

Greenwich/Norwalk Bus Rapid Transit Study

Study Overview and Recommendations

**Bus Rapid Transit Symposium
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Project Team

- **AECOM Transportation (Lead Consultant)**
- **TranSystems**
- **Herbert Levinson, P.E.**

Study Purpose

- Determine the feasibility of bus rapid transit (BRT) enhanced bus service in the mixed traffic of the U.S. Route 1 corridor
- Assess opportunities to attract new choice riders while maintaining or improving service for existing riders
- Devise a service and implementation plan for a more attractive bus service featuring BRT elements within a constrained budget environment

Route 1 Corridor Bus Ridership

Route 11A Portchester/Greenwich/Stamford Via Route 1

Route 11B: Portchester/Greenwich/Stamford Via Route 1 and other local roads

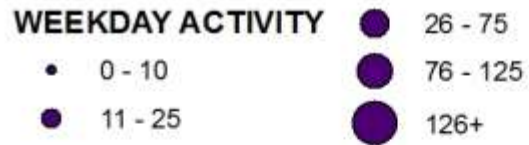
Route 41: Stamford/Darien/Norwalk Via Route 1

Route/Direction	Weekday Passengers	Saturday Passengers	Sunday Passengers
Route 11A Eastbound	476	283	192
Route 11A Westbound	547	290	193
Route 11B Eastbound	692	377	177
Route 11B Westbound	662	369	229
Route 41 Eastbound	1440	1180	567
Route 41 Westbound	1509	1116	569

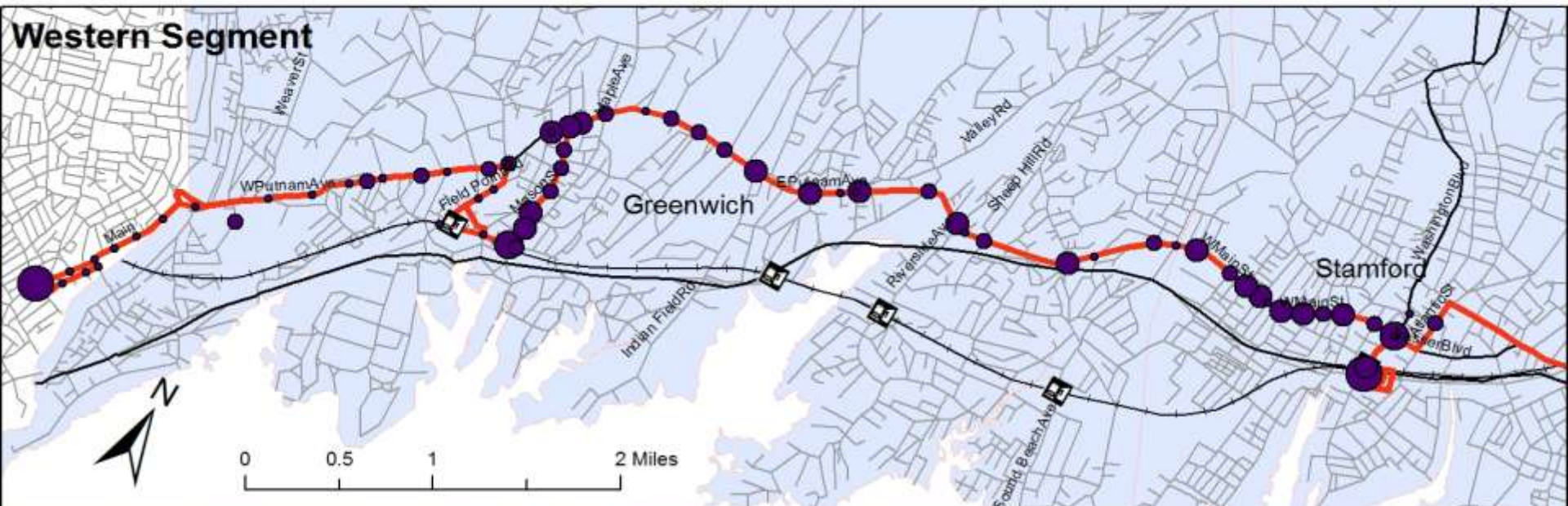
Source: CT Transit Trip Summary Reports, April 2006 - April 2008

Key Question: Is BRT viable considering the modest ridership levels on existing routes?

