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CTtransit

CONNECTICUT DEPARTMENT OF TRANSPORTATION

New Britain-Bristol Division Comprehensive Service Analysis

FINAL REPORT

NELSON NYGAARD

JUNE 2018

IN ASSOCIATION WITH

AECOM

ASG PLANNING

Prepared in cooperation with the U.S. Department of Transportation (including its participating agencies) and the Connecticut Department of Transportation. The opinions, findings, and conclusions expressed in this publication are those of the Capitol Region Council of Governments and do not necessarily reflect the official views or policies of the Connecticut Department of Transportation and/or the U.S. Department of Transportation.

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OVERVIEW

The Capitol Region Council of Governments (CRCOG), in coordination with the Connecticut Department of Transportation (CTDOT), commissioned a Comprehensive Service Analysis (CSA) to conduct an inventory of transit needs in the Greater Hartford area and review existing services provided by CT***transit***'s Hartford Division. In the time since the Hartford Division CSA was initiated in late 2014, four municipalities in Central Connecticut have been added to CRCOG's region: New Britain, Berlin, Plainville, and Southington. As a result, the original scope of the CSA was expanded to include analysis of bus service in these added municipalities, as well as service in the neighboring municipality of Bristol.

This CSA is an assessment of the strengths and weaknesses of the existing CT***transit*** services in the New Britain-Bristol Division, and identifies opportunities for service improvement and expansion in the five-town study area. The overall goal of the CSA was to develop recommendations that:

- Improve transit service for the system's current and prospective transit riders
- Ensure that CT***transit*** operates as efficiently as possible by addressing under-performing routes and service redundancy
- Identify opportunities for new service in unserved areas with potential transit demand
- Complement recent and planned transit investments such as CT***fastrak*** and the CT***rail*** Hartford Line

This document serves as a planning tool for future CT***transit*** bus service in the New Britain-Bristol Division. 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 study area 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/or 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.

PROCESS

The Comprehensive Service Analysis consisted of several tasks:

- **Existing Service Analysis:** A review of the overall transit network in the New Britain-Bristol Division, including local services, major transit facilities, and other regional services.
- **Market Analysis:** An assessment of existing and potential demand for transit service based on population and employment density, socio-economic and demographic characteristics, and travel patterns across the service area. (Figure 1)
- **Identification of Service Issues and Opportunities:** A detailed analysis of each route in the system to evaluate service design, performance, ridership (Figure 2), and opportunities for improvement.

- **Development of Service Scenarios:** Using findings from the market and service analyses, as well as public input, the study team developed two service redesign scenarios aimed at improving ridership and productivity.
- **Preferred Service Scenario:** A set of recommendations designed to improve existing service and meet demand for new service. Final recommendations incorporated elements of the preliminary service redesign scenarios that were mostly well received by stakeholders, and reflected feedback provided online and at public meetings.

At key points in the project, the study team solicited feedback from stakeholders and members of the public. A community survey was conducted both online and at outreach events to reach riders and non-riders, in order gauge service design preferences and priorities. Public and stakeholder meetings were held after the development of the preliminary service redesign scenarios and again after development of a draft preferred service scenario. These meetings coincided with direct outreach to riders at major bus stops and transit centers to share ideas and solicit feedback. Project materials were shared on the project website, HartfordTransitStudy.com/New-Britain-Bristol.

KEY FINDINGS

The CSA was a 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.

For each route operated by CT***transit***'s New Britain-Bristol Division, the study team developed a detailed route profile to evaluate existing service design and performance. Based on this analysis, the study team identified the following issues and opportunities:

Circuitous Route Alignments: Several routes operate along indirect and meandering alignments, or in large one-way loops, rather than traveling along the most direct path. This increases travel time for riders and makes service inconvenient and difficult to understand.

Unproductive Deviations: Many routes deviate from the most direct path to serve stops that are not located along their main alignment, on either some or all trips. In many cases, these deviations generate few or no riders, but force all other riders to travel out of their way and experience longer travel times.

Inconsistent Alignments: Route 502 operates along two different roads on inbound and outbound trips for a two-mile segment of the route, resulting in a walking distance between reciprocal stops of a third of a mile or more. Route 510 operates along different alignments traveling inbound and outbound, essentially operating in a large one-way loop that forces riders to travel out of direction to complete a round trip.

Duplicative Service: Route 502 operates along nearly the same alignment as Route 102, but with much lower service frequency. In addition, on many trips, Route 502 departs soon before or after Route 102, creating additional redundancy along the same corridor without effectively increasing the level of service.

Poor Service Frequency: Route 541 operates hourly service, but serves each of the two variants (north and south of Farmington Avenue) on alternate trips, which means that riders on each variant only have two-hour service frequency.

Inconsistent Branding: Route 542 Bristol Hospital is served by both CT***transit*** vehicles and CT***fastrak*** vehicles depending upon the trip, as the route is currently interlined with CT***fastrak*** Route 102. This makes service confusing for riders, and also dilutes the CT***fastrak*** brand by using premium vehicles on a short, low-ridership route.

Unserved Market Potential: There is currently no CT*transit* local service in Southington. Underlying market potential, as well as the location of activity centers and services, indicates potential demand for new local service operating to and within Southington.

Low Ridership Potential: Route 501 offers fast and direct service between New Britain and Meriden, but the route operates mostly closed-door along the Chamberlain Highway. Other alignments, while approximately five minutes slower, demonstrate higher ridership potential through areas of Berlin that demonstrate underlying demand but are not currently served.

Overcapacity of Service: Route 509 operates every 30 minutes during the AM and PM peak periods on weekdays, but this is largely due to the short length of the route rather than demonstrated demand, as these trips carry very few passengers. Operating hourly service during these peak periods would better match demonstrated demand in the area and could improve productivity, allowing resources to be allocated towards better serving routes with higher demand.

Key finding from the market analysis included the following:

- The strongest market for transit is in New Britain, which has high population and employment densities, as well as high concentrations of individuals with a greater propensity to use transit. As a result, New Britain can support the highest levels of transit in the study area.
- Bristol also demonstrates a strong market for transit service, particularly in and around its downtown, based on population and employment density as well as demographic characteristics. There is also a market for moderate levels of service along Farmington Avenue based on population and employment densities.
- There is a market for service in downtown Plainville, particularly along Route 10. This part of Plainville has the potential to support transit service based on population and employment as well as several demographic characteristics. These characteristics are also present in Southington, especially along Route 10 and in the Plantsville section of town.
- Groups that tend to rely more on transit service are generally located in areas with higher densities that are already served by CT*transit* today. The exception to this is Southington, where there is a concentration of low-income individuals and older adults that may indicate a need for transit, in addition to population and employment densities that could potentially support a modest level of service.
- There are many areas within the study area that demonstrate a potential market for transit. However, a dearth of corridors with robust transit demand poses a challenge to providing effective fixed-route service connecting these communities.

FIGURE 1 | TRANSIT POTENTIAL

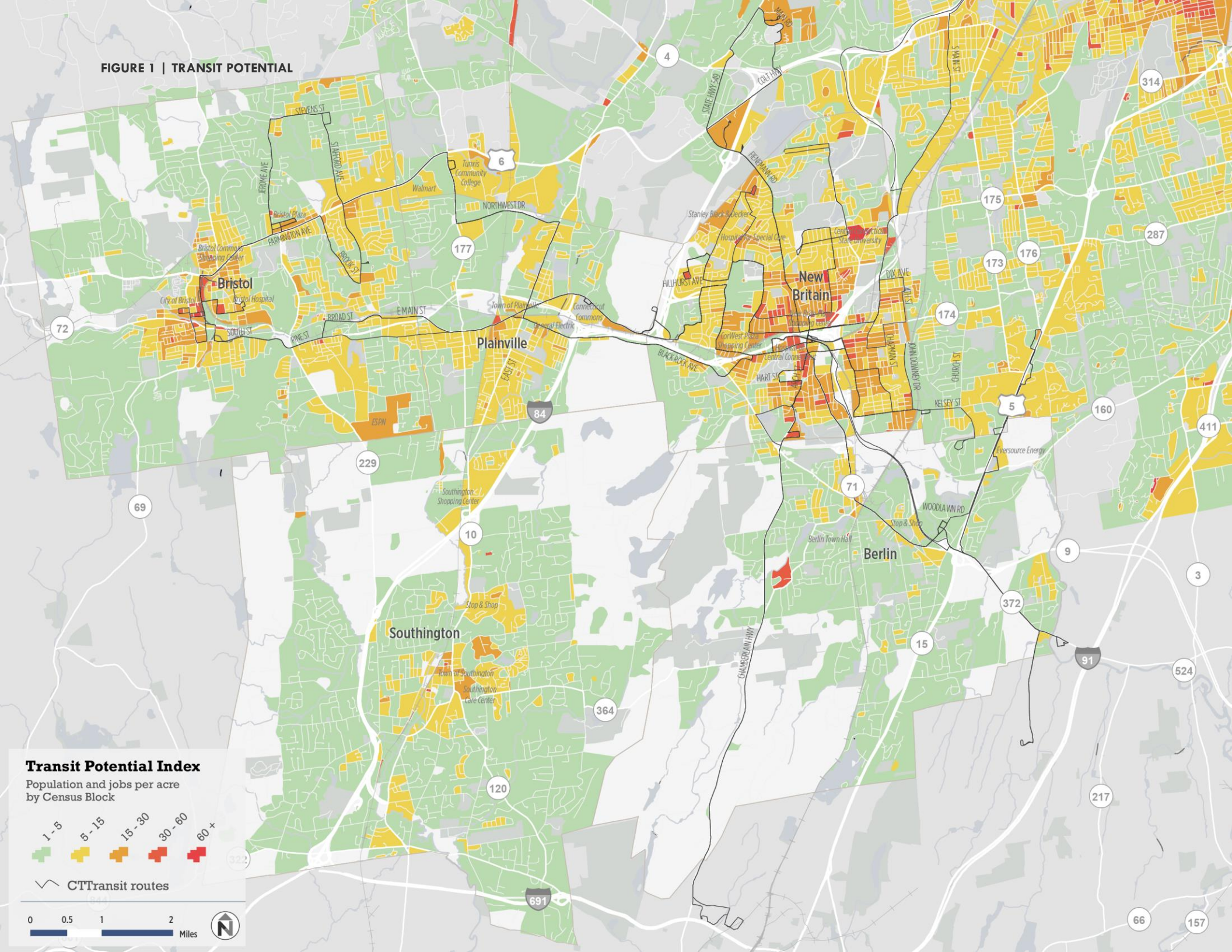
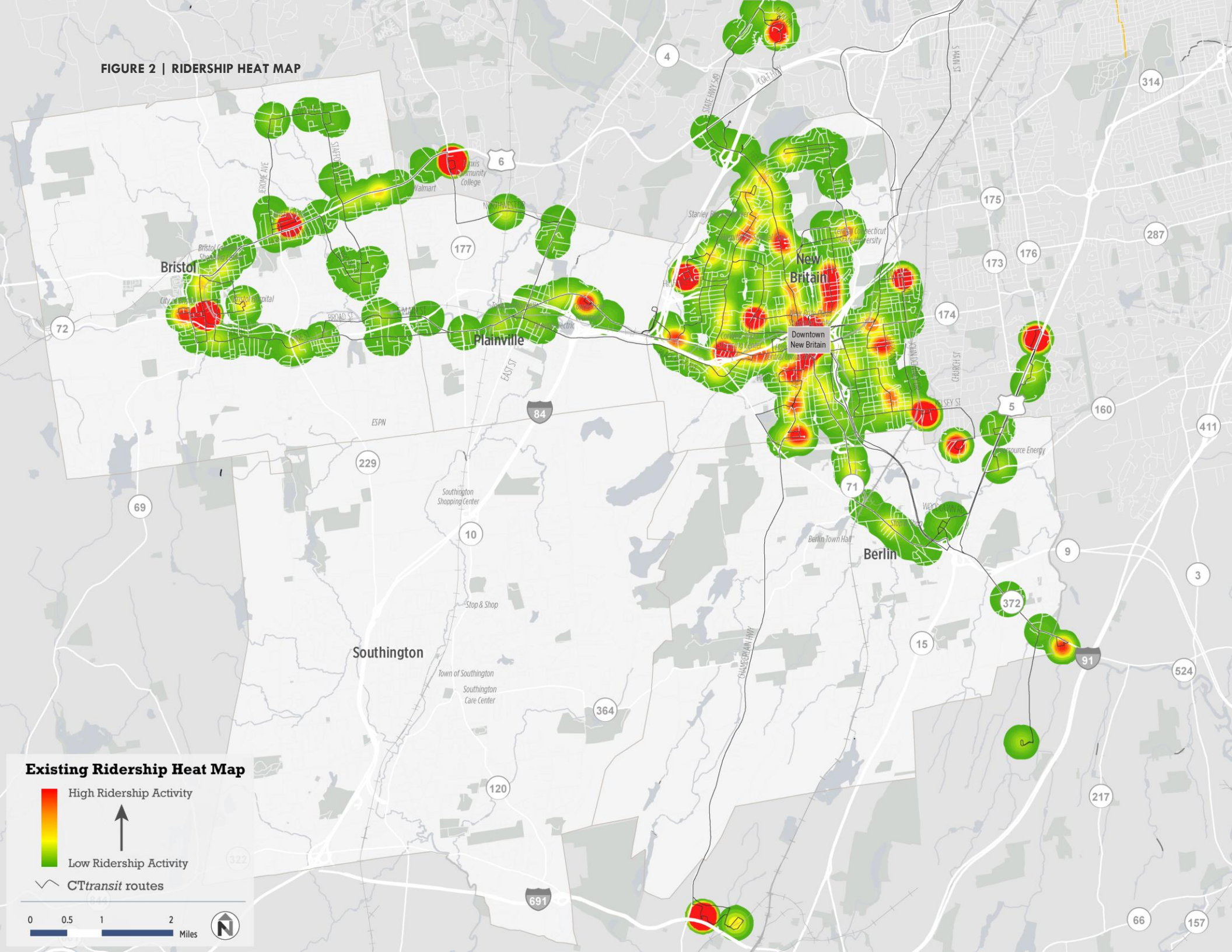


FIGURE 2 | RIDERSHIP HEAT MAP



RECOMMENDATIONS

Based on the technical analysis and stakeholder input, the study team initially developed two scenarios for improving transit service in the New Britain-Bristol Division. Each scenario included several improvements to existing services, but with differences in how to provide more direct connections between major destinations, as well as how to design new services to meet unmet demand, including in parts of Bristol, Southington, and Berlin.

The study team then developed a final recommended service scenario that includes elements from both Scenario 1 and Scenario 2, as well as new recommendations developed in response to public and stakeholder feedback. The preferred scenario consists of three phases for implementation. Phase 1 (Figure 4) presents a set of "cost neutral" improvements that can be made almost immediately and within the current operating budget for CT***transit*** New Britain-Bristol Division service. Phase 2 (Figure 5) and Phase 3 (Figure 6) of the preferred scenario represent service expansions – including new coverage and longer service spans – that may be implemented in the future as resources become available.

The recommendations included in the preferred service scenario make several improvements that address the major issues and opportunities identified during the study process:

Streamlined Service: Several routes that currently operate circuitous or indirect alignments would be redesigned to provide more direct, streamlined service. Some deviations to stops that generate few or no riders would be discontinued to ensure that service is faster and more reliable for existing riders. These changes would also make it easier to understand which corridors and destinations are served by each route, making transit service more attractive and easy to use for both current and potential riders.

Simplified Service: Routes that currently operate multiple service patterns or serve different alignments on different trips make service confusing and inconvenient for riders. Recommended improvements would address this by making routes simpler, serving consistent alignments with predictable service patterns.

New Coverage: New service would be added in southeast Bristol, southwest Plainville, and Southington with a redesigned Route 542. This new coverage would introduce fixed-route service to areas where density and demographics indicate a demand for service. New service would also be introduced under Phase 3, with a redesigned Route 543 providing direct service from Bristol and Tunxis Community College north to Unionville Center.

Reduced Redundancy: Existing Route 502 provides almost identical service to CT***fastrak*** Route 102, but is not coordinated with Route 102's schedule. Public feedback revealed that riders often use the two routes interchangeably, so it is recommended that Route 502 be discontinued. The resources saved from discontinuing this service would be reinvested elsewhere in the system.

Crosstown Service: Most of the existing system operates radial service, where routes operate to and from downtown New Britain without opportunities for crosstown connections. A new crosstown service opportunity was identified for Route 507, which would be extended west along Alexander Road and south on Slater Road to terminate at Stonegate Apartments. This redesigned alignment also allows for transfers to Routes 506, 503, and 505 at multiple stops along the route.

Serve Stronger Transit Corridors: Most of Route 501's alignment through Berlin is along the Chamberlain Highway, where it operates nonstop service. To the east, the Berlin Turnpike demonstrates potential demand for fixed-route service, but is presently unserved south of Webster Square Shopping Center. Redesigning Route 501 to operate along the Berlin Turnpike would reallocate existing service to a corridor with stronger transit potential.

FIGURE 3 | EXISTING LOCAL SYSTEM

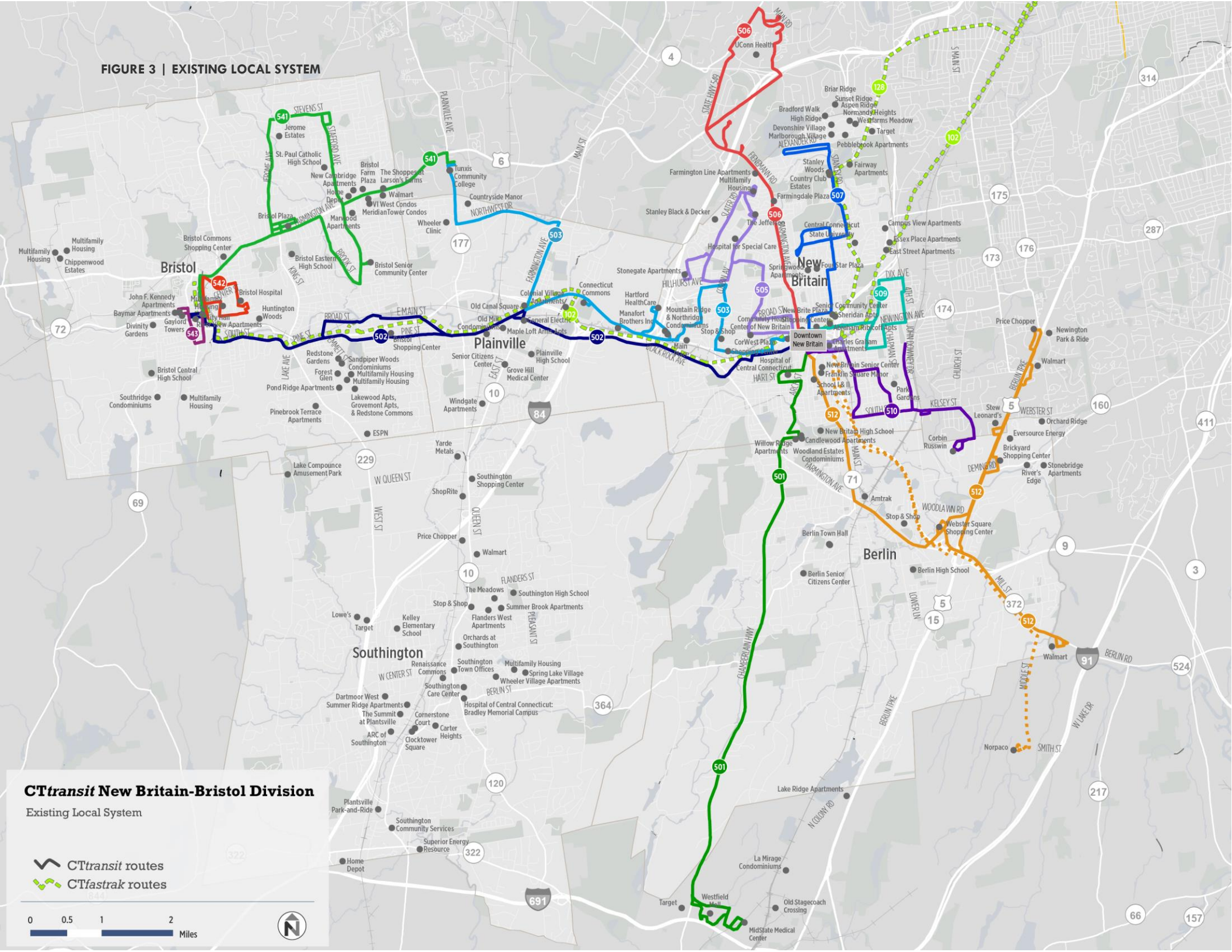


FIGURE 4 | PREFERRED SERVICE SCENARIO, PHASE 1

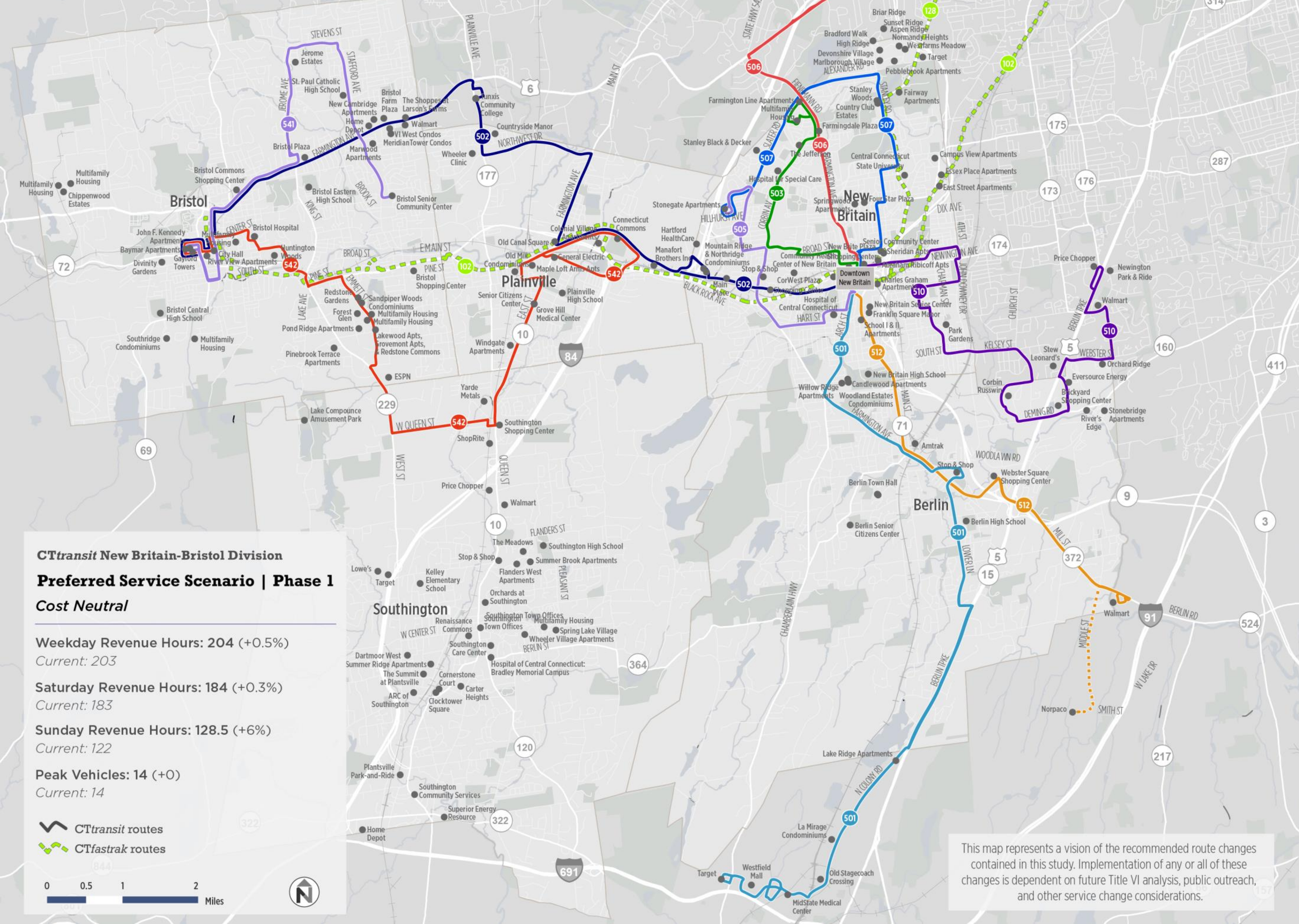


FIGURE 5 | PREFERRED SERVICE SCENARIO, PHASE 2

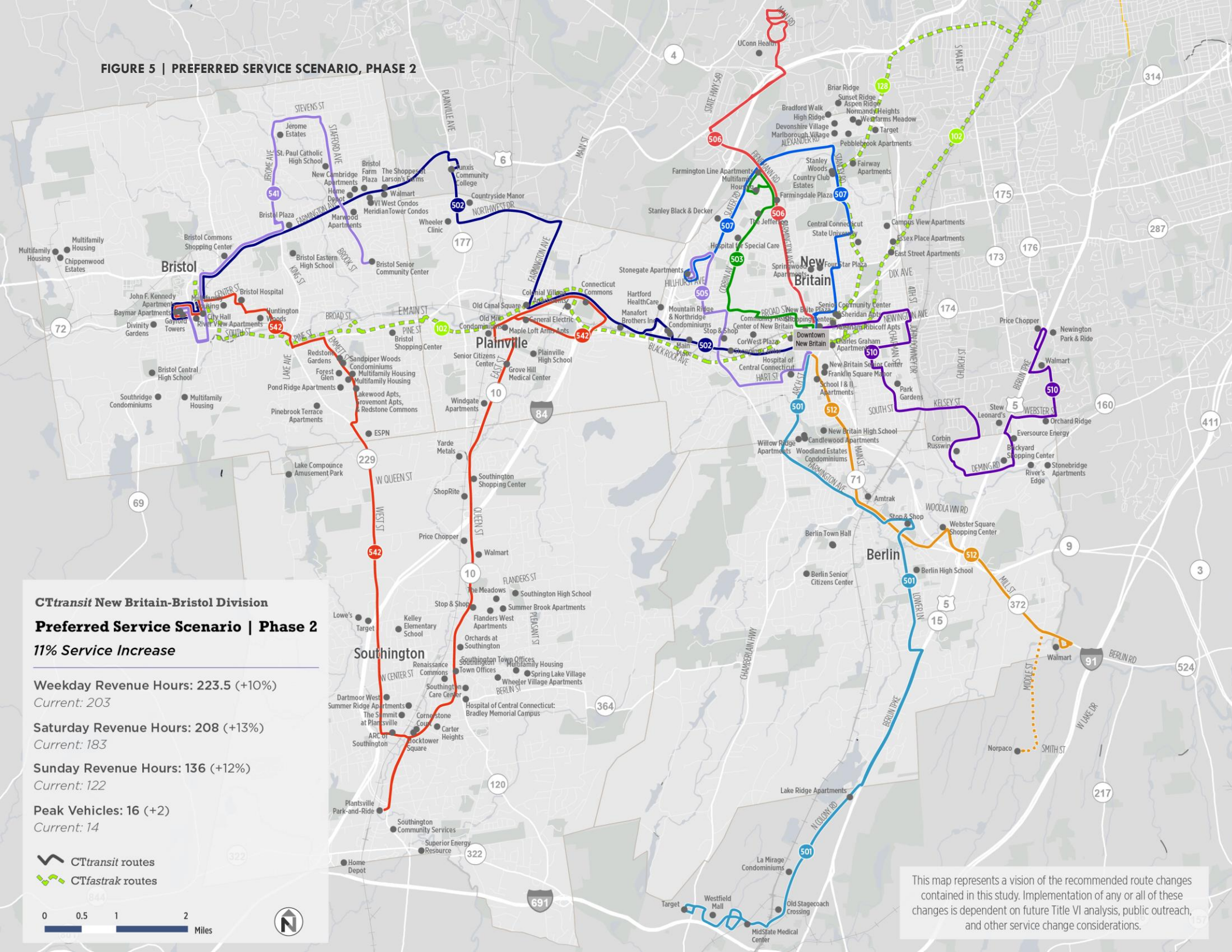
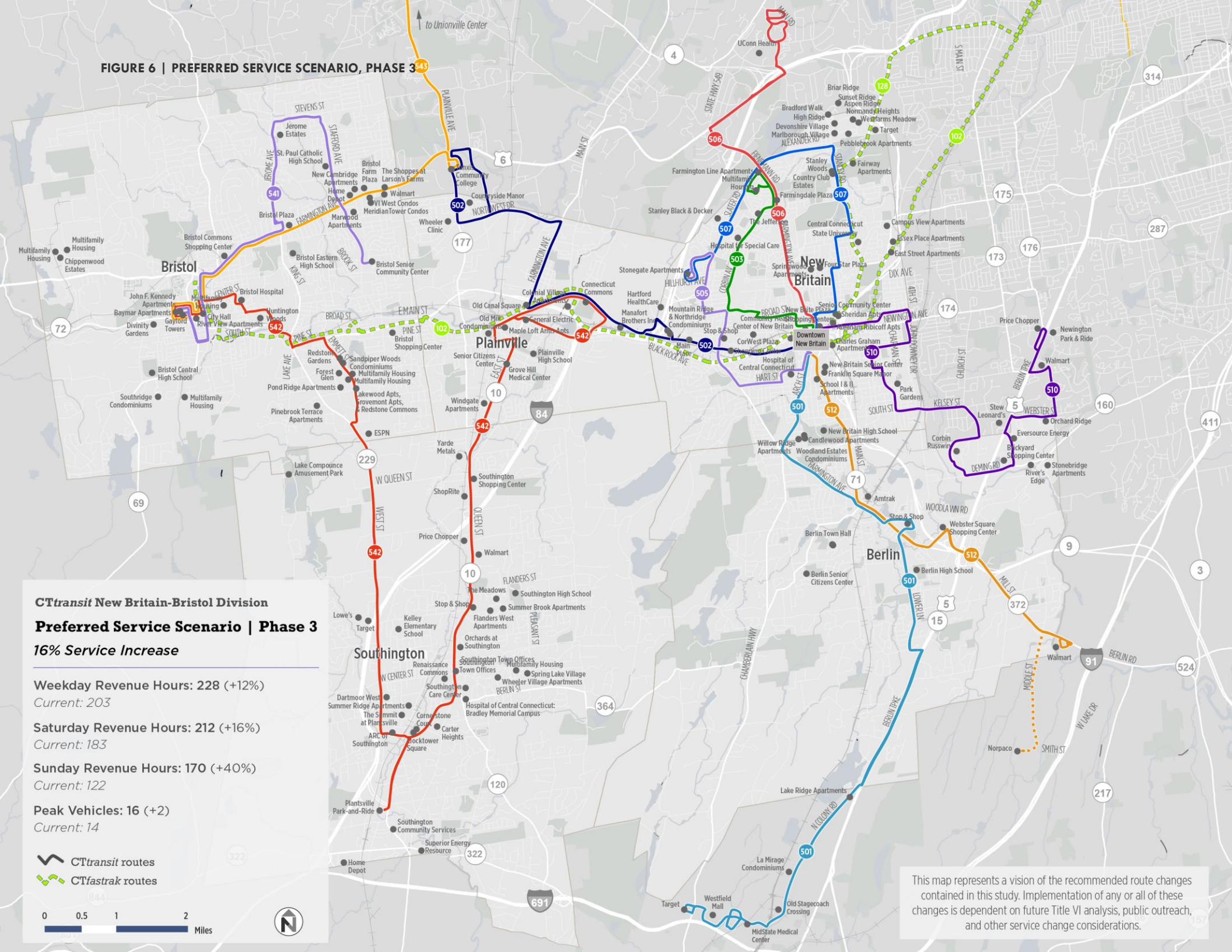


FIGURE 6 | PREFERRED SERVICE SCENARIO, PHASE 3



The preferred service scenario would have implications for ADA paratransit service obligations in the study area. The most significant expansion in coverage under the preferred service scenario would result from new fixed-route service in southern Bristol, southern Plainville, and Southington. The most significant potential loss in coverage would be due to discontinued Route 501 service along the Chamberlain Highway through Berlin. However, under the preferred service scenario, it is recommended that paratransit service continue to be provided under the existing Greater Hartford Transit District system, and that the coverage area be expanded to include any proposed new service. Therefore, under the preferred scenario all existing coverage would remain as it is today, with the addition of coverage expansion where fixed-route service is redesigned or added.

