STAMFORD EAST BUS ROUTES

Technical Assistance

WESTCOG

Western Connecticut
COUNCIL OF GOVERNMENTS

Innovative Planning
BETTER COMMUNITIES

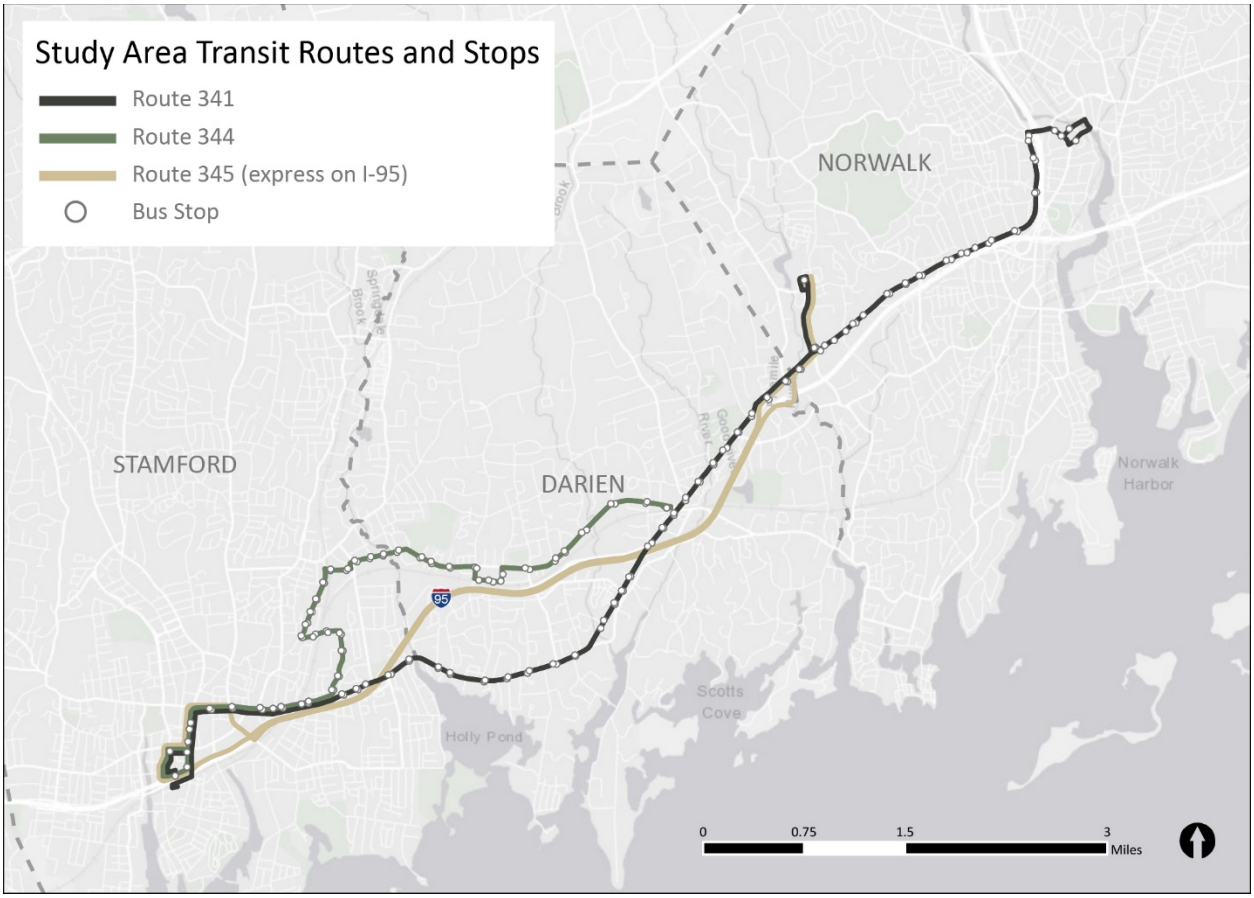
JULY 2019

Introduction and Purpose

The Western Connecticut Council of Governments (WestCOG) commissioned a technical assistance effort in early 2019 to focus on three CTtransit bus routes operating east of Stamford. CTtransit routes 341, 344, and 345 connect Stamford, Darien, and Norwalk and serve a diverse customer base by linking residential, commercial, educational, and healthcare destinations. Recent studies that have examined these routes and other transit services in the area include:

- Greenwich-Norwalk Bus Rapid Transit Study
- Coastal Corridor Bus Study
- U.S. Route 1 Bus Rapid Transit Feasibility Study
- Stamford Bus and Shuttle Study
- Noroton Heights Train Station Study

Figure 1 Study Area Transit Routes and Stops



This technical assistance effort does not constitute a formal study; rather, it seeks to build upon recent studies and identify short-term and relatively low-cost opportunities to improve service, customer experience, and the interface between bus routes and host communities.

