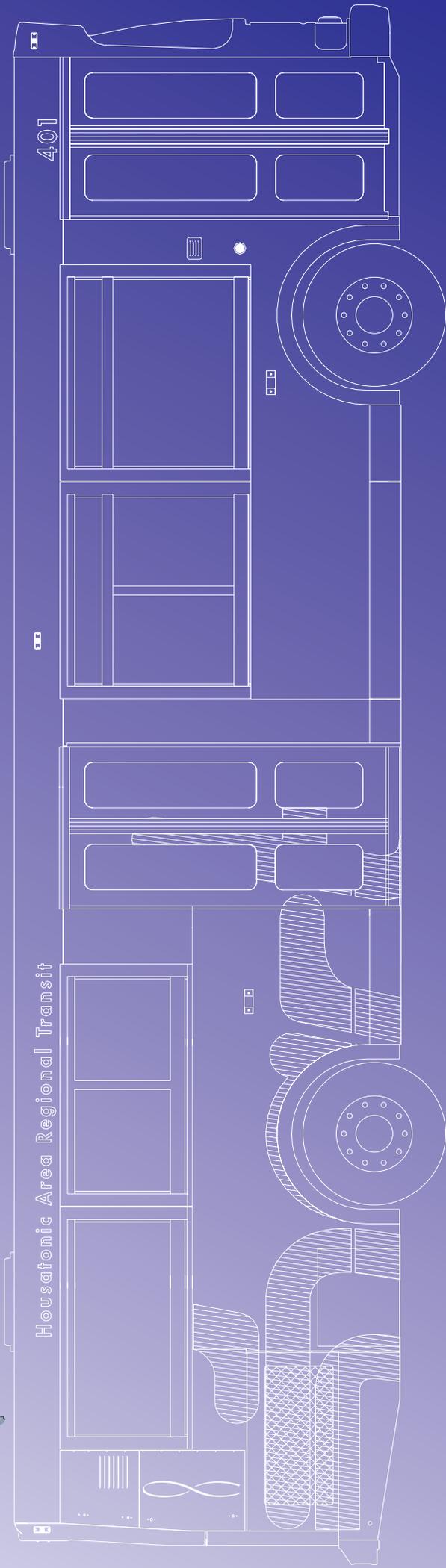




Fixed Route Efficiency Study

January 2011





Fixed Route Efficiency Study

FINAL REPORT

January 2011

This document was prepared in cooperation with the Federal Transit Administration and the Connecticut Department of Transportation. The opinions, findings, and conclusions expressed in this publication are those of the Housatonic Valley Council of Elected Officials and do not necessarily reflect the official views or policies of the Connecticut Department of Transportation or the US Department of Transportation.

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I. INTRODUCTION

Overview

The purpose of this fixed route efficiency study of the Housatonic Area Regional Transit (HART) system is to review individual route performance and determine how well each route functions as part of the entire system. Study goals include a review of operating efficiency and effectiveness of individual routes, and to identify corrective and remedial measures to improve bus services.

This study covers all of the fixed route services provided by HART. The analysis of data includes comparisons to past years performance where appropriate.

In 1992, HART published the first planning study providing an in-depth analysis of its fixed route services in the Housatonic region, which began operations in 1983.

Similar analyses were undertaken in 1994, 1997 and 2005.

Several services were added or modified since the 2005 analysis that impacted the hours of operation and geographic coverage of bus operations. These are briefly described below:

- A second bus was added to the New Milford LOOP service to provide hourly headways and increased opportunities for transfers to the other LOOP routes. The Mall-Hospital and Newtown Road-South Street LOOP routes have always operated with hourly headways. The expansion was funded through the Governor's Initiative.
- A third park and ride lot location was added to the Ridgefield-Katonah shuttle route. Additional buses were added on several morning and evening runs to provide more seats on heavy trips. Three trips were added to the Danbury-Brewster Shuttle route, and routing in Brewster Village was adjusted to improve travel time.
- The New Fairfield-Southeast Shuttle began operations in May 2009. Built along the lines of the Danbury-Brewster and Ridgefield-Katonah services, the new shuttle service provides a timed transfer to the Harlem Line of Metro-North Railroad from remote park and ride locations in Connecticut and New York.
- The CityCenter Trolley service was modified significantly and hours were reduced. The route now operates Wednesday through Friday, and is integrated with the Urban Fixed Route program. Service hours were shifted from afternoon/evening to midday. The Trolley route now includes Danbury Hospital, Danbury Fair Mall and Kenosia Park.
- The Ridgefield LOOP route, which had operated between Ridgefield and Danbury beginning in 2002, was discontinued due to funding reductions and low ridership.

Methodology

Ridership counts for this report were collected in a 100 percent sample of trips conducted from the period of October 2009 through June 2010. On-board checkers recorded all boarding and alighting locations, schedule adherence and passenger counts.

Additional schedule adherence data was obtained from onboard observations conducted by Infosource of Miami, FL, a private organization employed by HART that provides on-board driver auditing services to the transit industry.

Monthly and annual system ridership data was summarized through review of monthly statistical reports by HART staff and the National Transit Database.

Passenger surveys in English and Spanish were distributed in May 2010 by HART drivers on morning runs. Survey instruments were developed by report staff.

All data was reviewed, edited and processed by HART administrative staff. A detailed supplement to this report provides an in-depth analysis of passenger boarding and alighting activity by route.

II. STRUCTURE OF HART FIXED ROUTE SYSTEM

Urban Fixed Route and Trolley

The majority of HART's urban fixed route services are provided to the four municipalities of Danbury, Bethel, Brookfield, and New Milford. This service is primarily radial in nature with seven routes extending outward from the central business district of Danbury. With the city being at the core of all 7 routes, Danbury receives a higher service level than other municipalities.

Routes are structured to serve traffic generators such as major employers, shopping centers, medical centers, schools, the central business district and elderly and low income housing areas. Most major arterials in the City of Danbury are served including Main Street, North Street, Padanaram Road, White Street, Federal Road, Newtown Road, South Street, Park Avenue, Lake Avenue, and Mill Plain Road.

The urban fixed route bus system operates in a pulse or timed-transfer mode, with all routes meeting at the Pulse Point (central bus station) in downtown Danbury at the same time at regular intervals Monday through Saturday.

This routing structure allows passengers to easily transfer from one route to another at the same place without long waits. Routes are interlined or paired together to allow a moderate proportion of passengers to travel from one route to another without physically switching buses.

Bus frequencies of every 60 minutes are provided on all routes Monday through Saturday, with 30 minute frequencies provided during the morning and afternoon peak periods (6:00 a.m. to 9:00 a.m. and 3:00 p.m. to 6:00 p.m., Monday through Friday).

Departure times from the Pulse Point are scheduled on the hour throughout the day and additionally on the half hour during peak periods. The span of service ranges from approximately 6:00 a.m. to 6:00 p.m., Monday through Friday. Saturday span of service ranges from 8:00 a.m. to 5:30 p.m. No service is provided evenings, Sundays or on major holidays.

The service frequency and route of the trolley is integrated with the urban fixed route system to allow for half hour service to major trip generators throughout the course of the day. The route includes the CityCenter Danbury Dining & Entertainment District, Western Connecticut State University Midtown Campus, Roger's Park, Danbury Fair Mall and North Street Shopping Center. The service uses a specialized replica trolley vehicle.

The Trolley operates Wednesday through Friday from 9:30 a.m. to 3:00 p.m. Passengers may transfer between the Trolley and other services for free.

The combined urban fixed route program and trolley service averages about 2400 passengers per weekday and 1200 per Saturday.

LOOP Services

HART operates three LOOP bus routes which serve Bethel, Brookfield, Danbury and New Milford.

The LOOP is designed to complement the urban fixed route system by providing public transit to major employment and low income housing after the close of the service day. Three coordinated routes provide a scaled down version of the urban fixed route system, with hourly headways and a timed transfer at the HART Pulse Point.

The routes are funded through the regional JobLinks jobs access collaborative, which includes the Torrington and Waterbury regions. Service is open to the general public.

LOOP services are provided weeknights from 6:30 to 10:30 p.m., Saturdays 5:30 to 10:30 p.m. and Sundays and Holidays (New Year's Day, Labor Day, Memorial Day, Independence Day and day after Thanksgiving), from 9 a.m. to 7 p.m.

Together, the LOOP routes currently average 200 trips per weeknight, 240 trips per Saturday night, 450 trips per holiday and 560 passengers per Sunday.

Harlem Line Shuttles

Three shuttles provide weekday service from remote park-and-ride lots in Connecticut and New York to train stations on the northern portion of MTA Metro-North Railroad's Harlem Line. The shuttles are designed to meet morning southbound train departures and afternoon and evening northbound arrivals, primarily for commuters working in White Plains and New York City. Metro-North provides a guaranteed ride home program to shuttle users that purchase the combined rail-bus UniTicket. The three shuttles carry a combined average of 470 trips per weekday.

The Danbury-Brewster Shuttle provides connections to ten morning southbound trains departing between 5:55 a.m. and 9:16 a.m. and 13 northbound arrivals between 4:00 p.m. and 9:10 p.m. Four morning arrivals and five evening departures allow for reverse commute trips. Passengers wishing to transfer to the PART (Putnam Area Rapid Transit) bus system from a HART bus may do so at no charge in Brewster by presenting a HART pass or transfer.

Midday, when the shuttle is not operating, the 3 Mill Plain bus provides hourly service between the HART Pulse Point and Brewster Station. While the midday bus service is not timed to rail arrivals and departures, this allows for off peak connections to the rail line and to the PART system.

