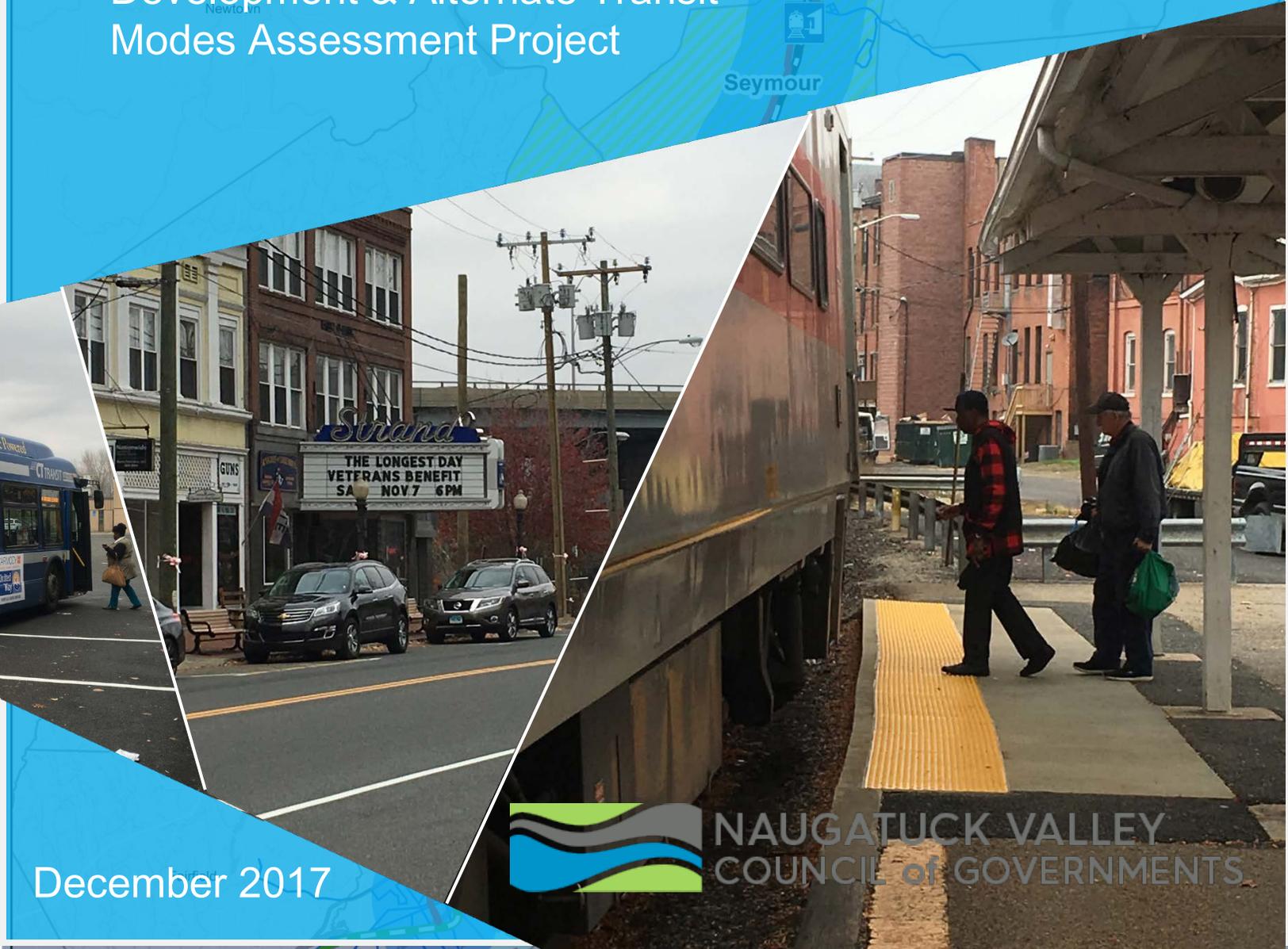




Woodbury CDM Smith Harriman Planning4Places Zuvic and Carr

Waterbury Branch Line On-Board Passenger Count & Ridership Survey

Route 8 & Waterbury Branch Line
Corridor Transit-Oriented
Development & Alternate Transit
Modes Assessment Project



December 2017



NAUGATUCK VALLEY
COUNCIL of GOVERNMENTS

About the NVCOG

The Naugatuck Valley Council of Governments (NVCOG) is a regional planning organization located in west-central Connecticut. Its primary focus areas are transportation, economic development, land use, brownfields redevelopment, environmental, and emergency planning. The NVCOG is a forum for the chief elected officials of the nineteen municipalities located in the Naugatuck Valley region. It sets regional priorities for a variety of federal and state funding programs, oversees regional programs for member municipalities, and provides technical assistance to municipalities, state and federal agencies, local organizations, and the general public.

Abstract

The Valley Council of Governments, the predecessor agency of the NVCOG, was awarded state grant funds under the TOD Pilot Program to assess the opportunities for promoting land uses that would support the creation of transit oriented developments. Subsequent to that award, the VCOG received grant funds from the Federal Transit Administration to analyze the feasibility of implementing alternative transportation modes within the Route 8 and Waterbury branch rail line corridors to more efficiently and effectively move commuters through the Region.

The project is being conducted by a study team comprised of AECOM Technical Services, Inc. as the prime consultant, and four sub-consultants: CDM Smith, Harriman, Planning4Places, and Zuvic and Carr. Together, the study team is building upon past and current analyses to develop an implementation plan for incentivizing transit oriented and supported developments and for identifying preferred transit alternatives to accommodate the TOD concepts. The transportation alternatives will be determined based on making connections between the commuter rail stations, TOD districts and employment areas beyond the Naugatuck Valley region, and facilitating travel along the Waterbury Branch Line and the Route 8 Expressway.

In support of the study goals and objectives, the NVCOG conducted an on-board count of passengers riding Waterbury branch rail line trains and a ridership survey. All inbound and outbound trains were counted and surveyed over a three-day period. This report summarizes the results of the passenger count and survey.

Acknowledgements

This project is being funded by a grant from the Connecticut Department of Transportation's Transit Oriented Development Pilot Program, in accordance with Section 13b-79ll of the Connecticut General Statutes. Financial assistance is also being provided by the Federal Transit Administration under the Section 5339 Discretionary Grant Program and Section 5307 Formula Grant Program. The opinions, findings and conclusions expressed in this report are those of the Naugatuck Valley Council of Governments (NVCOG), and do not reflect the official views of the US Department of Transportation or the Connecticut Department of Transportation.

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Waterbury Branch Line On-Board Passenger Count and Ridership Survey

Overview:

The Naugatuck Valley Council of Governments conducted an on-board ridership count and intercept survey on all Waterbury Branch Line (WBL) trains over a three-day period from September 19th through September 21st. A team of two staff rode every train and counted the number of people who boarded and alighted at each station stop. The WBL extends from the Devon wye where it connects to the New Haven Main Line (NHML) to the Waterbury station, a distance of 27.7 miles. However, service continues from the Devon wye to Bridgeport along the NHML. For the on-board count and passenger survey, only riders boarding at one of the WBL stations were counted. Therefore, passengers who may have boarded at Stratford or Bridgeport were not included in the survey, since they would be considered main line riders.

A survey tool was developed and handed-out to every rider. The survey was intended to collect information on riders and solicit input regarding their opinions on the state of rail service as well as suggestions for improving service along the line. The survey was administered in both English and Spanish language versions.

A total of 360 surveys were completed. While an effort was made to consider riders with limited English proficiency, only 14 of the completed surveys were filled in using the Spanish version, only about 3.9% of the total number completed.

On and Off Count:

There are eight inbound (toward New York) and seven outbound (from New York) trains operated on the Waterbury branch line each day. Based on the days counted, there were 511 riders who boarded a WBL train and 503 passengers who got off.