In April 2019, the project team conducted stakeholder interviews with the following:

- Town of Darien
- Connecticut Department of Transportation (CTDOT) and CTtransit
- Norwalk and the Norwalk Transit District (NTD)
- Norwalk Community College
- City of Stamford

These interviews allowed WestCOG and the project team to solicit feedback on priorities and specific needs. Although priorities differed somewhat among stakeholders, bus stop design guidance and proposals for bus stop consolidation/relocation for the three CTtransit routes in question emerged as a common interest.

This document provides an overview of existing conditions, best practices, issues and opportunities, and potential actions for municipal and agency coordination. It does not make formal recommendations but does provide policymakers with information to support decision-making. Supporting analyses and mapping are included in a technical appendix. It should also be noted that this technical assistance was a data-driven approach focused on the three CTtransit Routes. The analysis used ridership data provided by CTtransit. NTD also operates services within Norwalk that overlap with CTtransit Route 341 along US Route 1, including NTD Routes 11, 13, and Connecticut Avenue Lines. Before any decisions regarding bus stop consolidation or bus stop enhancements are made, additional collaboration with NTD is encouraged to ensure mutually beneficial outcomes. See Appendix F for NTD's letter regarding the findings.

CTtransit Bus Services

Route 341 Norwalk

The 341 Norwalk route is a long-haul route running along U.S. Route 1 between the Stamford Transportation Center and the Norwalk Wheels Hub. With more than 3,000 boardings per day, this route has the highest ridership in the CTtransit Stamford Division. Weekday service operates every 20 minutes. Figure 2 shows eastbound boardings; for insets and westbound boardings, see Appendix A.

Route 344 Glenbrook Road

The 344 Glenbrook Road is a medium-haul route from the Stamford Transportation Center to the Darien train station. It is the only bus serving the Noroton Heights neighborhood. Weekday service operates every 30 minutes, with daily ridership under 500 boardings. Figure 3 shows eastbound ridership; for westbound boardings, see Appendix A.

Route 345 NCC Flyer

The 345 NCC Flyer is a commuter route that operates express via I-95 from the Stamford Transportation Center to Norwalk Community College during regular class days in the fall and spring semesters. It operates between 7:00 a.m. and 4:00 p.m. Mondays thru Thursdays. Service is not provided on Fridays, Weekends, Holidays, or non-class days. Ridership is under 250 boardings per day. Figure 4 shows eastbound ridership; for westbound boardings, see Appendix A.

