These measures all contribute to transit service that is faster, more reliable, and more attractive to riders. Although these strategies are critical components of premium services such as Rapid Bus or Bus Rapid Transit (BRT), they can also be implemented to enhance regular bus service by improving speed and reliability along specific corridors.

Bus Lanes

Bus lanes are located on arterials or other streets that serve general vehicle traffic. Exclusive bus lanes are dedicated for use by bus vehicles only, either part-time (such as during peak commute hours) or at all times. In addition to signage that identifies lanes as bus-only, exclusive bus lanes can be separated from general traffic by physical barriers, such as curbs or bollards, or by other visual elements, such as striping lanes or applying color to the pavement. As described below, exclusive lanes can be located either in curb lanes or in the center of streets.

FIGURE 189 | CURBSIDE BUS LANES IN NEW YORK CITY (LEFT) AND LOS ANGELES (RIGHT)

Curbside lanes are the most common approach to exclusive bus lanes, due to the fact that bus stops are already located along the curb. Curbside lanes let buses continue moving without the need to weave in and out of traffic and without getting stuck in general vehicle traffic.

Bus lanes can be exclusive to buses full-time, or they can be in effect only during certain hours or days. Most commonly, part-time bus lanes are shared with parking, with curb lanes used for bus service during peak periods and for parking at other times. In many cases, bus lanes are also shared with other uses, such as taxis or bicycles. In addition, emergency vehicles may also be permitted to use exclusive lanes during periods of heavy traffic congestion, preserving emergency response times.

Median lanes allow buses to operate in the center of a roadway. Whereas buses traveling in curb lanes can face several conflicts from other vehicle traffic—including passenger drop-offs, commercial deliveries, and illegal parking—median lanes eliminate most of these conflicts and thus enhance service speed and reliability. Traffic controls can protect or prohibit left turns by other vehicles. Dedicated transit signal heads can help to minimize confusion over which traffic signals apply to left-turning vehicles versus transit vehicles.

FIGURE 190 | MEDIAN BUS LANE AND STOPS

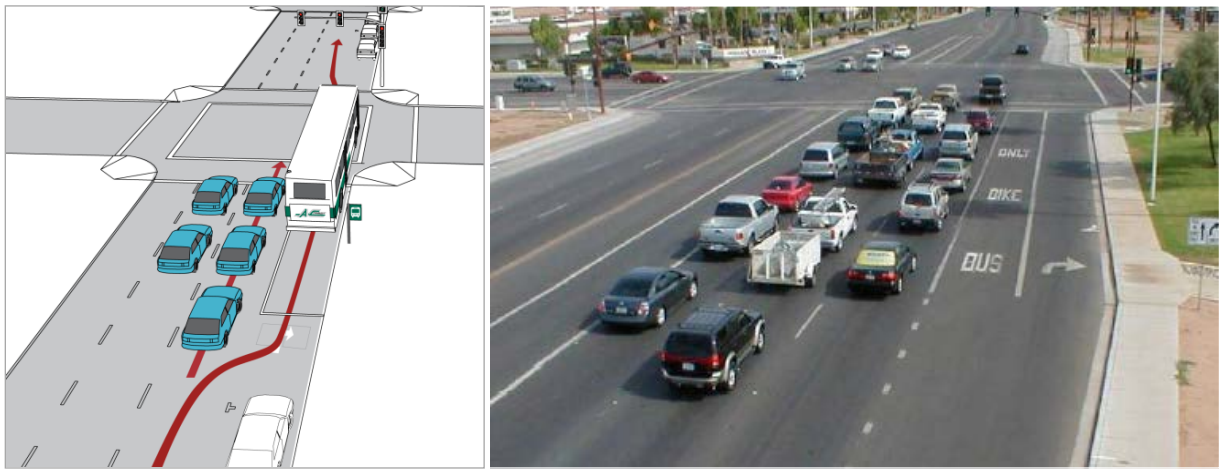
With median lanes, stations are also located along the median, and designated crosswalks with clear signage and signals can help riders reach stops. Stops may be located on the right side of the vehicle

(which allows regular transit vehicles to serve the stop) or on the left side in the middle of the roadway (which necessitates the use of vehicles with doors on the left side). In Cleveland, for example, HealthLine BRT vehicles are equipped with passenger doors on both sides to serve stops on the left and right sides of the vehicle.

Queue Jump Lanes

Queue jump lanes provide transit vehicles priority by creating a special lane at intersections that allows buses to move to the front of stopped traffic. The lanes are restricted to transit vehicles only (and, often, to right turning vehicles as well); this allows a bus to skip to the front of the line at a stop light. Queue jump lanes are often combined with signal priority, where the queue jump lane is provided a green signal before the general traffic lanes.

FIGURE 191 | QUEUE JUMP OPERATION (LEFT) AND IN CHANDLER, AZ (RIGHT)

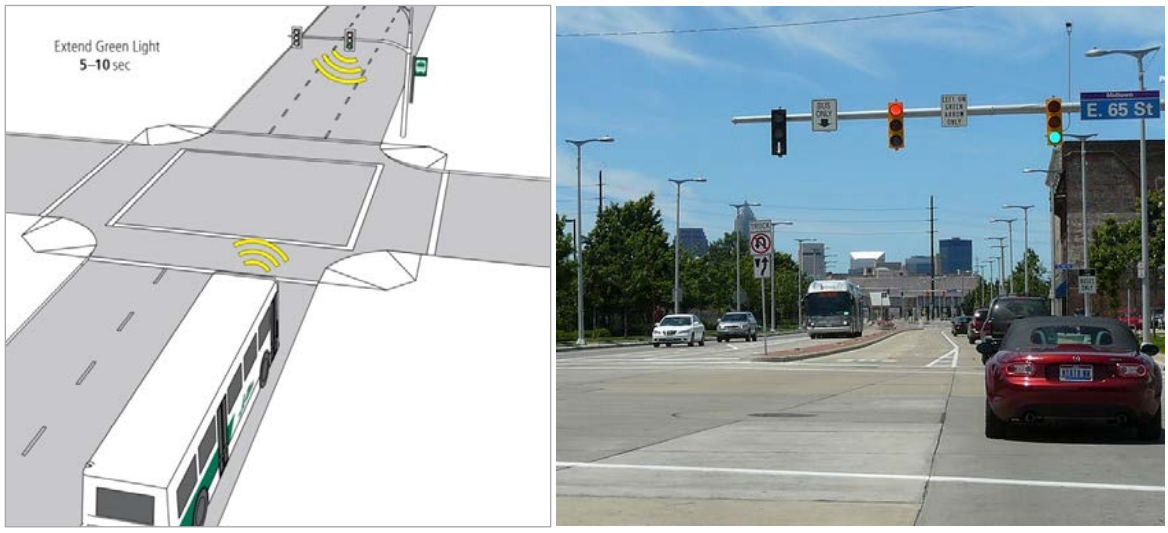


Queue jump lanes improve transit speed and reliability by helping buses move through intersections to stay on schedule. The use of queue jumps alone can result in travel time improvements of 5% to 25%. When paired with other bus treatments, additional travel time savings have been recorded.

Transit Signal Priority

Transit Signal Priority gives preferential treatment to buses at traffic signals. Signal priority modifies normal traffic signal operation to facilitate the movement of transit vehicles by changing the signal to green early or by extending the green signal until the bus passes through. This technology significantly reduces signal delays, and can reduce bus travel times by 5% to more than 20%, depending upon the level of system investment.

FIGURE 192 | TRANSIT SIGNAL PRIORITY OPERATION (LEFT) AND IN JACKSONVILLE, FL (RIGHT)

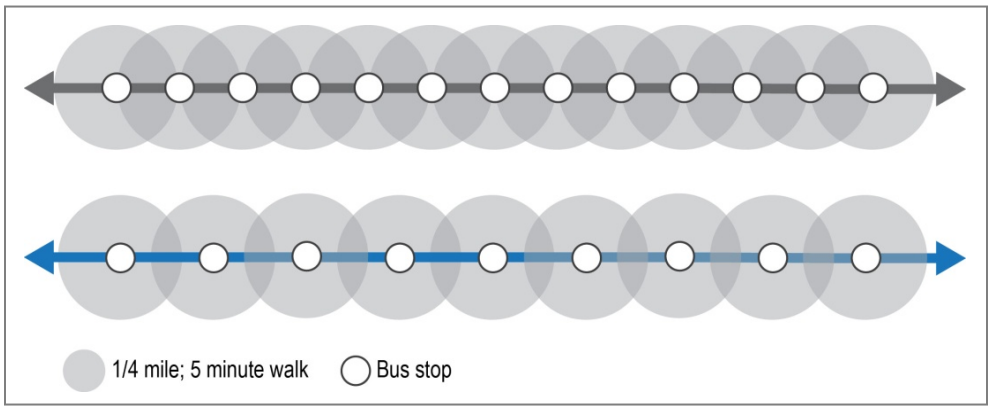


Signal priority is typically implemented in conjunction with exclusive bus lanes. Signal priority systems vary in complexity. Some systems rely on transit operator intervention or activation, while others have automated systems that use transponders to connect with signal equipment.

STOP CONSOLIDATION

The spacing and placement of stops greatly impact transit travel times and reliability, as well as the types of facilities and amenities that can be provided. Most riders want service that balances convenience and speed, and the number and location of stops is a key component of determining that balance. Moreover, as the success with Bus Rapid Transit (BRT) and other forms of enhanced bus service have shown, most passengers prefer a greater emphasis on faster service rather than shorter walks. Stop consolidation done right makes service faster and more attractive while maintaining convenient access.

