WATERBURY AREA TRANSIT STUDY

Recommendations

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with

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Waterbury Area Transit Study: Recommendations

Introduction

The primary purpose of the Waterbury Area Transit Study is to improve bus service in the greater Waterbury area, both for current riders and for potential new riders. The basis for developing recommendations for improved service is the Market Analysis completed in the first phase of the study, as well as ongoing input from various stakeholders. The study includes a multi-year outlook to allow for system expansion and a wide range of service improvements and new regional connections, as well as short-term recommendations to address several pressing issues.

The first section of this document focuses on these short-term proposals that require little in the way of new monetary resources and do not require additional buses to be purchased, since that entails an 18-month lead time. Many, if not all, of these proposals could be implemented within a few months, depending on public hearings, and analysis and approval from ConnDOT. Because some of the proposals would entail additional cost, it is likely that they would need to be phased in over the course of a year or two as the statewide budget for transit operations allows.

The second section presents long-term recommendations for the enhancement of service in Waterbury and the creation of new commuter connections to surrounding areas. The long term plan for the system is much more ambitious, including enhanced service on most of the local bus routes and a series of new regional commuter services. This long term plan would be implemented over a span of 5 to 15 years and would require substantial new capital and operating resources.

A high-level environmental justice analysis of the short-term service changes is presented in Appendix 1. The second appendix includes a summary of the public outreach conducted at the end of the study. A third appendix contains field observations of the conditions at the top 25 bus stops in the system.

Note about route numbering: As of June 2017, CTtransit renumbered all of its routes statewide. In the Waterbury system, all routes are now in the 400 series. This report uses the route numbers in place before the renumbering, but the conversion is as simple as putting a 4 in front of the numbers shown here (with some exceptions). See https://www.cttransit.com/news/waterbury-meriden-and-wallingford-route-number-and-name-changes-effective-june-4 for more information.

Short Term Recommendations

Review of Key Issues

In the on-board survey and in stakeholder comments collected during Phase 1, the **lack of access to key destinations** was identified as a major issue. Improving access, in almost all cases, requires

significant new resources, and so this issue will mostly be addressed in a later phase of this study. However, two particular destinations should be addressed as soon as possible.

1) Lakewood Road – Numerous riders at the pop-up outreach at The Green and through the on-board survey mentioned Lakewood Road as needing service.
2) Naugatuck – The location with the highest number of requests for service in the on-board survey was Naugatuck. There is already some service in Naugatuck, which is poorly used, and limited connections between Waterbury and Naugatuck.

A second important service issue that was identified by passengers, drivers, field supervisors, and the ridecheck data collection performed in 2013 was **reliability**. Statistics from the ridecheck data show that on weekdays, the North Main Street routes (15 and 16), East Main Street routes (27 and 28) and Town Plot (36) routinely ran behind schedule. On weekends, the combination route 27/28 ran late on almost every trip. These statistics were backed up by comments received from riders, drivers and field supervisors. Riders complained of missing connections at The Green because of a late arrival on one of these routes, and thus having to wait up to an hour until the next bus departed.

The third issue was **overcrowding, especially on Route 22 Wolcott**. This route, which has the highest ridership in the system on both weekdays and Saturdays, operates only once an hour. During the first week of the month, after assistance checks arrive, there is very high demand on this route, which serves the largest shopping areas in Waterbury. North East Transportation (NET) runs extra trips on this route during these times to accommodate the demand.

While there were many other issues identified during the outreach process, such as expanded hours of service on the weekends (especially on Sundays), and better frequency, the three issues listed above were the primary focus of the short-term planning effort. The long-term plan in the second section of this document addresses the rest of the service issues identified in the outreach process.

Summary of Impacts

The following table summarizes the cost and ridership impacts of all of the short-term proposals.

Route	Service Change	Change in Annual Rev. Hours	Estimated Change in Daily Ridership	Change in Annual Fare Revenue	Net Change in Annual Operating Cost
Lakewood Road	New route	+3,600	+500 or more	+$79,000	+$290,000
Naugatuck	Restructuring	0	+200	+$61,000 (includes ADA)	+$67,000 (ADA cost)
N Main/Town Plot	Reduced headway	+3,050	+150	+$40,000	+$279,000
28 Scott Road	More service	+1,700	+300	+$79,000	+$100,000
27 E Main St	Convert 26 to 27	0	+20	+$5,000	-$5,000
31 and 32	Combine routes	-900	-20	-$5,000	-$88,000
40 Highland	Increased headway	-590	-30	-$8,000	-$53,000
12 Hill Street	Increased headway	-330	0	0	-$35,000
42 Chase Pkwy	Truncated	-390	-10	-$2,500	-$37,500
Various	Sat AM reallocation	0	+100	+$5,000	-$5,000
27/28 and 13	Improve 27/28; truncate 13	0	+175 Saturday; +50 Sunday	+$12,000	-$12,000
TOTAL		**+6,140**		**+$174,500**	**+$500,500**

Thus, the program in this document would increase the cost net of fares by just over $500,000, but it would result in 170,000 new passenger trips per year, for a net cost per new passenger of just $2.95.

Weekday Service Concepts

Five short-term improvements were developed for weekday service to address the three primary service issues listed above. At the same time, three service reductions or consolidations were developed to help free up resources to pay for the improvements and to improve the reliability of existing routes. If all of these service changes are implemented, one additional bus would be required in peak service (which is currently available in the fleet operated by NET).

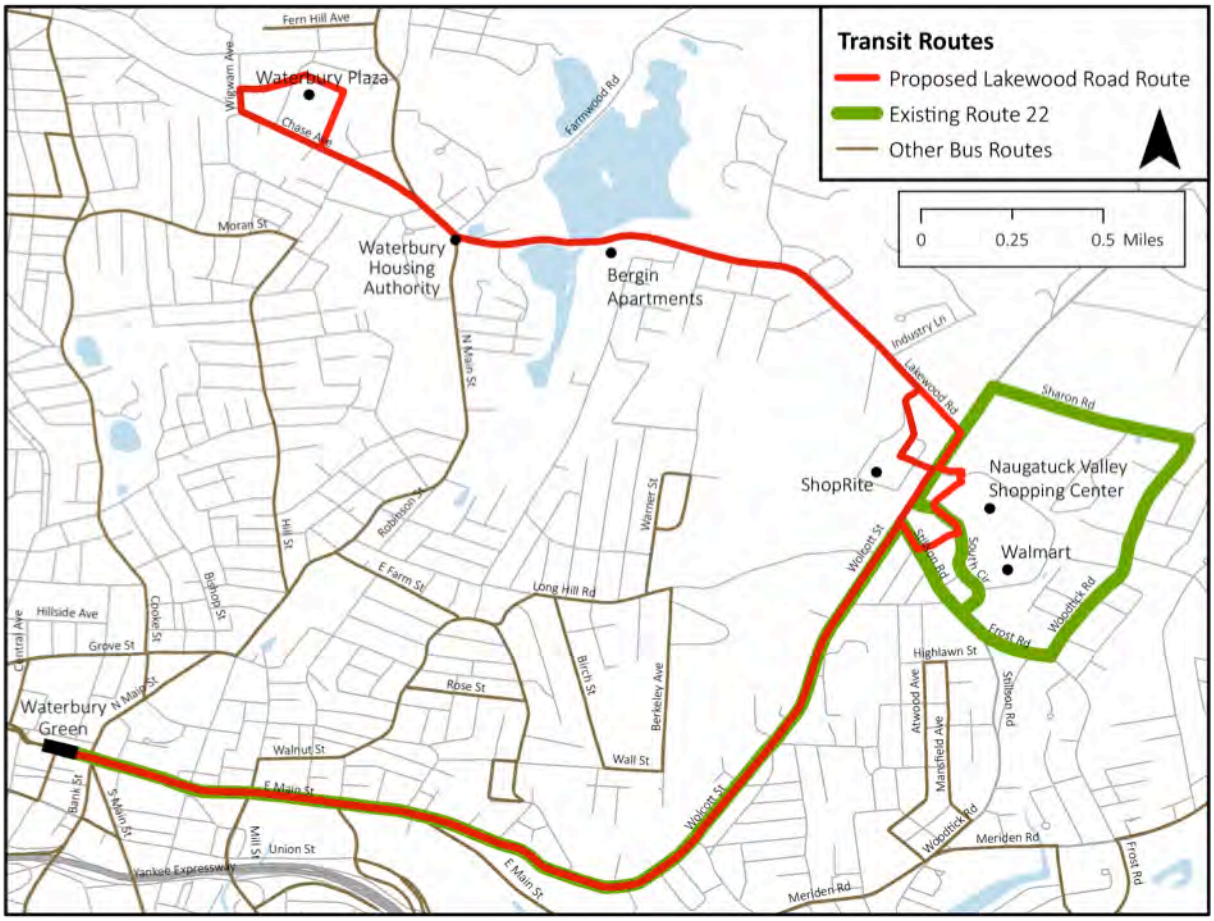
New Route on Lakewood Road

In April 2014, NET submitted a request to the Connecticut Department of Transportation (ConnDOT) to operate a new route in the Waterbury system along East Main Street, Wolcott Street and Lakewood Road, linking The Green to Waterbury Plaza on Chase Ave via Walmart and the Naugatuck Valley Shopping Center. The Wolcott Street-Lakewood Road Business Association identified this route as their highest priority service improvement in the Waterbury area. In addition to providing new access to the businesses on Lakewood Road as well as the Bergin Apartments, there are several other strong reasons why this route would be beneficial:

- By duplicating much of the mileage of Route 22 Wolcott, the Lakewood Road route will solve the overcrowding problem on that route.
- The route will connect the two most important shopping areas in Waterbury and provide direct access for residents along Lakewood Road including those at the Waterbury Housing Authority.
- Doubling the amount of service between The Green and Walmart/Naugatuck Valley Shopping Center will increase ridership and make travel more convenient for the many current riders in that corridor.
- It will increase transfer opportunities for riders who arrive at The Green on the hour who want access to the Wolcott Street corridor.
- The route will provide front door access to Waterbury Plaza on Chase Avenue, which is far superior to the back entrance on North Main Street. The current bus stop is far from the shops in the mall and has no facilities to speak of for the passengers.
- Increasing access to Waterbury Plaza will also reduce strain on the North Main Street routes, helping to relieve overcrowding there and reducing delays.
- The Lakewood Road route will be able to provide front door access to the Shop Rite on Wolcott Street on inbound trips, saving passengers heading into Waterbury a long walk to the street.

The proposed alignment for the Lakewood Road route is shown below in Figure 1. Note that the diversion to Naugatuck Valley Shopping Center occurs only on the outbound trip and the front door access to Shop Rite occurs only on the inbound trip. Thus, those shopping at Walmart or other stores east of Wolcott Street would need to ride out to Waterbury Plaza and back if they want to avoid crossing Wolcott Street, or else they would need to take Route 22 Wolcott Street to get back to the center of Waterbury.

Figure 1: Lakewood Road Route



NET has tested this route alignment and found that it will operate within a 60-minute cycle. The proposed service would operate with departures on the hour from 7:00 a.m. to 6:00 p.m. The final trip would arrive at The Green at 6:55 p.m. and then go out of service. On weekdays, it could be operated as a stand-alone route, or it could be interlined with another route. On Saturdays, it is proposed to operate the Lakewood Road route from 9:00 a.m. to 6:00 p.m., with the final arrival again at 6:55 p.m.

The Lakewood Road route would increase the peak vehicle requirement by one bus, but NET has indicated that its spare ratio is adequate to operate the route without having to purchase a new bus. The proposed twelve hours of service per weekday and ten hours of service per Saturday adds up to roughly 3,600 revenue hours of service per year. In the future, this route would be a candidate for evening service; that improvement is more appropriate for the longer-term plan.

The estimated gross operating cost for this route would be $377,000 annually. NET would likely no longer need to operate supplemental trips on 22 Wolcott if this route were in place, saving about $8,000 per year. The ridership on the new Lakewood Road route would very likely exceed 500 passengers per weekday, some of whom would be former 22 Wolcott passengers, but others who would be new riders. Saturday ridership would also likely exceed 500 passengers. Assuming half of

the riders are new passengers, and assuming an average fare of $1.03 (based on FY15 data provided by NET), the net annual cost increase to the system would be about $290,000.

Regular Service to Naugatuck

Bus service in Naugatuck currently consists of the following:

- Three round-trips on Tripper Route 74 between Waterbury and Naugatuck Industrial Park. Two of these run in the morning and the third runs in the afternoon.
- Six round-trips on each of the N1 and N2 local routes in Naugatuck, which are interlined with each other (to be renumbered 471, 472 and 473).
- A deadhead trip from The Green to Naugatuck at 9:00 a.m.
- A round-trip at 9:45 a.m. to Beacon Valley Road which is not listed in the public timetables.

As mentioned earlier, Naugatuck was the number one location in terms of requests for new service in the on-board survey. The three round-trips on Route 74 carry over 80 passengers total, while the twelve round-trips on the N1 and N2 combined carry only a total of 29. Given the poor performance of the Naugatuck local routes, it makes sense to consider reorienting the service hours to provide a better connection between Waterbury and Naugatuck.

Most of the riders on the west side of Naugatuck (the N1 route) had destinations on the west side (mostly Mount View Plaza) or along Rubber Ave toward the center of town. Only four passengers in the ridecheck transferred from the N1 to the N2, and they all exited the bus by the time it reached New Haven Road at Hazel Avenue. Thus, there was very little interaction between the two sides of Naugatuck.

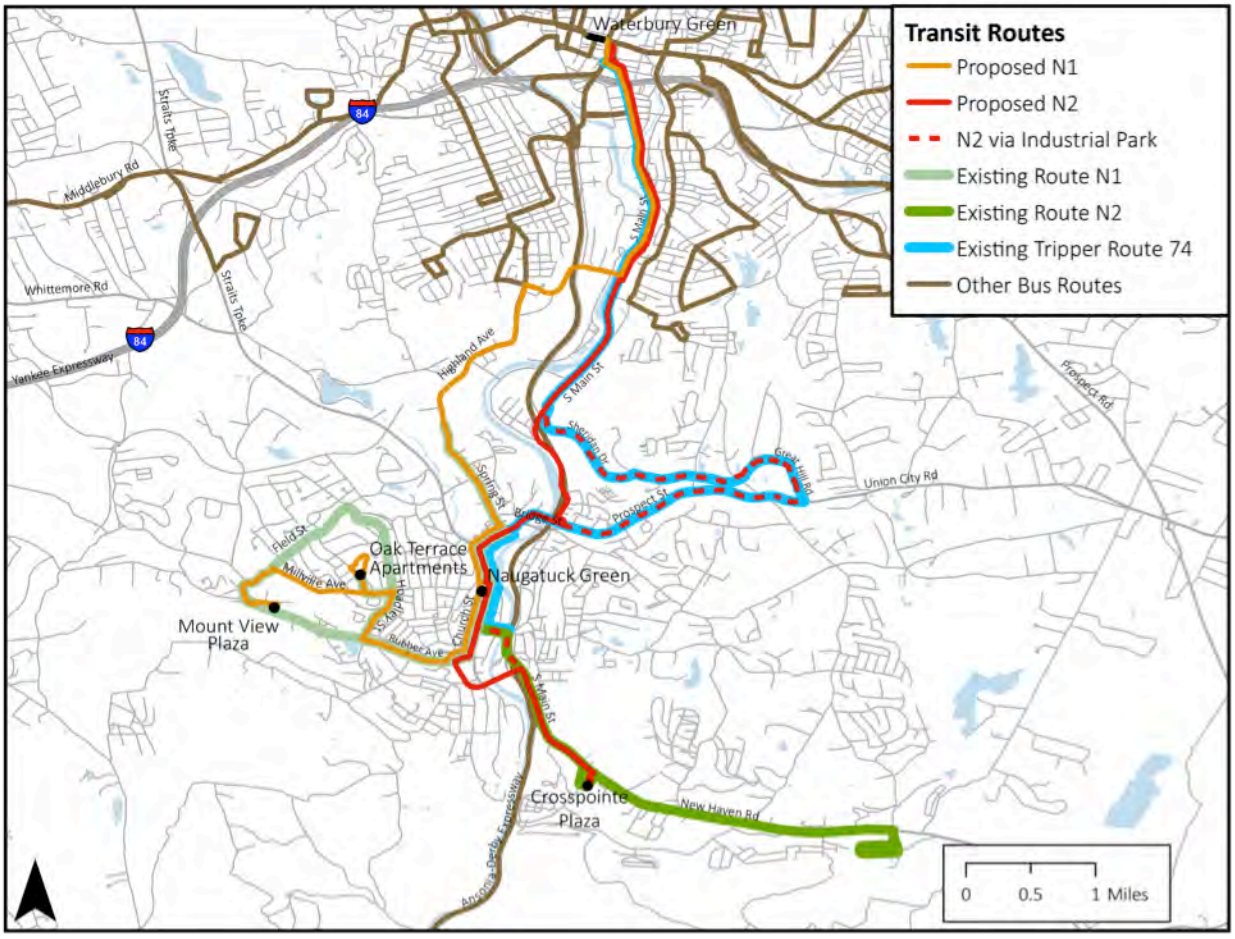
It is recommended to rework the bus service hours associated with Naugatuck into a full-day route between Naugatuck and Waterbury. The portions of the N1 and N2 routes that had boardings in the 2013 counts would be preserved as tail ends to the main trunk service between the Naugatuck Green and the Waterbury Green. This can be accomplished by running two routes alternating to the east and west sides of Naugatuck. To be most efficient, the current tripper service to the Naugatuck Industrial Park can be incorporated into this service. This plan should allow for close to hourly service between the two cities.

NET has prepared an alternative plan which would operate a bus every 90 minutes between Waterbury and Naugatuck and each trip would serve both sides of Naugatuck, first the west side, then the east side. The tripper service would continue to operate independently. While this is a workable alternative, the service proposed here would be superior in terms of efficiency and convenience for people wishing to travel between the two cities. The very small number of people transferring between the N1 and N2, especially compared to the potential market between the two city centers, does not justify degrading the trunk service to preserve the internal connections in Naugatuck (which would be convenient in only the eastbound direction in any case).

The proposed alignments are shown in the figure below. The west side route—replacement for Route N1—would operate via Spring Street and terminate at Mount View Plaza. It would serve Oak Terrace on both the outbound and inbound trips, providing a better connection to the shopping area than is currently available. A portion of Hoadley and Field Streets that garnered a total of 2 boardings all day would no longer be served. The estimated running time for this alignment (based

on field tests conducted by NET) is 63 minutes, plus about 5-6 minutes to turn the bus around in Waterbury to begin the next trip. That turn-around time would not be necessary if the route ends up being interlined with another route (such as the Lakewood Road route). It is possible that the second diversion into Oak Terrace (on the inbound trip) could be restricted to on-board requests only, which would save a few minutes of running time.

Figure 2: Naugatuck Routes



On the east side, selected trips, matching the current times of the tripper route, would serve the Naugatuck Industrial Park (dashed line in Figure 2), while the rest would travel to Crosspointe Plaza on a more direct route through the center of Naugatuck (solid red line in Figure 2). The round-trip running time from Waterbury to Crosspointe Plaza via the direct route is only 46 minutes.

It would be possible to interline the two Naugatuck routes together and operate them on a 2-hour cycle, though there would be only a minimal amount of recovery time. The cycle time for Route N1 would be 70 minutes and the time for Route N2 would be 50 minutes; thus the departures from Waterbury to Naugatuck would not be an even 60 minutes apart. The few trips involving service to the industrial park would push back the next departure by several minutes. Alternatively, 60-minute service could be operated when traffic is lighter, and 70-minute service at other times. Because there is minimal service to Naugatuck now operated, there is no base of current passengers who rely on it

to make connections to other Waterbury routes, so it is less necessary to have the schedule coordinated with the pulse times. Two draft schedules were prepared with different assumptions about running times.

Because of the number of hours of service already allocated to Naugatuck, this plan would not appreciably increase fixed route costs and may actually free up a bus for a portion of the afternoon when the N1/N2 and Tripper 74 currently operate simultaneously. However, with the implementation of full-day local service between Naugatuck and Waterbury, the region will be required to offer ADA complementary paratransit service between the two cities. Based on past usage patterns for "non-ADA" paratransit trips funded by the State, it is estimated that there would be about 250 ADA trips per month, or about 3,000 per year if this route were implemented. The gross cost for this ADA service would be about $128,000. ADA fare revenue would be $9,000, for a net ADA cost of $119,000. The current ADA service provided for the existing N1 and N2 routes, about 90 trips per month, is assumed to continue at its current level.

Total ridership on the bus services to Naugatuck would be expected to rise from just over 100 currently to about 300 per day (similar to Route 45 to Watertown). Almost all of this increase would be new riders to the system. Assuming an average fare of $1.03 per passenger, system revenue would increase by $52,000. Thus the total net cost of this proposal is $67,000.

Improved Service on North Main Street and to Town Plot

Among the routes with reliability problems, the pairs of routes that serve North Main Street and that travel to the Town Plot section of Waterbury stood out both in the ridecheck data and in passenger comments. Among these routes, all but Route 35 were two or more minutes late at least 40% of the time, making transfers to other routes difficult.

The North Main Street routes combined carry roughly the same number of weekday riders as the 22 Wolcott—about 850—while the Town Plot routes combined would rank second to Route 22, with about 650 weekday riders. Since these route pairs offer two trips per hour along the trunk portion of their alignments, they don't experience the same degree of overcrowding as Route 22, but they nonetheless carry significant loads for most of the service day.

In order to improve the reliability of these routes, the cycle time needs to be lengthened to allow for round-trip running times greater than 30 minutes at certain times of day and some degree of recovery time. Without additional resources, this would result in longer headways, fewer trips, and more crowding. With more resources, reliability could be improved, crowding would be reduced, and passenger convenience would be improved.

Lengthening the cycle time with more resources would also allow Route 15 Farmcrest to be extended farther north into the Bucks Hill neighborhood. In the Market Analysis, this portion of Waterbury was identified as having high transit need but no transit service. Extending Route 15 to turn around at the north driveway of Wilby High School would provide much better access to this neighborhood.

Based on running time observations in the 2013 ridecheck, it is proposed that the four routes in these two route pairs operate as a four-route interline with three buses and a 144-minute cycle time. Each route would operate with a 48-minute headway (as opposed to the current 60-minute

headway), so that the trunk portions of the routes would have a 24-minute headway (compared to the current 30-minute headway). The routes would operate in the following order: 15-36-16-35. A draft schedule has been prepared but is not included here.

Because of the 48-minute headway for each route, most of the departure times from The Green would not be coordinated with the pulse. Some of them would offer convenient transfers, but others would not. However, the improved frequency of service would result in shorter waiting times for most passengers, and the reduced crowding and improved reliability should be significant benefits for current riders. Indeed, the current reliability problems of these routes mean that many passengers are already missing their connections at The Green. More reliable service will allow passenger to plan for convenient connections when they are available and ride with more confidence and less anxiety regarding those connections.

Compared to the current two buses that operate the 15-35 and 16-36 interlines, this plan would require three buses and would add roughly 3,050 vehicle revenue hours of service per year for a gross cost increase of $319,000. Ridership would increase in response to the improved service; an estimated 150 new passengers would ride the four routes, generating about $40,000 in new fare revenue. The net operating cost for this service increase would thus be roughly $279,000.

Improved Service on Route 28 Scott Road

In the 2013 ridechecks, Route 28 had the worst reliability of any route in the system, with 100% of trips being 2 or more minutes late. The average running time for these trips was nearly 49 minutes, compared to the scheduled time of 40 minutes. Besides the running time issue, Route 28 offers a poor level of service to much of its alignment on Reidville Drive, Scott Road and Village Wood Drive. Route 28 is a large loop, returning to The Green via East Main Street, so it serves those roads south of I-84 in only the eastbound direction. Someone who shops at the Super Stop & Shop on Reidville Drive and wants to get back to The Green has to ride all of the way out to Austin Road and back on East Main Street. Route 28 also only operates eight round-trips per weekday, with a large service gap between 9:00 a.m. and 1:20 p.m. Finally, the service operated on East Main Street is largely redundant with Route 26 and 27, as well as the CTtransit J Route from New Haven. There are a few stops that Route 28 serves that are not served by the 26 Fairlawn and 27 Meriline, but they are all served by the J route.

It is proposed here to convert Route 28 to a bidirectional route between The Green and Austin Road. From The Green to Harpers Ferry Rd, the route would follow the alignment of the current Route 31 East Mountain (this is related to a proposed combination of routes 31 and 32 discussed below), all trips would enter the Brass Mill Center, and the route would divert from Scott Road to serve apartment complexes on Schraffts Drive and Stonefield Drive more directly. The route would terminate at Austin Road via a small loop. The proposed alignment is shown below in Figure 3.