Figure 2 Route 341 Eastbound Ridership

Figure 3 Route 344 Eastbound Ridership

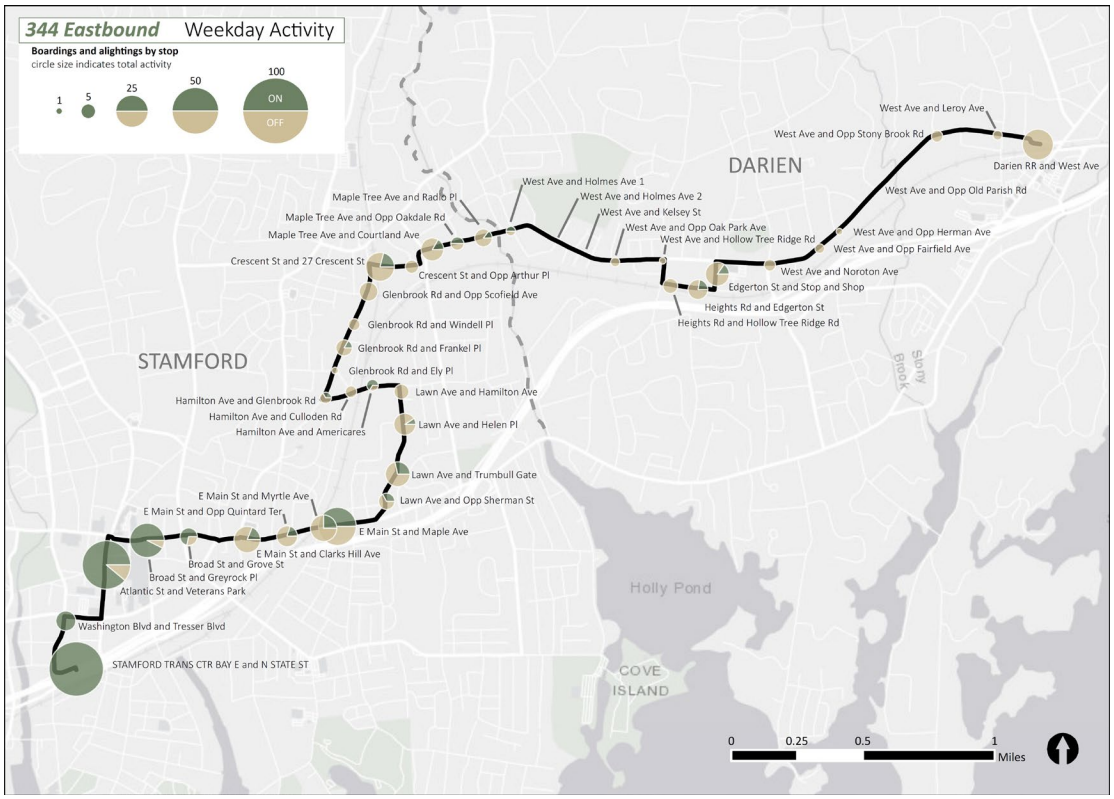
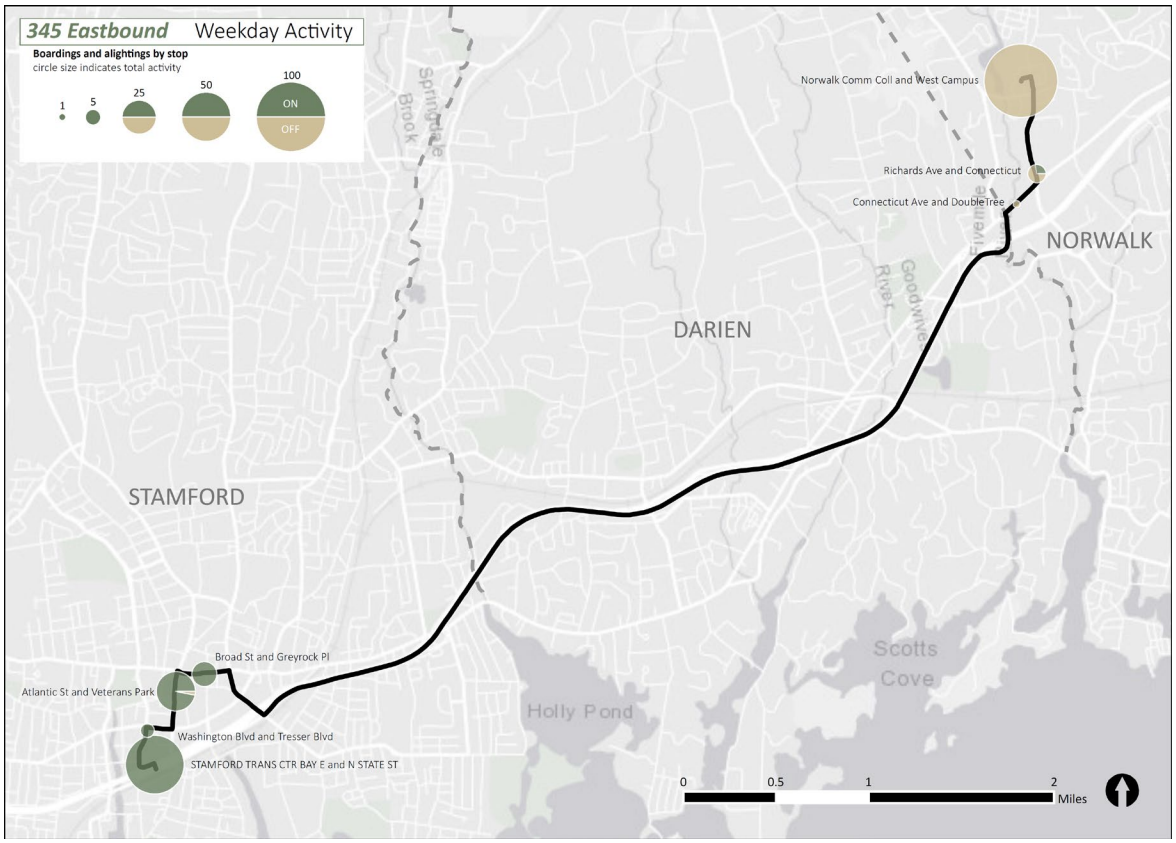


Figure 4 Route 345 Eastbound Ridership



Bus Stop Spacing

Bus stops represent a primary interface between transit service and host communities. Stakeholders interviewed during this process, as well as other recent studies, have pointed to bus stop spacing as a potential area of focus for improved travel time reliability. Customer perception of transit's efficiency is often as important as quantitative performance measures, underscoring the importance of a rational and thoughtful approach to bus stop spacing and location.

Changes to bus stop spacing typically do not result in significant time savings to support increases in trip frequency. However, improvements to reliability are possible and this effort emphasizes the importance of focusing capital resources in the locations that most warrant them. Bus stop interventions are relatively modest capital expenditures with the potential for operational benefits.

Best Practices

Spacing of bus stops along a route should balance safe and convenient customer access with reliable and efficient operation of service. When too close together, service performance declines as buses stop more frequently for fewer passengers. When too far apart, accessibility to the transit network is compromised and ridership is discouraged. Bus stops should be safe and accessible to all users.