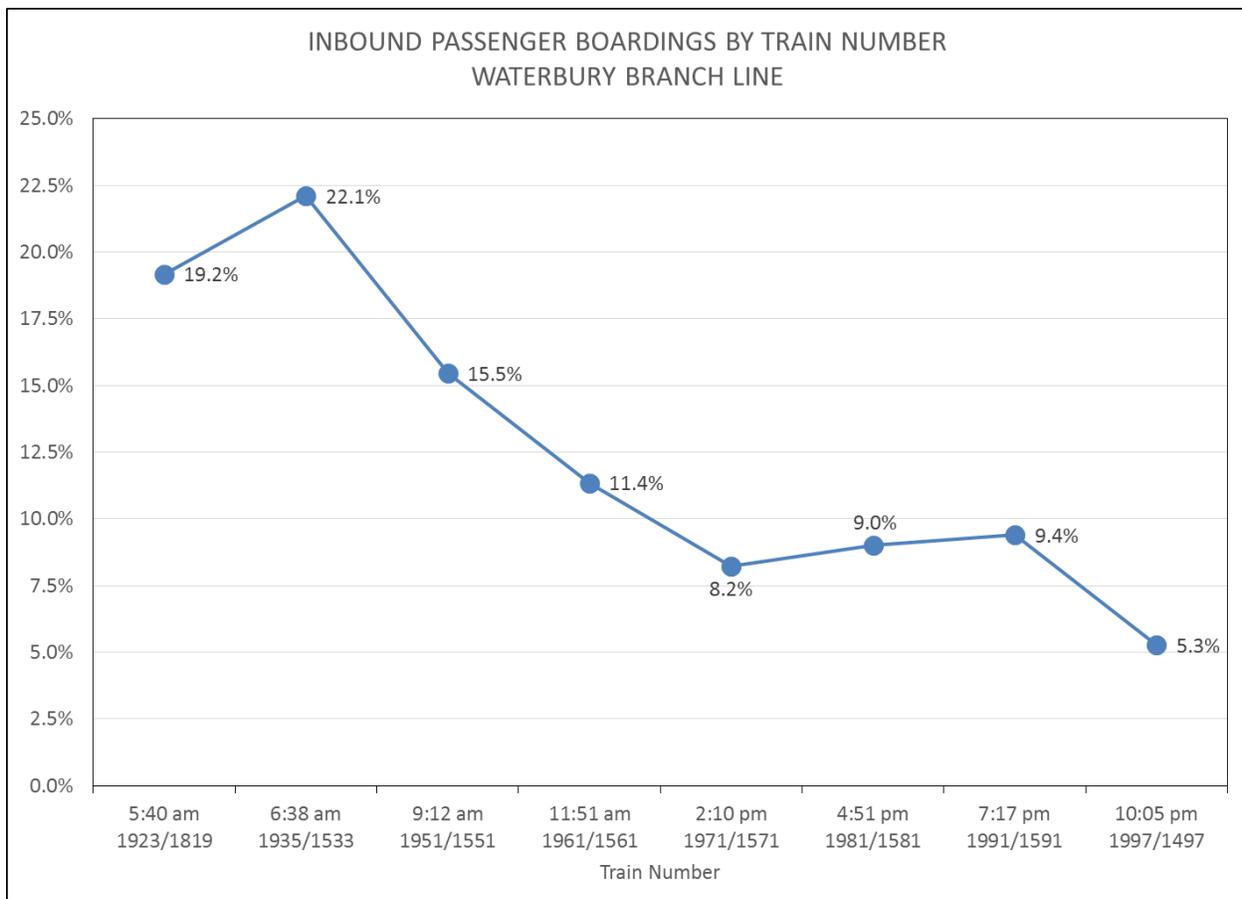
An objective of the on-board count was to determine where passengers were

ON-BOARD RIDERSHIP COUNT INBOUND TRAINS				
Station	ON	OFF	Percent Boarding	Percent Alighting
Waterbury	311		60.9%	
Naugatuck	69	16	13.5%	3.1%
Beacon Falls	17	4	3.3%	0.8%
Seymour	23	16	4.5%	3.1%
Ansonia	46	23	9.0%	4.5%
Derby-Shelton	45	21	8.8%	4.1%
Stratford		23		4.5%
Bridgeport		408		79.8%
Total	511	511	100.0%	100.0%

boarding a WBL train and at which station they were getting off the train. There are six stations along the WBL. Not unexpectedly, the majority of passengers get on in Waterbury. About 61% of all people using the WBL board a train in Waterbury. The next most frequent boarding station is Naugatuck with 13.5% of the total, followed by Ansonia with 9.0% of the boardings and Derby-Shelton at 8.8%.

In terms of where riders typically alight a WBL train, the expectation is that most riders use the train to make a longer distance trip, either getting off in Bridgeport, the defined end of the WBL, or making a connection with a NHML train at Bridgeport to travel farther west. Intermediate travel between Waterbury and Bridgeport is not viewed as a major component of WBL service.

While the data confirm this premise, the number of riders boarding and alighting a WBL train between Waterbury and Bridgeport is more than expected. Of the 511 people that board a WBL train, nearly 80% travel to Bridgeport and an additional 4.5% get off in Stratford, where transfer to a main line train may be more convenient. This indicates that about 15.7% of the riders use the train to travel to points between the two cities. The distribution of intermediate riders is somewhat evenly divided among Naugatuck, Seymour, Ansonia, and Derby-Shelton.



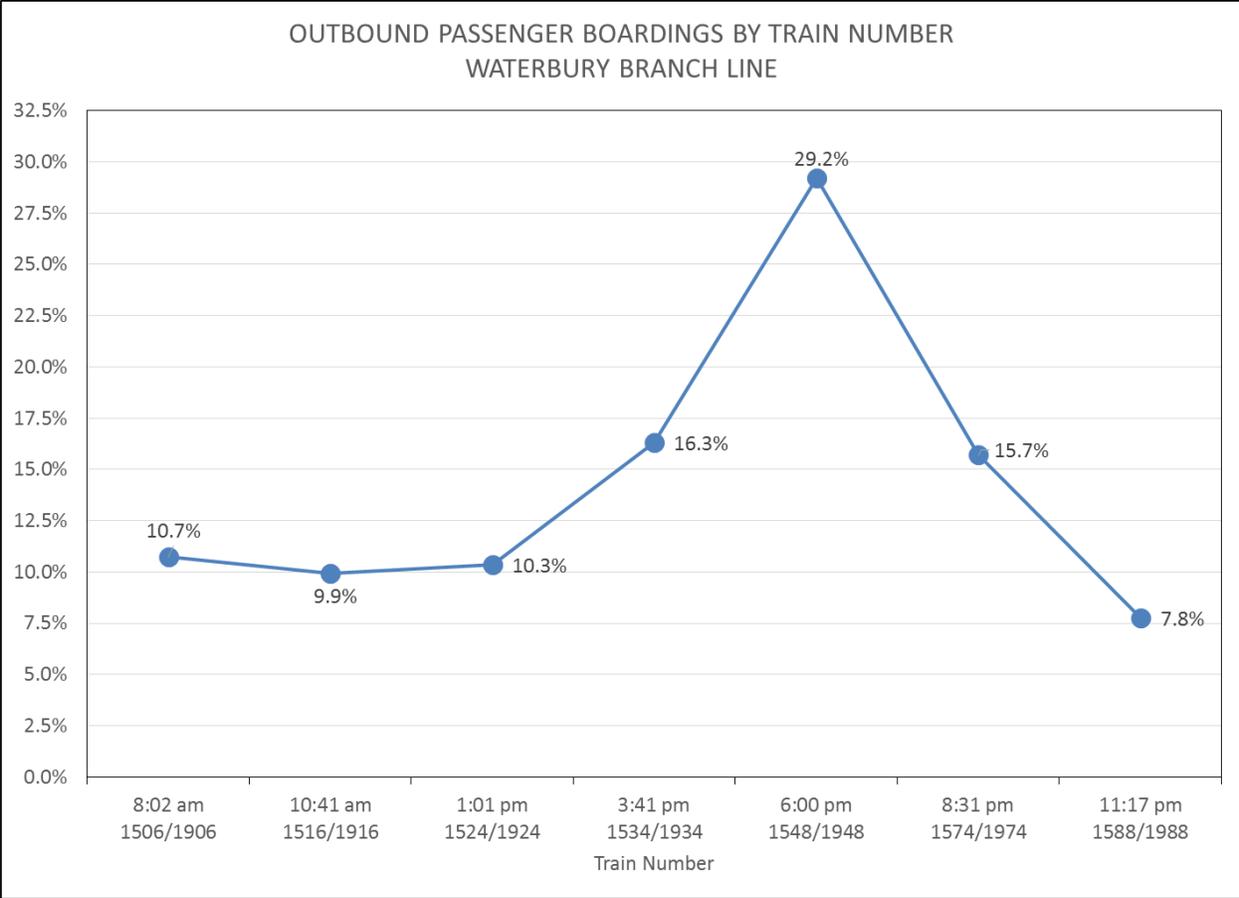
About 41.3% of the riders boarding an inbound WBL train use one of the two peak trains, one leaving Waterbury at 5:40 am and the other leaving at 6:38 am. These trains provide connections with NHML trains that provide service to Stamford by 8:30 am and New York City by just after 9:00 am. The other inbound WBL trains are off-peak trains.