FIGURE 193 | AREA WITHIN A FIVE MINUTE WALK (EIGHT STOPS PER MILE VERSUS FIVE STOPS PER MILE)



Benefits of stop consolidation include:

- **Faster Service:** On average, it takes a bus about 20 seconds to slow down, stop and pick up a passenger, and accelerate back up to speed. Thus, a consolidation from nine stops per mile to six can save one minute per mile, or five minutes on a five-mile trip.
- **More Reliable Service:** As the number of stops on a transit route increases, the probability that the bus will pick up passengers at a given stop decreases. On some trips, a bus might pick up

passengers at 90% of stops. On another trip, a bus on that same route might stop at only 60% of stops. As a result, the addition of stops makes travel times more variable, while the consolidation of stops makes service more consistent and reliable.

- **More Comfortable Service:** Stop-and-go operation, no matter the mode, is frustrating and uncomfortable. More stops make service less comfortable. More stops often also produce the perception that transit is slower than it is. Conversely, fewer stops make the ride more comfortable.
- **Additional Service:** When travel times vary significantly, transit systems must pad schedules to account for the variability, and in some cases, this requires that an additional bus be deployed on a route. With less variable travel times, that bus can instead be used to provide more frequent service or to provide service elsewhere.
- **Better Stop Facilities and Amenities:** Transit riders want stops to be comfortable places to wait, and riders' perceptions of transit are in part related to the quality of their local bus stop. The need to be fiscally responsible means that transit systems cannot afford to provide high quality facilities and amenities at low ridership stops. Consolidating stops also means consolidating passengers, and in doing so, transit systems can more easily provide high quality facilities and amenities at a fewer number of stops.
- **Better Accessibility:** Similarly, when there are fewer stops that serve more passengers, transit systems have a greater ability to work with local jurisdictions to make accessibility improvements that go beyond the immediate stop area, such as providing sidewalks and safe crossings within several blocks of a major transit stop or providing an accessible access point to a local bus stop. Reducing the number of stops can expand the reach of pedestrian improvements and can help to provide convenient and accessible connections to more transit stops and their surrounding areas.

FIGURE 194 | CLOSELY SPACED STOPS IN MIAMI BEACH, FL (LEFT) AND DOWNTOWN KANSAS CITY, MO (RIGHT)

Most transit systems that have undertaken stop consolidation efforts start with the development of guidelines that are based on distance to the next stop and boarding levels. Then, when two stops are spaced too closely, one of stops will be eliminated or the two stops will be consolidated to a new location

that best serves the existing riders of the original stops. Most agencies also use additional criteria related to considerations such as special needs and safety.

Transit systems that have pursued stop consolidation generally report significant operational improvements. Drivers are more consistently able to meet schedules, and find that they are able to provide a smoother ride for passengers. Most agencies have seen increases in service reliability and several have been able to decrease scheduled running times on affected routes. Despite initial concerns that riders would respond negatively to stop consolidation, most agencies have not had to reinstate removed stops due to customer complaints.

PASSENGER FACILITIES AND AMENITIES

Waiting for the bus is a significant part of nearly every transit trip. Well-designed bus stops enhance the transit experience, decrease perceived wait times for transit services, and can contribute to increased ridership. Conversely, poorly designed bus stops can decrease customer satisfaction, make transit less attractive to potential new customers, and make waiting at stops unsafe for riders. Investing in high quality bus stops is often a low-cost, high-reward strategy for transit agencies.

Certain key bus stop design characteristics are essential for ensuring a high quality transit experience. While it is not possible for every stop to be perfectly designed, there are a number of principles for good bus stop design and locations:

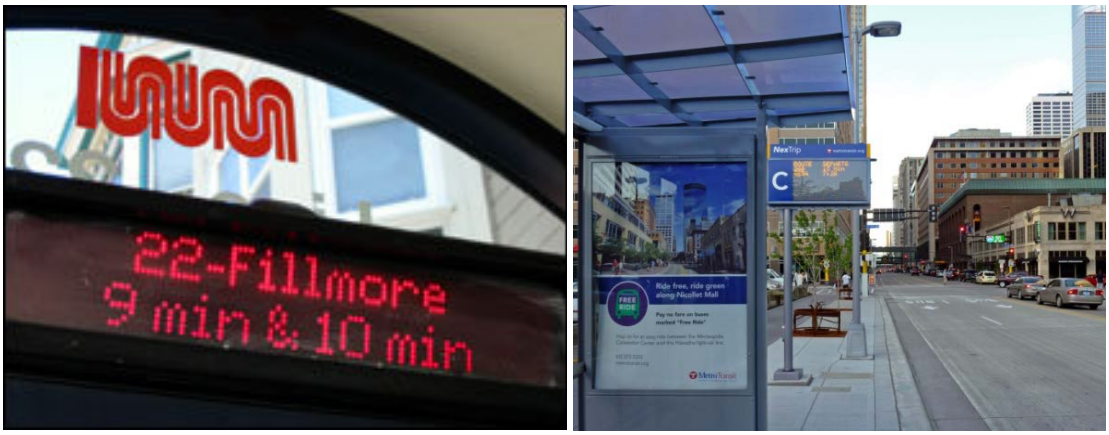
- **Convenient, Comfortable, and Safe Locations:** Bus stops should ideally be located in places where passengers will feel comfortable and safe waiting for transit service. Stop locations should be well lit, offset from fast moving traffic, and away from undesirable places to wait (such as gas stations) when possible. Transit customers often view stops conveniently located near major activity centers, such as shops, schools, or places of work, as the most attractive and safe.

  FIGURE 195 | PORTLAND, OR DOWNTOWN BUS STOP (LEFT) AND AUSTIN, TX BUS STOP SIGNAGE (RIGHT)

- **Visible and Easily Identifiable:** Bus stops should be located in places where passengers can easily find them. Passengers waiting for the bus should also be easily visible to bus drivers. Bus stops should present a strong brand identity, through signage and other amenities, which helps customers identify stop locations and available services.
- **Information on Available Services:** All bus riders and potential riders need certain basic information to use a transit service: Can I get to where I want to go from this stop? Is the route running at this time of day? When will the next bus arrive? While much of this information can

now be accessed using a smart phone, transit riders continue to value basic route and schedule information at each bus stop. Such information helps reduce confusion about transit service and can act as low-cost advertising to potential new transit customers. Advanced information systems, such as real-time passenger information boards, can further enhance the transit experience and increase customer satisfaction.

FIGURE 196 | REAL-TIME INFORMATION BOARDS IN SAN FRANCISCO (LEFT) AND MINNEAPOLIS (RIGHT)



- **Pedestrian and Bicycle Access:** Nearly all transit riders are pedestrians or bicyclists at some point in their journey. Therefore, it is important that each bus stop have a safe and defined pathway to and from local destinations that is accessible to riders of all abilities. Most stops should have accessible and safe sidewalk access and be located near a crosswalk. Ideally, this pedestrian infrastructure should extend far beyond the stop location, ensuring that riders can safely travel to their destination.
- **Integration with Surrounding Development:** Bus stops are most effective when actively integrated with surrounding development. Well-placed stops can enhance the transit experience and attract new riders, while poorly placed stops can hinder bus operations and decrease customer safety. Developers and planners should consider bus stop location early in the design process of a new project, rather than placing stops at later stages of construction. Similarly, planners should consider how road and sidewalk reconstruction and new bicycle infrastructure could affect stop quality and transit operations.
- **Amenities that Make the Wait Comfortable:** The provision of amenities at stops can make using transit more convenient and comfortable. Well-designed bus stops can actually decrease the amount of time customers perceive they have been waiting for the bus.

Passenger amenities are also a platform for service branding. For example, passenger amenities served by existing CT***fastak*** routes echo the design cues of CT***fastrak*** vehicles. This approach reinforces the message that CT***fastrak*** service is specialized and offers a distinct user experience compared to other CT***fastrak*** routes. However, it is possible to successfully brand a corridor, even if no special branding is applied to the vehicles operating in the corridor. Enhanced shelters with real-time bus arrival information, and other features designed to make the shelters comfortable and easily identifiable, can help delineate an enhanced transit corridor. With time, passengers will come to associate enhanced passenger amenities with high-frequency service, regardless of the branding on the buses. This is important because the recommended scenario proposes to establish high-frequency service in key corridors through the practice of route convergence. With this approach, multiple local routes converge in single corridor to effectively create high-frequency service within the corridor.

3.2 AIRPORT TRANSIT & RELATED PARKING CONCERNS

One of the recommendations presented in the previous chapters calls for rebranding the Bradley Flyer (Route 30) as a CT***fastrak*** route and extending the rebranded route from Hartford Union Station to downtown New Britain. The proposed route would use the CT***fastrak*** guideway, making all station stops between New Britain to Hartford Union Station. From Union Station, the proposed route would travel through downtown, making local stops, and then continue north on I-91. Local service on Kennedy Road and Ella Grasso Turnpike would be replaced by another local CT***transit*** route, allowing the Bradley Flyer to operate express along CT-20 to the Airport. To facilitate connections to local service in the Day Hill Road corridor, the proposed route would also serve the Poquonock Park-and-Ride lot. For consistency with other CT***fastrak*** routes, the proposed route would become a 100-series route, and be renumbered as Route 130.

By serving 10 CT***fastrak*** stations, as well as Union Station, Route 130 would offer a one-seat ride to Bradley International Airport for more Hartford and New Britain-area residents, while continuing to serve passengers traveling between the airport and downtown Hartford. A one-seat ride is key to attracting riders other than airport workers, because travelers are often hesitant to use transit if it requires transferring with luggage.