Buses stop at park and ride lots off I-84 exits 2, 1 and 7 and continue west on Route 6 to the Village of Brewster. Flag stops are permitted between the New York State line and the train station. Several trips provide service to the HART Pulse Point or the Danbury Fair Mall.

The Ridgefield-Katonah Shuttle meets seven morning southbound train departures from the Katonah Train Station between 6:20 and 8:30 a.m. and nine northbound evening arrivals between 4:54 and 8:24 p.m. One morning arrival and three evening departures provide some opportunity for reverse commutes. Passengers may transfer for free between the HART and Bee-Line (Westchester County) bus systems in Katonah by presenting a transfer from either system.

The first four trips on the route originate at the Jessie Lee Memorial Methodist Church on Main Street, Ridgefield. To help manage parking, the remainder of morning buses depart from the Ridgefield Bark Park lot on Prospect Ridge.

The shuttle follows Route 35 from Main Street westerly to New York State. In the Town of Lewisboro, NY, the shuttle makes a stop at the South Salem Municipal lot on Spring Street and continues on Route 35 to Route 22 to Katonah Station. Flag stops are permitted on this route in New York State.

The New Fairfield–Southeast Shuttle is operated by HART between the Southeast Train Station and New Fairfield. Vehicles stop at park and ride lots in New Fairfield at Company A Firehouse on Ball Pond Road and Ball Pond Firehouse on Fairfield Drive. The route continues to New York via the Hamlet of Putnam Lake with a stop at Temple Beth Elohim in Brewster near Sears Corners, and then follows Route 312 to the Southeast Station.

HART meets five southbound trains from Southeast between 6:13 and 7:51 a.m. and eight northbound trains between 5:47 and 8:47 p.m. No midday bus service is provided.

Danbury-Norwalk Route 7 LINK

The Danbury-Norwalk Route 7 LINK provides service to employment along the Route 7 corridor and the downtowns of Danbury and Norwalk. Buses originate and terminate at the HART and WHEELS (Norwalk Transit District) pulse points. Locations served include Cartus, Branchville Station, Wilton Center, Georgetown, Merritt Seven and 10/20 Westport Road.

The 7 LINK provides hourly peak period service Monday-Friday between 6 a.m. and 12 p.m. and 3 p.m. to 7:30 p.m. HART and Norwalk Transit District run the service together, with each system operating two buses on a daily basis.

Total 7 LINK ridership averages 230 trips per day. Approximately 58% of 7 LINK riders are carried on the HART-operated portion of the service.

Vehicles

HART operates a variety of equipment in its fixed route program, assigned depending on service needs. All vehicles are wheelchair accessible.

- Heavy duty transit buses, 35' in length, are used on the urban fixed route program and some Brewster Shuttle runs. The 35' fleet is comprised of Orion and Gillig buses with a few older RTS models kept as spares.
- Two New Flyer D40LF 40' buses, originally part of the CTTRANSIT fleet, are used to operate HART's portion of the Danbury-Norwalk Route 7 LINK. These buses have more comfortable interurban style seating, appropriate to a long distance route.
- Roughly half of HART's transit buses are of the newer low floor type, equipped with ramps in lieu of wheelchair lifts for ease of boarding disabled passengers.
- Light duty body-on-chassis buses in 14 and 20 passenger configurations operate on LOOP and shuttle routes. These smaller buses are used when passenger loading is lighter, or route geometry does not allow for full size equipment.

Transit Vehicles used in HART Fixed Route Service

<i>Year</i>	<i>Make</i>	<i>Model</i>	<i>Type</i>	<i>Capacity (Seats/WC)</i>	<i>Vehicles</i>
1995	RTS	T70206	35' coach	35/2	2
1996	CCC	Minitrolley	Trolley	19/2	1
2001	DuponTrolley	Frontenac	Trolley	26/2	1
2001	Orion	5.504	35' coach	33/2	10
2001	New Flyer	2-2123	40' coach	36/2	2
2003	El Dorado	Aerotech	Cutaway	20/2	3
2004	Orion	7.502	35' coach	32/2	1
2006	Startrans	Senator	Cutaway	20/2	5
2007	Startrans	Senator	Cutaway	20/2	5
2007	Startrans	Senator	Cutaway	14/2	3
2007	Gillig	G27B102N	35' coach	32/2	10

- A single 2001 DuponTrolley 26 passenger trolley bus runs on the trolley route, with a 1996 Cable Car Concepts minitrolley retained as a spare.

Passenger Shelters

HART maintains a number of passenger shelters and a passenger transfer station (Pulse Point). A description of these amenities is briefly outlined below.

The HART Pulse Point is located on Kennedy Avenue and Main Street in Danbury. The facility features a large covered waiting area, waste receptacles, ticket agent, lighting and HART transit information. The facility was constructed in 1993.

No restrooms are provided for passengers. On street metered parking is available on Kennedy Avenue and a municipal parking lot is located adjacent to the Pulse Point. The facility is within walking distance of many small restaurants and retail establishments in the CityCenter Danbury district and is only a few dozen feet from Peter Pan's intercity bus stop.

HART maintains passenger shelters at 11 locations in addition to the Pulse Point. Shelters are typically aluminum framed structures with Plexiglas or perforated metal panels on three sides as manufactured by Columbia Equipment Company.

Shelters are located on Main Street in Danbury in front of the Danbury Public Library and Kimberly Place Apartments; one shelter is located at Glen Apartments on Memorial Drive; one shelter is located at the North Street Shopping Center; two shelters are located on Wooster Street in front of the Wooster Manor and Crosby Manor apartment complexes; and one each is located on the grounds of Bishop Curtis Homes in Bethel and Brooks Quarry in Brookfield. HART shelters are also installed at ConnDOT park and ride lots at exits 2 and 1 of I-84, and on Federal Road (Danbury).

Bus Stop Signs

In 1993, HART installed approximately 450 bus stop signs in Bethel, Brookfield, Danbury and New Milford. The signs were installed as part of a comprehensive effort to better manage passenger boarding and alighting activity on the fixed route system.

Distance between stops is generally 1/8 mile but varies depending on street configuration and the degree of urbanization. Bus stop locations are subject to approval by the State Traffic Commission and municipal authorities.

They often become damaged or removed in traffic accidents, during snow removal, by road construction activity or by vandals, necessitating an ongoing replacement program. An extensive bus stop reinstallation campaign was completed in 2009 with some 70 signs reinstalled.

Signs are trimmed in red with blue lettering and display the HART logo, information telephone number, "no parking" symbol, and disabled access symbol. Signs in the Danbury central business district on the CityCenter Trolley route include bus and trolley silhouettes.

Fare Structure

The current fare structure was approved and implemented by the HART Board of Directors in July, 2004. A significant majority of bus systems in the state have the same base and disabled cash fares, but pass structures vary by provider.

No tokens are used on the HART system, except on the 7 LINK, where Norwalk Transit District tokens are accepted.

Fare Payment Policy

Passengers are required to have the exact change to pay for cash fares, or to have valid pre-paid media to board buses. Drivers carry no cash or change; buses are equipped with secure fareboxes in which fares are deposited. Transfers are issued routinely at the HART Pulse Point to allow for continuous travel between routes. There is no charge for transfers.

HART Fare Structure

<i>Service</i>	<i>Fare Class</i>	<i>Cash Fare</i>	<i>Bye Pass (10 rides)</i>	<i>Fast Pass (Monthly)</i>	<i>Day Pass</i>
Urban Fixed Route Shuttles LOOP Route 7 LINK	Adult	\$1.25	\$11.00	\$45.00	N/A
	Student	\$0.90	\$8.25	\$32.00	N/A
	Senior/Disabled	\$0.60	\$5.50	\$22.50	N/A
Trolley	N/A	\$0.50	N/A	N/A	\$1.00

Pre-Paid tickets and passes

A 10 ride punch pass, known as a Bye Pass, provides an 8 to 12 percent discount off of cash fares depending on fare class and is the most popular pre-paid fare option. Drivers punch a ride off each pass as it is presented. Approximately 290 Bye Passes, accounting for 2900 trips, are sold each month.

A monthly unlimited ride pass, called a Fast Pass, is available for those who travel frequently. Fast Passes are issued for each calendar month. A passenger traveling 40 times in a month using a Fast Pass will begin to save relative to the cash fare. Approximately 100 Fast Passes, accounting for 4000 trips, are sold each month.

Single-day unlimited ride passes are available for purchase on the trolley for \$1.00. This pass allows the passenger to board or disembark the vehicle as many times as he or she wishes throughout a single day with no additional charge.

Individual ride tickets are sold to non-profit agencies in books of 50 to provide transportation to their clientele. No discounts are given for the purchase of these tickets.

The Trolley pass is the only pass sold on buses. All other passes must be purchased at the HART Pulse Point or administrative office.

Inter-system fare agreements

Several of the regional services operated by HART create links with other bus systems. Free inter-system transfers are now available between HART and these operators as follows:

- HART has agreements with the New York counties of Westchester and Putnam to permit free transfers between systems at the Katonah and Brewster Train Stations. Passengers may board using the other systems’ transfers at these locations.
- HART transfers are accepted on WHEELS buses in Norwalk, and WHEELS transfers are accepted in Danbury. Users of the 7 LINK service may board using any valid HART or Norwalk Transit District fare media. Free transfers to buses operated by Greater Bridgeport Transit, Milford Transit District and CTTRANSIT may also be made in Norwalk.