Based on the on-board count, 503 people board a WBL train in the outbound or toward Waterbury direction. Most of these passengers are likely returning from a trip made on an inbound train and completing a round trip. Whereas the inbound count indicates that most board in Waterbury and get off in Bridgeport, the opposite pattern is demonstrated for

ON-BOARD RIDERSHIP COUNT OUTBOUND TRAINS				
Station	ON	OFF	Percent Boarding	Percent Alighting
Bridgeport	424		84.3%	
Stratford	3	1	0.6%	0.2%
Derby-Shelton	25	39	5.0%	7.8%
Ansonia	14	35	2.8%	7.0%
Seymour	15	34	3.0%	6.8%
Beacon Falls	4	10	0.8%	2.0%
Naugatuck	23	79	3.6%	15.7%
Waterbury		305		60.6%
Total	503	503	100.0%	100.0%

outbound travel. Nearly 85% of all passengers board at Bridgeport or Stratford and over 60% travel all the way to Waterbury. Intermediate boardings are similar to inbound trends, accounting for the same 15.7% of the total. The data indicate that Naugatuck is the second most frequent point of alighting.

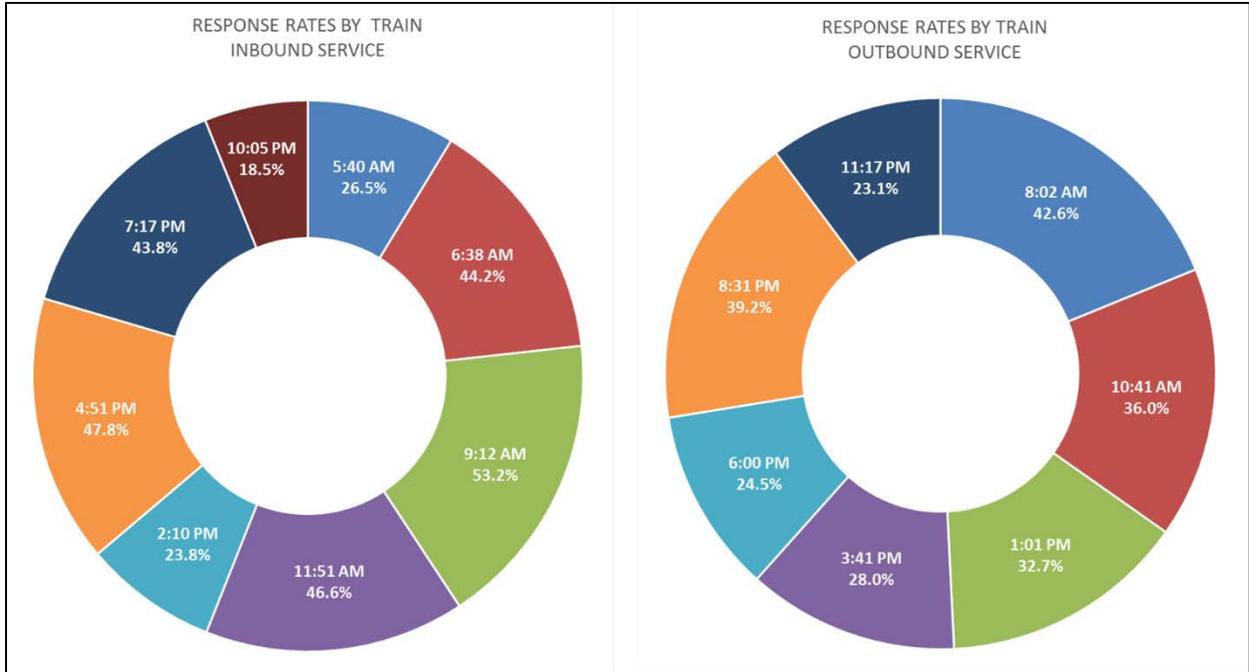
Outbound WBL service has three trains that fall within the peak travel periods; one during the morning period and two in the evening. The peak morning train leaves Bridgeport at 8:02 am and connects from a train that leaves Grand Central Terminal at 6:20 am. This train accommodates 10.7% of the outbound boardings and represents reverse commuters, that is, those who leave in southwest Connecticut or New York and travel to the Waterbury area for work. The most heavily used outbound train is the 6:00 pm train from Bridgeport that connects with the 4:42 pm GCT train. This train accounts for 29.2% of the outbound trips. The prior train (3:41 pm from Bridgeport) and the one after it (8:31 pm from Bridgeport) handle 16.3% and 15.7% of the outbound travel, respectively. This indicates that 61.2% of all outbound trips are accommodated on these three trains.



Passenger Survey – Number of Responses:

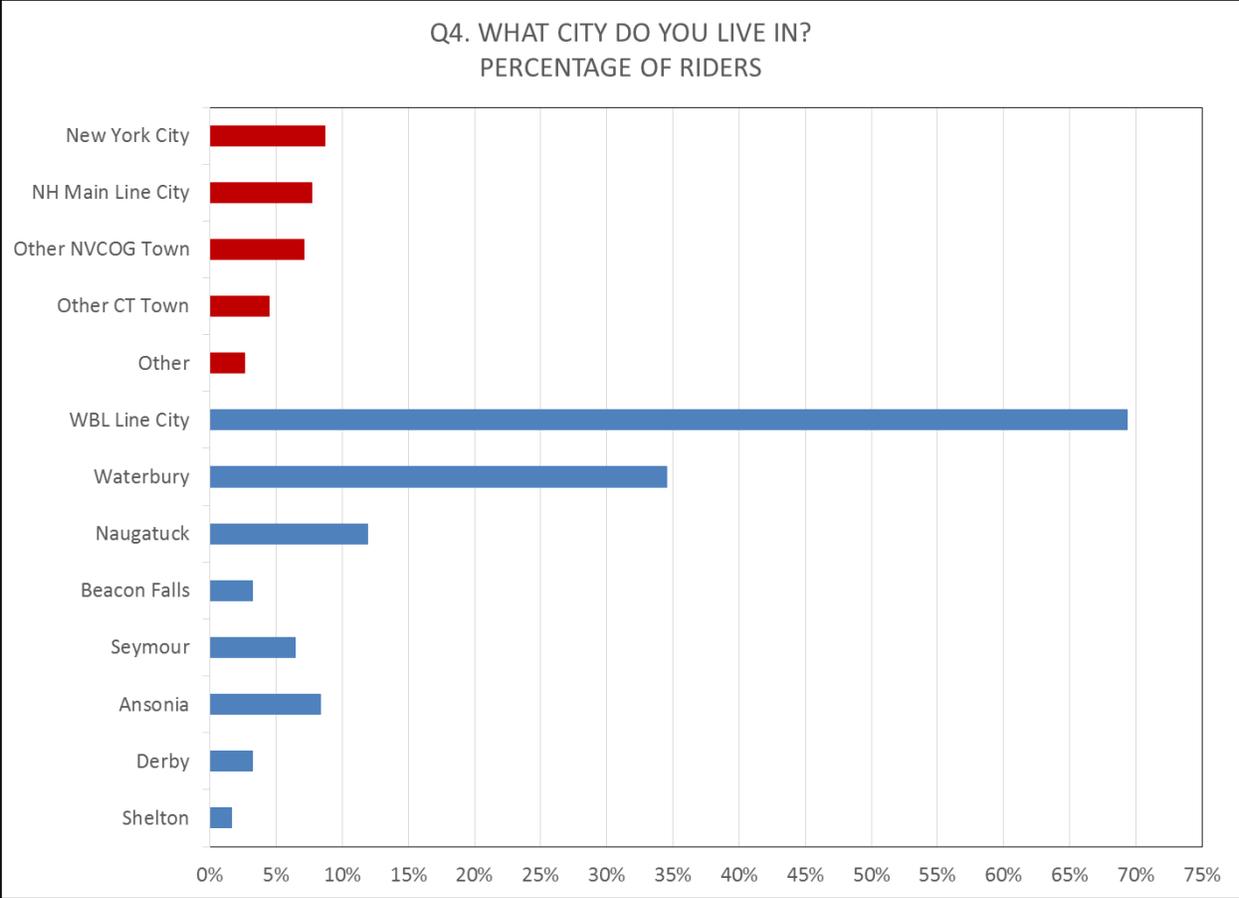
Survey forms were handed-out to all riders during the on-board count. The team explained the purpose and objectives of the survey and were available to discuss any aspect of the survey questions. Many riders used the intercept survey to offer comments regarding the state of the WBL service, equipment and need for improvements.

Because the survey forms were handed-out at the beginning of a rider’s trip and picked-up before the next stop, the expectation was to attain a good response rate. Overall, a 35.5% response rate was achieved, with a slightly better rate for inbound riders (39.7%) than outbound (31.2%). The best rate of return was achieved on Train Number 1951/1551, the 9:12 am inbound train, at 53.2%. The worst rates were on the late night trains – the 10:05 pm inbound train had a response rate of 18.5% and the rate for the 11:17 outbound train was 23.1%.



Q4. What City do you live in?