Today, parking at CT***fastrak*** stations and at the Poquonock Park-and-Ride lot is free. Concerns have been raised that operating the Bradley Flyer along the CT***fastrak*** guideway could overburden limited parking capacity with airport passengers parking for extended periods of time. In order to understand how other transit agencies across the U.S. handle such concerns, a summary of various airport transit park-and-ride management policies is presented in Appendix F. Recommendations for Bradley Flyer service are presented below.

PARKING RECOMMENDATION FOR THE BRADLEY FLYER

Rebranding the Bradley Flyer as a CT***fastrak*** route and extending it beyond downtown Hartford along the CT***fastrak*** guideway to New Britain would offer many benefits. The airport is a regional employment destination, and facilitating trips to the airport would serve daily commuters. Existing CT***fastrak*** users are also airport users (some more often than others). If Bradley Flyer service were available from CT***fastrak*** stations, many existing commuters who use CT***fastrak*** for other trips would consider it as an option for airport trips as well, as they are already familiar and comfortable with CT***fastrak*** service. If parking at stations were not an option, some airport travelers (both workers and airline passengers) may choose to be dropped off by friends or family, rather than driving to the airport. Others may take a short taxi or Uber trip to the nearest CT***fastrak*** station rather than a longer trip to the airport to save money. Individuals may also opt to take a local CT***transit*** route to the guideway to access CT***fastrak*** service.

The CT***fastrak*** brand would certainly heighten the visibility of Bradley Flyer service and attract more choice riders traveling into and out of Bradley International Airport. While continuing to offer fast, direct service between the airport and downtown Hartford for both employees and travelers, the service would also provide an attractive choice for people living and working along the guideway. Given local interest in increased development densities along the guideway, this demand would likely grow over time.

Prior to implementation, CTDOT and CT***transit*** must first address concerns related to the parking impact of an extended Bradley Flyer service. CT***fastrak*** stations offer limited parking capacity and, due to the success of CT***fastrak*** (and the fact that parking is free), most park-and-ride lots along the guideway are fully utilized today. CTDOT also allows late night and overnight parking to accommodate second and third-shift workers. Finally, CTDOT does not have internal institutional capacity or the budget for regular parking enforcement.

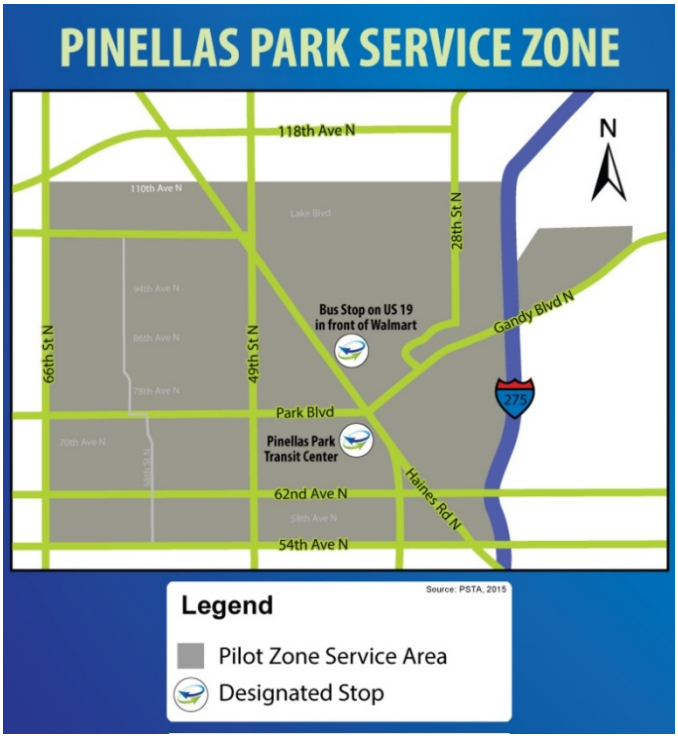
The following steps could be considered to help alleviate the potential impact of long-term parking demand at CT***fastrak*** lots due to Bradley Flyer airport service.

1. **Restrict & Monitor Overnight Parking**: Most of the transit agencies providing airport related services limit overnight parking, in order to ensure that spaces are available for morning commuters. CTDOT could restrict parking between 1:30 and 3:30 AM at all stations (or to the hours when no CT***fastrak*** service is running). Local municipalities could be asked to partner in enforcement, with local police calling tow trucks to remove vehicles parked at this time. If municipalities are allowed to issue citations for parking violations, they would have an incentive to enforce parking restrictions. After tickets are issued a few times, area residents tend to adhere to parking regulations. Enforcement does not have to require constant monitoring. It can involve occasional "reminders" in the way of citations. This approach could also be considered for the Poquonock Park-and-Ride Lot. If, however, there is a desire to maintain some overnight parking for shift workers and airport travelers, certain lots could be designated to allow long-term parking (see below).
2. **Encourage Long-term Airport Parking at the Szczesny Garage**: The municipally-owned Szczesny Garage in New Britain is not fully utilized on a daily basis and has the capacity to accept long-term parking. Today, the garage is open 7:00 AM to 8:00 PM and charges only $3 for CT***fastrak*** ticket holders; parking is free on weekends. In order to accommodate overnight and long-term parking, the City would need to expand operating hours and/or transition to a more automated payment system. CTDOT has discussed the possibility of automated payment systems for the Szczesny Garage with New Britain city leaders in the past. Given this history, the Szczesny Garage is well suited to serve as a test case for long-term parking in the future.
3. **Long-term Capital Investment in Park-and-Ride Capacity**: CTDOT is investigating the potential to add more parking capacity along the CT***fastrak*** guideway. Future development of such parking can take into account the needs for overnight parking for both shift workers and airport travelers.
4. **Charge a Parking Fee at All CT*fastrak* Lots**: As new development occurs in the CT***fastrak*** corridor, demand for parking at these stations will intensify. While parking fees are not currently under consideration, CTDOT may find itself in the position of needing to implement a parking fee at all lots at some point in the future. CT***fastrak*** parking lots may be equipped with a parking kiosk, where customers can pay for parking based on a space number or license plate number. Kiosks can accept all forms of payment, and provide real-time occupancy information. Alternatively, using a mobile-based "pay by phone" app (such as the one used by the MBTA in Boston) provides a relatively low-cost means of collecting parking revenue and offsetting enforcement costs. It also allows for multi-day payment. In both cases, there is also a possibility of including limited-time parking at these lots with the cost of a CT***fastrak*** fare. CTDOT would need to confirm that these changes would not negate any commitments made during project planning.

3.3 SUBSIDIZED ON-DEMAND SERVICES

Some of the recommendations presented in the previous chapters would result in the elimination of fixed-route service in some low-density residential areas that have not shown a strong demand for transit. In particular, parts of Glastonbury, East Hartford, and Wethersfield would be left without bus service. However, residents of these neighborhoods would have the option of accessing transit service at nearby park-and-rides as they do now. Car ownership in these neighborhoods is generally high, but for residents without access to an automobile, options other than traditional fixed-route bus service may be a better fit.

FIGURE 197 | DIRECTCONNECT SERVICE ZONE



A new approach for providing mobility where strong transit demand does not exist is subsidized on-demand services, such as those offered by Transportation Network Companies (TNCs). TNCs such as Uber and Lyft operate a technology platform that connects drivers of privately owned vehicles with potential passengers via a smartphone application. Passengers are charged a fare, and drivers are charged a service fee for use of the TNC platform. In some communities, TNCs have recently begun partnering with transit agencies to facilitate subsidized service, making trip costs comparable to transit fares. For example, in the St. Petersburg, Florida region, the Pinellas Suncoast Transit Authority (PSTA) has launched a pilot program called DirectConnect that allows residents of two designated service zones to request either Uber or an authorized taxi service to a nearby transit center or bus stop where they can transfer to the regional fixed-route network. PSTA covers half of the fare for these trips, up to a maximum of $3. To receive the subsidized fare, passengers must enter a special code into their Uber app, or call the authorized taxi provider and request the special fare.

The option of requesting either Uber or a taxi allows PSTA to balance convenience and accessibility, as some residents may not have access to a mobile device. A similar approach could be taken in the Hartford region, where both Uber service and taxis are readily available.

While subsidized TNC service can be a viable replacement for unproductive fixed-route service, TNC service can also complement transit service more generally. For example, the subsidy can be offered on certain days, or at certain hours when the demand for transit service is too low to justify fixed-route operations but some transit need still exists. A second PSTA pilot program called TD (Transportation Disadvantaged) Late Shift gives low-income residents up to 23 free Uber trips per month between the hours of 9:00 PM and 6:00 AM, when bus service is not available. Subsidized trips must be between the user's place of employment and residence.

Besides the PSTA programs, there are several other subsidized TNC pilot programs underway around the country. Each takes a slightly different approach to integrating TNC service into the public transit network:

- In Philadelphia, the Southeastern Pennsylvania Transportation Authority (SEPTA) is offering a 40 percent discount off Uber fares to select SEPTA rail stations, up to a maximum subsidy of $10. The program is aimed at facilitating first/last mile connections to and from suburban transit hubs with parking capacity issues.
- In Denton County, TX, the Denton County Transportation Authority (DCTA) is offering $2 discounts off Uber trips taken within the town of Highland Village, a suburban bedroom community that lacks the density or land-use to support fixed-route service. The discount is available during regular DCTA service hours only.
- In Dublin, CA, the Livermore Amador Valley Transit Authority (LAVTA) is subsidizing Uber trips in two designated zones to guarantee that trip costs do not exceed $5 for passengers. The pilot program has allowed LAVTA to eliminate an unproductive bus route serving the same area.