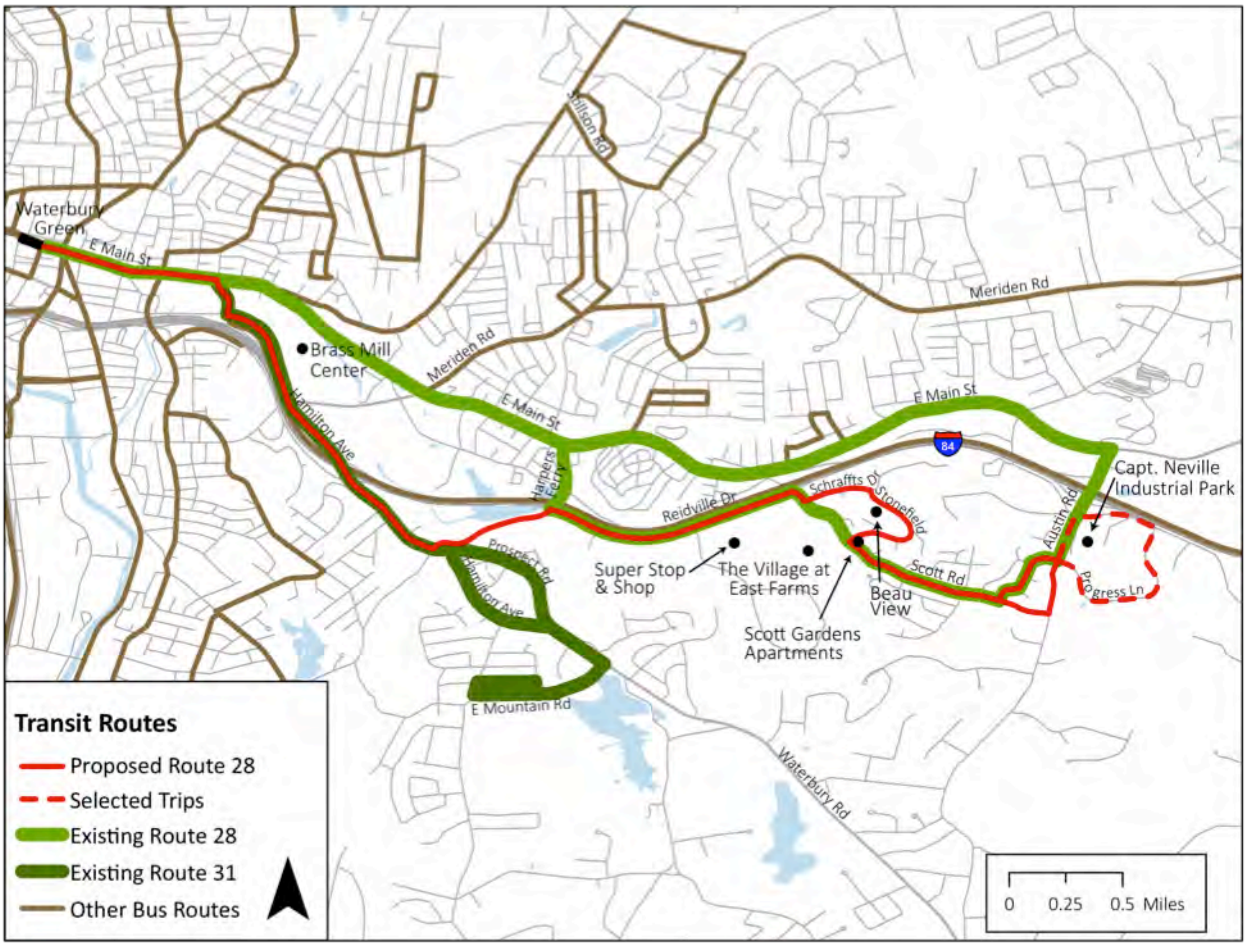
The westbound side of Reidville Drive has no sidewalks and is lined with a guardrail and small buffer between it and I-84. In order to provide bus stops across from the three current eastbound stops, concrete pads and shelters would need to be installed and crosswalks added to Reidville Drive. Even though the ridership numbers at these stops may not justify the installation of a shelter, the proximity of I-84 makes it necessary to have a shelter for the comfort of waiting passengers.

Schraffts Drive and Stonefield Drive have relatively steep grades. During slippery road conditions in the winter, it may be necessary to bypass those streets and stay on Scott Road instead. This type of snow-related diversion is currently operated at other locations in the Waterbury system.

Certain trips on the current Route 28 are extended to the Capt. Neville Industrial Park. That would continue to be the case with the new Route 28. Current Route 28 riders along East Main Street would switch to Route 27 or the J route.

The new Route 28 would operate as a stand-alone route on a 60-minute cycle. To provide maximum coverage of the Brass Mill Center, it should depart The Green on the hour, so that it is coordinated with Route 22 Wolcott (which also stops at Brass Mill with trips leaving The Green on the :30). No additional buses would be needed to operate this route. The route could be operated with a similar level of service as the current Route 28 (eight trips per weekday), in which case the operating cost would be similar. There is probably sufficient demand, however, to justify a full-day schedule from 7:00 a.m. to a final departure at 6:00 p.m. As of now, the first trip to Capt. Neville Industrial Park is handled by Route 27 at 6:30 a.m. That could continue to be the case, or the new Route 28 could start early enough to serve those workers and relieve Route 27 of that burden.

Figure 3: Restructured Route 28



If Route 28 were to offer full-day service, approximately 1,700 additional vehicle revenue hours would be incurred at a gross cost of $179,000. With the additional service provided and greater convenience of bidirectional service for its full alignment, the improved Route 28 would be expected to attract 300 new weekday riders, resulting in about $79,000 in new fare revenue. Thus the net cost of the improvement would be $100,000.

Convert Route 26 to Route 27

Current service on East Main Street consists of alternating trips between Route 26 Fairlawn and Route 27 Meriline, supplemented by inbound trips on Route 28 and trips on the J route. Route 26 is a shorter version of Route 27, turning around via Frost Road and Melrose Avenue. The stops in the turnaround loop generate very little ridership (4 ons and 9 offs over the entire day for all of the stops combined), and these stops are within easy walking distance of East Main Street. Meanwhile, the stops on East Main Street east of the Route 26 turnoff generated significant ridership: 40 ons and 65 offs.

It is proposed to discontinue Route 26 and operate all East Main Street trips as Route 27. All of the Route 27 trips, which would now run every half hour, would be interlined with Route 11 to allow for the extra running time that Route 27 requires. (Route 31 would no longer be interlined with Route 11—see below for more details.) This changes simplifies service on East Main Street as well as the interlining scheme. All Willow Street riders would know that their bus would continue onto East Main Street, instead of nearly half of the trips continuing to East Mountain. To improve reliability and recognizing that most Route 27 trips take slightly more than 30 minutes to complete, the departure times of Route 11 should be moved 5 minutes later, after the pulse has departed.

This change would have other operational impacts, since Route 26 is currently interlined with Route 44 during weekday daytime hours. After the conversion, all Route 44 trips would be interlined with Route 33, as already occurs in the evening and on weekends, thus further simplifying the interlining scheme and making it more consistent for passengers. The other half of Route 33 would continue to be interlined with Route 12.

There would be no change in operating costs or bus requirements as a result of this change. A small number of new riders would be attracted to the system, probably on the order of 20, resulting in about $5,000 in new fare revenue per year.

Combine Routes 31 and 32

Other than the local routes in Naugatuck, the lowest ridership routes in the Waterbury system are Route 31 East Mountain and Route 32 Hopeville Sylvan. These routes have 60-minute headways for most of the day, but they both have a service gap between 9:00 a.m. and midday. Almost all of the trips operated on these routes have ridership in the single digits.

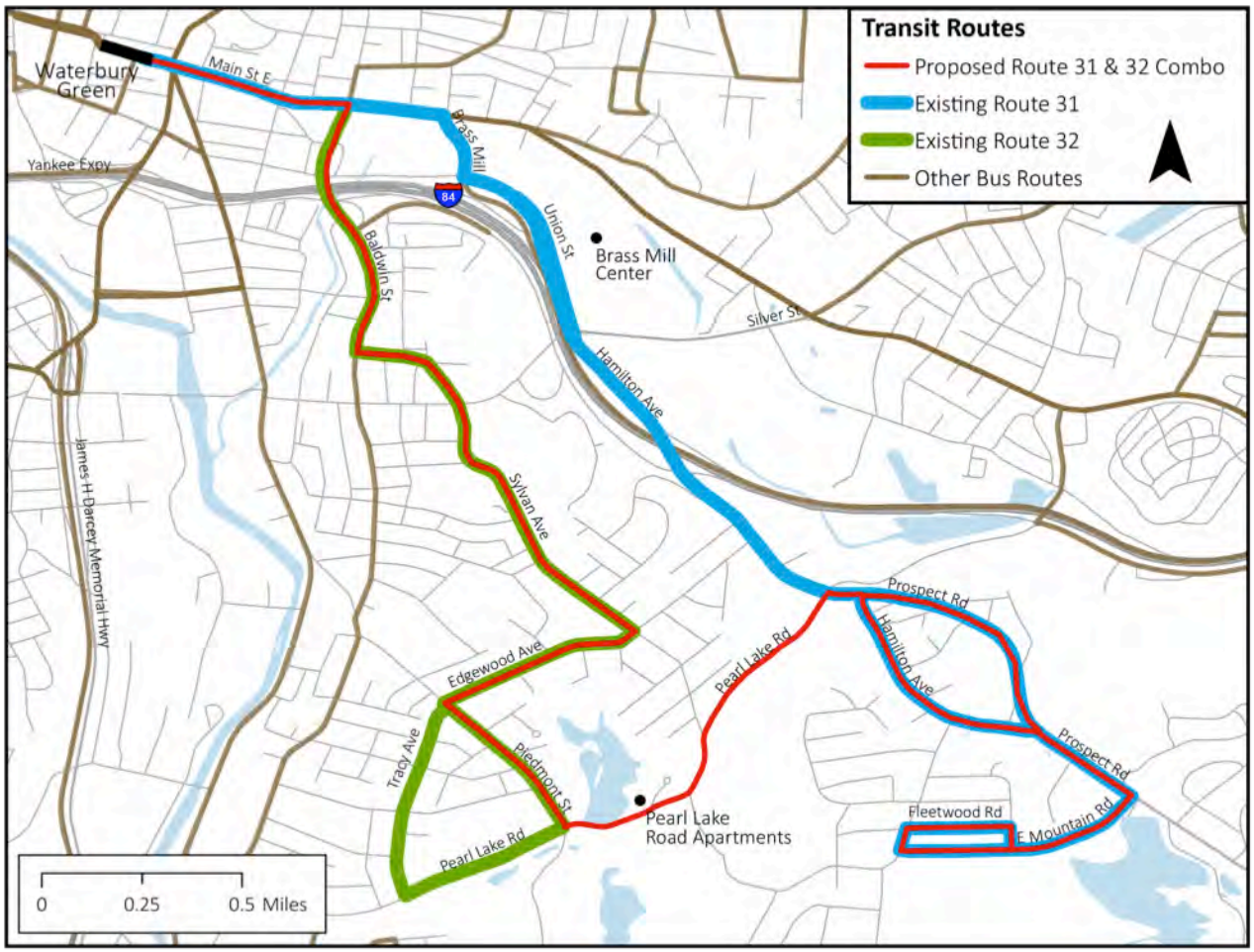
In order to free up resources to help pay for the recommended service improvements, it is proposed to combine these two routes into a single alignment and operate it at a lower level of service. The proposed alignment is shown below in Figure 4. It assumes that Route 28 would take over the portion of Route 31 between The Green and Harpers Ferry Road. The rest of the alignment is designed to serve all of the stops on the current routes 31 and 32 that have the most ridership, though none of these stops have more than 10 boardings per day.

This alignment does improve access for the apartments on Pearl Lake Road just east of the lake, though siting a bus stop there may be difficult due to the grade and width of the road.

The assumed round-trip running time for this route is 44 minutes. It is proposed that it operate with an 80-minute headway, interlined with Route 40 (see below). If it were operated through the morning (as Route 40 is), then there would actually be an improvement in service between 9:00 a.m. and noon. NET has voiced concern that a 44-minute running time may not be feasible. There are 11 minutes of layover time available in the 80-minute cycle with Route 40 (see below), but if running time is inadequate, the interline could be operated at 90 minutes, which would coordinate better with pulse times.

Increasing the headway from 60 minutes to 80 minutes would result in the loss of about 20 riders, costing about $5,000 in lost fare revenue. The change in operating cost (assuming service through the mid-morning) would be a gross savings of $48,000 (460 revenue hours). If the service is not operated in the mid-morning, the gross savings would be larger at $93,000.

Figure 4: Combined Routes 31 and 32



Reduce Service on Routes 40 and 12

After routes 31 and 32, Route 40 Town Plot/Highland is the next lowest ridership route in the Waterbury system. Of all the trips operated on Route 40, none carried more than 15 passengers, and most were in single digits. As indicated above, it is recommended to reduce service on Route 40 so that it runs every 80 minutes (or possibly 90) instead of every 60, and join with the new combined 31/32 in an interlined pair. Its average running time of 25 minutes would fit easily with the estimated 44-minute running time of the 31/32 into an 80-minute cycle, with 11 minutes of recovery time built in. As Route 40 is now interlined with Route 20, Route 20 would in the future be interlined with Route 42, which is now interlined with Route 32 (which will no longer exist as an independent route). Likewise, Route 31 will no longer need to be interlined with Route 11, freeing up that route to be interlined all day with Route 27 as described earlier. The result of this service reduction on Route 40, combined with the reduced service on Routes 31 and 32, is to free up half of a bus during the AM peak period and in the afternoon. It would save 580 revenue hours per year, for a gross operating cost savings of $61,000. About 30 riders would be lost because of the lower service level, costing about $8,000 in fare revenue. Thus the net savings would be about $53,000.

To free up a second half of a bus (which could then be used on either the Lakewood Road route or on the improved North Main/Town Plot service), it is recommended to reduce service on Route 12 Hill Street. This route operates with a 30-minute headway most of the day, but its productivity is much lower than other routes. Indeed, other than outbound trips from 2:30 p.m. to 5:30 p.m., the ridership on Route 12 trips is mostly in the single digits. It is recommended to operate service on Route 12 hourly throughout the day (interlined with Route 33 as it is is now), thereby freeing up another half bus. Because of the increased demand in the afternoon, three additional trips should be operated departing The Green at 3:00 p.m., 4:00 p.m. and 5:00 p.m. Furthermore, these trips should continue beyond the end of the line at White Street to Oakville via the Route 13 alignment because afternoon loads on Route 13 are relatively heavy. The cost savings from this plan would be about $35,000 annually. There would be little net ridership change, as the few lost riders in the morning would likely be balanced by several new riders in the afternoon.

Remove Little-Used Deviations

There are three part-time deviations on routes 15, 25, and 42 that garner little ridership:

- Kearney Drive – deviation from Route 15 Farmcrest
- Mansfield Loop – deviation from Route 25 Hitchcock Lake
- Judd's Corner – extension of Route 42 Chase Parkway

NET personnel have counted the number passengers using stops on these deviations periodically and repeatedly found that no more than one or two passengers used those stops over the course of the entire day. Indeed, among the seven bus trips that extend past the Leever Cancer Center on Route 42, the 2013 ridechecks found only four total boardings and eight total alightings, including only three people traveling to Post University (they were all on the 6:30 a.m. trip).

At a minimum, the three deviations should be converted to request-only stops, requiring an advance (24 hours) reservation. They could also be eliminated entirely, but that may increase costs for ADA service in case any of the few passengers in these areas are eligible for ADA service.

Consideration should also be given to terminating all Route 42 trips at the Leever Cancer Center. This change would allow for all trips to serve Naugatuck Valley Community College directly, which was requested by James Troup from NVCC during stakeholder outreach.

The impacts of these changes would be to improve reliability for Route 15 and Route 25 by reducing the running time on trips that currently make the deviations to Kearney Drive and the Mansfield Loop. There would be only a minimal cost savings as a result, saving a few miles of travel per day.

Truncating Route 42 at the Cancer Center would result in a more significant cost savings, and a slight loss in ridership of perhaps 5-10 passengers per day. Eliminating all service past the Cancer Center but preserving the same number of trips as operated today for the route as a whole would result in a net savings of about $37,500 per year (due to saving about 90 minutes of revenue time per weekday).

If more savings were desired, the 10:00 a.m. round-trip could be eliminated, as it carried relatively few riders. In that case, the 10:40 a.m. trip should be moved a bit earlier to 10:30 to avoid too large of a gap in service. Cutting the 10:00 a.m. trip would save about $17,000 annually.

Weekend Service Concepts

Two short-term improvements were developed for weekend service to provide broader service coverage and address major reliability issues with Route 27/28. At the same time, one service reduction was developed to help free up resources to pay for the improvements. Taken together, there would be little or no increase in gross operating costs, but there would be an increase in ridership, thereby generating new revenue.

Enhance Saturday Morning Service

In the current schedule, routes 13 Oakville, 25 Hitchcock Lake, and most importantly 22 Wolcott begin Saturday service at the relatively late hour of 9:30 a.m. In contrast, the North Main Street, Town Plot and Watertown routes (15, 16, 35, 36, and 45) begin Saturday service at 6:00 a.m. or earlier. Most of these early morning trips are poorly patronized, with total ridership in the low single digits.

It is recommended to transfer some of the service from the routes that currently have an excess of early morning service to those routes that have the 9:30 a.m. start time. Specifically, it is recommended to do the following:

- Convert the 6:30 a.m. trip on Route 45 Watertown into a trip on Route 22 Wolcott.
- Until 9:00 a.m., operate trips on routes 15 and 36 only, interlined with each other
- Operate a round-trip at 8:30 on routes 13, 25, and 22 using the hours saved from routes 16 and 35

The reduced early service on North Main Street and Town Plot would save 3.5 hours of revenue time. The new trips for routes 13, 25, and 22 would take 2.5 hours of additional revenue time, assuming that Route 13 is operated only as far as Northridge (see below). Because there would be additional deadhead time to operate three buses at 8:30, compared to a single bus being operated for 3.5 hours on the other routes, it is assumed that the net change in cost would be close to zero. With

this additional Saturday morning service, it would no longer be necessary to operate Route 18 trips to Kmart, thereby saving some revenue time.

In terms of ridership, it is estimated that the service reductions on routes 16, 35, and 45 would result in 25 lost passengers total. However, the new service on routes 13, 25, and 22 would generate 20, 30, and 75 riders, respectively, for a total net gain of 100 passengers per Saturday. That would result in about $5,000 in new fare revenue annually.

Improve Route 27/28; Truncate Route 13

In the 2013 ridechecks, the combination of routes 27 and 28 that operates on weekends ran late on almost all trips. With a 30-minute scheduled running time, the average actual running time was about 35 minutes. Because it is interlined with Route 11 Willow, the cumulative effects of the late running were not devastating to the schedule, but there was nonetheless ample evidence that the route is unable to meet its current scheduled times.

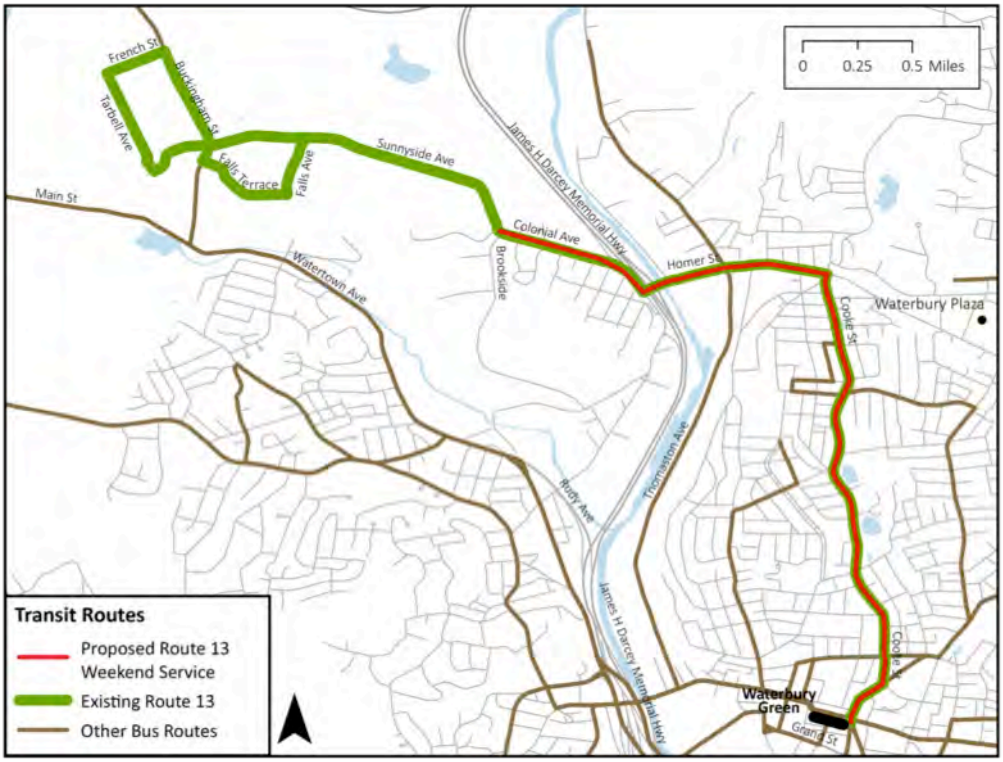
It is proposed to operate the combination 27/28 as a standalone route with a 40-minute cycle time and a 40-minute headway. This level of service will allow for much more reliable operations, as well as offering a 50% increase in the amount of service available in the busy East Main Street corridor. In an ideal world, routes 27 and 28 would be operated independently, but that cannot be achieved in the short term without an unexpected increase in resources.

As a standalone route, the 27/28 will need a full bus to itself rather than sharing a bus with Route 11 Willow. To compensate for this shift of resources, it is recommended to truncate Route 13 Oakville at the Northridge Apartments (Colonial at Brookside) on weekends. (See Figure 5.) The ridecheck data from 2013 show minimal boardings past Northridge on weekend days: 6 total inbound ons for Saturday and 4 total inbound ons for Sunday. Terminating the route at Northridge allows Route 13 to complete a round-trip in about 30 minutes (based on current scheduled running times).

With a 30-minute running time for Route 13, the current 13-25 interline could be expanded to include Route 11 Willow in a 120-minute cycle with two buses. Thus, the current operation of routes 11, 27/28, 13 and 25 takes three buses, and the future operation of all of those routes would also take three buses, resulting in no net cost increase. Furthermore, all departure times from The Green would remain the same for routes 11, 13 and 25. Possible late running of Route 13 would be compensated for by the short running time of Route 11 so that the overall cycle time for the interline can be maintained.

The headway improvement for Route 27/28 should result in about 175 new passengers on Saturdays and 50 new passengers on Sunday. There would be a few lost passengers on Route 13 on weekend days, likely 5 or less. The net increase in riders would generate about $12,000 in new fare revenue annually. There would be no change in operating cost for this improvement.

Figure 5: Truncated Weekend Service on Route 13



Implementation

The Short Term plan was conceived as a series of actions that could be implemented within a one-to-three year timeframe. That is not to say that they could or should be implemented all at once. This section provides some guidance as to the priority and timing of implementation for the Short Term service concepts. Note that all of them, with perhaps the exception of the Lakewood Road route which has already been planned and proposed in detail, would require additional implementation planning and scheduling work.

Some of the Short Term concepts can be implemented as standalone changes, while others must be implemented as a package to avoid service disruption to some passengers. Considering these linkages, the following is a list of the individual service change packages that comprise the overall plan:

- Lakewood Road – This is a standalone service.
- Naugatuck – This is a standalone service but affects existing routes N1, N2 and Tripper 74, as well as other trips in the schedule between Waterbury and Naugatuck that don't appear in public timetables.
- North Main/Town Plot – These four routes together function as a package.
- Scott Road, East Main, Willow, East Mountain and Highland package – The proposed combination of 31 East Mountain and 32 Hopeville/Sylvan depends on the implementation

of Route 28 Scott Road. The conversion of Route 26 trips to Route 27 trips depends on the Route 31/32 combination, since that frees up Route 11 Willow to be the interline partner for the new Route 27 trips. Route 40 Highland would not have a service change until the Route 31/32 combination happens.

- Hill Street – The reduction of service is a standalone change, but it would not be implemented without other service increases happening at the same time (such as North Main/Town Plot)
- Chase Parkway – The truncation of service is a standalone change.
- Saturday morning reallocation – These changes would all happen together, but they are not dependent on any other changes.
- Saturday East Main and Oakville – These changes would happen together, but are not dependent on any other changes. They would entail a revision of the interline, involving 11 Willow, but it would not have any other impacts on that route.

With these packages in mind, the following table summarizes the recommended implementation timeframes for the Short Term plan.

Summary of Short-term Implementation Recommendations

Route	Service Change	Priority	Dependency	Proposed Timing
Lakewood Road	New route	High	None	Spring 2018
Naugatuck	Restructuring	High	None	Spring 2018
N Main/Town Plot	Reduced headway	Medium	Evaluate after Lakewood Rd is in operation	Fall 2018
28 Scott Road	More service	Medium	Construction of bus stops	Fall 2018
27 E Main St	Convert 26 to 27	Medium	31/32 combo	Spring 2019
31 and 32 combination	Combine routes	Medium	Route 28 on Hamilton	Spring 2019
40 Highland	Increased headway	Medium	31/32 combo	Spring 2019
12 Hill Street	Increased headway	Low	None	Fall 2018 (if North Main is implemented then)
42 Chase Pkwy	Truncated	Low	None	Fall 2018 (if North Main is implemented then)
Various	Sat AM reallocation	High	None	Spring 2018
27/28 and 13	Improve 27/28; truncate 13	Medium	None	Fall 2018

Review of Bus Stop Facilities

The bus stop is the community's first interaction with the Waterbury bus system. While every stop will not afford the same physical space or customer amenities, particularly in older urban environments, it remains important for CTtransit and the City of Waterbury to provide safe, functional facilities for bus riders throughout the system. Access to and from bus stops is also critical to passenger safety and comfort, and these are driving factors behind whether people choose to use the bus system at all. Bus stop accessibility and amenities represent an important area for potential improvements at the local level to ensure that all customers, notably those with disabilities or difficulty walking, are willing and able to use the system.

The study team conducted a field review of system's busiest bus stops, including those associated with the Waterbury Green and the 25 busiest stops in terms of weekday passenger boardings. This review allowed for a qualitative assessment of typical conditions throughout the system as well as notable issues and opportunities at individual stops where ridership activity is highest. Each stop was reviewed for the presence of passenger amenities and accessibility concerns.