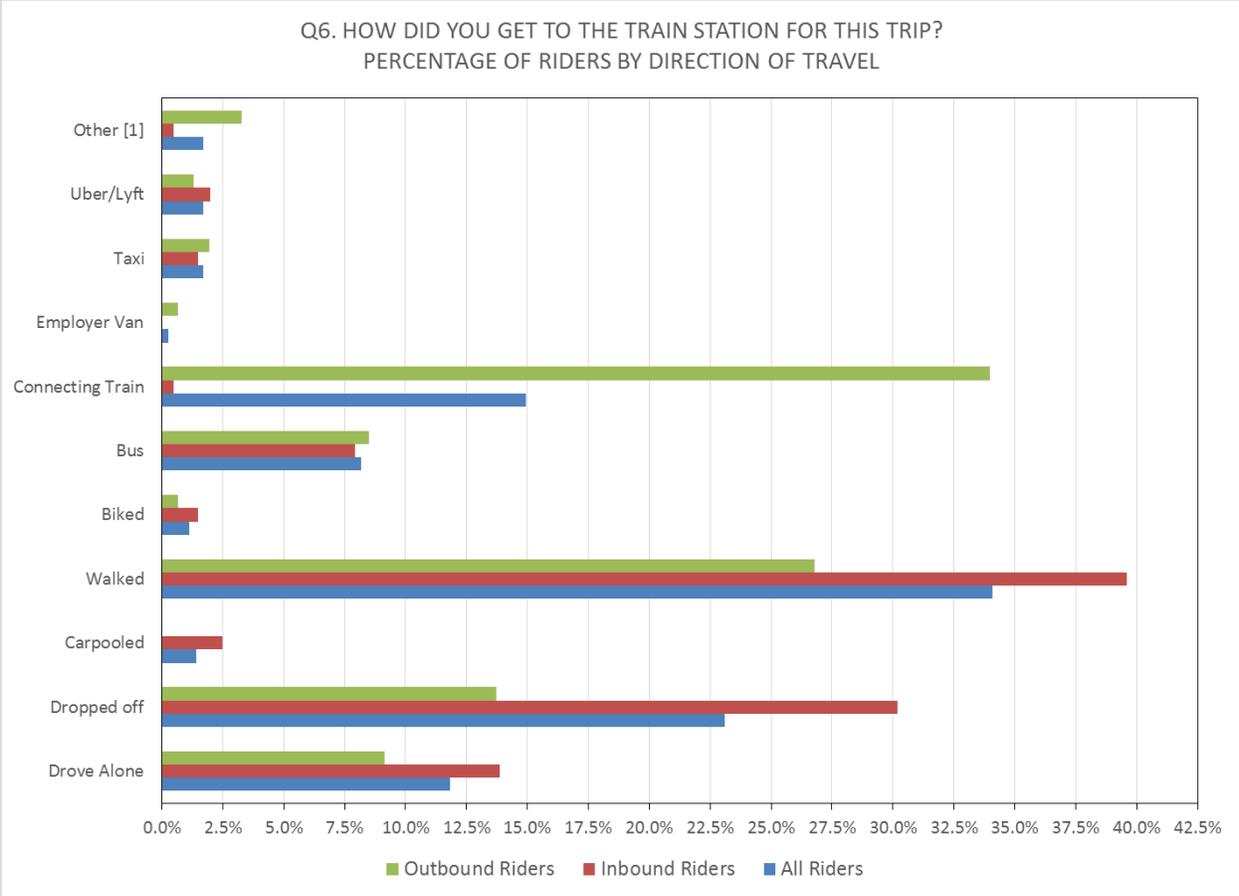
The vast majority of the WBL riders live in one of the station host communities or nearby. About 69.4% of the passengers indicated they live in a municipality along the WBL and another 7.1% live in another Naugatuck Valley planning region community. The remaining riders listed a wide range of municipalities. The most frequently listed city of those from outside the area was New York City; 8.7% of the respondents indicated they live in one of the boroughs of New York City. Bridgeport was listed by 5.2% of the riders.



Q6. How did you get to the station?

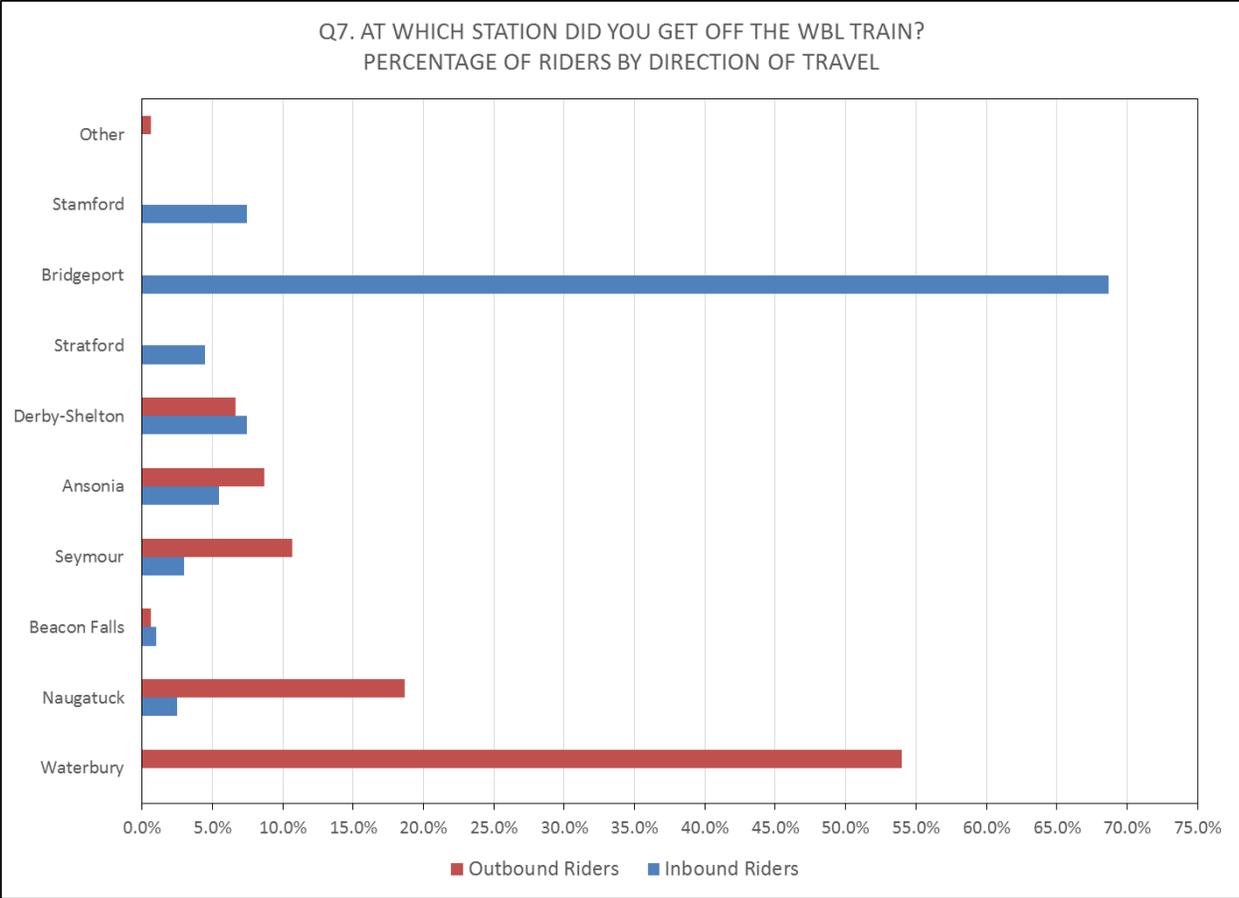
The survey form listed various travel choices that riders would most likely use to get to the train station. Included in the list was “Connecting Train” for those transferring from a NHML train and newer options, such as Uber and Lyft. The results were tabulated by direction of travel.

Overall, walking to the station was the most common mode of transportation. Over one-third of all respondents (34.1%) indicated they walked to get to the station. While it is expected that walking would be the primary mode for those traveling from their destination to the station, it was listed by 39.6% of the riders travelling in the inbound direction, the more likely direction for those traveling from their home to a destination. For the outbound direction of travel, 26.8% indicated that they walked to get to station. However, the higher percentage was for the “Connecting Train” choice, indicating a proportion of train transfers. Driving alone was indicated by a relatively small number of riders, indicated by 13.9% of inbound riders and 9.2% of the outbound travelers. This category was lower than the proportion of those who were driven to the station and dropped off. The remaining mode choices had smaller shares. It is interesting to note that 1.7% of the riders indicated that they arrived at the station via a senior center van.



Q7. At which station did you get off the WBL train?

This question asked respondents to indicate the station at which they got off the WBL train. While the on-board count collected most of this data, the survey question was intended for those who continued travel to Stamford. The survey responses were consistent with the on-board count in that the majority of inbound riders got off at Bridgeport and the majority of outbound travelers remained on the WBL train all the way to Waterbury. However, the survey results indicated that about 7.5% of the inbound passengers travel to Stamford. Only one inbound train (Train Number 1923/1819; 5:40 am from Waterbury) provides through service from Waterbury to Stamford; all other trains require a transfer in Bridgeport to a NHML train. Based on the survey responses, 46.2% of the passengers on this train travel to Stamford. This suggests a significant interest in maintaining through service to Stamford.