HART Intersystem transfer policies

<i>System</i>	<i>Transfer Point</i>	<i>Transfer/Fare Policy</i>
Bee-Line (Westchester DOT)	Katonah, NY	Passengers may use a transfer from either system to board
CTTRANSIT	Norwalk	Passengers may use a transfer from either system to board.
Greater Bridgeport Transit	Norwalk	Passengers may use a pass or transfer from either system to board
Milford Transit District	Norwalk	Passengers may use a transfer from either system to board
Norwalk Transit District	Norwalk Danbury	Passengers may use a token or transfer from either system to board.
Putnam Area Rapid Transit	Brewster, NY	Passengers may use a pass or transfer from either system to board

- HART honors the MTA Metro-North Railroad UniTicket, a single pass which offers a coordinated fare option to passengers that ride buses and MTA trains. UniTickets are sold by Metro-North for weekly or monthly travel and are accepted on all HART fixed route services. As an added benefit, Metro-North provides a guaranteed ride home program for monthly UniTicket holders that use HART shuttles to access their trains.
- TransitChek is accepted as payment for discount fare media. It is a federally approved tax-deductible program that allows employers to provide vouchers to cover the cost of commuting to work by public transit.

III. EXISTING CONDITIONS

OPERATIONAL STUDIES OF THE HART FIXED ROUTE SYSTEM

Fixed Route Comprehensive Operational Analysis 1992

This was the first comprehensive operational analysis (COA) of the fixed route system, and was undertaken after the fixed route system went from 45 minute all day headways to the 30 minutes peak/60 minutes off peak headway structure of today. Saturday service headways were increased from 45 minutes all day to 60 minutes all day.

Recommendations included minor schedule refinements to routes 1,2,3,5 and 6 based on ridership data.

A major revision was suggested for the 7 New Milford Route. In place of the existing route, the report recommended creation of a local route to terminate at Brookfield Center midday and Saturday, and an express route to New Milford to improve running time.

Changes to endpoints on selected trips based on ridership were included, with several to begin service to New Milford in Brookfield at the DATAHR (now Ability Beyond Disability) facility. This change created the current configuration of the 7 New Milford and 4 Brookfield routes.

Fixed Route Comprehensive Operational Analysis 1994/1995

Several minor changes were made in the system as a result of this study.

- On the 1 Hospital Route, service was shifted from Danbury High School to Danbury Hospital.
- Service on the 2 Route was shifted from Commerce Park to the Berkshire Shopping Center.
- On the 5 Bethel Center Route, service was shifted from South Street/Route 53 to Coal Pit Hill Road, Shepard Warehousing was added to the schedule as a new deviation, the Shelter Rock deviation was eliminated, and service to Frances Clarke industrial park was adjusted to better accommodate work shifts.

Some of the 7 New Milford Route's deviations were modified to improve service consistency or on-time performance.

This COA also examined the potential effect of returning to a 45 minute pulse schedule, elimination of the pulse schedule, and moving to a fully deviated fixed route schedule on the 7 New Milford Route. These options were discarded as having as great a potential to discourage as encourage ridership.

Fixed Route Comprehensive Operational Analysis 1997

The report recommended fine tuning of the schedule based on ridership trends on the existing Routes 1-7. Other options included the following:

- On implementation of the Danbury-Brewster Shuttle, modify the 3 Mill Plain and 6 Mall Routes to allow for a midday service extension to the village of Brewster by the 3 Route, and maintenance of service to Mill Ridge.
- Schedule changes designed to reduce all 7 New Milford Route trips to two hours and eliminate the 4 Brookfield Route on Saturday were recommended once alternative service using the reduced time could be implemented. At the time of this study, a trial service had determined that evening service was a viable option for the HART service area, but funds were not yet forthcoming for evening service expansion.

Funding became available for the evening service expansion within a year of the completion of the study, making further analysis of reduction of service to the urban fixed route system to shift service availability unnecessary.

Statewide Bus Study 2000

ConnDOT selected a consulting team led by Urbitran Associates to develop a program of short and long term solutions to improve the efficiency of transit systems around the state. During the course of the study, state-owned urban transit operations, 21 express bus services and the active 17 transit districts were evaluated.

The state bus study recommended service expansion to remedy inconsistencies in the schedule, address overcrowding on the 6 Mall Route and provide service to new areas. These options rely on a greater investment in the system, however, in order to be implemented.

Fixed Route Efficiency Study 2005

This 2005 fixed route COA study recommended several system-wide actions as well as route specific changes.

- Overall system-wide actions recommended included a focus on interregional services for short term expansion, improved monitoring of on-time performance, expanded use of small buses, and creation of special schedules for low ridership days. A modified Sunday schedule was implemented on the day after Thanksgiving in 2007 as an immediate result.

- Minor adjustments to routes 1-3, 5, 7, the Ridgefield-Katonah Shuttle and City Center Trolley were recommended.
- The 4 Brookfield Route was again examined with an eye to more extensive restructuring. It was decided to leave off any changes until the effect of the Route 7 widening and the creation of the Brookfield bypass on service to New Milford could be determined.

FIXED ROUTE PERFORMANCE COMPARISON

National Fixed Route Performance Comparison

Eight similar transit systems were selected nationally in order to contrast HART and its service performance to others. The peer group was originally chosen by consultants for the Connecticut DOT Statewide Bus System Study as similar-sized systems to HART serving approximately the same population size.

The group includes Montachusett (MA), Cape Cod (MA), Muskegon (MI), Rochester (MN), Missoula (MT), Manchester (NH), Cleveland (OH) and Westmoreland County (PA). The table updates the peer comparison as selected for the statewide study, using data from the 2008 National Transit Database report (the most recent available).

HART compared well in the ridership category, having the second highest ridership total out of the systems selected for fiscal year 2008. The mean ridership of this peer group was 736,158. HART reported a ridership of 942,316 for 2008, which is 28% above average. At 16.59 passengers per hour, HART shows a productivity level 14% better than the mean of 14.53. System productivity within the peer group ranged between 5.13 (Cape Cod) and 27.56 (Rochester, MN) passengers per hour.

National Fixed Route System Peer Analysis

<i>System</i>	<i>Ridership</i>	<i>Operating Cost</i>	<i>Annual Hours</i>	<i>Cost/pass.</i>	<i>Cost/hour</i>	<i>Cost/mi.</i>	<i>Pass/hr.</i>	<i>Pass/mi.</i>
HART	942,316	\$4,033,996	56,814	\$4.28	\$71.00	\$4.47	16.59	1.04
Fitchburg, MA	602,165	\$6,165,536	67,021	\$10.24	\$91.99	\$7.47	8.98	0.73
Cape Cod, MA	428,557	\$4,486,948	83,508	\$10.47	\$53.73	\$4.31	5.13	0.41
Muskegon, MI	598,297	\$2,381,984	31,854	\$3.98	\$74.78	\$5.73	18.78	1.44
Rochester, MN	1,727,630	\$4,511,600	62,679	\$2.61	\$71.98	\$4.59	27.56	1.76
Missoula, MT	796,520	\$3,042,636	42,728	\$3.82	\$71.21	\$4.89	18.64	1.28
Manchester, NH	475,311	\$2,947,510	41,515	\$6.20	\$71.00	\$6.29	11.45	1.01
Cleveland, OH	647,260	\$4,083,046	46,966	\$6.31	\$86.94	\$4.95	13.78	0.78
Westmoreland, PA	407,369	\$3,975,961	41,225	\$9.76	\$96.45	\$4.88	9.88	0.50
MEAN	736,158	\$3,958,802	52,701	\$6.41	\$76.56	\$5.29	14.53	0.99

When comparing HART to Rochester, MN, the transit system with the greatest overall ridership in the group, HART had the lower operating cost by nearly \$480,000.

With respect to financial efficiency, actual dollar cost per service hour and mile, HART tied as the second lowest cost per hour in 2008 at \$71 with Manchester, NH, above only Cape Cod Regional Transit Authority, MA (\$53.73). Westmoreland County, PA (\$96.45) and Fitchburg, MA (\$91.99) had the highest per-hour costs. HART reported the second lowest cost per mile among the peer group at \$4.47, above only Cape Cod (\$4.31). Montachusett Regional Transit Authority in Fitchburg, MA (\$7.47) and Manchester Transit Authority, NH (\$6.29) had the highest per-mile costs.

Finally, operating cost per passenger is a measure of cost effectiveness. In 2008, HART services cost \$4.28 per passenger trip. This cost is 33% lower than the peer group mean. The highest cost per passenger reported among the peer group in 2008 was \$10.47 for Cape Cod, MA, and the lowest was \$2.61 in Rochester, MN. HART had the fourth lowest cost per passenger out of the peer group.

Fixed Route Performance Comparison in the Connecticut-New York Region

For comparison purposes closer to home, eight other transit systems, seven in Connecticut and one in New York, were selected to contrast HART's performance. These include the Greater Bridgeport, Waterbury, Norwalk, Middletown, Milford, Stamford, Norwich and Putnam County, NY, transit systems.

Unlike the nationally selected group, there is a wide variety of service provision and regional population among the Connecticut and New York service areas. The Norwich bus system (Southeast Area Transit or SEAT) is most similar to HART in this peer group. SEAT runs nearly the same number of vehicles in maximum service in a region of almost identical square mileage to HART's.