Bus stop placement and spacing is often an incremental exercise, as transit systems have historically added stops to serve new development or accommodate specific community requests. Stops are seldom

removed, resulting in unnecessarily close spacing of stops. This is a common phenomenon across the country and transit systems nationwide are increasingly revisiting their bus stop inventory to better allocate resources and improve the overall customer experience.

Spacing Guidelines

Typical transit guidelines recommend that bus stop spacing in suburban areas be located roughly ¼-mile apart (1,320 feet). This recommendation is reinforced in the Connecticut Statewide Bus Study (2018), which recommends that bus stops shall not be more frequent than every quarter mile. Spacing should also consider frequently key destinations such as grocery stores, community centers, schools and colleges, hospitals, employment centers, and transit centers. Furthermore, locations with current bus shelters are generally favored. Practical considerations such as suitable locations for bus stops also need to be considered, such as sufficient length between curb cuts and presence of a suitable sidewalk to make an ADA compliant bus stop.

When considering elimination of existing stops, primary candidates include those with minimal daily ridership activity and near other existing stops. Lack of use is easily demonstrated through ridership data and when alternatives exist nearby, these stops can be eliminated.

From an operations perspective, elimination of unused stops will not markedly improve bus travel times, as buses are typically not stopping anyway. Conversely, adjacent stops with moderate ridership, at which most buses stop throughout the day, present opportunities for consolidation with the potential for travel time savings. Reducing the total number of stops affords better allocation of capital resources for accessibility and improved amenities and reduces maintenance costs.

Existing Conditions

Stop Spacing

A review of existing bus route alignments and stop locations revealed the following:

Table 1 Existing Stop Numbers and Average Spacing

Route	Distance (Miles)	Bus Stops	Average Spacing (Feet)
341 Norwalk - Eastbound	10.85	56	1,040
341 Norwalk - Westbound	10.42	58	965
344 Glenbrook Road - Eastbound	6.10	40	826
344 Glenbrook Road - Westbound	5.95	41	785

* Stop spacing was not considered for 345 NCC Flyer due to its highway/express design

Ridership Activity

With the exception of the Stamford and Norwalk transit hubs and select urban stops, total ridership activity at individual bus stops typically ranges from 0 to 50 passengers boarding and alighting on a typical weekday. Fewer than 10 combined boardings and alightings is considered very low ridership on these routes.

Opportunities for Bus Stop Placement and Spacing

Methodology

The technical review of existing and potential bus stop spacing included analyses of bus ridership activity at each stop for an average weekday, adjacent land uses, accessibility, and operational considerations (e.g., near side vs. far side placement).

Ridership was the primary driver to screen candidate stops for elimination or relocation. Upon identification of low-volume and/or excessively close stops, a further look was taken at the local conditions immediately surrounding such stops and those immediately adjacent. This allowed for an informed take on the preferred stop to remain in place in segments with too many stops, including measurement of distance to the prior and next stops.

Points of interest associated with existing stops were noted, including civic centers, senior centers and housing, schools, healthcare facilities, grocery stores, and transit centers.

Additional objectives:

- Maintaining bus stop pairs: if a bus stop is provided in one direction, a matching stop in the opposite direction is desirable
- Emphasizing far-side bus stops, which are generally preferred from an operational perspective
- Retaining improved bus stops that already were improved with bus shelters
- Maximizing safety by locating stops near existing signals and pedestrian crosswalks
- Focusing on ADA accessibility by avoiding curb cuts and irregular sidewalk facilities

Stops Identified for Relocation/Elimination

Based on a multi-pronged review of existing stop locations, ridership, and physical condition, opportunities were identified to reduce the number of stops and thus widen spacing to more closely match the ¼ mile target. Appendix B includes summary data from these analyses as well as maps noting new or eliminated stops. Again, the 345 NCC Flyer express service was not targeted for stop elimination.

Table 2 Route 341/344 Reduction Ramifications

Route	Existing Number of Stops	Potential After Reduction
341 Norwalk - Eastbound	56	48
341 Norwalk - Westbound	58	51
344 Glenbrook Road - Eastbound	40	33
344 Glenbrook Road - Westbound	41	35

Route 341 Norwalk

The following stop changes may be considered, due to low ridership, close stop spacing, or associated safety and operational concerns. Complexities in this corridor include a busy commercial district along Connecticut Avenue with numerous curb cuts and difficult pedestrian crossings (often lacking crosswalks and/or signalization). While opportunities for widening stop spacing exist, relocations or eliminations must consider logical pairing with ridership generators, accessibility, and available curb space.