Assuming that existing paratransit service areas continue to be served even if fixed-route service to these areas is discontinued, the paratransit service coverage area under Phase 1 would increase by 21%. Under Phase 3, which represents the complete set of recommendations, the paratransit coverage area would increase by 39%. However, it is important to note that these figures may not directly correlate with how many potential riders may be located within this area, or project how many additional trips would be requested. A more in-depth projection of potential ridership based on the service area and existing paratransit ridership would be needed to provide additional insight into the potential operating costs of expanded paratransit service.

A new approach for providing mobility to residents of difficult-to-serve neighborhoods with transit need is incorporating on-demand services, including subsidized Transportation Network Company (TNC) service, into the broader transit network. 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. 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, there are many opportunities to prioritize capital investments to support improved service and make service more attractive to new and current riders. These investment strategies include the following:

- **Passenger Facilities:** 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.
- **Pedestrian Access:** A good pedestrian environment is an essential foundation for good access to public transit. As such, it is critical for attracting new riders, increasing ridership among existing passengers, and improving the overall travel experience. Cities have found that focusing pedestrian improvements at transit facilities and beyond can be an effective way to increase transit ridership.
- **Bus Stop Spacing and Consolidation:** The spacing and placement of bus stops greatly impact transit travel times and reliability, as well as the types of facilities and amenities that can be provided. Stop consolidation can make service faster and more attractive while maintaining convenient access.

Figure 7 groups the study's recommendations into short-term, mid-term, and long-term implementation phases. While the recommendations in the Comprehensive 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 7 | IMPLEMENTATION TIMELINE

RECOMMENDATION	SHORT-TERM	MID-TERM	LONG-TERM
Route Adjustments	• Review current ridership data to verify consistency with findings • Assess operational feasibility of new service concepts (Route 501 via Berlin Turnpike, Route 542 to Southington, etc.) • Identify recommendations that require additional Title VI or other assessment • Implement Phase 1 service changes that do not require additional assessment	• Perform Title VI or other assessments on necessary routes • Continue implementing service changes identified under Phase 2 as assessments allow	• Continue implementing service changes identified under Phase 3 as assessments allow • Perform routine evaluations to ensure that service continues to meet demand
New Services	• Implement new Route 542 to West Queen Street in Southington	• Expand Route 542 farther into Southington to Plantsville Park-and-Ride	• Implement new Route 543 to Unionville
Paratransit Service	• Maintain existing paratransit service coverage, and expand coverage as necessary to complement route adjustments and additions	• Expand paratransit service coverage to complement the expansion of fixed-route service in Southington	• Expand paratransit service coverage to complement the extension of Route 543 to Unionville
First Mile/Last Mile Connections	• Consider alternative service models for lower-density areas • Identify potential operational or legislative challenges to implementing such models	• Implement alternative service options for lower-density areas • Support legislation to regulate TNCs in Connecticut	• Monitor ridership to determine whether lower-density areas can support fixed-route service

1 INTRODUCTION

The Capitol Region Council of Governments (CRCOG), in coordination with the Connecticut Department of Transportation (CTDOT), commissioned a Comprehensive Service Analysis (CSA) focused to conduct an inventory of transit needs in the Greater Hartford area and review existing services provided by CT***transit***'s Hartford Division. In the time since the Hartford Division CSA began in late 2014, four municipalities in Central Connecticut have been added to the CRCOG region: New Britain, Berlin, Plainville, and Southington. As a result, the original scope of the CSA has been expanded to include analysis of bus service in these added municipalities, as well as service in the neighboring municipality of Bristol.

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[1] *Whenever a Major Service Change is proposed that would eliminate all or part of a bus route, CTDOT and CT**transit** are required to analyze the demographics of that route's ridership to understand whether or not the elimination of the route would result in a disproportionate impact on low-income and/or minority populations. Such changes are also subject to a public outreach program. CTDOT and CT**transit** would need to determine whether any of the recommendations from this study would be subject to this protocol.*

GUIDING PRINCIPLES

Transit services are most successful when they are easy to use and intuitive to understand. Therefore, the analysis and recommendations presented in this document are grounded in a set of guiding principles aimed at creating a simple, yet highly functional transit system. These principles include the following:

- **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 stops and on passenger information materials.

- **Service Should Operate at Regular Intervals**

  In general, people can easily remember repeating patterns, but have difficulty remembering irregular sequences.

- **Routes Should Operate Along a Direct Path**

  The fewer directional changes a route makes, the easier it is to understand. Circuitous alignments are disorienting and difficult to remember.

- **Routes Should Be Symmetrical**

  Wherever possible, 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.

- **Routes Should Serve Well Defined Markets**

  The purpose of every transit route should be clear to riders and prospective riders. Routes should include strong anchors, and a mix of origins and destinations.

- **Service Should Be Well Coordinated**

  At major transfer locations, schedules should be coordinated to the greatest extent possible to minimize connection times between services.

2 BACKGROUND

The study area encompasses five towns in the Central Connecticut region: New Britain, Berlin, Plainville, Southington, and Bristol. The first four joined the Capitol Region Council of Governments (CRCOG) in 2015 following the reorganization of metropolitan planning organization (MPO) boundaries in Connecticut, and previously belonged to the now-dissolved Central Connecticut Metropolitan Planning Organization (CCMPO). Bristol, which also belonged to the CCMPO but is now within the boundaries of the Central Naugatuck Valley Metropolitan Planning Organization (CNVMPO), is part of CT***transit***'s New Britain-Bristol Division service area and is therefore also included in this study. As of the 2010 Census, the total population of the five-town study area is 214,334.

The CT***transit*** New Britain-Bristol Division provides fixed-route transit service to the towns of New Britain, Bristol, Plainville, and Berlin. Some routes also provide connections to CT***transit***'s Hartford and Meriden services, as well as CT***fastrak*** services and CT***transit*** Commuter Express routes.

Operation of CT***transit***'s New Britain-Bristol services is contracted out by the Connecticut Department of Transportation (CTDOT) to the New Britain Transportation Company (NBT), which operates all but two routes. The two exceptions, Route 509 and Route 510, are contracted out by CTDOT and operated by DATTCO.

REVIEW OF PREVIOUS STUDIES

To inform the Comprehensive Service Analysis, the study team conducted a review of previous studies. Over the past ten years, a number of planning studies at the local and regional level have either directly focused on transit service in Central Connecticut, or have focused on related issues that can impact CT***transit***'s services and operations in New Britain-Bristol Division. These documents provide context for the issues, challenges, and opportunities related to mobility in the New Britain/Bristol area. Comparing these recommendations against the existing transit network allowed the study team to understand the origins of the current service approach, as well as the persistent challenges that have kept some recurring recommendations from being implemented.

The study team reviewed the following four documents that are directly relevant to the Comprehensive Service Analysis:

- Central Connecticut 2040 Long-Range Transportation Plan (2015 Minor Update)
- Central Connecticut State University Transportation Demand Management Plan (2013)
- Bristol Park-and-Ride User Survey (2012)
- Transit Development Plan for the Central Connecticut Region (2006)

The key findings and recommendations are described in Appendix A.

EXISTING SERVICES

CT***transit***'s New Britain-Bristol Division operates 12 fixed-route bus lines that serve New Britain, Bristol, Plainville, and Berlin, with connections to neighboring communities (Figure 9). Most routes operate six days a week (Monday through Saturday). A list of existing routes is presented in Figure 8.

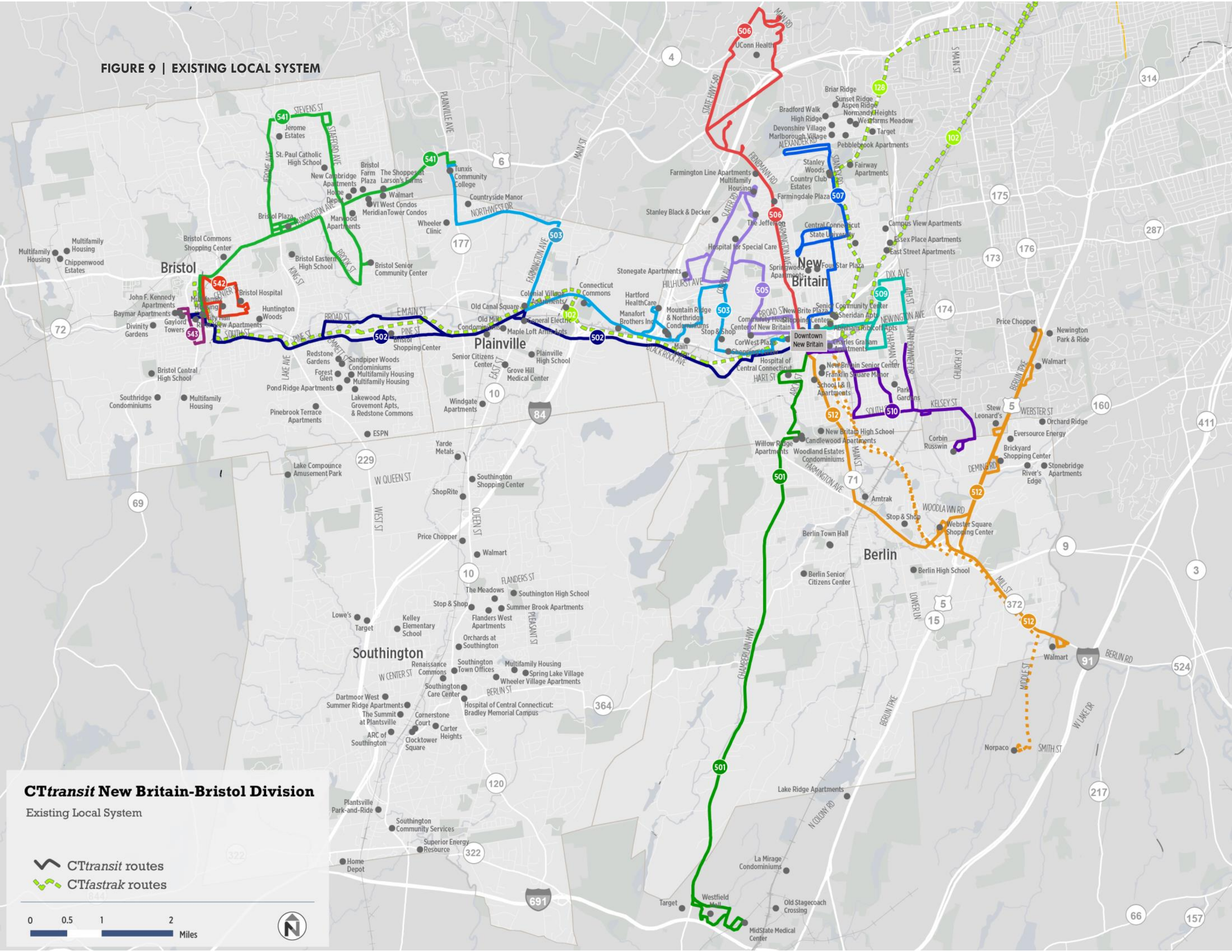
CTDOT and CT***transit*** have started to introduce a new statewide bus route numbering system, whereby every route receives a three-digit designation (with the exception of Hartford Division local routes, which are designated with two digits). New Britain routes are currently numbered 501-512, while Bristol routes are numbered 541-543. Revised route numbers were implemented in the New Britain-Bristol service area in December 2014, replacing a letter-based designation system.

CT***transit*** only operates fixed-route service and does not operate complementary paratransit service or other demand-response service in the study area. Rather, CTDOT contracts separately for paratransit service operations throughout Connecticut. Paratransit service in the New Britain-Bristol Division service area is operated by the Greater Hartford Transit District (GHTD).

FIGURE 8 | CT*TRANSIT* NEW BRITAIN-BRISTOL FIXED-ROUTE SERVICES

ROUTE	NAME	SERVICE DESCRIPTION
501	Arch Street	Connects to Hospital of Central Connecticut and Westfield Meriden Mall
502	Black Rock Avenue	Connects to Plainville and Bristol
503	Corbin Avenue	Connects to Plainville and Tunxis Community College
505	Burritt Street	Local service in New Britain
506	Farmington Avenue	Connects to Batterson Park Road Park-and-Ride and UConn Health Center
507	Oak Street	Connects to Central CT State University and Country Club Road
509	East Street	Local service in New Britain
510	South Street	Local service in New Britain
512	Berlin Turnpike	Connects to Cromwell and Newington/Berlin Turnpike
541	Bristol Local	Connects downtown Bristol to Tunxis Community College via Farmington Avenue
542	Bristol Hospital	Local service in Bristol with service to Bristol Hospital
543	West Street	Local service in Bristol

FIGURE 9 | EXISTING LOCAL SYSTEM



Transit Hubs and Major Transfer Locations

All service in New Britain terminates downtown on Bank Street between Main Street and Scalise Drive, about one block south of the CT***fastrak*** New Britain station. Routes 501, 502, 503, and 512 all stop on the north side of Bank Street, while Routes 505, 506, 507, 509, and 510 all stop across the street on the south side of Bank Street. Plans are underway to relocate this bus hub to Columbus Boulevard, alongside the CT***fastrak*** station. Two New Britain routes – Route 501 and Route 505 – terminate at the New Britain CT***fastrak*** station. Routes serving Bristol all begin and end at Bristol City Hall.

Connections are also available to other regional services at key transfer locations:

- **Downtown New Britain:** Riders can connect to CT***transit*** Hartford Route 41 with local service to Hartford.
- **New Britain CT*fastrak* Station:** Riders can access CT***fastrak*** Route 101 to Hartford, Route 102 to either Hartford or Bristol, and Route 128 to Westfarms Mall and Hartford. The station is also served by CT***transit*** Express Routes 923 (Bristol), 924 (Southington-Cheshire), 925 (Cheshire-Waterbury), and 928 (Southington-Cheshire-Waterbury).
- **Bristol City Hall:** Riders can connect with CT***fastrak*** Route 102 to New Britain and Hartford.
- **Tunxis Community College:** Riders on Routes 503 and 541 can connect to CT***transit*** Hartford Route 66 serving Unionville, Farmington, and Hartford.
- **Westfield Meriden:** Riders on Route 501 can connect to CT***transit*** Meriden Route A and Middletown Area Transit's M-LINK route.

Regional Transit Services

The study area is also served by other regional transit services (Figure 10). CTDOT's CT***fastrak*** is the first bus rapid transit system in Connecticut. The service features a 9.4-mile dedicated guideway for buses between New Britain and Hartford, a heavily congested corridor in central Connecticut, and buses are uniquely branded as CT***fastrak*** service. Three CT***fastrak*** routes currently serve the study area:

- Route 101 connects Hartford and New Britain via the guideway, serving the New Britain CT***fastrak*** Station.
- Route 102 connects Hartford and New Britain via the guideway, and continues to downtown Bristol via Route 72.
- Route 128 connects Hartford and New Britain, via Westfarms Mall in West Hartford.

Four CT***transit*** Commuter Express routes serve the study area, providing nonstop or limited-stop service to and from downtown Hartford on weekdays only (except for Route 928, which operates on weekends as well). Route 923 (Bristol Express) and Route 924 (Southington-Cheshire Express) provide some midday service, while Route 925 (Cheshire-Waterbury Express) and Route 928 (Southington-Cheshire-Waterbury Express) operate during peak hours only.

Amtrak operates intercity rail service along its Northeast Corridor route through Berlin. Trains stop at the Berlin Railroad Station, providing connections to Springfield, Hartford, New Haven, Stamford, and New York City. Beginning in June 2018, this rail station will be served by CT***rail*** Hartford Line commuter rail service, increasing the number of daily trains from six to 17. The station is currently served by CT***transit*** Route 512.

FIGURE 10 | OTHER CT*TRANSIT* SERVICES WITHIN THE STUDY AREA

ROUTE	NAME	SERVICE DESCRIPTION
CT*transit* Commuter Express Routes		
923	Bristol Express	Connects Bristol and Downtown New Britain to Hartford
924	Southington-Cheshire Express	Connects Cheshire, Southington, and Downtown New Britain to Hartford
925	Cheshire-Waterbury Express	Connects Waterbury, Cheshire, and Downtown New Britain to Hartford
928	Southington-Cheshire-Waterbury Express	Connects Waterbury, Cheshire, Southington, and Downtown New Britain to Hartford
CT*fastrak* Routes		
101	Hartford/New Britain	Limited-stop service between Hartford and New Britain via Guideway
102	Hartford/New Britain/Bristol	Limited-stop service between Hartford, New Britain, and Bristol via Guideway and Route 72
128	Hartford/Westfarms/New Britain	Limited-stop service between Hartford, Westfarms Mall, and New Britain via Guideway and Stanley Street

Passenger Information

CT***transit*** information is available on the agency's website (**www.CT*transit*.com**). A system map for the Central Connecticut region can be found on the website, as well as individual route maps and schedules. CT***transit***'s website also features an online trip planner, which connects to Google Transit. Real-time arrival information is available at the CT***fastrak*** station, but this information is limited to routes that serve the station.

Fares

The adult cash fare for a single ride on all CT***transit*** local bus service is $1.75. Transfers are free with a transfer slip for up to two hours from the time they are issued, and are good for unlimited rides on local CT***transit*** buses. 10-ride tickets are valid for any 10 trips with no expiration date, and cost $15.75. CT***transit*** also offers several passes, which are all valid for unlimited rides for the specified number of days beginning on the date of first use. Older adults and people with disabilities who have a Medicare card or state-issued Reduced Fare ID card pay half fare for tickets and passes. Fare prices are listed below for local services and commuter express services (Figure 11 and Figure 12).

There is no CT***transit*** ticket sales outlet in the New Britain/Bristol area. Customers may purchase tickets and passes onboard transit vehicles using exact change. Tickets and passes can also be purchased at certain Stop & Shop grocery stores, by mail, or online.

FIGURE 11 | FARE PRICES, CT*TRANSIT* LOCAL SERVICE

FARE TYPE	LOCAL (BASE)	YOUTH	SENIOR/DISABLED*
Cash Fare	$1.75	$1.40	$0.85
10-Ride Ticket	$15.75	$12.60	$7.65
Two-Hour Pass	$1.75	-	-
1-Day Pass	$3.50	$2.80	$1.70
3-Day Pass	$8.75	-	-
5-Day Pass	$14.00	-	-
7-Day Pass	$19.25	-	-
31-Day Pass	$63.00	-	$30.60

** Medicare card or state-issued Reduced Fare ID card must be shown upon boarding.*

Fares for Commuter Express service are set using a zone system, where zones are based on the distance from Hartford. Transfers from an express bus to a local bus are free; when transferring from a local bus to an express bus, the local fare is subtracted from the express cash fare. Commuter express fares by zone are listed in the table below.

FIGURE 12 | FARE PRICES, COMMUTER EXPRESS SERVICE

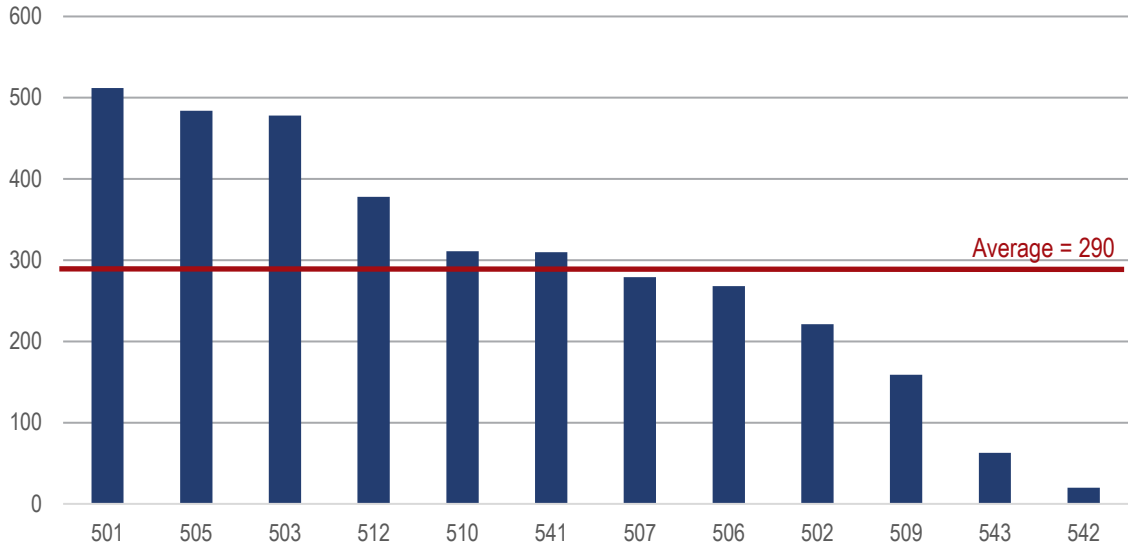
FARE TYPE	ZONE 2	ZONE 3	ZONE 4	ZONE 5
Regular Cash Fare	$3.20	$4.10	$5.00	$6.00
Regular All-Day Pass	$6.40	$8.20	$10.00	$12.00
10-Ride Ticket	$28.80	$36.90	$45.00	$54.00
31-Day/Monthly Pass	108.80	$139.40	$170.00	$204.00
Senior/Disabled Cash Fare	$1.60	$2.05	$2.50	$3.00
Senior/Disabled All-Day Pass	3.20	$4.10	$5.00	$6.00

Service Performance

The effectiveness of transit service can be judged both quantitatively and qualitatively. 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.

Figure 13 presents average weekday ridership on each of the New Britain-Bristol Division's routes, and Figure 15 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, as shown in red on the map, 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 and high-activity locations in the service area.

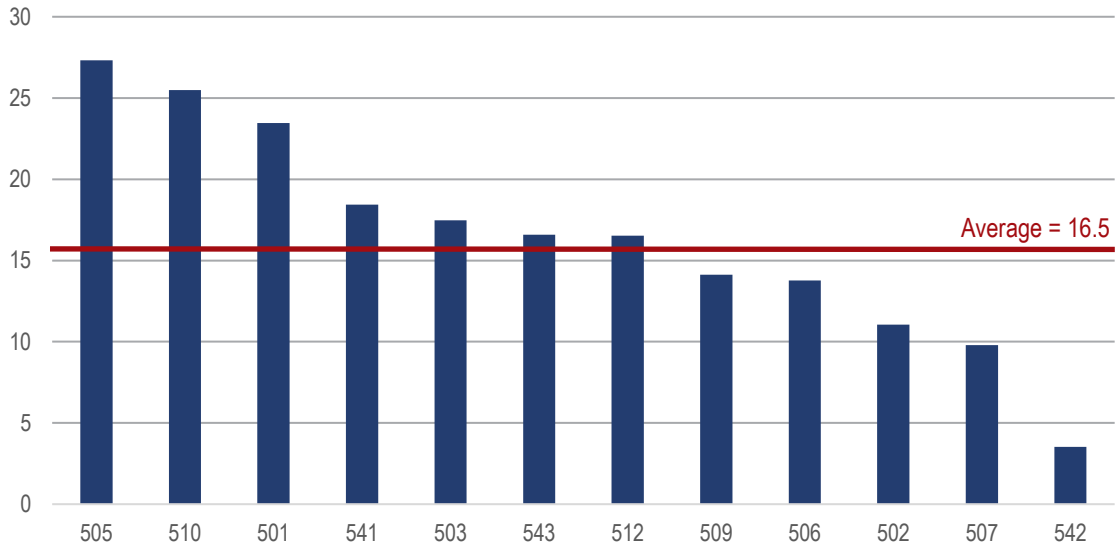
FIGURE 13 | AVERAGE WEEKDAY RIDERSHIP BY ROUTE



*Source: NN ridecheck data, April 2016; CT**transit** published schedules.*

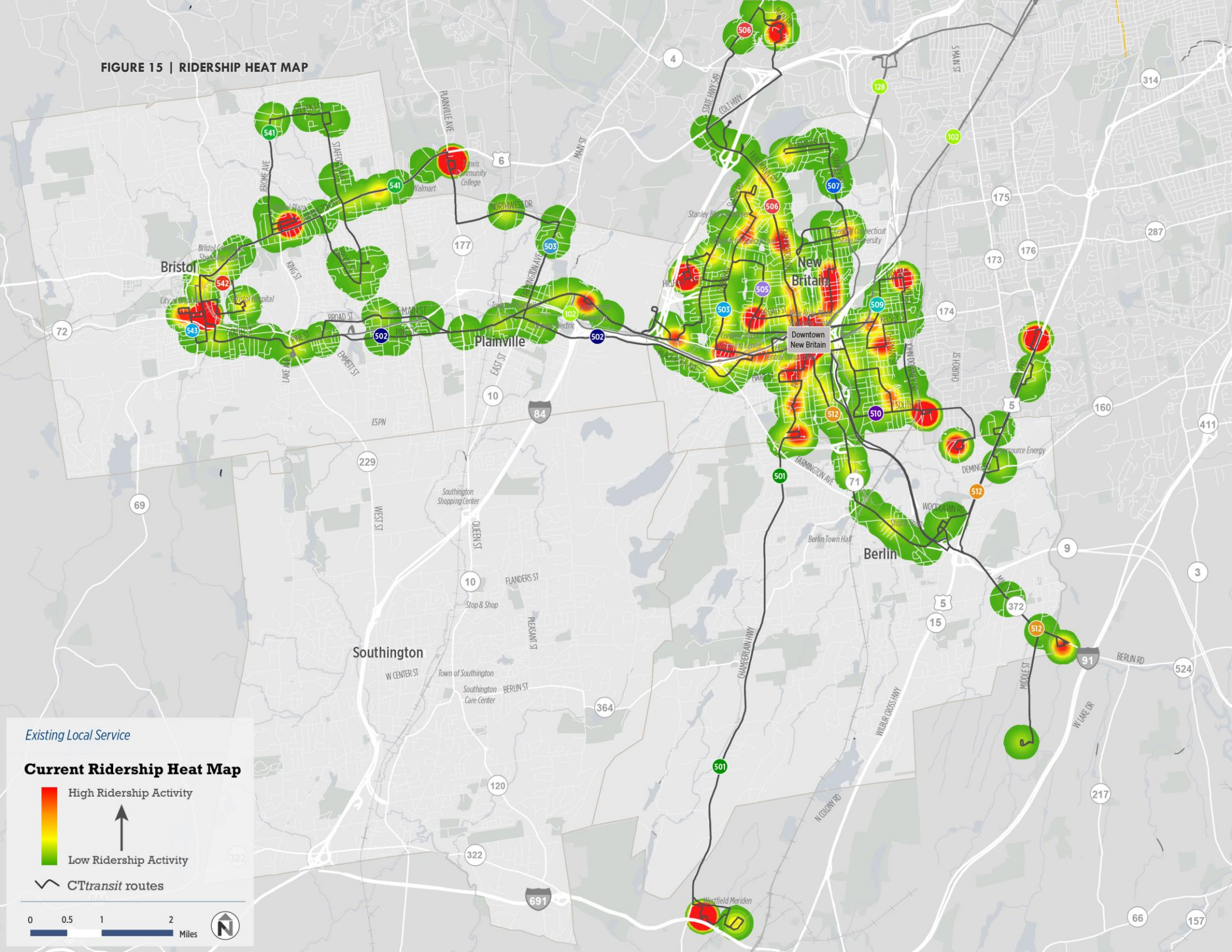
CT***transit*** aims to use its resources effectively and evaluates its services on a monthly basis to ensure they achieve a minimum level of productivity. Ridership trends are a good indicator of system performance, but to evaluate overall productivity it is also critical to understand how efficiently each route generates ridership. One key measure of service performance is Service Effectiveness, which measures how well service capacity is being utilized by consumers. The most common indicator of effectiveness is Passengers per Revenue Vehicle Hour, which calculates the ratio of ridership to service outputs (e.g. revenue hours of service). Service effectiveness for New Britain-Bristol routes is shown in Figure 14.

FIGURE 14 | SERVICE EFFECTIVENESS BY ROUTE (PASSENGERS PER REVENUE VEHICLE HOUR)



*Source: NN ridecheck data, April 2016; CT**transit** published schedules.*

FIGURE 15 | RIDERSHIP HEAT MAP



For each route operated by CT***transit***'s New Britain-Bristol Division, the study 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 Appendix D to this report.

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 focus of this analysis is on understanding the market and demand for transit service, which is largely defined by:

- **Population and employment density**, which are the strongest indicators of the viability or potential for fixed-route transit service in an area. Put simply, larger numbers of people living and working in close proximity leads to a stronger market for transit.
- **Socio-economic characteristics**, such as income, auto availability, age, and disability, are characteristics that are generally indicative of a higher propensity to use transit, and thus highlight where there may be a need transit service.
- **Regional travel patterns,** which highlight key travel flows within the region by all modes and provide insight into what trips individuals are making most often.

It should be stressed that while some areas may have a high socio-economic need for transit service, other factors such as density, land use, and the pedestrian environment will impact the effectiveness of traditional fixed-route service. For example, nearly all transit riders walk to/from the bus on at least one end of their trip, thus the pedestrian environment strongly impacts ridership. Industry standards suggest that transit riders will walk one-quarter of a mile to transit; however, in comfortable pedestrian environments, riders will walk longer distances. Likewise, areas with minimal traffic congestion and ample parking will have a more difficult time attracting transit riders. Thus, even in cases where the need for transit appears strong, service must be designed appropriately to appeal to local markets and consider the broader travel environment.

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 Density

The distribution and density of population is a key factor influencing the viability of transit service because most riders walk to/from the bus on at least one end of the trip. Higher density communities have more people within walking distance of bus routes, and thus are generally stronger markets for transit. Together with employment density, population density is the most important determinant of transit demand.

Transit needs to serve sufficiently high volumes of travelers to be cost-effective, and the density of development determines the overall size of the travel market. The catchment area for transit riders is generally limited to within ¼- to ½-mile of the transit line or station. Thus, the size of the transit market is directly related to the density of development in a given area. Additionally, transit service design and service levels are closely related to population density. Areas and corridors with higher densities support higher frequencies, while lower-density communities support different types of transit services, including lower frequency or demand-response modes.