In the Tampa region, Hillsborough Area Rapid Transit (HART) has taken a different approach to integrating on-demand service into the larger transit network. HART's HyperLINK pilot program utilizes a dedicated and specially branded fleet of small passenger vehicles to provide first/last mile connections to and from fixed-route bus stops. The service is available in designated zones that lack the density and/or land-use to support fixed-route service. HyperLINK vehicles are dispatched by riders using a custom-made smart phone application that resembles the Uber app, but only displays HyperLINK vehicles.

In some areas of the metro Hartford region, including parts of Glastonbury, East Hartford, and Wethersfield, on-demand services have the potential to provide a more cost-effective solution for first/last mile connections to the regional transit network than the traditional approach of offering infrequent and often circuitous fixed-route service using standard transit coaches.

If fixed-route service to a low-density neighborhood is eliminated, CT***transit***'s obligation to provide ADA paratransit service for the neighborhood would be eliminated as well. However, while ADA paratransit service would not be mandated in an area without fixed-route service, it could still be provided. Many ADA-type trips could be accommodated by TNC or other on-demand services. Those that cannot could continue to be served by paratransit service as a matter of policy rather than mandate.

3.4 BUCKLAND HILLS AREA CIRCULATION

The Buckland Hills area of Manchester is an important regional hub, both for retail and transit connections. The recommended service scenario presented in this document seeks to further improve transit service to, from, and within the Buckland Hills area. Access to the site is improved with bi-directional service connecting to nearby residential areas, and ample circulation to allow for bi-directional travel between retail locations, and between the retail areas of Buckland Hills and the Buckland Hills Park-and-Ride. The proposed circulation pattern through the mall area allows both for one-way circulation of buses and two-way circulation for riders. For example, a passenger could get from Walmart to the mall or to Target, as well as from Target to the Walmart and the mall because buses coming from the east would circle the retail area and return east, while buses from the west would circle the retail area and return west.

The Buckland Hills Park-and-Ride itself is envisioned as a key component of the potential future eastward expansion of CT***fastrak***. This chapter presents an assessment of the circulation and development potential of the park-and-ride lot.

HISTORY

The Buckland Hill Park and Ride lot has approximately 780 parking spaces, and was constructed in the early 1980's as part of the CTDOT project to widen Interstate 84, install High Occupancy Vehicle (HOV) lanes, and improve the Buckland Street interchange. The project resulted in an eastbound signalized diamond configuration for I-84 at Buckland Street, and a directional (to and from the west) signalized HOV ramp intersection located between the I-84 Eastbound and Westbound main line bridges. Westbound main line entrance and exit movements intersect Pleasant Valley Road at a signalized intersection. The commuter lot is located in the southwest quadrant of the intersection between Buckland Street and Pleasant Valley Road, and has one drive to Pleasant Valley Road (with exiting left turns prohibited), one right turn in/right turn out drive to Buckland Street, and one full movement drive to Buckland Street (see Figure 198).

FIGURE 198 | BUCKLAND HILLS PARK-AND-RIDE LOT

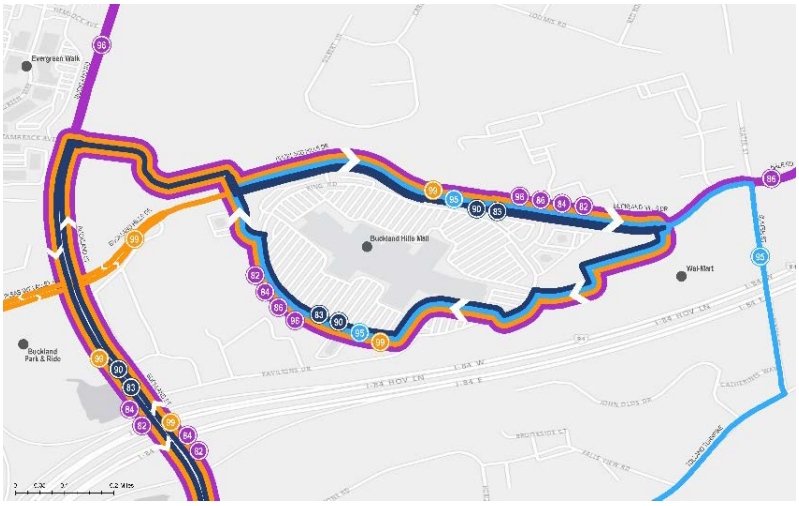
Presently, this lot is used by commuters for carpooling, and for Express service into Hartford. Local bus service (existing Routes 80, 82, 83, 84 and 91) is provided at a single stop on southbound Buckland Street that serves all local routes in both directions. Express buses (Route 903) stop at a bus shelter located along the north perimeter of the lot, and at a second shelter in the southern portion of the lot, to shorten the walking distance from the farthest spaces. All express buses originating at this point exit to Buckland Street and travel south to the HOV ramp for direct service to Hartford. Return service is direct from Hartford to Buckland Street via the HOV ramp, and then directly into the lot. Passengers wishing to transfer between the Hartford Express service and local routes must do so by walking out of the lot to the Buckland Street stop. This is 450 feet or more (depending on which stop in the lot is chosen) and requires walking in the parking lot and roadway, as there are no sidewalks provided.

FIGURE 199 | SERVICE INFORMATION

CTDOT is looking to complement this existing service with additional Express service to and from Hartford and to points east, such as the University of Connecticut in Storrs. This service will pick up and drop off passengers in the park-and-ride lot. It is anticipated that some passengers may desire transfers between the express service and the local bus routes.

At the same time, proposals for revising the local bus routes have been prepared to demonstrate the possibility for increasing frequency (and therefore reducing wait times) for local service, and to provide more direct, bi-directional service between locations in the Buckland Hills area, including the Shoppes at Buckland Hills, the surrounding retail centers (Lowes, Target, Home Depo, and Walmart, as well as many smaller shops), and the nearby Evergreen Walk mixed-use center. The proposed changes result in local bus route stops in both directions on Buckland Street (Figure 596).

FIGURE 200 | PROPOSED LOCAL SERVICE



EXISTING CONDITIONS

Existing Hartford Express service circulates from the eastbound HOV ramp intersection on Buckland Street to the southern park-and-ride lot entrance, and follows a counter-clockwise circulation around the lot to the two existing bus stops (see Figure 202). It then exits and returns to the Westbound HOV ramp for the return to Hartford. Local bus service stops just north of the south park-and-ride lot entrance on Buckland Street. Transfers between local and express routes are difficult due to the long walking distance and lack of sidewalks. Signage at the southern stop is not adequate. It is better at the northern stop, but this is more than 100 feet farther away from the local bus stop.

All bus access to the Commuter lot is via Buckland Street, which experiences heavy traffic on typical weekdays, as well as holiday traffic loading due to the significant amount of retail development in the area. This can result in delays to both express and local service in the area.