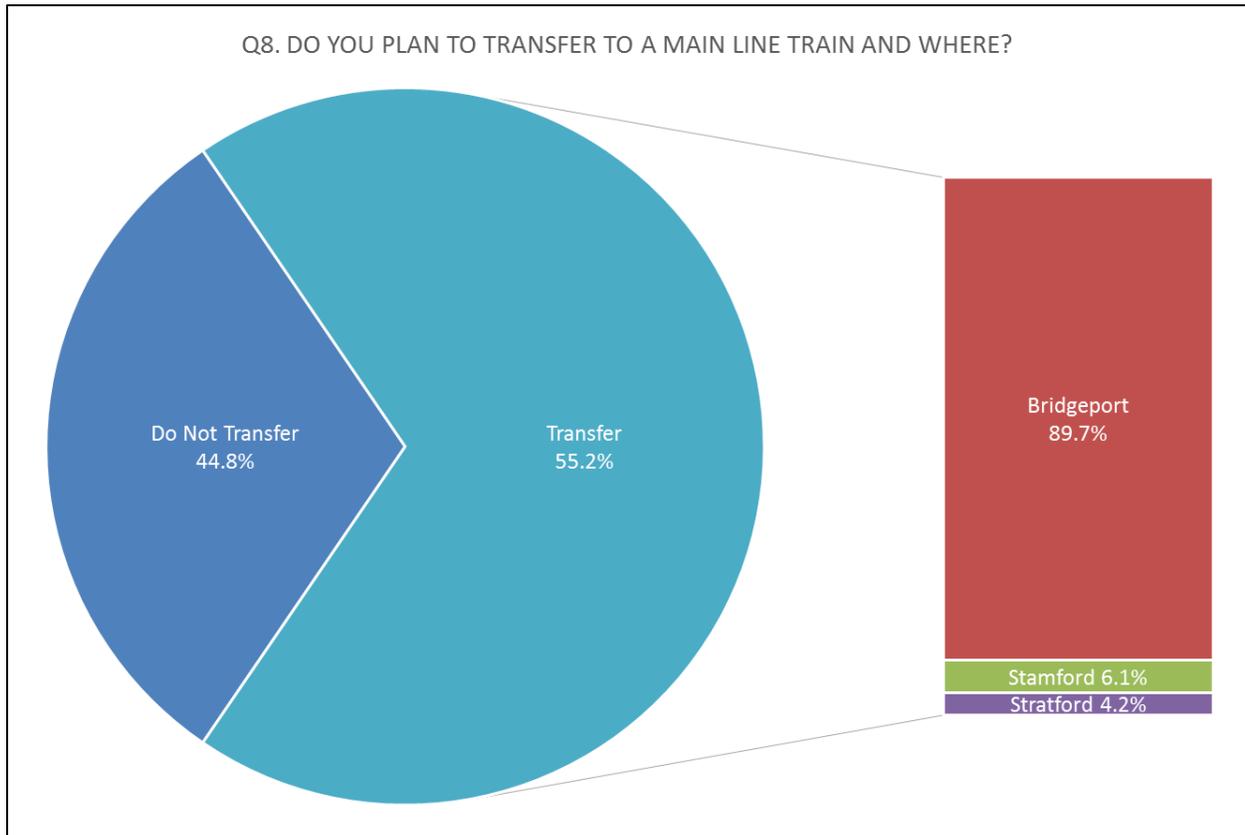


Q8. Do you plan to transfer to another NHML train? And, if yes, at which station?

Only one WBL train in the morning continues to Stamford; all others end at Bridgeport. Unless a rider’s destination is at Bridgeport or Stamford, passengers are required to transfer to a main line train to reach their final destination. Three questions were included in the survey to assess the extent of transfers between WBL and main line trains. The first of these questions asked riders if they planned to transfer to another train and if yes, at which station.

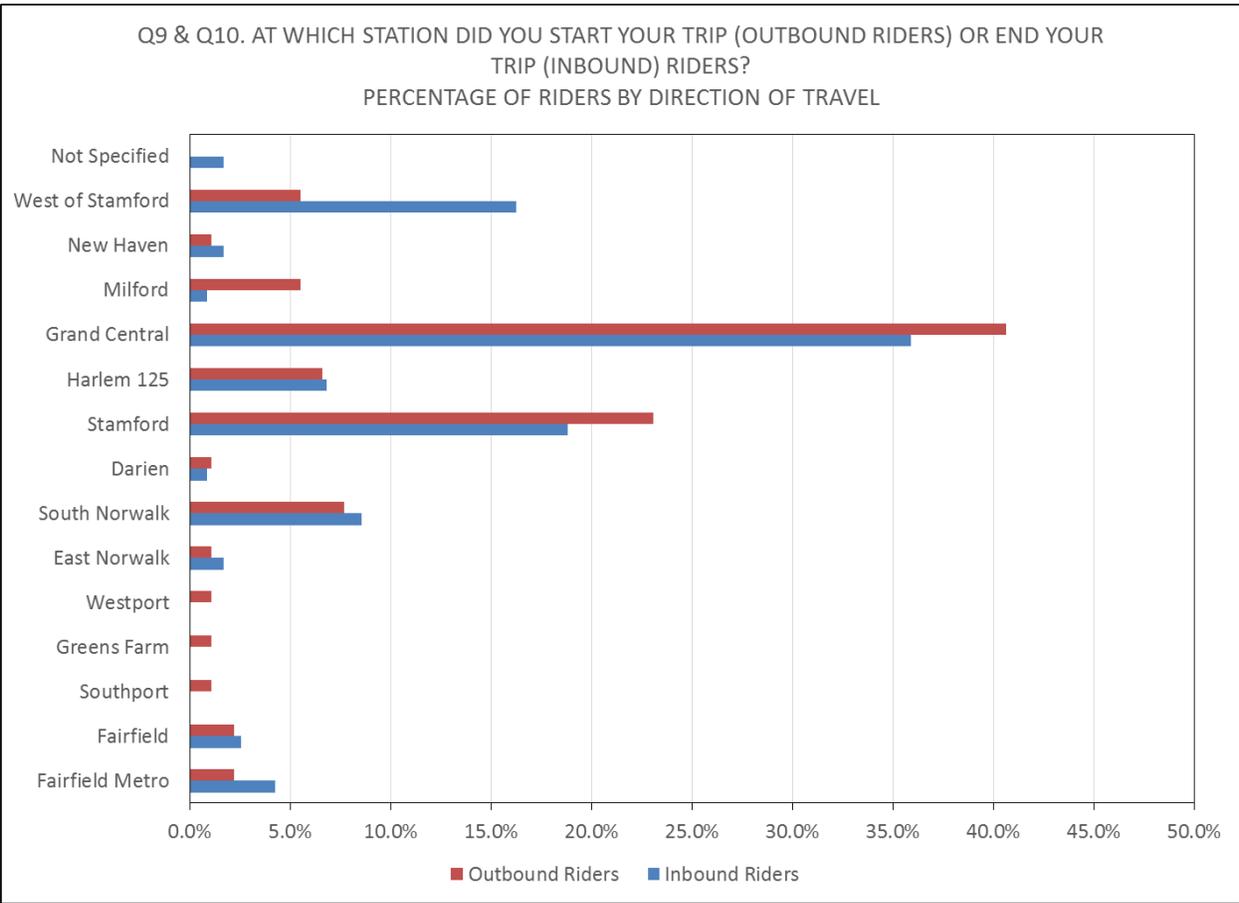
Of the total respondents, 55.2% indicated that they planned to transfer between a WBL and NHML train. If a rider indicated that they transfer to or from another train, they were asked to indicate at which station. While there are only three possibilities – at Stratford, Bridgeport and Stamford – a number of the respondents (15.8%) failed to indicate the transfer station. Because only one WBL train continues to Stamford, the vast majority of transfers occur at Bridgeport (89.7%). Only 6.1% occur at Stamford and 4.2% place at Stratford. The transfers at Stratford likely occur to allow passengers to board an inbound train one stop earlier than Bridgeport and avoid the higher boarding activity that occurs at Bridgeport. At Stamford, riders have an option

to connect to a train bound to Grand Central Terminal (GCT) or a local train that serves the stations between Stamford and New York City.