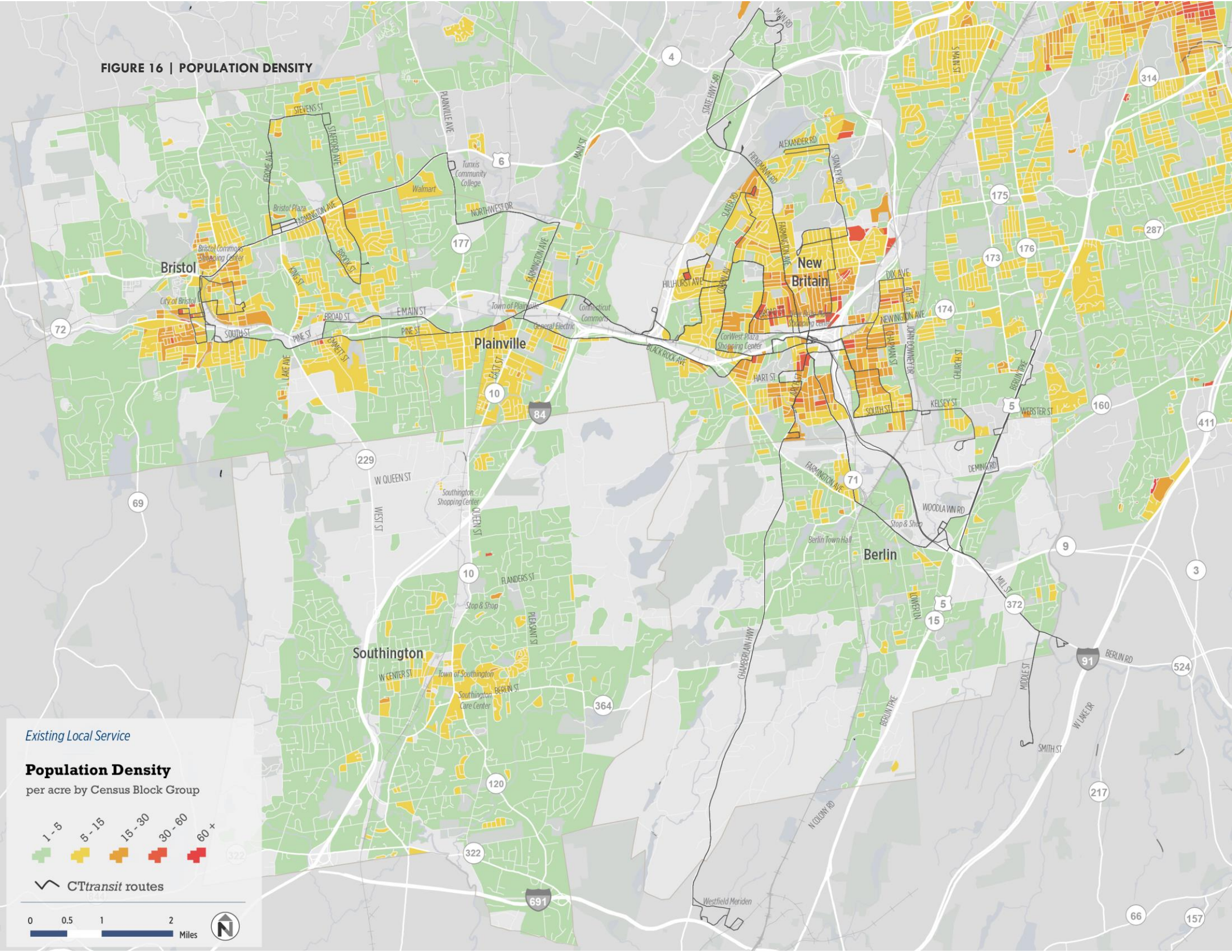
Population density was mapped for the study area (Figure 16). This analysis found:

- Population density is relatively high throughout most of the city of New Britain, including several areas with upwards of 15 residents per acre and some with over 30 per acre. This is particularly true in the core area, including south of Allen Street, along and around Arch Street, and

surrounding East Street. This level of density can generally support 15- or 20-minute service frequencies. Existing CT***transit*** service in New Britain is generally well matched to where there is demand.

- There is also moderate population density in the core areas of Bristol, including in and just north of downtown, and in Plainville along and south of Route 372/West Main Street. However, the densities between these areas and New Britain are relatively low, which may affect the productivity of service that connects these communities.
- Population density in Southington and Berlin is generally low. In Southington, clusters of moderate density are focused in the core of the town along North Main Street and Old Turnpike Road, but this is surrounded by low population density across the rest of the town.

FIGURE 16 | POPULATION DENSITY



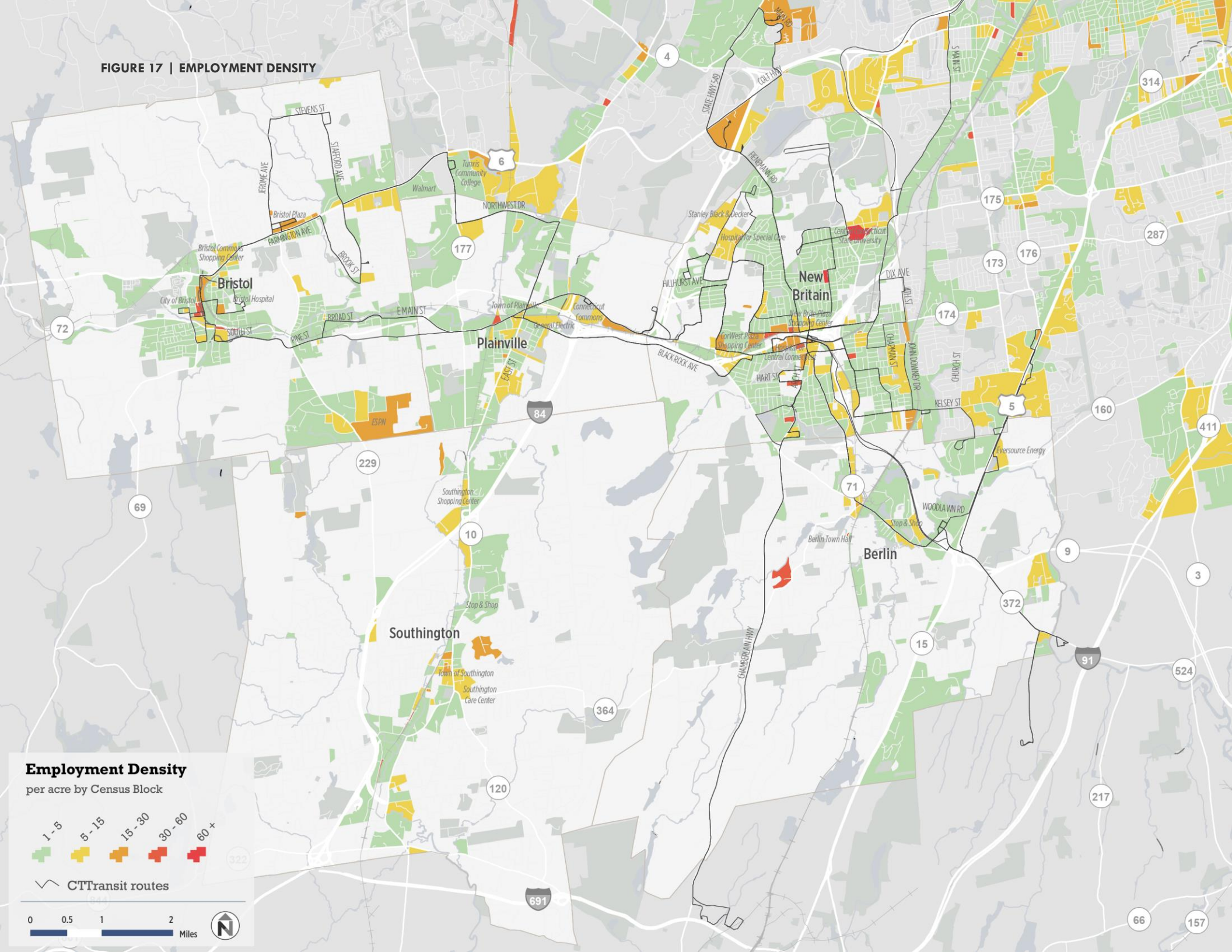
Employment Density

Understanding the size and distribution of employment is also a critical part of understanding travel demand and markets. Transit that serves areas of high employment and employment density provides key connections to job opportunities. Nationally, work trips account for the largest segment of transit trips. For most people, travel to and from work is highly repetitive, making these trips well-suited for fixed-route transit service.

The study team used Longitudinal Employer-Household Dynamics (LEHD) data from the U.S. Census to determine the number of employees per census block. Employment densities within the study area suggest several findings relative to transit service (Figure 17):

- There are clusters of employment across the study area, mostly focused in New Britain and Bristol, particularly in their respective downtowns. Higher densities of employment are generally focused along streets and corridors in these communities that are served by transit today.
- There is also high employment density located at the ESPN campus in southeastern Bristol. The campus is not currently served by transit, and the location and lack of connectivity (the secure campus is fenced and gated off to surrounding streets) pose challenges to transit service.
- Additional clusters of employment density in Plainville are located at the General Electric campus and south along East Street, and at the Connecticut Commons shopping center. Some low and moderate density follows Route 10 south into Southington, with clusters of jobs along this commercial corridor and into the town's core area.

FIGURE 17 | EMPLOYMENT DENSITY



Major Employers

In addition to understanding employment generally, the market analysis also considers the service area's largest employers. Discrete sites of significant employment can generate additional demand for transit beyond the underlying demand of the surrounding area. In addition, these sites are often easier to serve with transit, since a large number of workers need to travel to and from the same work site location; and in many cases at similar times of day. A list of the largest employers in the study area is shown in Figure 18, and these employers are identified on the map in Figure 19.

FIGURE 18 | MAJOR EMPLOYERS IN THE STUDY AREA (500 OR MORE EMPLOYEES)

EMPLOYER	MUNICIPALITY	NUMBER OF EMPLOYEES
ESPN	Bristol	4,200
Hospital of Central Connecticut	New Britain	2,374
City of New Britain*	New Britain	1,779
Bristol Hospital	Bristol	1,684
Central Connecticut State University	New Britain	1,657
City of Bristol & Board of Education*	Bristol	1,600
Town of Southington*	Southington	1,289
Eversource Energy	Berlin	1,179
State of Connecticut*	New Britain	1,095
Hospital for Special Care	New Britain	1,080
Stanley Black & Decker	New Britain	910
Town of Berlin*	Berlin	671
Wheeler Clinic	Plainville	558
Tilcon CT	New Britain	553
Webster Bank*	New Britain	524
Town of Plainville*	Plainville	523

Source: Lists of 2015 principal employers produced by each municipality's department for economic development.

** These employers have employees at multiple sites and departments across the service area, and are not displayed in Figure 19. All other large employers listed here are included on the map.*

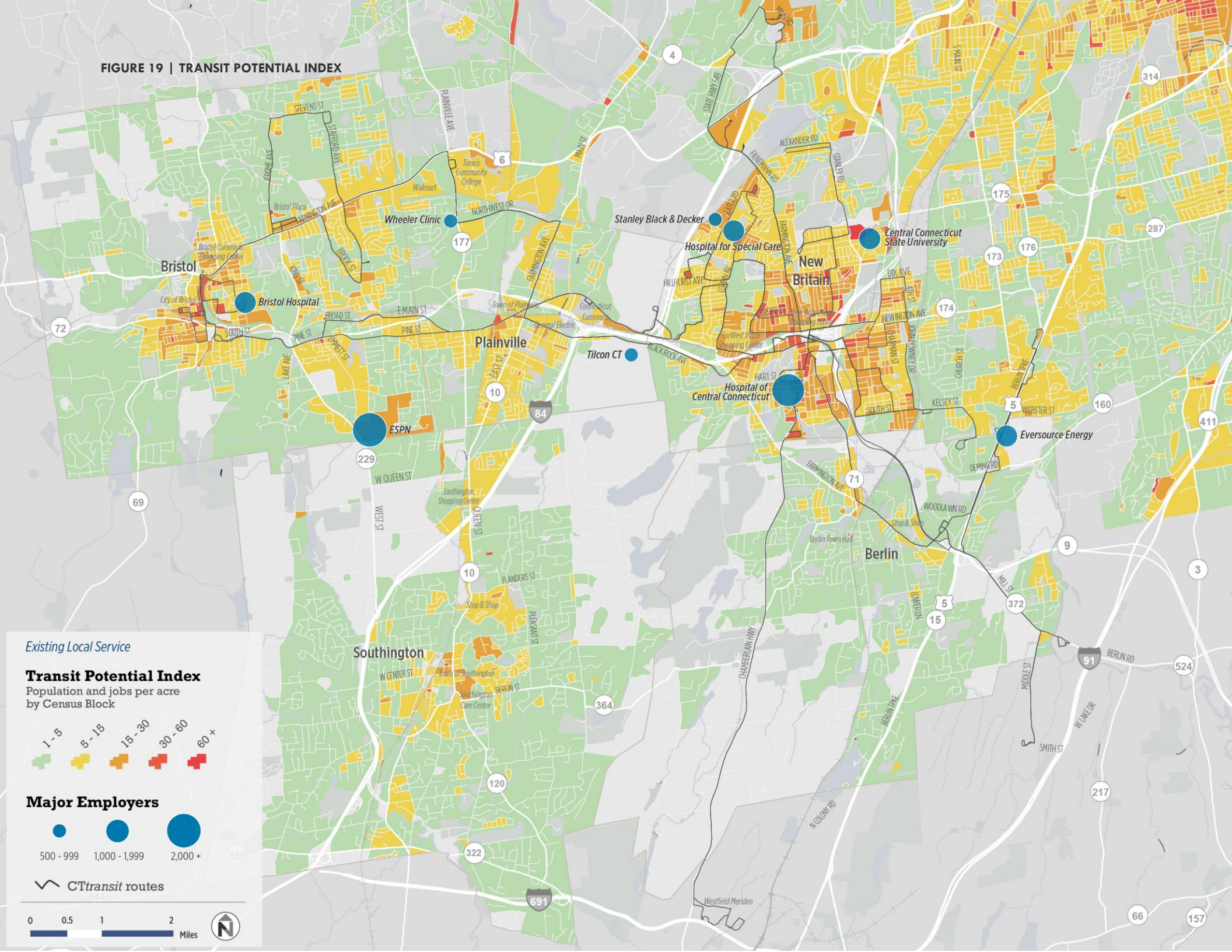
Transit Potential Index

The Transit Potential Index is a composite of population and employment densities by census block and is an indicator of the viability of fixed-route service in a particular area (see Figure 19). A higher Transit Potential Index score suggests a higher likelihood of generating substantial transit ridership. 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 yields the following findings:

- Most of New Britain scores very well on transit potential, with combined population and employment densities that can support a significant level of transit service. Most of the city is currently served by CT***transit***, but some areas may be able to support higher levels of service than exist today.
- There is a market for moderate transit service in the core areas of Bristol, as well as along Farmington Avenue heading east toward Tunxis Community College and along Pine Street, thanks to a mix of shopping centers and other business along these streets and neighboring residential areas.
- There is potential demand for service along Route 10 running north-south in Plainville. This potential demand continues into Southington where clusters of demand are focused around Route 10, indicating a potential market for transit to Southington.
- The northern part of Berlin along Route 71 demonstrates some demand for service, and is currently served by a CT***transit*** route. However, there is limited potential for transit service in the rest of Berlin.
- A challenge to connecting the disparate markets in these towns is that buses must travel through areas with limited potential for transit demand, which can make service inefficient and hurt service productivity.

FIGURE 19 | 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:

- **Low Income Individuals**, typically because transit is less expensive than owning and operating a car.
- **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.
- **Older Adults**, since people may become less comfortable or less able to operate a vehicle as they grow older.
- **Youth**, who either cannot drive or do not own a vehicle.
- **Individuals with Disabilities**, many of whom cannot drive and/or have difficulty driving.

Identifying areas with relatively high concentrations of these groups can help determine where the need for transit service may be 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.

Low Income Individuals

Income status is the strongest indicator of a higher-than-average reliance on public transportation; people with lower incomes are less likely to be able to reliably afford a private vehicle and thus are more likely to use transit. The study team used the U.S. Census' classification of poverty status to define and identify low income individuals, which considers household income and the number of members in the household in classifying a household as in poverty or not. Household income and size both largely determine disposable income, which in turn determines whether or not a household is impoverished. The poverty status of a household is a good proxy for whether individuals within the household are likely to use transit. The distribution of individuals with low incomes (those living in a household considered in poverty by the Census) is shown in Figure 20. Findings include:

- Low densities of low-income residents are located throughout New Britain, in several areas of Bristol, and in the central areas of Plainville and Southington.
- Moderate densities of low-income residents are focused in central New Britain. Particularly high-density areas are located west of Stanley Street and south of Allen Street, as well as to the south between Arch Street and South Main Street, and to the southeast just east of Route 9.
- There is also an area of moderate density in Bristol, just southwest of downtown.
- Outside of these areas, there are no areas with discernable densities of low-income individuals in the study area.

Zero Vehicle Population

For evident reasons, individuals without access to a vehicle represent a particularly strong market for transit. In some cases these residents are car-free by choice, while others are unable to drive for legal or financial reasons. Identifying clusters of this demographic can highlight areas that have transit-dependent riders.

The study team used the U.S. Census' annual American Community Survey (ACS) data, which collects information on individuals who do not have regular access to a vehicle. The geographic unit of analysis for

this data is the census block group. The distribution of zero-vehicle households is shown in Figure 21. Findings include:

- Concentrations of zero-vehicle households stand out in New Britain and in Bristol, mostly in areas that have the most transit connectivity in the study area. Many parts of New Britain have moderate densities of residents without vehicles, and a few areas have higher concentrations of these individuals, particularly just north of Downtown close to New Brite Plaza, along Oak Street, and North/Broad Streets.
- In Bristol, low densities of zero-vehicle population are focused west of downtown south of Park Street, just east of downtown south of High Street, and just north of downtown south of Farmington Avenue.
- Outside of these areas, there are no discernable concentrations of zero vehicle population in the study area.

Older Adults

Older adults (those 65 years and older) are more likely to ride transit than the general population for a variety of reasons, including increased (relative to the larger population) incidence of an inability to own or operate a private vehicle. Older adults are therefore an important market for transit, particularly as this demographic group is increasing so dramatically. In 2000, 35 million Americans were aged 65 and over, representing 12.4% of the total population. By 2010, older adults grew to 40 million, or 13.0% of the total population. This trend is expected to continue and accelerate as the Census Bureau projects older adults will grow to some 70 million people by 2030 and represent 20% of the total population. Understanding the distribution of older adults is therefore important in identifying areas of more transit-dependent riders.

The study team used population counts of individuals aged 65+ by census block groups from Census 2010 (see Figure 22). Findings include:

- Low densities of older adults are dispersed throughout most of New Britain, particularly north of Broad Street.
- Concentrations are also located in central and southern Plainville, the core area of Southington, downtown Bristol, and a large area of northeastern Bristol (north of Washington Street and east of King Street and Stafford Avenue).

Youth

In the same way that older adults are more likely to ride transit than the general population, so are youth populations who either cannot drive or do not own a vehicle. As such, understanding the distribution of children and young adults is important for identifying areas of transit-dependent riders.

The relative concentration of individuals age 15 to 24 by census block is shown in Figure 23. Key findings include:

- Youth population is discernable throughout much of New Britain, as well as in the core area of Bristol and in the central part of Plainville.
- In New Britain, density exceeds five residents per acre in the area around Central Connecticut State University, and in a small area at Burritt and Broad Streets.
- Outside of these areas, there are no discernable concentrations of youth population in the study area.

Individuals with Disabilities

Individuals with disabilities are more likely to ride transit than the general population, especially if they are unable to operate a vehicle. Identifying clusters of this group can help highlight areas of transit-dependent riders.

The proportion of individuals with disabilities by census block group is shown in Figure 24. Key findings include:

- New Britain and Bristol are the only places in the study area with discernable densities of residents with disabilities. In both central New Britain and the core area of Bristol, density of these residents reaches between one and five people per acre.
- Density of residents with disabilities does not exceed one person per acre anywhere in Plainville, Berlin, or Southington.

