PROVIDENCE METROPOLITAN TRANSIT ENHANCEMENT STUDY

FINAL REPORT

MEETING CURRENT TRANSIT NEEDS AND GROWING OUR TRANSIT SYSTEM

DECEMBER 2009

RIPTA
RHODE ISLAND PUBLIC TRANSIT AUTHORITY

TRANSIT 2020

The future of Providence and all of Rhode Island is directly linked to developing a robust, sustainable transit network. The Rhode Island Public Transit Authority (RIPTA), with support from the City of Providence, has completed the Providence Metropolitan Transit Enhancement Study (the "Metro Transit Study") to help prepare RIPTA to enhance transit opportunities for Rhode Island. Envisioning the future of RIPTA and mapping out our role as Rhode Island's "Mobility Manager" is an unprecedented undertaking. It involves taking a close look at the needs of people and businesses across the state, considering new ideas and transit solutions, and identifying opportunities for change and growth. The Metro Transit Study takes the first step in advancing RIPTA's future vision for statewide mobility by building upon the work of important previous efforts such as the City of Providence's Transit 2020 effort. RIPTA would like to thank our partners in this effort:

METRO TRANSIT WORKING GROUP

Brown University

City of Cranston

City of East Providence

City of Warwick

Coalition for Transportation Choices

Cornish Associates

Grow Smart Rhode Island

Providence Foundation

Providence Warwick Convention & Visitors Bureau

Rhode Island Hospital

Rhode Island Statewide Planning

RI Senate Policy Office

RI Department of Transportation

RI Association of Independent Colleges and Universities

RI Economic Development Corporation

Sierra Club, Rhode Island Chapter

METRO TRANSIT CONSULTING TEAM

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L + A Landscape Architecture

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For more information or to obtain a copy of this report, please visit:

www.transit2020.com

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1. STUDY BACKGROUND

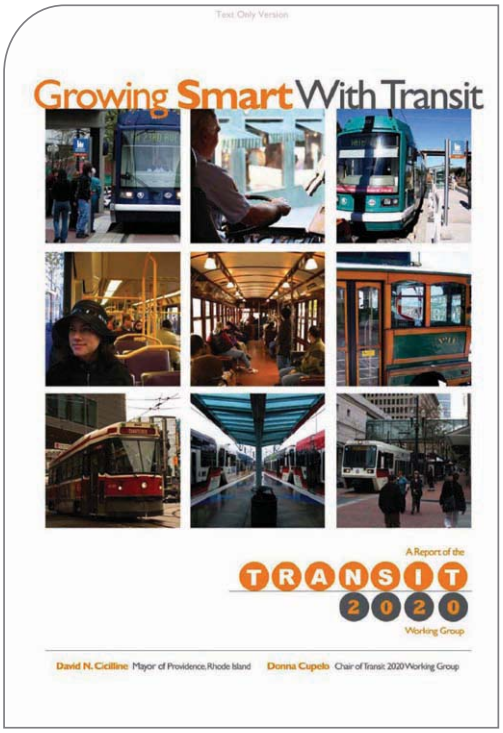
The time has arrived to reinvest in transit in Rhode Island. Over the last several years there has been a steadily growing recognition of the importance of transit and the essential role it plays in promoting overall mobility, environmental stewardship, and economic vitality. The Rhode Island Public Transit Authority (RIPTA), with support from the City of Providence, has completed the Providence Metro Transit Enhancement Study to help prepare RIPTA to build a more robust transit system for Rhode Island. This study is a first step toward helping us meet the growing demand for enhanced transit services in our capital city and the surrounding area.

Envisioning the future of RIPTA and mapping out our role as Rhode Island's "Mobility Manager" is an unprecedented undertaking. It has involved taking a close look at a number of assumptions, ideas, and opportunities, including building upon the work of previous efforts such as the City of Providence's Transit 2020.

1.1. TRANSIT 2020

In 2006, the Mayor of Providence, David Cicilline, convened a Transit 2020 Working Group to address the goal of building a more advanced public transit system for Providence and the surrounding region. Members of the Working Group represented a broad range of perspectives, including business leaders, municipal officials, Rhode Island Department of Transportation (RIDOT), RIPTA and various community groups. Following a year of discussion and consensus building, the group presented its final findings and recommendations to the Mayor in a 2007 report[1] entitled "Growing Smart with Transit."

The Transit 2020 report concluded that "Rhode Island must invest in transit to develop and maintain a seamless, integrated, high quality transit service that builds on and complements the existing system. This will require a capital investment as well as a dedicated, predictable, and adequate funding stream to sustain expanded and upgraded operations." Priorities for further study as part of a regional transit study included:



- Analysis of demographic and commuting data for the area, to better understand and identify transit need.
- The identification of short-term incremental improvements that could attract new riders and "choice" riders to RIPTA, providing a stronger foundation for further growth of the system.
- The identification of more significant transit investments, such as new hub locations and new modes introducing greater benefits to the region in terms of economic development, improved mobility and overall quality of life.
- The development of incentives to encourage transit use and discourage automobile use.
- Seamless connections between all modes.
- Strategies for providing a dedicated and adequate funding stream for transit operations, as well as capital funding to support improvements and expansions.
- Actions to support the state's land use goals and to better coordinate state and municipal development review with transit planning activities.
- An updated and expanded mission for RIPTA, and a call to state leaders, municipal officials, area businesses, local institutions and other advocates to support this mission.

1.2. PURPOSE OF THE PROVIDENCE METRO TRANSIT ENHANCEMENT STUDY

Based largely upon the recommendations of the Transit 2020 coalition and the specific priorities outlined above, RIPTA initiated the Providence Metro Transit Enhancement Study (Metro Transit Study) in 2008. The major purpose of the study is to recommend potential transit improvements to better serve Providence and facilitate mobility between the state's urban center and the immediately surrounding metropolitan area. The outcome of this study is presented in this Final Report.

The study area is focused on Providence and includes the adjacent, higher-density, urban areas of East Providence, Pawtucket, Central Falls, North Providence, and portions of Warwick and Cranston east of I-295 (Figure 1-1).

RIPTA completed the following activities in the Metro Transit Study:

- Developed a vision for the future of transit in Rhode Island;
- Identified major travel corridors and key activity centers, and matched demand with appropriate transit modes;
- Developed transit alternatives, service plans, operating parameters and ridership projections;
- Evaluated additional policies and incentives to support metropolitan transit usage;

[1]Growing Smart with Transit, City of Providence Transit 2020 Working Group, February, 2007. www.transit 2020.com

- Recommended both short and long term transit improvements and identified potential funding sources and strategies;
- Coordinated with the general public, local municipalities and other state agencies; and
- Produced a prioritized plan of action.

METRO TRANSIT WORKING GROUP

RIPTA and the City of Providence established a Metro Transit Working Group to help guide the study and evaluate the potential opportunities. This group included representatives from each study area municipality, the state legislature, state agencies, local businesses and institutions, and non-profit advocacy groups. A complete listing of Working Group members and a summary of coordination meetings is included in Appendix A.

1.3. ORGANIZATION OF THIS REPORT

The remainder of this report includes the following sections:

Chapter 2: A New Vision for Transit in Rhode Island

Chapter 3: The Economics and Financing of Transit Investment

Chapter 4: A Snapshot of Transit in Metropolitan Providence Today

Chapter 5: Recommended Improvements

Chapter 6: Benefits and Costs of Recommended Improvements

Chapter 7: Moving the Plan Forward

Chapter 8: Strengthening Transit Corridors

Chapter 9: Shifting the Conversation in Rhode Island

Appendices providing background information and technical documentation are available online at www.ripta.com.

Figure 1-1:
Metro Transit Study Area

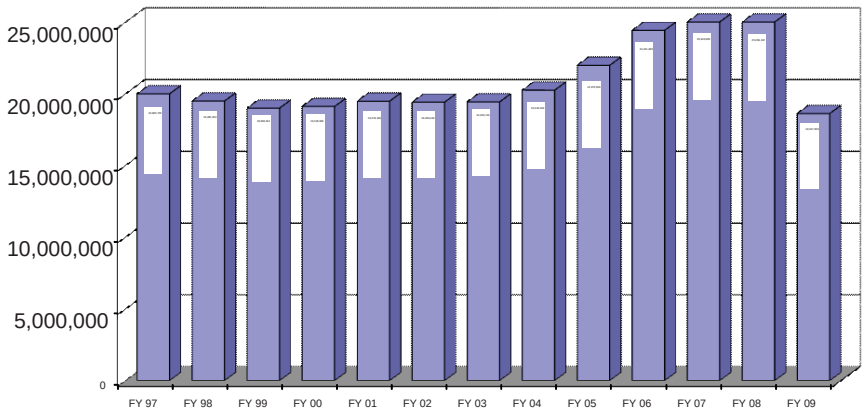
2. A NEW VISION FOR TRANSIT IN RHODE ISLAND

As Rhode Island's Mobility Manager, RIPTA is dedicated to meet growing demand for transportation options and to plan for the future in a responsive and thoughtful manner. Over the last several years, as RIPTA ridership has increased at a record rate, there has been increasing recognition that transit is a critical component of the state's infrastructure. In fact, this study estimates that RIPTA service produces nearly $150 million in economic benefits on an annual basis. Transit is also recognized within several state policy and planning documents as playing an essential role in helping to promote economic growth, provide access to jobs, support public health, and maintain vibrant urban centers.

Over the last decade, RIPTA has seen significant ridership growth, with estimated annual ridership rising from 18.99 million passengers in FY1999 to 25.30 million riders in FY2008, representing **an increase of 33 percent.**

updated its Mission Statement and worked to develop a Vision Statement to guide the agency as it moves forward as the state's mobility manager.

Figure 2-1:
Rhode Island Public Transit Authority Annual Ridership



Note: FY2009 ridership estimates drop for two reasons. With the introduction of automated fareboxes in 2008, RIPTA has changed their methodology for tracking ridership and now relies completely on farebox counts. Additionally, changes in federal Medicare reimbursement requirements have reduced the state's ability to distribute transit passes to qualified recipients under the Ritecare program

Growing demand for transit services in Rhode Island can be attributed to many factors. Foremost, improved maintenance practices and increased reliability has renewed confidence in the system. Additionally, RIPTA planners pay close attention to customer demand and changing demographic patterns, following through with route adjustments and service modifications to ensure RIPTA service better meets transit needs throughout the state New services have been introduced (Flex, LINK, Ferry). And, increases and instability in the price of gasoline have encouraged many drivers to switch to transit for their daily commute.

2.1 RIPTA'S MISSION & VISION

In 2007, the Rhode Island General Assembly revisited RIPTA's enabling statute and modified the language to designate RIPTA to serve as "Rhode Island's Mobility Manager." This change effectively broadened RIPTA's scope of responsibility and focus from a transit service provider to a full partner in managing the state's network of transportation options.

Responding to this new mandate and responsibility, RIPTA has

RIPTA MISSION STATEMENT

RIPTA is responsible for Rhode Island's public transit system, a critical component of the state's infrastructure and a cost-effective means of providing mobility - access to jobs, health care, education, shopping and recreation.

As Rhode Island's Mobility Manager, RIPTA promotes, coordinates and operates a range of high-quality, safe, reliable and affordable transportation choices. RIPTA is dedicated to providing travel options, information, and staff support to meet mobility needs throughout Rhode Island.

(RIPTA's mission is established and further described by Section 39-18-3 of the General Laws.)

RIPTA VISION STATEMENT

Rhode Island's compact size and historical development pattern offer a unique advantage in providing cost-effective public transportation and rebuilding communities for the 21st century. The availability of transit and transportation choice can be powerful

incentives to foster economic growth, maintain vibrant urban centers, support public health, contain sprawl and build greener communities in Rhode Island.

RIPTA will provide and promote seamless, efficient and appealing transportation choices that are responsive to these statewide goals and the mobility needs of all RI residents and businesses.

