



*Bus Transit Needs Analysis –
Connecticut 2007*

Final Report

Prepared for
Transit for Connecticut

Prepared by
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Introduction

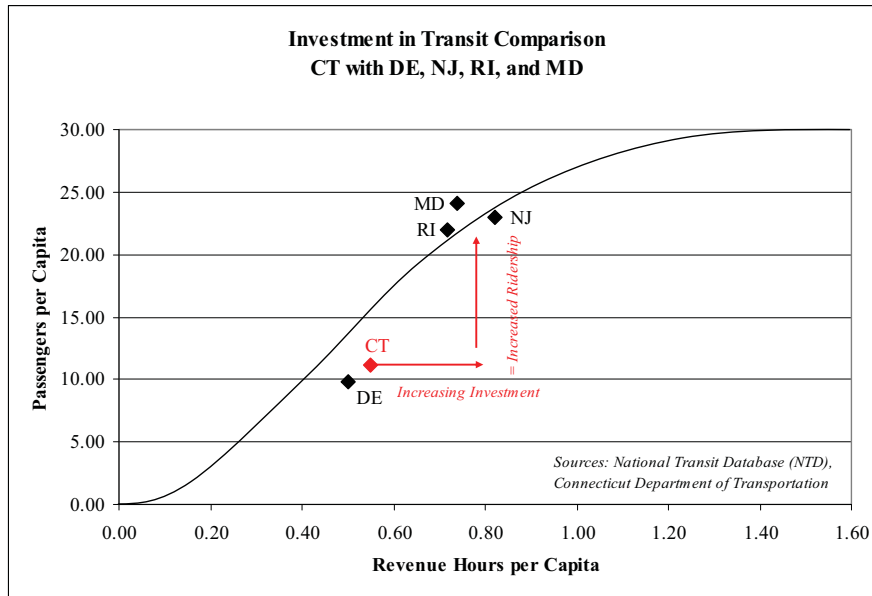
This study is a plan for bus service investments that will support the economic development future of the State of Connecticut. Its mission is to identify the range of benefits which can accrue from investing in bus transit and to determine how investing in these improvements to today's bus infrastructure will contribute to job access, emerging intra- and inter-state markets, smart growth, economic development, environmental quality, and congestion relief.

Over the past fifteen years, service levels have stayed fundamentally the same or have even declined slightly due to inadequate funding streams. However, even as this was happening, initiatives for improved job access by the state and federal governments and economic development initiatives from the Transportation Strategy Board recognized changing and unmet travel needs throughout the state and added some new services. This study focuses on continuing and expanding upon these initiatives to build a strategic vision and bus service plan that will take us into the future.

Comparison with other Northeast States

One of the core comparisons that was examined to determine possible shortcomings in service levels was a comparison with other states on the eastern seaboard with similar operating environments. The comparison revealed that Connecticut invests less in transit per capita when compared to several other selected peer states. Figure I-1 shows that if the statistical relationship shown in other states between service hours and ridership held up here, Connecticut would be able to dramatically increase bus transit ridership by investing more in public transportation through increasing service hours. The likely shortfalls in service indicate that Connecticut needs more comprehensive coverage of the hours people travel and enhancements to the service area to serve those destinations they desire to access.

Figure I-1: Comparison in Investment between Connecticut and Peers



Project Description

This project represents a unique opportunity to formally identify and present measurable transit service goals in Connecticut to guide near term investments in existing and new services as well as capital fleets and facilities.

The project presents the case for enhanced bus transit funding and demonstrates the role that a robust bus network plays in economic development and vitality, job access, congestion mitigation and air quality improvements.

Transit is an economic tool providing mobility that aids employment, helps reduce congestion and pollution, and allows communities to provide necessary connections. A strategic bus service plan, which includes a financial element that identifies the maximum operating and capital investment required for its implementation, will create a transit network that will provide service that matches local, regional and state growth, and that increases the desirability and use of transit service as a mobility option.

Finally, the study addresses the stagnant service levels and sets the transit properties in Connecticut on a path towards progressive service provision for their respective communities.

Chapter 1: Connecticut’s Towns and Transit Districts

This chapter includes information on Connecticut’s towns and transit districts and discusses how Connecticut’s regions vary by level of development and connectivity. This study uses *transit service areas* as units of study due to the variety of operating environments that exist throughout the State. Some of these transit service areas as transit districts, some are individual towns, and some are regions with service provided by CT Transit.

Study Area

This study considers all regions of Connecticut. Connecticut’s 169 towns are grouped by transit service area for ease of comparison and because the communities in each service area depend upon each other (and in general, a single large metropolitan center) and function regionally. Towns that do not belong to any transit district and towns that do not receive fixed route transit service are considered separately. Towns are listed by their transit service areas in the Technical Appendix and are shown on the map in Figure 1-1.