General considerations for accessible bus stops and nearby sidewalks include:

- Smooth, unbroken pavement at bus stop and sidewalks
- Adequate sidewalk and bus stop width for wheelchairs and other mobility devices
- Ramps at sidewalk curb cuts
- Shelter and bench when ridership warrants
- Informative signage (bus routes serving stop, schedule information, bus operator, contact information)
- Street lighting
- Safe street crossings between inbound and outbound bus stops

Comprehensive guidelines can be found in the Transit Cooperative Research Program's report number 19: *Guidelines for the Location and Design of Bus Stops* (see: http://nacto.org/docs/usdg/tcrp_report_19.pdf).

Detailed field assessments of the Waterbury Green and the 25 busiest stops can be found in Appendix 3. The following provides a brief summary of the findings and highlights key conclusions.

Waterbury Green (Exchange Place) Transfer Point

The Green is the busiest location within the Waterbury bus system, with over 4,500 boardings on a typical weekday. It is located in Downtown Waterbury, providing access to the highest concentration of trip destinations in the region, and also functions as the transfer point between routes. On The Green itself, seating is generally available along West Main Street along with several shelters for customers. However, on the south side of West Main Street, sidewalks are constrained and no formal seating is available, often resulting in substantial crowds and blockage of the sidewalk.

While The Green has functioned as the central hub for the bus system in Waterbury for decades, it leaves much to be desired in terms of passenger amenities and comfort, and is also a concern for downtown property owners and the business community. While some short term improvements in

comfort and passenger flow may be possible through scheduling and stop relocation, the long term solution is to construct a new transit facility somewhere in the vicinity of downtown.

Stops Outside of Downtown

Brass Mill Center

With bus stops exhibiting high boarding volumes at locations outside of the downtown hub on The Green, the intensity of use underscores the importance of accessible infrastructure and amenities to offer bus customers a safe and comfortable experience. The system's busiest stop, not including The Green, is at the Brass Mill Center (173 passengers per day). Here, customers are afforded wide, well-maintained sidewalks, a shelter, and seating, as this stop benefits from its location within a well-used, private commercial development.

Wolcott Street at Long Hill Road

In contrast, there are important accessibility concerns at many stops throughout the system, including those among the highest ranked in daily boardings. Sidewalk conditions vary, often paved with rough asphalt or uneven, broken concrete due to frost heaves, weather and wear and tear. When sidewalks are not maintained, access to and from bus stops becomes more difficult and often unsafe. Furthermore, many stops lack sidewalks altogether, offering either a paved pad at the stop itself or no paved infrastructure whatsoever, such as at Wolcott Street at Long Hill Road (95 boardings per day).

Establishing standards and thresholds for specific bus stop amenities allows operators and municipalities to ensure that the busiest stops meet goals for comfort and safety. Based on volumes associated with the 25 busiest stops off of the Green, 50 boardings per day appears a viable threshold to provide basic amenities such as benches and shelters, recognizing that some existing sidewalks and street rights-of-way would require modification or improvement to provide an adequate footprint for such features, for example, Congress Avenue at Poplar Place (61 boardings per day).

Congress Avenue at Poplar Place

Recognizing that ongoing maintenance costs are an important concern when considering new investments in passenger facilities, and that snow clearance in winter adds another layer of cost and responsibility, it must again be emphasized that safe and comfortable bus stops, including access to and from the stops, are an integral part of any bus system. Upgrades to the bus service operated must be accompanied by upgrades to the facilities that passengers use while waiting for the bus.

Long Term Recommendations

Key Themes

In order to provide a context for the long-term plan, the following themes are presented below.

Service Level Goals

The peer analysis that was included in the Market Analysis of this study showed that Waterbury operated a relatively small amount of service compared to its population and ridership. The set of 23 peer agencies had a ratio of 0.56 annual revenue hours per capita, but in Waterbury, the figure was only 0.44 revenue hours per capita, about 21% lower. There was quite a bit of discussion in the Market Analysis about the very high productivities of the Waterbury routes, which are a product of high demand and a low level of service. Indeed, Route 22 Wolcott is the "poster child" for this phenomenon, with the highest ridership in the system, but service that operates only once per hour. While the Short Term Plan would help to alleviate the worst cases of crowding and poor reliability in the system, further service increases are warranted to bring the Waterbury system more in line with its peers.

Role in the Community

A transit system can play a variety of roles in the community depending on the service it offers, the alternatives available, and how the system is perceived. In Waterbury, the great majority of riders are dependent on the system for most or all of their mobility needs. Based on the passenger survey taken at the beginning of this project, only about 10% of current riders have the option of driving instead of taking the bus. Among the 90% who did not have the option of driving, more than two-thirds did not have a driver's license or were otherwise unable to drive, and the other third had no car available.

With such an overwhelming majority of passengers being dependent on public transportation, the general perception of transit in Waterbury is that it is more of a social service function oriented toward low-income individuals, teenagers and seniors, than a transportation mode that is for the whole community. The fact that the system has a low level of service generally, with many routes operating at 60-minute headways and only a skeletal system operating in the evenings, means that people who have other transportation options and who value their time will feel that the current system is not relevant to them.

A Changing Market

Although the bus system in Waterbury has not changed substantially in many years (other than the addition of evening service), there are changes happening in Waterbury and the surrounding areas which are adding to the pressure for the bus system to evolve and improve. Housing in Waterbury is affordable relative to other areas and more people are using Waterbury as a bedroom community as they commute to jobs in New Haven, Hartford, Meriden, Danbury and other cities. These longer-distance commuting trips are a good market for public transportation, as the savings compared to driving is greater.

Once the WATER project, funded by a federal TIGER grant, is complete, the southwestern side of the downtown area will be transformed. New housing and commercial development will generate new travel demand in an area that will be highly accessible to the bus system.

Waterbury is part of a national trend toward younger people forgoing automobile ownership and using public transportation more frequently than older generations. This new generation is more open to using the public transit system and does not share the perception that buses are just for poor people.

In order to attract and keep new riders among the commuter market, new residents, and younger people, the level of service operated needs to improve so that riders will find the Waterbury bus system to be convenient, comfortable and reliable. Investments in passenger facilities and technology are also critical, but the basic service operated has to meet the needs of the riding public and not force people to wait excessively to get where they need to go.

Local Routes

The starting point for the long term plan for local bus routes in Waterbury is the recommended Short Term Plan. The long term plan for local routes retains the route structure of the Short Term Plan, but increases the level of service in three ways:

- **Evening service –** Rather than evening routes operating as a reduced version of the regular daytime service, with various routes combined into large loops, the long term plan recommends that the regular route structure be extended to cover all of the evening hours of service.
- **Span of service –** In addition to the change in weekday evening service, the overall span of service is recommended to be expanded and made more consistent. The largest impacts are seen on Saturdays and Sundays.
- **Frequency of service –** The last, but most important, change is to operate more service on the most productive routes, reducing the headways from up to 60 minutes on important corridors to the range of 15 to 20 minutes. With three to four trips per hour, the routes become attractive to riders who have other travel options and the system becomes more relevant to the entire community.

Details on these service changes are provided in the sections below.

Evening Service

In the current system, only routes 11, 22, 33, 36, and 44 operate in their regular pattern into the evening hours. While routes 17, 31, 32, 35, and the Naugatuck routes have no evening service at all (except for the fact that Route 35 overlaps to a large extent with Route 36), the other routes in the system are operated as combination routes, with the outbound direction serving one of the routes in the combination and the inbound direction serving the other. The current combination routes are 12/13, 15/16, 18/20, 25/28, and 40/42. Route 25/28 also covers all of the East Main Street mileage covered by routes 26 and 27.

In the proposed long term plan, all routes with evening service would operate in their regular daytime configuration. The new proposed end times for each of these routes would be as shown in Table 1.

Table 1: Weekday Evening Service

Route	Proposed End Time	Note
11	11:56 PM	Same as current
12	10:00 PM	Earlier than current combo
13	11:57 PM	Same as current combo
15	11:57 PM	Same as current combo
16	11:57 PM	Same as current combo
17	9:00 PM	No current evening service
18	12:12 AM	Same as current combo
20	12:12 AM	Same as current combo
22	11:59 PM	Same as current
23	10:00 PM	New route
25	12:12 AM	Same as current combo
27	12:12 AM	Same as current combo
28	12:12 AM	Same as current combo
31/32	6:15 PM	No evening service proposed
33	11:59 PM	Similar to current
35	5:58 PM	Same as current
36	12:10 AM	Same as current
40	9:00 PM	Earlier than current combo
42	12:17 AM	Same as current combo
44	11:57 PM	Same as current
45	9:00 PM	No current evening service
N1	9:00 PM	No current evening service
N2	8:00 PM	No current evening service

In the five years of operation of evening service in Waterbury, a solid level of demand has been established. Expanding the level of service in the evening and operating a service pattern consistent with regular daytime service will undoubtedly draw more riders to the system (see Ridership Impacts section below). The proposed end times shown above in Table 1 are not an aggressive expansion compared to the current evening span of service, but much more service would be operated within those hours than is true under the current system.

Span of Service

In addition to the changes in weekday evening service described above, the long term plan recommends an extension of the span of service on Saturdays and Sundays. The changes on Saturday are relatively minor, except for applying the same general principle of operating the regular

service pattern into the evening hours as is proposed for weekdays. For some routes, a slightly later start in the morning is recommended, in line with the recommendations of the Short Term Plan. Table 2 shows the current Saturday service operated and the proposed span. All proposed service would run with the regular route pattern.

Table 2: Saturday Service

	Current			Proposed	
Route	**Configuration**	**Start**	**End**	**Start**	**End**
11	Regular	6:00 AM	11:56 PM	6:00 AM	11:56 PM
12	Combo 13 after 6p	6:30 AM	11:57 PM	6:30 AM	10:00 PM
13	Combo 12 after 6p	9:10 AM	11:57 PM	7:30 AM	11:57 PM
15	Combo 16 after 6:30p	6:00 AM	11:57 PM	6:00 AM	11:57 PM
16	Combo 15 after 6:30p	5:45 AM	11:57 PM	6:30 AM	11:57 PM
17	Regular	6:15 AM	1:45 PM	6:15 AM	8:00 PM
18	Combo 20 after 7p	6:00 AM	12:15 AM	6:00 AM	12:12 AM
20	Combo 18 after 7p	6:00 AM	12:15 AM	6:00 AM	12:12 AM
22	Regular	9:30 AM	12:00 AM	6:30 AM	11:59 PM
23	New route	X	X	7:00 AM	10:00 PM
25	Combo 28 after 6:30p	9:30 AM	12:12 AM	7:30 AM	12:12 AM
27	Combo 28 day; combo 25 eve	5:45 AM	12:12 AM	5:45 AM	12:12 AM
28	Combo 27 day; combo 25 eve	5:45 AM	12:12 AM	5:45 AM	12:12 AM
31/32	No service	X	X	X	X
33	Regular	5:45 AM	12:12 AM	5:45 AM	12:12 AM
35	Regular	5:45 AM	5:58 PM	5:45 AM	5:58 PM
36	Regular	6:00 AM	12:10 AM	6:00 AM	12:10 AM
40	Combo 42	5:45 AM	12:17 AM	7:00 AM	9:00 PM
42	Combo 40	5:45 AM	12:17 AM	6:00 AM	12:17 AM
44	Regular	6:30 AM	11:57 PM	6:30 AM	11:57 PM
45	Regular	5:30 AM	6:22 PM	5:30 AM	9:00 PM
N1	No service	X	X	9:00 AM	9:00 PM
N2	No service	X	X	8:00 AM	8:00 PM

On Sundays, most routes currently operate between 9:15 or 9:30 a.m. and 5:00 p.m. It is recommended to increase the span generally to 8:00 a.m. to 8:00 p.m., with a few routes having a slightly earlier end time. Table 3 shows the proposed span of service for Sundays. As with all other service, the regular route pattern would be operated.

Table 3: Sunday Service

	Current			Proposed	
Route	Configuration	Start	End	Start	End
11	Regular	9:15 AM	5:08 PM	8:00 AM	8:00 PM
12	Regular	9:30 AM	4:57 PM	8:00 AM	6:00 PM
13	Regular	9:10 AM	5:00 PM	8:00 AM	8:00 PM
15	Regular	9:15 AM	5:09 PM	8:00 AM	8:00 PM
16	Regular	9:30 AM	4:58 PM	8:00 AM	8:00 PM
17	No service	X	X	8:00 AM	6:00 PM
18	Regular	9:13 AM	4:27 PM	8:00 AM	8:00 PM
20	Regular	9:15 AM	5:08 PM	8:00 AM	6:00 PM
22	Regular	9:30 AM	5:20 PM	8:00 AM	8:00 PM
23	New route			8:00 AM	8:00 PM
25	Regular	9:30 AM	4:55 PM	8:00 AM	8:00 PM
27	Combo 28	9:30 AM	4:58 PM	8:00 AM	8:00 PM
28	Combo 27	9:30 AM	4:58 PM	8:00 AM	8:00 PM
31/32	No service	X	X	X	X
33	Regular	9:15 AM	5:12 PM	8:00 AM	8:00 PM
35	Regular	9:30 AM	4:58 PM	8:00 AM	8:00 PM
36	Regular	9:15 AM	5:12 PM	8:00 AM	8:00 PM
40	Combo 42	9:30 AM	4:56 PM	8:00 AM	7:15 PM
42	Combo 40	9:30 AM	4:56 PM	8:00 AM	8:00 PM
44	Regular	9:30 AM	4:58 PM	8:00 AM	8:00 PM
45	Regular	9:30 AM	5:00 PM	8:00 AM	8:00 PM
N1	No service	X	X	X	X
N2	No service	X	X	X	X

These extensions of the span of service on weekend days will make the routes more useful for current riders and more attractive to new riders. The extensions can be phased in over time as resources allow.

Frequency of Service

The service quality measure on which the Waterbury system trails its peers most significantly is the frequency of service. As mentioned earlier, several routes in Waterbury, including the highest ridership route, operate one trip per hour even at peak times, and the best routes operate only two trips per hour. Many peer agencies, in comparison, have routes that operate three or four trips per hour during peak periods, especially on the primary ridership corridors.

The long term plan recommends that the frequency of service be increased on most routes in the system so that the primary corridors have at least three or four trips per hour (headways of 20 or 15 minutes).

Table 4 below shows the proposed improvements in weekday headways. Current headways shown in parentheses are the proposed headways in the Short Term Plan. "NS" stands for no service and "irr" indicates an irregular headway. Current headways for the evening period are not shown, since many of the routes are in combination configurations.

Table 4: Weekday Headways

	Peak Period		Midday		Evening
Route	Current Headway	Proposed Headway	Current Headway	Proposed Headway	Proposed Headway
11	30	30	30	30	60
12	30	30	30	60	60
13	60	30	60	30	60
15	60 (48)	36	60 (48)	36	72
16	60 (48)	36	60 (48)	36	72
17	irr	30	irr	30	60
18	30	20	30	20	60
20	60	30	60	30	60
22	60	30	60	40	60
23	(60)	30	(60)	40	60
25	60	30	60	30	60
27	30	15	30	30	60
28	irr	30	irr	30	60
31/32	(80)	80	(80)	80	NS
33	30	20	30	20	60
35	60 (48)	36	60 (48)	36	72
36	60 (48)	36	60 (48)	36	72
40	80	40	80	80	60
42	irr	30	irr	30	60
44	60	30	60	30	60
45	60	30	60	60	60
N1	(120)	60	(120)	120	60
N2	(120)	60	(120)	120	NS

For the most part, midday headways are similar to peak period headways, as the current demand for midday service is nearly as great as the demand during peak times. Although it is not obvious from the table because several route pairs serve a common trunk, the proposed headways would result in three to four buses per hour on all major corridors:

- North Main Street would have an effective 18-minute headway (routes 15 and 16)
- Wolcott Street would have an effective 15-minute headway (routes 22 and 23)
- East Main Street would have a 15-minute headway (Route 27), with J route service in addition to that
- Baldwin would have a 20-minute headway (Route 33)

- Town Plot would have an effective 18-minute headway (routes 35 and 36)
- West Main Street would have an effective 10-minute headway (routes 42, 44, and 45)

It is important to note that the headways shown above will not work seamlessly with the current interlining scheme. In many cases, it would work, but in other cases, new interlined pairs would need to be established, or some routes would need to operate as a standalone service. It is certainly the case that not all of the routes would be upgraded at once. As resources gradually become available to improve service frequency, the schedule will need to be revised and in those incremental stages, interlining issues would be worked out.

Proposed headways for Saturdays are shown in Table 5. The new headways represent the peak level of service on Saturdays, and would generally be operated between 8:00 a.m. and 8:00 p.m., with hourly service operated in the early morning and late evening.

Table 5: Saturday Headways

Route	Current Headway	Proposed Headway
11	60	30
12	60	60
13	60	30
15	60	48
16	60	48
17	irr	60
18	60	30
20	60	30
22	60	40
23	(60)	40
25	60	30
27	60	30
28	60	30
31/32	NS	NS
33	60	30
35	60	48
36	60	48
40	60	180
42	60	60
44	60	30
45	60	60
N1	NS	120
N2	NS	120

Service on Route 40 would be coordinated with commuter train service at the Waterbury rail station, which occur every three hours on Saturdays. While the CT Transit Route 928 Southington-Cheshire-Waterbury Express route terminates at the train station and has hourly service on weekends, that route also stops at the Waterbury Green, and thus anyone on the local bus system would be able to

transfer to the express route there. Current Saturday service on routes 27 and 28 is via a combination route. In the future, this would be operated as two standalone routes. Major corridors would see much better service than today, but not quite as high as the proposed weekday service:

- North Main Street would have an effective 24-minute headway (routes 15 and 16)
- Wolcott Street would have an effective 20-minute headway (routes 22 and 23)
- East Main Street would have a 30-minute headway (Route 27), with J route service in addition to that
- Baldwin would have a 30-minute headway (Route 33)
- Town Plot would have an effective 24-minute headway (routes 35 and 36)
- West Main Street would have an effective 15-minute headway (routes 42, 44, and 45)

As with weekday service, there are numerous operational details to work out regarding interlining and cycle times.

Finally, the proposed level of service for Sundays is shown below in Table 6. For the most part, the headways shown would operate for the full recommended span of service (8:00 a.m. to 8:00 p.m.).

Table 6: Sunday Headways

Route	Current Headway	Proposed Headway
11	60	60
12	60	60
13	60	60
15	60	48
16	60	48
17	NS	60
18	60	60
20	60	60
22	60	60
23	(NS)	60
25	60	60
27	60	60
28	60	60
31/32	NS	NS
33	60	60
35	60	48
36	60	48
40	60	180
42	60	60
44	60	60
45	60	60
N1	NS	NS
N2	NS	NS

Major corridors would have effective 30-minute service, or 24 minutes in the case of North Main Street and Town Plot. East Main Street would have 30-minute service if the J route is included in the consideration. On Wolcott Street, the initial implementation of the Lakewood Road route (23) assumes operation only Monday through Saturday.

Ridership Impacts

The long term plan for the local route system set forth above represents a substantial increase in the amount of service provided. Ridership will increase in response to the expanded supply, both because of the extended span of service (and improved coverage in the evening hours as the regular route pattern replaces the existing skeletal system) and the improved frequency. More evening service can increase demand during the afternoon hours, because some people may be forgoing the current bus system for an afternoon trip because it is inconvenient to get back home later in the evening.

The ridership impacts of the proposed service changes were estimated using existing productivities during fringe hours of service, and by using industry-standard elasticities to gauge the response to headway changes. The base ridership figures used for all of the forecasts were those collected in the 2013 ridership study. The annualized base figures take the weekday, Saturday, and Sunday ridership totals from the ridecheck and multiply them by 255, 52, and 52, respectively.

It is important to note that the ridership forecasts assume a steady state in the background demand for transit in Waterbury. That is, no ridership growth is assumed due to population increase, new development, or other trends (as discussed earlier). As the 2013 ridership study found, there has been substantial growth in ridership over the past decade, even as the bus system has been relatively stagnant in terms of the service supplied. Thus, the ridership forecasts included here should be interpreted as a lower bound on the potential future ridership. Indeed, if the full long term plan were to be implemented and a much larger segment of the population found the system to be attractive (rather than just people who are dependent on public transit services), then ridership could grow more substantially than the below forecasts indicate.

To calculate the ridership impacts, each time period was considered separately: weekday peak, weekday midday, weekday evening, Saturday, and Sunday. Forecasts for Saturday were adjusted down slightly to take account of the fact that the proposed headways for Saturday would not be operated for the full service day.

Because all of the elasticities used for the analysis are less than 1.0, the added service is projected to be less productive than the current service. Again, this represents a conservative estimate because it does not include any background growth in demand, or the potential for the system to pass a "tipping point" where it becomes more attractive to a larger portion of the traveling public.

The detailed ridership forecasts are summarized in Table 7. This table shows only the annualized figures for current and future ridership. The future ridership and the change in ridership are rounded to the nearest thousand, so that a false precision is not implied. Overall, if a small ridership change is seen (such as for routes 11 and 12), then the only salient changes were in weekend service. Larger ridership changes are correlated with larger increases in weekday service. The single largest change

shown is for Route 23, which is a new route proposed to be implemented as part of the Short Term Plan, but for which there is no base ridership in the 2013 data. Other changes in the Short Term Plan, such as for the North Main Street and Town Plot routes, are not reflected in the "Current" ridership figures. The only exception to this is the N1 and N2 routes to Naugatuck, where the "current" figures represent the estimate for the Short Term Plan proposed restructuring rather than the actual existing ridership on the local N1 and N2 routes. Thus, with the exception of N1 and N2, the change in ridership column reflects the change expected in the short and long term plans combined.

Table 7: Local Route Annual Ridership Forecasts

Route	Current (2013) Annual Ridership	Future Annual Ridership	Change in Ridership	Percent Change
11	184,530	192,000	7,000	4%
12	97,875	98,000	-	0%
13	210,349	304,000	94,000	45%
15	162,992	205,000	42,000	26%
16	144,484	186,000	42,000	29%
17	73,725	130,000	56,000	76%
18	178,400	218,000	40,000	22%
20	94,514	137,000	42,000	44%
22	340,184	354,000	14,000	4%
23	-	306,000	306,000	N/A
25	175,497	255,000	80,000	46%
27	200,705	255,000	54,000	27%
28	101,450	156,000	55,000	54%
31/32	44,880	36,000	-9,000	-20%
33	214,324	259,000	45,000	21%
35	96,489	133,000	37,000	38%
36	150,142	182,000	32,000	21%
40	58,054	66,000	8,000	14%
42	170,084	224,000	54,000	32%
44	151,365	208,000	57,000	38%
45	108,301	152,000	44,000	41%
N1	30,600	58,000	27,000	88%
N2	20,400	32,000	12,000	59%
TOTALS	3,009,344	4,146,000	1,139,000	38%

Full implementation of the span and frequency of service recommendations (plus the Short Term Plan recommendations) would result in a 38% increase in ridership according to these forecasts. The only route forecast to lose ridership would be the restructured 31/32. This loss would occur in the Short Term Plan implementation as there is no further recommendation for this route in the long term plan.

Cost Impacts

The proposed span of service and headway for each route were translated into an estimate of revenue hours for each time period (weekday peak, weekday midday, weekday evening, Saturday and Sunday), and these figures were annualized to allow for an estimate of the annual gross cost of service (using NET's current rate per revenue hour). The current revenue hours were also tabulated and annualized. The current and future hours and costs are shown below in Table 8. As with the ridership figures, the current hours and cost do not reflect the recommendations of the Short Term Plan, with the exception of the N1 and N2. Thus the difference between current and future hours and costs represents both the short and long term plan recommendations.

Table 8: Local Route Hours and Gross Cost

Route	Current Annual Hours	Future Annual Hours	Current Annual Gross Cost	Future Annual Gross Cost	Percent Change
11	4,145	4,535	$433,680	$474,490	9%
12	3,339	3,468	$349,419	$362,892	4%
13	4,532	10,011	$474,228	$1,047,551	121%
15	2,664	4,993	$278,761	$522,415	87%
16	2,587	4,993	$270,730	$522,415	93%
17	1,783	4,194	$186,547	$438,860	135%
18	4,304	6,638	$450,350	$694,626	54%
20	2,633	4,993	$275,549	$522,415	90%
22	5,864	8,885	$613,609	$929,674	52%
23	-	7,709	$0	$806,617	N/A
25	5,527	10,011	$578,371	$1,047,551	81%
27	3,532	6,588	$369,568	$689,316	87%
28	2,464	10,115	$257,786	$1,058,434	311%
31/32	2,372	1,530	$248,154	$160,099	-35%
33	4,670	6,588	$488,653	$689,316	41%
35	2,127	4,993	$222,543	$522,415	135%
36	3,063	4,993	$320,523	$522,415	63%
40	2,291	2,529	$239,767	$264,635	10%
42	2,886	4,746	$302,028	$496,569	64%
44	3,035	5,032	$317,556	$526,496	66%
45	4,381	6,913	$458,428	$723,324	58%
N1	969	2,352	$101,396	$246,113	143%
N2	893	2,543	$93,391	$266,126	185%
TOTALS	70,060	129,346	$7,331,037	$13,534,765	85%

Overall, the recommendations in the short and long term plans represent an 85% increase in service hours and gross cost. The largest increase in service, other than the new Route 23, is seen on Route 28 which is recommended to be transformed from a part-time route with an inadequate 40-minute cycle time, to a full-time bidirectional service with an hour cycle time. Routes 13 and 25 also appear prominently since each of them has an hour cycle time and are proposed to have significant enhancements. The corridor with the highest level of service will actually be Wolcott Street, but it is

less obvious because the service is split between routes 22 and 23. Together, they have over 16,000 hours of service, most of which occurs on the Wolcott Street trunk portion.