To support the achievement of the ideals embodied in this new Vision Statement, RIPTA has established the following goals and objectives:

ACHIEVING THE VISION: RIPTA GOALS & OBJECTIVES

1. Maintain a first-class transit system and further enhance service quality.

- Continue to ensure the quality, reliability and safety of existing services through a "dedication to excellence" in preventative maintenance and all aspects of RIPTA operations.
- Consider cost-effective service changes and other operational improvements on an ongoing basis.
- Improve customer communication and make the system easier to use through route branding, improved signage, easy to use fare products, etc.
- Incorporate ITS (Intelligent Transportation Systems) and other upgraded technologies to increase efficiency and improve customer service.
- Promote policies to encourage transit use and to discourage auto use.
- Continue to develop strong, cooperative relationships with state, local, regional, private and non-profit entities and institutions to promote ridership.
- Pursue a unified fare system for all modes of transit.
- Act as a one-stop connection to information for all travel needs within the state.
- Promote a positive image of transit to attract automobile owners, tourists and other "choice" riders.

2. Improve and grow an intermodal transit system.

- Define the location for new transit hubs and sub-hubs and strengthen intermodal connections to create a more seamless transit system.
- Identify new routes and explore new modes (e.g., Bus Rapid Transit (BRT), light rail, streetcar, and ferries) where current and/or future passenger demand warrants.
- Provide opportunities for enhanced urban circulation and expanded pedestrian and bicycle mobility.
- Become competitive with single occupancy auto (e.g., through HOV/BRT lanes) wherever practical.
- Meet growing demand in specialized transportation to serve areas and populations with unmet needs.
- Recognize RI's land use goals as stated in Land Use 2025, supporting more intensive land use in urban areas and providing efficient connections between greater Providence and other urban centers.
- Support sustainable transportation options that increase mobility, improve access to jobs, support economic development, and increase independent living (including aging in place).
- Recognize that state subsidies are needed to support transit and therefore transit investments should be made in areas that support other statewide goals.

3. Increase coordination and cooperation with public and private entities.

- Support state and local land use policies (particularly within metropolitan Providence), including Land Use 2025, that encourage use of transit.
- Utilize local planners to ensure consistency with local comprehensive plans, to promote community design that features public transit as a defining element, and to identify priority transit corridors.
- Integrate services with other transit providers (e.g., RIDOT, Massachusetts Bay Transportation Authority (MBTA), Rhode Island Airport Corporation (RIAC), universities, social service agencies, and medical service providers).
- Serve as the primary operations planning resource for public and human service agencies needing assistance with transportation issues.
- Advocate for RIPTA involvement in decision-making that impacts the efficiency and effectiveness of transit (e.g., land use, new development, and community-based care).

4. Identify and develop adequate, stable and sustainable funding.

- Maintain a focus on efficiency and accountability in all aspects of RIPTA operations.
- Define the capital investment and operational funding needed to fulfill state mandate as Mobility Manager.
- Identify and communicate the benefits and savings that RIPTA provides to Rhode Island and the return on transit investment for taxpayers.
- Develop measures to determine when and where it makes sense to invest in transit.
- Advocate for higher priority for transit funding in Rhode Island and increase awareness of RIPTA as a critical component of the state's infrastructure.
- Educate stakeholders that market-based transit investments serve as economic development incentives (i.e., development will follow).
- Identify innovative funding sources, including public-private partnerships.

2.2. SUPPORTIVE STATE AND REGIONAL POLICIES

At the same time that RIPTA has broadened its scope of responsibility and focus from a transit service provider to a full partner in managing the state's network of transportation options, other state and regional organizations are introducing transit-supportive land use, development, and transportation policies and programs.

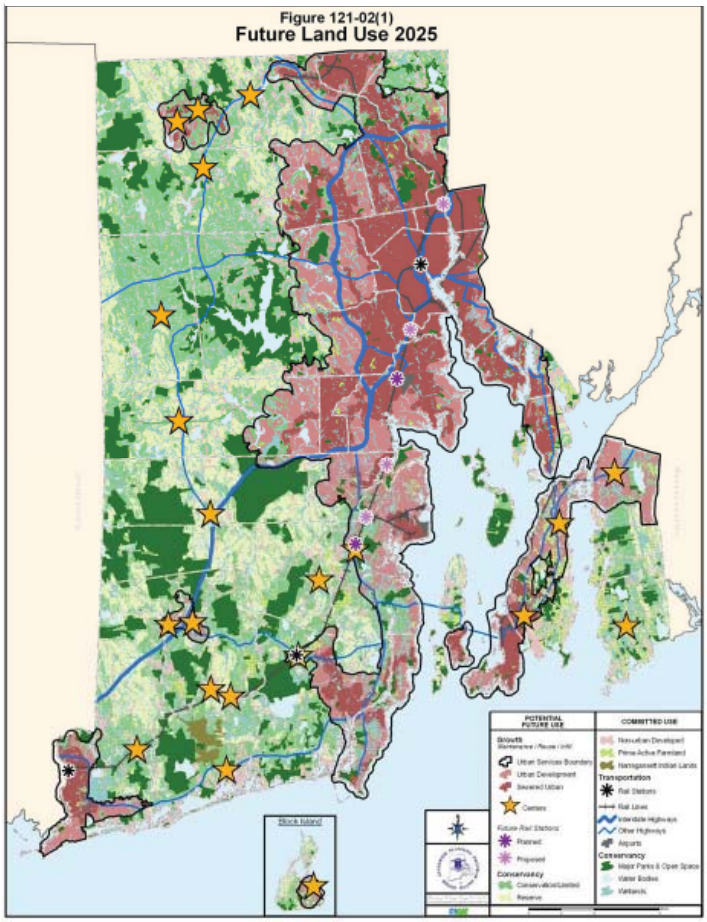
RI STATE POLICY SUPPORTING THE DEVELOPMENT OF PUBLIC TRANSIT

Land Use 2025: RI State Land Use Policies and Plan

Land Use 2025 is Rhode Island's State Guide Plan for land use conservation and development. It sets forth statewide goals and objectives to guide land use planning and development actions at both the state and municipal levels.

Despite recent successes and investments in land conservation, Rhode Island continues to consume undeveloped land for residential, industrial and commercial needs and to experience increased sprawl. Land Use 2025 details the anticipated impact if this trend was to continue over the next two decades, assesses and compares alternative development scenarios, and recommends working toward a future land use scenario that would protect the state's unique character, conserve natural resources, expand the economy and save taxpayer dollars.

Figure 2-2:
Land Use 2025: Urban Services Boundary



The Plan recommends that Rhode Island take action to achieve a more compact development scenario and identifies an Urban Service Boundary designed to retain the distinction between current urban and rural areas (see Figure 2-2). The areas within the urban services boundary, along with designated activity centers outside it, are areas where growth — whether new development, reuse, infill or redevelopment — should be encouraged by state and local policies and investments. The entire Metro Transit Study area falls within this urban boundary.

Specific goals were developed within Land Use 2025 to help direct future growth and to limit sprawl in rural areas. It is recognized that implementation will involve additional investment in public infrastructure within the urban boundary to reinforce the distinction between urban and rural areas. Several specific strategies are identified to promote the development of intermodal transit hubs and greater use of public transit, and specific objectives designed to advance these strategies include:

- Upgrade and maintain existing multimodal terminals in the State.
- Plan and develop new multi-modal stations to serve future demand.
- Plan for land use (transit oriented development) surrounding terminals to support the mass transportation use. Revise plans and regulations accordingly.
- Support an effective, efficient intermodal transportation system connecting centers by providing transit supportive features including extensive, connecting sidewalk and pathway networks, commuter parking, bus, taxi, and bicycle facilities.

Concentrating growth within the urban services boundary and in more rural activity centers will provide greater population densities and clustered trip destinations that will allow for the more efficient delivery of transit service. These development scenarios were modeled as part of the Land Use 2025 planning process, with the conclusion that a more compact development pattern would reduce daily vehicle travel and increase overall transit ridership. The resulting benefits in terms of congestion reduction and air quality improvement would be significant.

While there is much to be done in order to promote the desired land use patterns identified in Land Use 2025, Rhode Island is well positioned to take advantage of its existing public transit system and relatively high development densities that already exist within the Urban Boundary. Other areas of the United States struggle to create such density in order to develop efficient public transit systems and to support "Transit Oriented Development." Rhode Island is "TOD ready."

Transportation 2030: Long Range Transportation Plan

Federal transportation law requires each state to address long term transportation needs through the development of a long range transportation plan. The Rhode Island Division of Planning updates the state's long range transportation plan every four years, soliciting public input and evaluating fiscal constraints and air

quality impacts. The most recent plan, Transportation 2030, was completed in 2008 and identifies statewide goals, objectives and fiscal strategies for improving and enhancing Rhode Island's surface transportation system.

The plan puts forth recommendations in the following strategic areas related to surface transportation: Bicycle, Design, Economic Development, Emergency Response, Equity, Finance, Highway, Intermodal, Land Use & Corridors, Pedestrian, Planning, Safety and Transit.

The plan recognized that "RIPTA is a public investment that is crucial to the economy, contributes to the fabric and strength of urban areas, provides a means of transportation for people who cannot or choose not to drive (whether commuters, shoppers, low-income, elderly, students, disabled, or others), improves the environment, and conserves energy." As a comprehensive policy objective, Transportation 2030 recommends that the overall level of RIPTA service be improved. More specifically, Transportation 2030 presents a range of goals and objectives related to transit and intermodal transportation. These include:

TRANSPORTATION 2030 RECOMMENDATIONS FOR TRANSIT

Goal: Provide a safe, robust, and convenient network of transit and shared ride services with seamless intermodal connections in support of increased employment opportunities, improved environmental quality, and reduced congestion and auto dependency.

Objectives:

1. Increase transit ridership.
2. Increase carpooling and vanpooling.
3. Maintain transit vehicles, equipment, and facilities.

TRANSPORTATION 2030 RECOMMENDATIONS FOR INTERMODAL TRANSPORTATION

Goal: Provide convenient intermodal facilities and services offering seamless connections for passengers and freight.

Objectives:

1. Increase use of Park and Ride lots.
2. Increase number of bicycles on buses.
3. Maintain ferry service and accommodations for bicycles.
4. Expand use of freight rail.
5. Facilitate movement between modes.

A UNIFIED VISION

In addition to the plans highlighted above, numerous other studies have examined various aspects of expanded transit service in Rhode Island. Among these efforts, RIDOT has studied the potential for expanded commuter rail services in the state, and Amtrak has planned for infrastructure expansion in its Northeast Corridor. All these documents recognize the potential for transit growth in Rhode Island, and the Metro Transit Study seeks to build upon these previous plans and policies to define specific transit investments consistent with the goals of the Transit 2020 effort.

3. THE ECONOMICS AND FINANCING OF TRANSIT INVESTMENT

Successful expansion of public transportation in Rhode Island requires a sound understanding of the economics and financing of transit investment in the state. This chapter documents current financing of RIPTA's system, both in terms of the capital program and for ongoing operations and maintenance of services and equipment, and it outlines how RIPTA fits into the overall statewide transportation financing picture. Also provided is an overview of the economic benefits of RIPTA's existing transit services in metropolitan Providence and statewide.

3.1. RIPTA'S CAPITAL PROGRAM

Capital funds are used for project development, the rehabilitation and replacement of capital assets, and any upgrades or expansions to the transit system. RIPTA's current five year capital program (FY2010 –FY2014) sets forth about $43.7 million per year in capital spending. This plan represents a $218 million investment in the state's transit system, largely financed through federal dollars. Federal funding sources supporting RIPTA's capital plan include:

- Federal Transit Administration (FTA) Section 5307 – Large Urban Cities Program
- FTA Section 5308 – Clean Fuels Grant Program
- FTA Section 5309 – Bus & Bus Facilities/Rail Program/Major Capital Improvements
- FTA Section 5311 – Rural & Small Area Transportation (RTAP)
- Federal Highway Administration (FHWA) Transportation Enhancement Program
- FHWA Congestion Mitigation & Air Quality (CMAQ) Improvement Program
- Discretionary Funding (set asides and congressional earmarks)
- American Recovery and Reinvestment Act (ARRA) of 2009

(ARRA is a special one-time economic stimulus program enacted in 2009)

Each of these federal funding programs typically requires a 20 percent local contribution, and this local match is generally provided through the issuance of voter-approved General Obligation Bonds. A transportation bond referendum is placed on the statewide ballot every two years, with the next scheduled to appear in November 2010. Debt service on these bonds is paid by revenues in RIPTA's annual operating budget.