Figure 1-1: Connecticut Transit Districts and Fixed Route Services

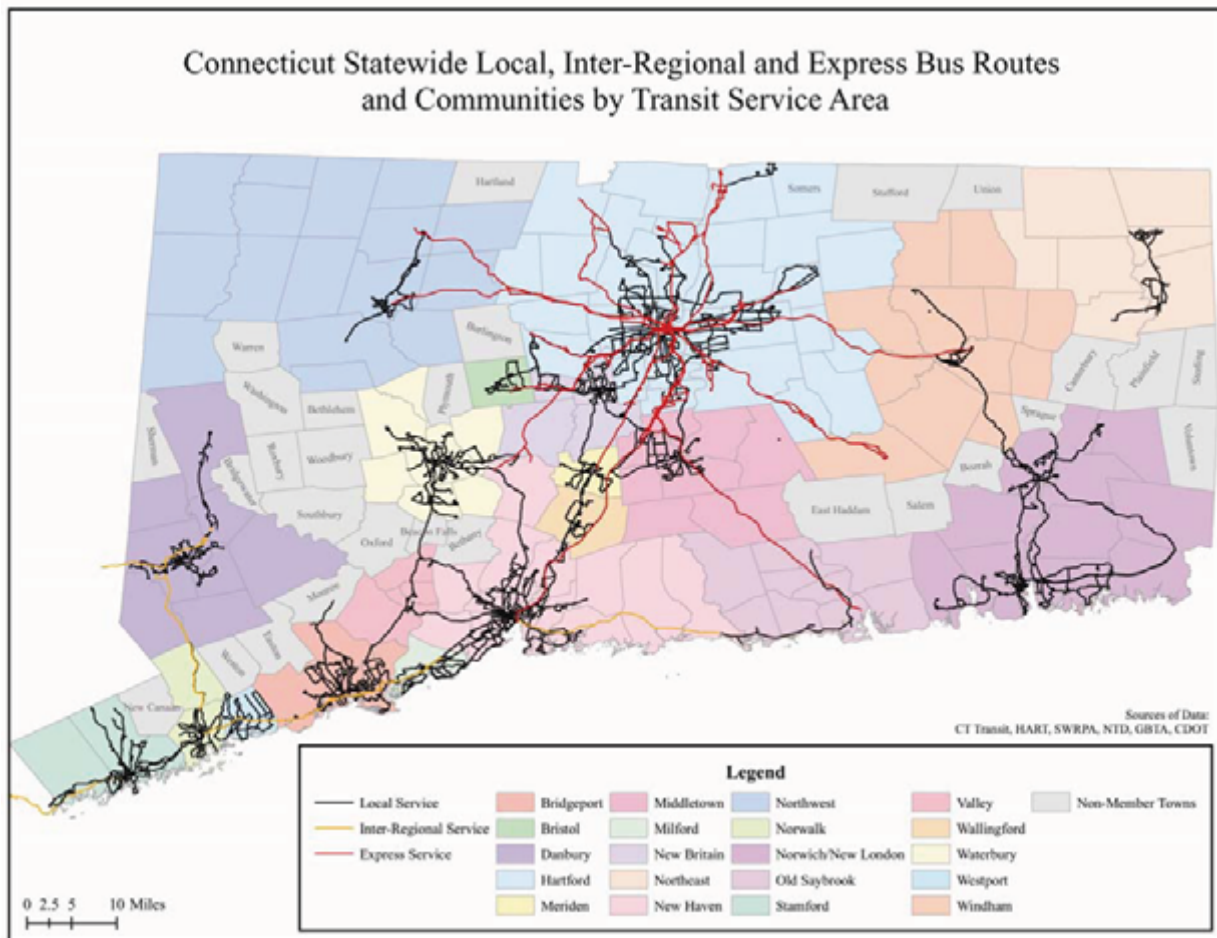
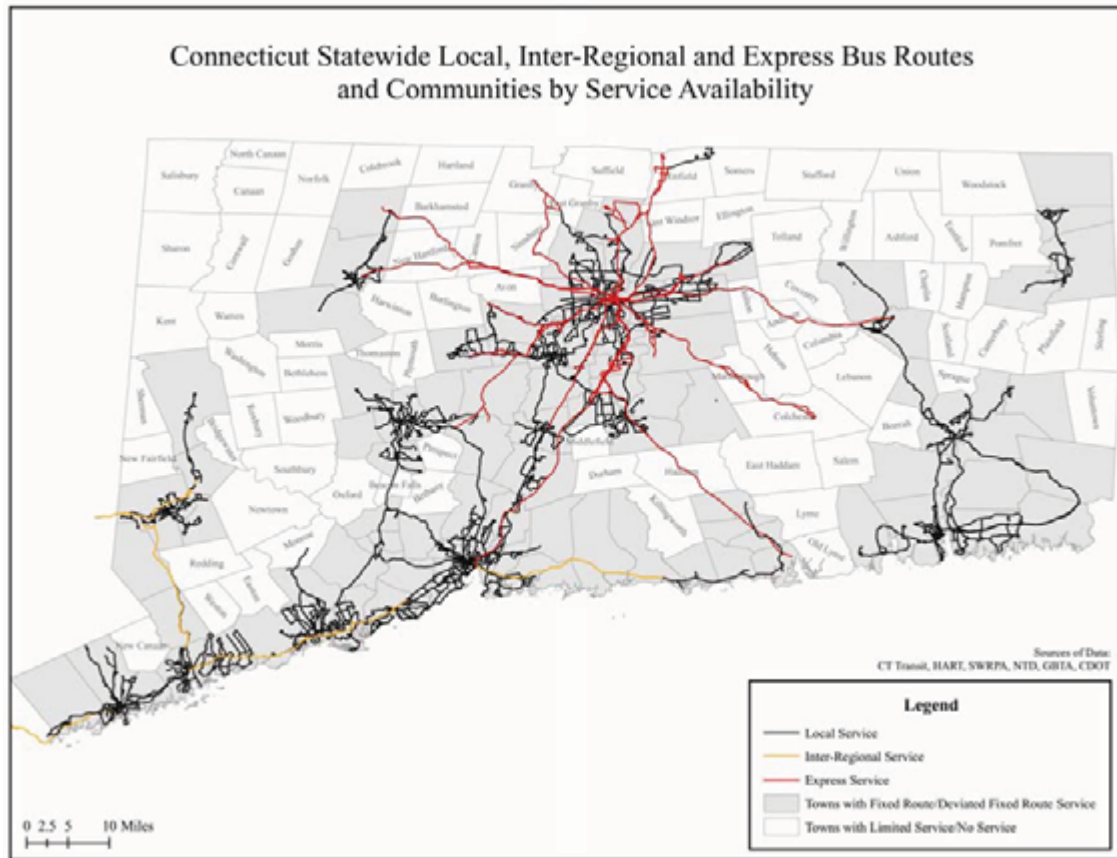


Figure 1-2 shows current fixed route, express and inter-regional routes, and illustrates the large number of towns that do not have any of the traditional types of transit service.