A more revealing way to consider the cost impacts of the proposed service upgrades is to look at the cost of service, net of fare revenue, and the net cost per rider for each of the routes. This information is useful in developing an implementation plan, as it indicates which of the improvements will be most cost effective. Table 9 shows the estimated annual fare revenue (calculated by multiplying the estimated ridership by the average fare of $1.03) and the annual net cost (calculated by subtracting the fare revenue from the gross cost shown in Table 8).

Table 9: Local Route Revenue and Net Cost

Route	Curr Annual Fare Rev	Curr Annual Net Cost	Future Annual Fare Rev	Future Annual Net Cost	Change in Annual Net Cost	Percent Change in Net Cost
11	$190,066	$243,615	$197,760	$276,730	$33,116	14%
12	$100,811	$248,608	$100,940	$261,952	$13,344	5%
13	$216,659	$257,569	$313,120	$734,431	$476,862	185%
15	$167,882	$110,879	$211,150	$311,265	$200,386	181%
16	$148,819	$121,911	$191,580	$330,835	$208,924	171%
17	$75,937	$110,610	$133,900	$304,960	$194,350	176%
18	$183,752	$266,598	$224,540	$470,086	$203,489	76%
20	$97,349	$178,199	$141,110	$381,305	$203,106	114%
22	$350,390	$263,219	$364,620	$565,054	$301,835	115%
23	$0	$0	$315,180	$491,437	$491,437	N/A
25	$180,762	$397,610	$262,650	$784,901	$387,292	97%
27	$206,726	$162,841	$262,650	$426,666	$263,825	162%
28	$104,494	$153,292	$160,680	$897,754	$744,461	486%
31/32	$46,226	$201,927	$37,080	$123,019	-$78,908	-39%
33	$220,754	$267,899	$266,770	$422,546	$154,647	58%
35	$99,384	$123,159	$136,990	$385,425	$262,266	213%
36	$154,646	$165,877	$187,460	$334,955	$169,079	102%
40	$59,796	$179,971	$67,980	$196,655	$16,683	9%
42	$175,187	$126,841	$230,720	$265,849	$139,008	110%
44	$155,906	$161,650	$214,240	$312,256	$150,606	93%
45	$111,550	$346,878	$156,560	$566,764	$219,886	63%
N1	$31,518	$69,878	$59,740	$186,373	$116,495	167%
N2	$21,012	$72,379	$32,960	$233,166	$160,786	222%
TOTALS	$3,099,624	$4,231,412	$4,270,380	$9,264,385	$5,032,973	119%

The overall change in net cost is 119%, or about 40% higher than the change in gross cost because the ridership is not forecast to increase as much as the service (due to the elasticity being less than 1.0 as discussed earlier). The net cost increases the most for Route 28, which also had the greatest increase in service hours. While the Short Term Plan had an estimated bottom line increase in net cost of about $500,000, the bottom line for the long term plan recommendations is nine times as great, resulting in a $5 million increase for the short and long term plans combined.

Finally, Table 10 shows the net cost per rider for the current system and the future system. The net cost per rider is calculated by dividing the annual net cost by the annual ridership. The net cost per new rider, in the rightmost column, is calculated by dividing the change in annual net cost by the change in ridership.

Table 10: Local Route Net Cost per Rider

Route	Current Net Cost/Rider	Future Net Cost/Rider	Net Cost per New Rider
11	$1.32	$1.44	$4.73
12	$2.54	$2.67	n/a
13	$1.22	$2.42	$5.07
15	$0.68	$1.52	$4.77
16	$0.84	$1.78	$4.97
17	$1.50	$2.35	$3.47
18	$1.49	$2.16	$5.09
20	$1.89	$2.78	$4.84
22	$0.77	$1.60	$21.56
23	n/a	$1.61	$1.61
25	$2.27	$3.08	$4.84
27	$0.81	$1.67	$4.89
28	$1.51	$5.75	$13.54
31/32	$4.50	$3.42	$8.77
33	$1.25	$1.63	$3.44
35	$1.28	$2.90	$7.09
36	$1.10	$1.84	$5.28
40	$3.10	$2.98	$2.09
42	$0.75	$1.19	$2.57
44	$1.07	$1.50	$2.64
45	$3.20	$3.73	$5.00
N1	$2.28	$3.21	$4.31
N2	$3.55	$7.29	$13.40
TOTALS	$1.41	$2.23	$4.42

The overall net cost per rider rises from $1.41 to $2.23 with the service improvements (assuming no background growth in ridership demand). The net cost per new rider overall is $4.42. For just the Short Term Plan recommendations, the net cost per new rider was estimated at $2.95, indicating that those recommendations are the "low-hanging fruit" which are more cost effective. It should be noted that the high net cost per new rider shown for Route 22 in Table 10 is mainly a result of riders shifting over from that route to new Route 23. Really, routes 22 and 23 should be considered together since they mostly serve the same corridor. Recalculated for both routes combined, the net cost per new passenger is only $2.48, one of the lowest in the system. Not surprisingly, Route 28 has a high net cost per new passenger. Since this corridor has never been served well, but has a significant amount of retail and residential development, it is likely that the ridership estimation

method is missing the real potential of this market. The short term enhancement of this route in the Short Term Plan should establish whether the long term service increases are justified.

It is important to note that while the proposed changes are expensive and the net cost per new rider is three times as great as the current net cost per rider, that increasing the overall system net cost per rider to $2.23 would still place the Waterbury system below the average net cost per passenger of its peer systems. The total amount of service operated per capita would rise from 21% below the peer average to about 40% above the peer average. As stated above, the changes in the long term plan would be implemented in phases, and by the time the later phases come about, overall ridership will likely be substantially higher, justifying the further increases in service.

Commuter Routes

Thus far, this report has focused exclusively on the local bus system in Waterbury. The local routes account for the vast majority of the service operated, but North East Transportation (NET) does currently operate some service specifically for commuters. In conjunction with the Northwest Regional Workforce Investment Board, which sponsors bus service to help people get to jobs, NET operates several "tripper" routes that run from downtown Waterbury to industrial parks around the region. These routes are timed to coincide with work start and end times at those industrial parks and specific large employers.

Expanding on that concept of access to jobs, and recognizing Waterbury's increased role as a bedroom community, the long term plan explored opportunities to establish new commuter routes connecting Waterbury to other job centers in the broader region. The most recent data available on commuting flows comes from the Longitudinal Employer-Household Dynamics (LEHD) database through its OnTheMap tool, produced by the US Census Bureau. Data from the year 2014 were extracted from the database on the number of people who live in Waterbury and commute to other municipalities, as well as the number who live elsewhere and commute to jobs in Waterbury. Every community that had 500 workers commuting either to or from Waterbury was considered as a possible candidate for a commuter route. Other cities and towns with fewer than 500 commuters that shared corridors with the top-ranked municipalities were also considered.

Locations that already had good transit connections were set aside for this analysis. This includes Hartford and immediately surrounding areas which are served by CT*fastrak* (which began service in March 2015), as well as Bridgeport and coastal communities in Fairfield County which are accessible via the Waterbury branch rail line and commuter service operated by Metro North Railroad.

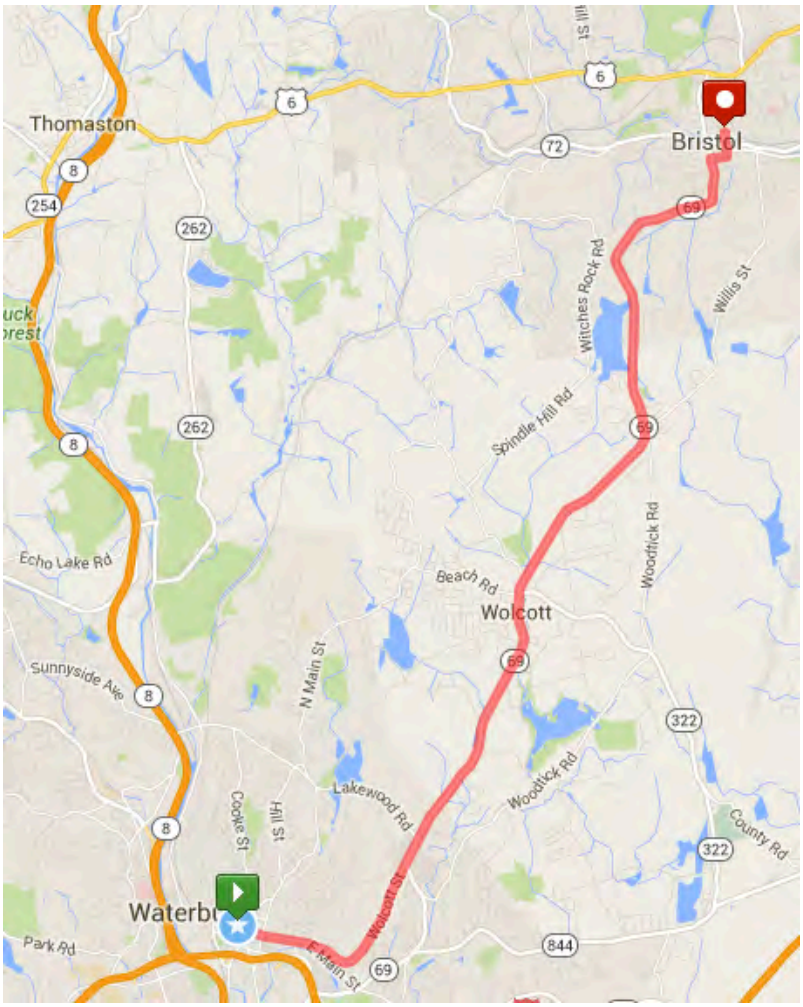
The remaining communities were then separated into two groups: those within 10 miles of Waterbury, and those farther out. The close-in communities, which are mainly the ring around those towns served by the local bus system, were analyzed for potential local commuter service, while the farther-out towns were analyzed for regional commuter service. The local commuters stay on local streets or state-numbered routes, while the regional commuters use limited access highways (I-84 and Route 8). For the purposes of this analysis, all commuter routes were assumed to be operated with six round-trips per day, three in each peak period.

Local Commuter Routes

Two commuter routes were developed to address the local commuter market. Both of these serve the northeastern sector of the region, but stop short of Hartford, due to the existing CT*fastrak* service. In other sectors, the close-in towns could be conveniently served "on the way" to the farther-removed terminal city.

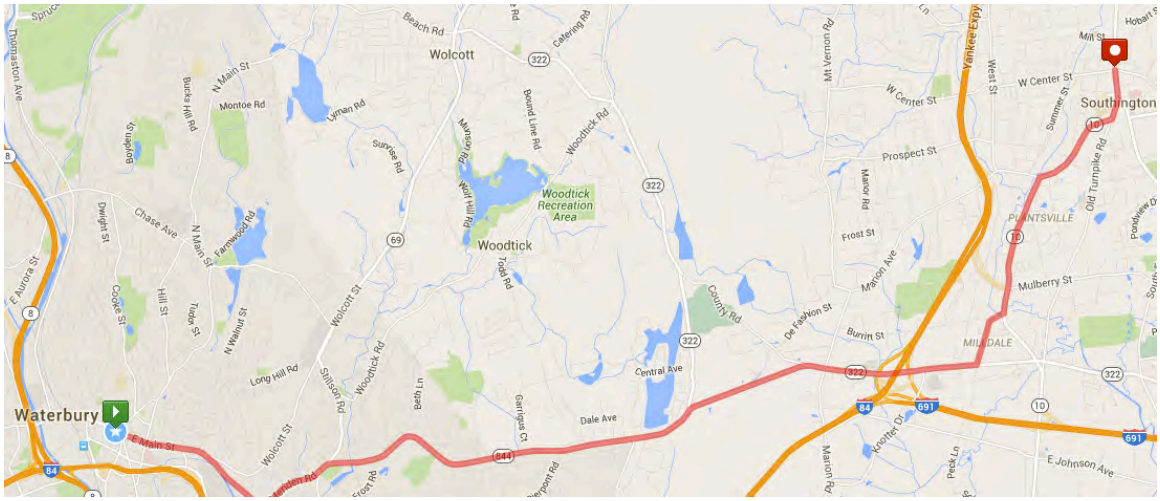
Working in the clockwise direction, the first local commuter route connects Waterbury to Bristol via Wolcott. (See Figure 6.) This route follows the same alignment as Route 22 Wolcott out of Waterbury and then continues on CT 69 through the town of Wolcott into the center of Bristol. At that point, it would connect with CT*fastrak* routes 102 and 923 which operate into Hartford. This route would be operated as an express or limited stop service for the portion that overlaps with the local route on Wolcott Street. According to the 2014 LEHD data, about 650 Waterbury residents work in Wolcott and another 725 work in Bristol. Some 950 Bristol residents work in Waterbury and over 1,700 Wolcott residents work in Waterbury. This corridor has very substantial commuting market in both directions.

Figure 6: Local Commuter to Bristol via Wolcott



The second local commuter route serves the Town of Southington. (See Figure 7.) This route follows the alignment of Route 25 Hitchcock Lake out of Waterbury and then continues on CT 322, CT 509 and CT 10 into the center of Southington. This route could be operated as an express or limited stop route between Waterbury and Hitchcock Lake, or it could run local through that portion and allow for fewer trips to be operated on Route 25 during commuting periods. About 900 people commuted from Waterbury to Southington in 2014, and about the same number commuted in the other direction. In the past, there has been some desire to extend local bus service into Southington, but this route is conceived as a commuter service rather than an extended local service.

Figure 7: Local Commuter to Southington

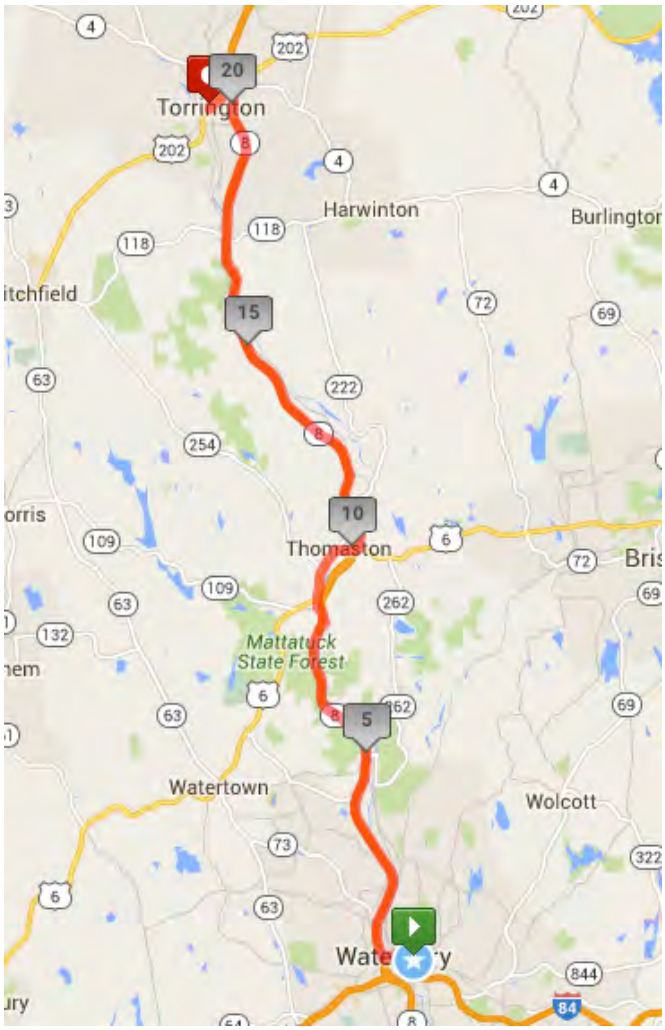


Regional Commuter Routes

Four regional commuter routes were developed to serve the other sectors of the Waterbury region. Each of these is at least 19 miles long in each direction.

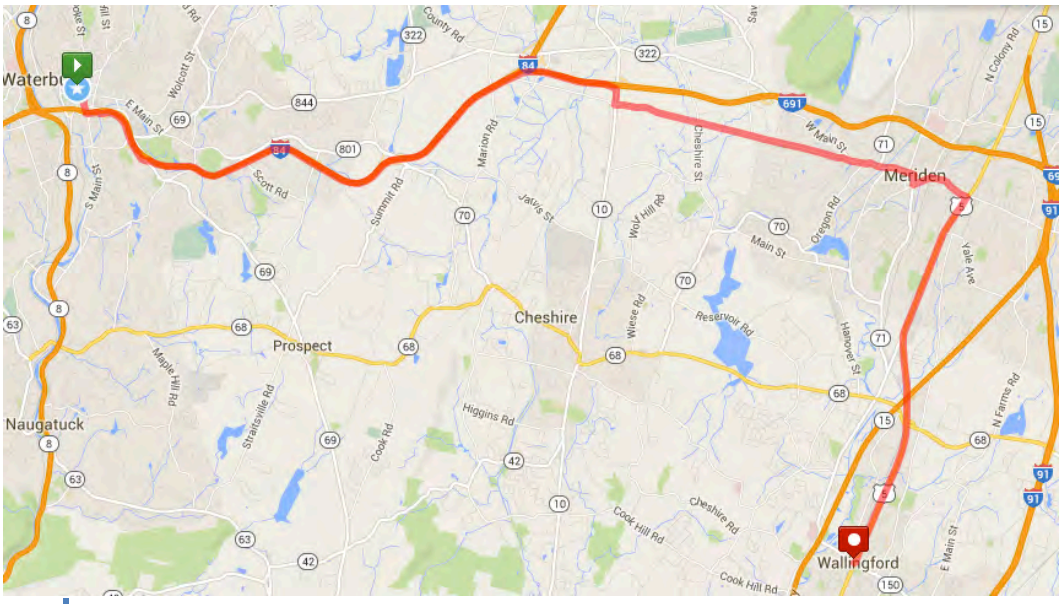
Starting at due north, the first regional commuter connects Waterbury to Torrington, with service to Thomaston on the way. (See Figure 8.) This route began service in June 2016 while this report was in draft form and is currently operated (as of June 2017) as Route 450X Torrington-Waterbury Flyer. This route is 21 miles in length and operates mainly on Route 8, except for a small local portion on South Main Street and East Main Street through the center of Thomaston. A commuter connection between Torrington and Waterbury was identified as a high priority in a public hearing of the Connecticut Public Transportation Commission (CPTC) in September 2014. According to LEHD data, 700 Waterbury residents commute to Torrington and 480 commute to Thomaston, while 715 Torrington residents and 570 Thomaston residents commute to Waterbury.

Figure 8: Commuter to Torrington



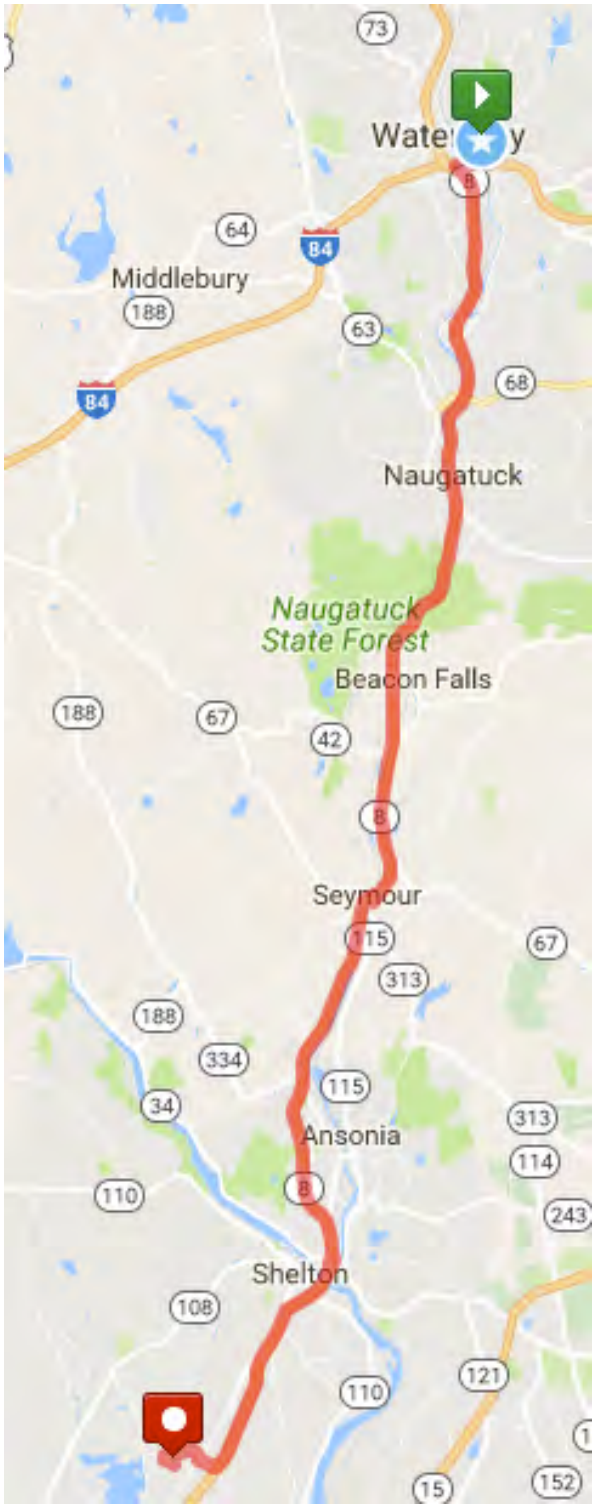
Proceeding clockwise, the next commuter corridor is east to Meriden and Wallingford. This route is proposed to use I-84 to I-691, but then use East Johnson Avenue into the center of Meriden to serve industrial employment along the way. From the center of Meriden, the route would use US 5 to reach the center of Wallingford. (See Figure 9.) This route is just under 21 miles long. NET also operates local bus service in Meriden and Wallingford, and this commuter route would connect to those services. About 820 Waterbury residents commute to Meriden and 790 commute to Wallingford, while 870 Meriden residents and 480 Wallingford residents commute to Waterbury.

Figure 9: Commuter to Wallingford via Meriden



The third regional commuter would use Route 8 to the south of Waterbury, serving Seymour and Derby on the way to Shelton. As described below, NET already operates a tripper route to Beacon Falls in the southerly direction. This route would be a separate service. In this corridor, there are more commuters heading out of Waterbury than into Waterbury, mainly because of the pull of much larger job centers on the coast, such as New Haven, Bridgeport and the rest of Fairfield County. Some 400 Waterbury residents commute to Shelton and just over 300 commuter to Seymour, with a smaller number going to Derby. In the other direction, 220 people from Seymour and 135 from Shelton commute to Waterbury, with only 80 from Derby.

Figure 10: Commuter to Shelton via Seymour and Derby

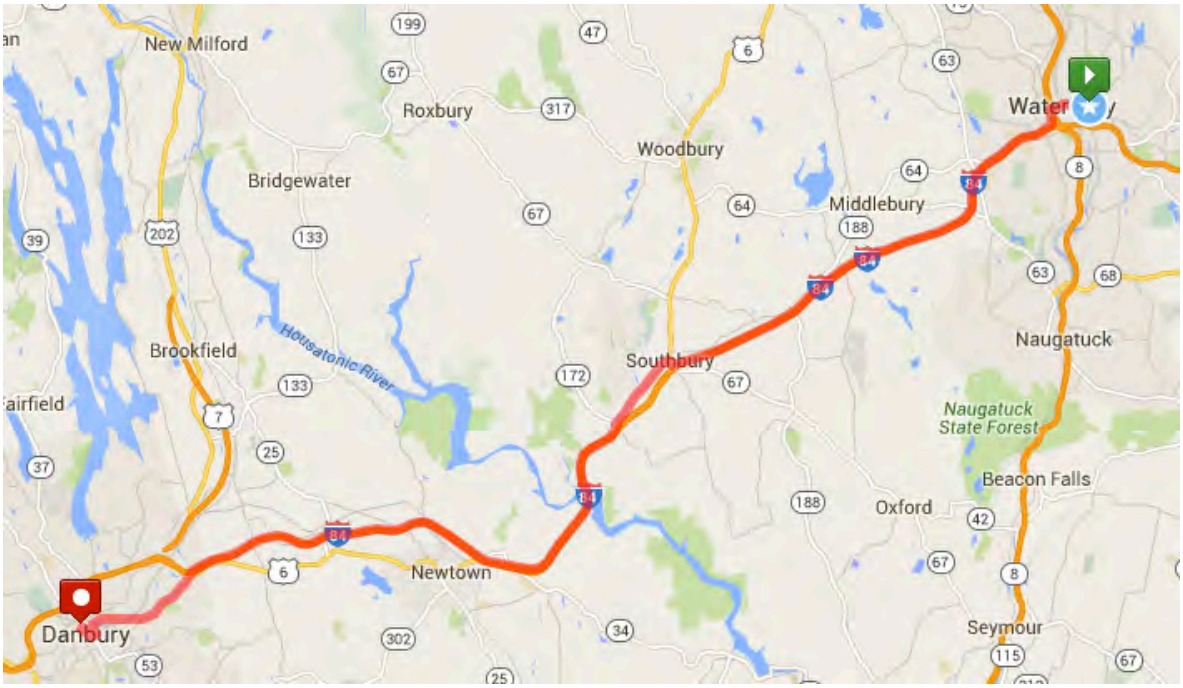


As shown in Figure 10, in the peak direction (southbound in the morning) the route would run express on Route 8 as far as Seymour, have two brief exits from Route 8 in Seymour and Derby and then return to Route 8 until exit 12, at which point it would serve the Shelton Business Park via Old Stratford Road, Commerce Drive and Progress Drive. In the reverse peak direction (northbound in the morning), the route would run locally between Shelton and Seymour via Derby and Ansonia on CT 115. The overall length of the route is 23.4 miles. The route would connect to GBT Route 15 at the Derby rail station, allowing access to Bridgeport Avenue in Shelton.