FIGURE 20 | LOW-INCOME INDIVIDUALS

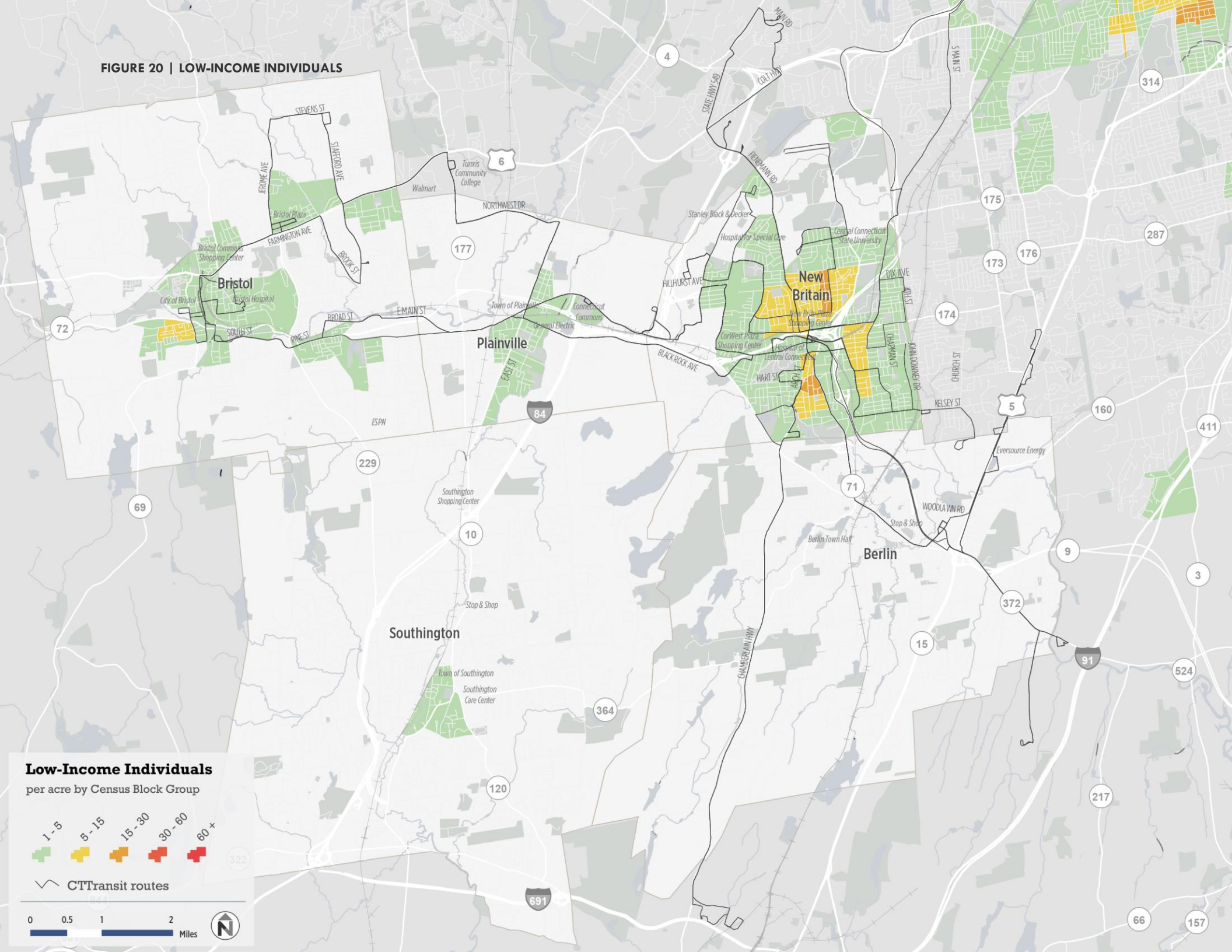


FIGURE 21 | ZERO-VEHICLE HOUSEHOLDS

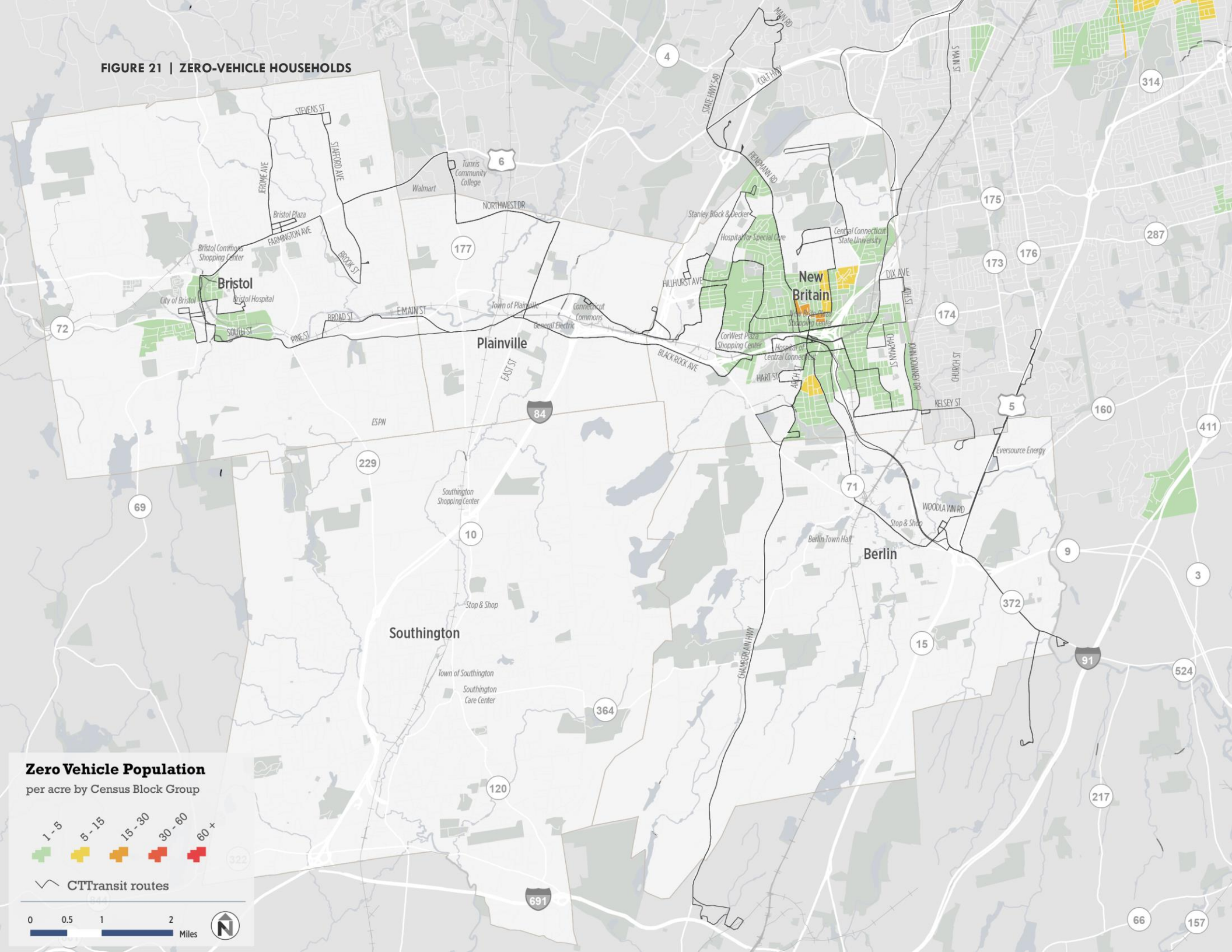


FIGURE 22 | OLDER ADULTS

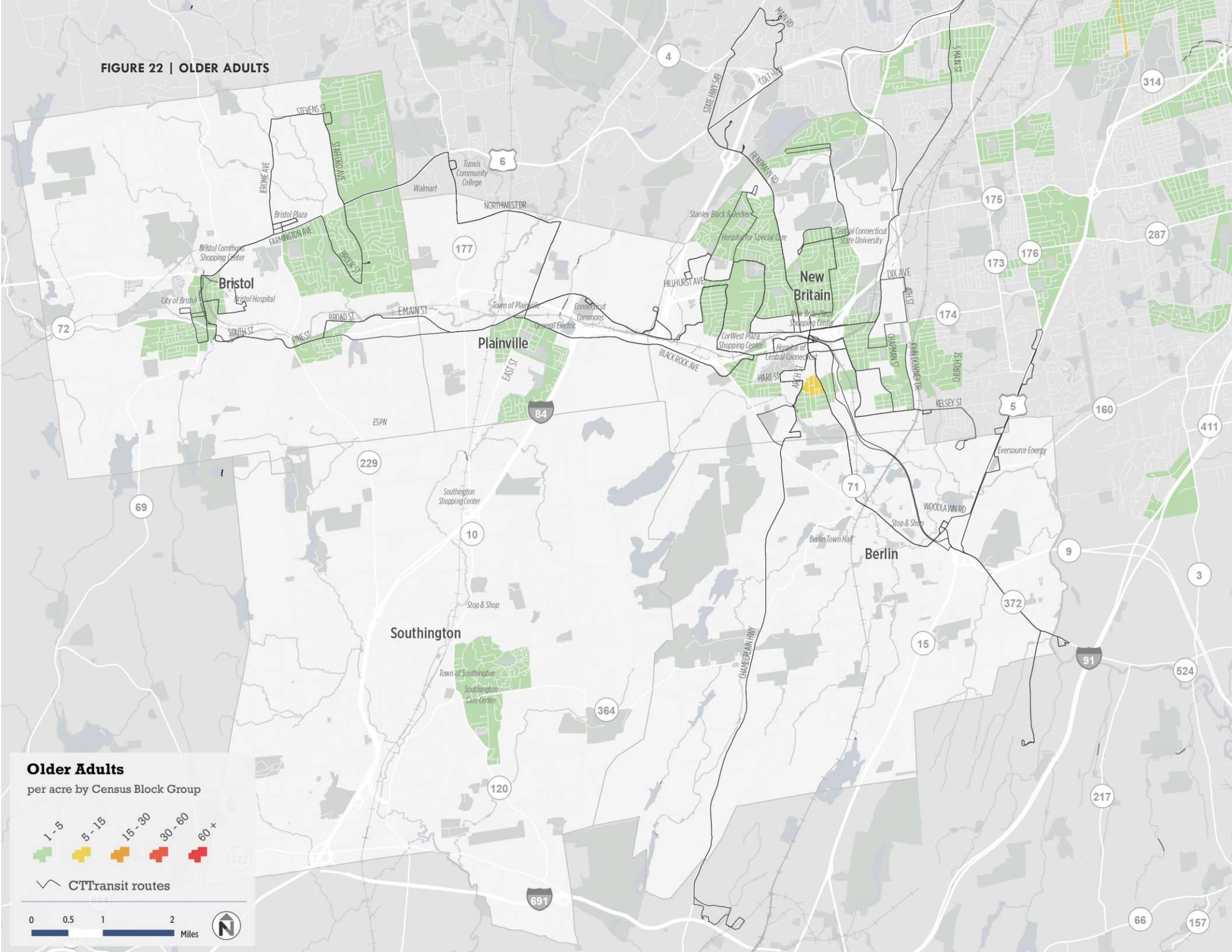


FIGURE 23 | YOUTH POPULATION

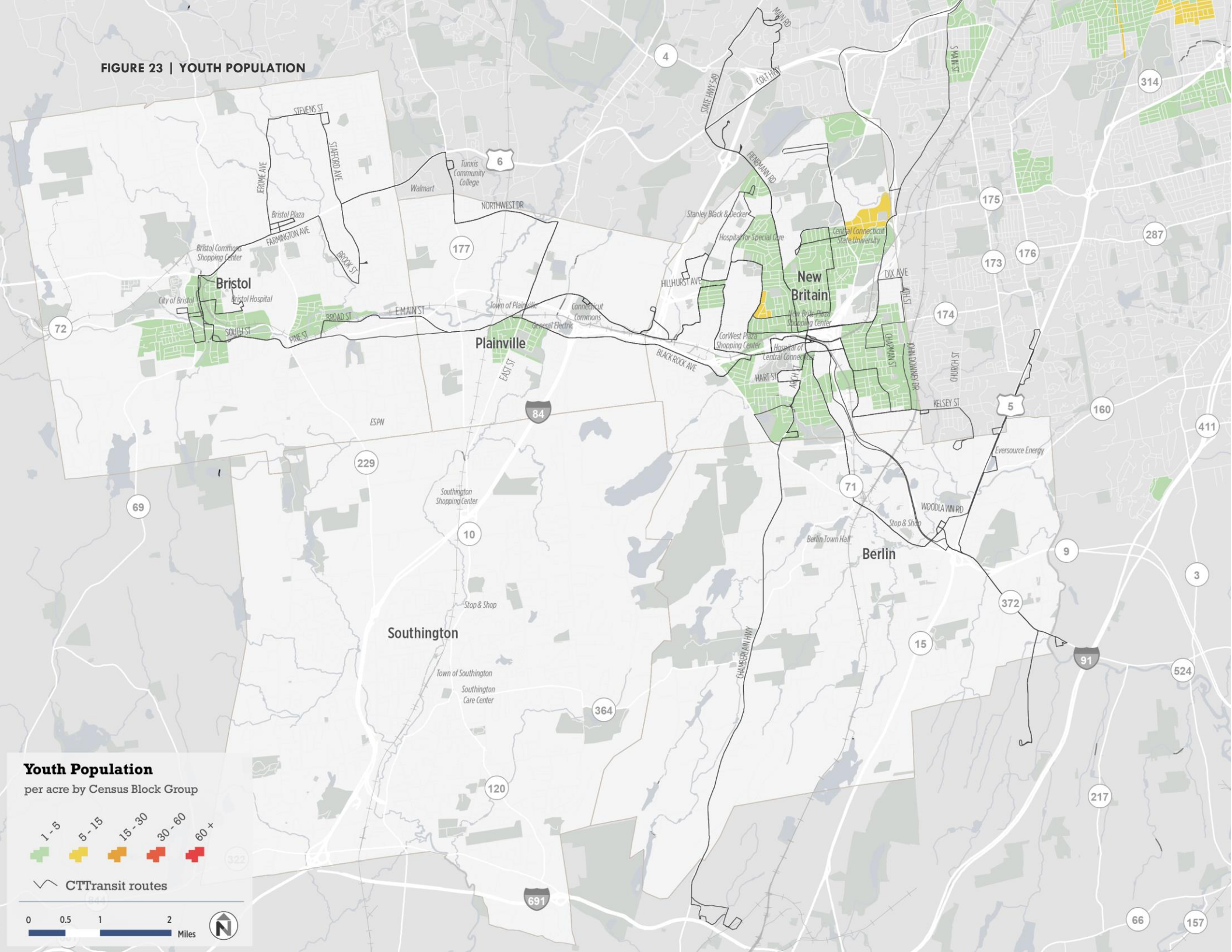
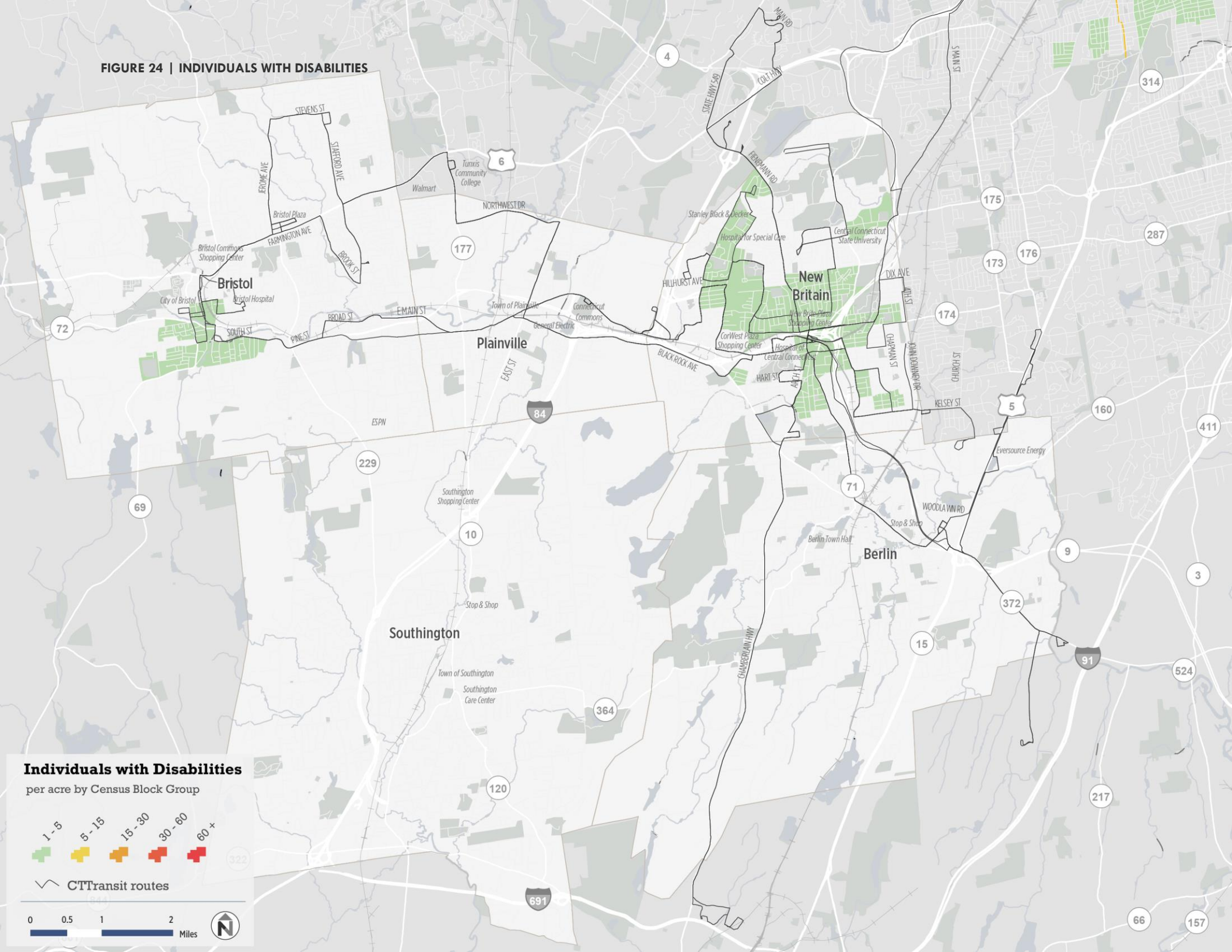


FIGURE 24 | INDIVIDUALS WITH DISABILITIES



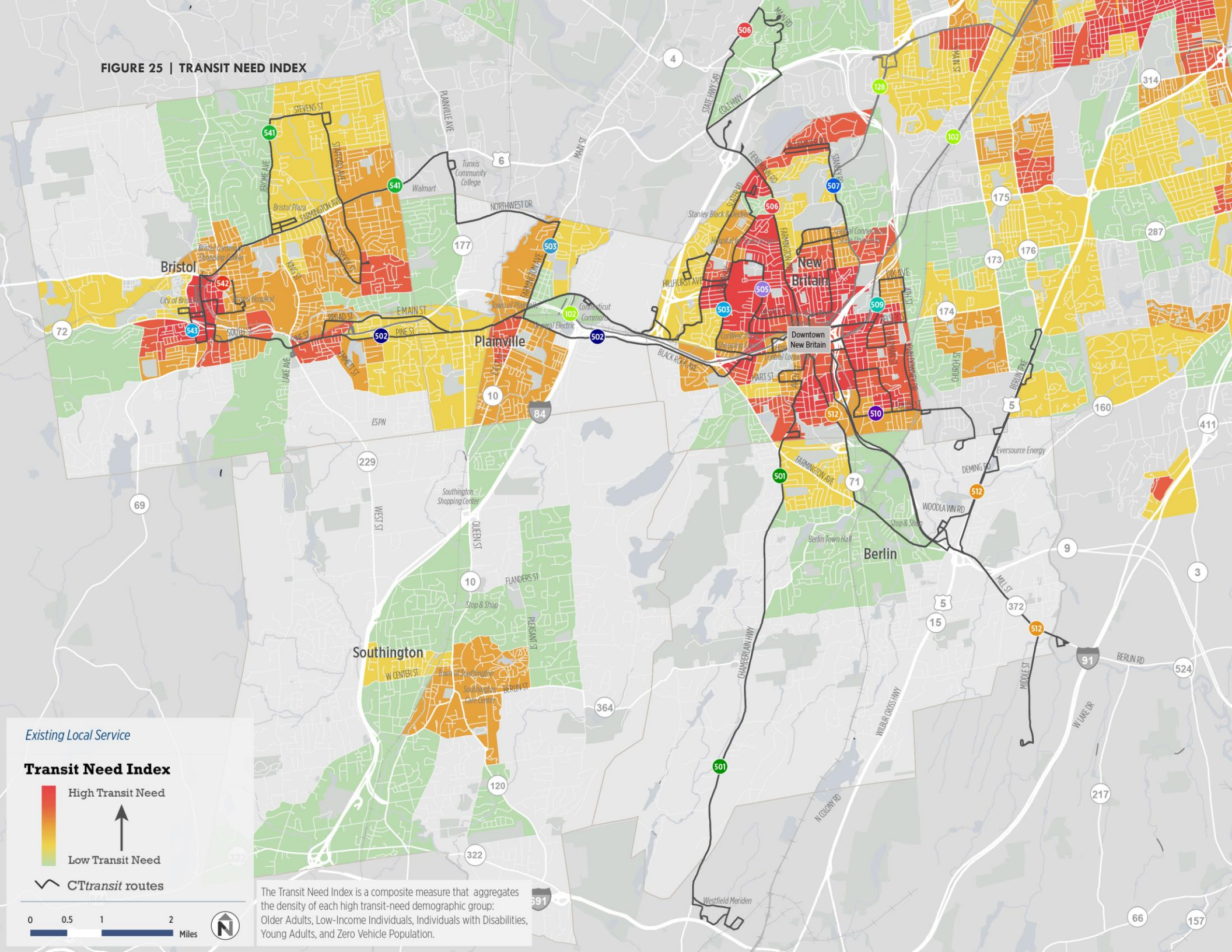
Transit Need Index

The Transit Need Index is a relative measure that highlights areas of the study area with higher and lower concentrations of a combination 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 are located. 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 25. Key findings include:

- There are particularly high levels of transit need in most areas of New Britain, particularly to the north and northwest of downtown, east of I-84, and just south of downtown.
- Core areas of Bristol, especially around downtown and to the southwest, have relatively high demonstrated transit need. Areas with need are also focused in the central areas of the town, particularly south of Route 6/Farmington Avenue and east of downtown, as well as along Pine Street towards Plainville.
- In Plainville, high-need areas are focused in the southern portion of the town and along Route 10/East Street.
- Areas with transit need are also located in central parts of Southington, focused around downtown Southington on either side of Main Street.
- Moderate transit need in Berlin is focused in the northern part of the town, along Farmington Avenue between High Road and New Britain Road.
- Many of these areas currently have transit service coverage, although there may be significant opportunities to improve route design and service levels to improve access and quality of service, including the potential of extending service into southern Plainville and Southington.

FIGURE 25 | TRANSIT NEED INDEX



Travel Patterns

In general, transit users are interested in accessing the same regional destinations as all other travelers. As part of understanding the overall need for transit service, therefore, the study team analyzed major travel patterns in the study area, across modes. This information was used to ensure that transit is matched with overall regional travel patterns and is designed to take people where they want to go.

The study team relied on 2015 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. Travel flows within the study area are presented in Figure 26. In viewing the travel flow maps, it is important to consider a few facts:

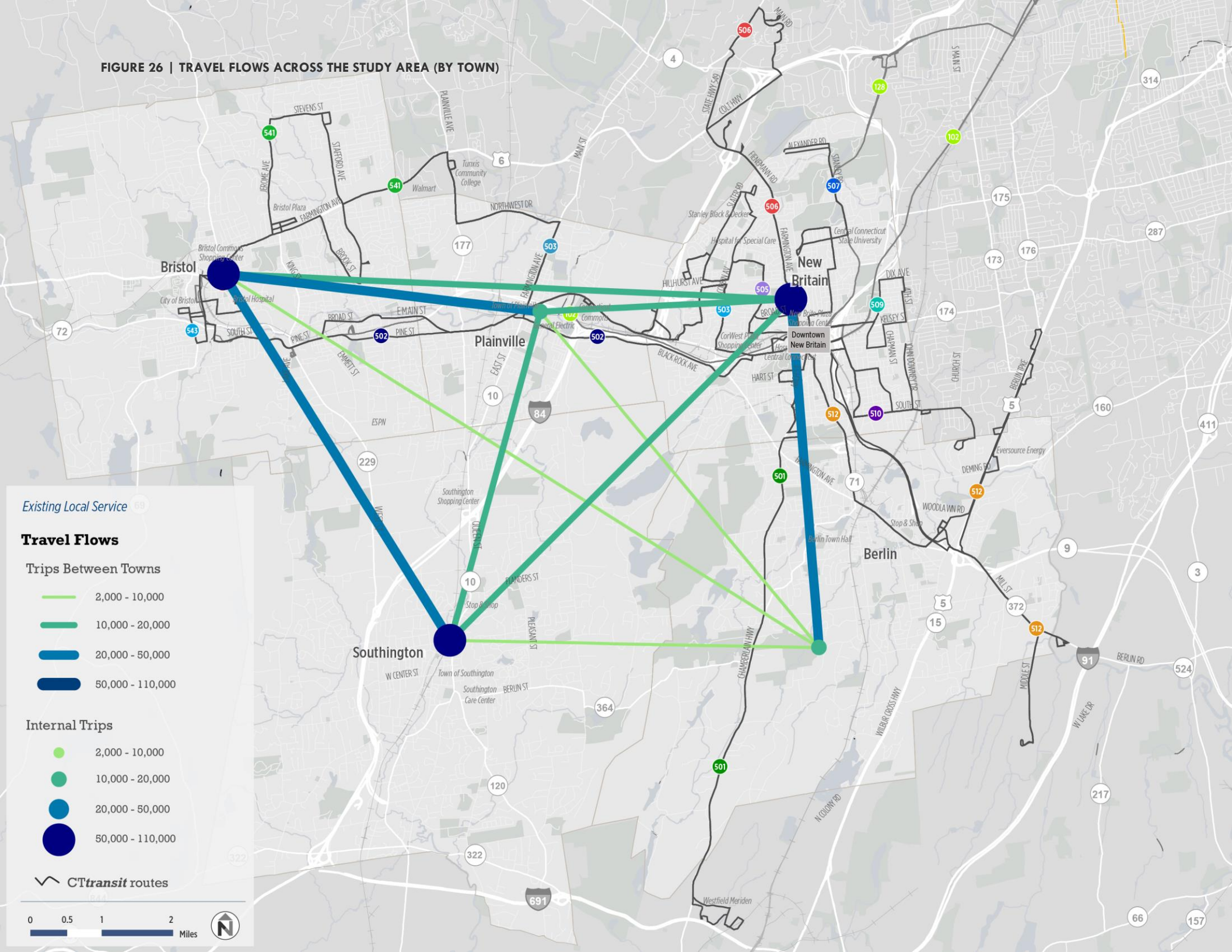
- Travel origin-destination pairs show travel between towns in both directions for the entire day.
- Trips are not segregated by time of travel (i.e., peak versus off-peak) or by trip type (home-based work travel, home-based other, etc.). Travel flows represent all trips for the entire day.
- This point-to-point 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.

The municipalities with the largest internal travel flows are Bristol, New Britain, and Southington, with Bristol generating over 100,000 internal trips per day. The amount of travel within the towns of Plainville and Berlin is much lower. The high volume of trips within New Britain validates the amount of service that CT***transit***'s existing local network provides. Although there is a high volume of internal trips in Bristol, the existing transit network provides less coverage within the city and operates less service than in New Britain.

Between towns, the largest travel volumes are between New Britain and Berlin; Bristol and Plainville; and Bristol and Southington. These observed travel patterns diverge from the CT***transit*** network currently operating in the service area. Most existing routes currently provide local service within New Britain and Bristol, while there is one route that travels from New Britain through Berlin and one route (as well as one CT***fastrak*** route) that travels through Plainville between Bristol and New Britain. There are currently no CT***transit*** local routes serving Southington.

The high volume of internal trips, particularly within New Britain and Bristol, requires a level of analysis that cannot be provided through the regional travel demand model. To assess how well existing routes are serving local travel patterns, the study team developed detailed route profiles that examine the ridership of each route by stop and time of day. These profiles are included in Appendix D.

FIGURE 26 | TRAVEL FLOWS ACROSS THE STUDY AREA (BY TOWN)



PUBLIC INVOLVEMENT

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

- Open house public meetings
- Rider information sessions at major bus hubs
- Meetings with town leaders
- Community survey

Public Meetings and Rider Information Sessions

Two rounds of public outreach events were held across the study area at key milestones during the study (Figure 27). The first round was held in April 2017, and served to introduce new service concepts to area residents and riders and to gauge their relative preferences for two different comprehensive service scenarios. Public meetings included an initial presentation followed by an open house where attendees could view study maps and share ideas and feedback one-on-one with members of the study team. Rider information sessions were also held at key bus stops in the service area, providing an opportunity for the study team to reach out directly to riders, share concept maps, and hear ideas and feedback.

The second round of outreach events was held in December 2017 to share the draft preferred scenario and solicit feedback on the potential recommendations. This round consisted of open house public meetings that included a formal presentation followed by questions and answers, as well as time before and after for attendees to view maps of the preferred scenario and speak one-on-one with members of the study team and share feedback.

A summary of comments received from the public can be found in Appendix B.

FIGURE 27 | PUBLIC MEETINGS AND OUTREACH EVENTS

DATE	EVENT & LOCATION
April 2017 Outreach	
Wednesday, April 19	▪ Bristol City Hall Rider Information Session ▪ Tunxis Community College Rider Information Session ▪ Plainville Public Library Open House Meeting
Thursday, April 20	▪ Bank Street (New Britain) Rider Information Session ▪ Downtown New Britain CT***fastrak*** Station Rider Information Session ▪ Southington Municipal Center Open House Meeting
December 2017 Outreach	
Tuesday, December 5	▪ Berlin-Peck Memorial Library Open House Meeting
Thursday, December 7	▪ New Britain Public Library Open House Meeting

Meetings with Town Leaders

Members of the study team also met with leaders of the five towns in the study area. An initial round of meetings was held in January and February 2017, where major findings and potential service improvement opportunities were shared with town leaders. Participants provided feedback, identified key

challenges facing transit service in their communities, and shared ideas and opportunities for improvements and new services.

A meeting was also held in July 2017 with representatives from the member towns to present a draft preferred scenario and solicit feedback. Participants were generally supportive of the potential recommendations and identified additional opportunities to improve or extend service under the preferred scenario.

Community Survey

Residents of the study area had the opportunity to participate in an online survey during spring of 2017 designed to collect information about their experience with and perception of CT***transit*** service. The survey asked respondents about their use of CT***transit*** services, their perceptions of transit service, and potential improvements that they would like to see made. The online survey was posted on the project website (www.HartfordTransitStudy.com/New-Britain-Bristol), and paper surveys were distributed at public meetings and outreach events. The survey was available in both English and Spanish, and translation services into Polish were offered as well.

Key findings from this survey are highlighted in the following chapter, and the complete results of the survey are available in Appendix C.

3 SERVICE ISSUES AND OPPORTUNITIES

The existing service and market analysis, described in the previous chapter, provide context for the diagnostic analysis of each route in the study area. Using these analyses as a starting point, the study team developed detailed profiles of each New Britain-Bristol Division route.

ROUTE PROFILES

The route profiles, presented in Appendix D, describe each fixed route's service characteristics, ridership patterns, productivity, and on-time performance. Ridership and on-time performance data were collected through a "100% ride-check" conducted at the start of the study. A 100% ride-check consists of a manual tally of boardings, alightings, and on-time performance for every scheduled trip on each CT***transit*** route in the New Britain-Bristol Division. Each trip was sampled once for each unique service period (i.e., weekday service, Saturday service, and Sunday service).

At the conclusion of each route profile is a list of potential service improvement options for the route. The service improvement options are based on the technical findings of the route profiles (e.g., low ridership at a specific stop or high ridership demand on certain trips), as well as the set of guiding principles described in the Introduction of this document. Some of the key transit issues and opportunities identified in the study area are described below and highlighted in Figure 28.

Circuitous Route Alignments: Several routes – most notably Routes 503, 505, and 541 – operate indirect and meandering alignments, rather than traveling along the most direct path. This increases travel time for riders and makes service inconvenient and difficult to understand. Route 512 effectively operates as a large one-way loop, which forces riders to travel the entire length of the route to complete a round trip.

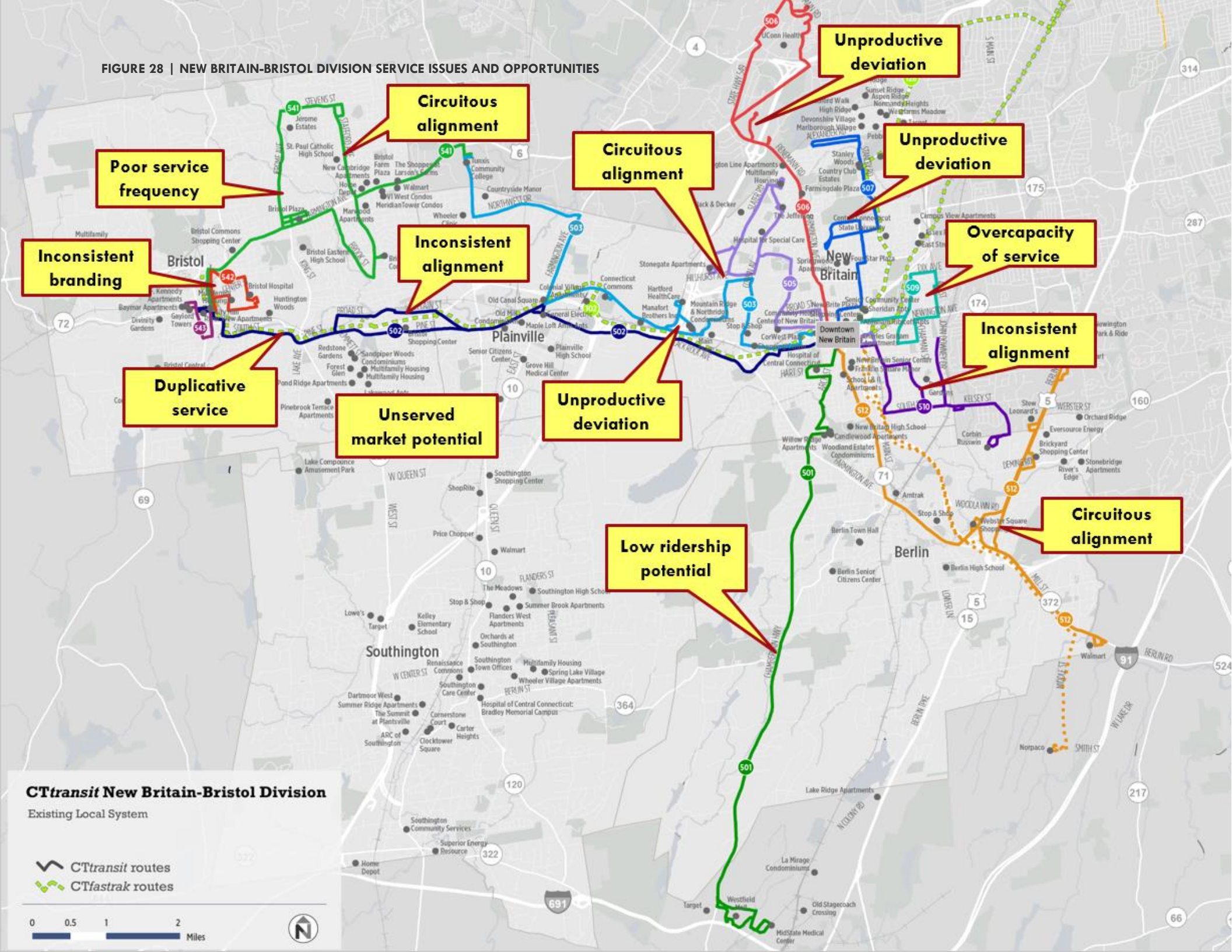
Unproductive Deviations: Many routes deviate from the most direct path to serve stops that are not located along their main alignment, on either some or all trips. In many cases, these deviations generate very few or no riders, but force all other riders to travel out of their way and experience longer travel time.

Inconsistent Alignments: Route 502 operates along two different roads on inbound and outbound trips for a two-mile segment of the route, resulting in a walking distance between reciprocal stops of a third of a mile or more. Route 510 operates along different alignments traveling inbound and outbound, essentially operating in a large one-way loop that forces riders to travel out of direction to complete a round trip.

Duplicative Service: Route 502 operates along nearly the same alignment as Route 102, and with much lower service frequency. In addition, on many trips, Route 502 departs soon before or after Route 102, creating additional redundancy along the same corridor without effectively increasing the level of service.

Poor Service Frequency: Route 541 operates hourly service, but serves each of the two variants (north and south of Farmington Avenue) on alternate trips, which means that riders on each variant only have two-hour service frequency.

FIGURE 28 | NEW BRITAIN-BRISTOL DIVISION SERVICE ISSUES AND OPPORTUNITIES



Inconsistent Branding: Route 542 Bristol Hospital is currently served by both CT***transit*** vehicles and CT***fastrak*** vehicles depending upon the trip, as the route is currently interlined with CT***fastrak*** Route 102. This makes service confusing for riders, and also dilutes the CT***fastrak*** brand by using premium vehicles on a short, low-ridership route.

Unserved Market Potential: There is currently no CT***transit*** local service in Southington. Underlying market potential, as well as the location of activity centers and services, indicates there is potential demand for new local service operating to and within Southington.

Low Ridership Potential: Route 501 offers fast and direct service between New Britain and Meriden, but the route operates mostly closed-door along the Chamberlain Highway. Other alignments, while approximately five minutes slower, demonstrate higher ridership potential through areas of Berlin with underlying demand but no current service.

Overcapacity of Service: Route 509 operates every 30 minutes during the AM and PM peak periods on weekdays, but this is largely due to the short length of the route rather than demonstrated demand, as these trips carry very few passengers. Operating hourly service during these peak periods would better match demonstrated demand in the area and could improve productivity, allowing resources to be allocated towards better serving routes with higher demand.

TRANSIT SURVEY

To complement the study's technical analyses, the study team conducted a survey of both riders and non-riders. The survey was open from March through May 2017, and asked respondents about their use of CT***transit*** services, their perceptions of transit service, and potential improvements that they would like to see to either service or other amenities. The survey was posted on the project website (www.HartfordTransitStudy.com/New-Britain-Bristol), and paper copies were distributed at public meetings and outreach events. The survey was available in both English and Spanish, and translation services into Polish were offered as well.

A total of 84 people responded to the survey, with 46 respondents completing the survey online and 38 completing it at open house meetings and other study events. The majority of respondents reported being regular transit riders: 42% ride CT***transit*** daily, while another 11% ride several times per week. About one third of respondents reported never using transit (Figure 29).

Key findings from the survey include the following:

- Existing riders rely heavily on local bus services: 64% of the surveyed riders use the service almost daily and 70% either do not own a personal vehicle or their vehicle is out of service. 47% reported using transit because it is more affordable than owning and operating a personal vehicle.
- The most popular trip purposes made by riders are commuting to work (62%) and shopping/personal errands (56%). Many riders also reported using transit for medical and recreational/social trips.
- 38% of non-riders reported that they do not use CT***transit*** because there is no service where they live, while 35% of non-riders believe they cannot get where they need to go by bus. Respondents also reported that taking the bus takes too long, while others indicated that they need a car for their job.
- Respondents were generally divided on service priority tradeoffs (Figure 30). There is strong support for establishing more bus stops to shorten the walking distance to and from stops, and slightly higher support for prioritizing service to new areas.

- Among non-service improvements, respondents expressed strong support for a mobile fare payment app (60%).
- In addition to service improvements, the most popular potential new features among all respondents were real-time bus location information (58%) and customizable service alerts (42%).
- Most respondents agreed or strongly agreed that CT***transit*** service is dependable (68%) and that CT***transit*** routes get them where they need to go (65%) (Figure 31).
- Respondents reported lower satisfaction with public information materials, particularly the CT***transit*** website, as well as published route maps and timetables. Respondents also reported lower satisfaction with existing service schedules being able to meet their travel needs

The complete results of the survey are available in Appendix C.

FIGURE 29 | RESPONDENTS' USE OF TRANSIT

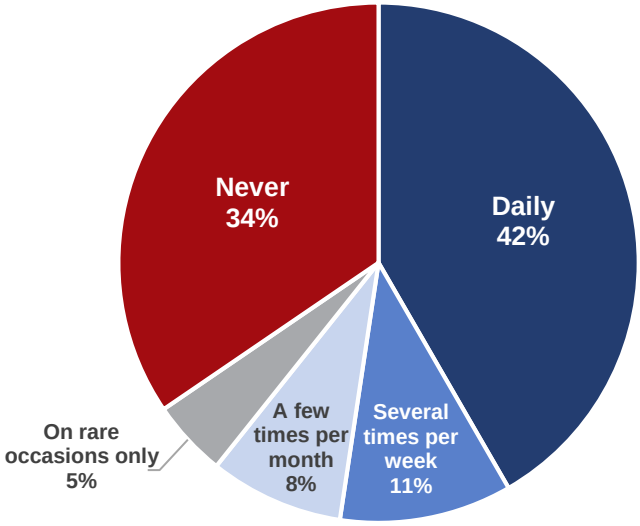


FIGURE 30 | TRANSIT SURVEY PREFERENCES

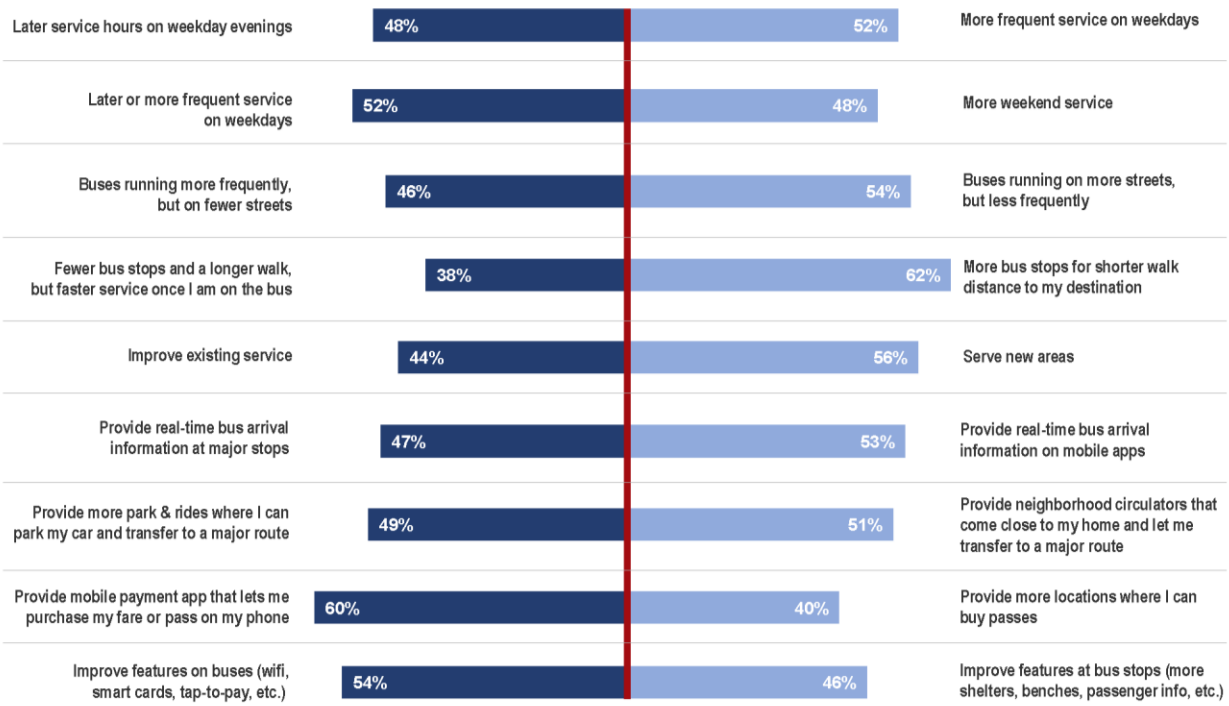
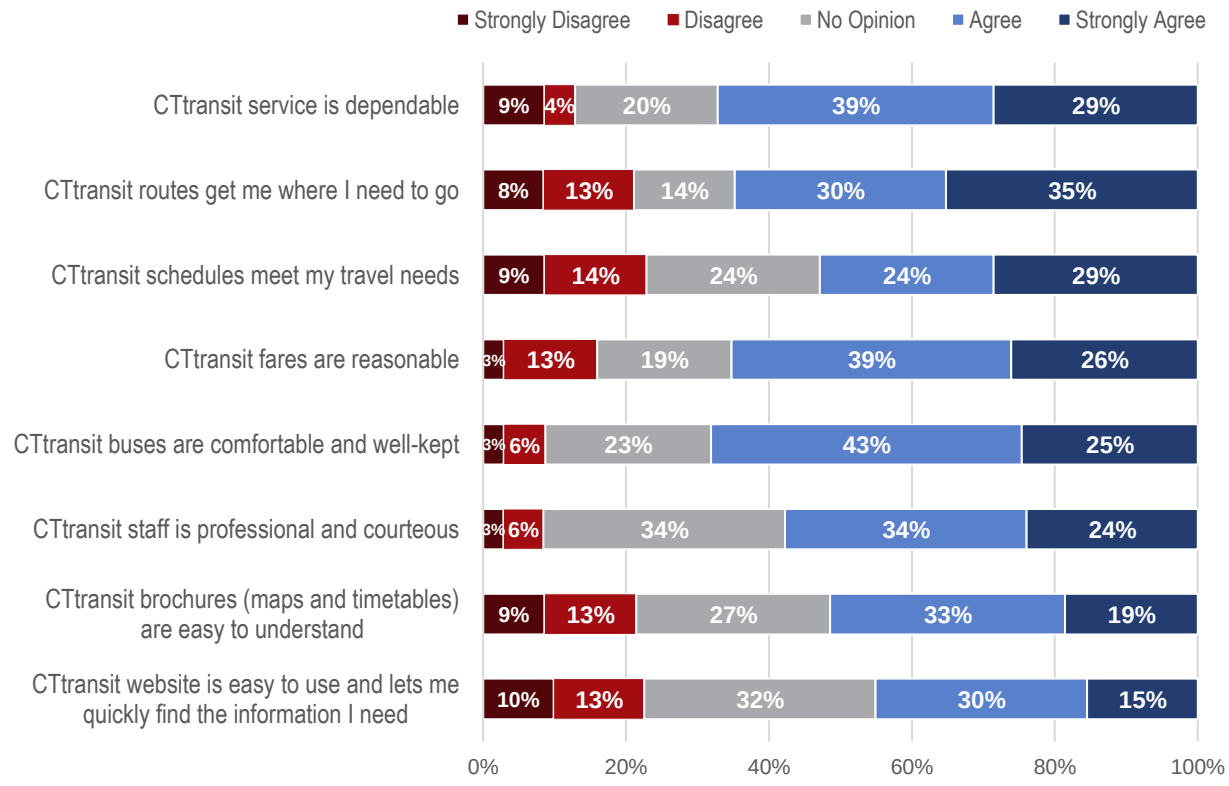


FIGURE 31 | TRANSIT SURVEY ATTITUDES ABOUT CT*TRANSIT*



4 DEVELOPMENT OF SERVICE SCENARIOS

To address the service issues and opportunities identified through the market analysis, service analysis, and public input, the study team developed two preliminary service improvement scenarios. Each scenario included several adjustments to existing services, but with differences in how to provide more direct connections between major destinations, as well as how to design new services to meet unmet demand, including in parts of Bristol, Southington, and Berlin.