FIGURE 201 | CT*TRANSIT* EXPRESS BUS

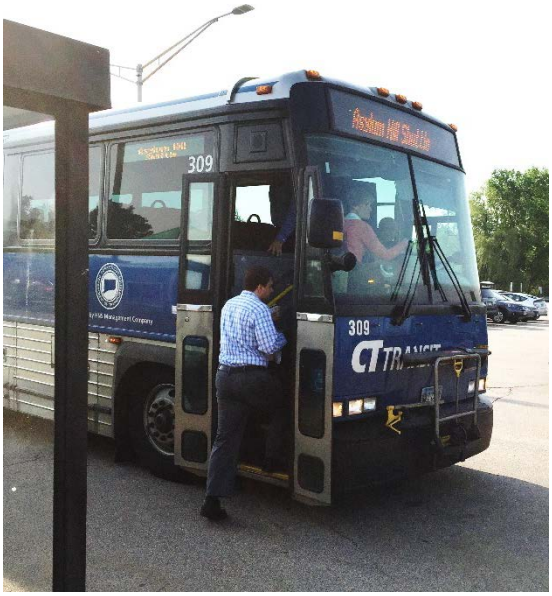


FIGURE 202 | BUCKLAND HILLS PARK-AND-RIDE LOT: EXISTING SERVICE

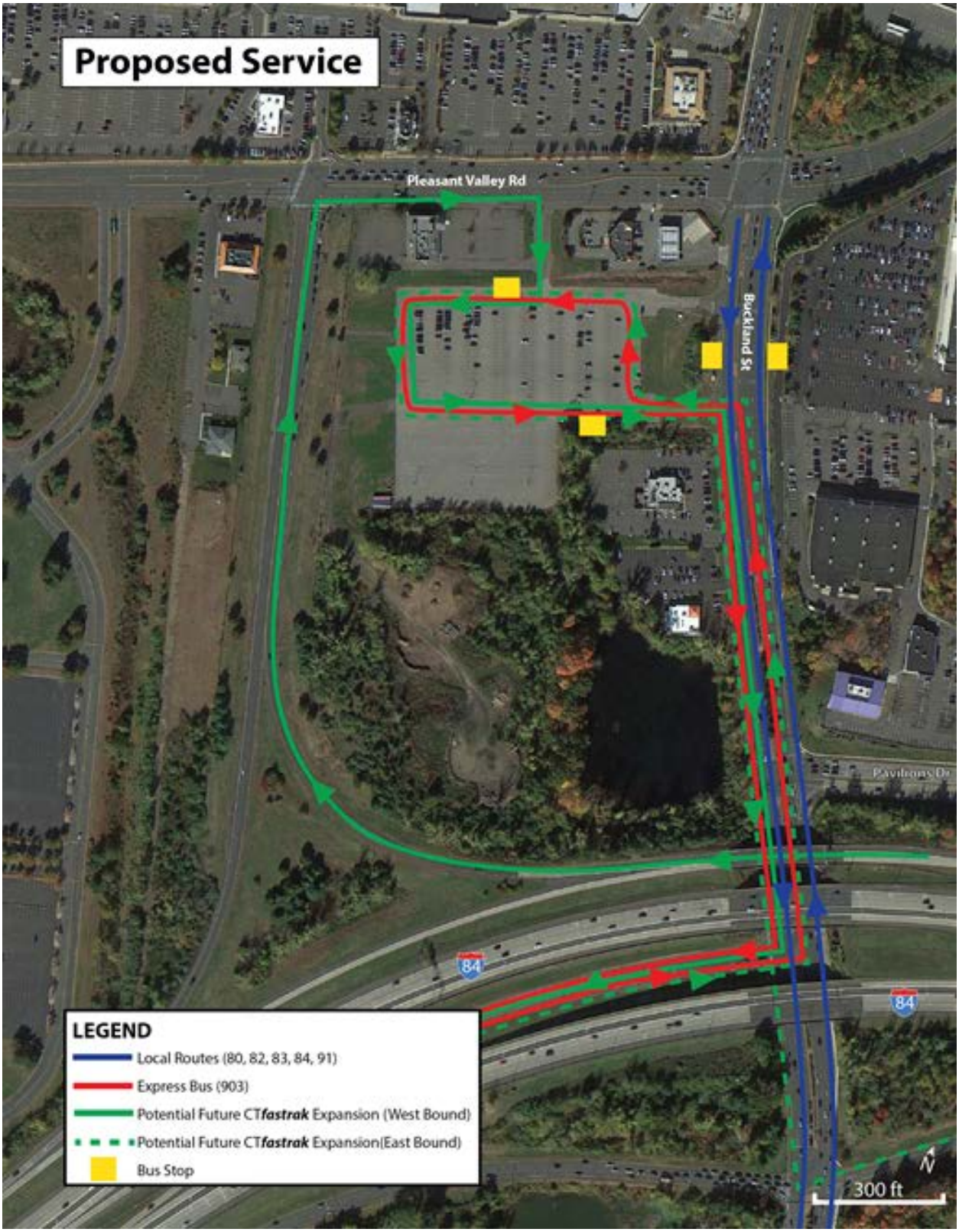
PROPOSED ROUTING FOLLOWING EXISTING PATTERNS

With the proposed modifications to the existing service and the addition of new express service into the park-and-ride lot, bus circulation could remain much as it is today, with local service located on Buckland Street and express service located in the park-and-ride lot (Figure 203). However, this configuration presents several operational challenges for passengers transferring between the services:

- Passengers still have an excessively long walk between the lot and the southbound local bus stop at its current Buckland Street location.
- Access between the Commuter lot and the northbound bus stop requires passengers to walk even farther, and also requires them to cross Buckland Street at an unsignalized, mid-block location without a crosswalk. Buckland Street's traffic volumes are not conducive to this type of pedestrian maneuver, and walking to the closest signal (Pleasant Valley Road) would add significant length and time to make this transfer.

It is not considered a viable option to provide this service without providing the needed pedestrian connection to the northbound stop on Buckland Street. The options discussed below provide scenarios that accommodate this proposed service.

FIGURE 203 | BUCKLAND HILLS PARK-AND-RIDE LOT: PROPOSED SERVICE



LOW-COST OPTIONS

The low-cost options discussed below involve minimal construction, and therefore can be accomplished with relatively little expense. All options include incorporation of the new express service into the park-and-ride lot. Service on the I-84 corridor will use the existing HOV ramps between Buckland Street and Hartford and will use regular travel lanes on I-84 east of Buckland Street, since there is no easterly access to or from the HOV lane beyond this point. It is recognized that the present heavy traffic volumes on I-84 will delay this service. An alternative entrance/exit between the HOV lanes and the Mainline east of the Buckland Street interchange would alleviate this delay, but would require the bus to merge across several travel lanes between the HOV and the interchange.

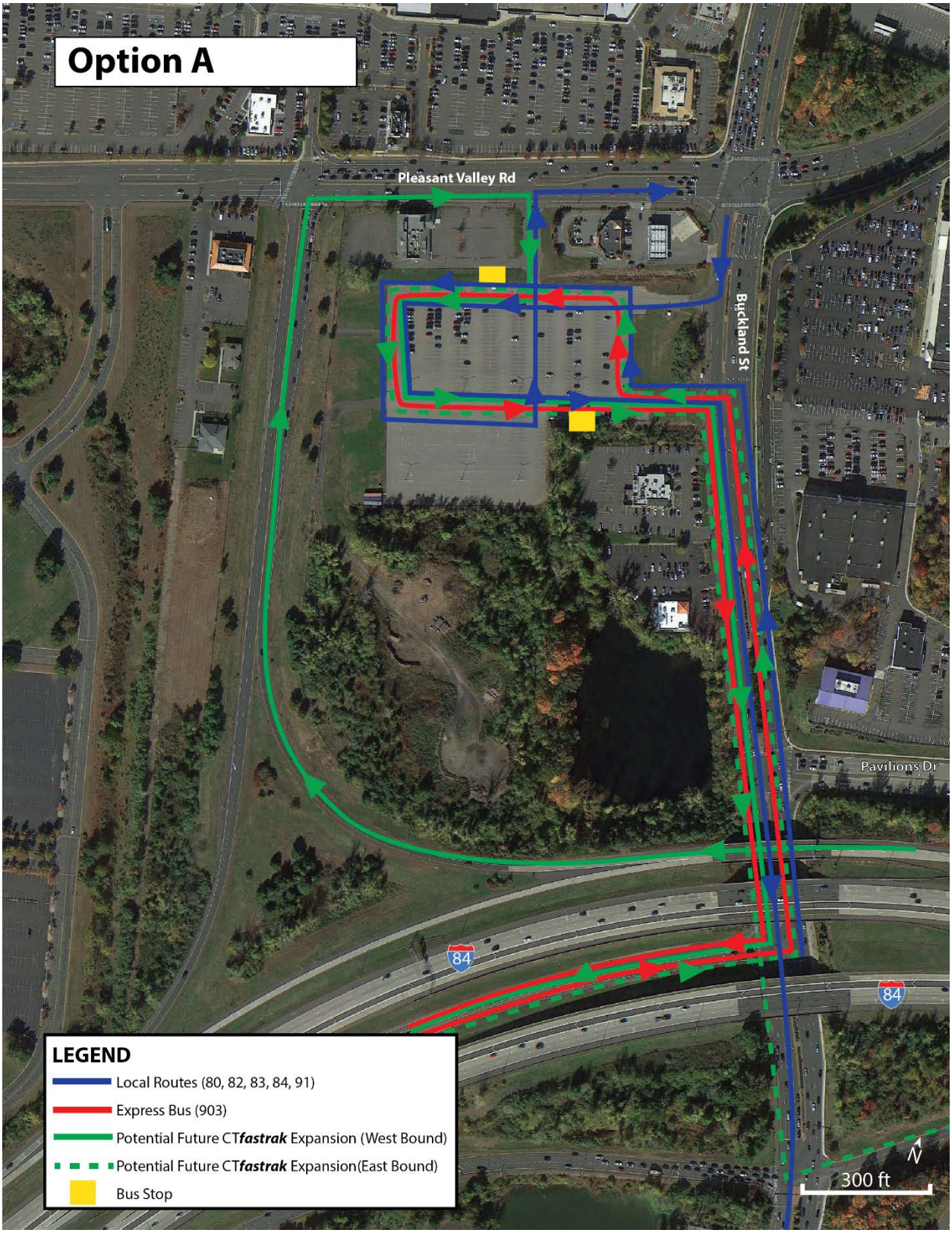
Option A

Option A (Figure 204) shows the circulation necessary to accommodate the new express service in the park-and-ride lot without modifying the existing internal patterns. Existing express service would be unchanged, and the additional express buses would circulate through the lot in a counter-clockwise direction, stopping at the two existing stops. New express service buses entering from the east would utilize the existing Pleasant Valley Road exit. All other movements would use Buckland Street to either the HOV ramp intersection or the eastbound unrestricted intersection. Local bus service would divert from Buckland Street into the lot and utilize the same stops internally. Southbound service would turn in at the north Buckland Street drive and circulate counterclockwise, exiting at the south drive. Northbound buses would turn left into the lot at the south drive, circulate counter-clockwise and exit to Pleasant Valley Road (turning right) to return to Buckland Street. This adds a small amount of additional travel time to the routes, but consolidates the transfer points to make a much better connection.

Construction costs for this option are expected to be limited to new signing for the additional service and re-routed local service, and removal of the existing local bus shelter. Our estimate for this cost includes removal of existing local bus shelter, new signage, and new roadway striping for rerouting local service.

Range: $10,000 - $20,000

FIGURE 204 | PROPOSED SERVICE, OPTION A



MODERATE-COST OPTIONS

The following options can be accomplished with some reconstruction to better accommodate the bus circulation patterns. These options generally improve connectivity and reduce lost circulation time.

Option B

Option B proposes the relocation of the bus stop platform to a single central location in the park-and-ride lot. The single location improves the circulation pattern and eliminates the second internal stop. It maximizes the connectivity between the existing and proposed express service and local service, while minimizing additional time added to the local service schedule. It minimizes construction expense by constructing only one platform. However, it increases walking distance to parking if the lot is fully occupied.

Cost estimates include the relocation of the bus stop platform to a new two-sided platform in a central location in the lot to accommodate all bus maneuvers, and removal of the two internal shelters and the shelter on Buckland Street. In order to accommodate the location of the new platform, there may be some drainage modifications required, and restriping of the lot is likely. The estimated length of platform is 140 feet to accommodate a 60-foot articulated bus and conventional buses between 32 and 40 feet in length.