ARRA funds authorized through the special federal stimulus efforts of 2009 represent an exception to this rule; qualified projects funded through this program receive 100 percent federal funding with no requirement for local contribution. The receipt of ARRA funds has allowed RIPTA to decrease its bond referenda request for 2010 from $7.25 million to $4.70 million. Bond referenda for 2012 and 2014 are also anticipated to be around $4 million each.

For certain projects (e.g. RIPTA's new Paratransit Maintenance Facility being constructed on Elmwood Avenue), additional local match funds may be provided through appropriations of the RI Capital Plan Fund (RICAP), a "rainy day fund" of excess general revenues that the Legislature may use to fund capital project expenditures or debt service.

3.2. RIPTA'S ANNUAL OPERATING BUDGET

Operating funds are used to support the day to day operational, system maintenance, and administrative needs of the Authority. RIPTA's Annual Operating Budget in FY2010 is $96.5 million.

A share of proceeds from the state gasoline tax is the main source of revenue used to support RIPTA's annual operating budget. In FY2009, RIPTA's share was increased from 7.25 cents per gallon to 7.75 cents, as the RI General Assembly reallocated the one-half cent per gallon environmental protection regulatory fee to RIPTA. At the beginning of FY2010, the General Assembly raised the state's gasoline tax by 2 cents per gallon (from 30 cents to 32 cents) and devoted the additional revenues to RIPTA, increasing the Authority's overall share from 7.75 cents to 9.75 cents per gallon. This action was intended to address ongoing operating deficits at RIPTA and is anticipated to increase RIPTA's annual gas tax proceeds by about $8.8 million per year, yielding an estimated $43 million for FY2010 operations, or about 44 percent of annual revenues.

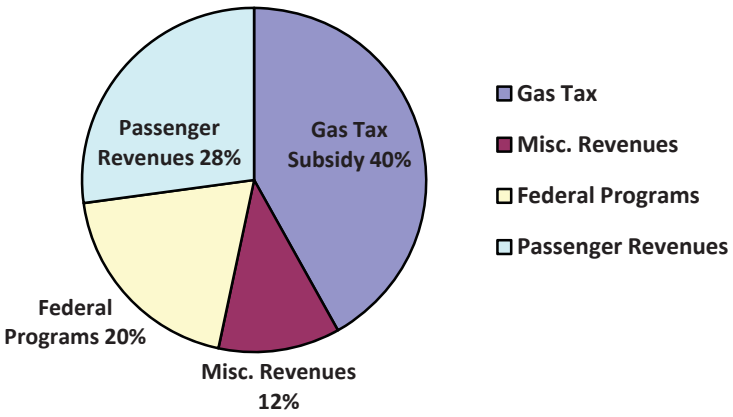
The Department of Human Services is also a beneficiary of the state gas tax (1 cent), much of which is passed through to RIPTA for elderly and disabled transportation under the statewide RIde program.

Federal programs used to support transit operations represent about 21 percent of annual revenues and include the following:

- FTA Section 5311 Rural & Small Urban Areas and Intercity Bus Connections
- FTA Section 5307 - Small Urban Area and Complimentary/ADA Transportation
- FTA Section 5316 – Job Access/Reverse Commute
- FTA Section 5317 – New Freedom
- FHWA Congestion Mitigation& Air Quality Improvement Program

Other revenue sources supporting RIPTA's annual operating budget include: passenger revenues (about 29 percent of annual revenues), and advertising/miscellaneous revenues (about 12 percent of annual revenues). These sources are illustrated in Figure 3-1.

Figure 3-1:
RIPTA Operating Budget Sources

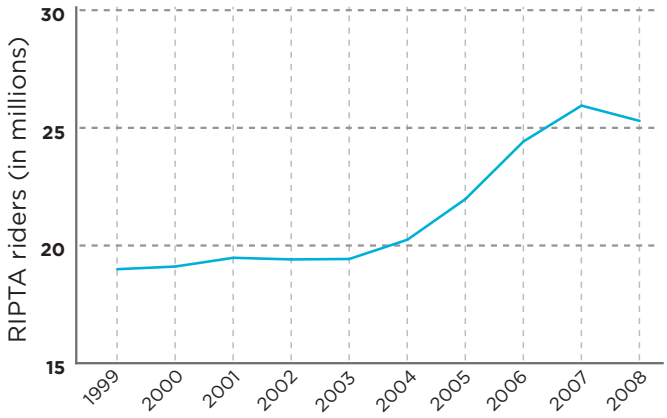


3.3. RIPTA'S FINANCIAL STATUS

GROWING RIDERSHIP – INCREASING COSTS – DECLINING REVENUES

Over the past decade, RIPTA has significantly improved the reliability and quality of its services and implemented numerous new programs designed to meet specific and growing mobility needs throughout the State of Rhode Island. In response, ridership demand has increased to record levels with more Rhode Island residents turning to transit as a cost-effective and environmentally-friendly way to meet their mobility needs. This is demonstrated by the fact that annual ridership increased by 33 percent between FY1999 and FY2008.

Figure 3-2:
RIPTA Ridership Over Ten Year Period



Despite these successes, increasing costs related to the delivery of transit services have led to an ongoing struggle to maintain services in the face of inflationary pressures. Diesel fuel prices hit record levels in 2008 and, despite recent drops, are anticipated to continue to escalate over the years ahead. RIPTA's labor costs, as well as pension and retirement contributions, are escalating due in large part to increases in the cost of health care that are beyond RIPTA's control. With overall yields from the state gasoline tax decreasing as residents reduce their vehicle miles of travel, and with a loss of federal Medicaid funding that was used to support the RIde program, RIPTA has repeatedly evaluated service cuts and restricted growth in order to cover increasing operating costs and maintain core operations. All other transit agencies in the U.S. are currently confronted by these same challenges.

INDEPENDENT AUDITS & MANAGEMENT REVIEWS

Growing financial pressure has triggered intensive State and local scrutiny of RIPTA finances, mission and operating structure over the past few years. Several independent audits have been commissioned by state decision-makers with the objective of "reining in" operations and introducing new cost efficiencies. Yet, these audits (in addition to recent FTA audits of financial and operating performance) have instead concluded that RIPTA is already a well-managed system that has done much to cut costs over the past decade and now operates cost-effectively when compared to peer agencies around the country. The conclusions of two recent audits are summarized below.

Special Legislative Commission to Study Transit Services (2006)

As authorized by the Rhode Island General Assembly in 2004, a Special Legislative Commission to Study Transit Services in the State of Rhode Island was established in March 2006. The Commission was created in response to growing operational needs and perennial budget shortfalls at RIPTA and charged with identifying ways to optimize the functionality of the transit system.

Commission members realized that simply maintaining the existing transit system would not be adequate to meet future transportation needs. Members strongly opposed decreasing RIPTA services or limiting RIPTA's growth potential. Their summary report recommended restructuring RIPTA, with adequate investment and creative financing, and transforming the agency to serve as Rhode Island's Mobility Manager.

In this expanded role as RI's Mobility Manager, it was envisioned that RIPTA would grow from being a limited service provider to serving as a major partner in addressing Rhode Island's transportation needs. RIPTA's enabling legislation was subsequently updated to reflect this legislative finding and new mission. The Commission further recommended that public transit services be improved and expanded to reflect this role.

Recommendations were then laid out to guide RIPTA's transformation and provide the agency with the tools to respond to rising costs and deliver mobility options to meet the different needs of a diverse population. Specific recommendations included:

- Providing predictable and long-term dedicated funding sources for a statewide public transit system. Reducing the reliance on the state gasoline tax and providing additional state and local funding to cover the operating expenses of RIPTA.
- Using federal funding for capital investments to improve and expand services.
- Establishing local and/or regional public transit districts within areas of redevelopment or new development that have the authority to collect fees to support new transit services.
- Identifying new revenue sources such as those used by other states.

Despite the update to RIPTA's enabling legislation and mission, long term funding sources have yet to be identified.

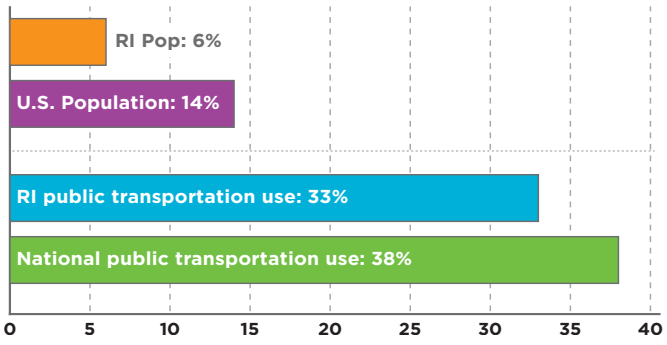
State Budget Office Management Performance Audit (2007)

As the Special Legislative Commission was completing its review, the State Budget Office was also conducting a Management Performance Audit to evaluate the effectiveness of RIPTA's operations and to identify any actions that might improve overall efficiency. Findings and recommendations are summarized below.[2]

A peer group review of RIPTA operations and performance was undertaken and found RIPTA to compare favorably to similar agencies in many areas; notably, overall operating revenues, total ridership, maintenance performance, cost per passenger measures, financial and administrative trends, and other areas. Operationally, opportunities for improvement included casualty and liability insurance, vehicle maintenance, general and administrative costs, and the vehicle hours/operations employees ratio. RIPTA has since implemented many of the recommendations to improve upon these specific performance measures.

In order to assess the overall reasonableness of RIPTA financing mechanisms, the auditors reviewed transit funding of comparable transit systems located in other New England and Mid-Atlantic states. The analysis evaluated Delaware, Maryland, Massachusetts and New Jersey, and found that Rhode Island has the lowest per capita state funding ($34.09) to support transit, and the second lowest per capita federal funding ($12.17) to support transit. While three of the other peer states have very large metropolitan areas served by rail operations, each state examined was found to be providing their transit systems with per capita funding ranging from about two and one-half times that of Rhode Island (Delaware) to about six times more (Massachusetts).

Figure 3-3:
Percent Change in Population and Transit Use from 1995-2008



Thus, RIPTA compares favorably in terms of overall ridership and management performance, yet effectively meets these goals with lower per capita transit funding than neighboring states.

New Public Transit Alliance (NuPTA) Recommendations (2008)

New Public Transit Alliance (NuPTA) is a local coalition of bus riders, businesses, smart growth, labor, health, and environmental groups dedicated to renewing public transportation in Rhode Island. Their recent report, "A Fare Choice: How Rhode Island Can Invest in Public Transit and Energy Independence"[3], discusses the importance of dealing with current and future challenges of a growing population, remaining competitive in a growing regional economy, and addressing environmental concerns. The recommendations call for Rhode Island to develop and support a "first-class" transit system, which would be achieved through a commitment to significant long-term transit investment for both system maintenance and expansion.

NuPTA clearly recognizes that, with the possible exception of a few Japanese commuter rail lines, no transit system in the world operates without a subsidy. For RIPTA, fares pay only about a quarter of its operating costs. State subsidies, federally assisted rural operating programs and miscellaneous revenues make up the rest. Different financing mechanisms from around the US and the globe were evaluated to identify potential funding sources and new revenues to provide sustainable, long term funding for expanded transit in Rhode Island.

- **Gas Taxes** – particularly if indexed to inflation or other relevant changeable factors, such as the price of gas, to automatically adjust with changing demand.
- **Tolls/Congestion Pricing** - to divert some portion of automobile trips to transit and to gain new revenues to support alternative modes.
- **Employer Taxes** – as used in Portland, Oregon, where employers pay a tax on gross wages, scheduled to rise yearly, until reaching the current state cap of 0.72 percent.

[2] *"Management Audit of RIPTA"*, prepared for the RI State Budget Office by Abrams-Cherwony, Associates, April 2007.