Figure 1-2: Bus Service Coverage for Connecticut Communities



Transit service areas are further classified based by level of development and population, business and transportation density from a Connecticut standpoint. Each service area is classified as major urban, medium/large urban, small urban or rural, as follows:

- Major Urban
 - Hartford (CT Transit)
 - New Haven (CT Transit)
 - Bridgeport (GBTA)
- Medium/Large Urban
 - Stamford (CT Transit)
 - Waterbury (CT Transit)
 - Danbury (HART)
 - New Britain (CT Transit)
 - Norwalk (NTD)
 - Norwich/New London (SEAT)

- Milford (MTD)*
- Small Urban
 - Middletown (MAT)
 - Wallingford (CT Transit)
 - Meriden (CT Transit)
 - Bristol (CT Transit)
 - Valley (VTD)*
 - Westport (NTD)*
- Rural
 - Northeastern CT TD
 - Northwestern CT TD
 - Estuary TD
 - Windham TD

The Technical Appendix provides more detailed information on transit service areas and town allocation.

* Milford, Valley, and Westport are special cases and are discussed in detail in the Technical Appendix.

Chapter 2: Benefits of Bus Transit

Enhanced public bus transportation throughout Connecticut can lead to a number of economic, social, and environmental benefits that are complementary and interrelated. Public transportation provides an alternative to single-occupant automobile travel which is increasingly causing congestion on the roadway network.

Bus transit can offer viable options for improved access to jobs and benefits to the environment and economy. Importantly, enhancements to bus transit are most often possible with significantly shorter implementation timeframes than capital-intensive transportation investments and can provide greater flexibility to adapt to changing demand.

Employees and Employers Benefit

Public transportation provides economic benefits both to individual users and to the economy as a whole. Employees benefit through better access to employment and educational opportunities, while employers benefit from a larger labor pool having access to their sites. Increased investment in Connecticut's bus transit network will make the State more competitive in attracting new businesses and retaining existing employers.

The American Public Transportation Association (APTA) recently released a research report that stated that households that are likely to use public transportation on a given day save over \$6,200 every year when compared to households with no access to transit². When households are able to reduce commuting and travel expenses, these savings are typically spent on goods and services, further bolstering the local economy through additional tax revenue. For each dollar earned, the average household spends 18 cents on transportation, 98% of which is for buying, maintaining, and operating cars; the largest source of household debt after mortgages.

When the overall transportation network is made more efficient, all users benefit, not only transit users. Businesses also benefit as deliveries can be made in more timely fashion due to reduced congestion, lowering shipping costs that are typically passed on to consumers.

Finally, several studies have shown that investment in transit can yield up to three times that value in economic benefit. The

investment in transit service is directly tied to financial savings and increased economic activity of transit users (both choice and dependent riders), increased spending on goods and services and

“Improved bus service linked to investments in rail will enhance the economic outlook for Connecticut by reducing congestion on our highways and encouraging employers to grow jobs in Connecticut.”

- Joseph McGee, Vice President, Public Policies and Programs
The Business Council of Fairfield County

² Public Transportation and Petroleum Savings in the U.S.: reducing Dependence on Oil. January 2007. American Public Transportation Association.

corresponding tax revenue generation by transit agencies, as well as job creation from both capital projects and ongoing transit operations.

APTA has determined that every \$10 million invested in transit capital projects yields \$30 million in business sales, and the same \$10 million investment in transit operations produces \$32 million in economic activity in the community.

Better Job Access, Healthcare, and Personal Mobility

The mobility afforded by public transportation provides a number of direct benefits from a social perspective, including access to employment, education, medical, social and recreational activities.

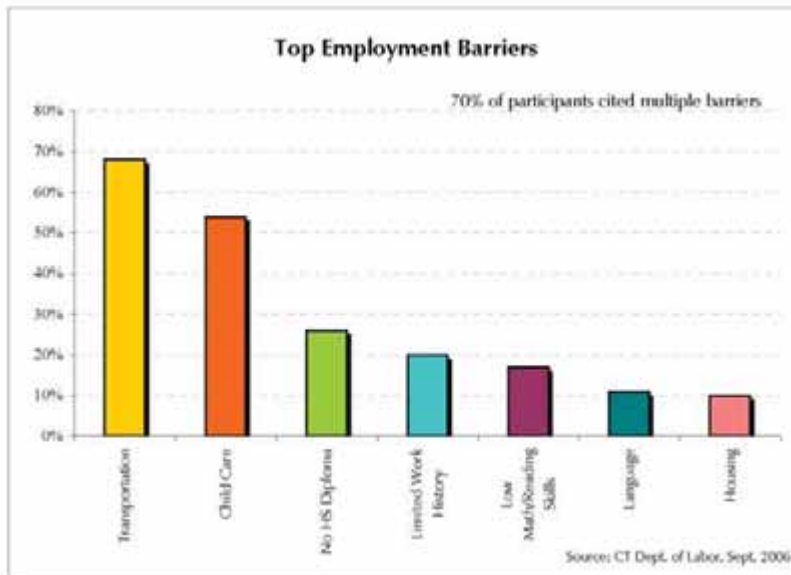
Employment and Education

Studies by the Connecticut Department of Labor indicate that 68% of Jobs First Employment Services participants cite transportation as the most significant barrier to employment (see Figure 2-1). Access to transportation is also a barrier for certain segments of the population such as the elderly, disabled, and low-income households. Furthermore, increased use of transit can play a beneficial role in promoting public health and safety.