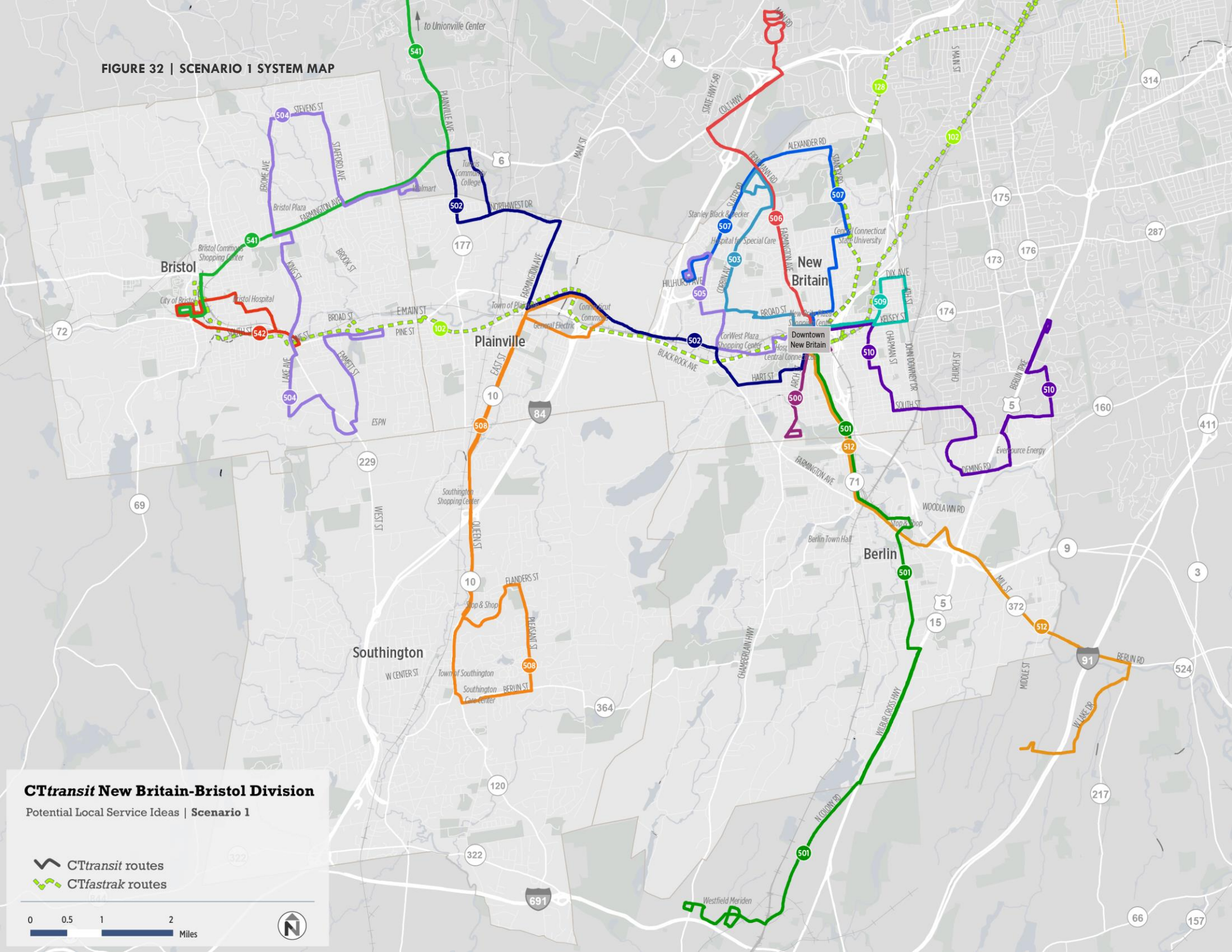
SCENARIO 1

The Scenario 1 network, as shown in Figure 32, builds on many of the issues and opportunities identified through technical analysis and public input. The scenario includes significant improvements to streamline route alignments and provide more direct service, provide better connections to major activity centers including crosstown travel opportunities, and service expansions into southern Bristol and between Plainville and Southington. All routes would operate hourly. The key features of this proposed scenario are described by route below:

- New Route 500 would operate primarily along Arch Street in New Britain, between downtown and Clinic Drive. It would serve the heaviest ridership segment of the current Route 501 within New Britain.
- Route 501 would operate between New Britain and Meriden, but along an alternative alignment including South Main Street, New Britain Road, Lower Lane, Berlin Turnpike, and Colony Road. Service along the Chamberlain Highway would be eliminated due to low ridership potential.
- Route 502 would operate between New Britain and Tunxis Community College, along a similar but more streamlined alignment to the current Route 503. Service to Bristol would continue to be provided by Route 102. Service in New Britain would shift to Hart Street and Grand Street to directly serve the Hospital of Central Connecticut. Service north of W. Main Street would be provided by redesigned Routes 503 and 505. Service to Hartford Healthcare would be eliminated due to low ridership.
- Route 503 would operate along a new alignment providing more direct service from downtown New Britain to Malikowski Circle via Broad Street, Clinton Street, Corbin Avenue, and Farmington Avenue. It would create convenient connections between multiple apartment complexes and key retail/grocery destinations such as Aldi and Save-a-Lot.
- New Route 504 would provide new north-south service in Bristol along Jerome Avenue, King Street, and Lake Avenue. It would also provide local connections between residential areas and Walmart, Bristol Plaza, Eastern High School, ESPN, and Bristol Shopping Center.
- Route 505 would operate between downtown New Britain and the Stonegate Apartments. It would create convenient connections between Stonegate and Super Stop & Shop on Corbin Avenue.
- Route 506 would operate along a more streamlined alignment between downtown New Britain and UConn Health.

- Route 507 would operate along a more streamlined alignment between downtown New Britain and Alexander Avenue, and extend past Farmington Avenue to Slater Road and the Stonegate Apartments.
- New Route 508 would operate primarily along East Street in Plainville and Queen Street in Southington. It would provide new service to Southington with connections to other routes at Connecticut Commons.
- Route 509 would be streamlined to operate primarily along E. Main Street, Newington Avenue, East Street, Dix Avenue, and 4th Street. Service south of Newington Avenue would be picked up by a redesigned Route 510.
- Route 510 would operate between downtown New Britain and the Berlin Turnpike in Newington. It would serve the highest ridership segments of the current routes 509 and 510, as well as some segments of the current Route 512.
- Route 512 would operate between downtown New Britain and Norpaco in Middletown. It would also serve Webster Square and Walmart in Cromwell.
- Route 541 would operate primarily along N. Main Street and Farmington Avenue between downtown Bristol and Tunxis Community College. The route would also extend north to Unionville Center and west to Gaylord Towers. Areas north of Farmington Avenue in Bristol would be served by new Route 504.
- Route 542 would operate between downtown Bristol and the Lake Avenue Park-and-Ride. Service would be bidirectional as opposed to the current one-way loop.

FIGURE 32 | SCENARIO 1 SYSTEM MAP

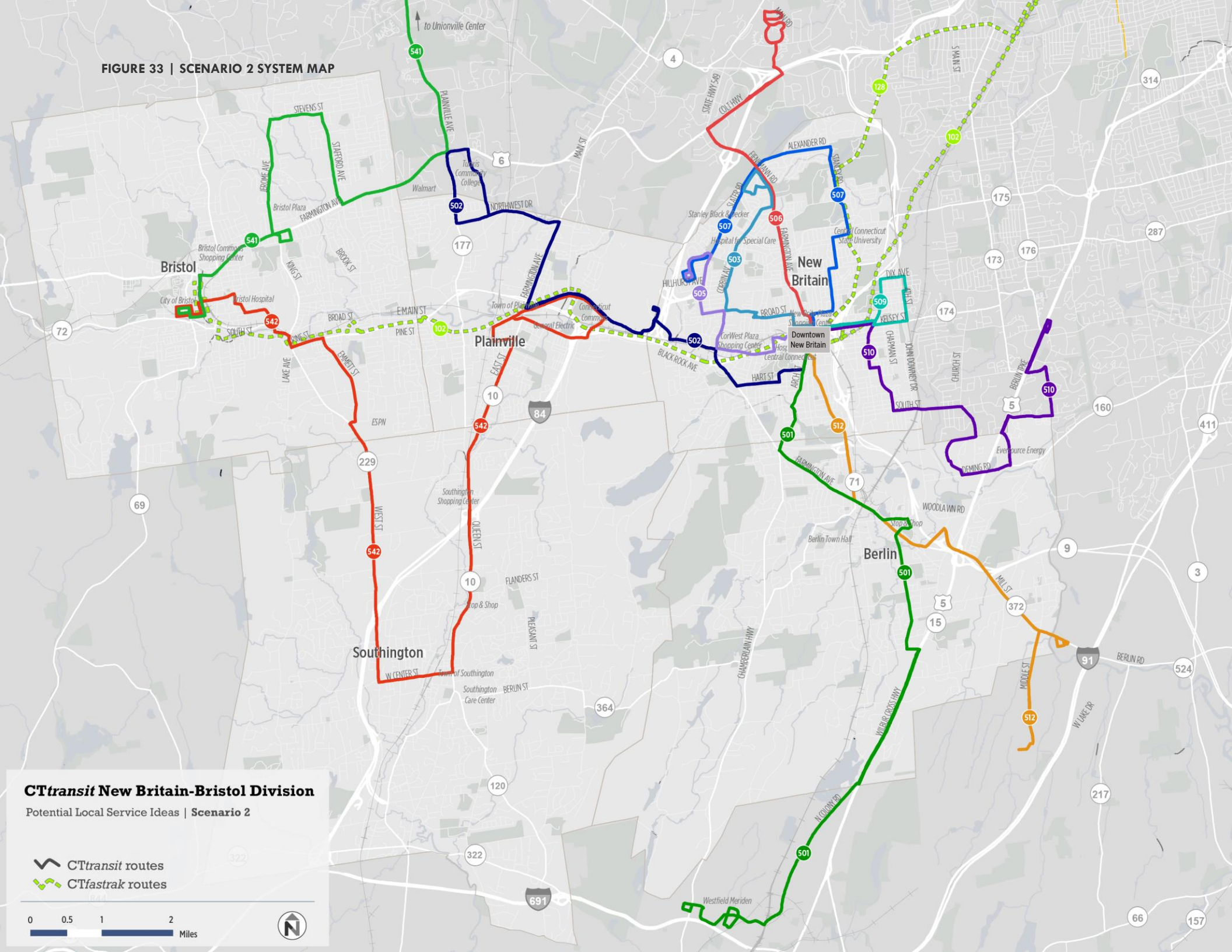


SCENARIO 2

Scenario 2 (Figure 33) includes many of the same streamlining improvements and new connections as Scenario 1, but there are significant differences to service within Bristol and the design of new service to Southington, with direct connections to both Plainville and Bristol. There are also differences in the alignment of service in southern New Britain and Berlin. All routes would operate hourly. The key features of this proposed scenario are described by route below:

- Route 501 would operate between New Britain and Meriden, but along an alternative alignment including Arch Street, Farmington Avenue, Lower Lane, Berlin Turnpike, and Colony Road. Service along the Chamberlain Highway would be eliminated due to low ridership potential.
- Route 502 would operate between New Britain and Tunxis Community College, along a similar but more streamlined alignment to the current Route 503. Service to Bristol would continue to be provided by Route 102. Service in New Britain would shift to Hart Street and Grand Street to directly serve the Hospital of Central Connecticut. Service north of W. Main Street would be provided by redesigned Routes 503 and 505.
- Route 503 would operate along a new alignment providing more direct service from downtown New Britain to Malikowski Circle via Broad Street, Clinton Street, Corbin Avenue, and Farmington Avenue. It would create convenient connections between multiple apartment complexes and key retail/grocery destinations such as Aldi and Save-a-Lot.
- Route 505 would operate between downtown New Britain and the Stonegate Apartments. It would create convenient connections between Stonegate and Super Stop & Shop on Corbin Avenue.
- Route 506 would operate along a more streamlined alignment between downtown New Britain and UConn Health.
- Route 507 would operate along a more streamlined alignment between downtown New Britain and Alexander Avenue, and extend past Farmington Avenue to Slater Road and the Stonegate Apartments.
- Route 509 would operate primarily along E. Main Street, Newington Avenue, East Street, Dix Avenue, and 4th Service south of Newington Avenue would be picked up by a redesigned Route 510.
- Route 510 would operate between downtown New Britain and the Berlin Turnpike in Newington. It would serve the highest ridership segments of the current Routes 509 and 510, as well as some segments of the current Route 512.
- Route 512 would operate between downtown New Britain and Norpaco in Middletown. It would also serve Webster Square and Walmart in Cromwell.
- Route 541 would operate primarily along N. Main Street, Farmington Avenue, Jerome Avenue, Stevens Street, and Stafford Avenue between downtown Bristol and Tunxis Community College. Service south of Farmington Avenue, including to the Bristol Senior Community Center, would be eliminated due to low ridership. The route would also extend north to Unionville Center and west to Gaylord Towers.
- Route 542 would connect Bristol and Plainville to Southington via West Street, Center Street, and Queen Street. Connections to other routes would be available at the Lake Avenue Park & Ride, downtown Bristol, and Connecticut Commons in Plainville.

FIGURE 33 | SCENARIO 2 SYSTEM MAP



CT*transit* New Britain-Bristol Division

Potential Local Service Ideas | **Scenario 2**

CT*transit* routes

CT*fastrak* routes

0 0.5 1 2 Miles

PUBLIC FEEDBACK

A series of public outreach events was held in April 2017 to present the preliminary service scenarios and gather feedback on relative preferences for elements of each scenario (Figure 34). Public meetings included an initial presentation followed by an open house where attendees could view maps of the two scenarios and share ideas and feedback one-on-one with members of the study team. Attendees were encouraged to vote for their preferred scenario and/or leave comments related to either scenario. Rider information sessions were also held at key bus stops in the service area, providing an opportunity for the study team to reach out directly to riders, present the scenario maps, and hear feedback. Similar information was presented concurrently on the project website for members of the community who could not attend the public meetings, or who did attend and wanted to further review presentation materials.

FIGURE 34 | PUBLIC MEETINGS

DATE	LOCATION
Open House Meetings	
Wednesday, April 19	▪ Plainville Public Library
Thursday, April 20	▪ Southington Municipal Center
Rider Information Sessions	
Wednesday, April 19	▪ Bristol City Hall ▪ Tunxis Community College
Thursday, April 20	▪ Bank Street, New Britain ▪ Downtown New Britain CT***fastrak*** Station

Participants generally responded positively to both scenarios, and expressed support for several items included in both scenarios. There was support for redesigning Route 503 and Route 505 from several participants; one person stated that they had tried to use Route 505 once, but gave up because it was too confusing to understand. Many participants also supported the redesigned Route 510 and Route 512, and liked the extension of Route 510 to serve the Berlin Turnpike; one participant stated that it made "common sense" for Route 510 to go out to the Berlin Turnpike. Another participant appreciated that it made Route 512 service more direct.

Multiple participants noted that they use both Route 502 and CT***fastrak*** Route 102 interchangeably, and generally take whichever one comes first. They did not use Route 502 to travel anywhere that was not already served by Route 102, and noted that the resources from Route 502 could be put to better use elsewhere in the system.

One participant expressed support for extending Route 541 to Gaylord Towers instead of having to transfer from Route 543 to travel beyond downtown Bristol. Another participant noted a preference for Scenario 1 as it provided more direct service between downtown Bristol and Tunxis Community College via Route 541.

New service in Plainville and Southington both received positive feedback, and one participant expressed an interest in seeing service to Southington extend south into the Plantsville section of town.

5 PREFERRED SERVICE SCENARIO

SUMMARY

Based on the feedback received in response to the two service scenarios presented to the public in April 2017, as well as subsequent feedback on a draft preferred scenario presented at the December 2017 public meetings, the study team developed a final preferred service scenario. The recommended scenario includes elements from both Scenario 1 and Scenario 2, as well as new recommendations developed in response to public and stakeholder feedback. Details of this feedback can be found later in this chapter. The preferred scenario consists of three phases for implementation that can be implemented based on resource availability.

The improvements recommended under the preferred service scenario address several issues identified through technical analysis and public input:

Streamlined Service: Several routes that currently operate circuitous or indirect alignments would be redesigned to provide more direct, streamlined service. Some deviations to stops that generate few or no riders would be discontinued to ensure that service is faster and more reliable for existing riders. These changes would also make it easier to understand which corridors and destinations a route serves, making transit service more attractive and easy to use for both current and potential riders.

Simplified Service: Routes that currently operate multiple service patterns or serve different alignments on different trips make service confusing and inconvenient for riders. Recommended improvements, particularly on Route 512 and Route 541, would address this by making routes simpler, serving consistent alignments with predictable service patterns.

New Coverage: New service would be added in southeast Bristol, southwest Bristol, and Southington via a redesigned Route 542. Service would operate as far south as W. Queen Street in Southington under Phase 1, and would extend farther south to W. Main Street and down to the Plantsville Park-and-Ride under Phase 2. This new coverage would introduce fixed-route service to areas where density and demographics indicate a demand for service. New service would also be introduced under Phase 3, with a redesigned Route 543 providing direct service from downtown Bristol to Tunxis Community College and north to Unionville Center.

Reduced Redundancy: Existing Route 502 provides almost identical service to CT***fastrak*** Route 102, with no demonstrated benefits to level of service. Service is not coordinated with Route 102's schedule, and public feedback revealed that riders generally take whichever bus comes first, indicating that Route 502 does not provide a unique service. The resources saved from discontinuing this redundant service could be reinvested elsewhere in the system to improve other routes or provide new service.

Crosstown Service: Most of the existing system operates radial service, where routes operate to and from downtown New Britain without opportunities for crosstown connections. An opportunity for new crosstown service was identified for Route 507, which would be extended west along Alexander Road and south on Slater Road to terminate at Stonegate Apartments. This

redesigned alignment would also allow for transfers to Routes 506, 503, and 505 at multiple stops along the route.

Serve Stronger Transit Corridors: Most of Route 501's alignment through Berlin is along the Chamberlain Highway, where it operates nonstop service. To the east, the Berlin Turnpike demonstrates potential demand for fixed-route service but is unserved today south of Webster Square Shopping Center. Redesigning Route 501 to operate along the southern portion of the Berlin Turnpike would reallocate existing service to a corridor with stronger transit potential.

Scenario Phases

Phase 1 (Figure 35) presents a set of "cost neutral" improvements, and represents changes that could be made almost immediately and within the current operating budget for CT***transit*** New Britain-Bristol Division service. **Phase 2** (Figure 36) and **Phase 3** (Figure 37) of the preferred scenario represent service expansions – including new coverage and longer service spans – that may be implemented in the future as resources become available.

Phase 1 includes the following route-by-route changes:

- **Route 501** would operate between New Britain and Meriden, but along an alternative alignment including Arch Street, Farmington Avenue, Lower Lane, Berlin Turnpike, and Colony Road. Service along the Chamberlain Highway would be discontinued due to low ridership potential.
- **Route 502** would operate between New Britain and Bristol via Tunxis Community College, along a similar but more streamlined alignment of the existing Route 503. Service in New Britain would operate directly along Main Street to Plainville, serve Connecticut Commons, and continue along the existing Route 503 alignment to Tunxis Community College. Service in Bristol would operate along Farmington Avenue and N. Main Street.
- **Route 503** would operate along a new alignment providing more direct service from downtown New Britain to Malikowski Circle via Broad Street, Clinton Street, Corbin Avenue, and Farmington Avenue. It would create convenient connections between multiple apartment complexes and key retail/grocery destinations such as Aldi and Save-a-Lot.
- **Route 505** would operate between downtown New Britain and the Stonegate Apartments along a new alignment, creating convenient connections between Stonegate and Super Stop & Shop on Corbin Avenue. Service would shift to Hart Street and Grand Street to directly serve the Hospital of Central Connecticut as well. Service would continue to Stonegate Apartments along Hart Street, Corbin Avenue, Clinton Street, and Slater Road.
- **Route 506** would operate along a more streamlined alignment between downtown New Britain and UConn Health.
- **Route 507** would operate along a more streamlined alignment between downtown New Britain and Alexander Avenue via Central Connecticut State University, and extend past Farmington Avenue to Slater Road and the Stonegate Apartments, providing new crosstown service.
- **Route 509** would be consolidated with Route 510, and operate primarily along E. Main Street, East Street, Sunrise Avenue, Charles Street, Newington Avenue, and John Downey Jr. Drive. Service south of Newington Avenue would continue along a redesigned alignment consolidating Route 510 and part of existing Route 512, ultimately serving the Berlin Turnpike and terminating at Price Chopper.
- **Route 510** would operate between downtown New Britain and the Berlin Turnpike in Newington. It would serve the highest ridership segments of the existing routes 509 and 510, as well as some segments of the current Route 512.

- **Route 512** would operate along a direct alignment between downtown New Britain and Norpaco in Middletown. It would also serve Webster Square and Walmart in Cromwell. Service on the Berlin Turnpike north of Mill Street would be provided by a redesigned Route 510.
- **Route 541** would connect downtown Bristol and Bristol Senior Center via N. Main Street, Farmington Avenue, Jerome Avenue, Stevens Street, and Stafford Avenue between downtown Bristol and the Bristol Senior Center. The route would also extend west to serve Gaylord Towers, providing direct service between Gaylord Towers and other residential areas to shopping along Farmington Avenue and the Bristol Senior Center.
- **Route 542** would provide new service connecting Bristol and Plainville to Southington, operating via West Street, West Queen Street, and Queen Street. Connections to other routes would be available at the Lake Avenue Park & Ride, downtown Bristol, and Connecticut Commons in Plainville.

Phase 2 would include an expansion of service in Southington (Figure 36):

- **Route 542** would be extended farther south into Southington, operating along West Street, Main Street, and Queen Street, along with service to the Plantsville Park-and-Ride on South Main Street/Route 10.

Phase 3 would include an additional expansion of service north to Unionville (Figure 37):

- **Route 502** would operate between New Britain and Tunxis Community College. Service between Tunxis Community College and Bristol would be provided by a redesigned Route 543, connecting Bristol and Unionville via Farmington Avenue and Tunxis Community College.
- **Route 543** would be reintroduced as a redesigned route connecting Bristol and Unionville via Tunxis Community College, operating along N. Main Street, Farmington Avenue, and Plainville Avenue.

These route changes are further explained throughout this chapter, with service characteristics detailed for each Phase in Figure 49, Figure 50, and Figure 51.

FIGURE 35 | PREFERRED SERVICE SCENARIO, PHASE 1

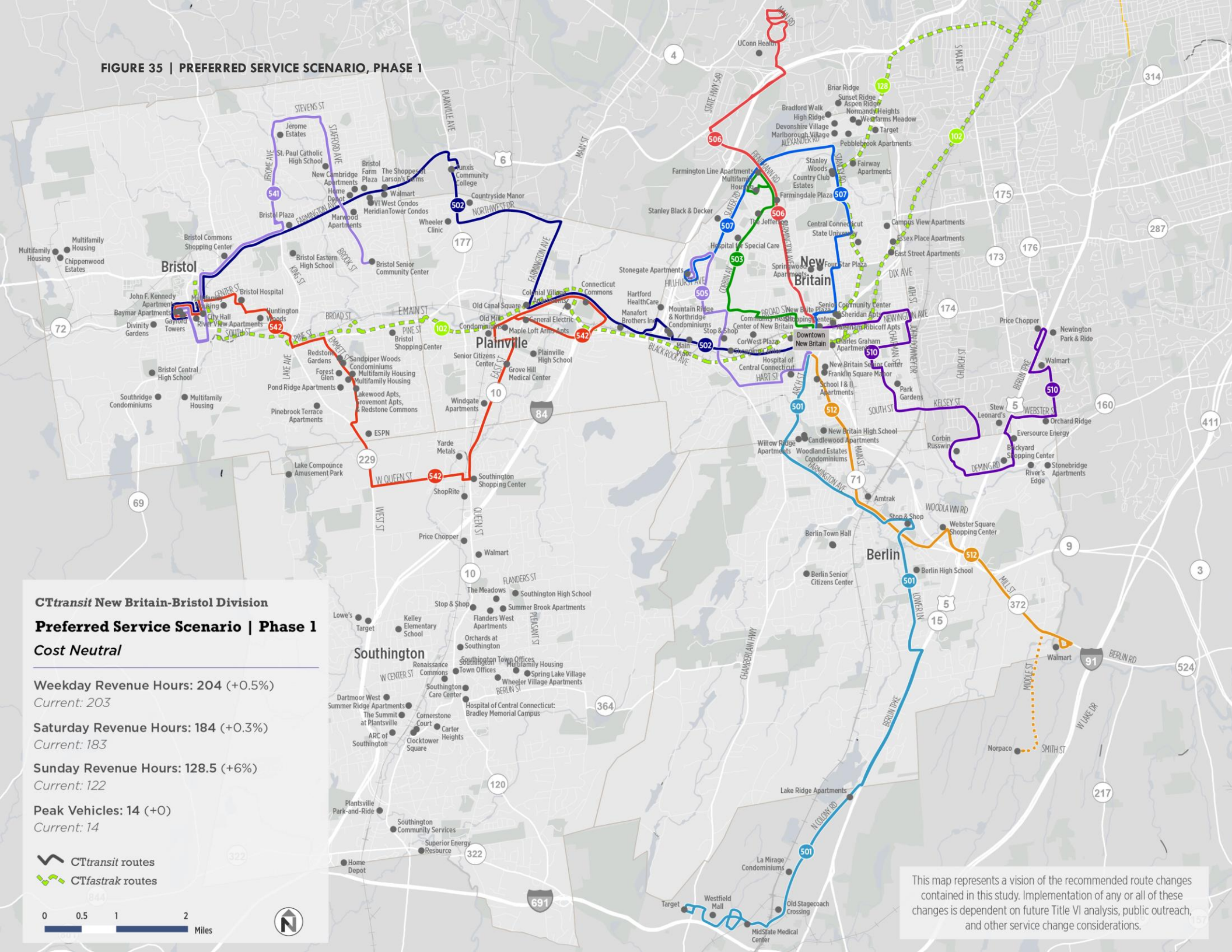
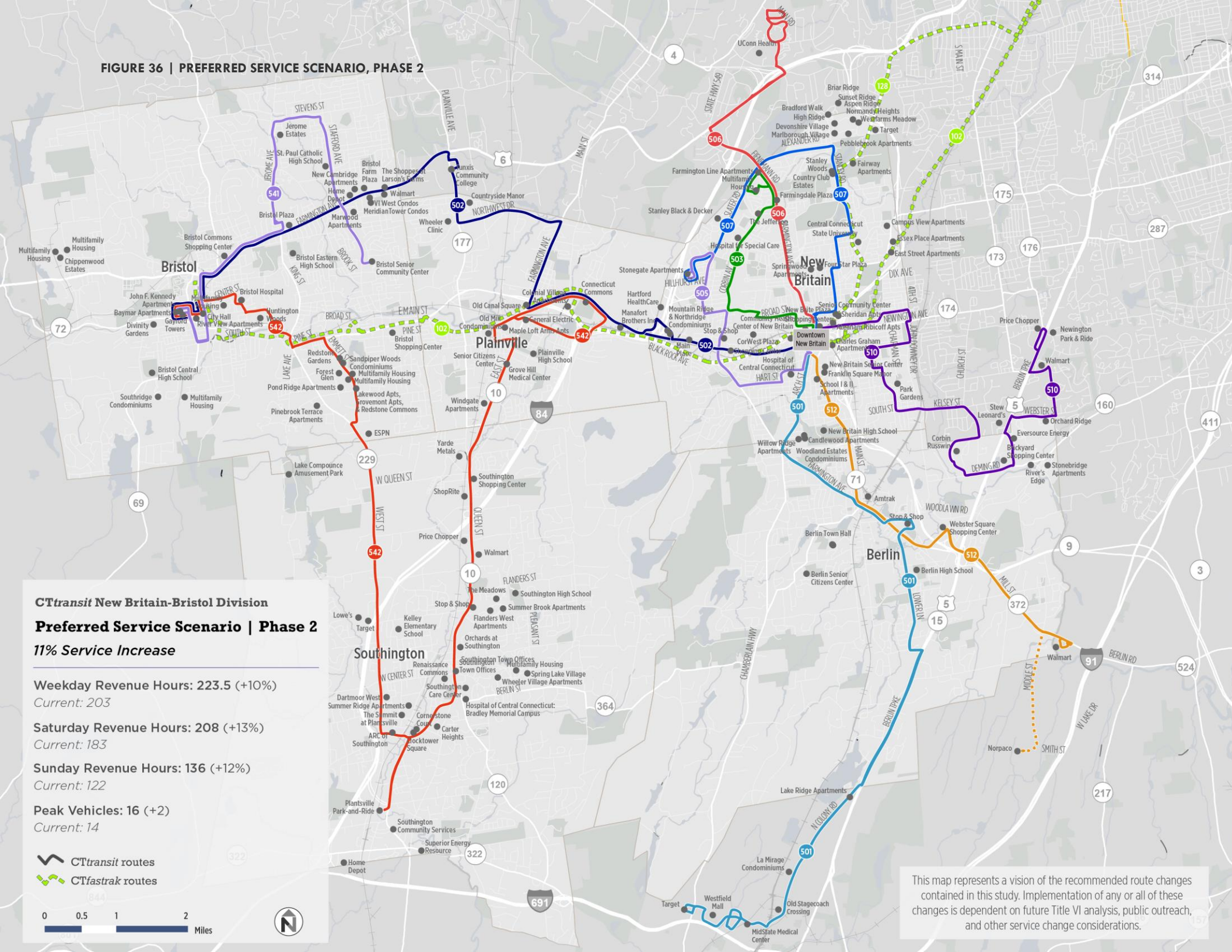
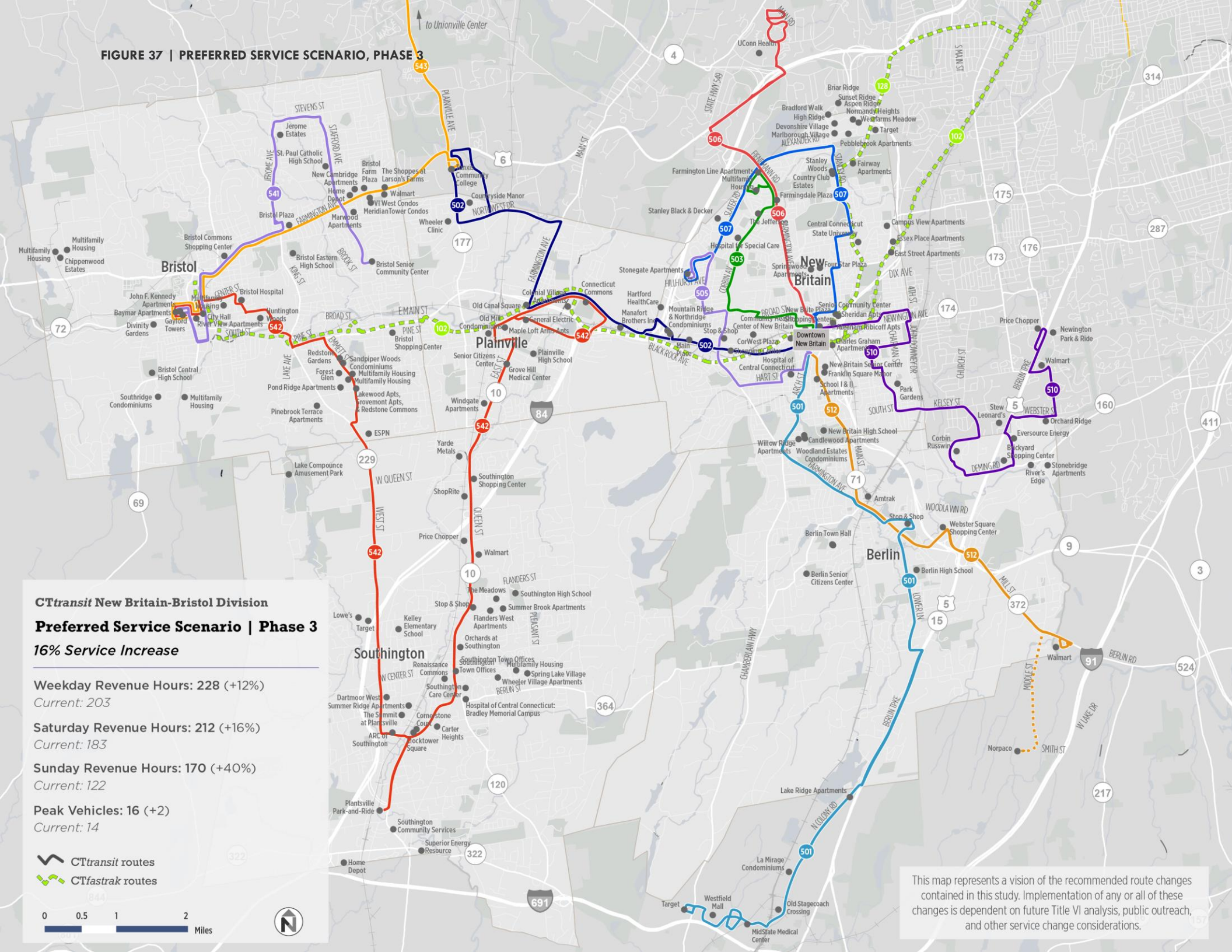


FIGURE 36 | PREFERRED SERVICE SCENARIO, PHASE 2



This map represents a vision of the recommended route changes contained in this study. Implementation of any or all of these changes is dependent on future Title VI analysis, public outreach, and other service change considerations.