[3] *"A Fare Choice: How Rhode Island Can Invest in Public Transit and Energy Independence"*, RI Sierra Club, 2008

- **Parking Fees or Parking Ticket/Traffic Fine Surcharges** – in order to avoid discouraging businesses from locating in urban areas where such fees would be predominant, a statewide assessment on commercial properties that provide free parking would be more equitable among businesses within and outside urban districts.
- **Sales Tax**
- **Motor Vehicle Fees**
- **Real Estate Transaction Taxes or Subdivision Taxes** – to help cover the cost of providing transit to newly developed areas.
- **Private Sponsorship or Operating Contributions/ Contracts from private businesses** – RIPTA's current UPass program provides one such example.

In addition to the new operating revenues described above, NuPTA also suggests potential new capital funding mechanisms to support expansion of the system. These include:

- Tax Increment Financing
- Direct Developer Investment
- Greater "flexing" of federal transportation dollars from the highway program to transit (although NuPTA recognizes that this is unlikely due to the critical backlog of road and bridge repairs throughout the state).

The report also recommended working/lobbying to support changes to federal programs that support transit, facilitating how these projects are selected and increasing overall federal contribution levels for transit. Lastly, NuPTA supports better integration of land use policy and transit planning/development: "Integration of these two closely related solutions offers fruitful synergies such as transit-run commuter assistance, parking reform, transit-centered planning and development, development-based transit financing, and transit-based live/work incentives, with disincentives against personal driving. At the same time, Rhode Island must address damaging land-use trends, and adopt and enforce smart planning and development policies, through necessary regulation and beneficial incentives and rewards, and ensure that these measures are closely integrated with transit funding and development to maximize the benefits of both."

3.4. RIPTA AND THE STATEWIDE TRANSPORTATION FINANCING PICTURE

On a broader basis, RIPTA's financial picture is largely dependent on the statewide economic outlook and the ability of the state to dedicate sufficient revenues to support annual transit operations. RIPTA is not alone in this predicament; annual budgetary shortfalls and the lack of dedicated future funding streams also affect other Rhode Island transportation agencies, namely the Department of Transportation and the Tunnel & Bridge Authority. To address these issues and assess the state's overall transportation needs, Governor Carcieri appointed a Blue Ribbon Panel on Transportation in 2008 and tasked the panel with identifying potential future funding sources and mechanisms for meeting these needs.

The Governor's Blue Ribbon Panel on Transportation

The Blue Ribbon Panel reported back to the Governor with a report entitled "Rhode Island's Transportation Future." Among key findings and statements, the Panel emphasized:

- Rhode Island's transportation infrastructure is aging and in critical need of repair.
- Current mechanisms for financing the maintenance, repair and replacement of the state's existing transportation assets are neither "adequate nor sustainable."
- Continued borrowing and reliance on the gas tax is not the solution.
- Compared to other states, there is an over-reliance on Federal funds. Furthermore, the use of general obligation bonds to match these funds has resulted in very high annual debt service costs and severely limited the revenues available for maintenance.
- The transit system is an integral part of the transportation system, and full funding should be provided to support transit and commuter rail operations. The Panel felt strongly that "buses and highways should not have to compete against each other for funding."

The Panel presented two strategies for funding the transportation needs of the state over the next ten years (see Table 3-1). Scenario 1 targets future statewide transportation funding levels beginning at $150 million per year and represents the minimum level required to maintain current RIPTA operations. Without this minimum level of funding, reductions in RIPTA transit service would need to be taken. Scenario 2 targets future funding levels beginning at $300 million per year and would allow for some enhancement and expansion of the current transit system.

Since the Blue Ribbon Report was issued, the General Assembly has increased the state gas tax by 2 cents and directed the receipts to RIPTA, allowing them to maintain existing service levels over the next two years. Also, the release of additional federal funds under ARRA has eliminated a small portion of the repair and replacement needs at both RIPTA and RIDOT, but not significantly affected the overall need or funding strategies presented above.

Further study and delineation of most of the funding options identified by the Panel would be required prior to implementation. Legislative action would also be required for nearly all the options.

3.5. ECONOMIC BENEFITS OF RIPTA TRANSIT INVESTMENT

Public transportation plays a significant role in solving some of the economic, environmental, and energy challenges that face the United States today. In addition to offering increased mobility, transit can provide employment, a cleaner environment, energy

Table 3-1:
Blue Ribbon Panel Scenarios for Statewide Transportation Funding 2010-2018/
Impact on Transit Funding

Impacts	Blue Ribbon Panel Funding Scenario 1	Blue Ribbon Panel Funding Scenario 2
Proposed New Revenue Sources for Statewide Transportation Program	• Gas tax increase to 35 cents/gallon in 2009; 40 cents/gallon by 2012 (avg. of $23 million in new funding for transit each year) • Bi-annual auto registration fee increases to $100 in 2009 and $120 in 2013 • Land sales and overweight truck fine fee increases • Petroleum product tax in 2010 • Tolls at I-95 in CT in 2014 • Transfer of Sakonnet River Bridge to RITBA • Revenue Bonds for Major Projects; Bridge Program Bond backed by gas tax	• Gas tax increase to 40 cents/gallon in 2009 (avg. of $35 million in new funding for transit each year) • Bi-annual auto registration fee increases to $100 in 2009 and $140 in 2013 • Land sales and overweight truck fine fee increases • Petroleum product tax in 2010, w/ increases in 2012 and 2015 • Tolls at CT & MA in 2014 • Transfer of Sakonnet River Bridge to RITBA • VMT tax in 2011 • No further bonding
Impact on RIPTA Service	Eliminates operating deficit and maintains existing service No service improvements or system expansions funded (note: Warwick Intermodal fully funded)	Eliminates operating deficit and maintains existing service Service improvements can be implemented beginning in year two No major RIPTA system expansions funded (note: Warwick Intermodal fully funded)
Impact on RIPTA Budget	Provides an average of $23 million in new funding for transit over the 10 year plan (or an additional $8 m. in year one, increasing to $18 m. by year 10)	Provides an average of $23 million in new funding for transit over the 10 year plan (or an additional $8 m. in year one, increasing to $18 m. by year 10)

independence, and a better quality of life. For a metropolitan area such as Providence, with an existing public transportation system and interest in further promoting public transportation, it is particularly important to consider the economic implications of providing basic transit services and of any proposed transit expansion.

RIPTA RIDERSHIP

Over the past decade, RIPTA has significantly improved the quality and reliability of its transit operations and services. In response, RIPTA's overall ridership increased by 39 percent from 1997 to 2008. In FY 2008, RIPTA carried an estimated 24.8 million passengers or roughly 2 million passengers each month. RIPTA's rapid growth is consistent with the findings of the American Public Transportation Association (APTA) regarding transit use nationwide. Nationally, public transit ridership has grown at a rate nearly three-times that of US population growth over the last decade, and nearly twice that of highway usage. According to APTA, public transportation ridership has increased by 38 percent from 1995 to 2008 in the United States, a growth rate that exceeds the 14 percent increase in US population. This growth is also higher than the 21 percent growth in the use of the nation's highways over the same period.

BENEFITS OF TRANSIT

Improving urban mobility is a primary goal of many public transportation investments, but it is well understood that these transit projects can yield other benefits as well. Transit in Rhode Island:

- Facilitates the overall mobility of residents, providing access to health care, job opportunities, education and

[7] The Optimal Supply and Demand for Urban Transit in the United States, prepared for the American Public Transportation Association, prepared by HDR|HLB Decision Economics, February 22, 2008.

other needed services.

- Provides a vital link for older Rhode Islanders and those with disabilities.
- Stimulates our state's economy and creates green jobs.
- Supports the state tourism industry by offering visitors easy access to key destinations and attractions.
- Maximizes travel safety and reduces traffic congestion.
- Reduces wear and tear on Rhode Island roads, saving on reconstruction costs.
- Promotes overall fitness, leading to healthier citizens and less strain on our health care system.
- Reduces our state's dependence on foreign oil.
- Helps protect our environment by reducing greenhouse gas emissions.

A 2008 study prepared for the American Public Transportation Association (APTA), *The Optimal Supply and Demand for Urban Transit in the United States*[7], provided estimates of the benefits attributable to transit service, including those associated with reduced congestion, the environment, health, mobility and economic development:

- **Transportation Cost Savings:** Transportation Cost Savings include travel time savings, savings associated with safety, vehicle ownership and operating cost savings, as well as environmental cost savings. These benefits accrue to both freight and passengers due to the increased use of transit in lieu of automobiles. This leads to improved highway travel times and travel time reliability. The use of transit instead of automobiles reduces auto emissions and greenhouse gases, vehicle operating costs, as well as the associated health damage. Because roads are less congested, safety is also enhanced.
- **Low Cost Mobility Benefits:** Transit saves people valuable time and, for low income passengers in particular, releases household budget funds for other high-valued uses such as housing, food, and childcare. Cross sector benefits include the reduced financial burden on social services. For example, if reliable transit is available, workers can more easily travel to their jobs. This provides more employment options to all workers, but it is especially important to lower income individuals.[8]
- **Economic Development Benefits:** Well designed transit facilities create increased property values and higher densities. Although a portion of the increased value is attributable to capitalization of time savings in the value of land, transit facilities also give rise to "nonuse" benefits in the form of amenity value and agglomeration (i.e., values associated with higher density urbanized living arrangements). These non-use economic development benefits are additive to those described previously.

The Optimal Supply and Demand for Urban Transit in the United States study uses accepted micro-economic principles and analysis to combine the external costs of congestion due to vehicles, the cross-elasticities of demand between modes (e.g., the change in bus ridership when the price of gasoline increases and fewer people drive their cars), and the costs of operating and expanding transit services to ascertain the conditions of transit supply that maximize the net benefits (benefits minus costs) to users of the transportation system. These net benefits were estimated for the categories described above.

Estimated Economic Benefits of Existing RIPTA Services

Using RIPTA trip and passenger mile data, RIPTA economic benefits attributable to transportation cost savings, affordable mobility and economic development were estimated based on factors applied in the 2008 APTA study.

Table 3-2 presents the annual benefits attributable to the current RIPTA service. All benefits are provided in 2008 dollars.

Table 3-2:
2008 Annual Benefits Based on Passenger Miles
Existing Statewide RIPTA Service

BENEFITS BASED ON PASSENGER MILES (in 2009 dollars)	
TRANSPORTATION COST SAVINGS	
Time Savings	$54,565,000
Savings in Vehicle Operating Costs	$22,635,000
Emission Savings	$952,000
Accident Cost Savings	$17,590,000
Total Transportation Cost Savings	*$95,742,000*
AFFORDABLE MOBILITY	
Value to Low-Income Travelers	$22,251,000
Cross Sector Benefits	$1,421,000
Total Affordable Mobility	*$23,672,000*
ECONOMIC DEVELOPMENT	
Residential Development	$15,305,000
Commercial Development	$10,080,000
Total Economic Development	*$25,385,000*
ALL BENEFITS	***$144,799,000***

Transportation cost savings are attributable to the time savings experienced by riders, the vehicle operating cost savings, emission savings, and accident savings. For the existing service, these benefits total $95.7 million. More than half of those benefits are attributable to the time savings of transit. Another $22.6 million in benefits is due to vehicle operating cost savings. Affordable mobility benefits are estimated to be $23.7 million, with most of the benefit attributable to the value of transit to low-income travelers. The benefits due to residential and commercial development total

[8]National Capital Region Transportation Planning Board Technical Committee, Briefing on Cost-Benefit Analysis Framework for Transit Investment in Washington Region, HDR/HLB Decision Economics, May 2, 2008.

$25.4 million. **In total, $144.8 million in annual benefits can be associated with the current level of RIPTA ridership.**

In addition to the monetized benefits of transit, there are other important benefits of RIPTA services. For example, the benefits associated with a reduction in vehicular noise and stress levels for drivers are important but difficult to quantify. Some environmental and maintenance related benefits are also challenging to monetize, despite that they are important to consider when valuing transit.

RIPTA's current service provides benefits that extend beyond non-vehicular mobility options for Rhode Island residents. Economic and environmental benefits are attributable to RIPTA service, and it is important to acknowledge these benefits when considering the impact of current transit services on the state and metro region. Examining the economic and other benefits due to any proposed expansion of RIPTA service is also critical. An analysis of the economic benefits of specific recommendations in this study is provided in Section 6, along with a description of the methodology employed to estimate the economic benefits associated with RIPTA's current and proposed service levels..