“In a recent survey, 77% of riders reported that new bus and shuttle services enabled them to secure their jobs, and 41% reported that without their bus service, they would be unable to maintain employment.”

- Joseph M. Carbone, President and CEO
**The WorkPlace, Inc., Southwestern
Connecticut’s Workforce Development Board**

Figure 2-1: Top Employment Barriers



Perhaps most importantly, public transportation provides increased opportunity for employment and community access. This mobility supports the spectrum of job access initiatives, whether through express bus service to urban cores, reverse commute services, or increasingly important suburb-to-suburb connections and flexible rural services.

Health Care

Mobility and access for all residents, senior citizens and the disabled in particular, represent a fundamental benefit of increased bus service throughout Connecticut. In the State of Connecticut, the senior population is expected to grow substantially, 46% between 2000 and 2025, with most of that growth occurring after 2010. For senior citizens, maintaining mobility goes hand in hand with the concept of “aging in place”, or aging at home and with community-based health care as opposed to moving into nursing homes or other facilities.

Increased public bus transportation, particularly in areas that currently do not have any transit service, furthers the goal of helping residents age in place, and in turn leads to substantial economic savings as more Medicaid clients are able to access community-based care making aging in place more practical and avoiding the need for institutionalization in nursing homes.

To age in place, however, requires options for mobility for a segment of the population that is either unable or not inclined to rely on the personal automobile for transportation. States such as Oregon and Maine have been cited as model states, achieving an ‘optimal ratio’ of 75% of Medicaid long-term care clients receiving community-based care to 25% receiving care in institutions. Increased transit and new transit service areas in Connecticut would support this goal of reaching the optimal ratio and provide savings of up to \$1.2 billion by 2025 by holding the number of individuals served constant and increasing the proportion of community-based care recipients to 75%.³

The Governor’s Budget Summary for FY2003-FY2005 shows that home health care and assisted living provide dramatic cost savings relative to nursing care. Average monthly costs for home health care are \$1,180 and assisted living costs average \$1,450, while nursing homes can cost clients an average of \$5,177 per month.

Access to Community

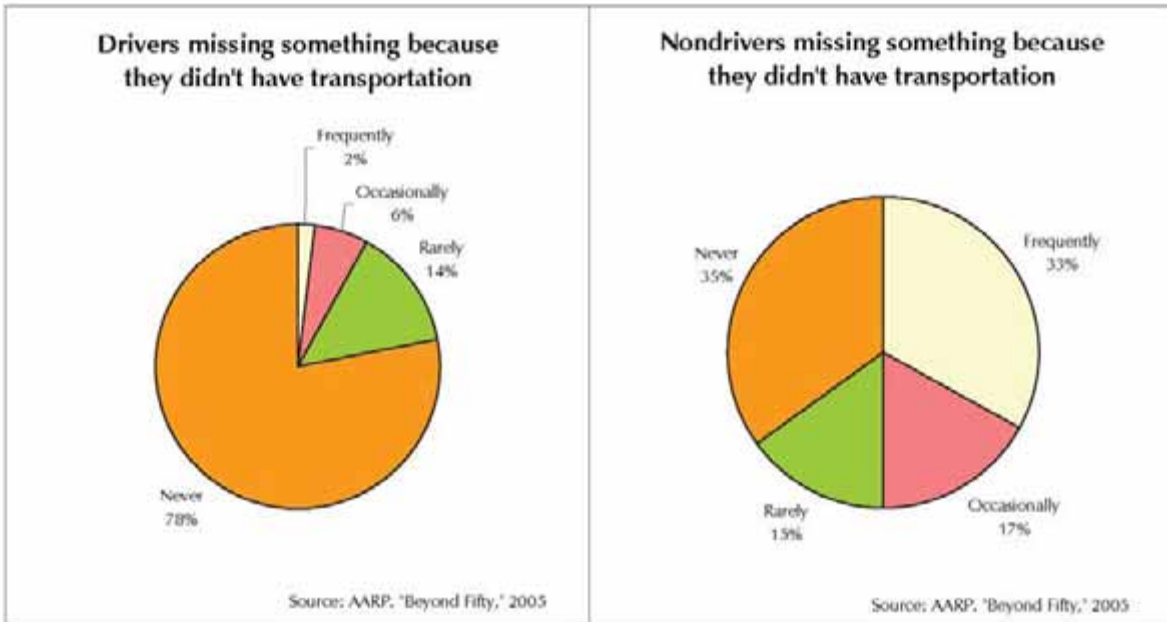
As access to the community is increased through greater mobility, barriers that lead to social isolation among transportation-disadvantaged populations are removed. Mobility represents a quality of life issue for all Connecticut residents, and non-drivers lose the ability to participate in the community and the economy (see Figure 2-2).

Compared with senior citizen drivers, non-driving senior citizens make:

- 15% fewer trips to the doctor
- 59% fewer shopping trips and restaurant visits
- 65% fewer trips for social and family activities

³ State of Connecticut, Governor’s Budget Summary FY2003-FY2005, February 2003, p. 73.

Figure 2-2: Senior Citizen Transportation Choices



Nationwide, more than 20% of Americans age 65 and older do not drive, whether due to declining health, concerns about safety, lack of access to a car, or personal preference. Furthermore, just as public transportation promotes responsible growth and transit-oriented development, a safe and inviting walking environment encourages transit use, particularly among older residents. More than half of older non-drivers use public transportation occasionally in denser, more livable communities, as opposed to 1 in 20 using transit in more spread out areas⁴.