FIGURE 37 | PREFERRED SERVICE SCENARIO, PHASE 3



CT*transit* New Britain-Bristol Division

Preferred Service Scenario | Phase 3

16% Service Increase

Weekday Revenue Hours: 228 (+12%)
Current: 203

Saturday Revenue Hours: 212 (+16%)
Current: 183

Sunday Revenue Hours: 170 (+40%)
Current: 122

Peak Vehicles: 16 (+2)
Current: 14

CT*transit* routes
CT*fastrak* routes

0 0.5 1 2 Miles

This map represents a vision of the recommended route changes contained in this study. Implementation of any or all of these changes is dependent on future Title VI analysis, public outreach, and other service change considerations.

ROUTE 501 ARCH STREET/MERIDEN

Proposed Route 501 would operate between New Britain and Meriden, but along an alternative alignment. The existing route currently operates non-stop along the Chamberlain Highway; the proposed route would instead operate along Farmington Avenue, Berlin Turnpike, and Colony Road to provide new local service in Berlin where there is higher but unserved potential ridership. The route would also add additional service to Stop and Shop and the Berlin Rail Station. The route would serve and terminate at the Target in Meriden, and serve MidState Medical Center and Westfield Mall in both inbound and outbound directions. Existing service to Hospital of Central Connecticut would be provided by Route 505.

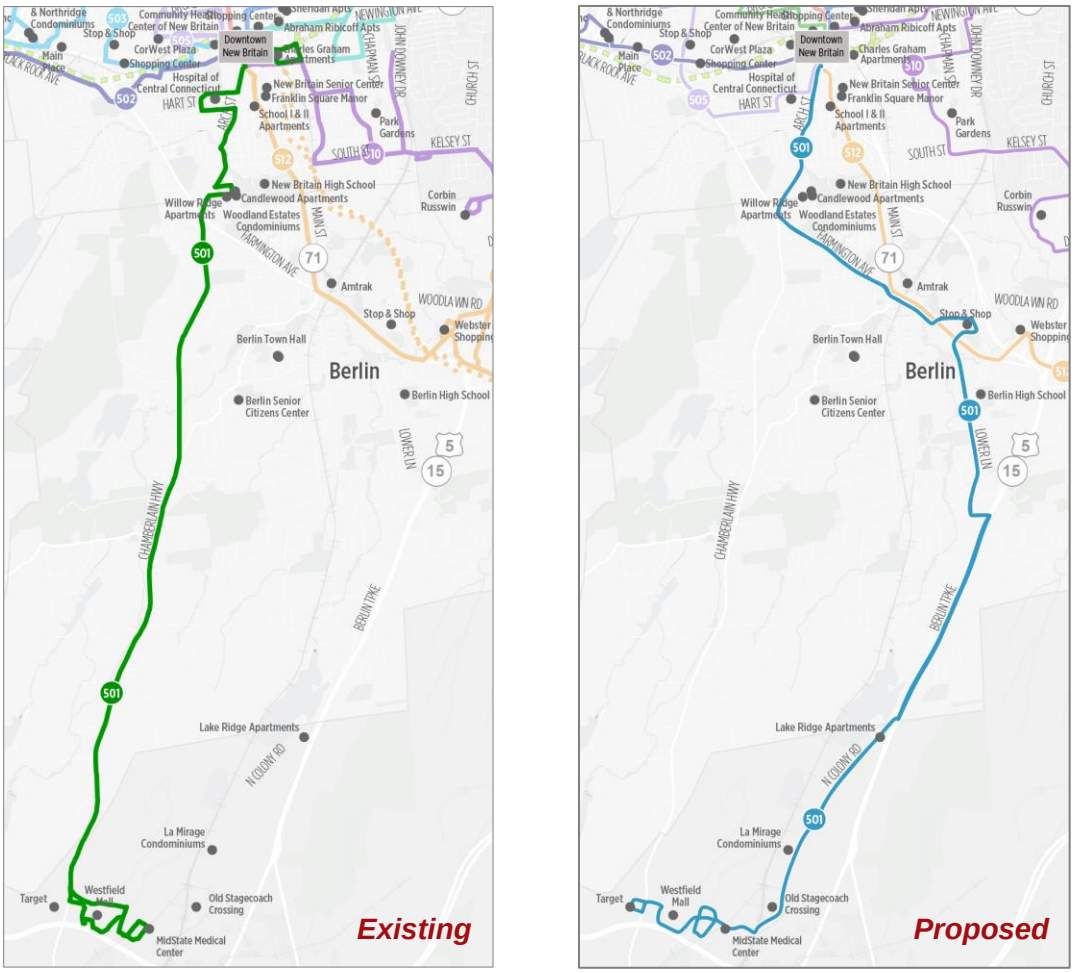


FIGURE 38 | PROPOSED ROUTE 501 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

	PROPOSED SERVICE LEVEL
Weekdays	6:00 AM – 9:00 PM
Frequency	60 Minutes
Saturday	6:00 AM – 8:00 PM
Frequency	60 Minutes
Sunday	8:00 AM – 7:00 PM
Frequency	60 Minutes

KEY DESTINATIONS
▪ Downtown New Britain
▪ Berlin Rail Station
▪ Stop & Shop
▪ Berlin High School
▪ Berlin Turnpike
▪ Westfield Mall
▪ MidState Medical Center
▪ Target

ROUTE 502 W. MAIN STREET/TUNXIS COMMUNITY COLLEGE

Proposed Route 502 would operate between New Britain and Tunxis Community College, along a similar but more streamlined alignment to the existing Route 503. Service in New Britain would operate directly along Main Street to Plainville, serve Connecticut Commons, and continue along the existing Route 503 alignment to Tunxis Community College. Service between Connecticut Commons and Bristol would continue to be provided by CT***fastrak*** Route 102, which operates along a similar alignment to Route 502 but provides more frequent and direct service for riders between New Britain, Connecticut Commons, and Bristol. Route 502 would extend past Tunxis Community College to downtown Bristol via Farmington Avenue under Phases 1 and 2; this service would be replaced in Phase 3 by new Route 543, connecting downtown Bristol, Tunxis Community College, and Unionville.

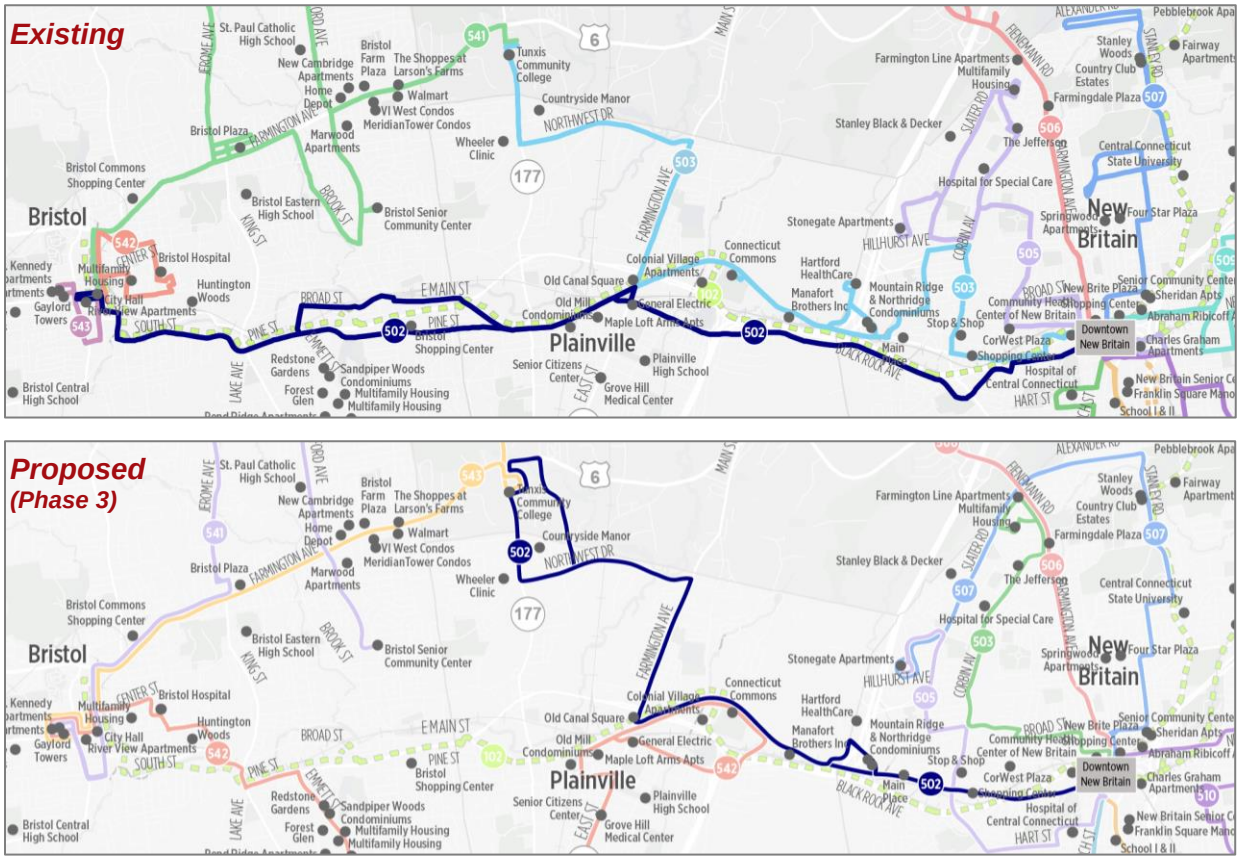


FIGURE 39 | PROPOSED ROUTE 502 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

	PROPOSED SERVICE LEVEL
Weekdays	6:00 AM – 9:00 PM
Frequency	60 Minutes
Saturday	6:00 AM – 8:00 PM
Frequency	60 Minutes
Sunday	8:00 AM – 7:00 PM
Frequency	60 Minutes

KEY DESTINATIONS
▪ Downtown New Britain
▪ CorWest Plaza
▪ Connecticut Commons
▪ Tunxis Community College

ROUTE 503 CORBIN AVENUE

Proposed Route 503 would operate along a new alignment in New Britain, providing more direct service from downtown New Britain to Malikowski Circle via Broad Street, Clinton Street, Corbin Avenue, and Farmington Avenue. It would create convenient connections between multiple apartment complexes, the Hospital for Special Care, and key retail/grocery destinations such as New Brite Plaza, Aldi, and Save-a-Lot. Crosstown transfer opportunities would also be available to Route 506 and Route 507.

A redesigned Route 502 would continue to serve W. Main Street, Connecticut Commons, and Tunxis Community College along a streamlined alignment.

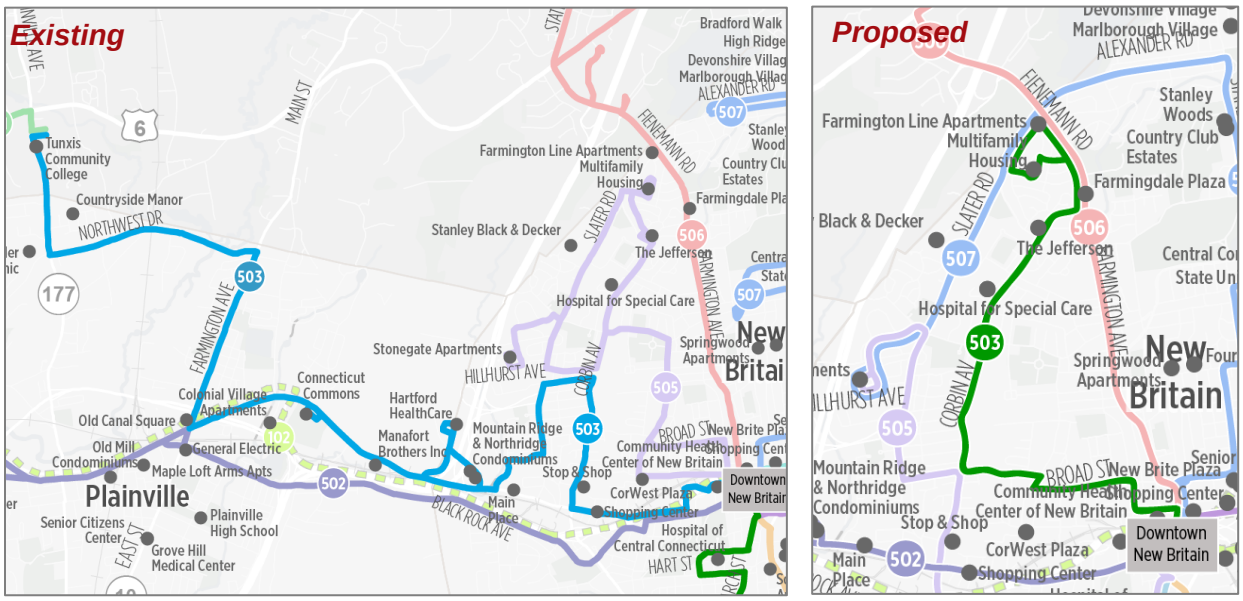


FIGURE 40 | PROPOSED ROUTE 503 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

	PROPOSED SERVICE LEVEL
Weekdays	6:00 AM – 9:00 PM
Frequency	60 Minutes
Saturday	6:00 AM – 8:00 PM
Frequency	60 Minutes
Sunday	8:00 AM – 7:00 PM
Frequency	60 Minutes

KEY DESTINATIONS
▪ Downtown New Britain
▪ New Brite Plaza
▪ Hospital for Special Care
▪ Farmingdale Plaza

ROUTE 505 HART STREET/STONEGATE APTS

Proposed Route 505 would operate between downtown New Britain and the Stonegate Apartments along a new alignment, creating convenient connections between Stonegate and Super Stop & Shop on Corbin Avenue. Service would shift to Hart Street and Grand Street to directly serve the Hospital of Central Connecticut as well. Service would continue to Stonegate Apartments along Hart Street, Corbin Avenue, Clinton Street, and Slater Road. This redesigned alignment would make service symmetrical, serving the same streets in both directions instead of forcing riders to travel a large one-way loop to complete a round trip.

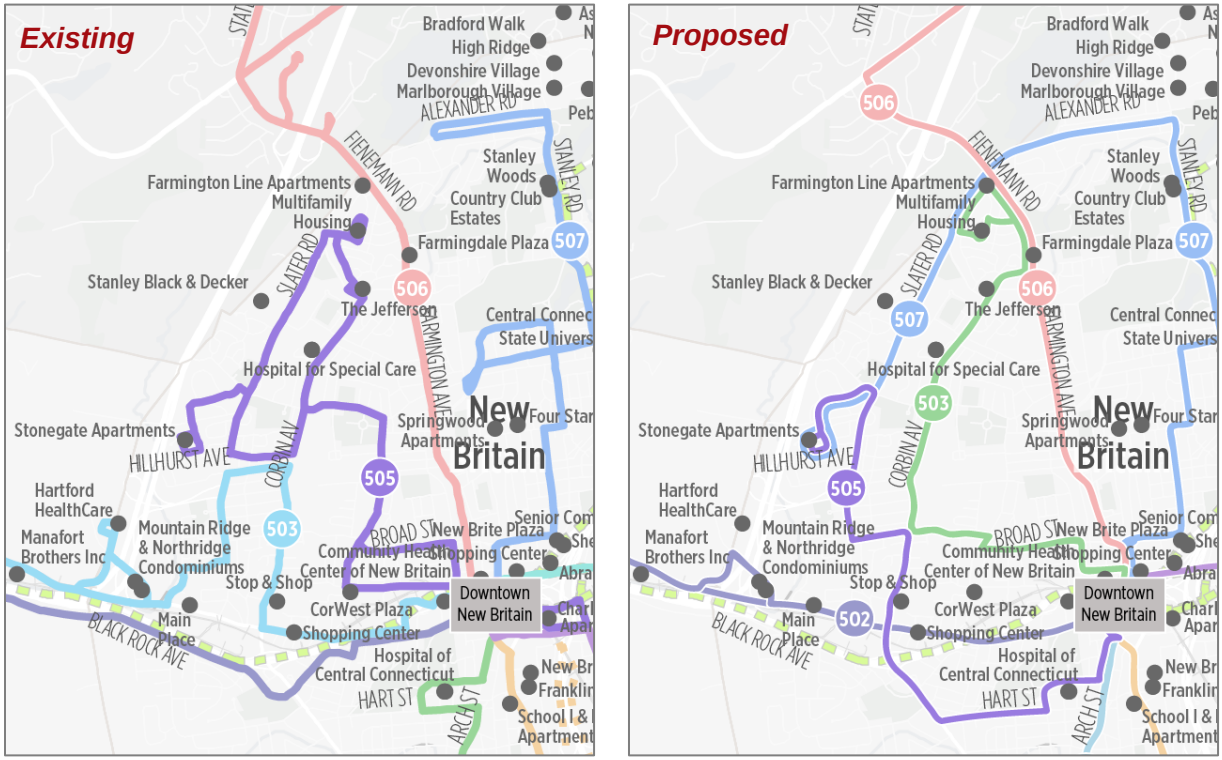


FIGURE 41 | PROPOSED ROUTE 505 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

PROPOSED SERVICE LEVEL	
Weekdays	6:00 AM – 9:00 PM
Frequency	60 Minutes
Saturday	6:00 AM – 8:00 PM
Frequency	60 Minutes
Sunday	8:00 AM – 7:00 PM
Frequency	60 Minutes

KEY DESTINATIONS
▪ Downtown New Britain
▪ Hospital of Central Connecticut
▪ Super Stop & Shop
▪ Stonegate Apartments

ROUTE 506 FARMINGTON AVENUE

Proposed Route 506 would operate along a more streamlined alignment between downtown New Britain and UConn Health. The route would serve Main Street, New Brite Plaza, and Beaver Street in downtown New Britain, then continue north to serve Farmington Avenue, Fienemann Road, and Colt Highway before circulating through the UConn Health campus in Farmington. Route 506 would serve Colt Highway both outbound and inbound instead of the large one-way terminal loop that it operates today.

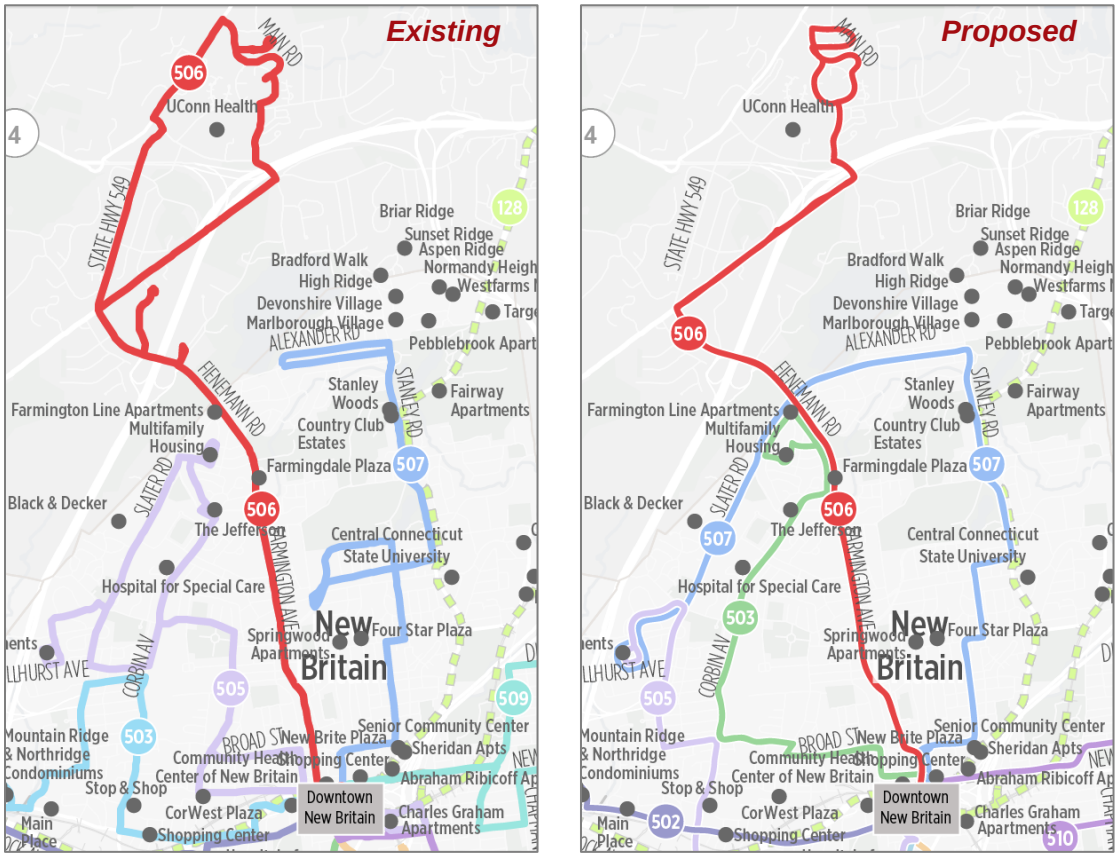


FIGURE 42 | PROPOSED ROUTE 506 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

PROPOSED SERVICE LEVEL	
Weekdays	6:00 AM – 9:00 PM
Frequency	60 Minutes
Saturday	6:00 AM – 8:00 PM
Frequency	60 Minutes
Sunday	8:00 AM – 7:00 PM
Frequency	60 Minutes

KEY DESTINATIONS
▪ Downtown New Britain
▪ New Brite Plaza
▪ Farmingdale Plaza
▪ UConn Health and John Dempsey Hospital

ROUTE 507 OAK STREET/SLATER ROAD

Proposed Route 507 would operate along a more streamlined alignment between downtown New Britain and Alexander Avenue via Central Connecticut State University, and extend west past Farmington Avenue to Slater Road and the Stonegate Apartments. This would provide new crosstown service with connections to Route 503 and Route 506 at Farmington Avenue, and Route 505 at Stonegate Apartments.

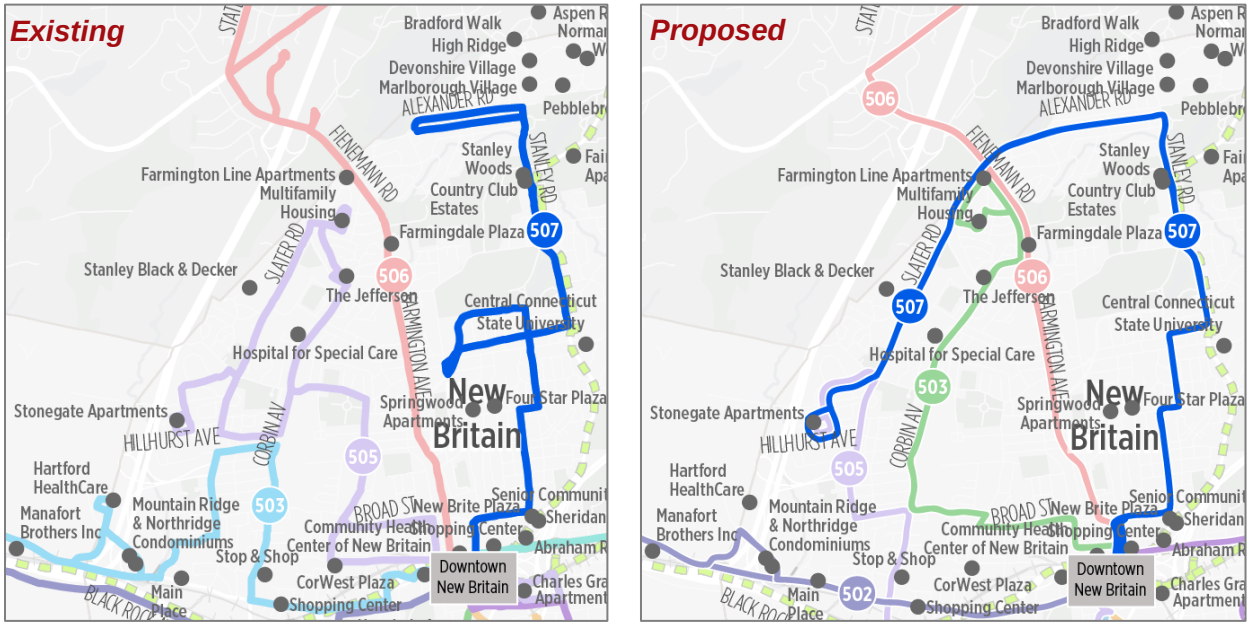


FIGURE 43 | PROPOSED ROUTE 507 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

	PROPOSED SERVICE LEVEL
Weekdays	6:00 AM – 9:00 PM
Frequency	60 Minutes
Saturday	6:00 AM – 8:00 PM
Frequency	60 Minutes
Sunday	8:00 AM – 7:00 PM
Frequency	60 Minutes

KEY DESTINATIONS
▪ Downtown New Britain
▪ New Brite Plaza
▪ Central Connecticut State University
▪ Stanley Black & Decker
▪ Stonegate Apartments

ROUTE 510 ROCKY HILL AVENUE/BERLIN TURNPIKE

Proposed Route 510 would be consolidated with Route 509, and would operate between downtown New Britain and the Berlin Turnpike. It would serve the highest ridership segments of the existing routes 509 and 510, as well as some segments of the current Route 512 north of Webster Square Shopping Center. This route would provide coverage to neighborhoods of southeastern New Britain, direct connections to commercial and employment opportunities along the Berlin Turnpike, and a symmetrical alignment that would offer more convenient service to riders than the current one-way loops on existing Routes 509 and 510.