Table 3 Route 341 Norwalk Potential Stop Modifications

Direction	Stop	Action	Community	Notes
Eastbound	East Main St & Myrtle Ave	Eliminate	Stamford	
	East Main St & Noroton Hill Pl	Eliminate		Remove stop or improve safety of pedestrian crossing of East Main Street
	512 Boston Post Rd	Eliminate	Darien	
	Boston Post Rd opposite Richmond Dr	Eliminate	Darien	
	Boston Post Rd opposite W Norwalk Rd	Move	Darien	Shift stop west to improve spacing
	Connecticut Ave & DoubleTree	Move	Norwalk	Shift stop east to improve spacing
	Richards Ave & Connecticut Ave	Eliminate	Norwalk	
	Connecticut Ave & AMF Bowling Alley	Consolidate	Norwalk	Shift east, opposite Walmart
	Connecticut Ave & Raymour & Flanigan	Consolidate	Norwalk	Shift west, opposite Walmart
	Connecticut Ave & Keller Ave	Eliminate	Norwalk	
	561 Connecticut Ave	Move	Norwalk	Shift east to better serve Kohl's Plaza
	Connecticut Ave & Fairfield Ave	Move	Norwalk	Shift to far side for improved operations
Westbound	Connecticut Ave & Oak Knoll Apts	Eliminate	Norwalk	
	Richards Ave & Connecticut Ave	Eliminate	Norwalk	
	Boston Post Rd & West Norwalk Rd	Move	Norwalk	Shift west to improve spacing
	Boston Post Rd & Richmond Dr	Eliminate	Norwalk	
	523 Boston Post Rd	Eliminate	Darien	
	U.S. Route 1 & Standish Rd	Eliminate	Stamford	
	East Main St & Seaton Rd	Eliminate	Stamford	Remove stop or improve safety of pedestrian crossing of East Main Street
	East Main St & Lafayette St	Eliminate	Stamford	
TOTAL STOPS REMOVED				**14**

Route 344 Glenbrook Road

The following stop changes may be considered, due to low ridership, close stop spacing, or associated safety and operational concerns. The primarily residential character of Route 344 generally simplifies the improved spacing of stops, without the complication of commercial curb cuts and significant pedestrian safety concerns associated with major arterials.

Table 4 Route 344 Suggested Stops to Remove

Direction	Stop	Action	Community	Notes
Eastbound	East Main St & Myrtle Ave	Eliminate	Stamford	
	Hamilton Ave & Americares	Eliminate	Stamford	
	Glenbrook Rd & Frankel Pl	Eliminate	Stamford	
	Crescent St & Arthur Pl	Eliminate	Stamford	
	Maple Tree Ave & Oakdale Rd	Eliminate	Stamford	
	West Ave & Kelsey St	Eliminate	Darien	
	Heights Rd & Hollow Tree Ridge Rd	Eliminate	Darien	Consolidate stops at Noroton Heights train station
Westbound	West Ave & Robinson St	Eliminate	Darien	
	Maple Tree Ave & Oakdale Rd	Eliminate	Stamford	
	Crescent St & Arthur Pl	Eliminate	Stamford	
	Glenbrook Rd & Frankel Pl	Eliminate	Stamford	
	99 Hamilton Ave	Eliminate	Stamford	
	East Main St & Lafayette St	Eliminate	Stamford	
TOTAL STOPS REMOVED				**13**

Route 345 NCC Flyer

Intermediate stops between Norwalk Community College and Stamford along Connecticut Avenue show low ridership and may be removed from the schedule. From an operational perspective, time savings would be negligible on this express service. Nonetheless, stop locations will ultimately match local bus stops as designated on Route 341.

Coordination and Implementation

The intent of this technical assistance is to inform decision-making and outline a path forward to implementation. Bus stop location and design are a joint effort between host municipalities, CTtransit, and the CTDOT. As such, a coordinated approach to location, facility design, accessibility, and maintenance is important.

Furthermore, conversations with the public (local residents, property owners, bus riders) are integral to the success of any stop spacing initiatives. Formal public meetings must be held prior to any stop elimination and municipalities and transit providers are encouraged to work together to communicate the rationale for proposed changes to the public with sufficient opportunity to provide feedback.

Bus Stop Design Guidelines

The stakeholders interviewed as part of this technical assistance requested guidance on bus stop design. Attractive and comfortable transit stops serve a variety of functions. These include making transit use more appealing to patrons and potential riders, improving accessibility and overall performance, and branding and marketing of the transit agency.

The following section identifies best practices, discusses existing conditions, and proposes locations that could be prioritized for enhanced bus stops based off ridership and adjacent uses. It should be noted that ideally all bus stops would offer seating, shelter, and information, but the prioritized list could provide a starting point from which to expand enhanced throughout the communities.

Best Practices for Bus Stop Design

High-quality bus stop design and amenities benefit the riders and promote transit as fundamental components of the street network. The section below outlines the major findings from best practice research, regarding shelters, seating, passenger information, and ticket vending. A more detailed discussion of each of these elements among others can be found in Appendix C.