4. A SNAPSHOT OF TRANSIT IN METROPOLITAN PROVIDENCE TODAY

Communities in the Providence metropolitan area are in the midst of a period of tremendous change: population growth and demographic shifts; development and redevelopment; and restructuring of the local economy away from manufacturing to other industry sectors. In 1980, the City of Providence registered its first population increase in four decades, after a period of continual decline from a peak population of 250,000 in 1940.[1] Between 1980 and 1990 the city grew by 2.5 percent, and during the 1990's grew at more than three times that rate. However, since 2000, the population has declined slightly.

The area's economy has also changed significantly. The manufacturing sector has been in decline, despite that it remains a central component of the metro area economy. Other industry sectors are gaining in importance; notably, healthcare, educational services, and financial and professional services. As these types of changes continue to occur, the City of Providence and neighboring communities are now challenged with ensuring that development occurs in a manner that preserves the special character of local neighborhoods and provides for dense, economically vibrant development.

The role of the transit system has also evolved in the context of these and other trends, as RIPTA responds to a changing landscape of service demands and many local leaders and residents call for a new emphasis on transit. RIPTA serves as a central component of the overall transportation system and as a catalyst for urban development activities.

This section presents a snapshot of transit in Metropolitan Providence today, describing the following:

- Transit demand in the Providence metropolitan area;
- Connections along key corridors and between major activity centers;
- Characteristics of existing transit services;
- RIPTA's fare structure and fare-related programs; and
- RIPTA's recent and programmed transit improvements.

More detailed technical information is provided in the appendices containing the Market Analysis and the Transit Services Inventory, both documents prepared in 2009 as part of this Metro Transit Study.

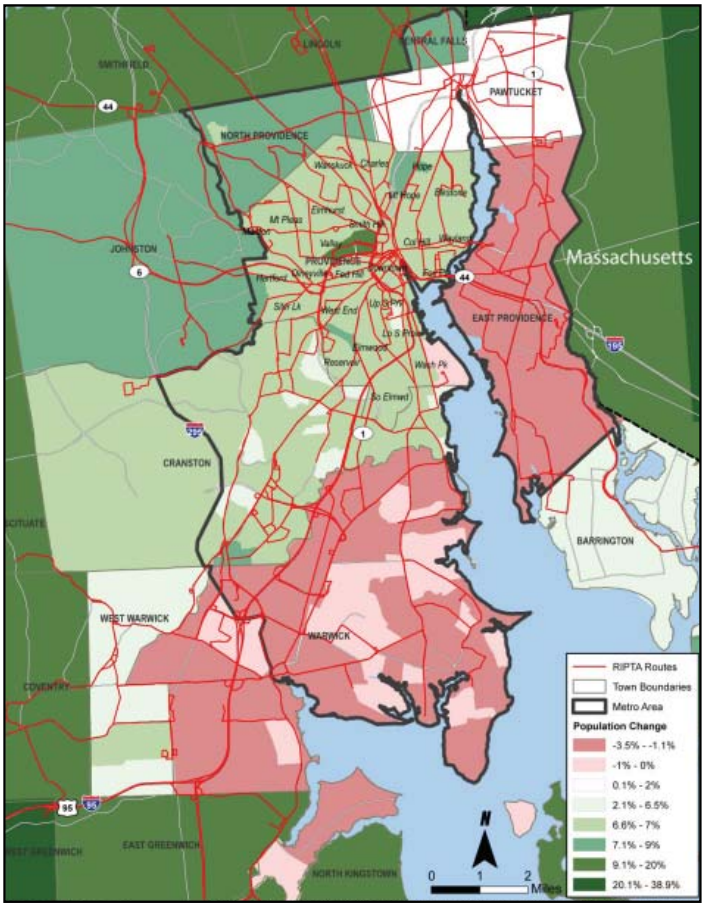
4.1. EVALUATION OF TRANSIT DEMAND IN THE METROPOLITAN PROVIDENCE MARKET

CURRENT AND FUTURE POPULATION

Between 1990 and 2000, the Providence metro area population increased by 3.4 percent. Population growth during this period was strongest in Providence, Central Falls, and Cranston. East Providence experienced a decline in population. Within the City of Providence, 13 neighborhoods grew at a rate exceeding the citywide rate of 8 percent, and ten of them are located on the city's west and south sides.

Between 2007 and 2030, projected population growth largely follows the trend seen between 1990 and 2000, with some exceptions. While North Providence's population was basically stable between 1990 and 2000, it is projected to increase by more than 7 percent (or about 2,400 residents) between 2007 and 2030 (see Figure 4-1). Continued population decline is projected for East Providence, and a slight decrease in population (1.1 percent) is projected for Warwick.

Figure 4-1:
Projected Population Change, 2007-2030



Within the metro area, the transit system corresponds closely to areas with medium to high household densities. Areas with concentrations of census tracts with high household densities (greater than 10 households per acre) in 2000 include:

- The western portion of downtown Providence, adjacent to I-95
- The Hope Street/North Main Street/Pawtucket Avenue corridor of the East Side of Providence, extending north to central Pawtucket and Broadway
- The lower East Side neighborhoods of Fox Point and Wayland in Providence
- Central Falls' Dexter Street/Broad Street area
- Providence's Smith Hill neighborhood and the western Providence neighborhoods of Federal Hill, Olneyville, Valley, southern Mt. Pleasant, the West End and Silver Lake
- The Elmwood neighborhood on Providence's south side

Household and employment densities are important in that areas of concentrated population or employment indicate areas of potential transit demand. In general terms, transit demand is related to density as shown in Table 4-1.

Table 4-1:
Transit Demand as Related to Density

Transit Demand	Households per Acre	Jobs per Acre
Low	<3	<4
Moderate	3 - 10	4 – 20
High	>10	>20

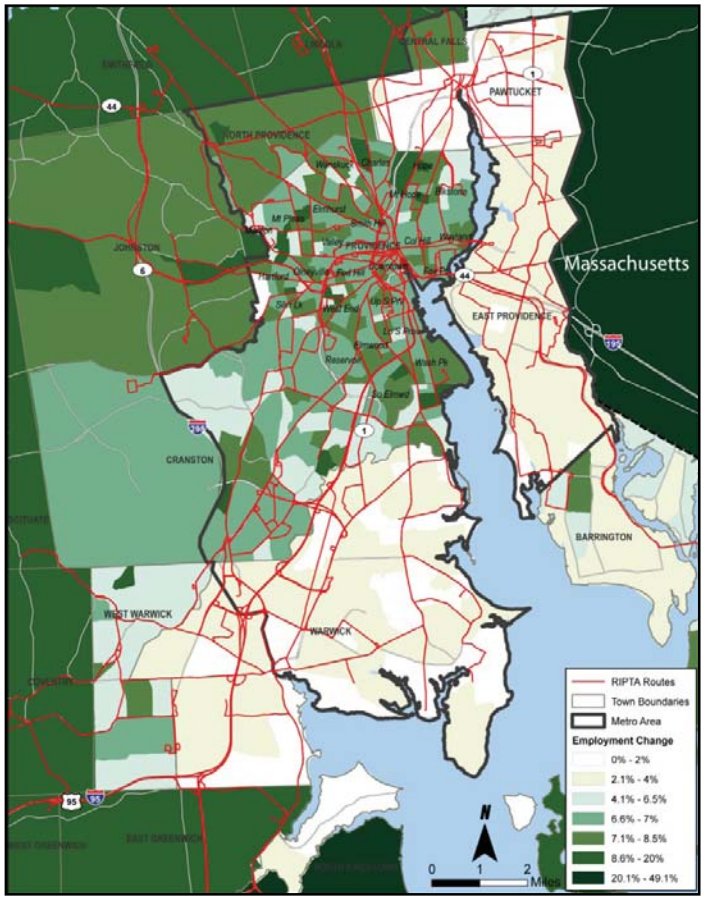
CURRENT AND FUTURE EMPLOYMENT

A decline in Manufacturing sector employment was common to all metro area communities between 2002 and 2006, while key metro area growth sectors during this period included Health Care and Social Assistance, Financial Activities, Educational Services, and Professional and Technical Services. Warwick experienced the strongest private sector job growth in the state, while Pawtucket lost the greatest number of private sector jobs—mostly in the manufacturing sector. By 2006, one-quarter of Providence's private sector employment was in the Health Care and Social Assistance sector.

Medium employment densities (4-20 jobs/acre) are found throughout Providence, Pawtucket, central East Providence, the corridor of Cranston and Warwick roughly bounded by Route 2 and Post Road (as well as the T.F. Green Airport area east of Post Road), and the eastern part of Central Falls. Census tracts in Providence's Smith Hill, Federal Hill, West Broadway, Valley, College Hill and Mount Hope neighborhoods, as well as tracts east of I-95 in central Pawtucket, have densities between 12 and 20 employees per acre. Census tracts with high employment densities (more than 20 employees per acre) are found in the following areas:

- Downtown Providence
- The Eddy Street/Allens Avenue corridor extending south from downtown Providence, encompassing several major employers including the Rhode Island hospital complex
- The Brown University campus and vicinity on the East Side of Providence
- A portion of Providence's Smith Hill neighborhood, including the Rhode Island State Offices area
- Downtown Pawtucket

Figure 4-2:
Projected Employment Change, 2007-2030



Between 2007 and 2030, stronger job growth is projected for communities anticipated to experience higher rates of population growth: North Providence, Central Falls, Providence, and Cranston. However, employment projections should be cross-referenced with recent data related to job growth. For example, while a relatively small increase in employment is projected in Warwick between

2007 and 2030 (2.1 percent, representing 1,070 jobs), Warwick experienced very strong growth between 2002 and 2006, adding 2,300 private sector jobs.

Areas and corridors projected to experience stronger employment growth between 2007 and 2030 include the following, as shown in Figure 4-2:

Providence

- Allens Avenue along the Providence waterfront
- Broad Street, and Elmwood Avenue on the city's south side
- Cranston, Plainfield and Pocasset Streets, as well as Manton, Mt. Pleasant, and Academy and Chalkstone Avenues, on the west side
- Smith Street, Douglas Avenue, the Route 146 corridor north of Branch Avenue
- North Main Street/Hope Street corridor on the city's East Side
- Area bounded by Reservoir Avenue/New London Avenue and I-295 in the vicinity of Route 37
- Pawtuxet Village and Edgewood neighborhoods
- Pontiac Avenue and I-95 corridor south of Park Avenue

North Providence

- Strong growth citywide, zone of stronger growth at the western end of Mineral Spring Avenue

PROVIDENCE GROWTH DISTRICTS AND CORRIDORS

Providence Tomorrow, the City of Providence's Interim Comprehensive Plan (December 2007), identifies areas of stability—where significant growth is not anticipated in coming years—and areas of change, where planners anticipate growth will occur, and where redevelopment will be encouraged (Figure 4-3). The areas of stability identified in the plan encompass most of the city, including all or part of Providence's residential neighborhoods, with the exception of downtown. The areas of change have been identified as growth districts, growth corridors, and transitional areas.