Range: $75,000 to $100,000

Option C

Option C utilizes two internal stops to minimize the distance needed to walk to internal parking. However, by relocating one stop closer to Buckland Street, and moving the other to optimize the distance to it from the remainder of the lot, it further reduces the time added to the local bus routes (additional route length is only approximately 400 feet). All existing and proposed express buses would circulate past both internal stops, while the local buses stop only at the eastern stop.

While generally similar, the costs associated with this option will be higher than Option B. Costs include the addition of the second shelter and single sided platform.

Range: $125,000 - $150,000

FIGURE 205 | CT*FASTRAK* STATION

FIGURE 206 | PROPOSED SERVICE, OPTION B

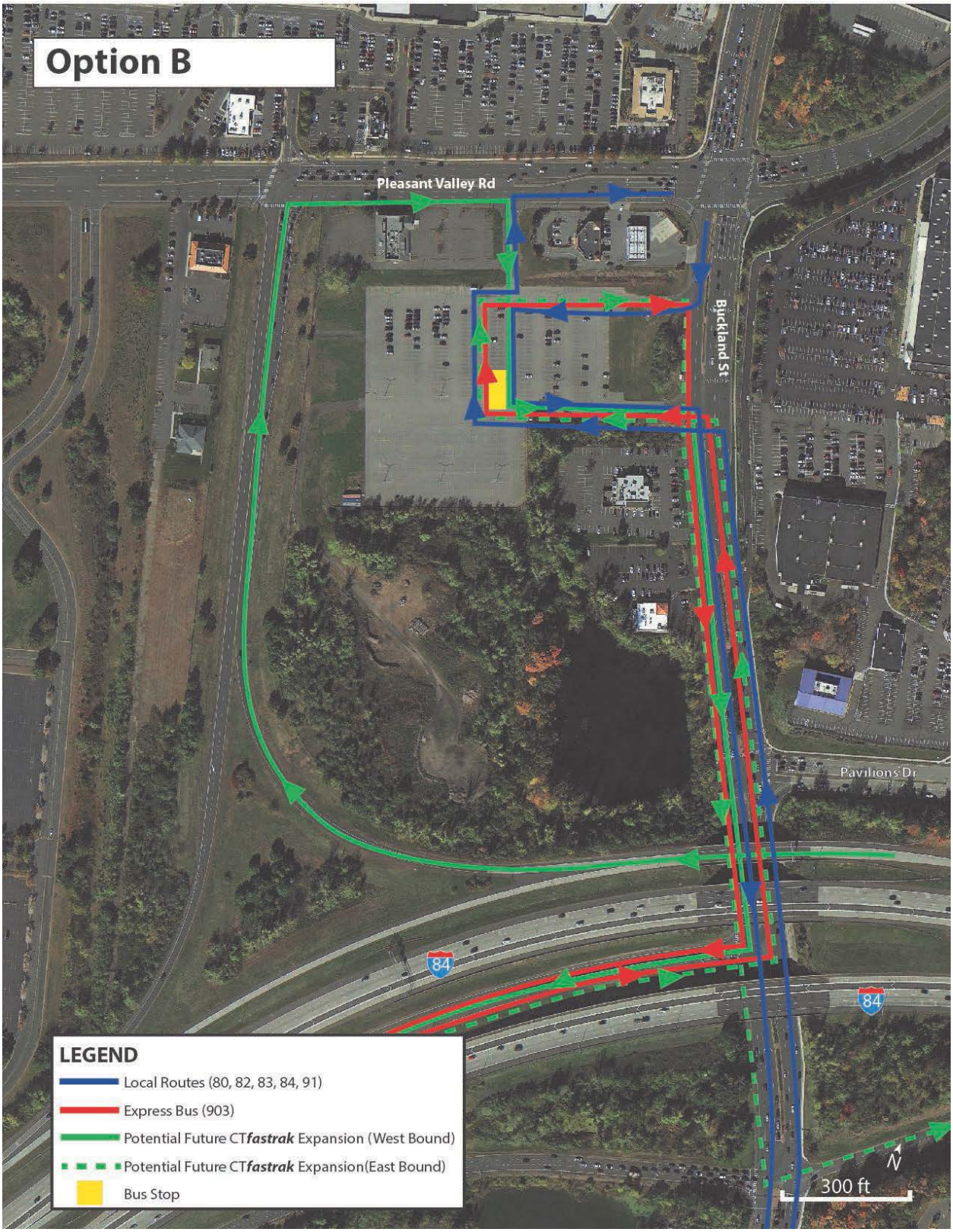
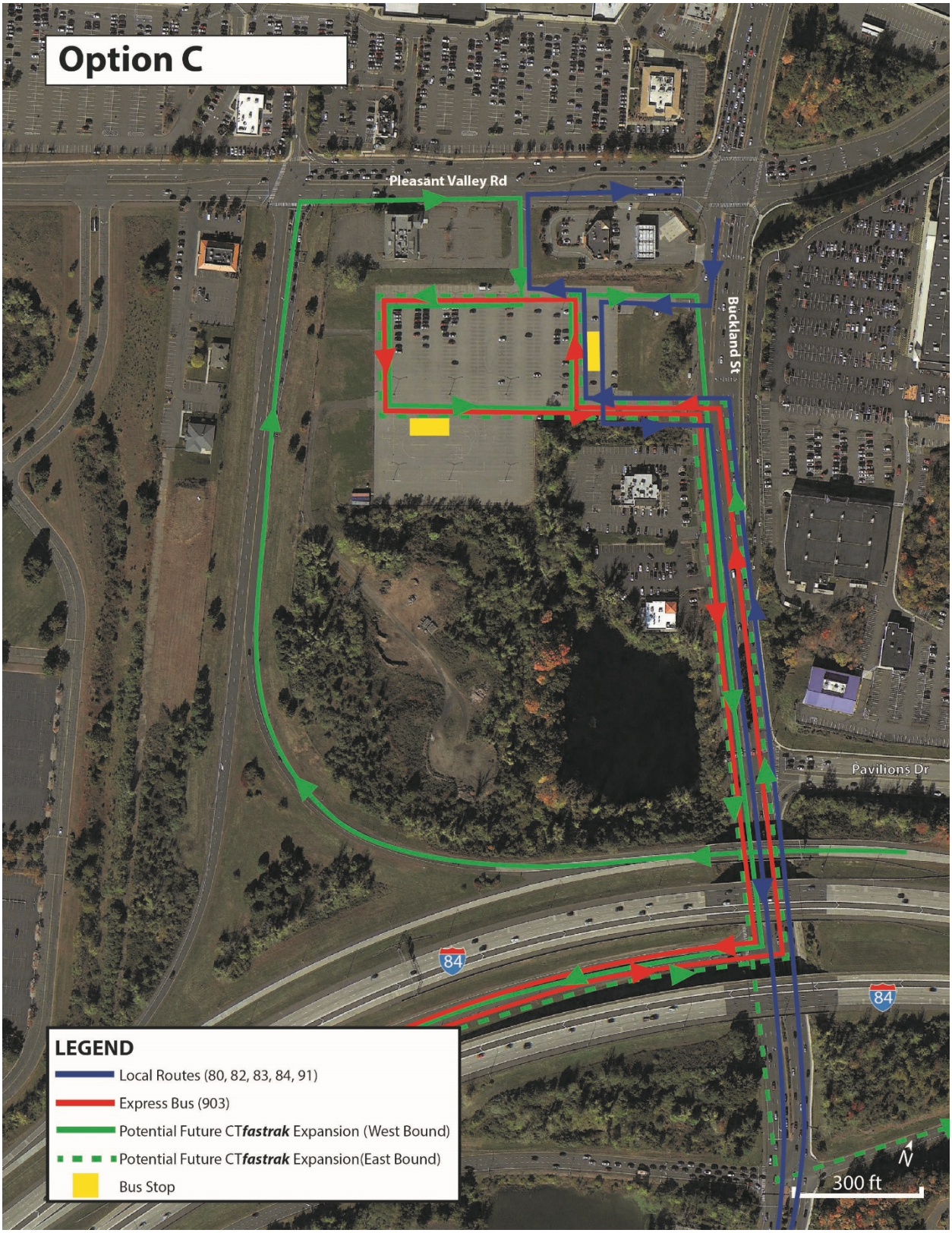


FIGURE 207 | PROPOSED SERVICE, OPTION C



Option D

As noted above, the proposed location of the northbound Buckland Street bus stop presents a significant difficulty for transferring passengers who must cross Buckland Street without the protection of a crossing signal.

The crossing could be signalized, although the Pleasant Valley Road signal may be too close to permit reasonable signal operation. One possible solution would be to install either a rectangular rapid flashing beacon at the crosswalk, or a HAWK (High Intensity Activated Crosswalk) Beacon. Because of the width of Buckland Street, it is uncertain that these solutions would be entirely effective.

FIGURE 208 | HAWK BEACON

Another option is to install a pedestrian overpass to provide a grade-separated pedestrian crossing from Buckland Street vehicular traffic. Although costly, this would provide a good level of safety for crossing pedestrians. Cost estimates for establishing the northbound stop, including the installation of a HAWK signal, may be between $100,000 and $150,000. A pedestrian bridge could cost between $1,000,000 and $1,500,000.