Shelters

Why are they important? Shelters improve comfort for riders by protecting them from rain, snow, and wind. Moreover, providing comfortable shelters and seating can significantly improve the perception of wait times and rider satisfaction.[1]

Although the aesthetics of shelters varies across municipalities, these amenities are helpful if they protect riders from rain, snow, and wind. Shelters with lighting aim to improve perceptions of safety.

[1] Fan, Yingling, Andrew Guthrie, and David Levinson. *Perception of Waiting Time at Transit Stops and Stations.* Working paper, University of Minnesota, Minneapolis, MN: 2015.

Where should they be prioritized? Shelters are especially vital at stops with moderate to high boardings, at weather-exposed locations, or in areas without nearby shelter locations. Many agencies prioritize shelters in locations with elderly or child riders, such as outside senior centers or near schools.

What are some key design considerations? Shelters should be in visible areas to ensure that passengers waiting for buses can be seen from the outside. Glass or transparent materials are recommended, as well as an open back or side. Passengers waiting in shelters should be able to easily see arriving buses and should be visible to bus operators. Shelters should include interior lighting, or they should be in a well-lit area. Norwalk Transit District has a contract with Signal Outdoor for the erection of shelters. Cooperation with NTD would be beneficially to ensure that shelters are erected in desired locations that will be mutually beneficial to all parties.

Although benches are more common, some transit agencies attach small seats to their information signage, as shown in this example from Portland, Oregon. (Credit: Steve Morgan)

Seating

Why is it important? Comfortable seating near stops improves the comfort of the passenger experience.

Where should it be prioritized? Transit stops with moderate to high boardings, long wait times, or high use by senior or child riders should provide seating for passengers.

What are some key design considerations? The United States Access Board recommends four feet of clearance distance on all sides of seating, and seating should not conflict with pathways or sidewalk clearance.[2] Dark materials that retain heat such as metals should be avoided, particularly in hot, sunny locations.

Route Information

Why is it important? Providing information about the bus route, including arrival times, stop locations, ticket prices, and how to use the system, can help reduce promote ridership, reduce uncertainty, and improve rider satisfaction.

Where should it be prioritized? Route information should be provided at as many stops as possible, but it is particularly important at neighborhood gateways and commercial centers. Information at train stations can be particularly helpful to encourage transferring between public transit modes.

[2] United States Access Board. "Ch. 8 Special Rooms, Spaces, and Elements, Std. 810: Transportation Facilities." ADA Standards. US Department of Justice, Washington, D.C.: 2015.

What are some key design considerations? Consistent logos, colors, and fonts reinforces the visibility of route signage. Real-time arrival displays should be utilized whenever possible.[3]

Ticket Vending

Why is it important? Off-board ticket vending machines enable riders to purchase tickets prior to boarding, thus promoting a more efficient boarding process and overall rider experience.

Where should it be prioritized? Curbside fare machines are costly to install and maintain and should only be use on high-volume corridors.

What are some key design considerations? When utilized, vending machines should be placed at a height of 34 to 48 inches to accommodate wheelchair users. Fare purchase instructions should be clear and concise and communicated in multiple languages. Machines should also include raised lettering for visually impaired riders.

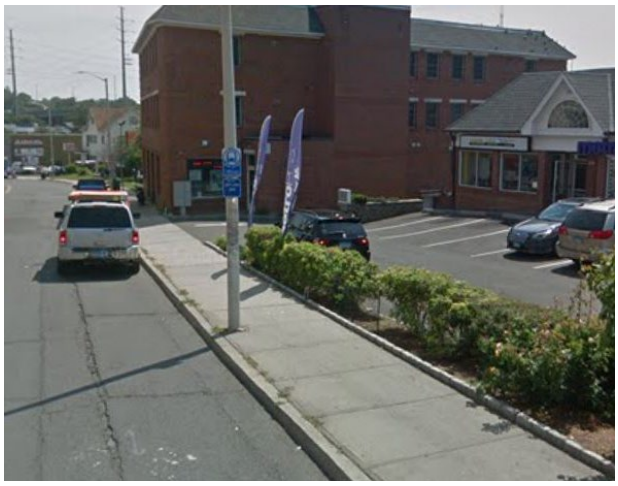
Off-board ticket vending can speed up the boarding process. (Credit: NYCDOT)

Bus Stop Existing Conditions

The study area offers a variety of transit stop types, including sign-and-pole stops, shelter stops, and curbside pull-off stops. The following provides a summary of the various transit stops located within Stamford, Darien, and Norwalk. Key opportunities and challenges are noted below. A more detailed summary may be found in Appendix D.