Regional Fixed Route System Peer Analysis

<i>System</i>	<i>Ridership</i>	<i>Operating Cost</i>	<i>Annual Hours</i>	<i>Cost/pass.</i>	<i>Cost/hour</i>	<i>Cost/mi.</i>	<i>Pass/hr.</i>	<i>Pass/mi.</i>
HART	942,316	\$4,033,996	56,814	\$4.28	\$71.00	\$4.47	16.59	1.04
Bridgeport	5,090,046	\$14,913,015	180,229	\$2.93	\$82.74	\$6.66	28.24	2.27
Waterbury	2,620,613	\$6,841,152	79,667	\$2.61	\$85.87	\$7.02	32.89	2.69
Norwalk	1,931,711	\$7,070,584	85,157	\$3.66	\$83.03	\$6.91	22.68	1.89
Middletown	415,762	\$1,954,963	31,033	\$4.70	\$63.00	\$3.95	13.4	0.84
Milford	367,570	\$1,193,584	20,428	\$3.25	\$58.43	\$4.28	17.99	1.32
Stamford	3,142,684	\$10,699,526	132,940	\$3.40	\$80.48	\$6.94	23.64	2.04
Norwich	1,158,771	\$4,419,271	68,566	\$3.81	\$64.45	\$4.59	16.9	1.20
Putnam Co., NY	234,702	\$1,369,859	19,216	\$5.84	\$71.29	\$3.39	12.21	0.58
MEAN	1,767,131	\$5,832,883	74,894	\$3.83	\$73.37	\$5.36	20.50	1.54

When compared to the CT-NY peer group, HART reported below the mean for both ridership and productivity for fiscal year 2008. Note that three of the systems serve large urban areas and operate in cities far more densely populated than the Housatonic Region. At 56,814 hours, HART provides 18.8% below the group mean of 74,894 annual service hours.

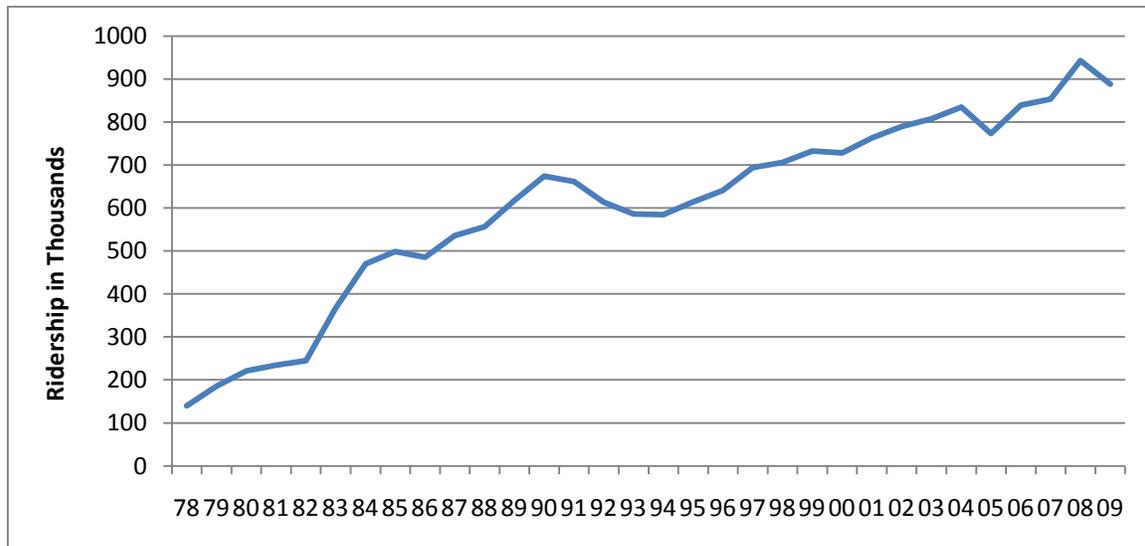
In general, a system's ridership and hourly costs increase and its operating speed decreases with the population of the city. More densely-populated cities provide a larger ridership base and productivity, but urban travel is slower than suburban and rural travel. Driver wages and administrative salaries tend to be higher in larger transit systems. This explains why Bridgeport and Stamford, though generating the greatest ridership, have high costs per hour and per mile.

HART ranked the third lowest overall among regional peers for cost per hour (\$71) and fourth lowest for cost per mile (\$4.47) for the service efficiency category. Among the transit systems listed, cost per hour varied between \$58.43 (Milford) to \$85.87 (Waterbury).

ANNUAL RIDERSHIP

Annual Ridership on the HART fixed route system grew from under 140,000 trips in 1978 to more than 888,000 trips in 2009.

HART Total Annual Fixed Route Ridership, FY 78 – FY 09



Over the 31 year period, only a few years showed decreases in ridership. The year 1986, when the Pulse Point was moved, experienced a decrease of 3% compared to the year before. Decreases were also experienced for fiscal years 1991 through 1994. Ridership decreased by 13 percent to 584,404 from 1990 through 1994, a period which included a recession, two fare increases and the loss of funding for the Ridgefield fixed-route service. These losses were quickly turned around in 1997, when 693,725 annual trips were carried. A portion of the increase that year is a result of the start of the Danbury CityCenter Trolley.

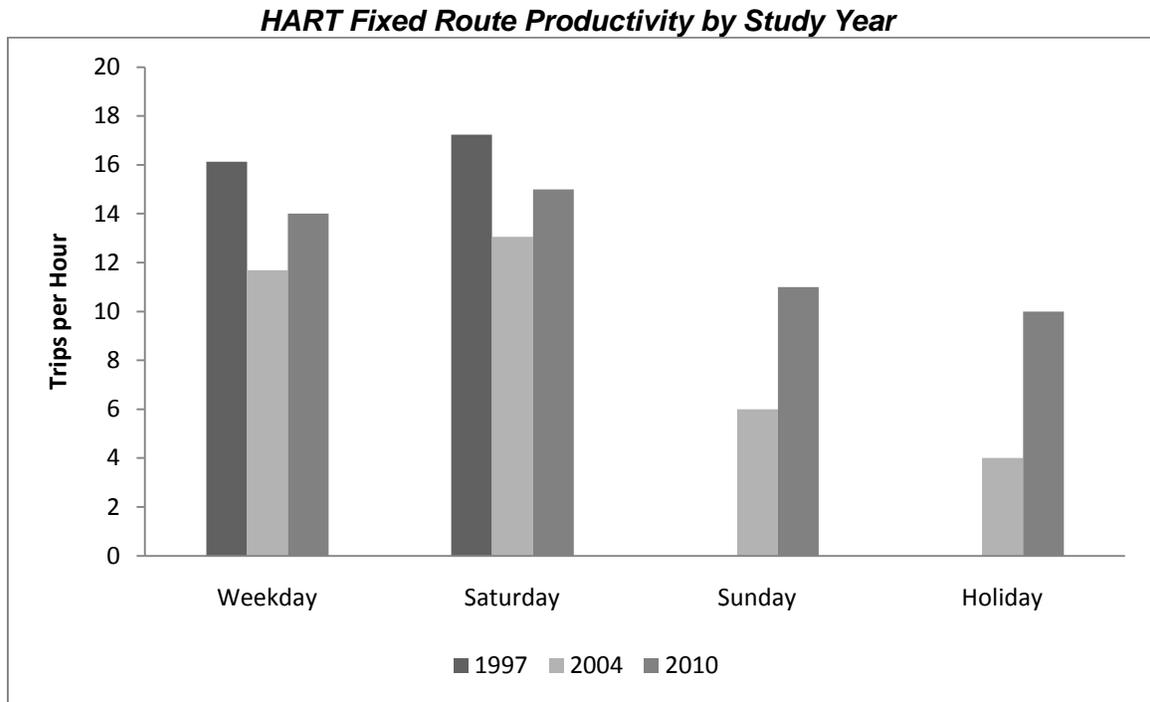
Ridership trends were generally positive through 2008 with a drop between FY 2004 and FY 2005, following a fare increase. Most recently, ridership between the 2008 and 2009 years dropped 6% with the economic downturn, and after a very high FY 2008 ridership year (over 940,000 trips) induced by record fuel prices.

SYSTEM PRODUCTIVITY

In FY 1997, HART ran 37,152 hours of service weekdays and 4,087 on Saturdays. No Sunday or holiday service operated at that time. In 2004, total service provided annually was 56,274 hours on weekdays 5,550 on Saturdays and 1,776 on Sundays and holidays. Currently 53,426 hours of service are operated during the weekday, 5,233 on Saturdays and 2,281 on Sundays and holidays.

New services do not have as great a ridership base as the well established urban fixed route service, and while more opportunities for new and existing riders are created, overall productivity is reduced.

Most of the service added in the past several years was confined to the peak travel period. Peak period service additions create split runs. While peak period buses cover the times of day most convenient to commuters, deadhead travel to and from the endpoints of the run is increased and hours available for revenue service are proportionally reduced.



Weekday and Saturday productivity drops between the 1997 and 2004 COA were partially reversed by FY 09; productivity grew by almost 20% on weekdays and 15% on Saturdays. Productivity gains on Sundays and holidays were very strong, with a growth of more than 80% on Sundays and over 100% on holidays.