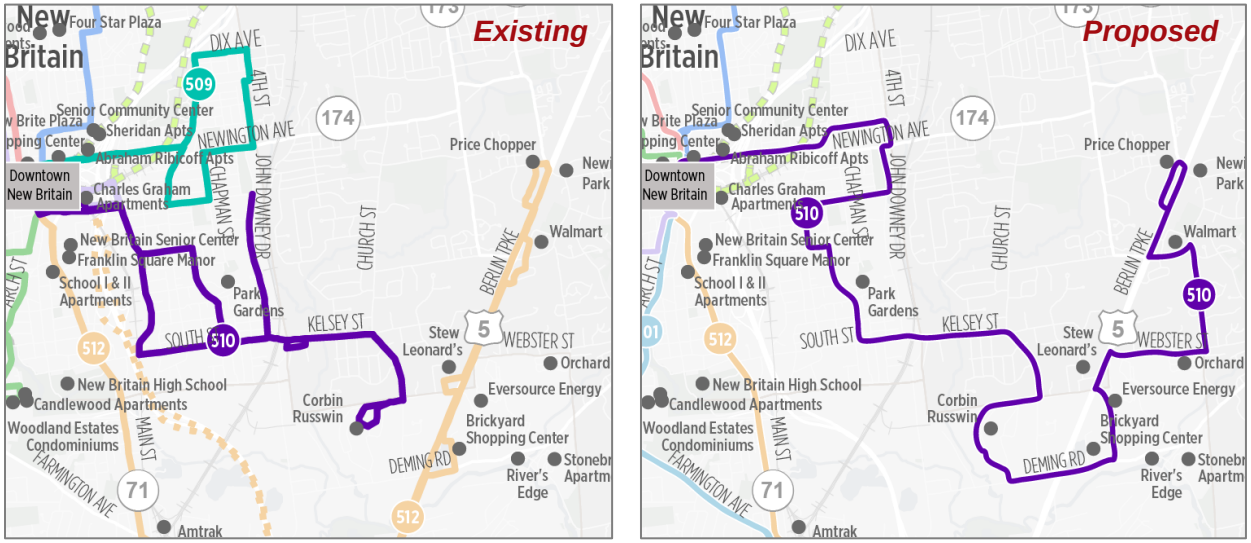


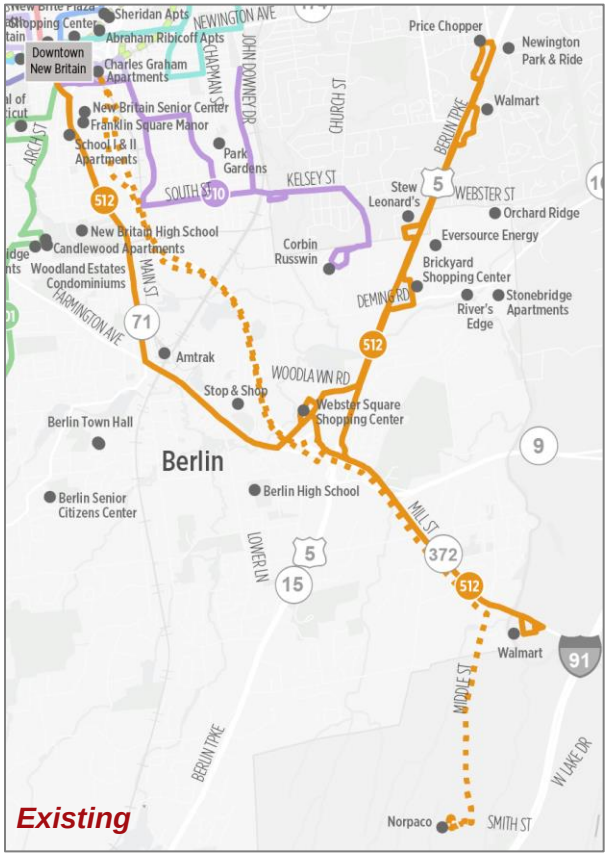
FIGURE 44 | PROPOSED ROUTE 510 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

PROPOSED SERVICE LEVEL	
Weekdays	6:00 AM – 9:00 PM
Frequency	60 Minutes
Saturday	6:00 AM – 8:00 PM
Frequency	60 Minutes
Sunday	8:00 AM – 7:00 PM
Frequency	60 Minutes

KEY DESTINATIONS
▪ Downtown New Britain
▪ Corbin Russwin
▪ Brickyard Shopping Center
▪ Eversource Energy
▪ Walmart
▪ Price Chopper/Turnpike Plaza

ROUTE 512 S. MAIN STREET/WEBSTER SQUARE

Proposed Route 512 would operate along a direct alignment between downtown New Britain and Walmart in Cromwell. The route would continue to serve Main Street/New Britain Road, Berlin Rail Station, Farmington Avenue, Webster Square Shopping Center, and Mill Street. It would also serve Norpaco in Middletown on select trips. This redesigned alignment would be symmetrical, rather than what is effectively a large one-way loop that operates today, allowing riders to easily make a return trip without riding the entire length of the route. Service on the Berlin Turnpike north of Mill Street would be provided by a redesigned Route 510.



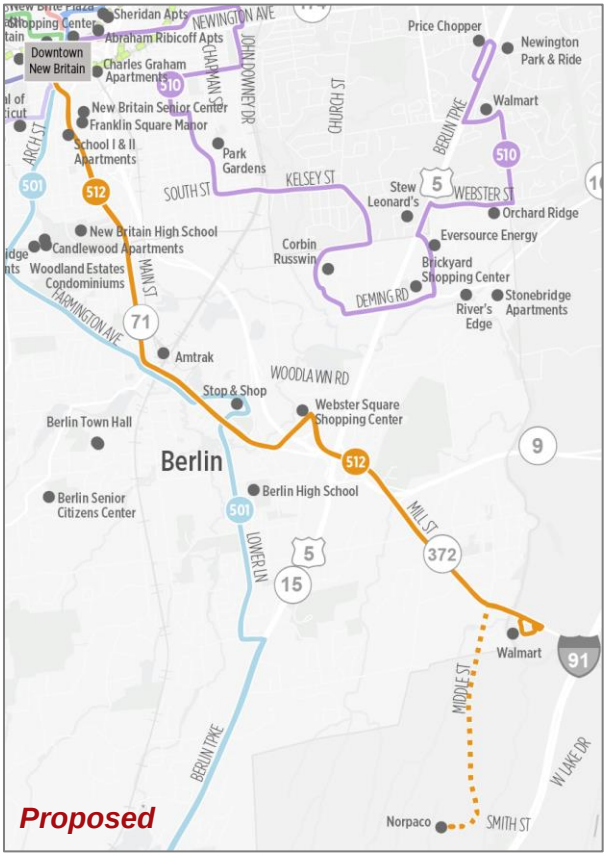


FIGURE 45 | PROPOSED ROUTE 512 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

	PROPOSED SERVICE LEVEL
Weekdays	6:00 AM – 9:00 PM
Frequency	60 Minutes
Saturday	6:00 AM – 8:00 PM
Frequency	60 Minutes
Sunday	8:00 AM – 7:00 PM
Frequency	60 Minutes

KEY DESTINATIONS
▪ Downtown New Britain
▪ New Britain High School
▪ Berlin Rail Station
▪ Webster Square Shopping Center
▪ Walmart
▪ Norpaco

ROUTE 541 BRISTOL LOCAL

Proposed Route 541 would connect downtown Bristol and Bristol Senior Center via N. Main Street, Farmington Avenue, Jerome Avenue, Stevens Street, and Stafford Avenue. The route would also extend west and terminate at Gaylord Towers, providing direct service between Gaylord Towers and other residential areas to shopping centers along Farmington Avenue and the Bristol Senior Center.

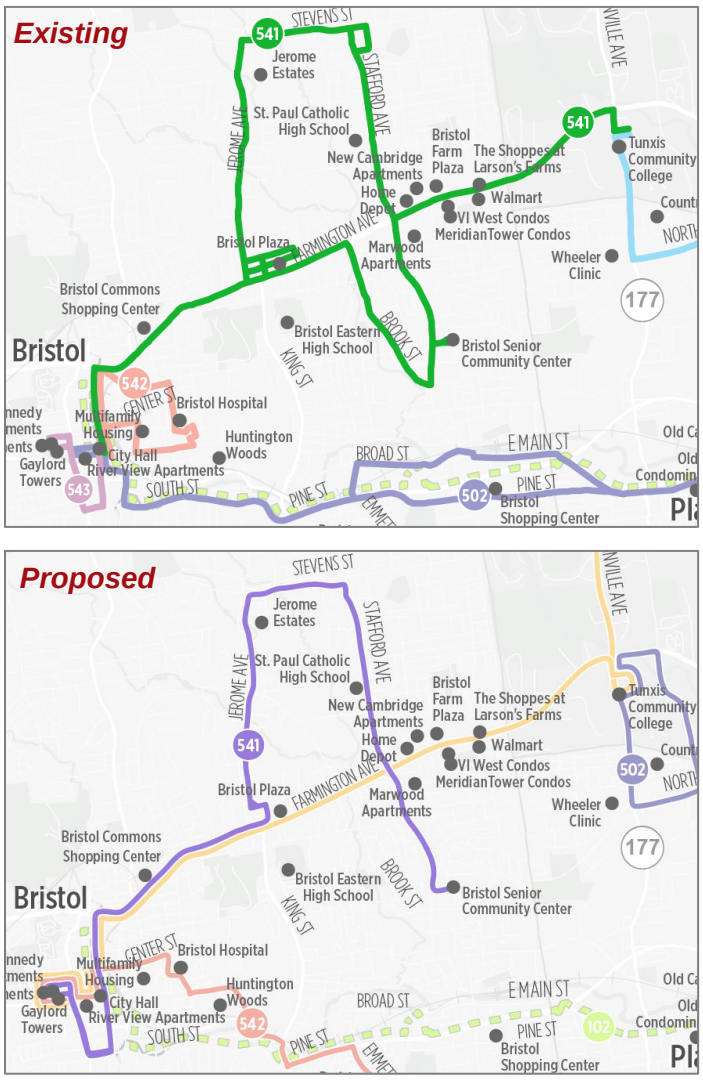


FIGURE 46 | PROPOSED ROUTE 541 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

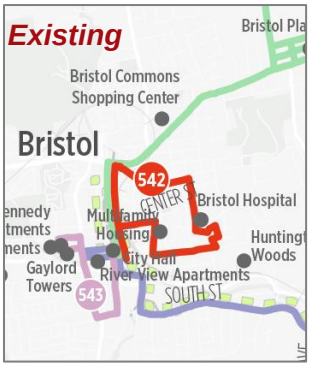
	PROPOSED SERVICE LEVEL
Weekdays	6:00 AM – 9:00 PM
Frequency	60 Minutes
Saturday	7:00 AM – 7:00 PM
Frequency	60 Minutes
Sunday	8:00 AM – 6:00 PM
Frequency	60 Minutes

KEY DESTINATIONS

- Gaylord Towers
- Downtown Bristol
- Bristol Plaza
- Jerome Estates
- Bristol Senior Community Center

ROUTE 542 SOUTHINGTON

Proposed Route 542 would provide new service connecting Bristol and Plainville to Southington. A truncated version of the new route would be introduced under Phase 1 and operate along West Street, W. Queen Street, and Queen Street. Under Phase 2, the route would be extended farther south and operate via West Street, W. Main Street, S. Main Street (to serve Plantsville Park-and-Ride), Main Street, and Queen Street. Connections to other services would be available in downtown Bristol, Lake Avenue Park-and-Ride in Bristol, Plantsville Park-and-Ride in Southington, and Connecticut Commons in Plainville.



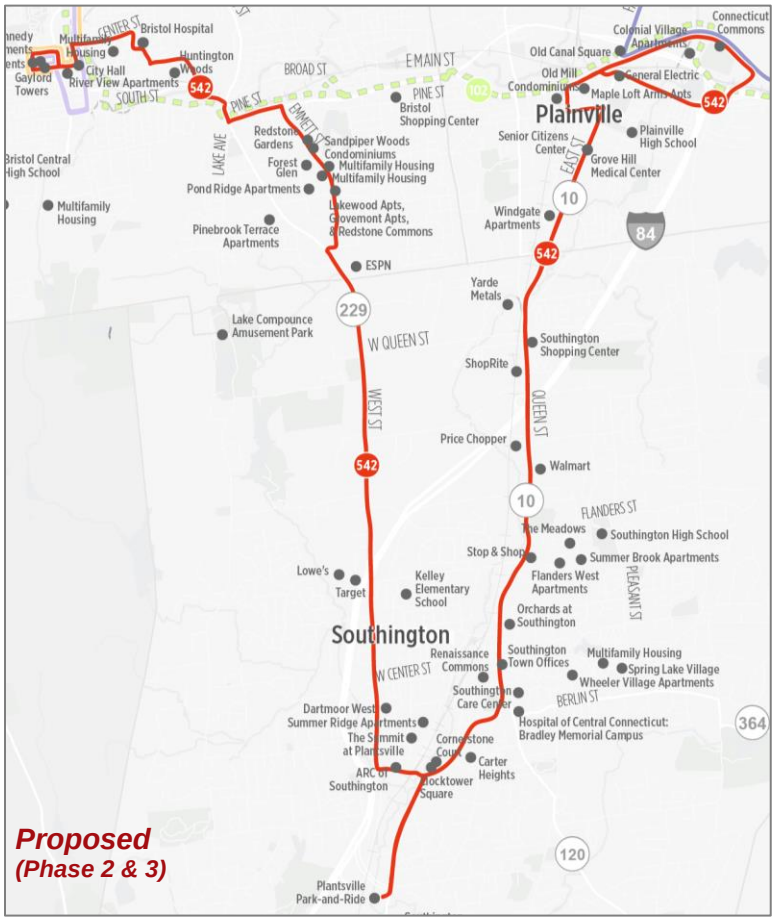


FIGURE 47 | PROPOSED ROUTE 542 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

	PROPOSED SERVICE LEVEL
Weekdays	6:00 AM – 7:00 PM
Frequency	60 Minutes
Saturday	7:00 AM – 7:00 PM
Frequency	60 Minutes
Sunday	8:00 AM – 6:00 PM
Frequency	60 Minutes

KEY DESTINATIONS
▪ Gaylord Towers
▪ Downtown Bristol
▪ Bristol Hospital
▪ Lake Avenue Park-and-Ride
▪ ESPN
▪ Plantsville Park-and-Ride
▪ Downtown Southington
▪ Downtown Plainville
▪ Connecticut Commons

ROUTE 543 BRISTOL-UNIONVILLE

Proposed Route 543 would be reintroduced in Phase 3 as a redesigned route providing direct service from Bristol to Unionville via Farmington Avenue and Tunxis Community College. The route would operate along N. Main Street, Farmington Avenue, and Plainville Avenue. Direct service along Farmington Avenue would be served by redesigned Route 502 under Phases 1 and 2, and replaced by Route 543 under Phase 3.

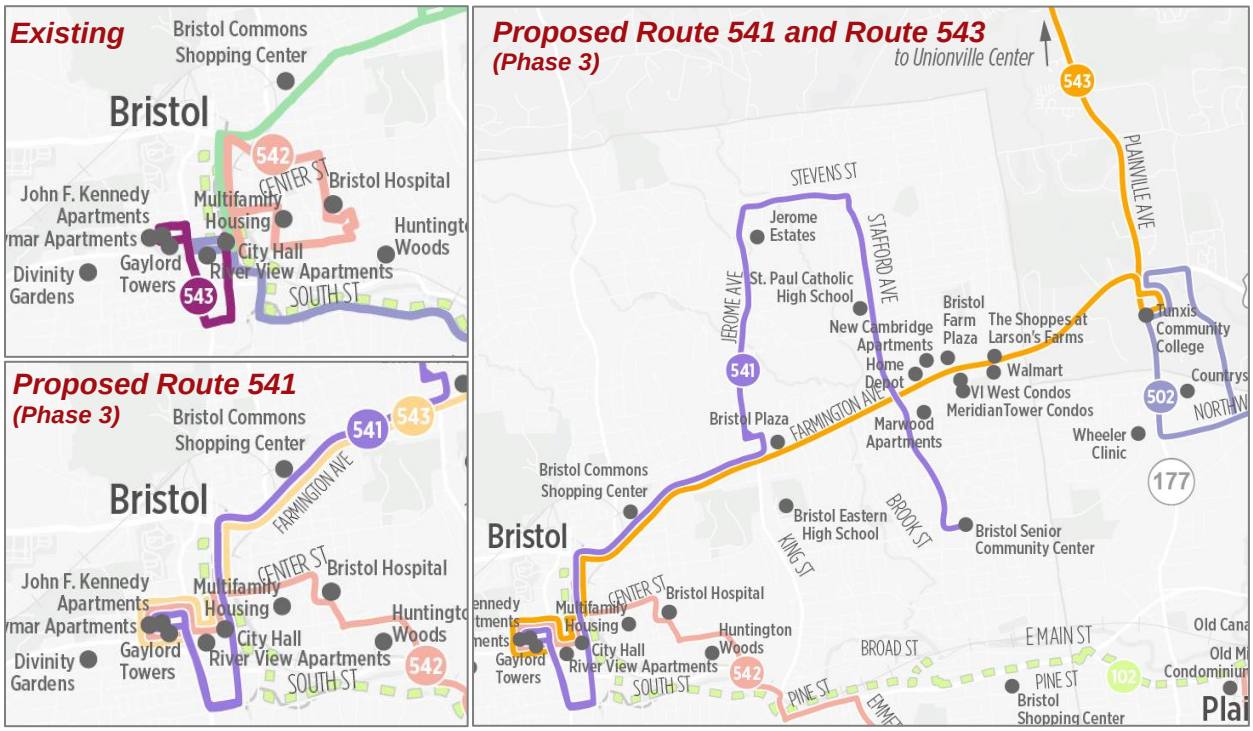


FIGURE 48 | PROPOSED ROUTE 543 SERVICE CHARACTERISTICS AND KEY DESTINATIONS

	PROPOSED SERVICE LEVEL
Weekdays	6:00 AM – 7:00 PM
Frequency	60 Minutes
Saturday	7:00 AM – 7:00 PM
Frequency	60 Minutes
Sunday	8:00 AM – 6:00 PM
Frequency	60 Minutes

KEY DESTINATIONS
▪ Gaylord Towers
▪ Downtown Bristol
▪ Bristol Commons Shopping Center
▪ Bristol Plaza
▪ Bristol Farm Plaza
▪ Walmart
▪ Tunxis Community College
▪ Unionville Center

SERVICE CHARACTERISTICS BY PHASE

FIGURE 49 | PROPOSED SERVICE LEVELS, PHASE 1

PROPOSED ROUTE	WEEKDAY START	WEEKDAY END	WEEKDAY FREQUENCY	SATURDAY START	SATURDAY END	SATURDAY FREQUENCY	SUNDAY START	SUNDAY END	SUNDAY FREQUENCY
Route 501	6:00 AM	9:00 PM	60	6:00 AM	8:00 PM	60	8:00 AM	7:00 PM	60
Route 502	6:00 AM	9:00 PM	60	7:00 AM	8:00 PM	60	8:00 AM	6:00 PM	60
Route 503	6:00 AM	9:00 PM	60	7:00 AM	8:00 PM	60	8:00 AM	6:00 PM	60
Route 505	6:00 AM	9:00 PM	60	6:00 AM	8:00 PM	60	8:00 AM	7:00 PM	60
Route 506	6:00 AM	9:00 PM	60	7:00 AM	8:00 PM	60	8:00 AM	6:00 PM	60
Route 507	6:00 AM	9:00 PM	60	6:00 AM	8:00 PM	60	8:00 AM	7:00 PM	60
Route 510	6:00 AM	9:00 PM	60	7:00 AM	8:00 PM	60	8:00 AM	6:00 PM	60
Route 512	6:00 AM	9:00 PM	60	6:00 AM	8:00 PM	60	8:00 AM	7:00 PM	60
Route 541	6:00 AM	7:00 PM	60	7:00 AM	7:00 PM	60	9:00 AM	6:00 PM	60
Route 542	6:00 AM	7:00 PM	60	7:00 AM	7:00 PM	60	No service		

Frequency shown in minutes.

FIGURE 50 | PROPOSED SERVICE LEVELS, PHASE 2

PROPOSED ROUTE	WEEKDAY START	WEEKDAY END	WEEKDAY FREQUENCY	SATURDAY START	SATURDAY END	SATURDAY FREQUENCY	SUNDAY START	SUNDAY END	SUNDAY FREQUENCY
Route 501	6:00 AM	9:00 PM	60	6:00 AM	8:00 PM	60	8:00 AM	7:00 PM	60
Route 502	6:00 AM	9:00 PM	60	6:00 AM	8:00 PM	60	8:00 AM	7:00 PM	60
Route 503	6:00 AM	9:00 PM	60	6:00 AM	8:00 PM	60	8:00 AM	7:00 PM	60
Route 505	6:00 AM	9:00 PM	60	6:00 AM	8:00 PM	60	8:00 AM	7:00 PM	60
Route 506	6:00 AM	9:00 PM	60	6:00 AM	8:00 PM	60	8:00 AM	7:00 PM	60
Route 507	6:00 AM	9:00 PM	60	6:00 AM	8:00 PM	60	8:00 AM	7:00 PM	60
Route 510	6:00 AM	9:00 PM	60	6:00 AM	8:00 PM	60	8:00 AM	7:00 PM	60
Route 512	6:00 AM	9:00 PM	60	6:00 AM	8:00 PM	60	8:00 AM	7:00 PM	60
Route 541	6:00 AM	7:00 PM	60	7:00 AM	7:00 PM	60	8:00 AM	6:00 PM	60
Route 542	6:00 AM	7:00 PM	60	7:00 AM	7:00 PM	60	No service		

Frequency shown in minutes.

FIGURE 51 | PROPOSED SERVICE LEVELS, PHASE 3

PROPOSED ROUTE	WEEKDAY START	WEEKDAY END	WEEKDAY FREQUENCY	SATURDAY START	SATURDAY END	SATURDAY FREQUENCY	SUNDAY START	SUNDAY END	SUNDAY FREQUENCY
Route 501	6:00 AM	9:00 PM	60	6:00 AM	8:00 PM	60	8:00 AM	7:00 PM	60
Route 502	6:00 AM	9:00 PM	60	6:00 AM	8:00 PM	60	8:00 AM	7:00 PM	60
Route 503	6:00 AM	9:00 PM	60	6:00 AM	8:00 PM	60	8:00 AM	7:00 PM	60
Route 505	6:00 AM	9:00 PM	60	6:00 AM	8:00 PM	60	8:00 AM	7:00 PM	60
Route 506	6:00 AM	9:00 PM	60	6:00 AM	8:00 PM	60	8:00 AM	7:00 PM	60
Route 507	6:00 AM	9:00 PM	60	6:00 AM	8:00 PM	60	8:00 AM	7:00 PM	60
Route 510	6:00 AM	9:00 PM	60	6:00 AM	8:00 PM	60	8:00 AM	7:00 PM	60
Route 512	6:00 AM	9:00 PM	60	6:00 AM	8:00 PM	60	8:00 AM	7:00 PM	60
Route 541	6:00 AM	7:00 PM	60	7:00 AM	7:00 PM	60	8:00 AM	6:00 PM	60
Route 542	6:00 AM	7:00 PM	60	7:00 AM	7:00 PM	60	8:00 AM	6:00 PM	60
Route 543	6:00 AM	7:00 PM	60	7:00 AM	7:00 PM	60	8:00 AM	6:00 PM	60

Frequency shown in minutes.

PUBLIC FEEDBACK

An initial draft of the preferred service scenario was presented to representatives from study area towns in July 2017 to solicit feedback and identify opportunities for improvement. Participants were generally supportive of the potential recommendations and identified additional opportunities to improve or extend service under the preferred scenario. Participants were particularly supportive of new service in Southington, service to ESPN in Bristol, enhanced service in southern Plainville, new service along the southern portion of the Berlin Turnpike, and continued service to the Bristol Senior Center. Some participants noted that issues of pedestrian access and passenger facilities could use attention, and would require working with towns to make upgrades to bus stops, sidewalks, and other supportive infrastructure. One participant also noted that congestion along Route 10 in Southington may pose a challenge for bus operations.

A revised draft of the preferred service scenario was presented to the public in December 2017. Two open house public meetings were held that included a formal presentation followed by questions and answers, as well as time before and after for attendees to view maps of the preferred scenario and speak one-on-one with members of the study team and share feedback.

FIGURE 52 | FINAL PUBLIC MEETINGS

DATE	LOCATION
Open House Meetings	
Tuesday, December 5	Berlin-Peck Memorial Library
Thursday, December 7	New Britain Public Library

Overall, most public meeting attendees responded positively to the proposed network. One attendee specifically called out the redesign of Route 512 and Route 510 as a positive improvement, as both routes would provide bidirectional service and offer more frequent and direct service than Route 512 provides today. One attendee expressed concern about moving Route 501 from the Chamberlain Highway to Farmington Avenue/Lower Lane/Berlin Turnpike, particularly whether it would increase travel time between New Britain and Meriden. Some concern was also raised about the potential loss of paratransit service around the Chamberlain Highway as well as the increased operating costs of paratransit due to new fixed-route service in Southington. Paratransit service will be further discussed later in this chapter. A summary of comments received from the public can be found in Appendix B.

REVENUE HOUR AND VEHICLE ESTIMATES

The proposed service characteristics of each route, including peak vehicles and daily revenue hours, are shown in the tables on the next several pages for all three phases of implementation. 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. For example, if one route has insufficient recovery time while another has excessive recovery time, interlining the routes can result in a cycle with an optimal mix of running time and recovery time.

Cycle times that are multiples of 60 minutes 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.

Clock-face schedules are proposed for all of the recommended routes, and recovery times are projected to fall between 10% and 20% of total cycle time for most 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 excessive periods of time.

Phase 1 of the preferred service scenario would require 14 peak vehicles, and would result in 204 weekday revenue hours, 184 Saturday revenue hours, and 128.5 Sunday revenue hours. By comparison, the existing New Britain-Bristol Division service also requires 14 peak vehicles, but includes 203 weekday revenue hours, 183.5 Saturday revenue hours, and 128.5 Sunday revenue hours. Assuming 255 weekday, 55 Saturday, and 55 Sunday service days per year, the proposed service would result in 1.0% more annual revenue hours than the current service. In other words, the proposed service is essentially cost-neutral compared to current service.[2] No additional vehicles would be needed to operate service recommended under Phase 1.

Under **Phase 2**, service increases would include longer hours of service over Phase 1, and the expansion of Route 542 farther into Southington on weekdays and Saturdays. As a result, Phase 2 would require 16 peak vehicles, and would result in 223.5 weekday revenue hours, 208 Saturday revenue hours, and 136 Sunday revenue hours. These service levels would represent a 10.8% increase in annual revenue hours over the current service. Two additional vehicles would be necessary to operate service recommended under Phase 2.

Phase 3 includes the introduction of redesigned Route 543 to Unionville, as well as operation of Sunday service on all routes. Service would require 16 peak vehicles, and would result in 228 weekday revenue hours, 212 Saturday revenue hours, and 170 Sunday revenue hours. As a result, the proposed Phase 3 would require 15.5% more annual revenue hours than the current service. Two additional vehicles would be necessary to operate service recommended under Phase 3.

[2] While exact cost estimates were not developed as part of this study, operating characteristics such as revenue hours can be used as a proxy to understand the order of magnitude of potential costs associated with each Phase.

FIGURE 53 | PHASE 1 PROPOSED OPERATING CHARACTERISTICS (WEEKDAY)

PROPOSED ROUTE	AVG ROUND TRIP MILES	ESTIMATED SPEED	RUN TIME	MIN RECOVERY	MIN CYCLE	EVEN CYCLE	ACTUAL RECOVERY	ACTUAL % RECOVERY	PEAK FREQUENCY	PEAK VEHICLES	REVENUE HOURS
501 + 512	39.7	15	2:38	0:15	2:54	3:00	0:21	12%	1:00	3.0	45:00
502 + 510	48.5	14	3:27	0:20	3:48	4:00	0:32	13%	1:00	4.0	60:00
503 + 506	21.6	13	1:39	0:09	1:49	2:00	0:20	17%	1:00	2.0	30:00
505 + 507	22.7	13	1:44	0:10	1:55	2:00	0:15	13%	1:00	2.0	30:00
541 + 542	38.8	14.5	2:40	0:16	2:56	3:00	0:19	11%	1:00	3.0	39:00
									Proposed	**14**	**204:00**
									Current	**14**	**203:00**
									Difference	**0**	**1:00**
									% Difference	**0%**	**0.5%**

FIGURE 54 | PHASE 1 PROPOSED OPERATING CHARACTERISTICS (SATURDAY)

PROPOSED ROUTE	AVG ROUND TRIP MILES	ESTIMATED SPEED	RUN TIME	MIN RECOVERY	MIN CYCLE	EVEN CYCLE	ACTUAL RECOVERY	ACTUAL % RECOVERY	PEAK FREQUENCY	PEAK VEHICLES	REVENUE HOURS
501 + 512	39.7	15	2:38	0:15	2:54	3:00	0:21	12%	1:00	3.0	42:00
502 + 510	48.5	14	3:27	0:20	3:48	4:00	0:32	13%	1:00	4.0	52:00
503 + 506	21.6	13	1:39	0:09	1:49	2:00	0:20	17%	1:00	2.0	26:00
505 + 507	22.7	13	1:44	0:10	1:55	2:00	0:15	13%	1:00	2.0	28:00
541 + 542	38.8	14.5	2:40	0:16	2:56	3:00	0:19	11%	1:00	3.0	36:00
									Proposed	**14**	**184:00**
									Current	**14**	**183:30**
									Difference	**0**	**0:30**
									% Difference	**0%**	**0.3%**

FIGURE 55 | PHASE 1 PROPOSED OPERATING CHARACTERISTICS (SUNDAY)

PROPOSED ROUTE	AVG ROUND TRIP MILES	ESTIMATED SPEED	RUN TIME	MIN RECOVERY	MIN CYCLE	EVEN CYCLE	ACTUAL RECOVERY	ACTUAL % RECOVERY	PEAK FREQUENCY	PEAK VEHICLES	REVENUE HOURS
501 + 512	39.7	15	2:38	0:15	2:54	3:00	0:21	12%	1:00	3.0	33:00
502 + 510	48.5	14	3:27	0:20	3:48	4:00	0:32	13%	1:00	4.0	40:00
503 + 506	21.6	13	1:39	0:09	1:49	2:00	0:20	17%	1:00	2.0	20:00
505 + 507	22.7	13	1:44	0:10	1:55	2:00	0:15	13%	1:00	2.0	22:00
541	16.2	15	1:04	0:06	1:11	1:30	0:25	28%	1:00	1.5	13:30
									Proposed	**13**	**128:30**
									Current	**14**	**122:00**
									Difference	**0**	**6:30**
									% Difference	**0%**	**5.5%**

FIGURE 56 | PHASE 2 PROPOSED OPERATING CHARACTERISTICS (WEEKDAY)

PROPOSED ROUTE	AVG ROUND TRIP MILES	ESTIMATED SPEED	RUN TIME	MIN RECOVERY	MIN CYCLE	EVEN CYCLE	ACTUAL RECOVERY	ACTUAL % RECOVERY	PEAK FREQUENCY	PEAK VEHICLES	REVENUE HOURS
501 + 512	39.7	15	2:38	0:15	2:54	3:00	0:21	12%	1:00	3.0	45:00
502 + 510	48.5	14	3:27	0:20	3:48	4:00	0:32	13%	1:00	4.0	60:00
503 + 506	21.6	13	1:39	0:09	1:49	2:00	0:20	17%	1:00	2.0	30:00
505 + 507	22.7	13	1:44	0:10	1:55	2:00	0:15	13%	1:00	2.0	30:00
541 + 542	56	14.5	3:51	0:23	4:14	4:30	0:38	14%	1:00	4.5	58:30
									Proposed	**16**	**223:30**
									Current	**14**	**203:00**
									Difference	**2**	**20:30**
									% Difference	**14.3%**	**10.1%**

FIGURE 57 | PHASE 2 PROPOSED OPERATING CHARACTERISTICS (SATURDAY)

PROPOSED ROUTE	AVG ROUND TRIP MILES	ESTIMATED SPEED	RUN TIME	MIN RECOVERY	MIN CYCLE	EVEN CYCLE	ACTUAL RECOVERY	ACTUAL % RECOVERY	PEAK FREQUENCY	PEAK VEHICLES	REVENUE HOURS
501 + 512	39.7	15	2:38	0:15	2:54	3:00	0:21	12%	1:00	3.0	42:00
502 + 510	48.5	14	3:27	0:20	3:48	4:00	0:32	13%	1:00	4.0	56:00
503 + 506	21.6	13	1:39	0:09	1:49	2:00	0:20	17%	1:00	2.0	28:00
505 + 507	22.7	13	1:44	0:10	1:55	2:00	0:15	13%	1:00	2.0	28:00
541 + 542	56	15	3:44	0:22	4:06	4:30	0:46	17%	1:00	4.5	48:00
									Proposed	**16**	**208:00**
									Current	**14**	**183:30**
									Difference	**2**	**24:30**
									% Difference	**14.3%**	**13.4%**

FIGURE 58 | PHASE 2 PROPOSED OPERATING CHARACTERISTICS (SUNDAY)

PROPOSED ROUTE	AVG ROUND TRIP MILES	ESTIMATED SPEED	RUN TIME	MIN RECOVERY	MIN CYCLE	EVEN CYCLE	ACTUAL RECOVERY	ACTUAL % RECOVERY	PEAK FREQUENCY	PEAK VEHICLES	REVENUE HOURS
501 + 512	39.7	15	2:38	0:15	2:54	3:00	0:21	12%	1:00	3.0	33:00
502 + 510	48.5	14	3:27	0:20	3:48	4:00	0:32	13%	1:00	4.0	44:00
503 + 506	21.6	13	1:39	0:09	1:49	2:00	0:20	17%	1:00	2.0	22:00
505 + 507	22.7	13	1:44	0:10	1:55	2:00	0:15	13%	1:00	2.0	22:00
541	16.2	15	1:04	0:06	1:11	1:30	0:25	28%	1:00	1.5	15:00
									Proposed	**13**	**136:00**
									Current	**14**	**122:00**
									Difference	**1**	**14:00**
									% Difference	**7.2%**	**11.7%**

FIGURE 59 | PHASE 3 PROPOSED OPERATING CHARACTERISTICS (WEEKDAY)

PROPOSED ROUTE	AVG ROUND TRIP MILES	ESTIMATED SPEED	RUN TIME	MIN RECOVERY	MIN CYCLE	EVEN CYCLE	ACTUAL RECOVERY	ACTUAL % RECOVERY	PEAK FREQUENCY	PEAK VEHICLES	REVENUE HOURS
501 + 512	39.7	15	2:38	0:15	2:54	3:00	0:21	12%	1:00	3.0	45:00
502 + 510	38	14	2:42	0:16	2:59	3:00	0:17	10%	1:00	3.0	45:00
503 + 506	21.6	13	1:39	0:09	1:49	2:00	0:20	17%	1:00	2.0	30:00
505 + 507	22.7	13	1:44	0:10	1:55	2:00	0:15	13%	1:00	2.0	30:00
541 + 543	35.6	14	2:32	0:15	2:47	3:00	0:27	15%	1:00	3.0	39:00
542	39.8	15	2:39	0:15	2:55	3:00	0:20	12%	1:00	3.0	39:00

Proposed	**16**	**228:00**
Current	**14**	**203:00**
Difference	**2**	**25:00**
% Difference	**14.3%**	**12.4%**

FIGURE 60 | PHASE 3 PROPOSED OPERATING CHARACTERISTICS (SATURDAY)

PROPOSED ROUTE	AVG ROUND TRIP MILES	ESTIMATED SPEED	RUN TIME	MIN RECOVERY	MIN CYCLE	EVEN CYCLE	ACTUAL RECOVERY	ACTUAL % RECOVERY	PEAK FREQUENCY	PEAK VEHICLES	REVENUE HOURS
501 + 512	39.7	15	2:38	0:15	2:54	3:00	0:21	12%	1:00	3.0	42:00
502 + 510	38	14	2:42	0:16	2:59	3:00	0:17	10%	1:00	3.0	42:00
503 + 506	21.6	14	1:32	0:09	1:41	2:00	0:27	23%	1:00	2.0	28:00
505 + 507	22.7	14	1:37	0:09	1:47	2:00	0:22	19%	1:00	2.0	28:00
541 + 543	35.6	15	2:22	0:14	2:36	3:00	0:37	21%	1:00	3.0	36:00
542	39.8	15	2:39	0:15	2:55	3:00	0:20	12%	1:00	3.0	36:00

Proposed	**16**	**212:00**
Current	**14**	**183:30**
Difference	**2**	**28:30**
% Difference	**14.3%**	**15.5%**

FIGURE 61 | PHASE 3 PROPOSED OPERATING CHARACTERISTICS (SUNDAY)

PROPOSED ROUTE	AVG ROUND TRIP MILES	ESTIMATED SPEED	RUN TIME	MIN RECOVERY	MIN CYCLE	EVEN CYCLE	ACTUAL RECOVERY	ACTUAL % RECOVERY	PEAK FREQUENCY	PEAK VEHICLES	REVENUE HOURS
501 + 512	39.7	15	2:38	0:15	2:54	3:00	0:21	12%	1:00	3.0	33:00
502 + 510	38	14	2:42	0:16	2:59	3:00	0:17	10%	1:00	3.0	33:00
503 + 506	21.6	14	1:32	0:09	1:41	2:00	0:27	23%	1:00	2.0	22:00
505 + 507	22.7	14	1:37	0:09	1:47	2:00	0:22	19%	1:00	2.0	22:00
541 + 543	35.6	15	2:22	0:14	2:36	3:00	0:37	21%	1:00	3.0	30:00
542	39.8	15	2:39	0:15	2:55	3:00	0:20	12%	1:00	3.0	30:00

Proposed	**16**	**170:00**
Current	**14**	**122:00**
Difference	**2**	**48:00**
% Difference	**14.3%**	**39.6%**

PARATRANSIT SERVICE COVERAGE

The preferred service scenario would have implications for ADA paratransit service obligations in the study area. Complementary ADA paratransit service is required to be provided within three-quarters of a mile of fixed-route service. While CT***transit*** operates fixed-route service, CTDOT contracts separately for paratransit service operations throughout Connecticut. Within the New Britain-Bristol Division service area, paratransit service is provided by the Greater Hartford Transit District (GHTD).