Sign-and-pole Stops

Sign-and-pole stops have a simple bus stop sign mounted to a freestanding metal pole, such as a telephone pole. Although affordable and flexible, these stops present the following challenges:



On-street parking appears to be permitted in front of the bus stop at East Main Street in Stamford, east of Clark Hills Avenue. As a result, this stop is not ADA accessible. (Source: Google Streetview)

[3] Brakewood, Candace. *Evaluating the Impacts of Real-Time Transit Information in Tampa and Atlanta*. Webcast, Center for Urban Transportation Research, University of South Florida, Tampa FL: 2014.

- The stops do not include a designated waiting area.
- On-street parking is frequently permitted in front of the bus stops, which may reduce visibility of waiting passengers and prevents the stop from being ADA accessible. Moreover, they may pose safety hazards for boarding passengers.
- These stops sometimes include information regarding bus schedules, but this is not common.
- Litter is common.

Shelter Stops

There are several shelter stops along the route. Some include seating, trash cans, schedule information, advertising, or ADA accessible open areas where a wheelchair can safely maneuver.

Curbside Pull-off Stops

Norwalk Community College has a curbside bus pull-off that is located near its entrance, on Richards Avenue. Although this bus pull-off does not have a bench or shelter, it does provide a pull-off area for buses and a waiting pad, adjacent to the sidewalk. Since pull-out stops prioritize through-traffic, including through-moving transit, they are most useful where flow is a priority or where in-lane stops would be problematic.[4]

Darien Shelter Stop at Whole Foods on Post Road in Darien north of Ledge Road (Source: Google Streetview)

Bus pull-off at Norwalk Community College entrance at Richards Avenue north of West Cedar Street

[4] National Association of City Transportation Officials. *Transit Street Design Guide.* Washington, D.C.: 2016.

Priority Locations for Enhanced Bus Stops

To identify appropriate locations for enhanced bus stops within the study area towns, a combination of the number of boardings and local surroundings were analyzed. Locations near development types where residents may not have access to vehicles were identified as priority locations, as well as locations where ridership levels are high. As specified in the CT Statewide Bus Study Final Report,[5] priority for installation of benches should be given to stops with 50 daily boardings or more while priority for the installation of shelters should be given to stops with 100 daily boardings or more. When looking at locations for enhancements, ridership levels from both route directions were studied to gain an understanding of overall ridership. Priority should also be given to areas that serve a high concentration of elderly and disabled patrons and areas that are located near major passenger trip generators. It is also worth noting that some stops, such as Broad Street and Greyrock Place in Stamford, serve multiple routes. Although there are only 13 average daily boardings on Route 345 (Eastbound), the average daily boardings from all routes exceeds the 100 daily boarding threshold proposed in the CT Statewide Bus Study.

Moreover, locations identified for transit shelters include the Senior Housing development at the corner of Post Road and Academy Street in Darien, the Route 341 stop location on Post Road, east of Ring's End Road in Darien, and as an element of the Downtown Corbin development project, also in Darien.

A full listing of route specific suggestions is provided in the tables below. Additional suggestions made by the City of Stamford may be found in Appendix E.

Table 5: Potential Priority Locations for Bus Stop Enhancements (Route 341)

Route & Direction	Stop Name	Community	Avg. Daily Weekday Boardings	Added Feature	Notes
341 EB	Broad St and Greyrock Pl	Stamford	141	Shelter	High ridership levels and available space in sidewalk realm
341 EB	E Main St ant Clarks Hill Ave	Stamford	33	Bench	High ridership levels and many nearby businesses, etc.
341 EB	E Main St and Opp Quintard Terrace	Stamford	24	Shelter	High ridership levels, westbound direction has shelter
341 EB	E Main St and Home Ct	Stamford	16	Bench	Moderate ridership levels, Google Streetview shows riders waiting while sitting on metal guardrail; consider adding ADA pad/ramp
341 EB	E Main St and Weed Ave	Stamford	10	Bench	Consider installing ADA ramp.

[5] CT Statewide Bus Study Final Report. Connecticut Department of Transportation. February, 2018.

341 EB	Boston Post Rd and Center St	Darien	19	Shelter	Darien Train Station- consider relocating stop for better pedestrian access
341 EB	Connecticut Ave and Opp Walmart	Norwalk	11	Bench	Moderate ridership levels, busy shopping and employment location
341 EB	Connecticut Ave and Cedar St	Norwalk	11	Bench	Also a stop along Wheels Route, close to Norwalk Senior Center
341 WB	Connecticut Ave and Pearl Vision	Norwalk	55	Shelter	High ridership levels, long distance to next stop, evidence of use, location near shopping plaza
341 WB	Connecticut Ave and Opp Double Tree	Norwalk	16	Bench	Moderate ridership, location near hotel
341 WB	Boston Post Rd and Center St	Darien	36	Shelter	Darien Train Station- consider relocating stop for better pedestrian access
341 WB	E Main St and Opp Weed Ave	Stamford	16	Bench	Moderate ridership, long distance to next stop
341 WB	E Main St and Opp Seaside Ave	Stamford	17	Bench	Moderate ridership, long distance to next stop