IV. RIDER SURVEY

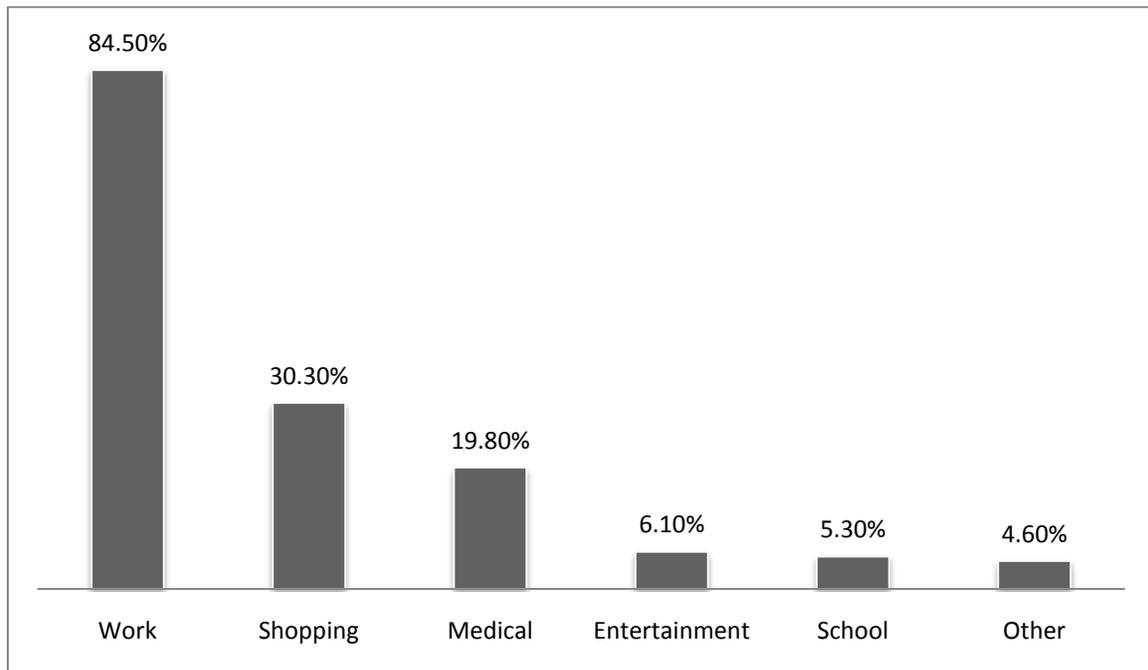
A one page rider survey was distributed to passengers on morning weekday runs on Tuesday, June 10, 2010. The survey form was produced in English and Spanish with simple multiple choice questions. Respondents were encouraged to write in service suggestions or provide comments. 627 surveys were completed with usable information; roughly 25-30% of morning peak ridership.

Demographics

The majority of surveys returned were completed in English at 72.2%. The Spanish language survey was completed by 27.8% of those that responded. A few of the comments on the Spanish language surveys were written in Portuguese.

English speaking riders were more likely to use e-mail and the internet (67.9%) than those that completed Spanish language surveys (40.2%). Both rates are significantly higher than recent surveys of the SweetHART system (HART's paratransit service) that show use of the internet at 20.3% of riders.

Trip Purpose

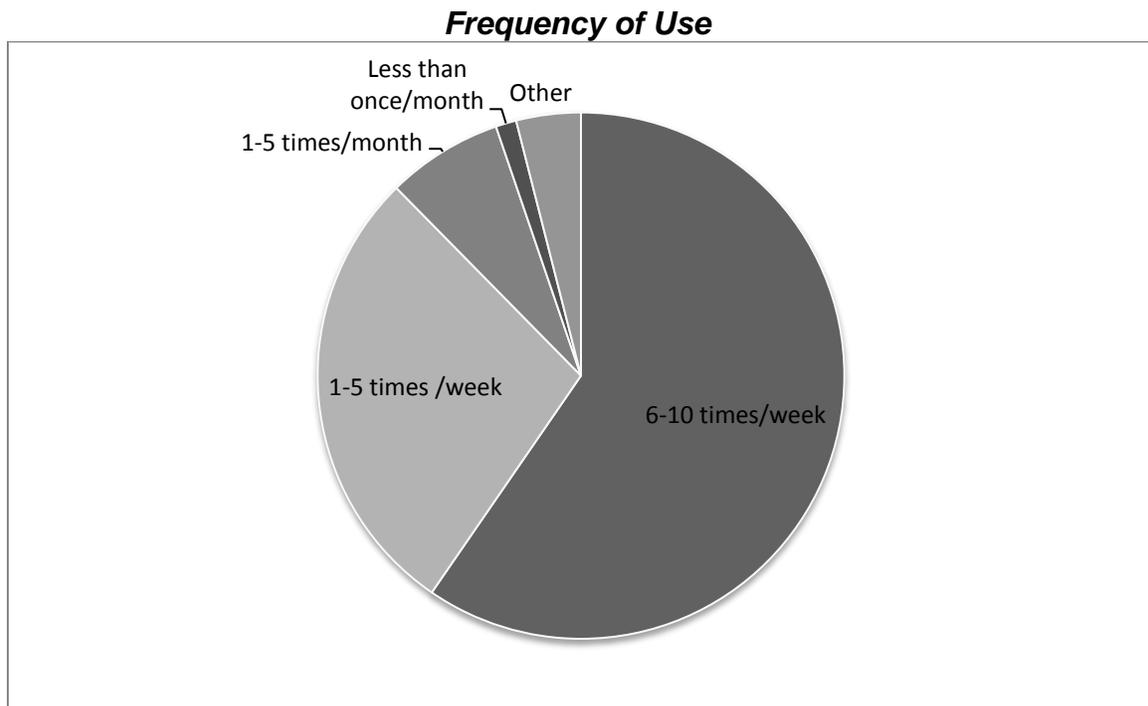


When asked where they lived, 91% of those that answered indicated they were residents of the Housatonic Region. The remaining respondents resided in other communities in Connecticut, mostly in the Southwest Region (6%), or in New York State (3%).

According to respondents, transportation to employment was the most common reason for using the bus (84.5%), followed by shopping at 30.3%. Many riders identified multiple purposes for using the service.

Most of those that ride the bus for purposes not listed on the survey wrote that they use HART for everything.

The majority of survey respondents were frequent riders, with 59.6% using the bus six to ten times per week. Of the respondents who marked off the “other“ category, most indicated that they rode more than ten times per week.



Passenger Satisfaction Ratings

Survey respondents were asked to rate the HART system’s performance for six characteristics using a scale of one through five, five being excellent and one being poor.

Ratings were generally quite favorable, with all measures receiving good or excellent rankings of 82 to 94 percent. Dependability and overall satisfaction with HART received the highest ratings, with both measures ranking at or near 94%.

On-time performance ranked slightly lower, with 91.9% of ratings as good or excellent. This measure had the lowest ranking in the “no opinion” category.

Rider Perception of HART Fixed Route Service

	<i>Good/Excellent 4-5</i>	<i>Average 3</i>	<i>Poor 2-1</i>	<i>No Opinion</i>
Dependability	94.0%	3.8%	1.2%	1.0%
On Time Performance	91.9%	6.2%	1.7%	0.2%
Bus Appearance	84.8%	10.2%	4.7%	0.3%
Route Maps	82.8%	8.2%	3.9%	5.1%
Customer Service	89.0%	6.2%	2.6%	2.2%
Overall Satisfaction	93.8%	4.3%	1.6%	0.3%

Route maps (82.8%) and bus appearance (84.8%) received lower positive ratings than other measures. Route maps received the greatest number of responses in the “No Opinion” category (5.1%). Bus appearance received the most ratings in the “average” (10.2%) and “poor” (4.7%) categories.

By way of historic comparison, HVCEO Regional Planning Bulletin 82, *HART Market Research Study* (1995), used a similar rating system to gauge perception of HART’s fixed route services. At that time, positive opinions of the bus system on various measures were in the range of 51% to 79%.

Positive ratings for dependability stood at 78.8%, on time frequency at 69.3%, route maps at 67.7% and bus appearance at 59%. Riders gave overall satisfaction with the HART system 70% positive ratings in the 1995 study.

Comments

There were well over 200 written comments submitted on survey forms. The most frequent comments were positive statements about the HART service or drivers (125 comments).

Other frequent comments included:

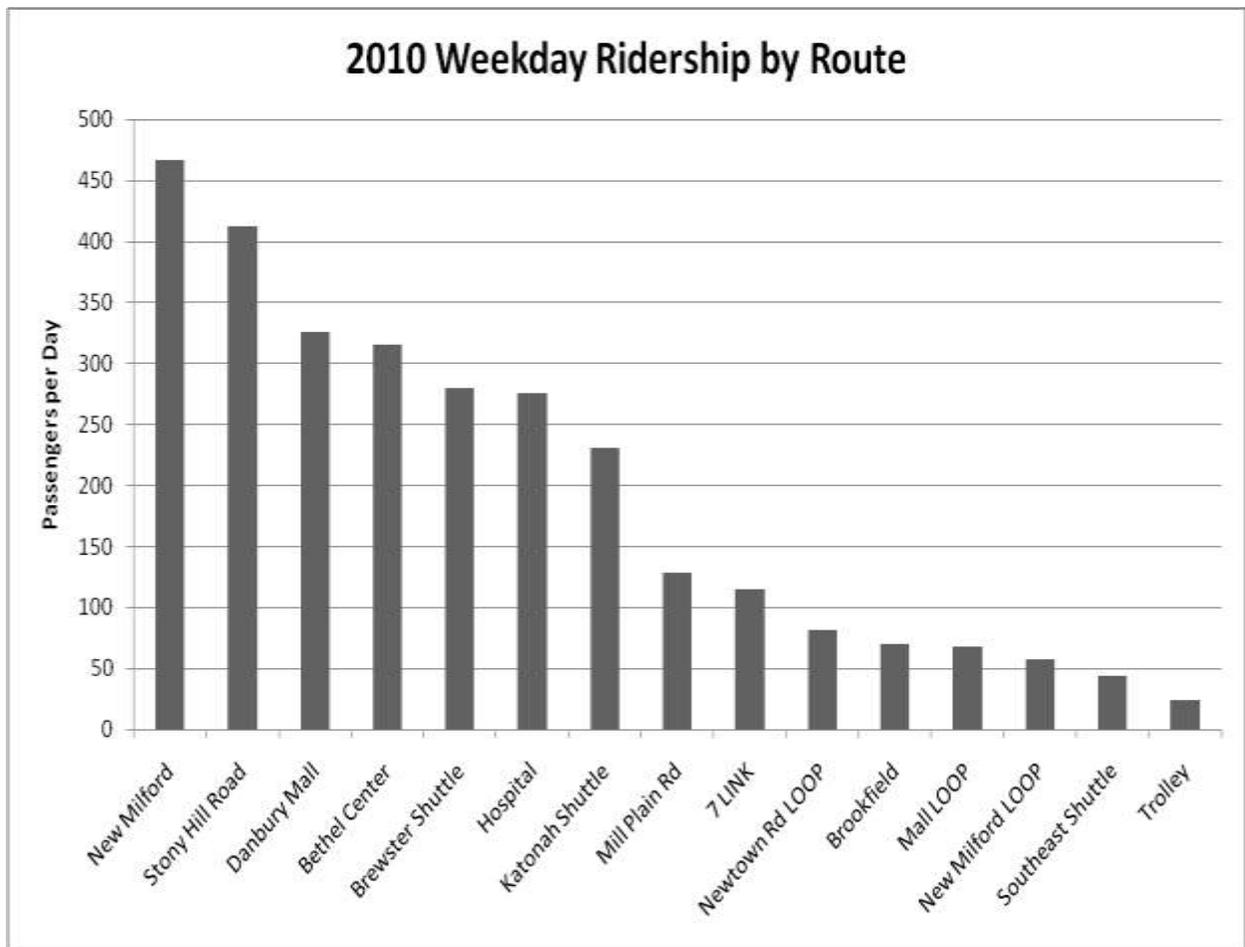
- Need for better weekend service, (33 comments; primarily on Sunday),
- More/weekend service to Brewster, NY (18 comments),
- More frequent/later service on the entire system (17 comments),
- Suggestions for improved marketing/route maps (16 comments).