Better for Our Environment

Public transportation has long been recognized as an efficient, environmentally sound means of travel, particularly in relation to the single-occupant automobile. In addition to the efficiency offered by bus transit on a per-trip basis, multi-modal connections such as those between rail and bus enhance the use of transportation modes other than the automobile. Public transit can enhance the efficiency of the entire transportation network as more individual person trips are combined in fewer vehicles. This increased efficiency and connectivity can help manage overall traffic congestion and by extension lessen environmental impacts.

Reduced traffic congestion and fewer vehicle trips reduce pollution. Similarly, clean diesel engine technology will further reduce particulate and greenhouse emissions and increased ridership encourages alternatives to the single occupant automobile.

⁴ Aging Americans: Stranded Without Options. Surface Transportation Policy Project. 2004.

Supporting Responsible Growth

Transit supports Responsible Growth and Transit Oriented Development initiatives designed to reduce sprawl. Reducing infrastructure costs and lowering vehicle miles traveled (VMT) are possible through targeted growth in developed areas rather than unmitigated sprawl. According to the Research Institute for Housing America, the potential savings in development costs through smart growth measures nationally can approach \$250 billion over 25 years. Tailoring this nationwide estimate to Connecticut’s population, savings in the State could reach \$2.7 billion by 2025, with 20% (\$540 million) of those savings stemming from road and land use savings to state and local governments.⁵

Clean Vehicles, Less Pollution

Increased provision of transit service also supports the goals of the Connecticut Climate Change Action Plan, including the goal of doubling ridership levels statewide by 2020 and a corresponding reduction in VMT below the 2020 baseline. Connecticut transit systems are already in the process of replacing conventional diesel buses with clean diesel models, and this investment program furthers the goal of a comprehensively clean vehicle fleet statewide. Each clean diesel bus provides a decrease in pollution relative to older buses and individual automobiles.

“Doubling bus transit use in a cost-effective manner is one of the goals of our State Climate Action Plan and will reduce global warming pollution by hundreds of thousands of tons each year.”

- Curt Johnson, Program Director and Senior Attorney
Connecticut Fund for the Environment

The efficiency of high-occupancy public transit relative to single occupant automobile use leads to broad savings in energy consumption, particularly the demand for gasoline. Current public transportation usage nationwide reduces gasoline consumption in the United States by 1.4 billion gallons each year, according to a 2007 ICF International/APTA study. The savings represent the efficiencies gained by carrying multiple passengers in each vehicle, reducing traffic congestion by removing automobiles from the roads, and the varied sources of energy used for public transportation. At both the national and the local level, this means fewer cars filling up at the gas pump and fewer truck deliveries to service stations, which leads to an overall reduction in congestion and corresponding increase in efficiency of the transportation network.

⁵ Linking Vision with Capital-Challenges and Opportunities in Financing Smart Growth. Research Institute for Housing America. Institute Report #01-01.

Chapter 3: Methodology

Transportation, by any mode, provides mobility. Transportation is thus a means to an end and not the end itself; it provides the link between individuals and the places and services to which they want to go.

A transportation system's output is measured by the number of trips provided for individuals to reach these places and services. The success of the system is therefore measured in how well it provides mobility and access. The greater the number of choices provided and destinations served, the better the network will be in meeting the needs of its residents.

Bus transit is an important element of a comprehensive transportation system. It provides mobility for those who do not have a car or access to a car, to those with limited incomes who may have car but find it expensive to use and maintain, and to those who choose to use the bus in lieu of their car to save money, to avoid contributing to congestion, or to reduce energy consumption and environmental pollution.

Bus transit services in Connecticut, as presently configured and funded, do not meet all of the needs identified in local planning processes. An examination of information supplied from the Connecticut Department of Transportation (CDOT) Statewide Bus Study (2000), local transit studies, and surveys of Connecticut Association for Community Transportation (CACT) members identify a range of service needs – more frequent peak hour services, evening hours, Sunday services, additional capacity on overcrowded routes, services to decentralized job locations, etc., which cannot be met within existing budgets.

The purpose of this project is to quantify the extent of the unmet needs for bus transit service in the State and to translate these needs into estimates of operating and capital expenditures required to address them efficiently.

Methodology for Determining Unmet Need

Determining the magnitude of unmet need for bus service in Connecticut requires three steps:

1. Identification of the existing use of bus transit in Connecticut, which is readily available from operator and CDOT statistics.
2. Identification of total need for bus transit service, which requires the development of a modeling tool.
3. Determination of the gap between current use and total need, which is identified as the unmet need for bus transit service.

The total need for bus transit is based upon the relationship of ridership to the amount of bus service currently provided in each system in the state, with the systems stratified into groups representing similar sized systems and communities.

An examination of the services in Connecticut compared to research conducted for other states confirms that the number of trips taken per capita in areas of similar size is related to the amount of service provided, as measured by hours of service per capita. In other words, if an area has a low level of service for the size of its community, it will likely result in low levels of ridership, simply because the system is not large enough for the area, doesn't get close enough to residents' homes, or doesn't serve enough places or hours in the day. As the service gets better – e.g., as more hours are provided per capita – it serves more people and places, and therefore carries more riders. At some point, however, enough hours will be provided such that any additional hours of service will not result in significant increase in riders. It is at this point that the system has reached its logical full development and saturated the market, theoretically reaching all unmet needs.

By plotting the relationship between supply (service hours per capita) and demand (trips per capita) for each group of systems (major urban, medium/large urban, small urban, rural), the methodology defines the total need for bus services in each area of the state. By subtracting the trips currently being taken from the total unmet need, an estimate of unmet need for each area can be calculated. The methodology is described in more detail in the Technical Appendix.