The most significant increase in coverage under the preferred service scenario would result from new fixed-route service in southern Bristol, southern Plainville, and Southington. The most significant potential loss in coverage would be due to discontinuing Route 501 service along the Chamberlain Highway through Berlin. However, under the preferred service scenario, the study team recommends that paratransit service continue to be provided under the existing Greater Hartford Transit District system, and that the coverage area be expanded to include any proposed new service. Therefore, under the preferred scenario all existing coverage would remain as it is today, with the addition of coverage expansion where fixed-route service is redesigned or added.

The existing service coverage is shown in Figure 62, followed by the coverage area under Phase 1 (Figure 63) and under Phases 2 and 3 with complete implementation of the fixed-route service recommendations (Figure 64). The change in service coverage between the existing service and Phase 3 is presented in Figure 65.

The existing coverage area for New Britain-Bristol Division paratransit service is 89 square miles. Assuming that existing service areas continue to be served even if fixed-route service to these areas is discontinued, the changes in paratransit service coverage would be as follows:

- Phase 1: 108 square miles (21% increase)
- Phase 2: 118 square miles (33% increase)
- Phase 3: 124 square miles (39% increase)

It is important to note that these figures represent the increase in coverage area, but do not directly correlate with how many potential riders may be located within this area or project how many additional trips would be requested. A more in-depth projection of potential ridership based on the service area and existing paratransit ridership would be needed to provide more insight into the potential operating costs and vehicle needs of expanded paratransit service.

FIGURE 62 | EXISTING PARATRANSIT SERVICE AREA

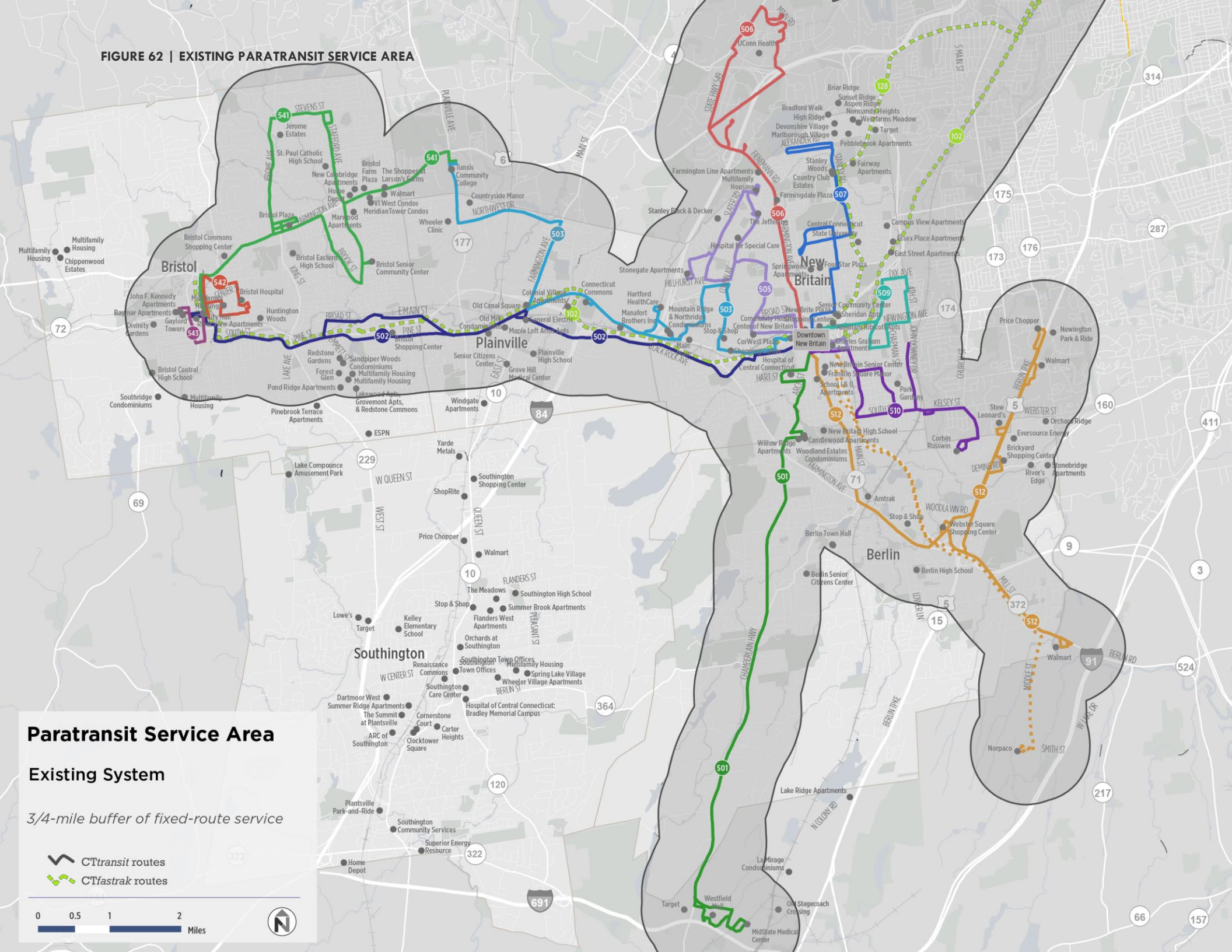


FIGURE 63 | PARATRANSIT SERVICE AREA, PREFERRED SERVICE SCENARIO PHASE 1

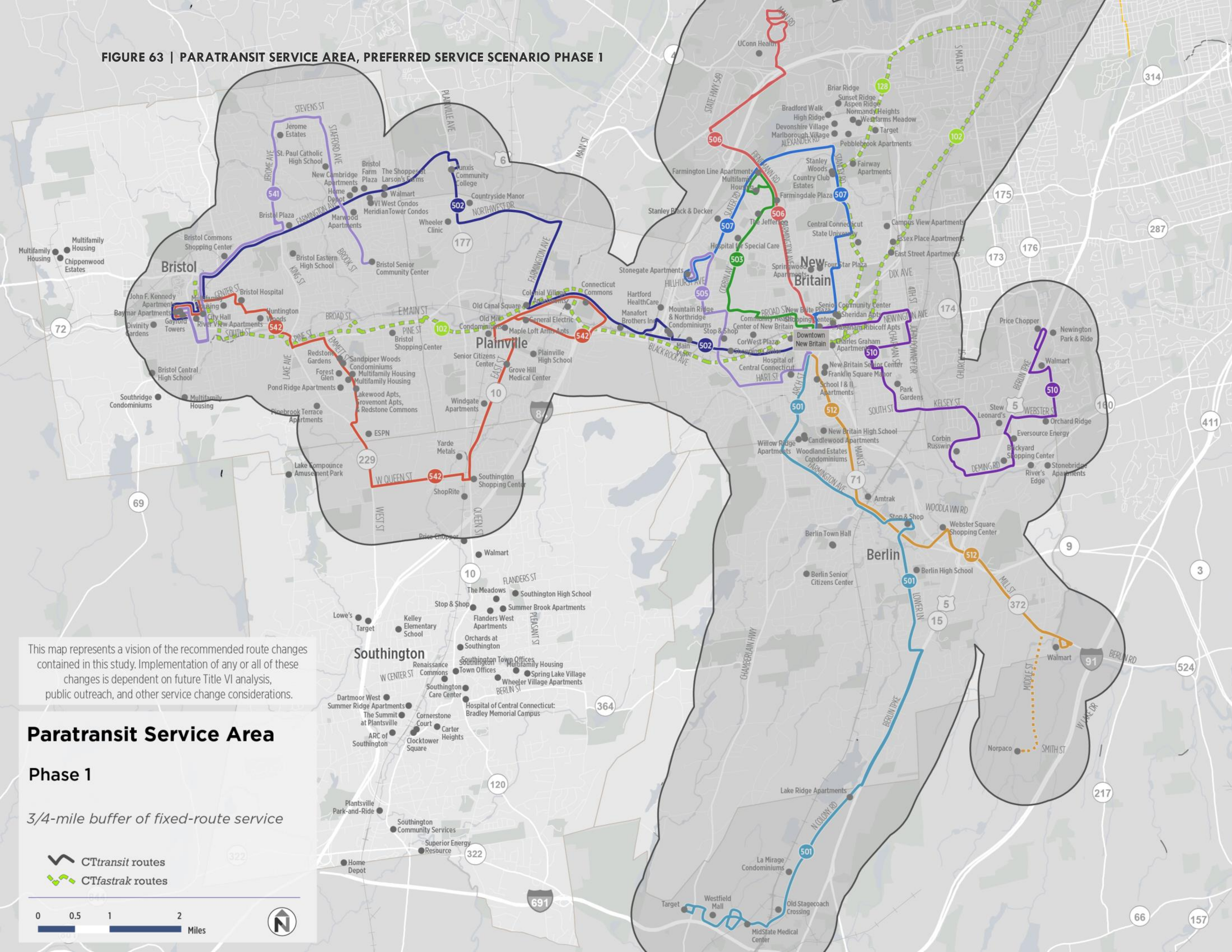


FIGURE 64 | PARATRANSIT SERVICE AREA, PREFERRED SERVICE SCENARIO PHASE 2+3

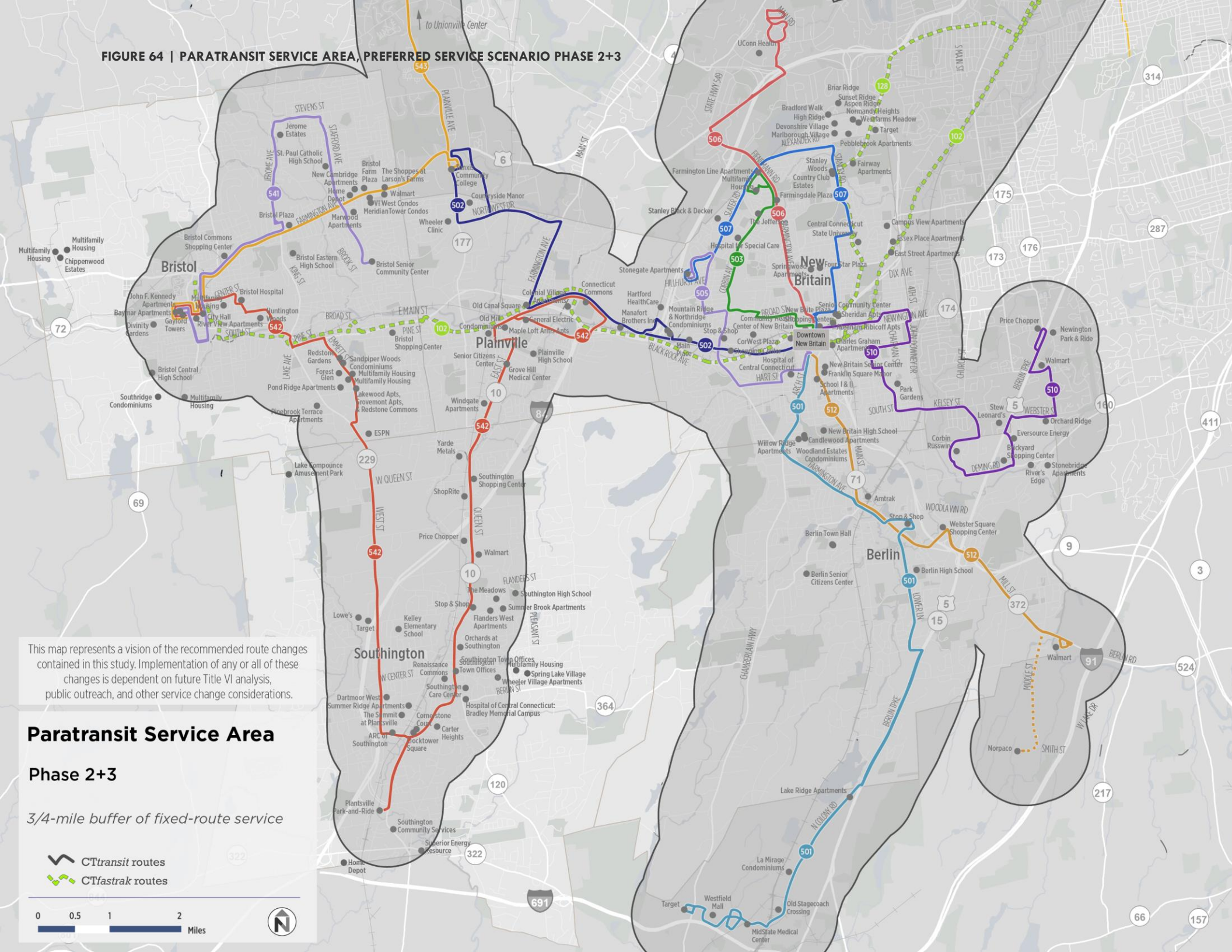
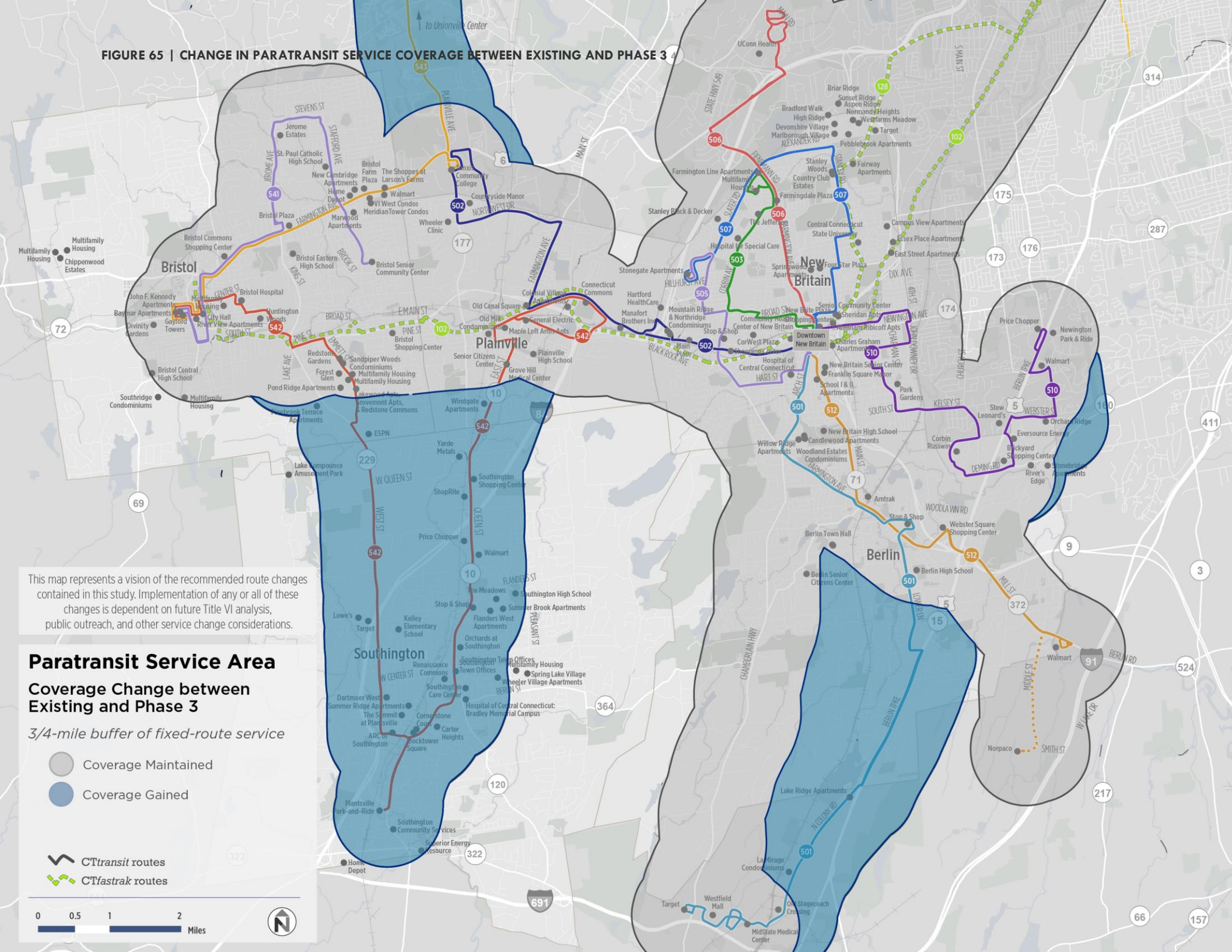


FIGURE 65 | CHANGE IN PARATRANSIT SERVICE COVERAGE BETWEEN EXISTING AND PHASE 3



6 OTHER CONSIDERATIONS

CAPITAL IMPROVEMENTS

In addition to service improvements, there are many opportunities for capital investments that support transit service and make it more attractive to existing and potential riders. This section provides an overview of transit-supportive capital improvements, including:

- Passenger Facilities
- Pedestrian Access
- Bus Stop Spacing and Consolidation

Passenger Facilities

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 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.
- **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.
- **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.

For a number of reasons—particularly cost—it is not practical to provide all amenities at all stops. Typically, more extensive amenities are provided at the busiest locations (for example, transit centers or hubs), and only basic amenities (such as bus stop signs) are provided at low volume stops. A common approach is to develop a hierarchy of stops and to define the types of amenities that should be provided based on those classifications.

Pedestrian Access

A good pedestrian environment is an essential foundation for good access to public transit. As such, it is critical for attracting new riders, increasing ridership among existing passengers, and improving the overall travel experience. The quality of the pedestrian environment is often a deciding factor in choosing whether or not to take transit, especially for those with other travel options.

Pedestrian access to transit refers to the extent to which the pedestrian environment, amenities, and infrastructure support people in accessing transit services. Well-designed, pedestrian-oriented infrastructure increases the safety, comfort, and enjoyment of the entire transit trip. Gaps in the sidewalk network, stops along high speed roads, and insufficient waiting areas all contribute to less attractive transit facilities and can deter transit riders. Pedestrian infrastructure includes an array of amenities and improvements, such as wide and textured sidewalks, level boarding features, curb ramps, benches, lighting, signage, building overhangs, travel information, wayfinding signage, and bus shelters. When well-designed, these types of pedestrian infrastructure can help to increase the safety, comfort, and enjoyment of the entire transit trip and promote access to transit.

Focusing pedestrian improvements at transit facilities and beyond can be an effective way to increase transit ridership. Studies report that improving pedestrian conditions can decrease the frequency of short automobile trips and increase transit mode share. Research by the Transit Cooperative Research Program (TCRP) found that many pedestrians are willing to walk between one-half and one mile to access transit.[3] Walkable communities also provide public health benefits by increasing physical activity.

Examples of infrastructure and amenities that can help to improve pedestrian access to transit are described below. Not every transit stop or station needs all of these improvements to be accessible; however, a sidewalk or walking path and a safe crossing are critical for all types of stops.

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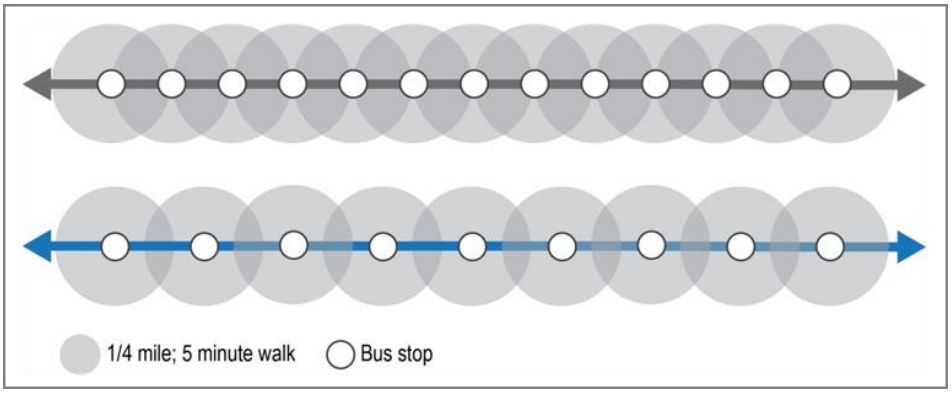
[3] Kuzmyak, J. Richard, Richard H. Pratt, and G. Bruce Douglas. Transit Cooperative Research Program (TCRP) Report 95—Traveler Response to Transportation System Changes, Chapter 15: Land Use and Site Design. Washington, D.C.: Transportation Research Board, 2003.

- **Wide Sidewalks:** Continuous sidewalks should be at least four feet wide and seamlessly connected to the sidewalk network in the area. A wide and accessible sidewalk network should be complete within a half-mile of every transit stop and station.
- **Curb Extensions:** Streets that have on-street parking typically have a required set-back from an intersection to increase visibility. This "dead space" at the intersection can be rededicated to expand the pedestrian realm and reduce crossing distance. Curb extensions also improve pedestrian and motorist sightlines at intersections and help manage vehicle turn speeds.
- **Pedestrian Refuges:** Where there is higher volume automobile traffic or higher speeds present, pedestrian refuge islands, center medians, bollard or planter protection, on-demand push button pedestrian crossing lights, and/or curb extensions and bulb-outs should serve as traffic calming devices.
- **Well-Marked Crossings:** Transitions and street crossings should be well-marked and preferably include raised crossings that prioritize pedestrians. Raised crossings are better for people walking and rolling and also serve as a traffic calming measure.
- **Signals:** All signals should have a pedestrian countdown and, if necessary, a push-button to allow a pedestrian to request a crossing. Pedestrian-only crossing phases at very busy locations—such as downtown—allow pedestrians to cross an intersection in any direction. Leading pedestrian intervals give pedestrians a few seconds of "head start" to claim the crosswalk ahead of turning traffic.
- **Traffic Calming:** Vertical and horizontal traffic calming can greatly improve the quality of the pedestrian environment. These measures could include road diets, speed bumps, speed tables, raised intersections, diagonal diverters, chicanes, traffic circles, and shared streets.
- **Universal Design and Accessibility:** Intersections should provide facilities that can safely move people of all ages and abilities across the street. Design elements like curb ramps, level landings and gutter seams, visible and audile signals, smooth surfaces, accessible push buttons (or default WALK phases), and signage that may help pedestrians navigate intersections should be integrated into intersection design.
- **Lighting:** Well-lit crosswalks and sidewalks provide increased safety and security. In areas with many pedestrians, lighting at the pedestrian scale should be considered to better light sidewalks and walkways.
- **Wayfinding:** Street signs, maps, and unique area treatments—such as historical displays and public art—help pedestrians orient themselves and create interest and comfort. Streetscapes that are inherently easy to navigate invite travel by foot and make driver and pedestrian behavior more predictable and safer.

Bus Stop Spacing and 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 66 | 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 eight stops per mile to five 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.

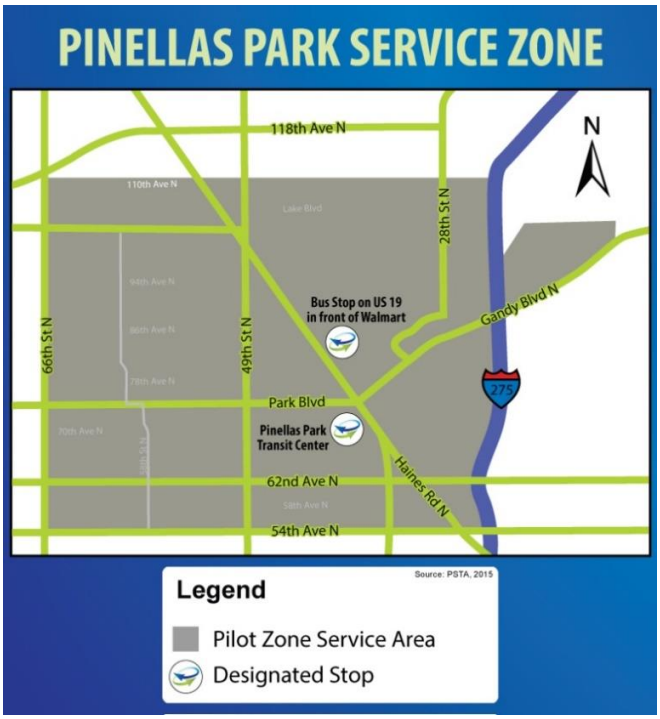
Most transit systems that have undertaken stop consolidation efforts start with the development of guidelines that are based on distance to the next stop and boarding levels. Then, when two stops are spaced too closely, one of stops will be eliminated or the two stops will be consolidated to a new location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

SUBSIDIZED ON-DEMAND SERVICES

While the recommendations in the preferred service scenario go a long way towards improving connections between destinations and adding service to new areas, there are still areas without fixed-route service that demonstrate some transit need. In particular, parts of western Bristol, Southington, and central Berlin are not proposed for fixed-route service but present a degree of transit need. These areas may be unable to support fixed-route service due to low density, or they may be difficult to serve with traditional fixed routes due to disconnected street networks or neighborhood streets that are too narrow to serve with a regular bus. To meet such needs in difficult-to-serve areas, options other than traditional fixed-route bus service may be a better fit.

FIGURE 67 | DIRECTCONNECT SERVICE ZONE



A new approach for providing mobility where limited transit demand exists 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, transit agencies have recently begun partnering with TNCs, as well as local taxi companies, 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 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 they may call the authorized taxi provider and request the special fare.

The option of requesting either a taxi or Uber allows PSTA to balance convenience and accessibility, as some residents may not have access to a mobile device with internet access. A similar approach could be taken in the New Britain-Bristol Division service area, where both taxi service and Uber and Lyft service are available.

While subsidized on-demand services such as taxis or TNCs can be a viable replacement for unproductive fixed-route service, on-demand service can also complement transit service more generally. For example,

a 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) offers 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) offers $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) subsidizes 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 parts of the New Britain-Bristol Division service area, particularly in areas of Bristol, Berlin, and Southington there is some identified transit need and/or potential but not enough density of demand to warrant the implementation of fixed-route service. In these areas, on-demand services have the potential to provide a more cost-effective solution for first mile/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 The various approaches to on-demand service described above present strategies to serve these lower demand areas, with differences in subsidy/operating costs, capital investment, and integration with existing fixed-route service. As a first step, a pilot partnership with local taxi services and/or TNCs can provide insight into the existing level of demand in an area and help determine the most appropriate service model.

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, as is recommended under the preferred service scenario.

7 NEXT STEPS

This Comprehensive 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 New Britain-Bristol Division. 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 68 groups the study's recommendations into short-term, mid-term, and long-term implementation phases. While the recommendations in the Comprehensive 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 68 | IMPLEMENTATION TIMELINE

RECOMMENDATION	SHORT-TERM	MID-TERM	LONG-TERM
Route Adjustments	• Review current ridership data to verify consistency with findings • Assess operational feasibility of new service concepts (Route 501 via Berlin Turnpike, Route 542 to Southington, etc.) • Identify recommendations that require additional Title VI or other assessment • Implement Phase 1 service changes that do not require additional assessment	• Perform Title VI or other assessments on necessary routes • Continue implementing service changes identified under Phase 2 as assessments allow	• Continue implementing service changes identified under Phase 3 as assessments allow • Perform routine evaluations to ensure that service continues to meet demand
New Services	• Implement new Route 542 to West Queen Street in Southington	• Expand Route 542 farther into Southington to Plantsville Park-and-Ride	• Implement new Route 543 to Unionville
Paratransit Service	• Maintain existing paratransit service coverage, and expand coverage as necessary to complement route adjustments and additions	• Expand paratransit service coverage to complement the expansion of fixed-route service in Southington	• Expand paratransit service coverage to complement the extension of Route 543 to Unionville
First Mile/Last Mile Connections	• Consider alternative service models for lower-density areas • Identify potential operational or legislative challenges to implementing such models	• Implement alternative service options for lower-density areas • Support legislation to regulate TNCs in Connecticut	• Monitor ridership to determine whether lower-density areas can support fixed-route service