Three key corridors are identified by the City of Providence as priority areas for development, with an emphasis on pedestrian and transit-oriented mixed-use development. These corridors correspond to those identified and discussed later in this report as potential higher capacity transit "corridors of the future." The three corridors identified by the City include:

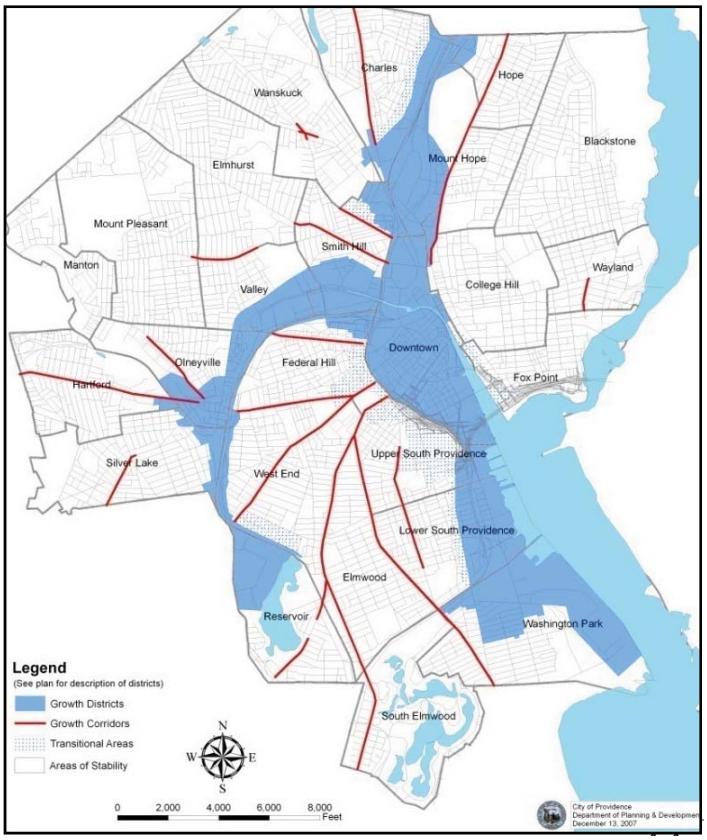
- Allens Avenue/Eddy Street/Waterfront area south of downtown
- I-95 corridor north to Pawtucket
- The predominately industrial corridor extending west from downtown Providence along the Woonasquatucket River and south to Olneyville Square and Huntington Industrial Park in the Reservoir neighborhood.

Commercial corridors targeted by the city for mixed-use development at higher densities include several arterials on the city's south and west sides, as well as the North Main Street corridor on the East Side.

POPULATIONS WITH HIGH TRANSIT NEEDS

In general, the current transit system corresponds well with Metropolitan Providence areas that have concentrations of older adults, youth, low-income households, and households without automobiles. These are traditionally considered as the population segments that have high levels of transit dependency. However, the study team had identified some potential transit access and level of service issues. An overarching issue relates to the level of transit service provided to areas with high concentrations of populations with a greater propensity to use transit. While service coverage is good in most of these areas, with many neighborhoods served by multiple RIPTA routes, the level of service in terms of frequency and span varies widely among these areas. Evening service in particular can be very limited, which is of particular concern in areas with concentrations of low income households. In the corridors ultimately identified for transit service enhancements, the need for an extended service day and/or alternative service models to meet evening and nighttime demand should be evaluated.

Figure 4-3:
Providence Tomorrow Areas of Stability and Change



Some specific observations include the following:

Older Adults

- In general, census tracts with higher concentrations of older adults were found towards the periphery of the metro area, though high concentrations of older adults were also found on the far East Side of Providence and along the northern city line to the Wanskuck neighborhood in the northwest section of the city, as well as in the western neighborhoods of Manton, Mt. Pleasant, and western Valley and Elmhurst.
- A few areas with higher concentrations of older adults do not have direct transit service—such as the central Riverside area in East Providence and Scituate Avenue (Route 12) in Cranston, west of Oaklawn Avenue. However, these areas are less densely developed than nearby corridors that are served by transit. Fixed-route service would likely not be very productive in these areas, though more direct service could be of benefit to older adults who are unable to walk longer distances to access bus stops.
- In two Cranston census tracts with very high concentrations of older adults (within the Route 5 and Route 2 corridors), transit service is provided on nearby arterials but access to transit by older adults may be inhibited by limited connectivity between neighborhood streets and the arterial corridors served by RIPTA.

Youth

Census tracts with the highest percentages of residents under 18 within the Providence metropolitan area were found in the following areas:

- Between Central Avenue and Armistice Boulevard in eastern Pawtucket
- The Dexter Street-Lonsdale Avenue corridor of northwestern Pawtucket and western Central Falls
- On the west side of I-95/Route 146 north of downtown Providence
- The Olneyville/Harford/Silver Lake neighborhoods of western Providence
- Throughout the Southside of Providence

Low Income Households

Central Falls, Providence, and Pawtucket have a large number of census tracts with low median household incomes, though low to moderate income neighborhoods were found throughout the metro area. Census tracts with median household incomes under $30,000 at the time of the 2000 Census were located in the following areas:

- Central Falls, east of Dexter Street
- Central and northern Pawtucket
- The area of central East Providence surrounding the Pawtucket Avenue corridor, south to Wampanoag Trail
- The area east of I-295 and west of Oaklawn Avenue in Cranston
- The area surrounding Warwick Mall at the junction of I-95 and I-295 in Warwick
- In Providence, the larger part of the south and west sides, the Smith Street/Douglas Avenue/Admiral Street corridor(s), the downtown area, and the section of the East Side that encompasses Brown University (and its large student population) and the Fox Point neighborhood

Households without Vehicles

Vehicle ownership is closely correlated with household income in the Providence metro area. Areas with the highest percentages of zero-vehicle households (more than 30 percent of total households) include:

- Eastern Central Falls
- Northern Pawtucket at the Central Falls city line
- Providence's Wanskuck and Smith Hill neighborhoods to the northwest of downtown; Olneyville, Silver Lake south of Olneyville Square, parts of Federal Hill and the West End to the west of downtown; Elmwood and parts of Upper and Lower South Providence on the city's south side; and the Brown University area on the East Side.

TRANSIT PROPENSITY

An additional evaluation technique for determining transit demand is a "transit propensity" analysis, which considers the likelihood of transit use in a certain area (e.g. census tract), based on the demographic characteristics of that area. Transit propensity is a composite measure of the inclination for transit use among populations with high transit usage rates, such as the population groups described above. Areas with high populations of elderly, low-income, and residents without a car have a high propensity to use transit. The analysis outlines a series of demographic factors and corresponding levels of transit propensity, as measured against the overall community's propensity.

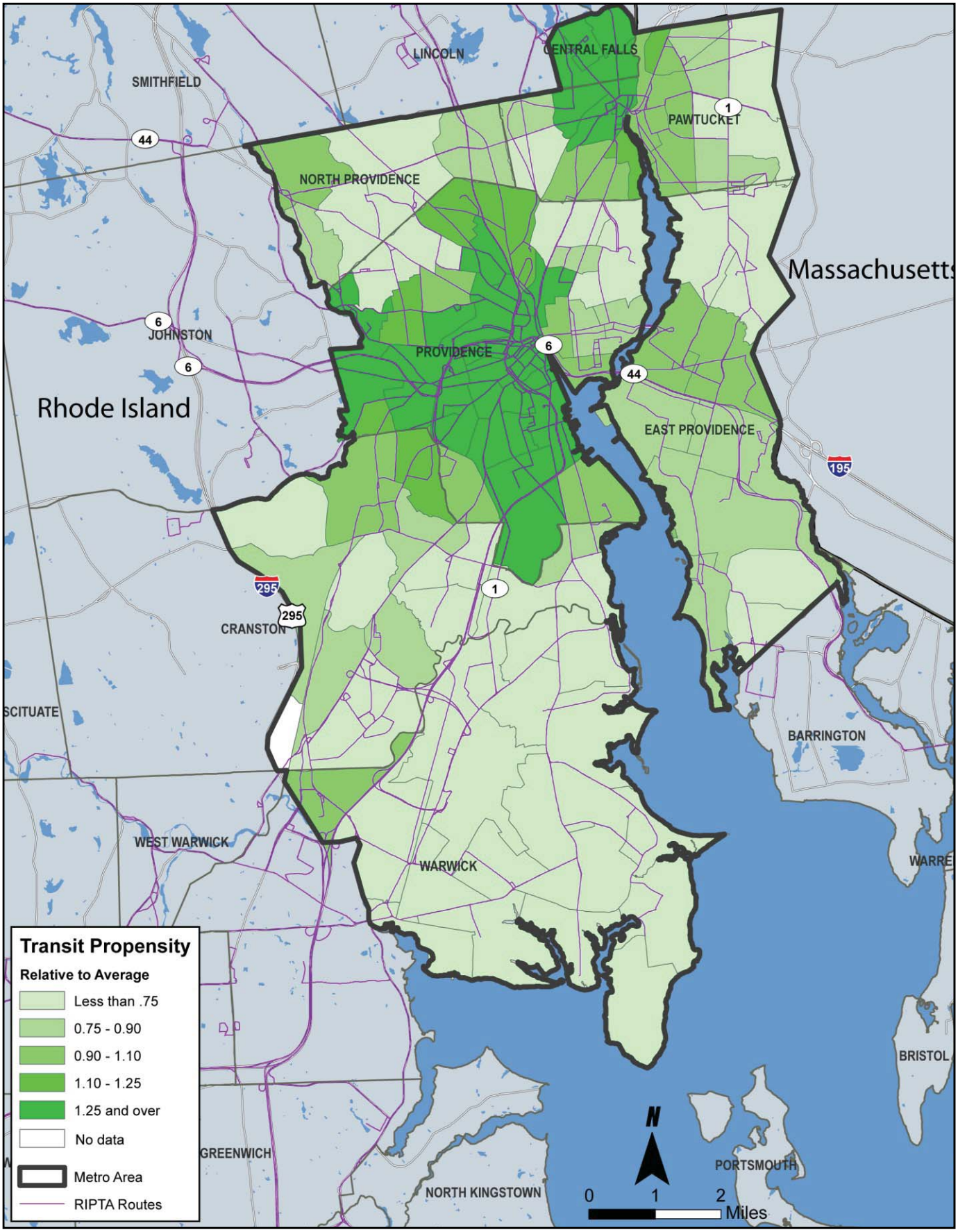
The study team applied this analysis to identify the areas whose populations are highly likely to use transit; that is, areas with a high propensity to use transit service. The areas with high transit propensity are identified in Figure 4-4. These areas include the vast majority of the established Providence neighborhoods, Central Falls, the northern half of Pawtucket, and parts of East Providence, North Providence and West Warwick.

4.2. CONNECTIONS ALONG KEY CORRIDORS AND BETWEEN MAJOR ACTIVITY CENTERS

The primary high-volume corridors in the metropolitan area are those into and out of downtown Providence. A number of these corridors have been identified earlier as part of the city's Transit 2020 Working Group, and as part of other studies and reports. They include:

- Downtown Providence to Warwick
- Downtown Providence to Cranston (via Allens Avenue)

Figure 4-4:
Transit Propensity by Census Tract



- Providence to Pawtucket
- Downtown Providence to Olneyville (via the Valley)
- Providence to East Providence

RIPTA operates services in each of these corridors; specific RIPTA routes serving these corridors are described later in this chapter.

SERVICE TO ACTIVITY CENTERS

In general, RIPTA service to major healthcare facilities, colleges and universities, shopping centers, and employment centers in the metro area is comprehensive, with RIPTA routes operating directly to, or in close proximity to, activity centers. Outside the metro area's urban core, however, there are a few destinations that are potentially underserved in terms of frequency or span of service, or not served at all:

- Butler Hospital and Providence Veterans Administration Medical Center lack transit service during evening hours, Butler Hospital is not served on the weekend, and Kent Hospital and Our Lady of Fatima Hospital are not served on Sunday
- Garden City Center is not served on Sunday
- The Centre of New England, Rhode Island's largest shopping center, is not served by RIPTA
- The Crossing at Smithfield, the state's fifth largest shopping center, is served by four daily roundtrips (Monday through Friday) on the only RIPTA route providing local service from the metro area (Route 58)
- Metro Center Boulevard in Warwick is not directly served by transit

TRAVEL FLOWS

The location of transit-oriented populations and the location of jobs, as described above, provide valuable insights into where transit needs are greatest. However, the key to providing attractive transit service is to conveniently link transit-oriented populations to the places that they want to go.