Other needs were also estimated including unmet needs for Americans with Disabilities Act (ADA) paratransit services, express services, and services to currently unserved towns. Methods for calculating these unmet needs are also discussed in detail in the Technical Appendix.

Categorizing Unmet Need

A total figure for unmet need by transit district was determined using the methodology described in the previous section. After determining the total amount of need, the types of needs were then evaluated by transit district. In general, types of need identified included longer operating hours and more frequent service, service expansion to new locations, more inter-regional and express services, and more rural dial-a-ride service to underserved towns.

Transit need was categorized using two methods. The first involved using the updated service frequency and span standards identified in the 2000 Connecticut Statewide Bus System Study to bring all transit agencies up to the standard level of service. Table 3-1 presents frequency and span standards updated from the original 2000 Connecticut Statewide Bus System Study. In some cases, bus routes are referred to as 'core' or 'other.' Core bus routes are generally the most popular bus routes serving the destinations with highest demand and operating along major corridors. The other routes service secondary roads and carry fewer passengers.

Table 3-1: Service Frequency and Span Standards

Measure	Rural	Small Urban	Large Urban	Major Urban	Express Corridors
Frequency					
Peak Headway	demand driven	30 core, 60 other	20 core, 30 other	15 core, 30 other	maximum 30
Off-Peak Headway	demand driven	30 core, 60 other	30	30	60-120
Saturday Headway	N/A	30 core, 60 other	30	30	N/A
Sunday Headway	N/A	N/A	30	30	N/A
Span					
Weekday Span	6 AM - 6 PM	6 AM - 6 PM core, 6 PM - 10 PM reduced evening service	5 AM - 11 PM	5 AM - 11 PM	6 AM - 7 PM
Saturday Span	N/A	6 AM - 6 PM	6 AM - 11 PM	6 AM - 11 PM	N/A
Sunday Span	N/A	N/A	8 AM - 6 PM	8 AM - 6 PM	N/A

Each transit provider was evaluated separately and the number of hours of service needed to bring the operator up to the appropriate standard of service was estimated using the operator’s current (2007) schedule of services. The methodology and results are discussed in detail in the Technical Appendix.

For the second portion of the need categorization, transit providers in Connecticut also participated in a survey prior to this study to address how increased investments could be directed in their districts. The survey was conducted by the Connecticut Association for Community Transportation (CACT). The survey identified areas for fixed route expansion, new express and inter-regional services, capital requirements, and new demand responsive services in addition to frequency and service span increases. In order to avoid double-counting need, frequency and span increases were only quantified based on schedules as described above and were removed from the CACT survey responses. Capital needs from the CACT survey also include new facilities, technology upgrades and rolling stock. The Technical Appendix includes the results from the CACT survey.

After the needs were calculated and categorized, operating and capital costs were calculated based on need level and types of needs. Operating costs were determined using each transit provider’s operating cost per hour, calculated from 2005 annual figures provided to the Connecticut Department of Transportation. Capital costs were determined based on whether or not service was being expanded during peak or off-peak hours and whether or not there were facility requirements for the increased level of service. The calculation of these costs is discussed in greater detail in the Technical Appendix.

Chapter 4: Service Program

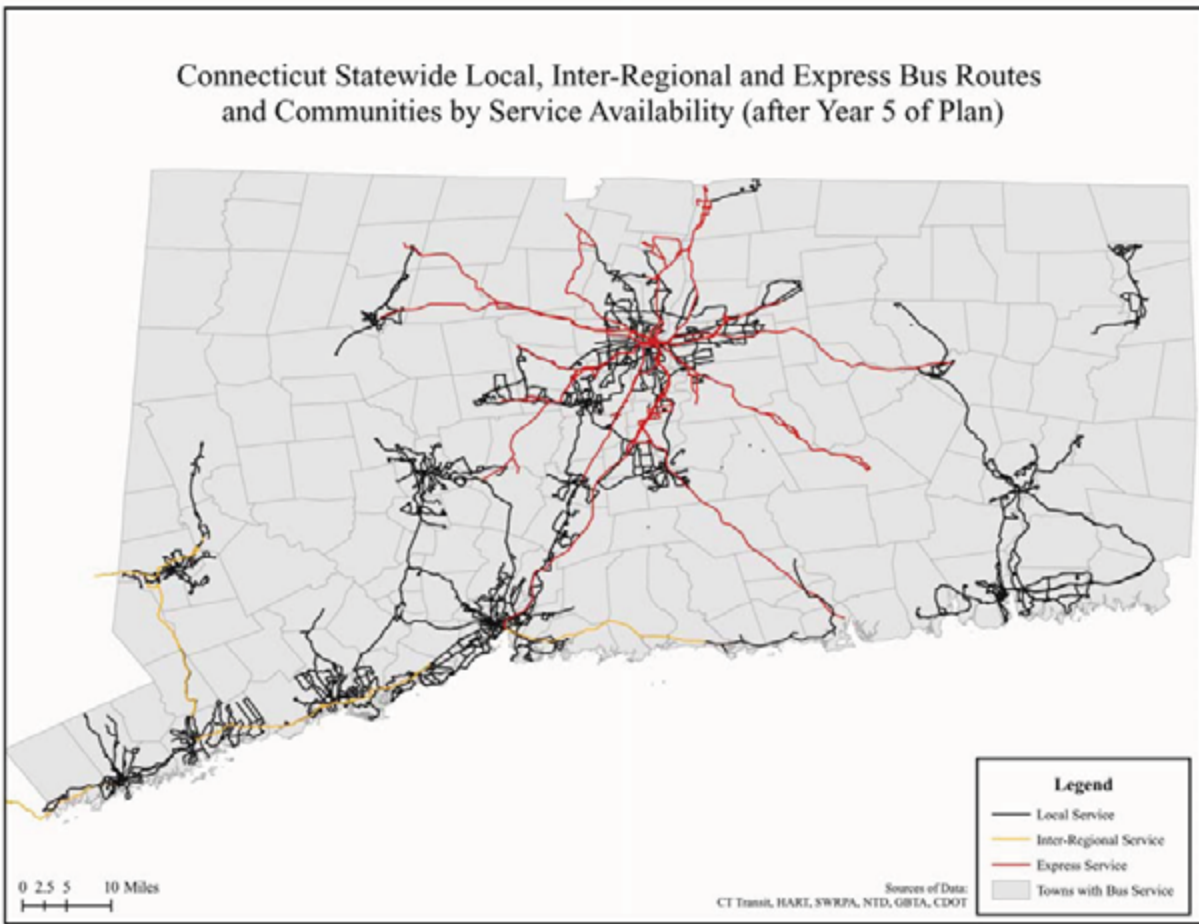
This program proposes 1.8 million more annual hours of service statewide, phased in over five years and has the potential to increase bus ridership by 81%. Connecticut can best achieve improved access and mobility through the following enhancements:

- More frequent service so that bus transit is more convenient for commuters, reduces overcrowding during peak periods, and reduces waiting time for all riders, including seniors and persons with disabilities
- Later evening hours, which open up a new pool of jobs for employees and a new labor force for employers
- Weekend services that allow patrons to make social, recreation, and shopping trips, while allowing employees to find jobs that require weekend work hours
- Service in towns where little or no service is currently provided, expanding mobility options for seniors and people with disabilities, and providing links to inter-regional and express services for all residents, including commuters
- New/expanded services to provide access to decentralized job locations, retail establishments, and other destinations
- More frequent express services operating longer spans of service to give commuters more flexibility
- New express bus routes to serve additional markets and provide job access for an expanded labor pool
- Bus Rapid Transit (BRT) along major corridors to improve the speed of bus services and provide more attractive mobility options for commuters
- New Commuter Connection options to provide bus/rail connections that enhance the investment in rail service and provide options for commuters between their residence and the rail station and between the rail station and their place of employment
- Increased inter-regional services, both in geographic extent and in frequency of service, to provide mobility options for Connecticut residents and greater access to jobs

These services will be phased in over five years and have the potential to nearly double bus ridership by the end of the implementation period. These services are presented in detail in the following section. The associated costs of implementation are discussed in the following chapter.

After the five years of the implementation period are complete, all Connecticut towns will have bus service of some type and the coverage will look like the map in Figure 4-1. Current fixed route, interregional, express, commuter, and deviated fixed routes are included on the map but will be evaluated and new services will be implemented on a local basis, so the route structure may change throughout the implementation period.

Figure 4-1: Post-Program Bus Service Coverage and Current Route Structure



The types of services that are needed in Connecticut are described in Table 4-1 along with the estimated number of vehicles needed to provide the service. The hours needed to bring all agencies up to service frequency and span standards are listed in the first seven lines of the table. Hours to be used for expansion of service, Commuter Connections, BRT applications, and other services (including non-ADA paratransit services) are grouped into one box at the bottom of the table. The exact distribution of the hours was not determined as part of this project as the decisions on how to divide the hours by agency, regionally, and among all the other services will be made based on plans and comparative needs analyses completed at the local level after this study.

For local fixed route service augmentation and expansion, Commuter Connections, BRT, and non-ADA paratransit services, there is the equivalent of 1.17 million service hours of unmet need in the State. Meeting these needs would require an additional 252 vehicles be purchased and put into service. Of these totals, the need for expansion and other improvements (not including frequency and span upgrades) total 472,600 hours and 175 vehicles.

Table 4-1: Unmet Service Needs by Type of Service and Estimated Additional Vehicles

Types of Services	Additional Annual Hours of Service	Additional Annual Passenger Trips	# Additional Vehicles	
Existing fixed route operations - total projected	1,170,000	24,090,000	252	
Weekday peak period service frequency	135,600	24,090,000	54	
Weekday off-peak period service frequency	218,300		0	
Saturday service frequency	58,300		23	
Sunday service frequency	34,700		0	
Weekday hours of service	187,700		0	
Saturday hours of service	52,600		0	
Sunday hours of service	12,400		0	
Expansion/improvements	472,600			175
New routes				
BRT operating hours and expenses				
Commuter connections				
Other				

Other types of services are also needed in Connecticut. Many towns do not have bus service of any kind. These towns need at a minimum dial-a-ride service for seniors and persons with disabilities, but more ideally general public dial-a-ride service or even deviated fixed route service depending on demand. This analysis looked at each town in Connecticut that currently does not have local fixed route bus service. Transit need was calculated for each town based on its type – rural or small urban. Statewide, unmet annual transit need in the form of service to areas currently without service is 403,700 hours and is estimated to serve 1.9 million passenger trips. This service could be provided in a variety of ways, ranging from existing transit districts expanding to serve these towns, to towns operating the service on their own, creating new transit districts, or using private operators contracted by the State.

When the fixed route service around the state is augmented, corresponding ADA paratransit service must also be expanded based on federal regulations. ADA service must be provided during the same operating hours as the fixed routes and must provide service to all eligible persons within 3/4 mile of a fixed route. Based on the proposed increases in fixed route service, it is estimated that ADA service would need to grow by 18% per year during the five year implementation period, adding a total of 72,500 hours of service and potentially serving 125,000 passengers.

Express services also warrant expansion. Based on the unmet needs calculation, express services need to be expanded by 110,800 hours annually. This could potentially increase ridership by 1.1 million passenger trips.