There were ten negative comments made that referenced uncomfortable bus rides and bus cleanliness, and seven negative comments about the performance of HART employees.

V. RIDERSHIP RANKING BY ROUTE

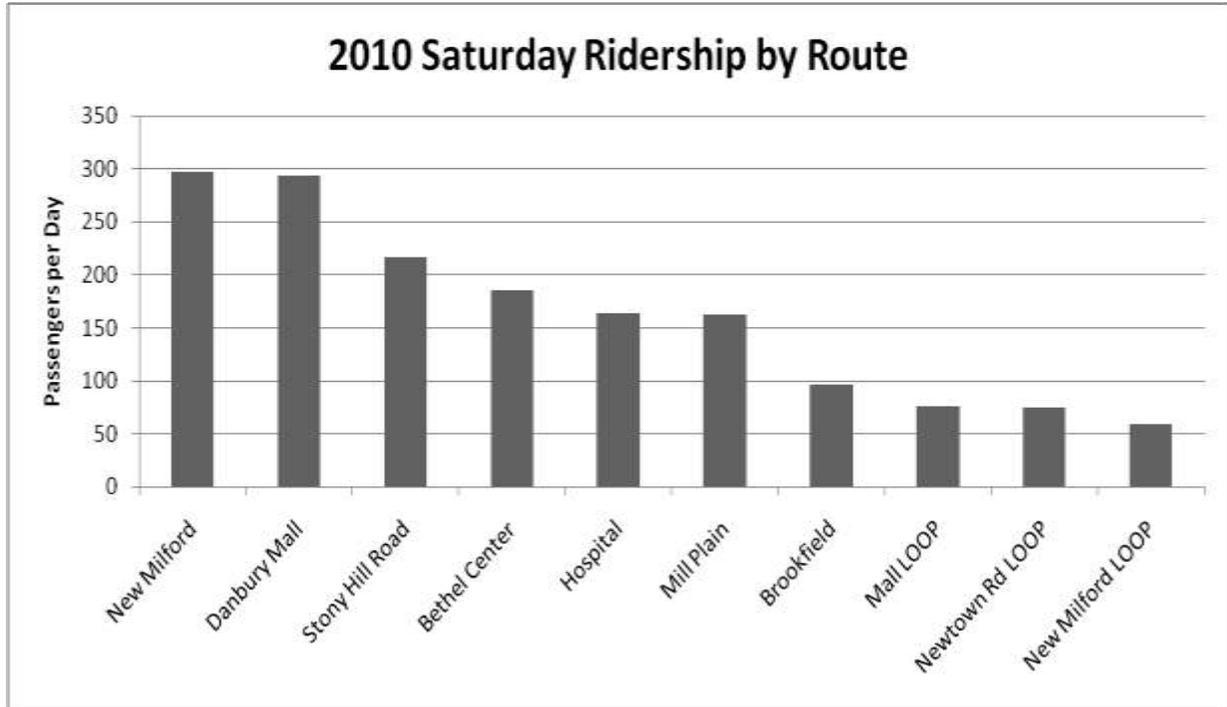
Weekday/Saturday

The 7 New Milford route carries the greatest number of daily passengers at 467 trips per weekday and 297 trips per Saturday. The 2 Newtown Road route ranked second, generating 413 trips per weekday. The 6 Mall route ranked third with 294 trips. The 4 Brookfield route on both weekdays and Saturdays was the lowest ranked Urban Fixed Route service, carrying 70 per weekday and 97 per Saturday. Weekdays, two Harlem Line shuttle services, the HART-operated portion of the 7 LINK and the Newtown Road–South Street LOOP transported more passengers than the 4 route, carrying 280, 231, 115 and 81 passengers respectively.



The importance of HART’s rail shuttle services is growing; daily Danbury-Brewster service is now ranked fifth in terms of ridership by route.

Saturday ridership follows a similar pattern, but with the 4 and 6 routes providing a greater proportion of total ridership than during the weekday.

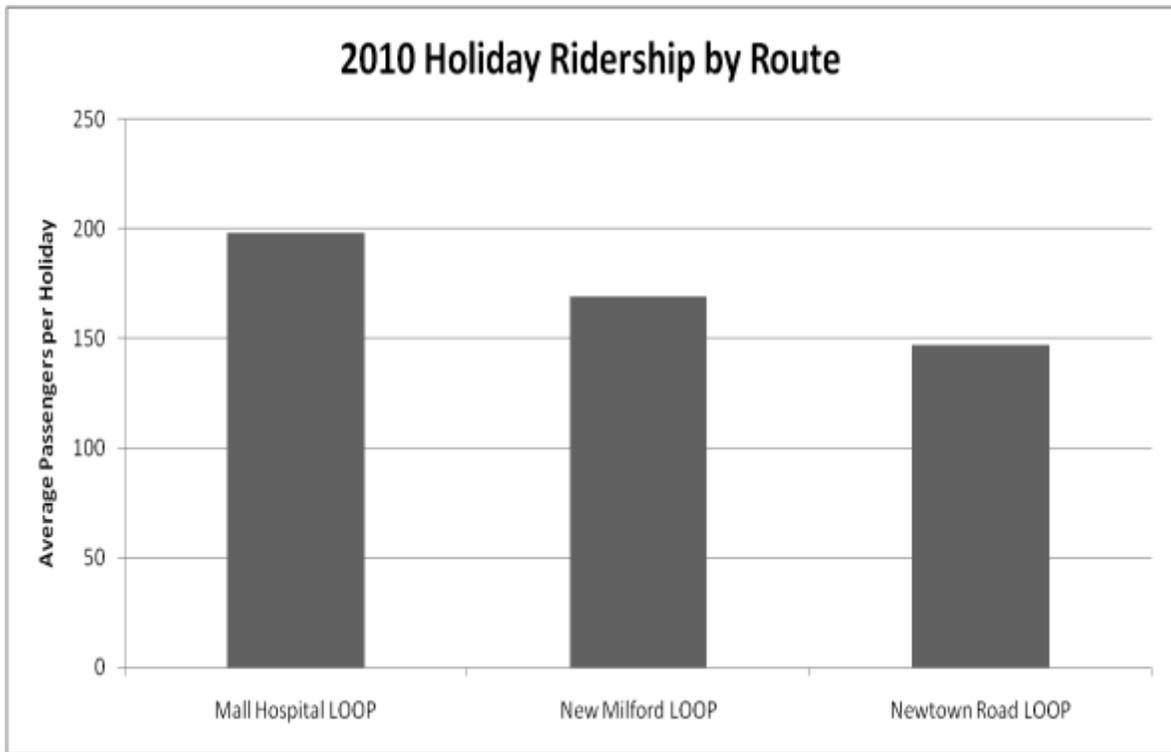
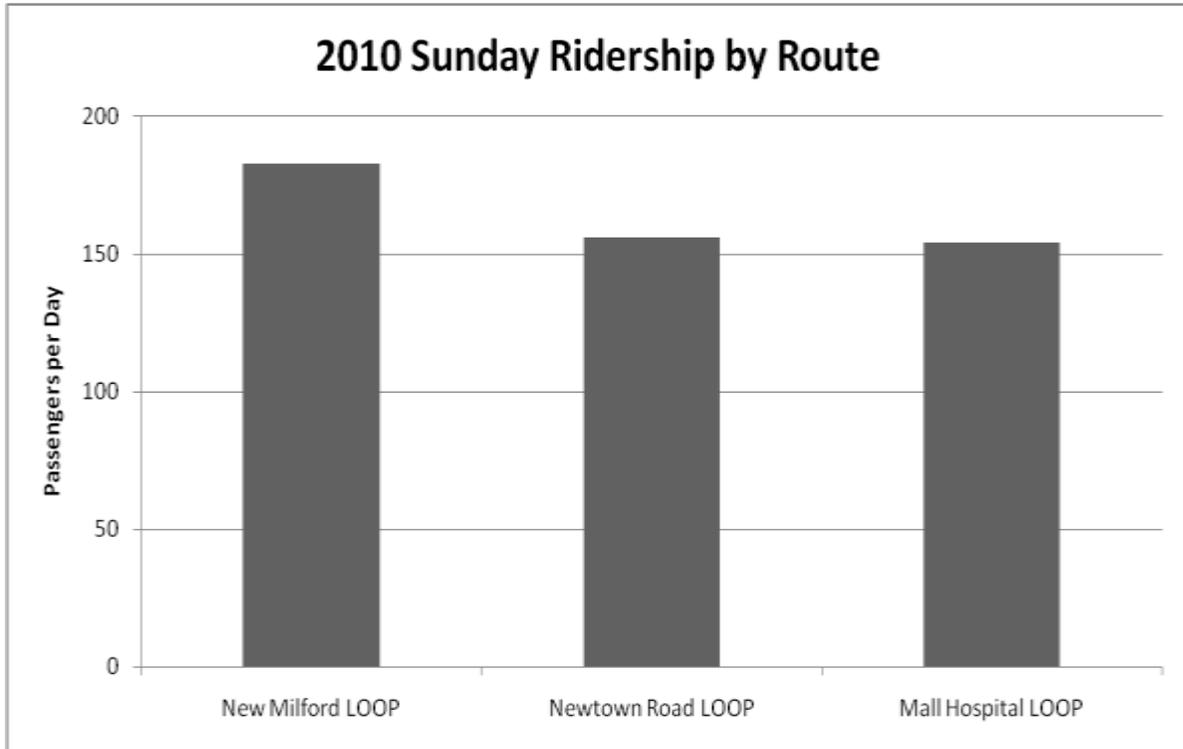