With few exceptions, the greatest travel flows for all trip types are, and through 2030 will continue to be, to and from Providence. Of the trips from other communities to Providence, the overwhelming majority are to downtown Providence. This will continue to be the case through 2030. Non-Providence travel flows are smaller, but still significant (see Figure 4-5):

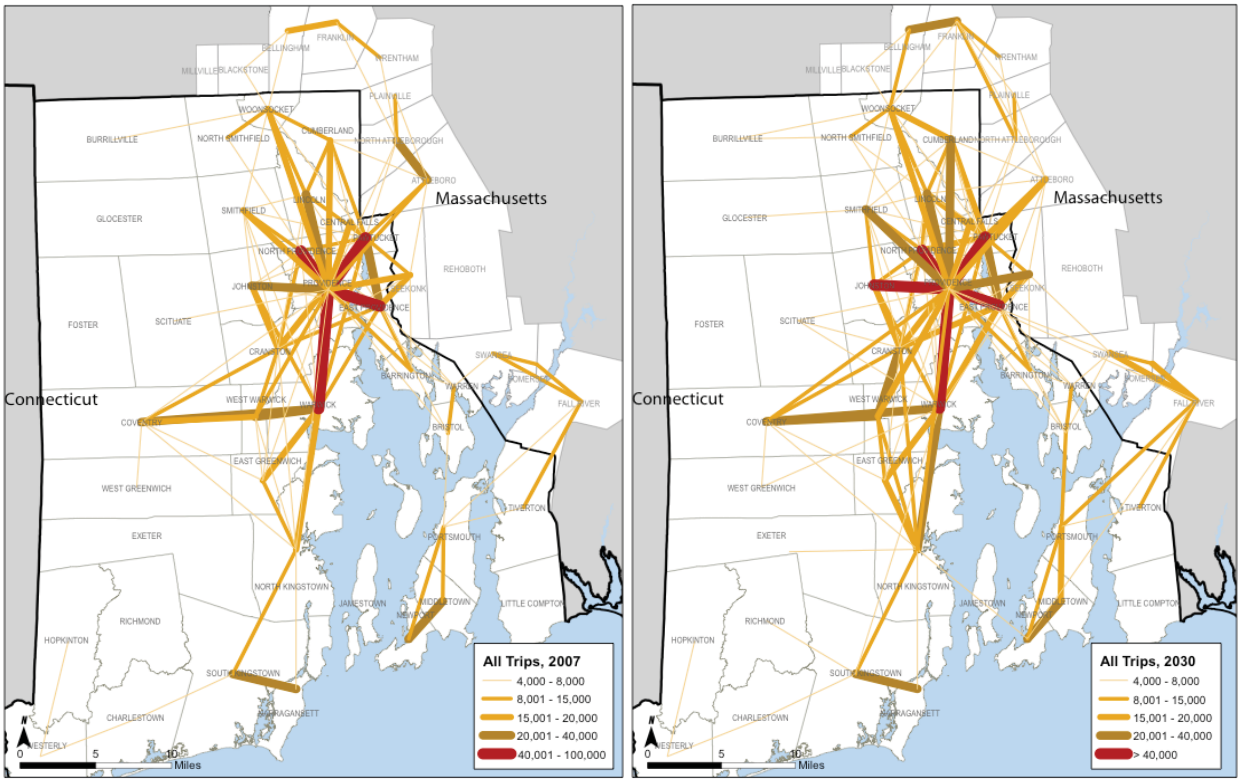
- East Providence -- Pawtucket
- North Providence and Pawtucket
- Coventry -- Warwick
- West Warwick -- Warwick
- Cranston – West Warwick, East Providence, and Pawtucket

4.3. INVENTORY OF AVAILABLE TRANSIT SERVICES

RIPTA FIXED ROUTE SERVICES

RIPTA operates 58 fixed routes serving 38 of Rhode Island's 39 cities and towns. The majority of these routes operate out of Kennedy Plaza in Downtown Providence, while a small number of routes operate from hubs in Newport, Pawtucket, and Woonsocket.

Figure 4-5:
Travel Flows in 2007 and 2030



RIPTA served over 24.8 million passenger trips on the fixed route system (FY 2008). By far the strongest performing routes in the system are:

- Route 11 Broad Street, serving Providence's Southside neighborhoods (nearly 2 million passenger trips in FY 2008); and
- Route 99 connecting Downtown Providence to Downtown Pawtucket (nearly 1.6 million passenger trips in FY 2008).

Other high ridership routes (serving between approximately 850,000 and 900,000 passenger trips in FY 2008) include Route 56 Chalkstone Avenue, Route 20 Elmwood/Auburn/Airport, Route 22 Pontiac Avenue, and Route 60 Providence/Newport. Figure 4-6 provides FY 2008 ridership for each fixed route in the RIPTA system.

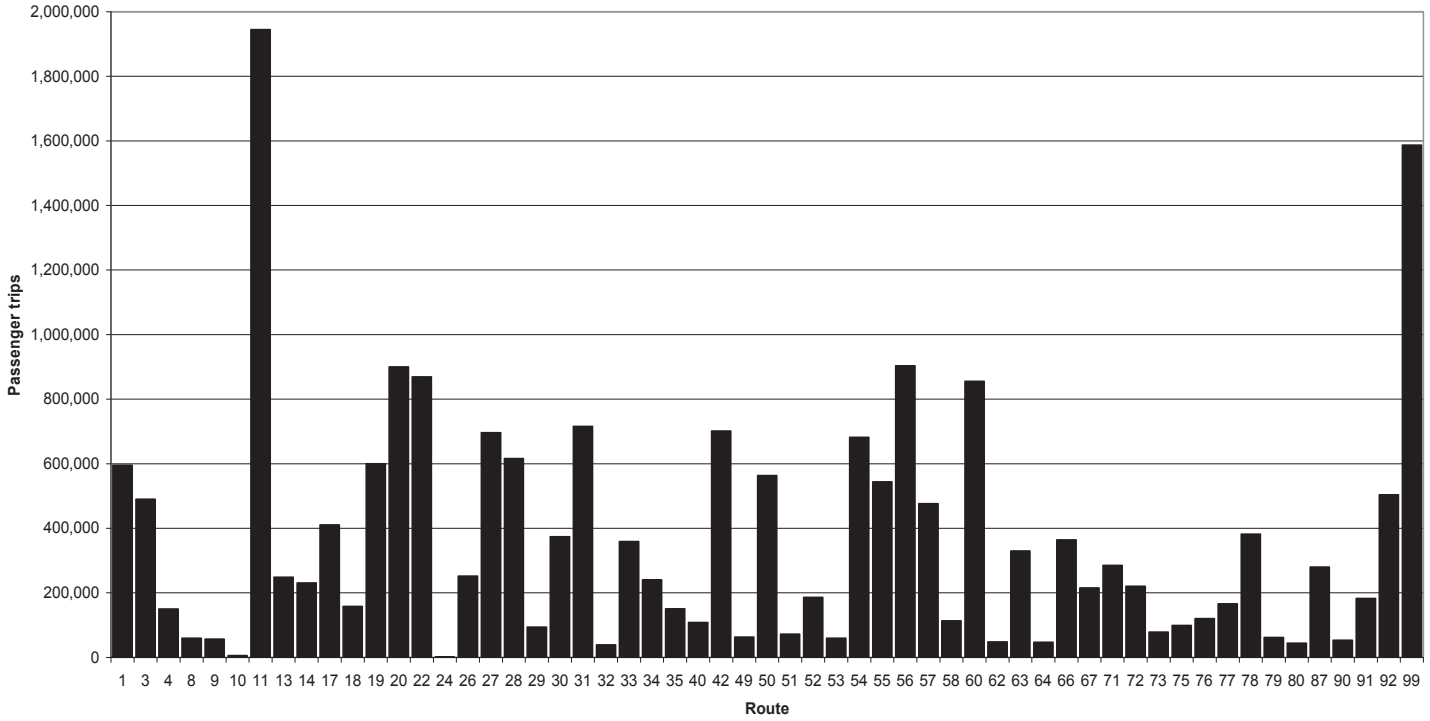
In Pawtucket, corridors with large numbers of inbound boardings include Main Street and Pawtucket Avenue (Route 99), East Avenue (Route 42), and Broadway (Route 77). In Central Falls, Broad Street (Route 71) also has a significant number of inbound boardings, as does Taunton Avenue in East Providence (Routes 33 and 34).

Specific stops with relatively high counts of alighting passengers (those getting off the bus) include Olneyville Square, Beverage Hill Avenue at Pawtucket Avenue and at Newport Avenue (both in Pawtucket), and Shoppers Town Plaza, located at the intersection of Taunton Avenue and Pawtucket Avenue in East Providence.

PROVIDENCE LINK TROLLEY

RIPTA offers two routes in the study area operated with trolley replicas connecting tourists and local residents to major Providence destinations (see Figure 4-7). Both routes operate from Kennedy Plaza. Trolley fares are the same as RIPTA fixed-route fares. Over 700,000 passenger trips were served by the Providence LINK in FY 2008. The Gold Line and Green Line operate every 20 minutes on weekdays and Saturdays; the Green Line also operates on Sundays.

Figure 4-6:
RIPTA Ridership by Route, FY 2008



Areas with high numbers of morning peak period boardings heading into downtown Providence and other centers are found along many of the major arterials within the City of Providence, but most notably in the following corridors: Eddy Street (Route 1); Broad Street (Route 11); Cranston Street through to the Brewery Parkade in Cranston (Route 31); Hartford Avenue (Route 28), Plainfield Street (Route 19), and Pocasset Avenue (Route 17) west of Olneyville Square; Chalkstone Avenue (Route 56), Douglas Avenue (Route 50), North Main Street (Route 99) and Hope Street (Route 42).

RIPTA PARK AND RIDES

RIPTA serves nine park-and-ride lots within the Metro Area. RIDOT supports this program through ownership and construction of the majority of the lots. While some Park-and-Rides outside the Metro Area are served by RIPTA's Route 90 express park-and-ride services, all Metro Area Park-and-rides are served by regular RIPTA fixed routes. No fee is charged to customers for parking at these lots.

Figure 4-7:
Providence LINK Trolley Map

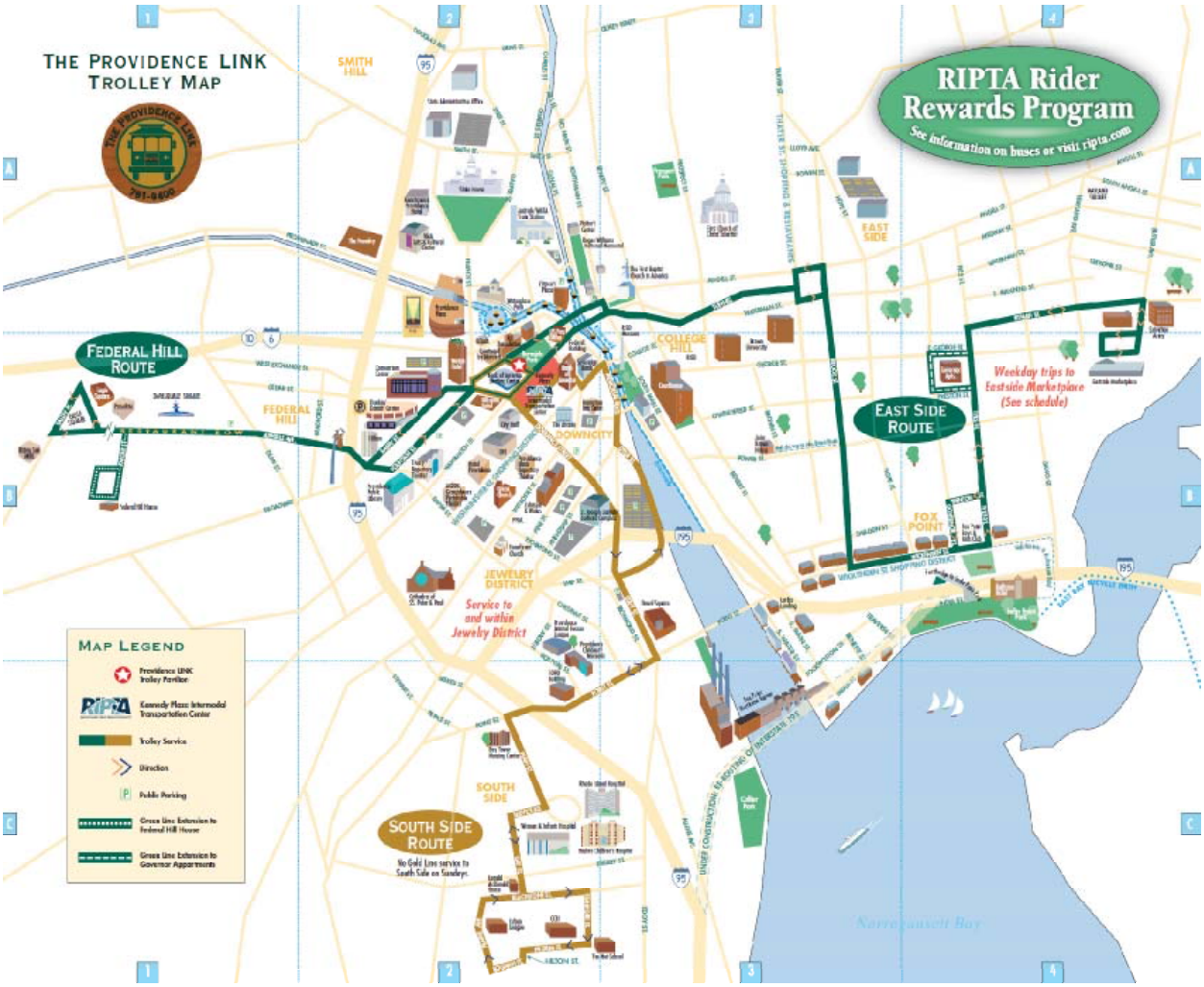


Figure 4-8 illustrates all advertised Park-and-Ride lots served by RIPTA in the Metro Area.