Q9 and Q10. Transfer to another NHML train:

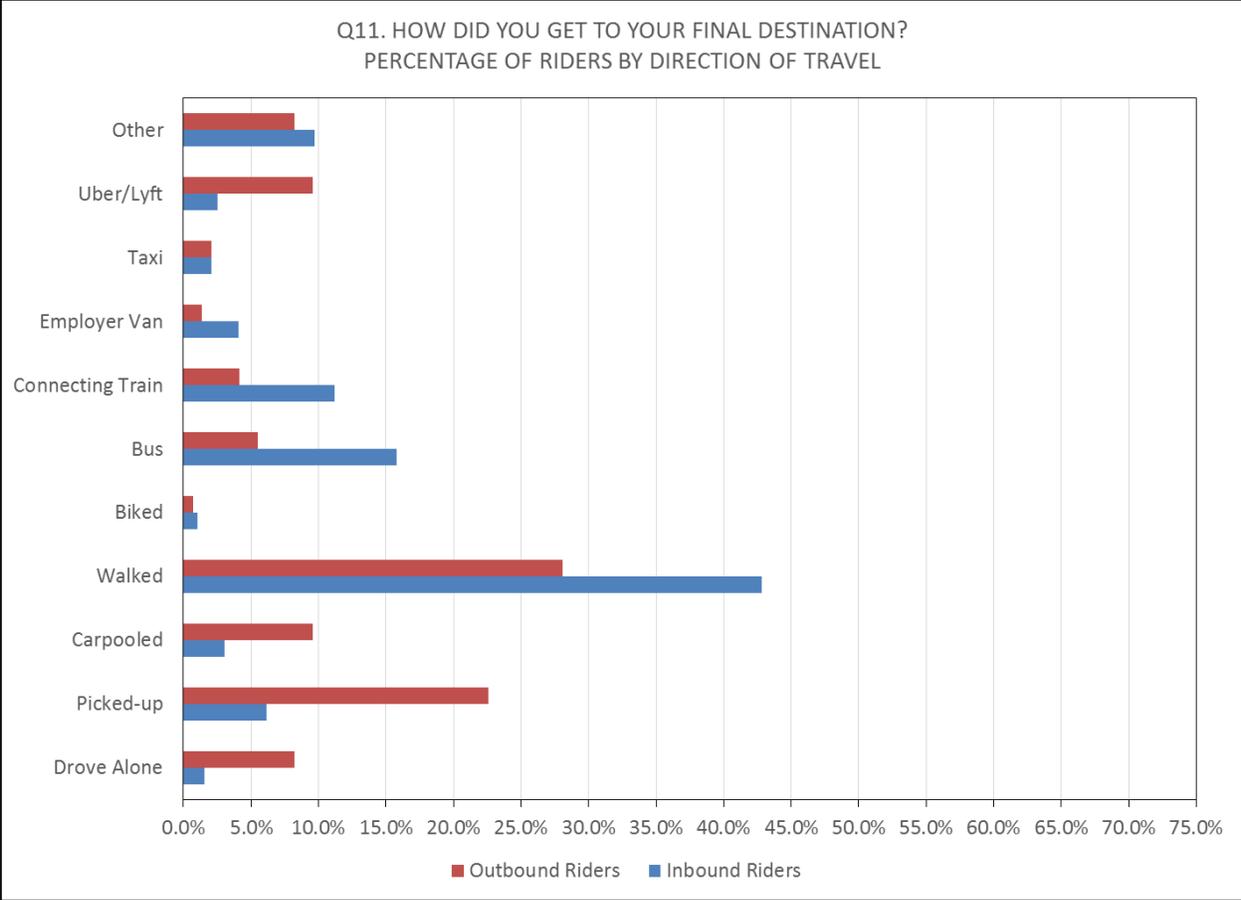
A key question for the survey was determining where WBL passengers transferring to another main line train were traveling to or from. For inbound riders, the survey asked for the final destination station and for outbound passenger, the question asked: “*what was the starting station?*” For riders transferring either to a NHML train in the inbound direction or from in the outbound direction, the two most common stations indicated as the final or starting station are Stamford and GCT. About 35.9% of passengers on an inbound train that transfer indicated that their final destination is GCT and 18.8% listed Stamford as the final stop. In the reverse direction, GCT was listed as the starting station by 40.7% of the riders that transfer and Stamford was recorded by 23.1%. The data for GCT do not include those respondents that indicated Harlem 125th Street as the final stop (6.8%) or starting point (6.6%). The most often identified intermediate NHML station is South Norwalk. It is interesting to note that 16.2% of the inbound riders that made a transfer listed a station west of Stamford. A transfer to a local train is required at Stamford to travel between Stamford and Harlem 125th Street. Fordham was the most often listed station.



Q11. How did you get to your destination?

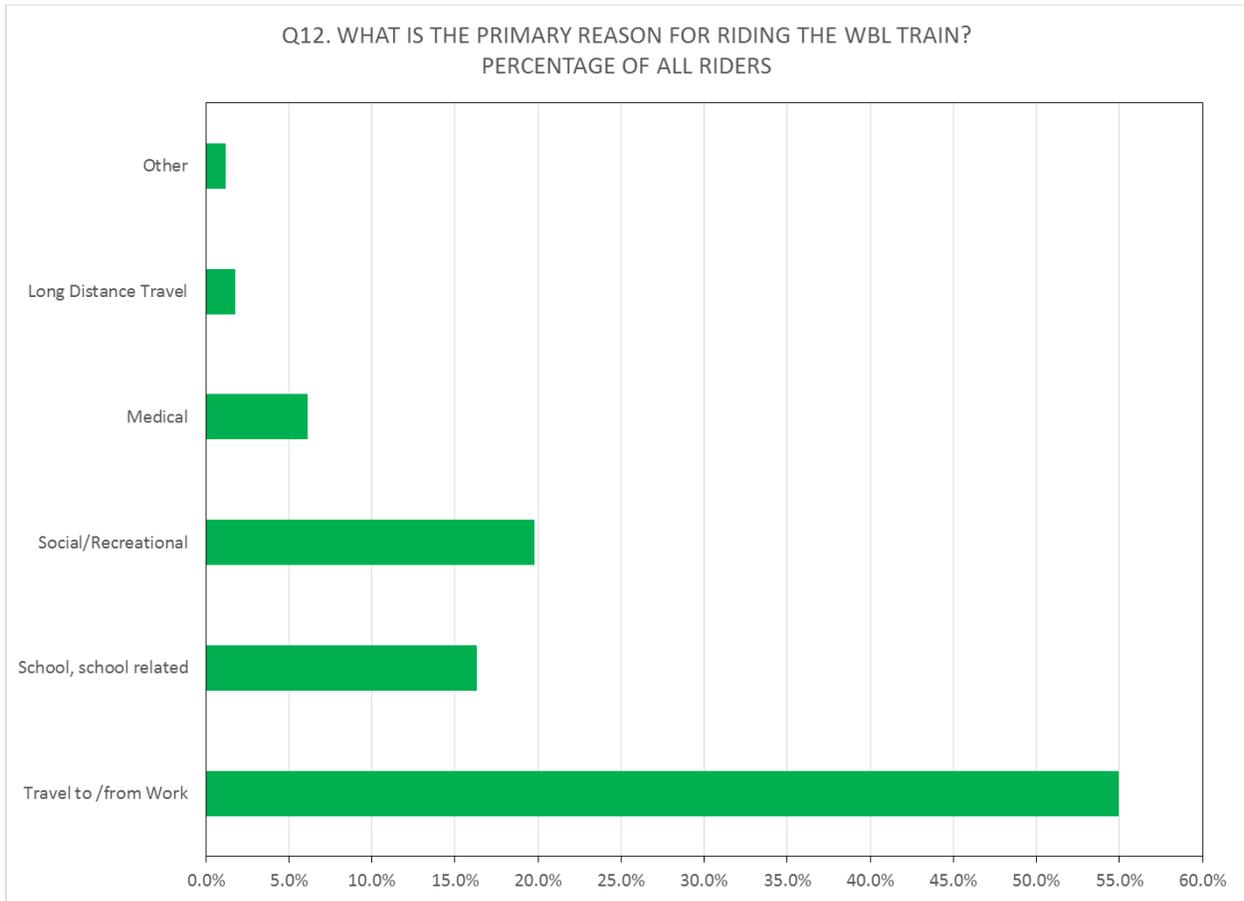
This question asked riders how they traveled to their final destination after alighting a WBL train on the day of the on-board survey. The expectation was that inbound passengers would be more likely to indicate walking to their final destination once they got the train. Most outbound passengers were traveling home and it was anticipated that the data would be similar to the answers Question 6. For inbound riders, “walked” to their final destination was indicated by 42.9% of the respondents. About 15.8% of the respondents listed use a bus and 11.2% specified a connecting train. A higher percentage of respondents than expected used some form of private transportation – drove alone, pick-up or carpool – as the mode to their final destination; at 10.7%. Other modes indicated included taxi, employer van and Uber/Lyft.