The lowest ridership services sampled on weekdays were the New Fairfield-Southeast Shuttle and the Trolley with 44 and 24 trips respectively. Ridership trends on the New Milford LOOP have increased since the introduction of hourly service.

Sundays and Holidays

Only three LOOP services operate on Sundays and Holidays. Holiday service is operated on July 4, New Year's Day, Memorial Day and Labor Day. In the June 2009 - July 2010 sampling, the New Milford LOOP carried 183 passengers, followed by the Newtown South Street LOOP at 156 and the Mall Hospital LOOP at 154.

Holiday ridership counts show the Mall-Hospital LOOP averaging 183 passengers, New Milford LOOP at 156 and Newtown Road-South Street at 149.



VI. ON TIME PERFORMANCE

As a standard, HART considers a bus running up to five minutes beyond the published schedule as on time.

On time performance directly affects the ability of a passenger to trip chain and make intermodal connections. Transit services that run early or late create disincentives for use and are unreliable for those seeking to make connections with other services.

Most schedule adherence data was collected by on-board checkers or road supervisors. Additional data points were collected by InfoSource, a Florida-based firm contracted by HART to measure driver performance. As part of the driver audits, schedule adherence was noted for each operator observed.

A total of 318 time points were used to develop the on time performance discussion.

Sampling took place over multiple days during the course of the year. Time points were randomly chosen along routes at multiple times of day in both the inbound and outbound directions, over the entire service day.

As a group, 17% of trips sampled ran early, 13% ran late and 71% were on-time. There was significant variation in on-time performance by route with buses observed between 60 and 82% on-time. Early buses ran between 6 and 30% per route and late buses (more than 5 minute late) were observed on as few as none, to as many as 20% by route.

Harlem Line shuttles were not examined for schedule adherence. HART operates the shuttles based on the arrival and departure of trains arriving from and traveling to New York City and on-time performance is significantly out of the district's control.

Buses are held for late trains for 5 minutes on any given train arrival and as much as 20 minutes on the last trip of each evening driver's run, if required. Further, in the interest of customer service, drivers are instructed to "load and go" and run early if a train arrives ahead of schedule. Operational experience showed passengers becoming frustrated with drivers adhering to schedule in these instances, and shuttle buses are very unlikely to pick up additional passengers other than rail patrons.

Morning bus arrivals allow for a minimum of 8 minutes before scheduled train departures. Actual travel time of buses that meet departing trains are closely monitored by HART staff (riders on these routes are also extremely vocal) and adjusted as necessary. Missed connections for departing trains are extremely rare.

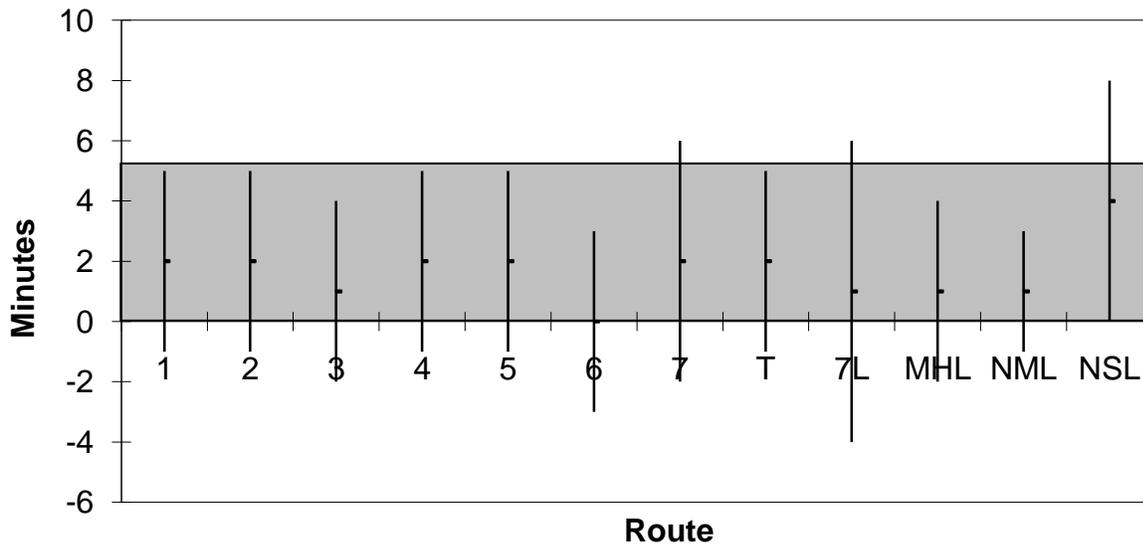
**Fixed Route Schedule Adherence Sampling
Fiscal Year 2010**

<i>Route</i>	<i>Early</i>	<i>Less than 5 Minutes Late</i>	<i>On Time</i>
HART 1 Hospital	18%	15%	68%
HART 2 Stony Hill	6%	16%	78%
HART 3 Mill Plain/Brewster	11%	17%	72%
HART 4 Brookfield	7%	14%	79%
HART 5 Bethel Center	10%	10%	80%
HART 6 Lake Ave./ Fair Mall	29%	6%	65%
HART 7 New Milford	20%	20%	60%
CityCenter Danbury Trolley	18%	0%	82%
Danbury- Norwalk Route 7 LINK	29%	0%	72%
Mall – Hospital LOOP	30%	0%	70%
New Milford LOOP	12%	6%	82%
Newtown Rd. – South St. LOOP	9%	24%	67%
All routes	17%	13%	71%

The Mall Hospital LOOP had the greatest number of early buses, and the Newtown Road South Street LOOP had the greatest number of late buses by percent.

The graph below describes average on-time performance as measured by route. The bars shown represent the standard deviation in on-time performance from that average point. The shaded area indicates the on-time range.

**HART Fixed Route
Average On-time Performance
Fiscal Year 2010**



It should be noted that virtually all trips arrived and departed from the HART Pulse Point on time, whether or not they ran late or early elsewhere along a given route.

The New Milford LOOP shows the best overall schedule adherence, running an average of 1 minute late plus or minus 2 minutes.

The Route 7 LINK showed the greatest variance in schedule adherence, running an average of one minute late, plus or minus five minutes. Newtown Road-South Street LOOP ran an average of 4 minutes late, plus or minus 4 minutes, a close second.

Contributing factors in early and late buses

Congestion related delays are a major factor in schedule adherence for HART buses, particularly on routes that show high percentages of both late and early buses.

Drivers often anticipate delays as they approach urban centers or areas of frequent congestion, and may deliberately depart early from the endpoint of the route in order to be on time at the Pulse Point and meet buses for transfers. Late buses occur with regularity in the afternoon peak period, between 2:30 p.m. and 6:00 p.m.

Because the HART system is transfer dependent, buses will routinely wait to pull out from the Pulse Point an additional 5 minutes if required to allow for incoming transfers. Late drivers will call out transfers over the radio to ensure that their passengers can make connections to the next bus to complete their trip. While this is necessary, one late bus can then affect the on time performance of many others.

The Newtown Road-South Street LOOP experiences a large number of service requests to P.T. Barnum Square, which delays that route considerably in the outbound direction. Recovery time at the end of the route is such that the bus has much better on-time performance in the inbound direction, and can make the Pulse for transfers.

The 7 New Milford route is similarly affected in the midday period with multiple requests in the outbound direction creating significant delays by the end of the run. This remains the case even with traffic improvements on Route 7 in Brookfield and New Milford completed in 2009.

VII. RECOMMENDATIONS

This section provides recommended options for improvements to the existing fixed route system. System-wide recommendations and route specific changes are identified. Recommendations below are near term and presented from the standpoint of limited financial resources.

Longer term plans for expansion are described in [HART's 2010 Bus Service Plan](#).

System Status

Comparisons between HART and other bus systems remain favorable

When compared with 8 national peers as selected for the statewide bus study of 2000, HART operated at a lower than average cost. HART carried the second highest ridership among the peer group at the second lowest cost per hour.

In the Connecticut/New York area, systems operating in larger population centers carry a higher ridership than HART, but HART ranks at the lower end in terms of cost per hour and mile. HART operates fewer service hours than average in this peer group.