EASTBOUND - RIDERSHIP



July 2008



WESTBOUND - RIDERSHIP

WEEKDAY ACTIVITY

• 0 - 10

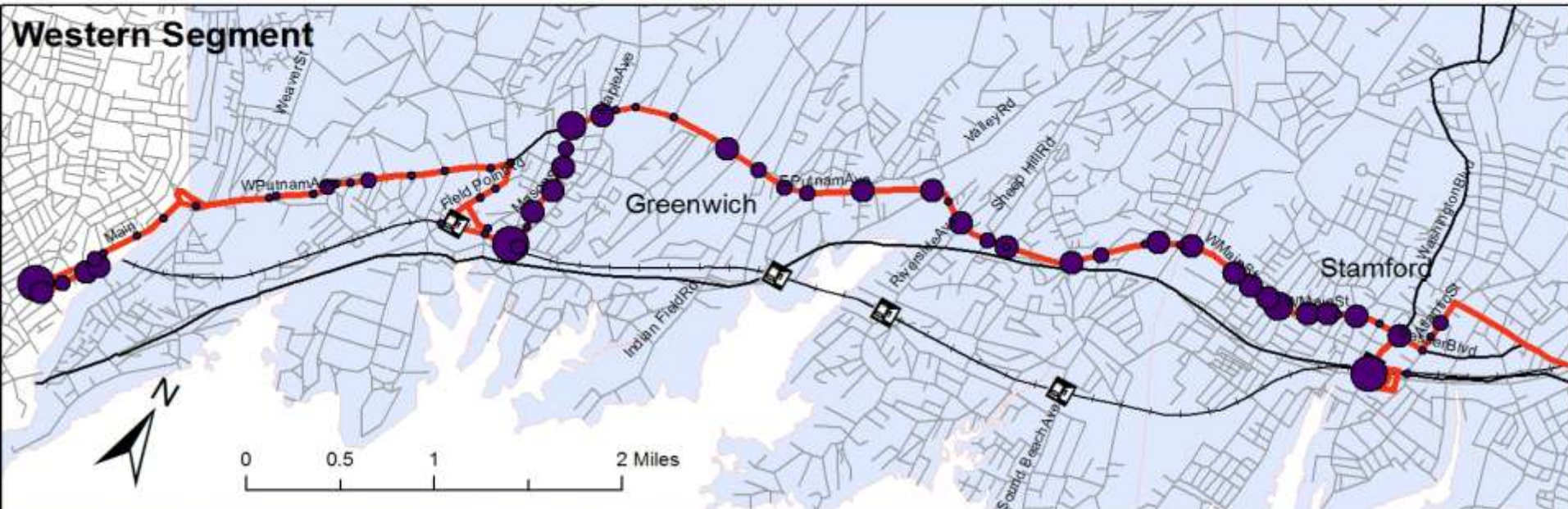
● 11 - 25

● 26 - 75

● 76 - 125

● 126+

July 2008



Car vs. Bus Travel Time

Trip Type	Car Trip Length	Bus Trip Length	Time Difference	% of Time Bus Moving	% of Time Bus Stopped
41 Eastbound	0:36:08	0:45:00	+24.55%	70%	30%
41 Westbound	0:32:08	0:46:09	+43.59%	68%	32%
11 Eastbound	0:39:57	0:49:10	+23.07%	68%	32%
11 Westbound	0:35:34	0:49:04	+37.94%	66%	34%

Summary of Key Findings Yielded from Data Collection

- CT Transit ridership has grown in recent years; reports of crowded conditions are common
- Bus travel times are affected by specific bottlenecks
- Travel times vary during the day
- Current bus ridership varies throughout corridor; High ridership and loads found in downtown/eastern Stamford
- Car commuters expect convenience and competitive travel times for bus service if they were to consider switching modes
- Stakeholders want to see BRT benefit transit and all road traffic
- The regional commuter market extends beyond the study corridor
- New development in selected areas should be tied to transit improvements such as BRT