Table 6: Potential Priority Locations for Bus Stop Enhancements (Route 344)

Route & Direction	Stop Name	Community	Avg. Daily Weekday Boardings	Added Feature	Notes
344 EB	Broad St and Greyrock Pl	Stamford	25	Shelter	Multiple routes at this location, see note to add shelter on 341 Eastbound route
344 EB	Crescent St and 27 Crescent St	Stamford	4	Bench	Glenbrook Train Station (Bench due to train station location)
344 EB	Darien RR and West Ave	Darien	0	Shelter	Darien Train Station- consider relocating stop for better pedestrian access, see notes for RT 341
344 WB	Darien RR and West Ave	Darien	20	Shelter	Darien Train Station- consider relocating stop for better pedestrian access, see notes for RT 341

344 WB	Crescent St and Glenbrook Train Station	Stamford	12	Bench	Glenbrook Train Station
344 WB	Lawn Ave and Custer St	Stamford	15	Bench	Moderate ridership, location near Church and residences. Eastbound direction would be directly in front of a single family home; consider adding crosswalk.

Table 7: Potential Priority Locations for Bus Stop Enhancements (Route 345)

Route & Direction	Stop Name	Community	Avg. Daily Weekday Boardings	Added Feature	Notes
345 EB	Broad St and Greyrock Pl	Stamford	13	Shelter	Multiple routes at this location, see note to add shelter on 341 and 344 Eastbound routes
345 WB	Norwalk Community College and West Campus	Norwalk	82	Shelter	Unclear from Google Streetview if shelter currently exists or not

Considering the overlap of CTtransit service with NTD service, NTD has requested open communication to ensure shelters are compliant with their existing shelter advertising contracts. Moreover, collaboration on identifying shelter locations may help suit the needs of both transit providers.

Implementing these improvements can prove challenging from a funding perspective. As requested by stakeholders, developer agreements and advertising were explored as potential options for funding.

Developer Agreements

Land development and re-development provides an opportunity for enhancing transit infrastructure by providing bus stop right-of-way and/or amenities and creating good pedestrian access to and from bus stops. When a development is constructed adjacent to an existing or planned bus stop location, the developer may be responsible for providing all or part of the transit amenities. In some regions, such as the RPTA/Valley Metro region in Phoenix, Arizona, developments exceeding $500,000 in value should provide a shelter in addition to the general site design requirement. Developers are encouraged to place shelters that conform to local standards for passenger recognition and ease of maintenance.[6]

[6] RPTA Bus Stop Program and Standards. Bus Stop Design Guidelines. Regional Public Transportation Authority Valley Metro. November 2007, Updated August 2017.

For instance, when the Darien Whole Foods was constructed, the developer funded bus shelter construction as part of the development agreement. The State of Connecticut also required road widening. Other communities have utilized developer agreements to fund community amenities which may allow the developer to receive height and setback bonuses or other incentives as agreed upon by the two parties. Such community amenities could include pick up and drop off space for vans and shuttles, wayfinding and directional signage, and outdoor seating and pedestrian pathways.

Display Ads and Signage

Municipalities often utilize an advertising program as part of a transit shelter design. For example, a private company would purchase, install, light, clean, and maintain shelters. The company would lease advertising space in these shelters. Some shelter advertising programs also return a portion of the advertising revenue to the local community.[7]

Maintenance

Well-maintained bus stops are crucial to the image and rider comfort of a transit system. Damaged furniture and trash build-up are frequent challenges. Immediate garbage removal and clean-up can promote a positive impression for transit users and the general public. It is worth noting that reducing the overall number of stops on the corridor reduces the overall maintenance needs.

According to the stakeholder interview with the Connecticut Department of Transportation, individual municipalities are responsible for the purchasing, installation, and maintenance of transit stops located within their borders. Routine maintenance schedules can include things such as:

- Full wash-down of shelter
- Removal of any dirt, garbage, graffiti
- Removal and replacement of trash bag (if garbage can is provided)
- Pruning obstructive vegetation and weeding
- Snow plowing

Conclusion and Next Steps

This technical assistance explored the potential to improve stop spacing and stop design on CTtransit Routes 341, 344, and 345. The findings from this analysis will help inform the municipalities and CTtransit as they continue to explore needs and consider funding resources. It should be noted that technical analysis alone is not the only factor when updating stop locations or stop designs. Collaboration with elected officials, government agencies, riders, community organizations, residents, and businesses will play a role in successfully implementing changes to the system.

[7] RPTA Bus Stop Program and Standards. Bus Stop Design Guidelines. Regional Public Transportation Authority Valley Metro. November 2007, Updated August 2017.