Ridership

Riders rated the bus system highly, with reliability, dependability and overall satisfaction receiving positive ratings of better than 90%. Other measures including bus appearance, customer service, and maps and schedules received positive ratings in the range of 82 to 89%.

Riders are primarily using the service for employment, and significant numbers are Spanish speaking (almost 28% of respondents). Most riders use the service daily.

Overall usage is down, paralleling the economic downturn. LOOP and interregional services are less affected by the economy than Urban Fixed Route, however, with some routes even showing increases.

Service Area and structure

With the addition of the New Fairfield-Southeast Shuttle, HART now operates service in 11 Connecticut and 5 New York communities.

Most services added since the late 1990s are part time either in the morning and evening weekday peak period, or provide basic service after hours. While supplying service for common employment shift times, this has created service gaps.

Most new services operate with small body on chassis buses, while the core Urban Fixed Route continues to operate 35' transit coaches.

Some routes use a mix of small and large buses. On occasion, capacity needs on small buys routes require use of larger equipment or operation of multiple buses to serve single trips.

Recommended Actions System-wide

Improve on-time performance. While service coverage and customer satisfaction have improved in the last 10 years, on-time performance has not and remains an area for growth. HART will be installing GPS trackers on fixed route vehicles by 2011. This will allow for consistent monitoring of schedule adherence, which is an issue considering the small size of HART's operational staff.

Similar tracking technology is already in place on the SweetHART system. The trackers are also useful in determining the location of drivers for dispatching purposes and have proved invaluable in the investigation of service disruptions.

Bus size. HART made a concerted effort to switch to smaller, light duty buses with services started in the 1990s. Smaller buses provide advantages in terms of initial capital cost, fuel economy, maneuverability, and public perception. Heavy duty buses have the advantage in seating load, life span (light duty buses have a four to seven year life), durability and disabled access.

Labor costs (the most significant component of operational costs) with regard to any vehicle type are virtually the same.

A 30 foot transit bus might make sense for HART, if such a vehicle can retain the durability and approach the seating of a full size bus, and provide maneuverability like a small bus. This would be particularly advantageous on rail feeder shuttles and LOOP routes, where vehicle capacity and bus maneuverability are both important. As far as capital expenditures, 12-year 30 foot transit buses are marginally less expensive than comparable 35 foot buses.

Purchasing 10-year 30 foot transit buses are not recommended. These vehicles do not have the durability of the 12 year models and many have a history of poor operating performance.

HART has an opportunity to explore this option with the upcoming replacement of its Orion V fleet in 2012.

Fuel types. HART, like most bus systems, has traditionally operated a diesel fleet. Small and large buses are now produced as diesel-electric and gasoline-electric hybrids, but at a significant cost premium; as much as \$200,000 additional in capital cost for a full sized bus. Public perception of hybrid vehicles has been positive.

In some operating environments, hybrids show savings in fuel and reduced maintenance costs on some components such as brakes. Long term, these savings may be balanced with battery replacement and disposal costs. Particulate emissions are not significantly different in hybrid vs. traditional fossil-fueled buses equipped with modern anti-pollution technology.

Regardless, there are more and more transit properties moving to hybrid technology. This may drive an industry-wide shift by bus manufacturers, like the recent move from high floor to low floor bus designs. It would therefore be worthwhile for HART to purchase one or a few transit vehicles in diesel/electric or gasoline/electric hybrid configuration to better understand the operational and financial impacts of this technology.

Marketing. A significant proportion of riders are Spanish speaking. HART prepares schedules and notices for route changes in English and Spanish, but should expand its marketing efforts to this population.

Schedules and timetables had the lowest positive ratings (82.8% positive) of the measures in the customer survey. Almost 4 percent of respondents had a poor opinion of HART timetables and nearly 5 percent had no opinion at all. There were 16 comments that indicated schedules were confusing.

The current design of the system map is a large base map with bilingual text (Spanish/English) that shows all routes, but no timetables. Individual color coded route maps are issued separately with maps on the front, and timetables on the reverse. This structure has been in place with some modifications since the mid 1990's.

The existing system map, dating from 2007, was designed in house and does not translate well to an online format. HART's system map should be reformatted, and be made more readable and user friendly using current industry best practices. Rider and community focus groups may be helpful in this process.

Route Specific Recommendations.

1 Medical Center

- In order to meet the 30 minute peak/60 minute off peak schedule, HART relies on a split shift of drivers. These drivers drive out to the end of the line, and run empty back to the HART Operations Center to finish off their shift after the 8:30 a.m. and 5:30 p.m. Pulse Point departures.

Because the end of the Hospital Route is a one way loop, this practice has created an operational and customer service problem.

Passengers boarding in the outbound direction of the loop may expect the bus to continue around and head inbound to the Pulse Point. Driver/Passenger conflict

occurs when the bus arrives at the endpoint, only to head out of revenue service. This is a situation that is occurring with growing frequency.

- End the 8:30 a.m. Pulse Point departure at the Sandpit Medical Center. Provide service by request only beyond Sandpit at the 5:30 p.m. and 6:00 p.m. Pulse Point departures.

2 Stony Hill

- Existing routing to the Pulse Point doubles over the 5 Bethel Route on Main Street, Danbury, between Liberty Street and the Pulse Point. At the same time, the nearby Danbury Metro-North Railroad Station on Patriot Drive receives no service.

Reroute inbound buses to travel Liberty Street to Patriot Drive to White Street to the Pulse Point. Install a new sign on Patriot Drive near the entrance to the railroad station.

3 Mill Ridge/Mill Plain

- No changes recommended.

4 Brookfield

- The 4 Brookfield Route performs at a level lower than any other of the Urban Fixed Route services. Patronage of Saturday service has increased since the last sampling.

The route is designed to provide direct service to shopping centers in the Federal Road corridor of Danbury and Brookfield to take pressure off of the 7 New Milford Route, which has historically had running time issues.

The Regional YMCA has little ridership activity, with only five daily ons or offs observed.

- Remove the YMCA from the route. Add a deviation in the outbound direction to serve Best Buy, Lowes and Loews Theatre; an area not currently served.

5 Bethel Center

- The 5 Bethel Route presents one of the more difficult schedules for passengers to interpret. There are multiple segments that receive part time service depending on time of day. Other sections of the route employ significant use of by-request service.

- Adjust the schedule so that buses leaving the Pulse Point on the half hour serve South Street, and buses leaving at the top of the hour serve Coal Pit Hill Road traveling to and from Bethel.

Restore service to Shelter Rock Road for those buses that service South Street. This is an area that has no existing transit service, but includes a large number of commercial/industrial establishments and new construction sites.

- To improve running time, adjust departures at Reynolds Ridge at 4:30 and 5:00 p.m. by reducing layovers.

6 Lake Avenue/Danbury Fair Mall

- Provide trips at 8:24 a.m., 4:24 and 4:55 p.m. to Apple Ridge Road, the location of Cartus and Lorad corporations. Current service only provides one morning and one evening trip to this location. Service to Jensen Park would be eliminated on those trips.
- Provide a seasonal adjustment to this route between Thanksgiving and New Year's Day to improve running time. Service to the Mall is currently provided in both the inbound and outbound directions. The seasonal adjustment would provide service to the Mall in the outbound direction in the morning, and in the inbound direction in the afternoon.

7 New Milford

- The Route 7 bypass in Brookfield was opened to traffic in November 2009, and the Route 7 widening project is completed in New Milford. Construction in New Milford is ongoing at the intersection of Routes 202 and 67. When construction is completed, running time should improve.

The length of the 7 New Milford Route and funding constraints has created several schedule inconsistencies. These include the 8:30 a.m. and 3:30 p.m. buses, which do not provide service beyond Brookfield. Improvements in running time could allow for rescheduling of hours to provide more service or to be used as a cost savings.

- The Town of New Milford has expressed interest in service to Indian Field Apartments, which includes affordable housing. Service to this location would require that buses leave Route 7 at Sunny Valley Road, take a left at Fort Hill Road, serve the housing complex and then return to Route 7 just north of the Big Y. The deviation has the benefit of providing service to the Big Y, but requires elimination of service on Route 7 between its intersection with Route 7 and Sunny Valley Road and Bridge Street.

It is recommended that this deviation, if running time permits, be provided in the peak period in the outbound direction only on 2 morning and evening trips.

CityCenter Danbury Trolley

Trolley ridership, although low, has rebounded since the schedule was integrated with the Urban Fixed route service. The current schedule is hampered because it only operates three days per week.

- Service to Kenosia Park generated no ridership during sampling. HART should work with WCSU staff to reconfigure the trolley service through the campus to provide more convenient service to students in lieu of service to Kenosia.
- Provide service 5 days per week between 9:30 a.m. and 2:30 p.m., if funding permits.

Job Access/LOOP routes

- Operate all LOOP routes with full size buses on Sundays and Holidays to eliminate capacity issues.
- The Newtown Road – South Street LOOP has significant running time problems. Service to Bethel is currently provided by request only, however, riders are making this request on almost every trip.

Schedule the deviation to Bethel Center. Eliminate or schedule service by request on Newtown Road east of Berkshire Shopping Center.

Rail Feeder Shuttle routes

- Continue monitoring of bus size to address capacity problems when they arise.
- A larger parking lot for Ridgefield-Katonah riders boarding in Lewisboro would be advantageous. HART has a long and frustrating history in terms of development of parking capacity here, but should continue to seek alternate lot locations.

Danbury-Norwalk Route 7 LINK

- Buses typically arrive in Norwalk ahead of schedule. Buses currently express to the Norwalk WHEELS hub on the Route 7 Connector, generating no riders on that segment.

Run service locally on Main Avenue to Main Street to the WHEELS hub on Burnell Boulevard.

VII. APPENDIX -- Route Maps