The final regional commuter serves the western sector, connecting Waterbury to Danbury via Southbury. The longest of the proposed commuter routes, this western commuter travels over 28 miles in each direction. As shown in Figure 11, the route uses I-84 for most of its alignment, with a brief diversion onto Main Street in Southbury between exits 14 and 15. Within Danbury, the route would use Exit 8 and Newtown Road to reach the center of town. This path would allow direct service to Western Connecticut State University and the Danbury Campus of Naugatuck Valley Community College. Representatives from NVCC requested a link between Waterbury and the Danbury NVCC campus in September 2014. Over 950 Waterbury residents commute to Danbury and another 740 commute to Southbury. Fewer people commute into Waterbury from those locations: only 365 from Danbury and about 600 from Southbury.

It should be noted that Peter Pan, a private bus company, currently operates service between Danbury and Waterbury, including the connection to the NVCC campus. CTtransit could not just start operating a competing service without obtaining regulatory approval, which would likely involve some sort of agreement with Peter Pan. The Peter Pan service is limited, with only two westbound trips during morning commuting hours (6:45 a.m. and 8:10 a.m.) two eastbound trips in the afternoon (4:05 p.m. and 6:05 p.m.) and basically one commuter-oriented round-trip operating in the reverse direction. More of a deterrent to usage is likely the high fare for this service. The regular round-trip fare is $18.50. A 10-ride ticket book is available for $80, reducing the daily round-trip to $16. Observations of buses arriving in Waterbury indicate that very few people currently use this route as a commuter service.

Figure 11: Commuter to Danbury via Southbury



Existing Tripper Routes

North East Transportation currently operates five Tripper routes originating in Waterbury.

- Route 47 runs to Straits Turnpike in Watertown
- Route 49 runs to the Watertown Industrial Park
- Route 74 runs to the Naugatuck Industrial Park
- Route 81 runs to the Cheshire Industrial Park
- Route 114 runs to the Beacon Falls Industrial Park.

These routes run either two or three peak direction trips per day, timed to meet the work shifts of the companies in the industrial parks.

The Short Term Plan recommends to fold Route 74 into the revised N2 route between Waterbury and Naugatuck, but otherwise, the tripper routes are assumed to continue largely as they are now operated. The overall recommendation is to monitor ridership and add service as demand warrants.

Public outreach and comments from NET drivers indicated that Route 47 would benefit from expanded service as there is a lot of retail activity on Straits Turnpike and people have been observed walking from the end of Route 44 (Bunker Hill area) out to the retail area. As an alternative to increasing Route 47 service, Route 44 could potentially be extended to Straits Turnpike and absorb Route 47. This has not been pursued in the past because of the constraints of the pulse system (since Route 44 needs to return to The Green within 30 minutes of its departure, and that would not be feasible with service to Straits Turnpike).

Ridership Impacts

The potential ridership for each of the proposed commuter routes was estimated by applying a market share to the total commuter market for each route. The descriptions above listed the number of people commuting in each direction between Waterbury and the various cities and towns served by the commuter routes.

The market shares were drawn from the experience of CCTA in Burlington, VT, which is a peer agency to Waterbury. CCTA operates two types of commuter services: short-distance commuter routes that operate within Chittenden County, and longer-distance LINK Express routes that operate 25-30 miles to surrounding counties. For its short-distance routes (to Milton, Hinesburg, and Jeffersonville), CCTA captures about 1% of the commuting market to Burlington. For the longer-distance routes, CCTA captures about 4% of the commuting market.

There are several reasons why longer-distance routes tend to capture more market share than short-distance routes. First, with short-distance commutes, there tend to be multiple roadway options to complete the trip, with local roads and arterials making many connections between adjoining towns. Long-distance trips, in contrast, get funneled onto a limited access highway, making it easier for a transit service (via a park-and-ride) to conveniently gather riders. Second, the potential savings by not driving are larger with long-distance trips: saving 50 miles of highway driving vs. 20 miles of local road driving makes transit a more attractive option for the longer commutes. Likewise, taking transit for longer trips allows people to spend more time reading or working on the way; that benefit of using time productively is not as salient for a short trip. Finally, the commuting market tends to be larger for short-distance commutes, because more people tend to live close to their jobs; thus the denominator in the market share ratio is larger. This is true in the Waterbury case, as the single largest commuting market is the Bristol via Wolcott corridor, with over 4,000 commuters. Combined with the other factors, this arithmetical factor depresses the typical market share for short commuter routes.

Applying the 1% market share to the two local commuters and the 4% market share to the four regional commuters yields the following ridership estimates (assuming that each rider makes two trips per day):

Table 11: Typical Weekday Ridership Estimates for Commuter Routes

Commuter Routes	Riders
Bristol via Wolcott	80
Southington	40
Torrington via Thomaston	200
Wallingford via Meriden	240
Shelton via Seymour and Derby	120
Danbury via Southbury	220

Cost Impacts

The running times for the commuter routes were estimated using Google Maps, with an allowance for time spent at stops and the slower speed of buses compared to general traffic. The round-trip running time for each route was multiplied by six (for the assumed six round-trips per day) to yield total revenue hours of service. This figure was then multiplied by 255 to produce annual revenue hours.

A summary of the cost impacts is shown in Table 12. The assumed fares are $2 for the local commuter routes and $4 for the regional commuter routes. (These are typical fares among Waterbury's peer agencies that operate commuter service.)

Table 12: Cost Summary for Commuter Routes

Commuter Routes	Annual Rev Hrs	Annual Riders	Annual Fare Rev	Annual Gross Cost	Annual Net Cost	Net Cost per Rider
Bristol via Wolcott	2,448	20,400	$40,800	$256,159	$215,359	$10.56
Southington	2,907	10,200	$20,400	$304,188	$283,788	$27.82
Torrington via Thomaston	2,295	51,000	$204,000	$240,149	$36,149	$0.71
Wallingford via Meriden	3,978	61,200	$244,800	$416,258	$171,458	$2.80
Shelton via Seymour, Ansonia and Derby	2,754	30,600	$122,400	$288,179	$165,779	$5.42
Danbury via Southbury	3,519	56,100	$224,400	$368,228	$143,828	$2.56

It can be seen in the table that the Torrington route is by far the most cost effective, followed by Danbury and Wallingford/Meriden, but that the local commuter routes are much less cost effective, particularly the Southington route. Indeed, the Torrington route is as close to profitable as you would ever hope to find in a public transit service, with a farebox recovery ratio of 85%. That route is helped by a strong bidirectional commuter market and an uncongested limited-access highway allowing for quick travel times. As noted earlier, it has already been implemented by CTtransit. Initial ridership counts are below the 200 daily riders estimated, but this would be expected of all new services. A new route typically takes two years to achieve its ridership potential, and all of the

figures above represent that mature potential, rather than the ridership within the first year of service.

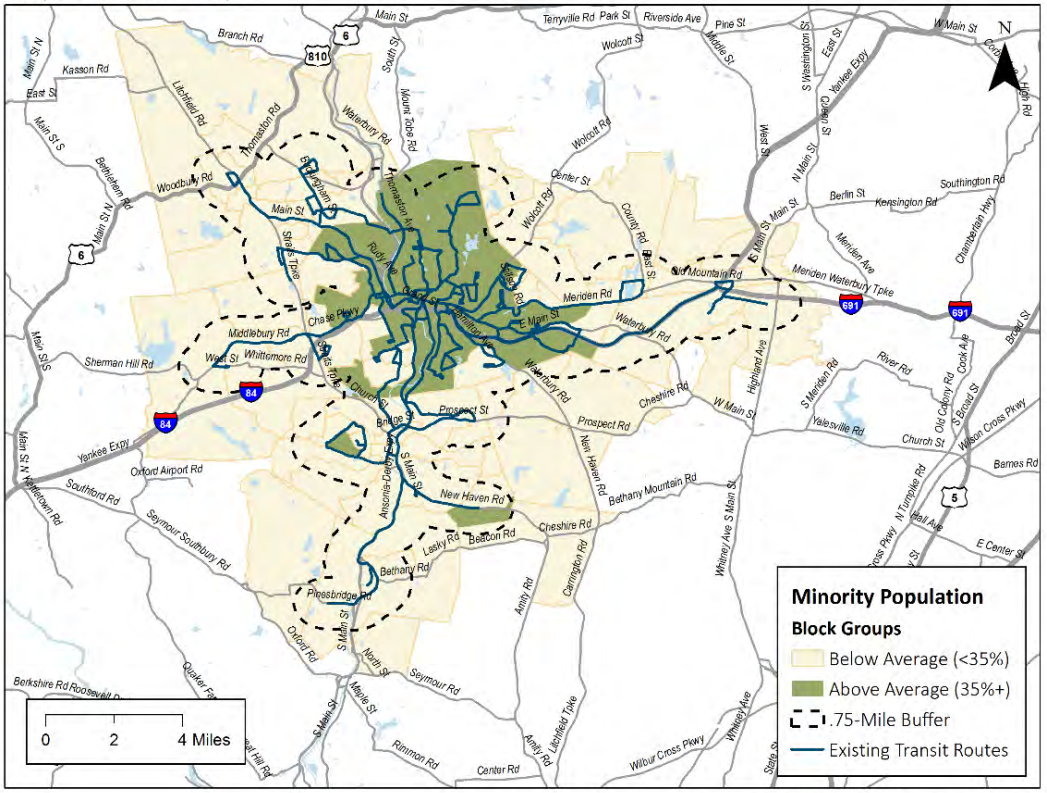
Appendix 1: Environmental Justice Overview

The purpose of this environmental justice overview is to help determine if there is a disproportionate impact on minority and low-income populations, were proposed route changes to be implemented. Proposed changes include rerouting, route truncation, and changed levels of service. This analysis is not a replacement for a full Title VI assessment, but it should give a strong indication as to what the results of a Title VI assessment would be. The analysis covers recommendations in the short-term plan only. The long-term plan does not include any restructuring of service or new routes within Waterbury.

Methodology

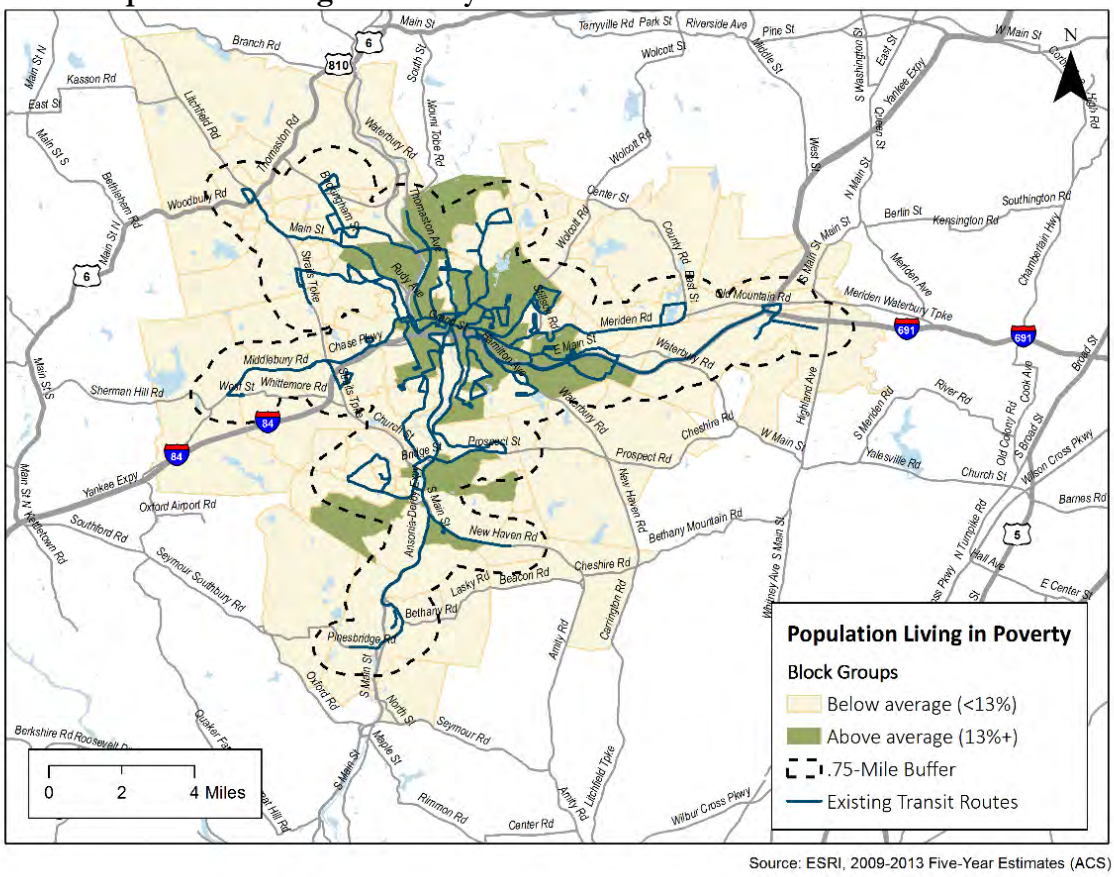
The service area includes all Census Block Groups that intersect a ¾-mile buffer surrounding existing transit routes (depicted in yellow and green in Figure 12 and Figure 13). The key populations considered for this study include populations living below the Federal poverty line and populations identified as "minority." For this report, people who identify as minority include all people who do not identify as white, non-Hispanic. For each key population, the service area average was calculated and this figure was used to differentiate concentrations of key populations (Block Groups with percentages above the service area average) from areas with no concentrations. On the maps, Block Groups with above average rates are shown in green, and Block Groups with below average rates are shown in pale yellow. Thirty five percent of the service area population identifies as minority, and 13% of the service area population has income below the poverty line.

Figure 12: Minority Population in Service Area



Source: ESRI, 2009-2013 Five-Year Estimates (ACS)

Figure 13: Population Living in Poverty in Service Area



Source: ESRI, 2009-2013 Five-Year Estimates (ACS)

Analysis of Proposed Service Changes

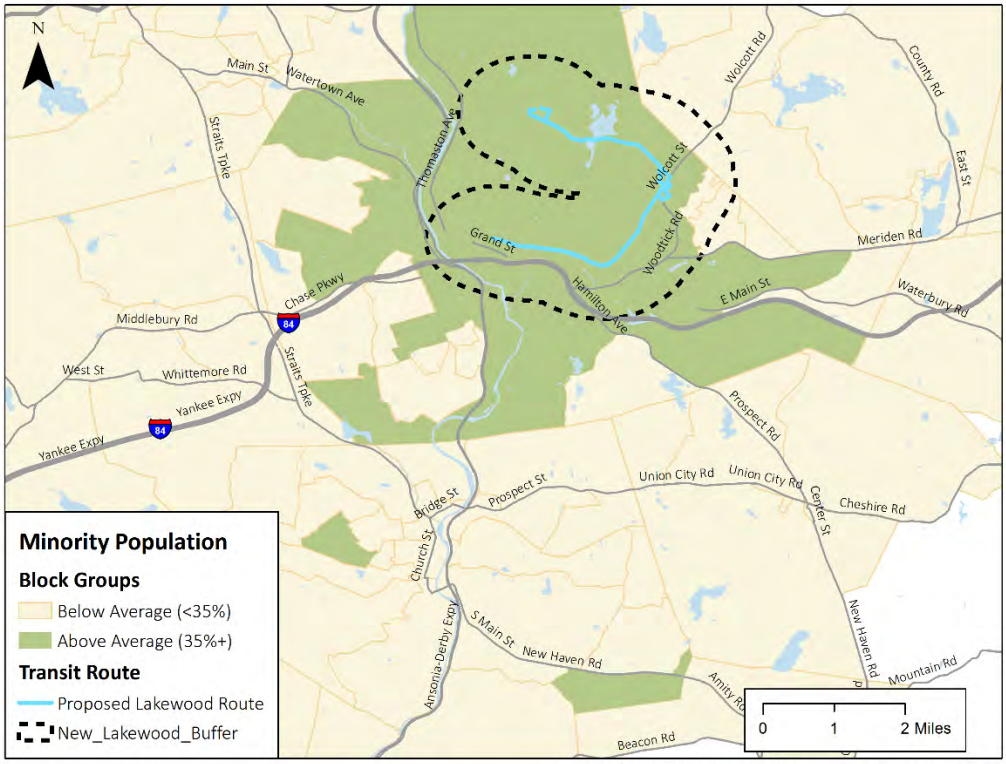
Lakewood Road Route

The Lakewood Road Route is a new proposed route that will run through Block Groups that mostly have above average shares of minorities and of people living in poverty. Block Groups along this proposed route have a minority rate of 57% and a poverty rate of 24%. Thus, it appears to be clear that the Lakewood Road route would benefit areas with concentrations of minority and low-income individuals.

Table 13: Changes in Key Populations Served by Proposed Lakewood Road Route

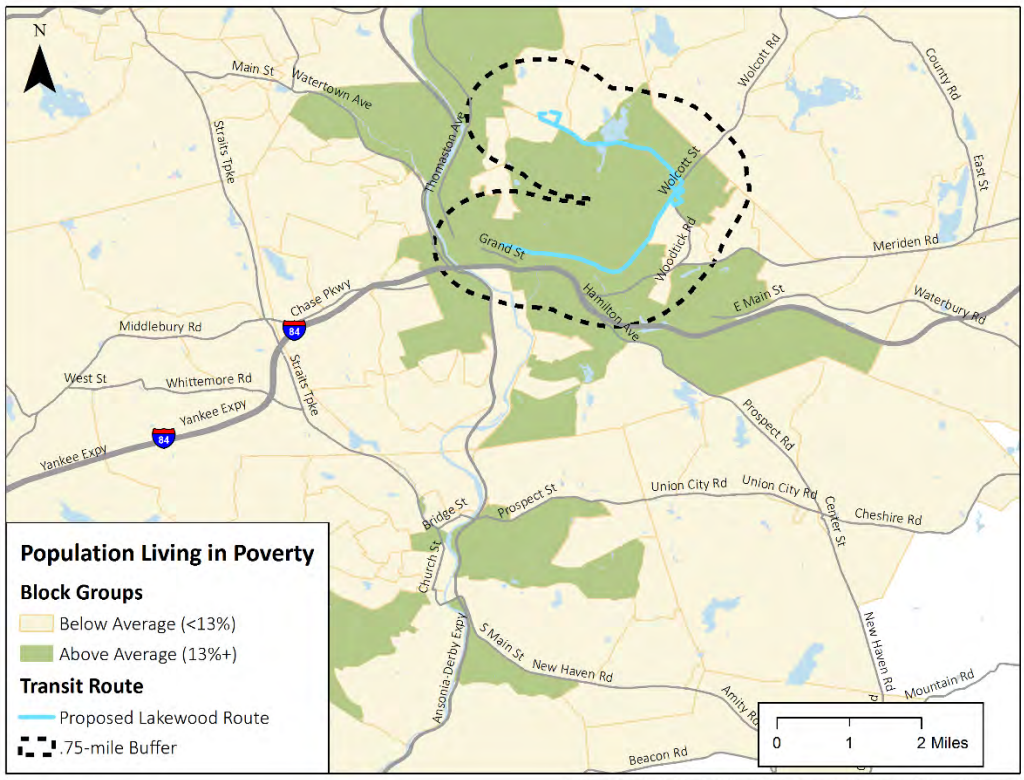
Block Group Set	% Minority Population	Minority Population	% of Population Living in Poverty	Population Living in Poverty
Included with route change	57%	40,623	24%	17,202

Figure 14: Minority Population along Lakewood Road Route



Source: ESRI, 2009-2013 American Community Survey 5-Year Estimates

Figure 15: Population Living in Poverty along Lakewood Road Route



Source: ESRI, 2009-2013 American Community Survey 5-Year Estimates

Naugatuck Routes

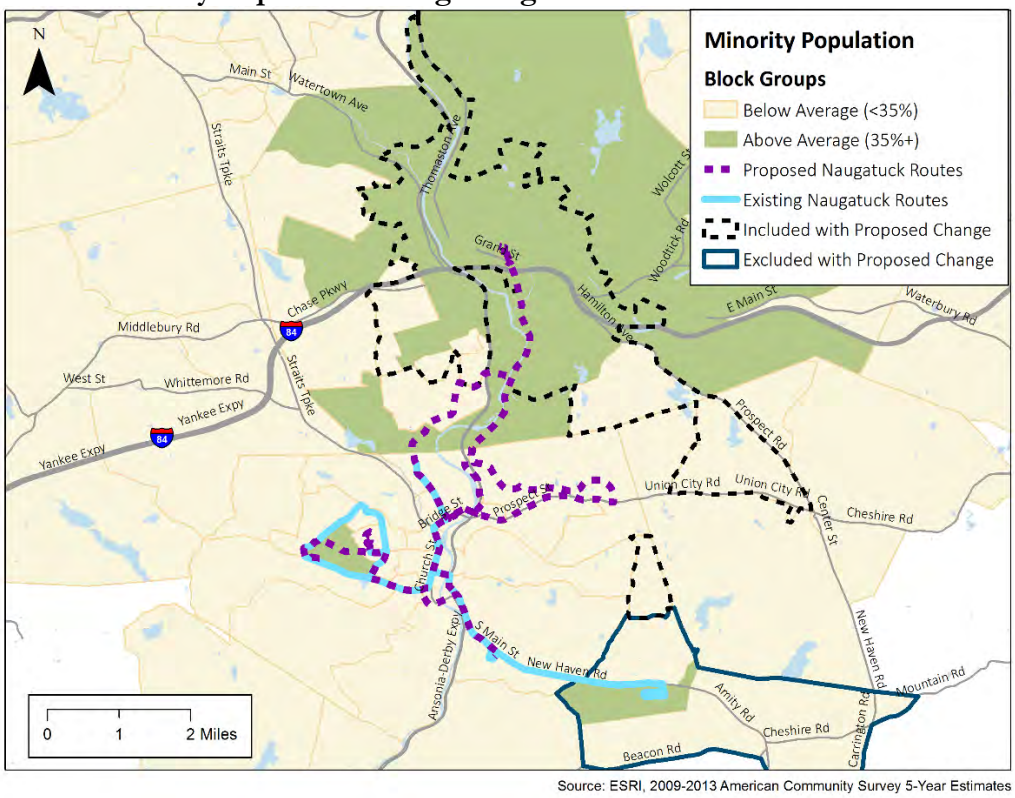
The existing Naugatuck routes (N1 & N2) operate within Naugatuck. The proposed changes bring the N1 and N2 routes into Downtown Waterbury, adding many Block Groups to the .75-mile buffer (see Figures 12 and 13). The proposed changes also truncate the existing alignment of the N2 to Bowman Drive, which eliminates a handful of Block Groups from the .75-mile buffer. The dotted black lines indicate newly-served Block Groups, while the solid navy blue line indicates no-longer-served Block Groups.

Because of the growth in the number of Block Groups served, the proposed alignment intersects with more minority populations and populations living in poverty (see Table 14). These results suggest that neither minority populations nor populations living in poverty will have a disproportionate burden placed on them as a result of the proposed alignment. Indeed, many more minority and low-income individuals will have improved access with this service change.