HIGH-COST OPTIONS

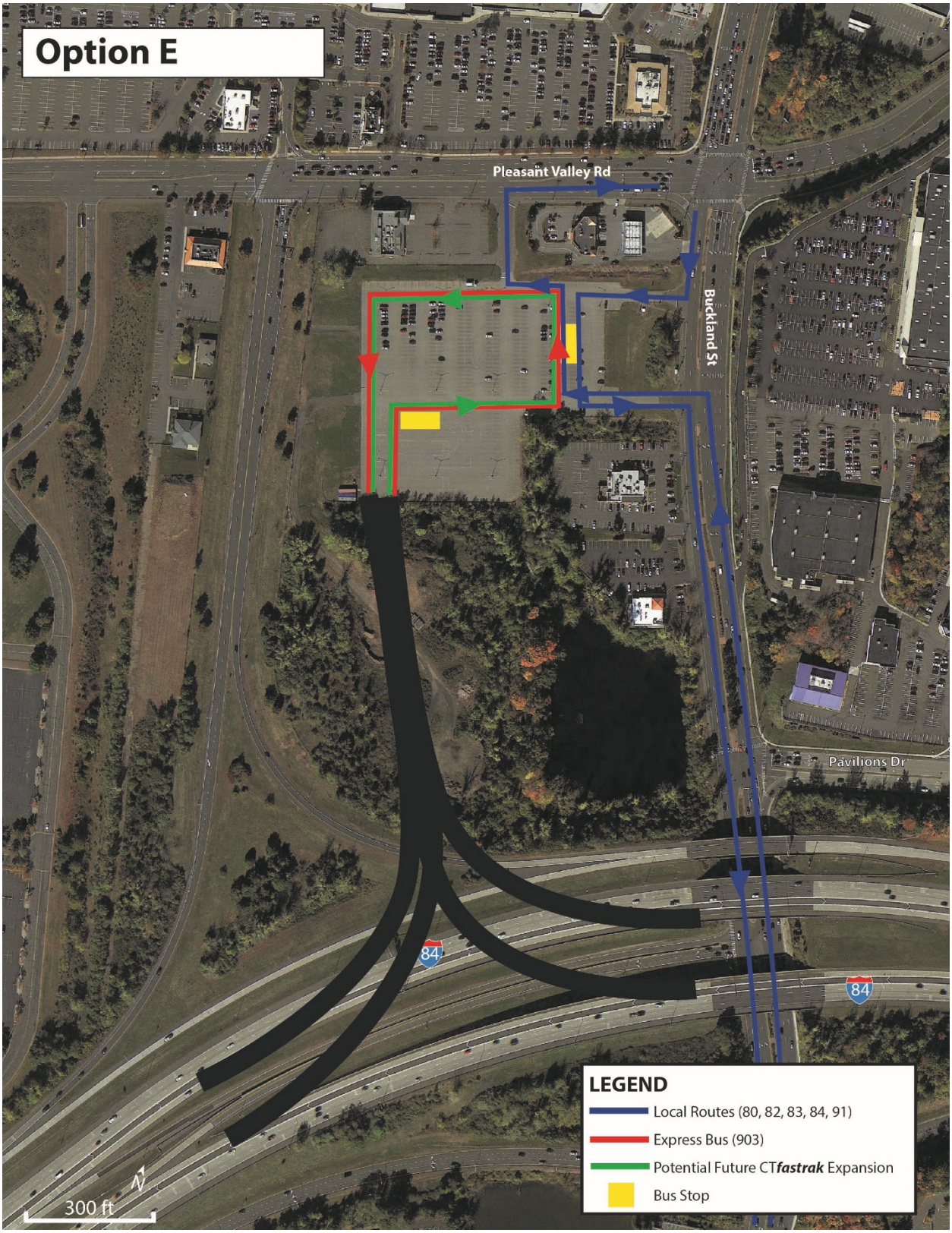
It is clear that the express service could be greatly enhanced by separating it from the general traffic flows. To accomplish this, it would be necessary to connect the existing HOV ramps directly to the park-and-ride lot. The location of the HOV lanes in the center of the I-84 corridor means that this can only be accomplished through a grade separated interchange. Furthermore, the new express service would ideally not require buses to travel in general traffic east of Buckland Street. Again, the only way to gain access to the HOV lanes is through a grade separated interchange.

Option E

Option E is a theoretical examination of the type of ramp system that would be required to accomplish such a goal. It shows a three-level flyover ramp system that connects the Commuter lot with both of the HOV lanes in each direction. It demonstrates the difficulty and expense associated with this type of solution.

Range: $100,000,000 to $150,000,000

FIGURE 209 | PROPOSED SERVICE, OPTION E

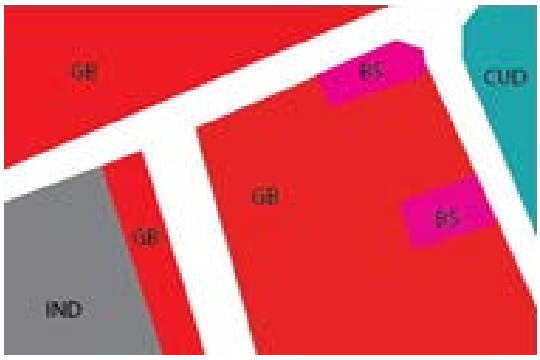


TRANSIT-ORIENTED DEVELOPMENT ALTERNATIVES

As shown in Figure 606, the park-and-ride lot is located on a parcel of land approximately 12 acres in size, and presently zoned "General Business" (GB). The GB Zone allows for many typical commercial uses including:

- Retail Uses
- Personal Service Shops
- Office Uses
- Restaurants
- Hotels and Motels
- Indoor Recreational Facilities
- Outdoor Recreational Facilities
- Parking Facilities
- Municipal Facilities

FIGURE 210 | LAND USE DESIGNATION



This parcel is located adjacent to the existing "Comprehensive Urban Development" (CUD) Zone, and is therefore eligible for a zone change to CUD. Under the CUD zoning regulations, all of the GB uses are allowed, and the following additional uses are permitted:

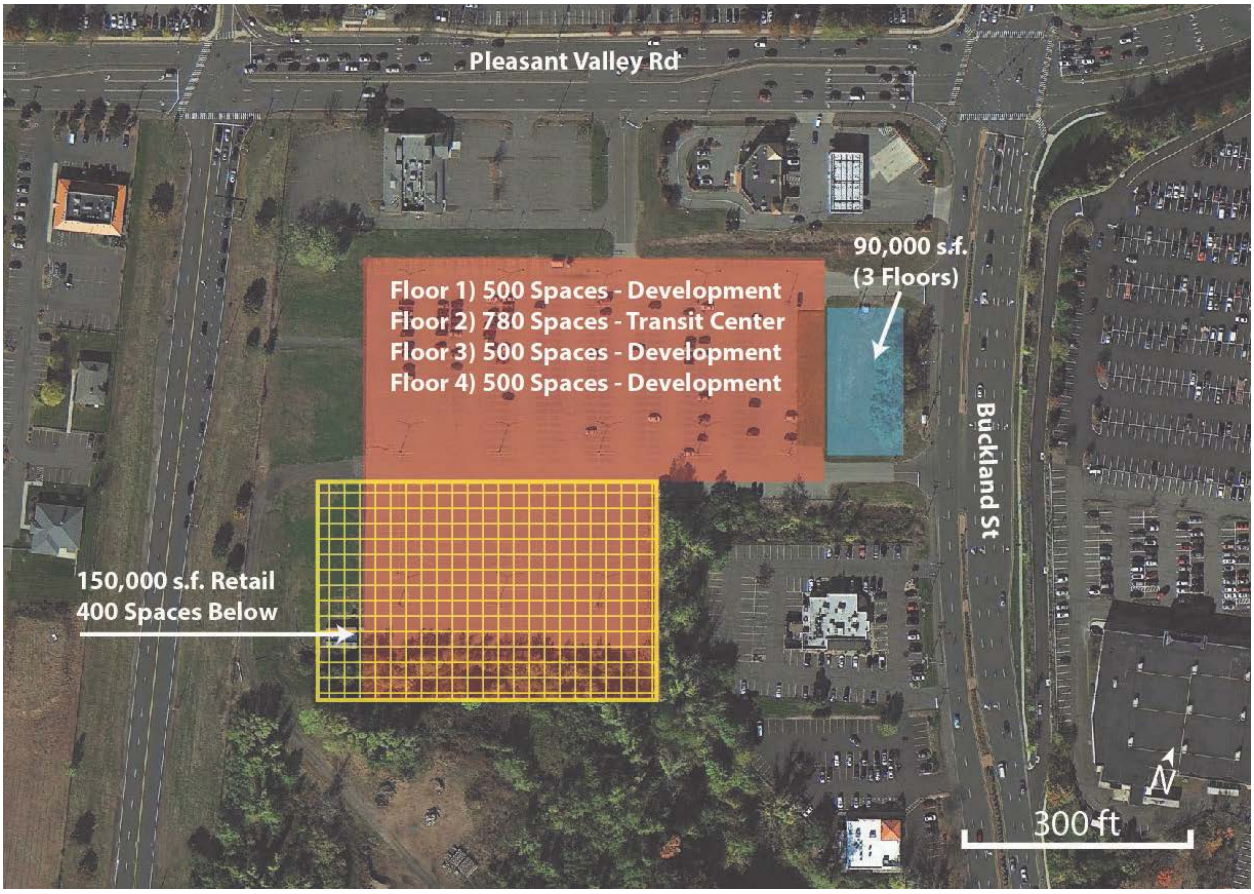
- Places of Worship
- Low Rise and High Rise Office
- Multi-Family Dwellings
- High Rise Apartments
- Industrial (Light Manufacturing) and Warehousing
- Elderly Housing

Additionally, the Town of Manchester has recently amended the GB Zone regulations to allow for high density housing in that zoning district as well.

A significant amount of development is possible on this site. Based on current Town of Manchester zoning regulations, as much as 250,000 square feet of commercial development could be constructed. Residential development of 200 or more units is also possible using multi-story structures. These developments would require the construction of enough parking for the development's use, and for parking to replace the existing 780 parking spaces. This can be accomplished by constructing a multi-story parking structure, a portion of which can be used as a transit center.