Outbound riders traveled to their final destination primarily by private vehicle. About 40.4% of the respondents indicated they drove alone, were pick-up or carpooled. Walking was still a relatively high percentage of the responses at 28.1% of the total. Bus was used by only 5.5% of the outbound passengers, about half of the percentage (9.6%) that took advantage of a private transportation network company, such as Uber or Lyft.



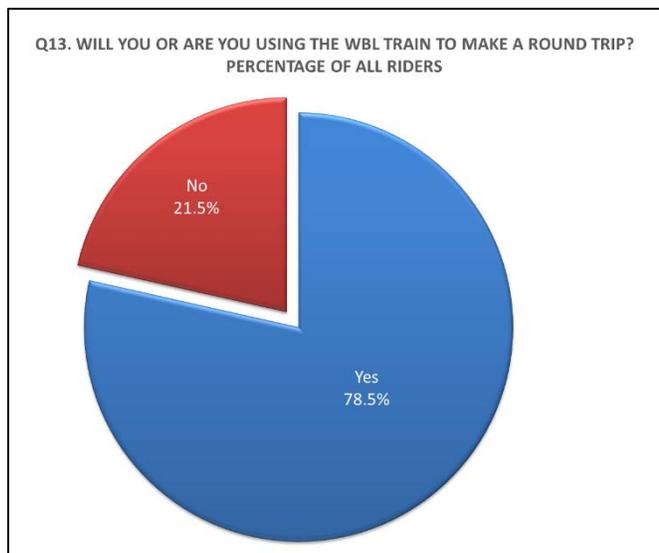
Q12. What is the primary reason for riding the WBL train?

The majority of people riding a WBL train on the day of the on-board survey are using the train to travel to and from work or some work-related travel. This trip purpose was indicated by 54.9% of the respondents. Social and recreational trip purposes was listed by 19.8% of the riders followed by travelling to school or for a school-related activity with 16.3% of the riders. A small percentage of the riders were using the train for a medical purpose (6.1%). The use of the WBL a part of a longer distance trip with a connection to intercity train service (that is, Amtrak) was listed as the purpose by 1.7% of the riders.



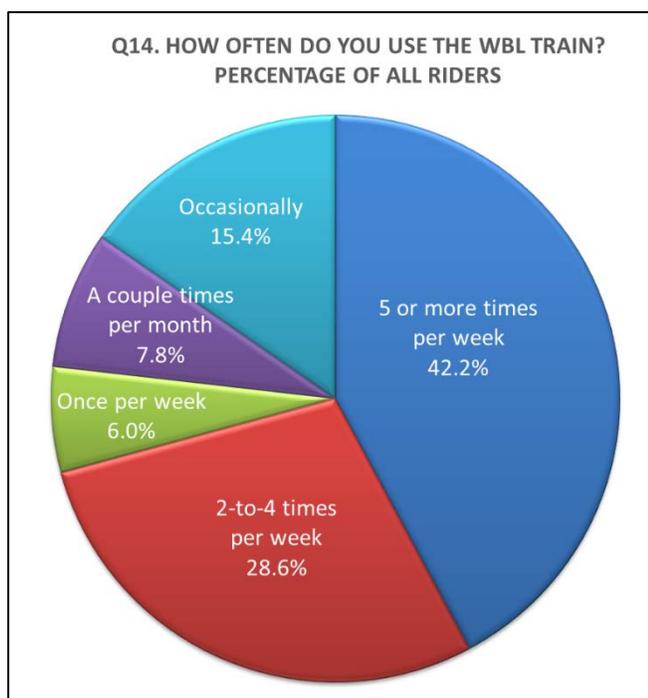
Q13. Are you using the WBL train to make a round trip?

Not surprisingly, the majority of riders indicated that they use the WBL train to travel in both directions on the day of the survey. “Making a Round Trip” was indicated by 78.5% of the riders with only 21.5% stating that they would be using some other mode to return.



Q14. How often do you use the WBL train?

A high proportion of the riders indicates that they use the train frequently during the week, with 42.2% indicating they use the train at least five times per week and 28.6% indicating use of the train two-to-four times per week. These frequencies are consistent with the results for Question 12, which indicated that the primary reason for using the trail was to travel to and from work. About 29.2% of the respondents stated they use the train infrequently, from about once per week (6.0%) to only occasionally (15.4%).



Q15. What are the major problems using the WBL train?

Problems and issues with the WBL service have been well documented at various public forums and news report. The on-board passenger survey intended to probe the issues and asked passengers to identify the major problems they feel affect the quality and convenience of riding the train and may influence their decision to use it more often. A pre-determined list of issues were provided and respondents were able to select as many as they felt were warranted. They were also given an opportunity to add their own issues and concerns.

Almost all respondents (91.9%) chose to the answer this question and 77.0% indicated more than one problem or issue. Only 4.2% of the passenger indicated that they were satisfied with the current service and operation and stated they had no problems.

A number of the pre-identified problems and issues related to the frequency of service on the WBL. These included:

- Poor connection to NHML trains
- Insufficient number of trains available in either the morning or evening time periods
- Concerns with missing a connection

About 60% of the riders felt that there are not enough trains being operated in the morning and

evening periods. While the lack of service is clearly an issue, concerns with making connections with NHML trains was less an issue. Only 14.8% listed poor connections to main line service as a problem and 19.9% indicated concern about missing a connection as an issue.

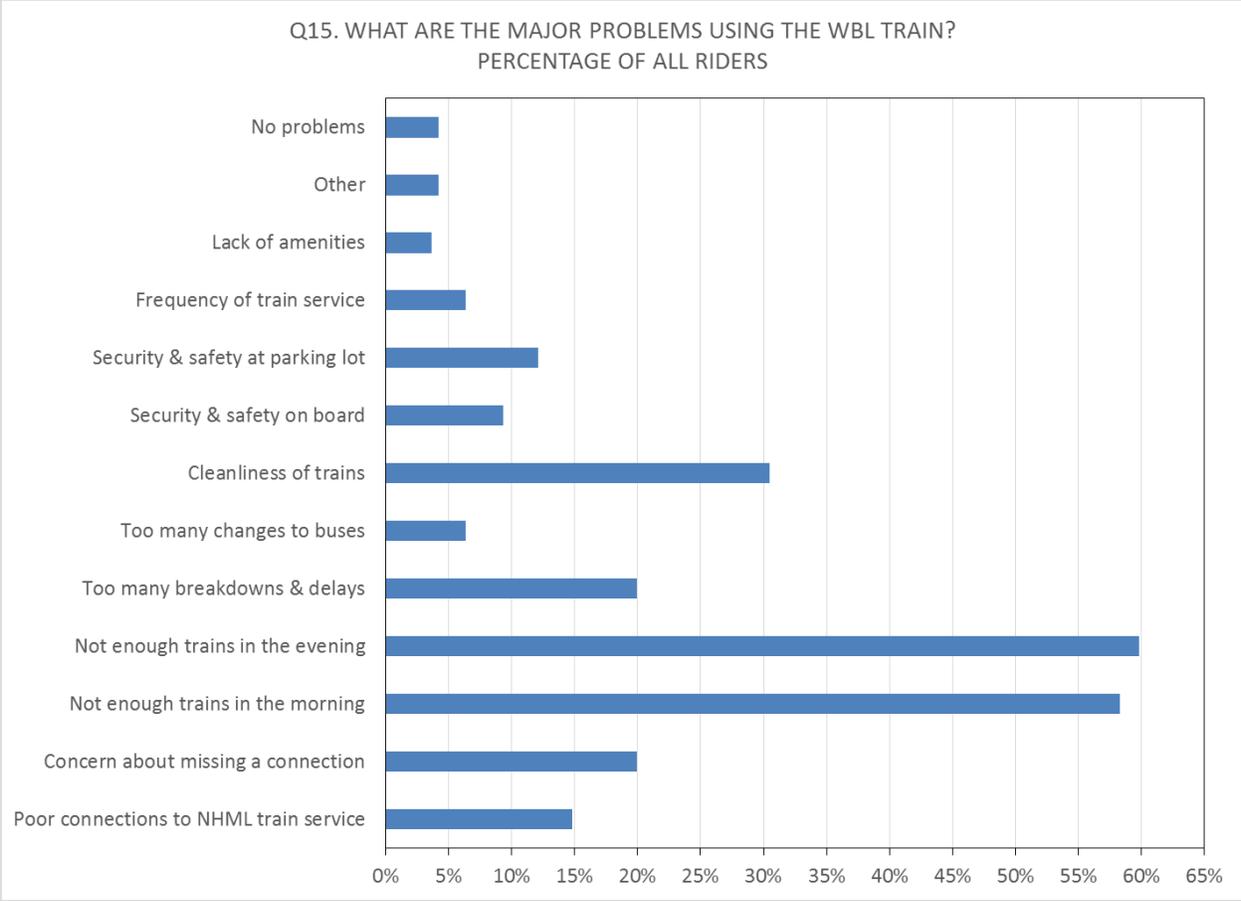
Other concerns addressed the lack of amenities on-board the trains, on the platforms and in the parking lots, as well as the general cleanliness of the rail cars. The cleanliness on board the trains, especially the restroom facilities, was listed by 30.5% of the passengers. Other amenities that riders felt were lacking included:

- Poor traveler information and communications
- No ticket machines
- No Wi-Fi
- No outlets
- No charging ports

Security and safety on-board the trains, on the platforms and at the parking lots were voiced as concerns of a smaller percentage of the passengers, with security at and in the parking lots a slightly larger concern than safety on-board the trains and on the platforms. About 12.1% of the passengers felt security in the parking lots is a problem, while 9.4% feel there is a safety and security issue on board the trains. Several respondents indicated that more monitoring and enforcement needs to take place on the trains.