Table 14: Changes in Key Populations Served by Proposed Changes to Naugatuck Routes

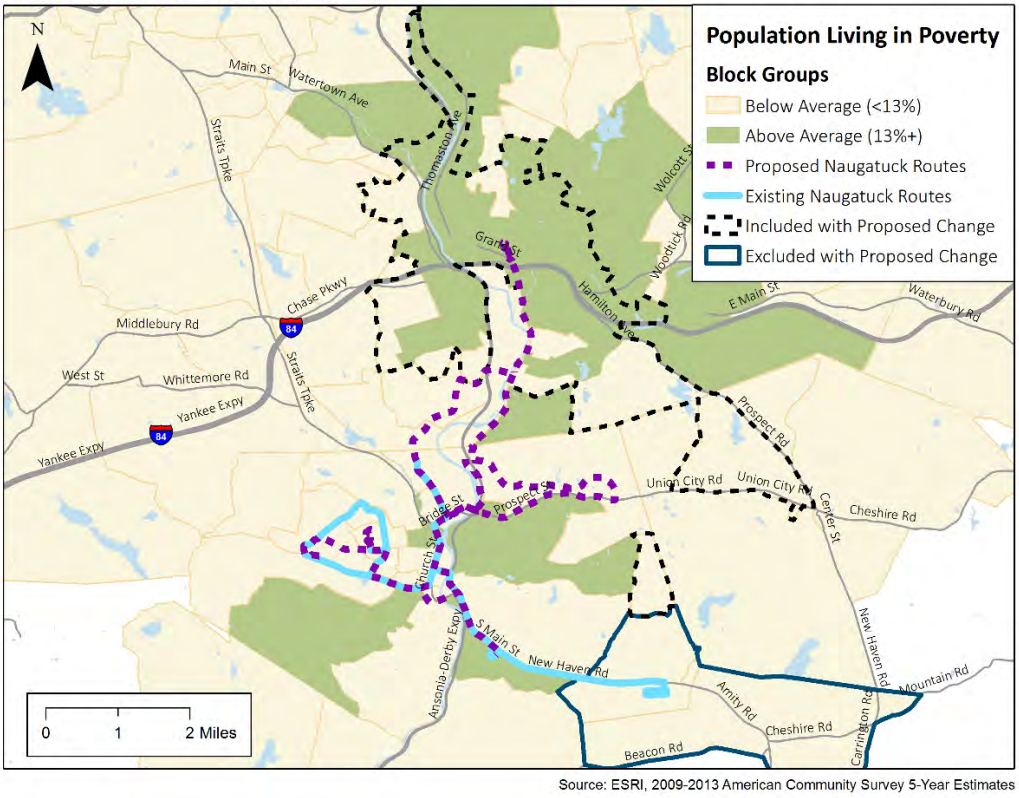
Block Group Set	% Minority Population	Minority Population	% of Population Living in Poverty	Population Living in Poverty
Excluded with route change	21%	848	5%	187
Included with route change	60%	29,411	29%	14,241
		Change +28,563		*Change +14,054*

Figure 16: Minority Population along Naugatuck Routes



Source: ESRI, 2009-2013 American Community Survey 5-Year Estimates

Figure 17: Population Living in Poverty along Naugatuck Routes



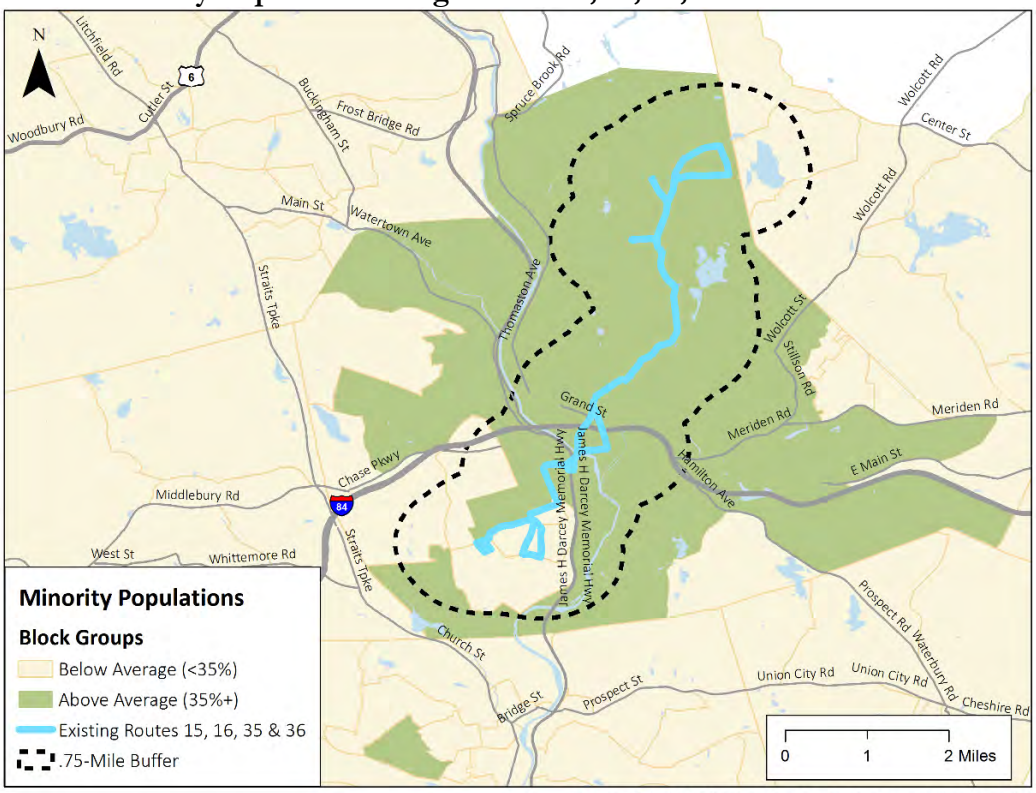
Routes 15, 16, 35, and 36

Routes 15, 16, 35, and 36 will see a service increase and a small extension of the existing alignment of Route 15 into a transit dependent area. The territory served by these routes has above average rates of both key populations. The minority population is 59% and the population living in poverty is 25% for nearly all the Block Groups intersecting a 0.75-mile buffer surrounding the routes (see Table 15). The small extension and the increase in service will have significant benefits for Block Groups with concentrations of minority and low-income individuals.

Table 15: Changes in Key Populations Served by Existing

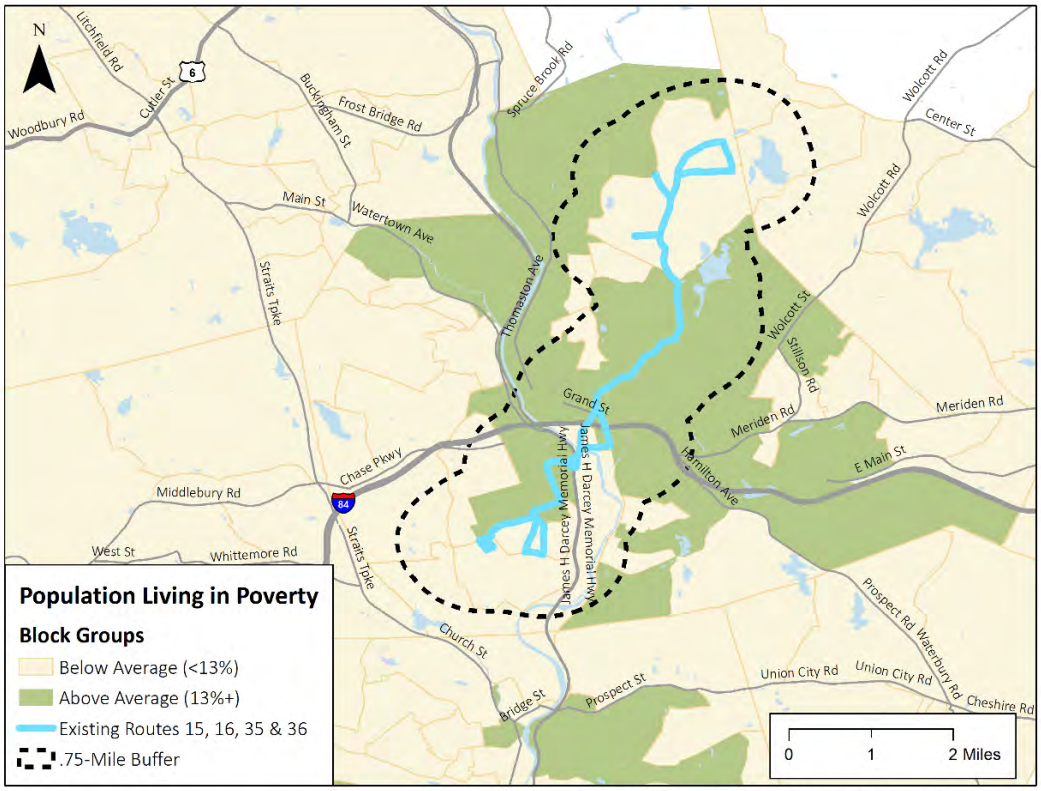
Block Group Set	% Minority Population	Minority Population	% of Population Living in Poverty	Population Living in Poverty
Included with route change	59%	44,891	25%	18,724

Figure 18: Minority Population along Routes 15, 16, 35, and 36



Source: ESRI, 2009-2013 American Community Survey 5-Year Estimates

Figure 19: Population Living in Poverty along Routes 15, 16, 35, and 36



Source: ESRI, 2009-2013 American Community Survey 5-Year Estimates

Route 28

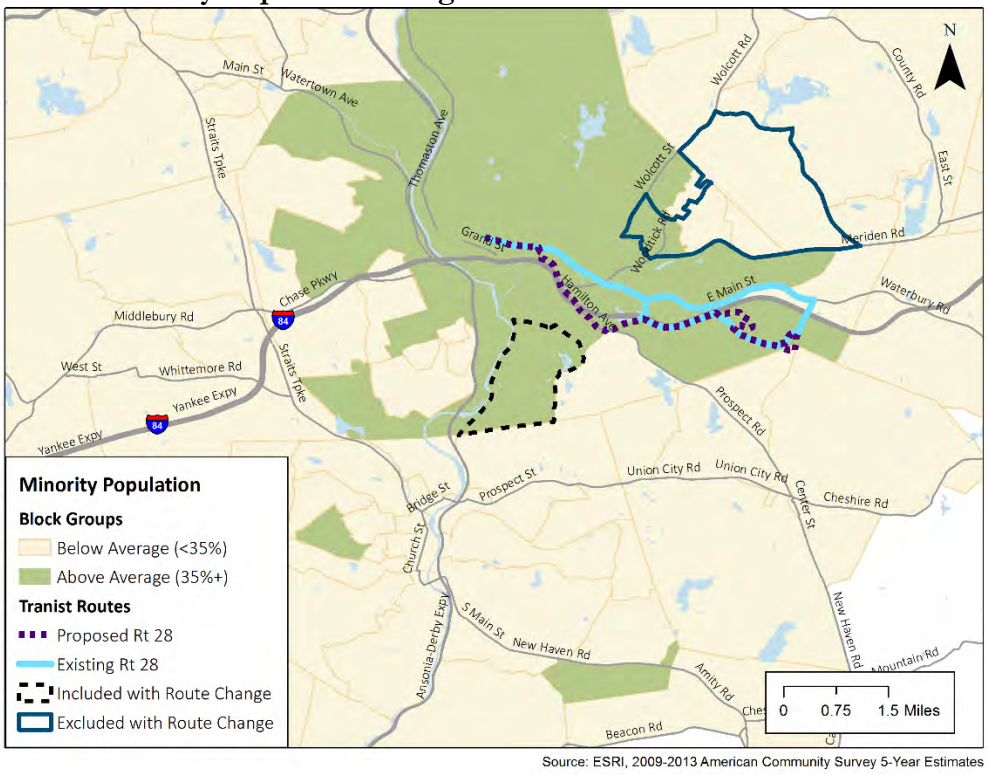
As shown in Figure 20 and Figure 21, the dotted black line highlights the Block Groups included with the proposed route change, and the solid navy line highlights the Block Groups excluded with the proposed route change. As proposed, Route 28 would experience an improved level of service.

The data from these two Block Group sets were analyzed, and the results are outlined in Table 16 below. Proposed Route 28 will serve 386 more people identified as a minority and 298 more people living in poverty. These results suggest that the proposed route change will have benefits for the key populations analyzed.

Table 16: Changes in Key Populations Served by Proposed Changes to Route 28

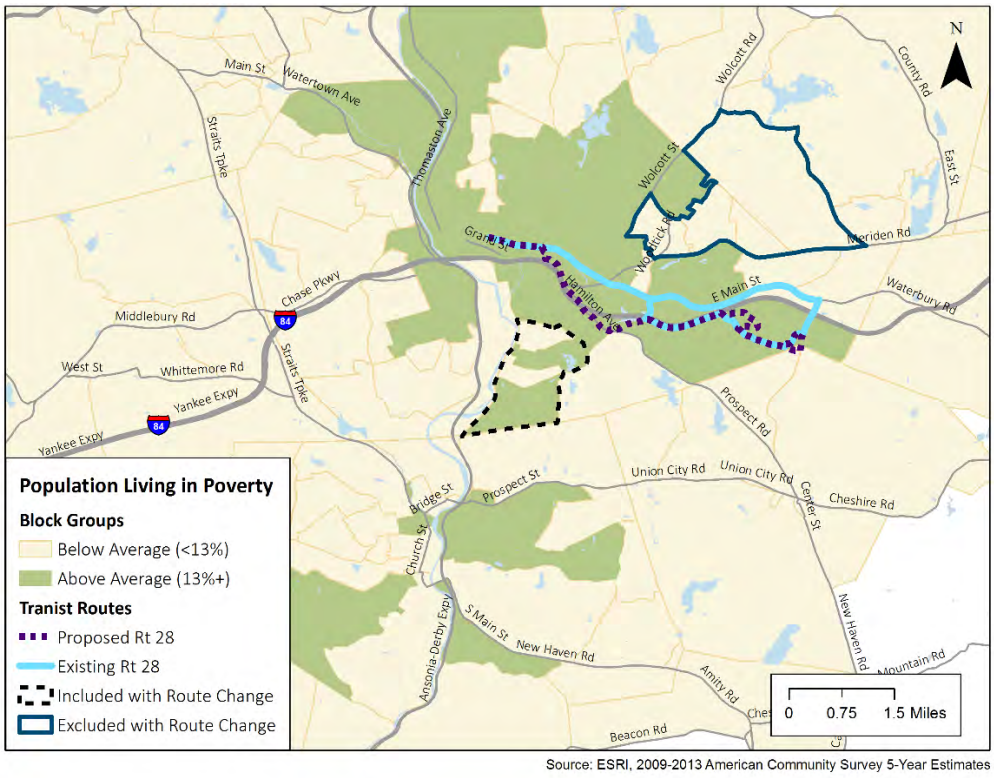
Block Group Set	% Minority Population	Minority Population	% of Population Living in Poverty	Population Living in Poverty
Excluded with route change	33%	2185	6%	408
Included with route change	50%	2571	13%	706
		Change +386		*Change +298*

Figure 20: Minority Population along Route 28



Source: ESRI, 2009-2013 American Community Survey 5-Year Estimates

Figure 21: Population Living in Poverty along Route 28



Route 31 and Route 32

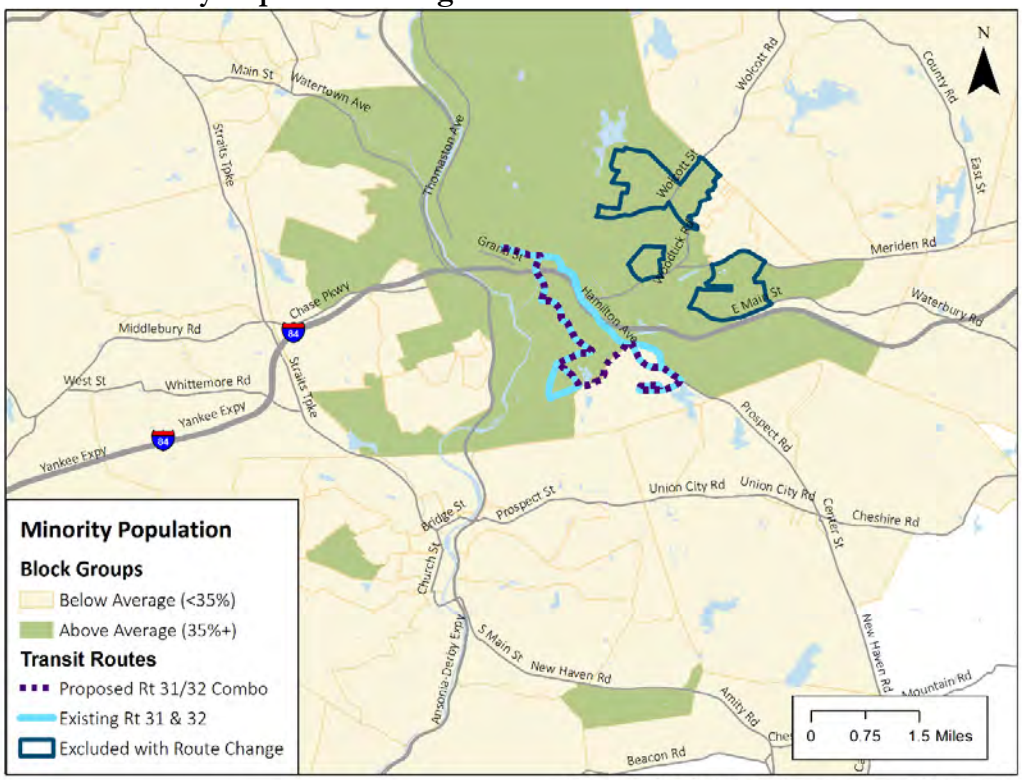
Under the proposed changes, Routes 31 and 32 would be combined and the service level would be reduced. As a result of these changes, three Block Groups would be excluded under the new alignment, and no new Block Groups would be included. The three excluded Block Groups, however, are far removed from the route and barely intersect the 0.75 mile buffer (see Figure 22 and Figure 23). The three Block Groups have above average rates of poverty and minority populations, but are well served by other bus routes, including Routes 22, 25 and 27.

The outer end of the combined Route 31/32, which would experience a lower level of service, does not have a concentration of minority or low-income individuals. Thus, this service reduction does not have a disproportionate impact on minority or low-income populations.

Table 17: Changes in Key Populations Served by Proposed Changes to Routes 31 & 32

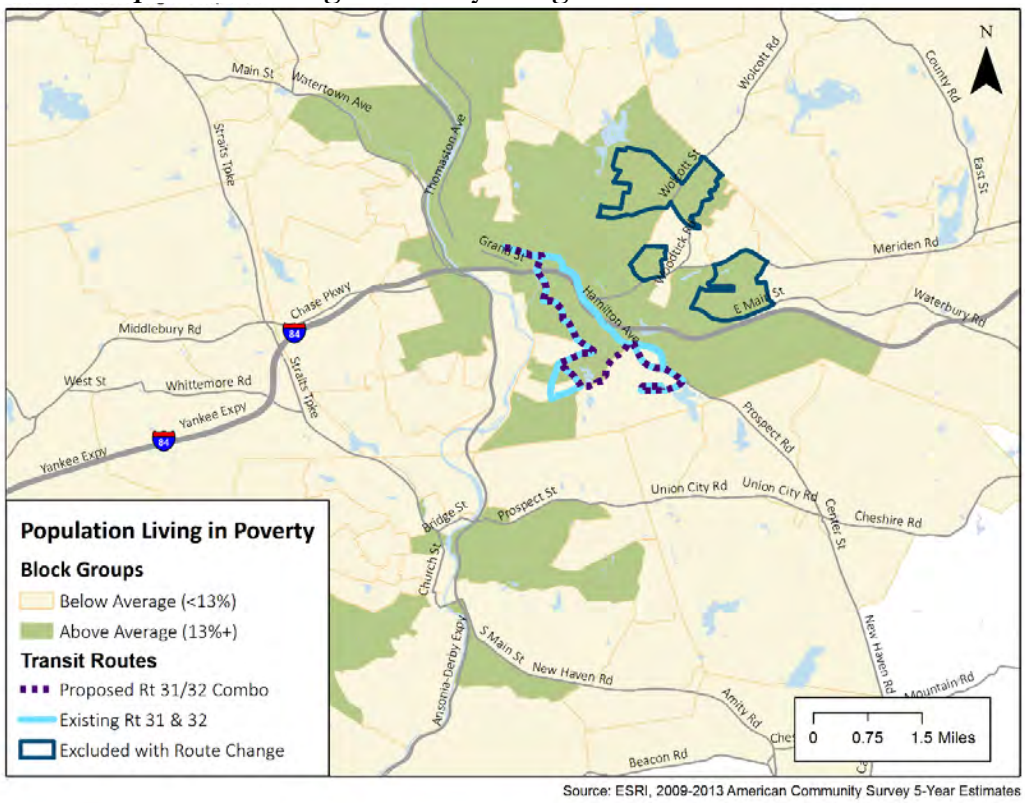
Block Group Set	% Minority Population	Minority Population	% of Population Living in Poverty	Population Living in Poverty
Excluded with route change	53%	2714	17%	899

Figure 22: Minority Population along Routes 31 and 32



Source: ESRI, 2009-2013 American Community Survey 5-Year Estimates

Figure 23: Population Living in Poverty along Routes 31 and 32



Source: ESRI, 2009-2013 American Community Survey 5-Year Estimates

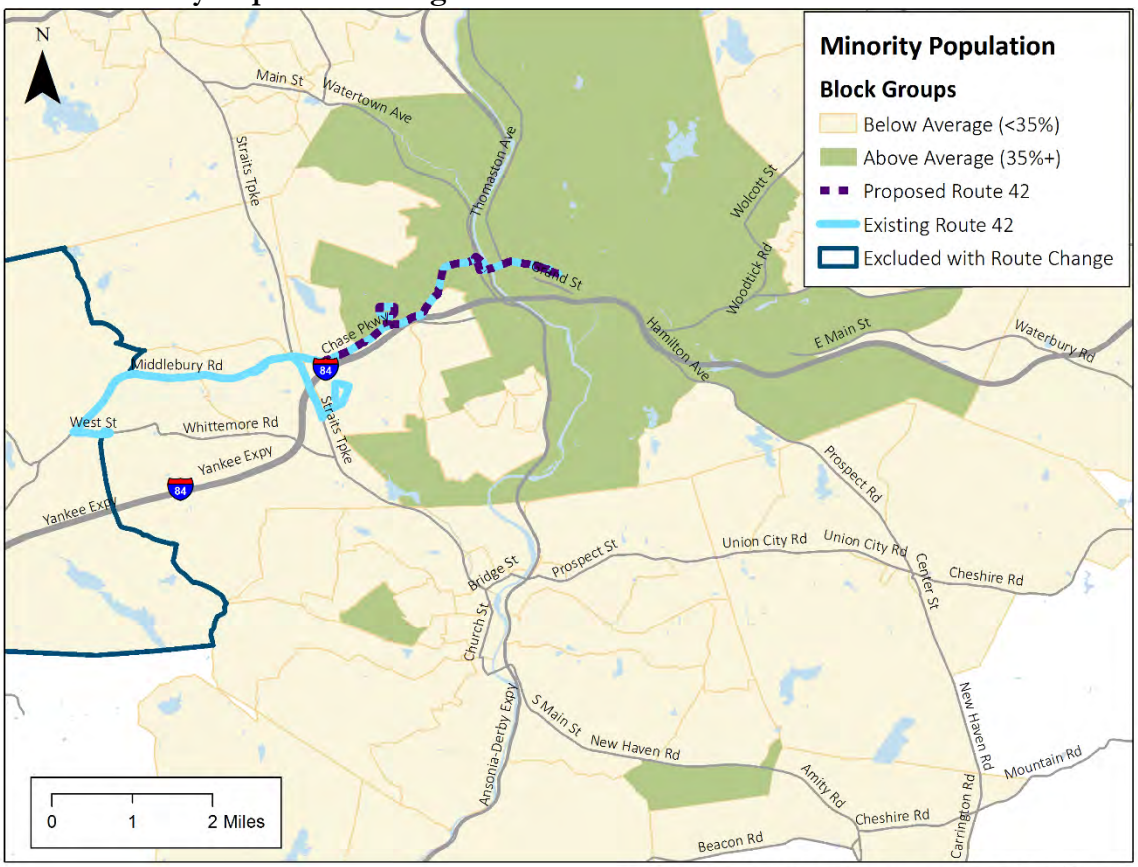
Route 42

The proposal for Route 42 is to truncate the route at the Harold Leever Regional Cancer Center. The existing route has part-time service that stretches west to Judd's Corner in Middlebury. One Block Group will be excluded from the .75-buffer (see Figure 24 and Figure 25). With only 2% of the population living in poverty and 16% of the population identified as a minority, the Block Group is well below the study area averages. Closer in Block Groups that are still technically part of the service buffer but would no longer have direct bus service (the portion of the route shown in light blue without the dotted overlay) also have lower-than-average percentages of minority and low-income individuals. As a result, the changes to Route 42 do not have a disproportionate negative impact on key populations.

Table 18: Changes in Key Populations Served by Proposed Changes to Route 42

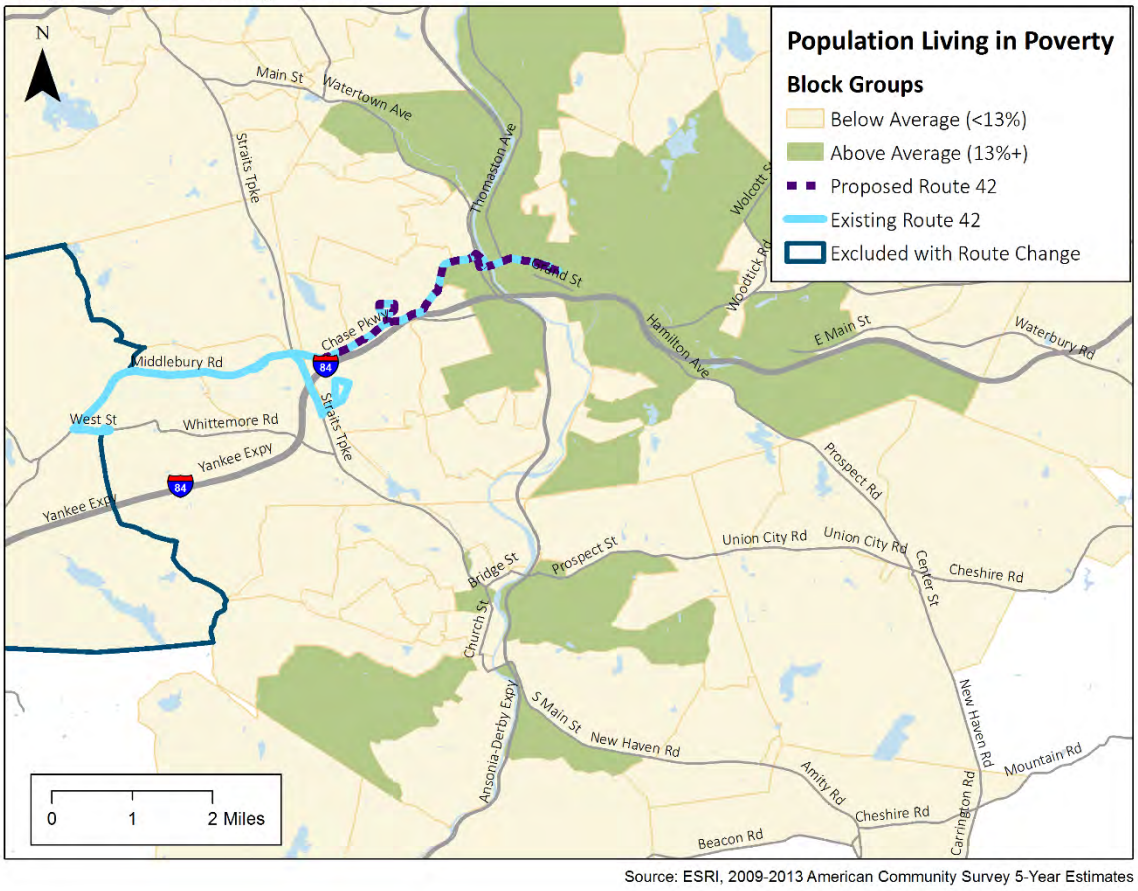
Block Group Set	% Minority Population	Minority Population	% of Population Living in Poverty	Population Living in Poverty
Excluded with route change	16%	421	2%	62

Figure 24: Minority Population along Route 42



Source: ESRI, 2009-2013 American Community Survey 5-Year Estimates

Figure 25: Population Living in Poverty along Route 42



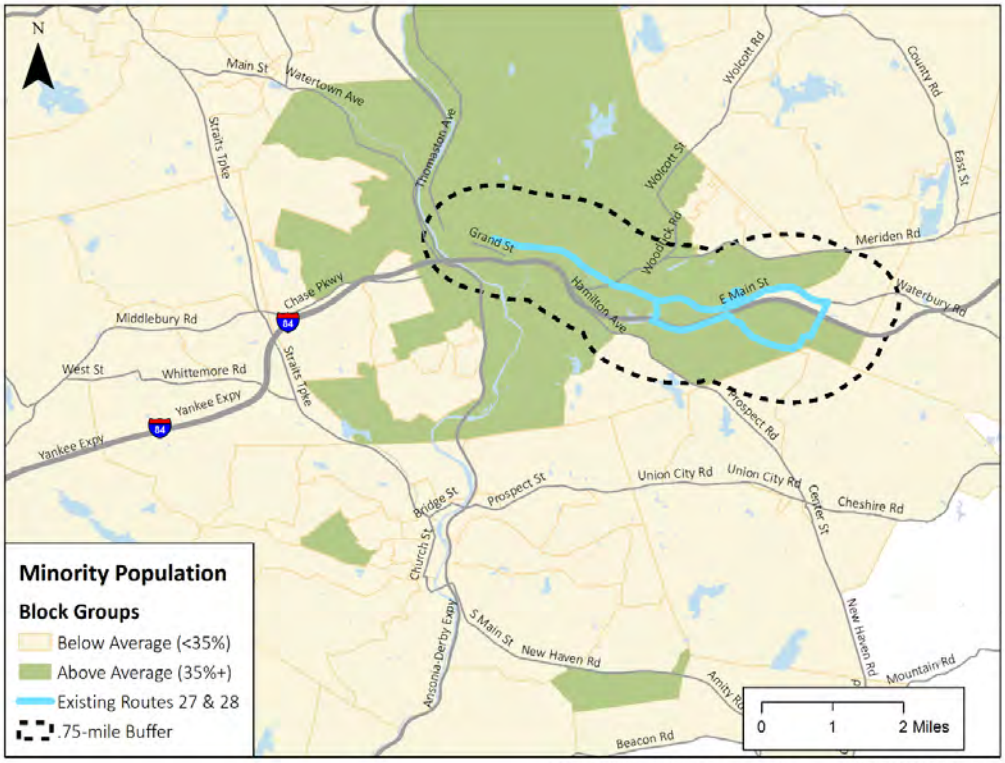
Route 27/28 Weekend Service

Route 27/28 will see an improved level of service on weekends if the proposal is implemented. There are no proposed alignment changes on either route. The Block Groups intersecting the .75-mile buffer of the routes have higher average rates of poverty and minority populations than the service area as a whole as shown in Figures 26 and 27. More than half of people living in Block Groups along the corridor are identified as a minority; nearly a quarter of the corridor's population is living in poverty (see Table 19). Thus, this service change will benefit low-income and minority individuals.