The following chapter describes the investments required to implement the services included in this program.

Chapter 5: Investment Program

The funding needed for implementation of the program falls into two categories: operating and capital. Operating funds are used to subsidize that portion of the cost to operate the service (including the cost of drivers, fuel, dispatching, administration, maintenance, etc.) that is not covered by farebox revenues. Capital funds are used to purchase equipment such as vehicles, facilities, shelters, communications equipment, etc. In order to fund the Transit for Connecticut program, the State would need to invest an additional \$12.7 million annually for 5 years, building to a total of \$63.6 million per year above the current 2005 operational budget for subsidizing the services. Over the 5-year period, the State would need to spend a total of \$215.4 million in capital expenses in order to purchase the necessary equipment to operate the new services and to purchase new equipment necessary to provide the amenities and technology needed to support the safety, security, and customer needs of a twenty-first century bus system.

Table 5-1 details the amount of operating and capital investment needed for each new type of service. Assuming a conservative 20% farebox return, fixed route operators would require an investment of \$38.6 million in operating funds by the end of the five-year implementation period, ADA services would require \$2.6 million, services to currently unserved towns would require \$19.3 million, and express services would require \$3.1 million. For capital purchases to implement the proposed services, fixed route operators would need \$96.7 million, ADA services would need \$1.9 million, new service to currently unserved communities would need \$11.2 million, and express services would need \$14.8 million. Other capital investments would also be required to implement the services and include \$5 million for parking for the new express services, \$10 million for non-vehicle related BRT capital (vehicles are included in the fixed route capital investment), \$5.9 million for additional vehicles, \$38.1 for infrastructure including expanded maintenance facilities, more bus stop shelters and more bus stop signs, and \$31.8 million for technology infrastructure including communications, fareboxes, etc.

Table 5-2 is a proposed staging of operating and capital costs for the five-year implementation period. The \$63.6 million in operating costs and \$215.4 million in capital costs are simply divided into five equal increments over 2005 dollars building to the total request after five years. The operating investment would increase by \$12.7 million every year for 5 years and the capital investment would be a straight investment of \$43.1 million per year.

These service proposals and costs build upon the existing level of service as of fiscal year 2007. They are independent of the elements of the Governor's 2008 budget proposal, not adjusting for increased expenses due to inflation and potential policy changes, and do not account for any proposed fare increases or other changes in policy such as free fares for seniors.

Table 5-1: Detailed Investment Program

Types of Services	Additional Annual Hours of Service	Additional Annual Passenger Trips	Additional Annual Operational Expenses	# Additional Vehicles	Additional Capital Expenses
Existing fixed route operations - total projected	1,170,000	24,090,000	\$48.3	252	\$96.7
<i>\$ in millions</i>					
Weekday peak period service frequency	135,600	24,090,000	\$5.6	54	\$21.7
Weekday off-peak period service frequency	218,300		\$9.0	0	\$0.0
Saturday service frequency	58,300		\$2.4	23	\$9.3
Sunday service frequency	34,700		\$1.4	0	\$0.0
Weekday hours of service	187,700		\$7.9	0	\$0.0
Saturday hours of service	52,600		\$2.3	0	\$0.0
Sunday hours of service	12,400		\$0.4	0	\$0.0
Expansion/improvements					
New routes					
BRT operating hours and expenses	472,600		\$19.3	175	\$65.7
Commuter connections					
Other					
ADA services	72,500	125,500	\$3.3	30	\$1.9
New services to unserved communities	403,700	1,870,000	\$24.1	162	\$11.2
Express services	110,800	1,140,000	\$3.9	37	\$14.8
Parking expansion for express services	N/A	N/A	N/A	N/A	\$5.0
BRT- non vehicle related capital expenses	N/A	N/A	N/A	N/A	\$10.0
Rolling stock	N/A	N/A	N/A	N/A	\$5.9
Infrastructure: Facilities, shelters, signs	N/A	N/A	N/A	N/A	\$38.1
Infrastructure: Communications, fareboxes, etc.	N/A	N/A	N/A	N/A	\$31.8
Total	1,760,000	27,230,000	\$79.6	481	\$215.4
Total after 20% farebox return	1,760,000	27,230,000	\$63.6	481	\$215.4

Table 5-2: Annual Staging of Investment Program

Suggested Annual Staging to Meet Total Unmet Need					
Expenses	Year 1	Year 2	Year 3	Year 4	Year 5
<i>\$ in millions</i>					
Operating Expenses					
Existing transit operators	\$9.7	\$19.3	\$29.0	\$38.6	\$48.3
ADA services	\$0.7	\$1.3	\$2.0	\$2.6	\$3.3
Express services	\$0.8	\$1.5	\$2.3	\$3.1	\$3.9
New services to unserved communities	\$4.8	\$9.6	\$14.5	\$19.3	\$24.1
Total	\$15.9	\$31.8	\$47.7	\$63.6	\$79.6
Anticipated Operating Revenues*	\$3.2	\$6.4	\$9.5	\$12.7	\$15.9
Anticipated Operating Subsidy Requirement	\$12.7	\$25.5	\$38.2	\$50.9	\$63.6
<i>\$ in millions</i>					
Capital Expenses					
Existing transit operators	\$34.5	\$34.5	\$34.5	\$34.5	\$34.5
ADA services	\$0.4	\$0.4	\$0.4	\$0.4	\$0.4
Express services	\$6.0	\$6.0	\$6.0	\$6.0	\$6.0
New services to unserved communities	\$2.2	\$2.2	\$2.2	\$2.2	\$2.2
Annual Total	\$43.1	\$43.1	\$43.1	\$43.1	\$43.1
Total Capital Requirements	\$215.4				

*Assumes 20% farebox recovery on operating cost

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