One item that was not included in the list of pre-identified issues that was mentioned by several passengers was the lack of handicapped accessibility along the WBL. One respondent asked a direct question about the issue: *“How do handicapped people get on and off the train?”*

What are the major problems using the WBL train?	
Major Problems	Percent
Poor connections to New Haven main line train service	14.8%
Concern about missing a connection	19.9%
Not enough trains in the morning	58.3%
Not enough trains in the evening	59.8%
Too many breakdowns & delays	19.9%
Too many changes to buses	6.3%
Cleanliness of trains	30.5%
Security & safety on board	9.4%
Security & safety at parking lot	12.1%
Frequency of train service	6.3%
Lack of amenities	3.6%
Other	4.2%
No problems	4.2%
Respondents who answered question	91.9%
Respondents who provided more than one problem	77.0%



Q16. What improvements would you like to see implemented on the WBL train?

Similar to the previous question, passengers on the WBL trains were asked to identify improvements and enhancements they feel should be implemented on the WBL. A pre-identified list was provided and respondents were able to select as many improvements as they felt were appropriate. The opportunity to insert their own suggestion was again provided.

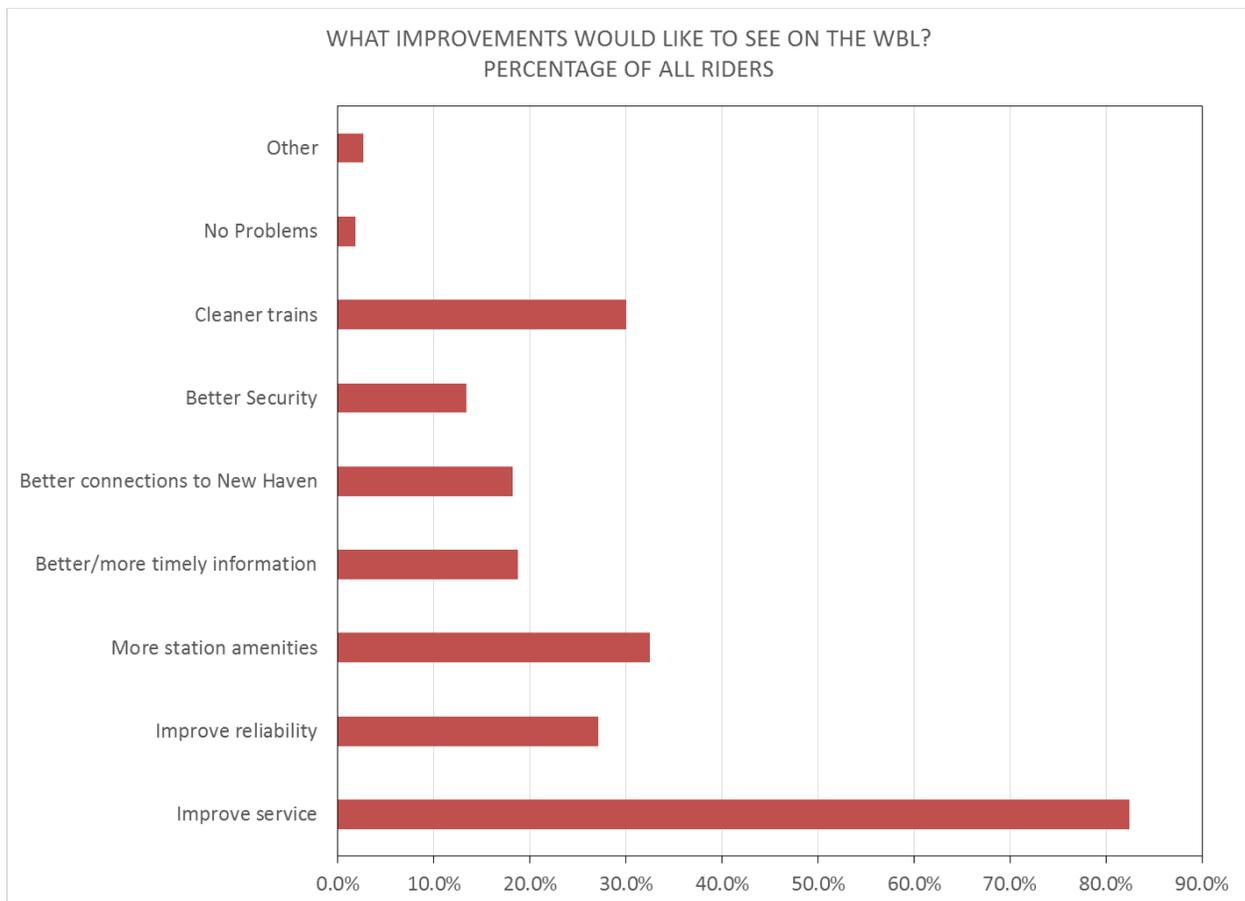
The most frequently identified improvement was “*improve service*” by adding more trains. This action was selected by 82.4% of the riders and would address the major issues identified in the

What improvements would like to see on the WBL?	
Improvement	Percent
Improve service	82.4%
Improve reliability	27.1%
More station amenities	32.4%
Better/more timely information	18.8%
Better connections to New Haven	18.2%
Better Security	13.4%
Cleaner trains	30.1%
No Problems	1.8%
Other	2.7%

previous question. Some suggestions include providing express service to Bridgeport, extending more trains to Stamford and making more stops at Stratford. Along with adding more trains, passengers indicated a need to improve reliability (27.1%) and make better connections to NHML trains (18.2%).

Providing more and better amenities at the WBL stations was the second most listed improvement. This category includes installing ticket machines, better shelters, benches and ADA ramps at the stations and providing Wi-fi and charging outlets on the trains. These amenity enhancements were listed as important by 32.4% of the riders. Better traveler information was identified as a service improvement by 18.8% of the passengers.

The previous question identified cleanliness of the rail cars as a critical issue. Therefore, it is not surprising that 30.1% of the passenger requested cleaner trains as an important improvement.



Q17. Would you support a permanent transfer station at the Devon wye?

A key task of the study is to determine the feasibility of constructing a permanent transfer station at the Devon wye to enhance and facilitate connections to NHML trains and service. One of the constraints limiting additional service on the WBL is the lack of capacity to accommodate additional trains on the main line. Even if additional trains were operated on the WBL, the number would be limited because of the limited number of additional slots available on the main line. As an alternative, additional service on the WBL could be in the form of a shuttle-type service with cross-platform connections to and from the WBL and NHML trains at Devon. This approach would allow expansion of the service on the WBL without the need to address the capacity issue on the main line.

Previous rider comments have suggested there is dissatisfaction with the need to make transfers from the WBL to main line trains to complete a trip. Passengers enjoy through or “one seat” ride service to Bridgeport and Stamford and the “one seat” ride concept is attractive to commuters.

To test the acceptance of a possible transfer station, the passenger survey included a question to determine support for or opposition to developing a permanent transfer station at the Devon wye. Because of on-going track improvements, through service has been disrupted at times and a temporary transfer platform has been installed to provide WBL riders a connection to NHML trains and service. Because of this passengers have a better idea about how a transfer station would function.

The survey asked whether or not the passenger would support a transfer station at Devon. Instead of just providing a simple “Yes” or “No” response, three conditional “Yes” answers were included:

- Yes (with no additional conditions)
- Yes, but need to continue to provide through train service to Stamford
- Yes, but provide more frequent service along the WBL

Overall, 68.1% of the respondents indicated that they would support the concept of a permanent transfer station located at the Devon wye. Of this group, about 39.4% indicated general support without any conditions, whereas 60.6% of the respondents conditioned their support: (1) 17.4% of the “Yes” group conditioned support by indicating the need to continue to provide through service to Stamford; and (2) 43.2% of the “Yes” group conditioned support by the need to provide more frequent service. Of these two groups, providing more frequent service was the more desirable condition and selected by a higher proportion of passengers than the condition to continue to provide a through train to Stamford.

**Q17. WOULD YOU SUPPORT A PERMANENT TRANSFER STATION AT THE DEVON WYE?
PERCENTAGE OF ALL RIDERS**