Table 19: Changes in Key Populations Served by Proposed Changes to Routes 27 and 28

Block Group Set	% Minority Population	Minority Population	% of Population Living in Poverty	Population Living in Poverty
Included with route change	57%	40,623	24%	17,202

Figure 26: Minority Population along Route 27/28



Source: ESRI, 2009-2013 American Community Survey 5-Year Estimates

Figure 27: Population Living in Poverty along Route 27/28

Source: ESRI, 2009-2013 American Community Survey 5-Year Estimates

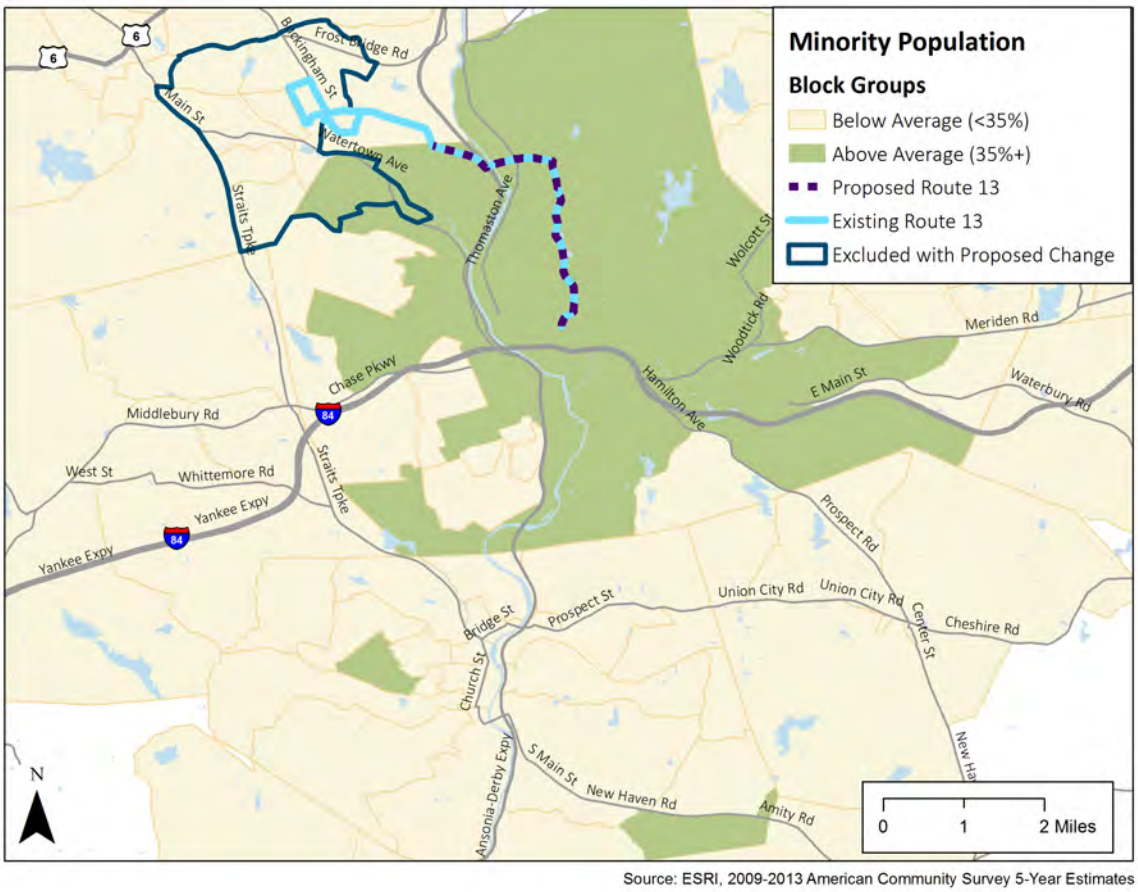
Route 13 Weekend Service

The proposed change to Route 13 is to truncate the route at the Northridge Apartments on weekend days. The existing route extends west and stops in Oakville. As can be seen in Figures 28 and 29, the portion of the route that would not be operated on weekend days is located in Block Groups that are below the service area averages for minorities and low-income people. With the exception of one Block Group, which would still be served by Route 45, all of the excluded Block Groups are below average for both key populations. If the proposed changes are implemented, 2,275 minorities and 684 people living in poverty will no longer be within the .75-mile buffer.

Table 20: Changes in Key Populations Served by Proposed Changes to Route 13

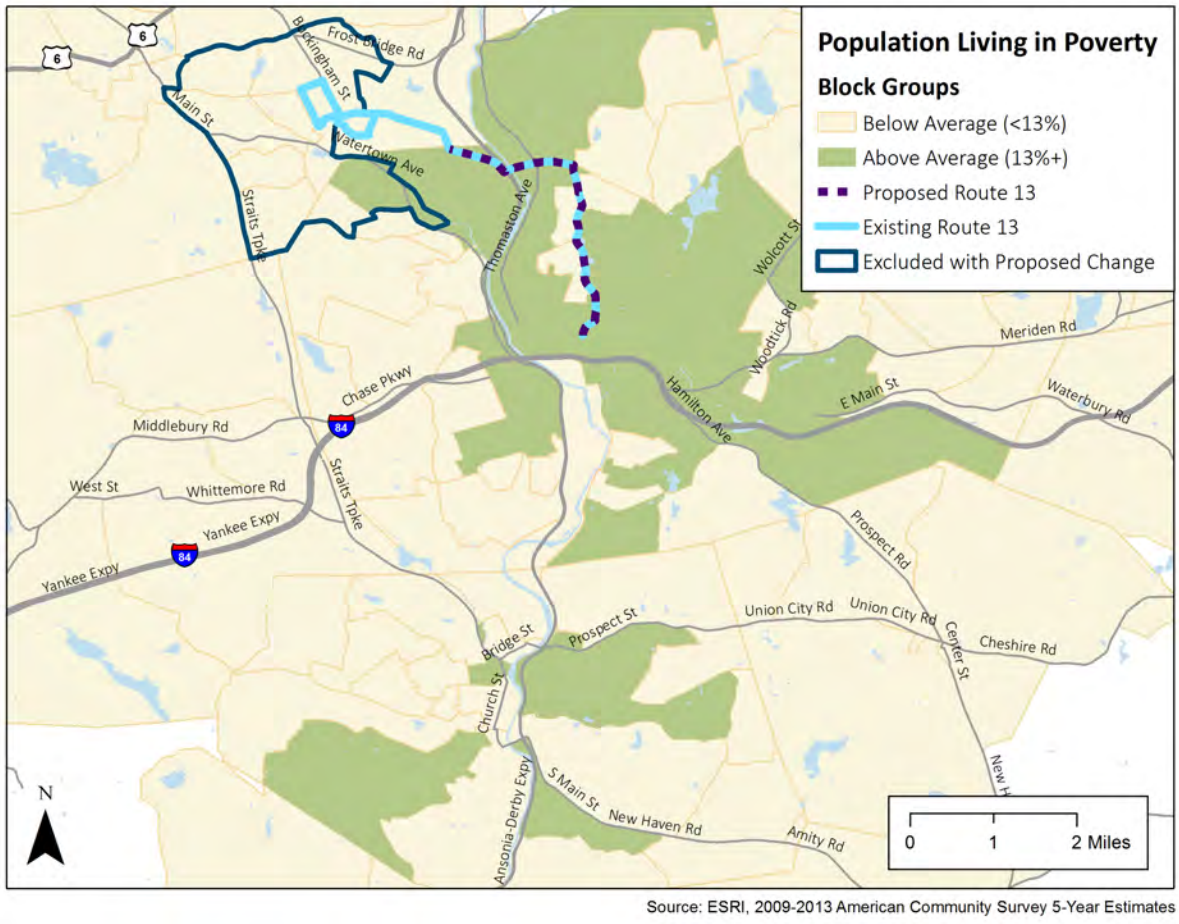
Block Group Set	% Minority Population	Minority Population	% of Population Living in Poverty	Population Living in Poverty
Excluded with route change	20%	2275	6%	684

Figure 28: Minority Population along Route 13



Source: ESRI, 2009-2013 American Community Survey 5-Year Estimates

Figure 29: Population Living in Poverty along Route 13



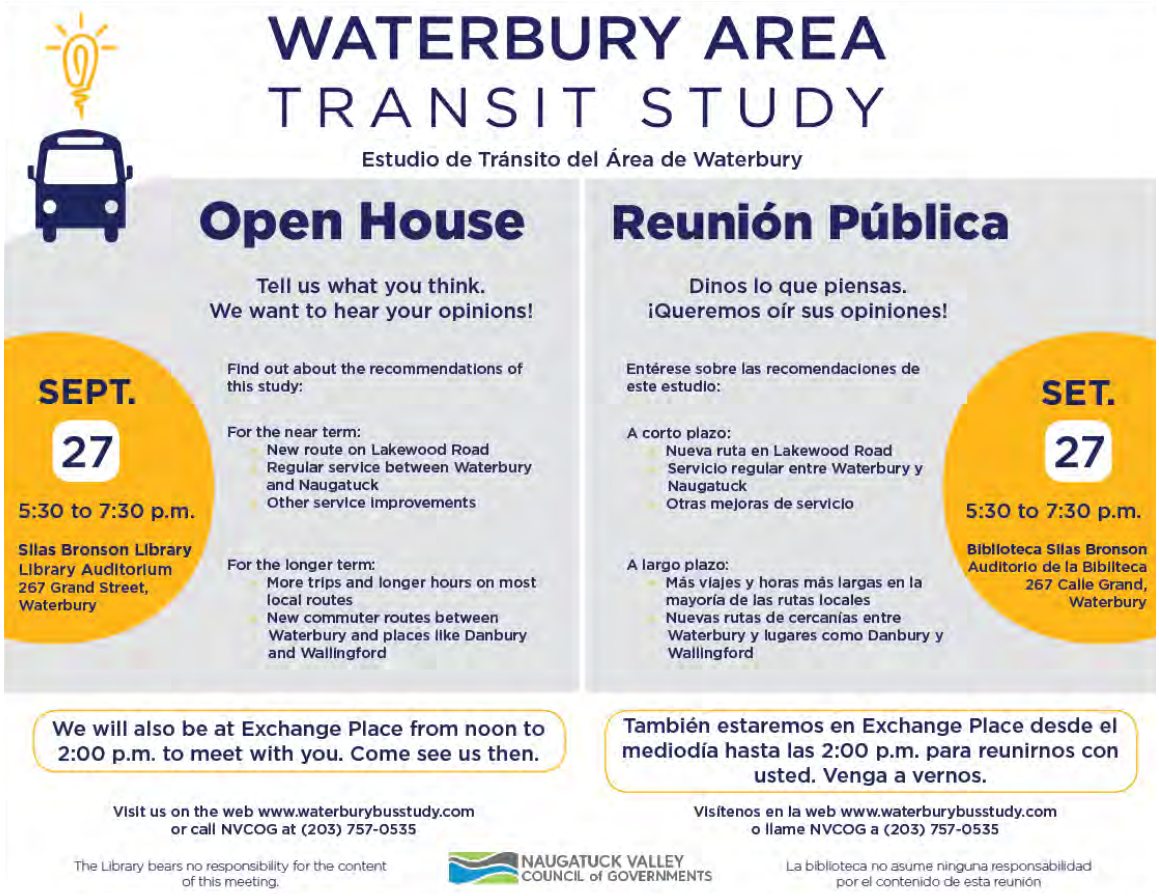
Source: ESRI, 2009-2013 American Community Survey 5-Year Estimates

Appendix 2: Public Comments

On Wednesday, September 27, 2017 the Waterbury Area Transit Study project team joined staff from the Naugatuck Valley Council of Governments to conduct a final round of public outreach. An afternoon "pop-up" session at Exchange Place and around the Waterbury Green was followed by an evening open house at the Silas Bronson Library.

Both sessions were designed to engage bus riders and the general public to inform them of study recommendations and offer an additional opportunity for feedback on specific proposals and the Waterbury bus system in general. The pop-up session ran from 12:00 p.m. to 2:00 p.m.; the open house at the library was conducted from 5:30 p.m. to 7:30 p.m. In total, the study team interacted with more than 40 members of the public.

Notification for the two events was circulated through a variety of channels, including local media and on flyers aboard Northeast Transportation buses the week prior. Notices were also available in English and Spanish, with additional direction to the project website for reference documents and a study timeline. The study team included a Spanish speaker to encourage bilingual participation in the outreach event.



The interactions varied in length as team members informed the community of the study purpose and core recommendations and requested feedback concerning public priorities for desired and

recommended improvements. Many customers indicated satisfaction with local bus service and had no specific issues. Those who engaged in longer conversations echoed themes heard early in the study process and reinforced the importance of recommendations focused on expanding service hours and frequency system-wide.

Key themes and comments from the outdoor pop-up event are summarized as follows:

- On-time performance and schedule reliability are a significant concern
- Late buses often result in missed transfer connections at Exchange Place/Waterbury Green
- Bus service hours should be expanded: earlier mornings and later evenings on weekdays and weekends
- The bus stop reconfiguration at the Green requires longer walks between some stops (e.g., East Main Street)
- More amenities (benches, shelters) are needed at the bus stops around the Green, particularly on East Main Street
- The bench on East Main Street (NE corner of East Main/North Main) is dangerously close to the street
- Real-time bus arrival information would be helpful at the pulse
- Ticket sales on the Green would be helpful
- More clear signage and consistent bus stop locations around the Green would be helpful and reduce customer confusion
- Crowding is a problem (e.g., Route 422)
- Weekend service is needed on more routes (e.g., 431/432)
- New service to Lakewood Road is highly desirable
- Later afternoon service is needed to Naugatuck
- Local service should coordinate with CTfastrak 928 to/from Hartford to avoid stranding Waterbury customers on the Green late at night
- Fares are too expensive
- The two-hour transfer period is too short

The evening open house included a set of poster boards detailing specific bus service recommendations from the short- and long-term plans, as well as a summary of high-activity bus stops across the system and potential improvements such as shelters, benches, and safer street crossings. Participants at the open house generally offered more detailed feedback and were invited to speak with study team members, submit written comments, or both.

Comments received at the open house include:

- Several business owners in the Lakewood Road area are eager to see the proposed new service implemented as soon as possible
- There is a need for improvement in the public notifications of service disruptions
- Bus riders with disabilities need shelters at bus stops and feel that they are often not seen by bus operators and thus miss trips when they are passed by
- More Sunday service is necessary, along with better service frequency
- Support for increased service frequency called for in the plan recommendations

- Multiple participants spoke in favor of restoring bus stops to previous locations on the Green, as the recent stop relocation has increased walking distances between bus stops (for transfers) and results in some customers missing connections
- Frequency improvements are necessary on routes such as 426
- The new bus stop location at Brass Mill Center is not convenient for customers
- Safety aboard buses is a serious concern and drug/alcohol use on buses is not uncommon
- Better notification of service disruptions and special events
- Not having bus shelters is worse for disabled people who are not as visible to drivers as able-bodied customers. Drivers sometimes pass by.
- Improvements on Routes 431/432
    - Saturday service from 9am-2pm would be helpful
    - Otherwise, customers have to walk to mall for bus service
    - Sunday hours are important to get to church
    - Would like hourly service from Prospect Street to the mall
    - Marlene Hemingway is putting together a petition for increased bus service
- Support for Route [4]28 increased headways
- Confusion over where buses stop
- Bus fares are too expensive
- The Wolcott bus should run every half hour

A few participants at the Open House submitted comment forms with extended comments. These are reproduced below. An additional comment submitted electronically is included, but there were no further electronic submissions in the 30-day comment period following the Open House.

WATERBURY AREA TRANSIT STUDY

Comment Form

Please feel free to provide any comments:

I am a regular rider on NET busses. Bus 428 currently stops service at 9:00 A.M. and doesn't start again until 1:20 P.M. on weekdays. 428 is a busy route with Stop and Shop, Aldi's and other businesses on Reidville Dr. and 2 large apartment complexes on Scott Rd. (Scott Gardens and Villagewood). Bus 428 should run every hour all day long.

As a ~~regular~~ regular 428 passenger, I agree with the ~~the~~ new route and schedule proposed by the Waterbury Area Transit Study.

Thank You,

Brian Luce
(203)755-5496

Please email comment to:
comments@waterburybusstudy.com

Visit our website at:
http://www.waterburybusstudy.com/

NAUGATUCK VALLEY COUNCIL of GOVERNMENTS

WATERBURY AREA TRANSIT STUDY

Comment Form

Please feel free to provide any comments:

The buses need to be put back on the green. They have been on the green since I can remember back when I was a little girl, and my grandfather was a bus driver for C R & L It is very inconvient on East Main St where the buses board now because if you need to ride bus 422 you have to walk a long distance to get on it, and by the time you get down there the bus is starting to leave. It is not right for the elderly & disabled people who have to ambulate with a walker, cane, & have to ride in a wheel chair. The new bus stop that was instituted to go to the mall is not fair for the elderly & disabled because they have to climb the hill to get into the mall. What Were they Thinking when they made this new bus stop!!!

Please email comment to:
comments@waterburybusstudy.com

Visit our website at:
http://www.waterburybusstudy.com/

NAUGATUCK VALLEY COUNCIL of GOVERNMENTS

WATERBURY AREA TRANSIT STUDY

Comment Form

Please feel free to provide any comments:

The bus stops are a long distance from one another. The 412 bus should run every half an hour in the morning without a layover. The buses need to be held more often instead of a few times a day. The bus shelters, and benches are limited on East Main St. where the buses board. I think that the Lakewood Rd bus would be ideal because the bus riders would be able to patronize the stores, and there would be a bus stop for ShopRite The evening bus service 413-412 should be changed to 412-413. The 426 bus should run every half an hour in the morning. Since the new bus stop for the mall was put in the bus drivers have been making comments about how they like it and that it makes it much easier for them. I don't

Please email comment to:
comments@waterburybusstudy.com

Visit our website at:
http://www.waterburybusstudy.com/

NAUGATUCK VALLEY COUNCIL of GOVERNMENTS

WATERBURY AREA TRANSIT STUDY

Comment Form

Please feel free to provide any comments:

think that they should be saying comments like that because they are getting paid to provide a service to the bus riders. It should be ~~Convient~~ convenient for the bus riders and not the bus drivers. I also heard a supervisior making a comment about how early the bus came in because of the new mall bus stop. He said look at the driver he is chilling. I think that is very ~~unprof~~ unprofessional.

Please email comment to:
comments@waterburybusstudy.com

Visit our website at:
http://www.waterburybusstudy.com/

NAUGATUCK VALLEY COUNCIL of GOVERNMENTS

From: April Chaplin
To: Benjamin Muller; Christian Meyer
CC: Robert Carlucci; aimee.marques@ct.gov; alicia.gonzalez@ct.gov
Subject: Re: Waterbury Area Transit Study Public Comments from Naugatuck
Date: Friday, November 10, 2017 10:43:06 AM

Good Morning and Happy Friday!

Here is a brief summary of the biggest transportation challenges we are addressing right now in Naugatuck. The seniors and persons with disabilities that I have met with in the following elderly housing communities and at the Naugatuck Senior Center wish for me to share, on their behalf, their challenges:

They wish for increased transportation options (including a more reliable vehicle and an additional vehicle and driver with HRDA-Human Resource Development Agency-we know this is a town based) and would like to support additional bus runs from Naugatuck to Waterbury as proposed in the Waterbury Area Transit Study.

This is on behalf of the following housing communities:

George B. Lewis I (Elderly only housing), 52 units
1013 Weid Drive
Naugatuck, CT 06770

George B. Lewis II (Elderly only housing), 54 units
71 Osborn Road
Naugatuck, CT 06770

Oak Terrace (Elderly and persons with disabilities), 29 units
53 Conrad Street
Naugatuck, CT 06770

Robert E. Hutt (Elderly housing), 36 units
480 Millville Avenue
Naugatuck, CT 06770

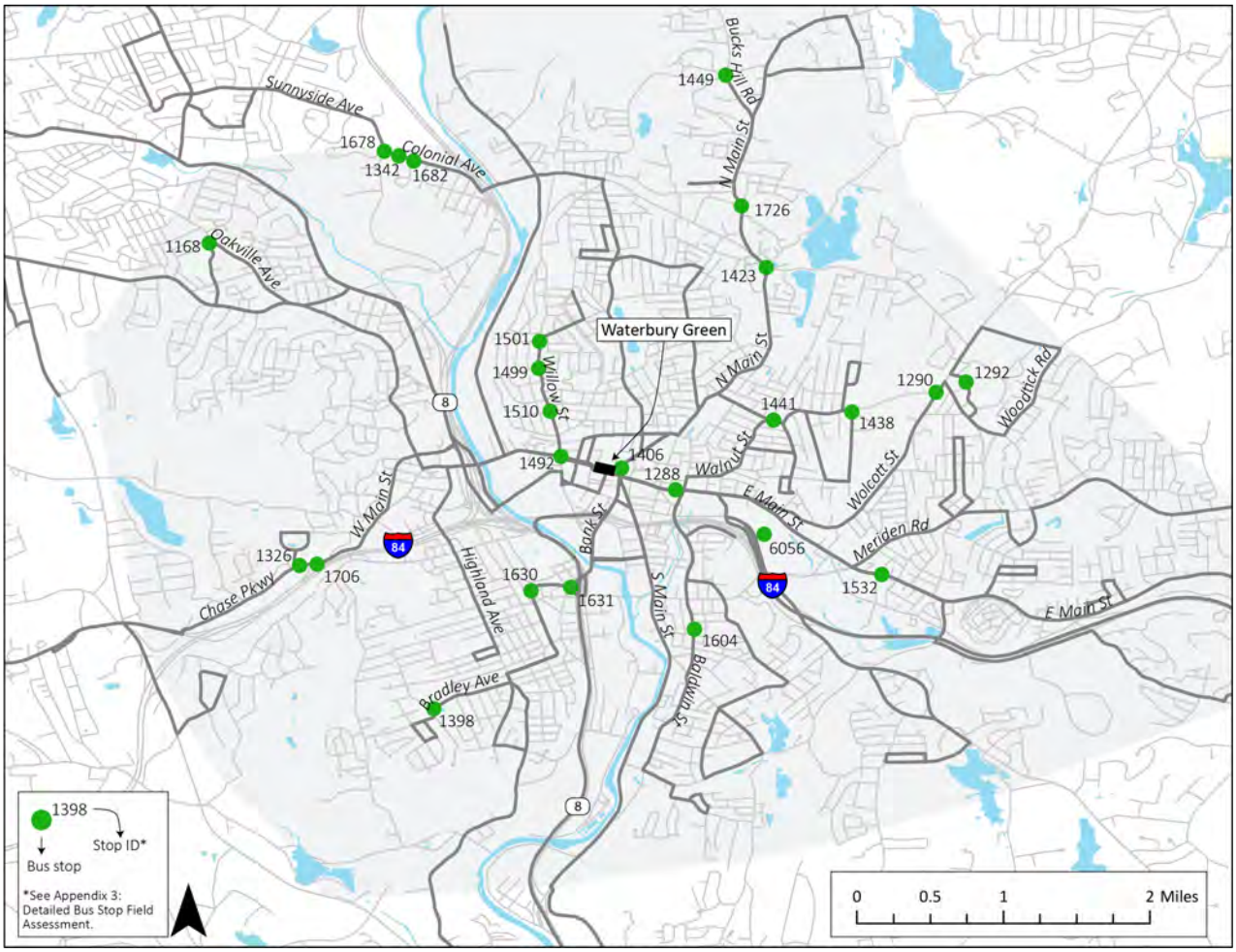
Seniors from The Naugatuck Senior Center have also expressed needs for additional transportation availability. They have needs for increased availability for public transportation (more routes), non-emergency medical transportation and additional availability for shopping and personal needs.