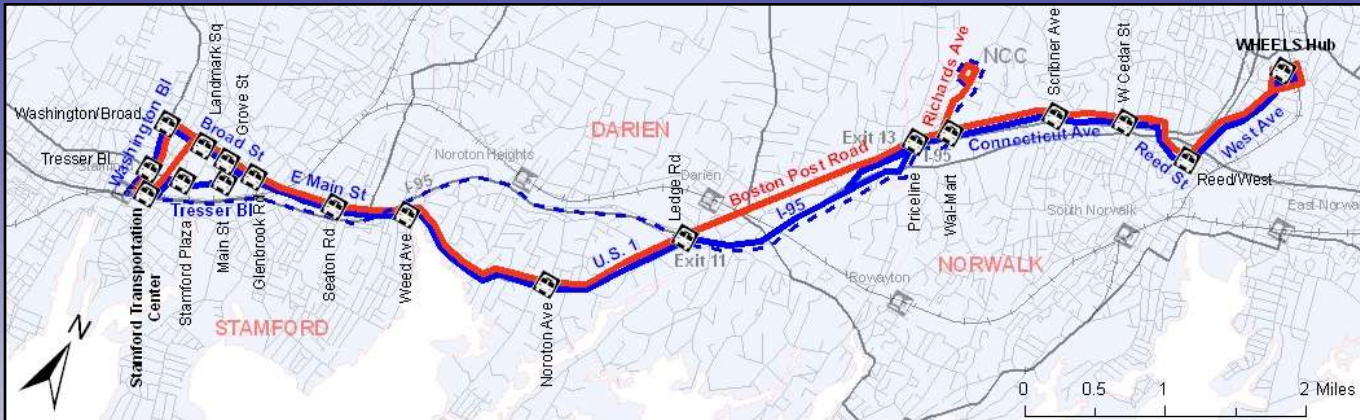
Route 1 Enhanced Bus Service

- Focus on faster travel times
- More frequent trips on consistent schedule
- New customer amenities and facilities; upgraded stops
- Real-time bus location information
- Transit priority signals at selected congested intersections
- Upgraded vehicles, preferably low-floor and hybrid
- Branding
- Described as Enhanced Bus Service, as the service frequencies are less than typical BRT headways

Enhanced Bus Service Plan

- Based on CT Transit Route 41 (Stamford-Norwalk)
- Stamford: New service to Tresser Boulevard
- Darien: Transit priority / Traffic signal improvements
- Norwalk: Long-range option to support development
- EBS Service operates 6am-7pm; local service remains unchanged
- Frequency: Peak = 30 min. EBS / 30 min. local
Off-Peak = 40 min. EBS / 40 min. local
- Fares for EBS mirror current CT Transit fares
- Park and ride facilities at up to three locations

Service Alternatives



Darien Option 2



Norwalk Option 2



Norwalk Option 3



- Bus Rapid Transit (BRT)
- - - Stamford - NCC Express
- Local Service (CT Transit Route 41)
- Potential BRT Stop Location

Enhanced Bus Service – Ridership

- The combined EBS / local Route 41 service plan is estimated to generate an additional 142,545 annual riders

Enhanced Bus Service – Capital Costs

	Estimated Capital Cost (\$)	
	Low	High
5 EBS Vehicles (low-floor, diesel-electric hybrid)	\$3 Million (\$600,000 per 40-foot vehicle)	\$5 Million (\$1,000,000 per 60-foot vehicle)
ITS Components - Infrastructure	\$465,700	\$822,250
ITS Components - Communications	\$93,635	\$93,635
ITS Components – EBS and Route 41 Vehicles (12)	\$126,600	\$250,800
Traffic Signal/Transit Priority	\$47,000	\$54,000
Estimated Total Capital Cost	\$3,732,935	\$6,220,685
Stations/Shelters	\$15,000 each	\$200,000 each

Enhanced Bus Service – Operating Costs

	Estimated Annual Operating Cost (\$)	
	Low	High
CT Transit Bus Operations*	\$400,350	\$400,350
ITS – Infrastructure	\$36,398	\$58,702
ITS – Communications	\$21,080	\$21,080
ITS – Vehicles (12)	\$5,988	\$10,960
Total	\$463,816	\$491,092

* Incremental annual cost relative to current Route 41 services during EBS hours

Enhanced Bus Service – Implementation

- EBS components implemented simultaneously
- Phasing of vehicle / capital improvements is not recommended
- Municipal input required on design decisions
- Marketing of services is critical
- Anticipated Implementation Timeframe: 1.5 to 2 years following delivery of vehicles, provided ITS procurement occurs in a timely fashion

For More Information:

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