In order to examine the potential for construction on the commuter lot, a conceptual land-use plan was developed. The concept development plan (Figure 211) shows the development of the parcel with a multi-level parking deck built on roughly the same footprint as the current commuter lot. It would have approximately 780 spaces on the first floor for development parking, 780 spaces on the second floor for commuter parking and the transit center (potentially accessed by ramps directly from the HOV lanes), and 500 spaces on the third and fourth floors for use by the development. A roughly 150,000 square foot building (likely retail) could be built on the south side of the parking structure, over the structure's lower two floors, and a roughly 90,000 square foot building (three stories – likely office or mixed-use) could be built adjacent to Buckland Street. Between 200 and 300 residential units could also be considered above the commercial development.

FIGURE 211 | CONCEPT DEVELOPMENT PLAN FOR TOD AT BUCKLAND HILLS PARK-AND-RIDE LOT



If it is determined that the configuration will ultimately include grade separated ramps directly into the parking structure from the HOV ramps, then the parking structure can be used to provide the transit center at the same grade as the ramp, potentially simplifying ramps within the structure.

FUNDING OPTIONS FOR BUCKLAND HILLS PARK-AND-RIDE IMPROVEMENT ALTERNATIVES

The Federal Transit Administration's (FTA) Section 5307 program, the principal FTA formula grant for Capital Improvements, and the Section 5337 program, a formula grant for Fixed Guideway State of Good Repair, should be reviewed to determine applicability to the various improvement alternatives for the Buckland Hills Park-and-Ride. Other funding options include:

- **The Section 5309 Capital Investment Grant Program**, known as "New Starts/Small Starts". If a new bus rapid transit (BRT) service to Manchester is implemented, it could be eligible for Small Starts, the same program used to fund the CT***fastrak*** guideway and numerous other BRT projects across the country. Two of the six FTA evaluation criteria involve TOD, which could be applicable to improvement options for the Buckland Hills Park-and-Ride lot: Land Use (which measures existing transit-supportive residential and employment densities) and Economic Development (which measures the potential for future TOD around the park-and-ride lot). A critical element in evaluating the alternatives is to understand the extent to which the transit project would foster TOD as it is measured by federal program criteria.

- **Federal Highway Funding.** Federal law allows three key programs funded by the Federal Highway Administration to be applied to certain transit projects at the discretion of a Metropolitan Planning Organization. These are the Surface Transportation Program (STP), which can be used for most transit projects; the National Highway Performance Program (NHPP), which can be used for transit projects within controlled access federal aid highways (like I-84); and the Congestion Mitigation and Air Quality Program (CMAQ). This may be applicable to the High Cost Option E, the grade separated interchange connecting the HOV lanes to the park-and-ride lot.
- **The Transportation Infrastructure Finance and Innovation Act (TIFIA).** This federal loan program can be used for virtually any surface transportation project. TIFIA is a loan — it requires a non-federal revenue stream to pay it off — but its interest rates, length of term, and other key conditions are highly favorable to eligible borrowers, which include state DOTs, local governments, transit agencies, and other entities. TIFIA is a potential mechanism for raising the non-federal share of projects receiving funding from any of the programs outlined above.
- **Transportation Investment Generating Economic Recovery (TIGER) Grant Program.** This highly competitive federal grant program, while usable for a wide variety of transportation projects, is of a scale well suited to district infrastructure. The TIGER selection criteria favor projects that promote multimodal travel, livability, and development. It is not certain, however, whether the TIGER grant program will be continued under a new federal administration beginning in 2017.
- **Surface Transportation Program (STP) and Transportation Alternatives.** The STP program can be used for certain types of local infrastructure improvements. The Transportation Alternatives Program is a required set aside, within each state, of 2% of its STP, NHPP, CMAQ, Highway Safety, and Metropolitan Planning funds. Eligible activities include a wide menu of pedestrian, bicycle, amenity, historic station, and other improvements.
- **Tax Increment Financing (TIF).** Connecticut law allows municipalities to use TIF for public investments within a specified development or improvement district. Municipalities can use TIF to repay infrastructure bonds in areas designated for redevelopment, urban renewal, or municipal development. State-designated distressed municipalities and targeted investment communities can also use TIF to finance information technology projects; all municipalities can use it to clean up and redevelop contaminated property anywhere in a municipality.

  The “municipal development” window appears particularly relevant for TOD, as it allows municipalities to issue TIF-backed bonds to acquire, assemble, and improve property, without the requirement that the TIF district be found “blighted”. The law also allows a municipality to contract with Connecticut Innovations, Inc., the state’s commercial and industrial finance agency, to issue the bond on its behalf.

  Connecticut municipalities have not yet made extensive use of TIF, finding that interest rates and transaction fees are lower with traditional general obligation debt. However, TIF is a staple of TOD implementation in several other states and cities.
- **Public-Private Partnerships (PPPs).** As municipalities and private entities feel increasing constraints on funding for mobility, they are turning toward previously unorthodox partnerships to fund, construct and maintain infrastructure improvements that benefit local development and overall transportation goals for the community. Partnerships between public entities and private businesses and individuals are being used to leverage scarce funds to provide for area-wide needs. The Buckland Hills Park-and-Ride is located in the heart of dense commercial development, and is keeping more than 10 acres of land off the tax roll. By partnering with the Town and potential

developers, a vibrant multi-use TOD community can be constructed, a funding source can be secured, and taxes can be generated for the municipality.

CONCLUSIONS

Several options can be pursued to reach the goal of providing additional express service to the park-and-ride while improving connectivity between express service and local bus service. Although some low-cost options are available, moderate-cost options can be used to provide significant improvement to the operation of the system, including transfer opportunities.

The site also provides opportunity for significant TOD development, including commercial, office and residential uses. This could be accomplished through a Public-Private Partnership (PPP) with a developer, and the development rights could be a source of funding for a significant portion of the facility.

The alternatives discussed above could also be pursued using a phased approach, to allow quick adoption of improved service, while more extensive alternatives are developed.

4 NEXT STEPS

NEXT STEPS

This Comprehensive Transit Service Analysis study was commissioned by the Capitol Region Council of Governments and serves as a planning tool for future CT***transit*** bus service in the metro Hartford area. The recommendations of this study represent a potential service improvement scenario and are not a final service plan. Similarly, the public meetings conducted over the course of this study were intended to educate and inform the public and the study team, but were not intended to replace CT***transit***'s public outreach process and did not constitute official CTDOT public hearings.

Figure 212 below groups the study's recommendations into short-term, mid-term, and long-term implementation phases. While the recommendations in the Comprehensive Transit Service Analysis study provide a potential blueprint for future service, the implementation of any proposed changes will need to be approved by the Connecticut Department of Transportation. In addition, all proposed changes will be subject to CT***transit***'s service change process, including Title VI analyses, public hearings, and technical assessments.

FIGURE 1 | IMPLEMENTATION TIMELINE

RECOMMENDATION	SHORT-TERM (1-2 YEARS)	MID-TERM (3-5 YEARS)	LONG-TERM (6+ YEARS)
Route Adjustments	• Review recent ridership data to verify consistency with findings • Assess operational feasibility of new service concepts (e.g. Route 99 Regional Loop, interlined routes, etc.) • Identify recommendations that require additional Title VI and/ or ADA assessment • Implement changes that do not require additional assessment	• Perform Title VI and/or ADA assessments on necessary routes • Continue implementing changes as assessments allow • Assess routes that may benefit from Origin-Destination analysis (e.g. Route 45, Route 55)	• Perform routine evaluations to ensure that service continues to meet demand
Transit Priority Corridors	• Review recent ridership data to verify correct identification of key corridors • Coordinate with on-going planning initiatives, such as the CT*fastrak* Expansion Study and the Regional Bus Shelter Program, to ensure compatibility with recommended transit priority corridors	• Implement a Transit Signal Priority pilot program • Consolidate bus stops to offer faster service • Improve rider amenities and shelters at key bus stops	• Consolidate routes along identified corridors to offer more frequent service • Construct capital improvements (bus lanes, transit signal priority, shelters, etc.) to support enhanced service
First Mile/Last Mile Connections	• Consider alternative service models for lower-density areas and identify potential operational or legislative challenges to implementing such models • Conduct a pilot study to review ADA accessibility of TNC vehicles and overcoming obstacles to riders without technology / smartphones	• Implement alternative service options for lower-density areas • Support legislation to regulate TNCs in Connecticut	• Monitor ridership to determine whether lower-density can support fixed-route service
Bradley Flyer Improvements	• Combine Route 30N service with a modified Route 34 and renumber Route 30X to Route 30 in order to further distinguish local trips from limited-stop service • Increase marketing of Route 30 as the Bradley Flyer • Improve wayfinding and pylon signs at the airport and major bus stops • Explore options for luggage-friendly vehicles	• Continue developing branding and visibility of the Bradley Flyer • Evaluate the opportunity to extend the Bradley Flyer down the CT*fastrak* guideway to New Britain • Conduct best practice review and mitigation measures identification related to increased parking demand (e.g. overnight restrictions, capital improvements to park-and-ride lots)	• Consider extension of Bradley Flyer to New Britain via CT*fastrak* guideway and develop a clearly define parking framework • Procure luggage-friendly vehicles
Buckland Hills Area Improvements	• Perform market analysis of park-and-ride area to determine its potential for TOD • Identify funding for improvements at park-and-ride lot (e.g. passenger amenities, crosswalks, etc.)	• Standardize routing to support bidirectional travel through the area • Develop park-and-ride lot as a transit hub • Create plans for TOD around new transit hub	• Support and encourage growth in park-and-ride area • Consider capital improvements to create direct bus service to new TOD