Thank you.
April J. Chaplin
Kennedy Center
Northwest Regional Mobility Manager
c/o Western CT Area Agency on Aging (WCAAA)
84 Progress Lane, 2nd Floor
Waterbury, CT 06705

Appendix 3: Detailed Bus Stop Field Assessment

The following pages present the results of a field assessment of the top 25 stops in the Waterbury system in terms of boardings outside of the Waterbury Green. Each stop is presented in a standard form, which is then followed by one or more photographs to document the conditions described in the form.

The 25 stops are shown geographically on the map below. Each stop is labelled with a four-digit code that corresponds to the stop ID number at the top of each form.



Top 25 busiest stops (weekday boardings), excluding the Waterbury Green

Stop ID	Location	Weekday Boardings
6056	Brass Mill Center	173
1168	Whitewood Rd @ Angel Dr	105
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STOPS OUTSIDE OF DOWNTOWN WATERBURY

Stop Location: **Stop ID:6056 – Brass Mill Center**
Sign present? (Y/N) **Sign information:** **Yes – CT Transit Bus Stop/ No Parking**
Seating? (Y/N) **Condition: (Excellent/Good/Poor)** **Excellent – Several Benches**
Shelter? (Y/N) **Condition: (Excellent/Good/Poor)** **Excellent**
Sidewalk condition at stop (Excellent/Good/Poor): **Notes:** **Excellent**
Sidewalk condition to/from stop (Excellent/Good/Poor): **Notes:** **Excellent**
Street lighting at and around bus stop? (Y/N) **Lighting in Parking lot and on side of Mall building**
Other accessibility concerns?
Photo file names(s): **1210 PM**

Brass Mill Center

Stop Location: **Stop ID:1168 – Whitewood Rd @ Angle Dr**
Sign present? (Y/N) **Sign information:** **Yes – CT Transit Bus Stop/No Parking**
Seating? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Shelter? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Sidewalk condition at stop (Excellent/Good/Poor): **Notes:** **Good/Poor – Asphalt with Frost Heaves**
Sidewalk condition to/from stop (Excellent/Good/Poor): **Notes:** **Good/Poor – Asphalt with Frost Heaves**
Street lighting at and around bus stop? (Y/N) **Across the street**
Other accessibility concerns? **Narrow Road, large apartment complex entrance just up the street**
Photo file names(s): **231 PM**

Whitewood Rd @ Angle DrStop Location:

Stop ID:1292 – Walmart @ Wolcott Rd
Sign present? (Y/N) **Sign information:** **Yes – CT Transit Bus Stop/No Parking**
Seating? (Y/N) **Condition: (Excellent/Good/Poor)** **Yes – Excellent to good condition, four benches, metal feet are rusted and falling apart**
Shelter? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Sidewalk condition at stop (Excellent/Good/Poor): **Notes:** **Excellent – Bus has pull off area, low traffic road**
Sidewalk condition to/from stop (Excellent/Good/Poor): **Notes:** **Only a small connector from Stop & Shop parking lot to plaza access road, no crosswalks**
Street lighting at and around bus stop? (Y/N) **Not at stop; parking lot has lights**
Other accessibility concerns? **Garbage receptacle at stop, ramps are not ADA, Panera Bread across road, many turn lanes on the road, low traffic, gas station behind stop**
Photo file names(s): **900 AM**

Walmart @ Wolcott RdStop Location:

Stop ID:1631 – Congress Street @ Bank
Sign present? (Y/N) **Sign information:** **Yes –CT Transit Bus Stop/ No Parking**
Seating? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Shelter? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Sidewalk condition at stop (Excellent/Good/Poor): **Notes:** **Excellent**
Sidewalk condition to/from stop (Excellent/Good/Poor): **Notes:** **Excellent – several ADA ramps, 4" curb**
Street lighting at and around bus stop? (Y/N) **Yes – New Streetlight at corner**
Other accessibility concerns? **No Crosswalks present, on-street parking**
Photo file names(s): **139 PM**

Congress Street @ Bank

Stop Location: **Stop ID:1288 – East Main St @ St Mary**
Sign present? (Y/N) **Sign information:** **Yes – CT Transit Bus Stop/ No Parking**
Seating? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Shelter? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Sidewalk condition at stop (Excellent/Good/Poor): **Notes:** **Excellent – Garbage receptacle**
Sidewalk condition to/from stop (Excellent/Good/Poor): **Notes:** **Good to Excellent**
Street lighting at and around bus stop? (Y/N) **No**
Other accessibility concerns? **Two lanes high traffic each way to lights, no crosswalks**
Photo file names(s): **1001 AM 3 photos**

Same conditions on opposite side of street

East Main St @ St Mary

Stop Location: **Stop ID:1290 – Wolcott St @ Long Hill Road**
Sign present? (Y/N) **Sign information:** **Yes – CT Transit Bus Stop/No Parking**
Seating? (Y/N) **Condition: (Excellent/Good/Poor)** **Yes – Good – One metal bench inside shelter**
Shelter? (Y/N) **Condition: (Excellent/Good/Poor)** **Yes #26? – Good – Frame is in good shape, glass has graffiti and scratches but is not broken**
Sidewalk condition at stop (Excellent/Good/Poor): **Notes:** **Poor - Concrete pad under shelter, asphalt surrounding it**
Sidewalk condition to/from stop (Excellent/Good/Poor): **Notes:** **No sidewalk connection, dirt path visible through grass from parking lot**
Street lighting at and around bus stop? (Y/N) **No – some in the parking lot behind stop**
Other accessibility concerns? **Close to lighted intersection (south), Plaza access immediately north, two lanes through traffic each direction, crosswalk at Long Hill Rd**
Photo file names(s): **914 AM**

Wolcott St @ Long Hill Road

Stop Location: **Stop ID:1726 – N Main St @ Driveway – Plaza EAST SIDE**
Sign present? (Y/N) **Sign information:** **Yes – CT Transit Bus Stop/ No Parking**
Seating? (Y/N) **Condition: (Excellent/Good/Poor)** **No – Seating was stolen, using shopping carts**
Shelter? (Y/N) **Condition: (Excellent/Good/Poor)** **Yes – Good/Poor Frame was broken**
Sidewalk condition at stop (Excellent/Good/Poor): **Notes:** **Good – Just a concrete pad**
Sidewalk condition to/from stop (Excellent/Good/Poor): **Notes:** **NA no sidewalk observed**
Street lighting at and around bus stop? (Y/N) **NO**
Other accessibility concerns? **Large volume of riders here, missing lighting and a crosswalk**
Photo file names(s): **1146 AM**

N Main St @ Driveway – Plaza **EAST SIDE**

Stop Location: **Stop ID:1326 – Janwood Rd @ NVCC - Potentially moved west**
Sign present? (Y/N) **Sign information:** **Yes – NVCC/CT Transit Bus Stop/No Parking**
Seating? (Y/N) **Condition: (Excellent/Good/Poor)** **Excellent – Looks New**
Shelter? (Y/N) **Condition: (Excellent/Good/Poor)** **Excellent – Looks New**
Sidewalk condition at stop (Excellent/Good/Poor): **Notes:** **Excellent – Looks New**
Sidewalk condition to/from stop (Excellent/Good/Poor): **Notes:** **Excellent – Looks New**
Street lighting at and around bus stop? (Y/N) **Yes – Streetlight**
Other accessibility concerns? **WB only stop? High traffic speeds. Appears stop has been moved closer to commuter lot mid-block**
Photo file names(s): **206 PM**

Janwood Rd @ NVCC

Stop Location: **Stop ID:1449 – Farmcrest Dr @ Bucks Hill Rd**
Sign present? (Y/N) **Sign information:** **NO**
Seating? (Y/N) **Condition: (Excellent/Good/Poor)** **NO**
Shelter? (Y/N) **Condition: (Excellent/Good/Poor)** **NO**
Sidewalk condition at stop (Excellent/Good/Poor): **Notes:** **Poor – small concrete platform to stand in**
Sidewalk condition to/from stop (Excellent/Good/Poor): **Notes:** **Poor to Good – Some new sidewalk, mostly poor**
Street lighting at and around bus stop? (Y/N) **NO**
Other accessibility concerns? **Blind spots to Bucks Hill, large intersection area**
Photo file names(s): **1133 AM**

Farmcrest Dr @ Bucks Hill Rd

Stop Location: **Stop ID:1706 Chase Pkwy @ Commuter Lot**
Sign present? (Y/N) **Sign information:** **Yes – CT Transit Bus Stop/No Parking**
Seating? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Shelter? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Sidewalk condition at stop (Excellent/Good/Poor): **Notes:** **Excellent - Asphalt**
Sidewalk condition to/from stop (Excellent/Good/Poor): **Notes:** **Excellent – Asphalt/Concrete**
Street lighting at and around bus stop? (Y/N) **No**
Other accessibility concerns? **High traffic speed near I-84 on Ramp, 4 lanes of traffic, unsafe street crossing**
Photo file name(s): **204 PM**

Chase Pkwy @ Commuter Lot

Stop Location: **Stop ID:1604 – Baldwin @ Rye Southbound**
Sign present? (Y/N) **Sign information:** **Yes – CT Transit Bus Stop/No Parking**
Seating? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Shelter? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Sidewalk condition at stop (Excellent/Good/Poor): **Notes:** **Poor – Mostly falling apart**
Sidewalk condition to/from stop (Excellent/Good/Poor): **Notes:** **Poor – Mostly falling apart**
Street lighting at and around bus stop? (Y/N) **Across Street**
Other accessibility concerns? **Need additional crosswalks**
Photo file names(s): **111 PM**

Baldwin @ Rye

Stop Location: **Stop ID:1678 – Sunnyside Ave @ Northridge Rd Southbound**
Sign present? (Y/N) **Sign information:** **Yes – CT Transit Bus Stop/No Parking**
Seating? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Shelter? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Sidewalk condition at stop (Excellent/Good/Poor): **Notes:** **No Sidewalk**
Sidewalk condition to/from stop (Excellent/Good/Poor): **Notes:** **No Sidewalk**
Street lighting at and around bus stop? (Y/N) **Yes – Streetlight**
Other accessibility concerns? **Dangerous curve downhill grade on approach to large fork intersection**
Photo file names(s): **252 PM**

Sunnyside Ave @ Northridge Rd

Stop Location: **Stop ID:1438 – Longhill Rd @ Berkeley**
Sign present? (Y/N) **Sign information:** **Yes – watch children – CT Transit Bus Stop – No Parking**
Seating? (Y/N) **Condition: (Excellent/Good/Poor)** **No. Concrete wall potentially used for seating, poor**
Shelter? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Sidewalk condition at stop (Excellent/Good/Poor): **Notes:** **No sidewalk, dirt to edge of pavement**
Sidewalk condition to/from stop (Excellent/Good/Poor): **Notes:** **Small sections of intermittent poor sidewalk, other side of street has good sidewalk**
Street lighting at and around bus stop? (Y/N) **One street light over road**
Other accessibility concerns? **Steep grade downhill, on-street parking, no crosswalks from apartments**
Photo file names(s): **927 AM**

Longhill Rd @ Berkeley

Stop Location: **Stop ID:1630 – Congress St @ Poplar Southbound**
Sign present? (Y/N) **Sign information:** **Yes – Slow/CT Transit Bus Stop/No Parking**
Seating? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Shelter? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Sidewalk condition at stop (Excellent/Good/Poor): **Notes:** **Excellent – Fire hydrant at stop**
Sidewalk condition to/from stop (Excellent/Good/Poor): **Notes:** **Excellent, several ADA Ramps**
Street lighting at and around bus stop? (Y/N) **No**
Other accessibility concerns? **Downhill Grade towards green, large turn, no crosswalks**
Photo file names(s): **131 PM**

Congress St @ Poplar

Stop Location: **Stop ID:1630 – Congress St @ Poplar Northbound**
Sign present? (Y/N) **Sign information:** **Yes – CT Transit Bus Stop/No Parking**
Seating? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Shelter? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Sidewalk condition at stop (Excellent/Good/Poor): **Notes:** **Excellent – 4" curb**
Sidewalk condition to/from stop (Excellent/Good/Poor): **Notes:** **Excellent, several ADA Ramps 4" ramps**
Street lighting at and around bus stop? (Y/N) **Large halogen light for apartments at stop**
Other accessibility concerns? **Downhill Grade towards green, large turn, no crosswalks**
Photo file names(s): **131 PM**

Congress St @ Poplar

Stop Location: **Stop ID:1423 – North Main @ Lakewood**
Sign present? (Y/N) **Sign information:** **Yes – CT Transit Bus Stop/No Parking**
Seating? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Shelter? (Y/N) **Condition: (Excellent/Good/Poor)** **Missing; existed in recent years.**
Sidewalk condition at stop (Excellent/Good/Poor): **Notes:** **Good**
Sidewalk condition to/from stop (Excellent/Good/Poor): **Notes:** **Excellent**
Street lighting at and around bus stop? (Y/N) **No – Street light on opposite side of the road**
Other accessibility concerns? **Crosswalk with signs, need restriping, bus has to block intersection to make stop**
Photo file names(s): **1107 AM**

North Main @ Lakewood

Stop Location: **Stop ID:1532 East Main @ Albion St**
Sign present? (Y/N) **Sign information:** **Yes – No Parking Anytime/CT Transit Bus Stop/ No Parking**
Seating? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Shelter? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Sidewalk condition at stop (Excellent/Good/Poor): **Notes:** **Poor – Asphalt/concrete – Very deteriorated**
Sidewalk condition to/from stop (Excellent/Good/Poor): **Notes:** **Poor**
Street lighting at and around bus stop? (Y/N) **Street light across street**
Other accessibility concerns? **Crosswalk looks ok, good approach for bus to stop**
Photo file names(s): **1257 PM**

East Main @ Albion St

Stop Location: **Stop ID:1342 – Colonial Ave @ Lester**
Sign present? (Y/N) **Sign information:** **Yes – CT Transit Bus Stop/No Parking**
Seating? (Y/N) **Condition: (Excellent/Good/Poor)** **No – Bench nearby**
Shelter? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Sidewalk condition at stop (Excellent/Good/Poor): **Notes:** **Poor – concrete. NB is poor, all asphalt**
Sidewalk condition to/from stop (Excellent/Good/Poor): **Notes:** **Poor - Asphalt**
Street lighting at and around bus stop? (Y/N) **No**
Other accessibility concerns? **Sharp curve up the road, high traffic speeds**
Photo file names(s): **256 – SB, 259 - NB**

Colonial Ave @ Lester

Colonial Ave @ Lester

Stop Location: **Stop ID:1398 Bradley @ Wesley St South East direction**
Sign present? (Y/N) **Sign information:** **Yes – CT Transit Bus Stop/ No Parking**
Seating? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Shelter? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Sidewalk condition at stop (Excellent/Good/Poor): **Notes:** **Poor – Asphalt sidewalk with traffic guide rail**
Sidewalk condition to/from stop (Excellent/Good/Poor): **Notes:** **Poor – Asphalt sidewalk with traffic guide rail**
Street lighting at and around bus stop? (Y/N) **No**
Other accessibility concerns? **Sharp turn, fast traffic**
Photo file names(s): **148 PM**

Bradley @ Wesley St

Bradley @ Wesley St

Stop Location: **Stop ID:1441 – North Walnut @ Walnut St**
Sign present? (Y/N) **Sign information:** **Yes – CT Transit Bus Stop/ No Parking**
Seating? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Shelter? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Sidewalk condition at stop (Excellent/Good/Poor): **Notes:** **Poor - Asphalt**
Sidewalk condition to/from stop (Excellent/Good/Poor): **Notes:** **Poor - Asphalt – other side of street looks new with ADA ramps**
Street lighting at and around bus stop? (Y/N) **Streetlights**
Other accessibility concerns? **Several intersections, on-street parking, no crosswalks**
Photo file names(s): **946 AM**

North Walnut @ Walnut St

North Walnut @ Walnut St

Stop Location: **Stop ID:1499 – Willow St @ Plaza**
Sign present? (Y/N) **Sign information:** **Yes – CT Transit Bus Stop – No Parking**
Seating? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Shelter? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Sidewalk condition at stop (Excellent/Good/Poor): **Notes:** **Poor – Asphalt at corner of intersection**
Sidewalk condition to/from stop (Excellent/Good/Poor): **Notes:** **Good to Poor on both sides of intersection at stop**
Street lighting at and around bus stop? (Y/N) **Yes – One street light at street intersection**
Other accessibility concerns? **No Ramp, Crosswalk, no crosswalk signals, need road restriping, narrow sidewalk**
Photo file names(s): **1048 AM**

Willow St @ Plaza

Stop Location: **Stop ID:1501 – Willow St @ Wildwood Rd**
Sign present? (Y/N) **Sign information:** **Yes – Neighborhood Watch/ Ped Crossing/ CT Transit Bus Stop/ No Parking**
Seating? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Shelter? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Sidewalk condition at stop (Excellent/Good/Poor): **Notes:** **Poor**
Sidewalk condition to/from stop (Excellent/Good/Poor): **Notes:** **Poor – Concrete at inbound stop, asphalt on outbound stop**
Street lighting at and around bus stop? (Y/N) **Yes – Streetlight over the road at stop**
Other accessibility concerns? **Crosswalk at stop, narrow sidewalk, garbage can at stop**
Photo file names(s): **1243 PM**

Willow St @ Wildwood Rd

Stop Location: **Stop ID:1510 – Willow St @ Hillside**
Sign present? (Y/N) **Sign information:** **Yes – CT Transit Bus Stop/ No Parking**
Seating? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Shelter? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Sidewalk condition at stop (Excellent/Good/Poor): **Notes:** **Good/Poor – Small curb/ lots of metal fence**
Sidewalk condition to/from stop (Excellent/Good/Poor): **Notes:** **Good/Poor – On street parking, near intersection, road needs restriping**
Street lighting at and around bus stop? (Y/N) **Street lights not near stop**
Other accessibility concerns? **Steep downhill grade**
Photo file names(s): **1036 AM**

Willow St @ Hillside

Stop Location: **Stop ID:1682 – Colonial Ave @ Dorchester Ave Southbound**
Sign present? (Y/N) **Sign information:** **Yes – CT Transit Bus Stop/No Parking**
Seating? (Y/N) **Condition: (Excellent/Good/Poor)** **No – Bench nearby**
Shelter? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Sidewalk condition at stop (Excellent/Good/Poor): **Notes:** **Good/Poor – Concrete without ramps**
Sidewalk condition to/from stop (Excellent/Good/Poor): **Notes:** **Good/Poor - Concrete**
Street lighting at and around bus stop? (Y/N) **Yes – Street light and halogen apartment light**
Other accessibility concerns? **Steep downhill grade, one crosswalk, fast traffic**
Photo file names(s): **303 PM**

Colonial Ave @ Dorchester Ave Southbound

Stop Location: **Stop ID:1406 – N Main St @ TD Bank**
Sign present? (Y/N) **Sign information:** **Yes – No Parking Anytime – CT Transit Bus Stop**
Seating? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Shelter? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Sidewalk condition at stop (Excellent/Good/Poor): **Notes:** **Good to Poor – Some sections are poor**
Sidewalk condition to/from stop (Excellent/Good/Poor): **Notes:** **Good towards the Green, poor heading away from the Green**
Street lighting at and around bus stop? (Y/N) **No – Tree providing shade at site**
Other accessibility concerns? **No ADA features; there are sidewalk ramps**
Photo file names(s): **1012 AM**

N Main St @ TD Bank

Stop Location: **Stop ID:1492 – West Main St @ Willow Street**
Sign present? (Y/N) **Sign information:** **Yes – To I84 – CT Transit Bus Stop – No Parking**
Seating? (Y/N) **Condition: (Excellent/Good/Poor)** **No – People sit on curb at edge of parking lot**
Shelter? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Sidewalk condition at stop (Excellent/Good/Poor): **Notes:** **Excellent**
Sidewalk condition to/from stop (Excellent/Good/Poor): **Notes:** **Excellent**
Street lighting at and around bus stop? (Y/N) **Yes – New lamp**
Other accessibility concerns? **Ped signs present – street paints need restriping – at busy intersection – median in road**
Photo file names(s): **1024 AM**

West Main St @ Willow Street

STOPS AT WATERBURY GREEN/EXCHANGE PLACE

Stop Location: **Stop ID: Waterbury Green Section 1, 81 W Main by Sovereign Bank**
Sign present? (Y/N) **Sign information:** **Yes – CT Transit Bus Stop/ CT Fastrak/Routes 925 * 928J** **Also bus schedule on the hour – see picture below**
Seating? (Y/N) **Condition: (Excellent/Good/Poor)** **NO**
Shelter? (Y/N) **Condition: (Excellent/Good/Poor)** **NO**
Sidewalk condition at stop (Excellent/Good/Poor): **Notes: Good** **Some defects in brick border adjacent to concrete**
Sidewalk condition to/from stop (Excellent/Good/Poor): **Notes:** **Good**
Street lighting at and around bus stop? (Y/N) **Yes**
Other accessibility concerns? **No Place to sit and no shelters. Fairly narrow sidewalk**
Photo file names(s): **7-9-2015**

Waterbury Green Section 1, 81 W Main by Sovereign Bank

Stop Location: **Stop ID:55 W. Main St, Rowland Center, Area 2**
Sign present? (Y/N) **Sign information:** **No**
Seating? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Shelter? (Y/N) **Condition: (Excellent/Good/Poor)** **Yes**
Sidewalk condition at stop (Excellent/Good/Poor): **Notes:** **Good, pavers**
Sidewalk condition to/from stop (Excellent/Good/Poor): **Notes:** **Good, pavers**
Street lighting at and around bus stop? (Y/N) **Yes**
Other accessibility concerns? **No Loitering sign at Government center** **Ramp at Leavenworth but not ADA compliant**
Photo file names(s): **7-9-2015**

55 W. Main St, Rowland Center, Area 2

Stop Location: **Stop ID: Walgreens and Lumbard Center, Bank St, Area 3**
Sign present? (Y/N) **Sign information:** **Yes – CT Transit Bus Stop/ No Parking/No Parking Beyond Sign**
Seating? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Shelter? (Y/N) **Condition: (Excellent/Good/Poor)** **Yes, Good**
Sidewalk condition at stop (Excellent/Good/Poor): **Notes:** **Good, some cracks and divits**
Sidewalk condition to/from stop (Excellent/Good/Poor): **Notes:** **Good, some cracks and divits**
Street lighting at and around bus stop? (Y/N) **Yes**
Other accessibility concerns? **NA**
Photo file names(s): **7-9-2015**

Walgreens and Lumbard Center, Bank St, Area 3

Stop Location: **Stop ID: East end of the Green, Plaza on the Green – N. Main St Area 4**
Sign present? (Y/N) **Sign information:** **Yes – CT Transit Bus Stop**
Seating? (Y/N) **Condition: (Excellent/Good/Poor)** **Good – Two Benches**
Shelter? (Y/N) **Condition: (Excellent/Good/Poor)** **Good – Two shelters**
Sidewalk condition at stop (Excellent/Good/Poor): **Notes:** **Good**
Sidewalk condition to/from stop (Excellent/Good/Poor): **Notes:** **Good, ramps at corners of green but not ADA compliant, not textured or painted yellow**
Street lighting at and around bus stop? (Y/N) **Yes**
Other accessibility concerns? **Public drinking water and fountain present**
Photo file names(s): **7-9-15**

East end of the Green, Plaza on the Green – N. Main St Area 4

Stop Location: **Stop ID: Corner of E. Main and N. Main to center of green, area 5**
Sign present? (Y/N) **Sign information:** **Yes – CT Transit Bus Stop/ CT Fastrak, schedule** **Bus schedule on sign**
Seating? (Y/N) **Condition: (Excellent/Good/Poor)** **Good – 18 seats on 9 double benches**
Shelter? (Y/N) **Condition: (Excellent/Good/Poor)** **Good, four shelters**
Sidewalk condition at stop (Excellent/Good/Poor): **Notes:** **Good, some divits in curbs**
Sidewalk condition to/from stop (Excellent/Good/Poor): **Notes:** **Good**
Street lighting at and around bus stop? (Y/N) **Yes – Two on either end**
Other accessibility concerns? **Not ADA compliant, uneven curb at crosswalk from Leavenworth St.**
Photo file names(s): **7-9-15**

Corner of E. Main and N. Main to center of green, area 5

Stop Location: **Stop ID: Green Across from Sovereign Bank**
Sign present? (Y/N) **Sign information:** **No**
Seating? (Y/N) **Condition: (Excellent/Good/Poor)** **Yes – Three benches in good condition**
Shelter? (Y/N) **Condition: (Excellent/Good/Poor)** **No**
Sidewalk condition at stop (Excellent/Good/Poor): **Notes:** **Good**
Sidewalk condition to/from stop (Excellent/Good/Poor): **Notes:** **Good**
Street lighting at and around bus stop? (Y/N) **Yes – Trees block some lighting**
Other accessibility concerns? **Ramp at Leavenworth crosswalk not ADA compliant** **Trash and recycling receptors**
Photo file names(s): **7-9-15**

Green Across from Sovereign Bank