RIPTA customers are likely using other locations as de facto park-and-rides, though use of privately-owned lots is not sanctioned or advertised by property owners or RIPTA.

RIPTA FLEX SERVICE

RIPTA's Flex Service is a zone-based, demand-responsive service for the general public that incorporates scheduled stops at key locations within a Flex Zone and connections to regular fixed-route transit services for travel outside the Zone. Flex Service zones are primarily suburban or rural in nature. There is no RIPTA Flex service operating in the Metro area.

RIPTA PROVIDENCE/NEWPORT FERRY

RIPTA's seasonal high speed ferry service between Providence and Newport was discontinued in October 2008 when replacement funding for a federal Congestion Mitigation and Air Quality Improvement Program (CMAQ) grant could not be secured. The service connected passengers to Perrotti Park near Newport's Gateway Visitors Center from Conley's Wharf at Providence Piers on Allens Avenue south of Downtown Providence. In 2009, RIPTA identified a private operator to operate the route, however mechanical and other issues led to limited operation over a shortened season. In FY 2008, the Providence/Newport Ferry carried nearly 43,000 passengers.

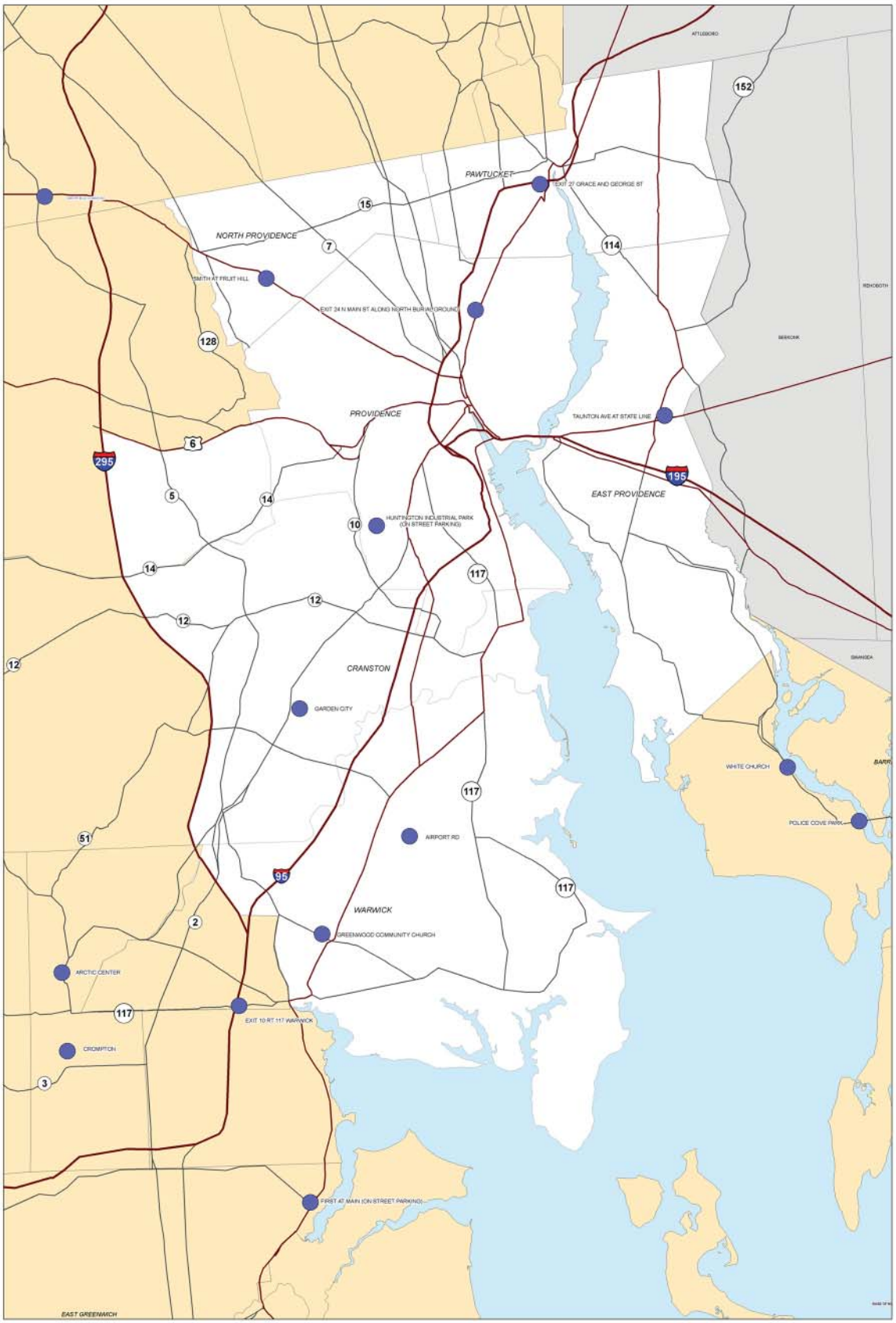
ADDITIONAL PUBLIC TRANSPORTATION SERVICES IN RHODE ISLAND

In addition to RIPTA, other public and private transportation operators serve Rhode Island.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY (MBTA)

MBTA operates bus, subway, commuter rail, and ferry service in Boston, Massachusetts, and neighboring communities. MBTA's Providence/Stoughton Line rail service connects Providence Station to South Station in Boston via Attleboro, Mansfield, and Hyde Park. The line operates on weekdays from approximately 5:00 AM to 1:00

Figure 4-8:
Metro Area Park and Ride Lots



Existing Study Area Park and Ride Locations

AM, on Saturdays from 6:30 AM to 12:15 AM, and on Sundays from 11:00 AM to 12:15 AM. The Providence Line operates 15 weekday, nine Saturday, and seven Sunday roundtrips between Providence and Boston. The one-way trip takes approximately 70 minutes. Frequencies vary by time of day, with higher frequencies during the peak period. The one-way adult fare between Providence and Boston is $7.75.

GREATER ATTLEBORO TAUNTON REGIONAL TRANSIT AUTHORITY (GATRA)

GATRA provides public transit service in Southeastern Massachusetts in and around the cities of Attleboro and Taunton. One GATRA route, Route 24, travels between Massachusetts and Rhode Island. Route 24 provides service from Broadway and Benefit Street in Pawtucket to Attleboro via State Route 123. The route operates approximately hourly between 6:00 AM and 7:00 PM on weekdays. No weekend service is provided.

GATRA Route 16 provides service from Attleboro to Central Plaza in Seekonk, Massachusetts, on the Rhode Island border. RIPTA Route 76 stops approximately a quarter mile from Central Plaza in Massachusetts. Route 16 operates approximately every hour from 5:40 AM to 6:20 PM on weekdays and from 9:40 AM to 5:20 PM on Saturdays. The one-way fare on GATRA is $1.00.

PETER PAN BUS LINES

Peter Pan Bus Lines is a long-distance private bus company operating in the Northeast. Peter Pan operates from three bus terminals in Rhode Island—the Bonanza Bus Terminal in Newport, the Peter Pan Bus Terminal in Providence, and Kennedy Plaza in Providence. Peter Pan provides a free shuttle connecting passengers from the Providence terminal to Kennedy Plaza. Direct service is provided to New York City, Albany, Boston, Washington DC, and Baltimore among other locations. Rhode Island points of origin for Peter Pan trips include Providence, T.F. Green Airport, Portsmouth, Middletown, and Newport. Fares vary by distance.

GREYHOUND LINES

Greyhound is a major private intercity bus operator in the United States, serving more than 3,700 destinations. Greyhound provides service to Providence with limited service to Newport, Middletown, Portsmouth, and T.F. Green Airport in Warwick. Greyhound vehicles operate from Kennedy Plaza in Providence. From Providence, passengers can travel directly to New Haven, Connecticut, Boston, Massachusetts, and New York City. From these locations, passengers can transfer to vehicles traveling across the United States.

AMTRAK

Amtrak is the major intercity passenger rail carrier for the United States, connecting cities and destinations across the country. Providence Station is served directly by the Northeast Regional and Acela Express Routes.

The Northeast Regional Route operates from Boston, Massachusetts, to Virginia Beach, Virginia, with most trips operating between Boston, New York City, and Washington DC. In addition to Providence, most trips serve Kingston and Westerly in Rhode Island. Ten roundtrips run daily from Providence at varying frequencies from 7:00 AM to 11:30 PM (Figure 4-9). The Acela Express provides limited stop service between Boston, New York City, and Washington DC. The only route stop in Rhode Island is Providence. Ten roundtrips operate on weekdays with less service offered on weekends. Acela Express service is faster than the Northeast Regional service but costs passengers more. The service operates on varying frequencies from Providence, 5:45 AM to 10:00 PM on weekdays. Hours are limited on weekends.

PRIVATELY OPERATED SHUTTLE SERVICES

Beyond scheduled airport shuttles serving downtown Providence (Aero-Airport Limo) and Newport (Cozy Cabs), the primary non-RIPTA shuttle services operating in the Providence metropolitan area are those provided by Brown University, the Rhode Island School of Design (RISD), and Johnson & Wales University. While all of these institutions partner with RIPTA for free transit access for students, faculty, and staff through the UPass Program, each operates additional shuttle services supplementing RIPTA services. Brown University operates a main campus shuttle, as well as shuttles connecting College Hill with RISD/South Main Street facilities, with Medical School facilities in the Jewelry District, and with RI Hospital on Eddy Street. Johnson & Wales has facilities dispersed throughout the Metro Area and has an extensive shuttle network serving these locations. RISD operates its shuttle on a request-basis, serving any location within a defined area around downtown Providence. Within the Metro Area, schools participating in RIPTA's UPass Program include Brown University, Rhode Island School of Design, Johnson & Wales University, Providence College and University of Rhode Island – Providence Campus. Students, and in some instances faculty, at these participating institutions made approximately 100,000 trips in September 2009.

Figure 4-9:
Amtrak Providence Service

Service	Number of trips (Northbound & Southbound)			Travel time from Providence (hh:mm)		
	Weekday	Saturday	Sunday	Boston	NYC	Washington
Northeast Regional	10	10	10	0:45	3:30	7:00-8:30
Acela Express	10	2	4	0:45	3:00	6:00

TRANSIT CENTERS AND HUBS

KENNEDY PLAZA

Kennedy Plaza is RIPTA's main transit hub. Located in Downtown Providence between City Hall and the Federal Building, all RIPTA routes serving Providence use this transit center as a central transfer point for all passengers. The terminal features 16 bus bays and a transportation center completed in 2002. Passenger amenities offered at Kennedy Plaza include:

- Ticketing for RIPTA bus and trolley services, Peter Pan Bus Lines, and Greyhound Lines
- A café
- Indoor waiting area with restrooms
- City of Providence Police Security Office
- RIPTA photo ID office
- Video monitor displays of departing bus times

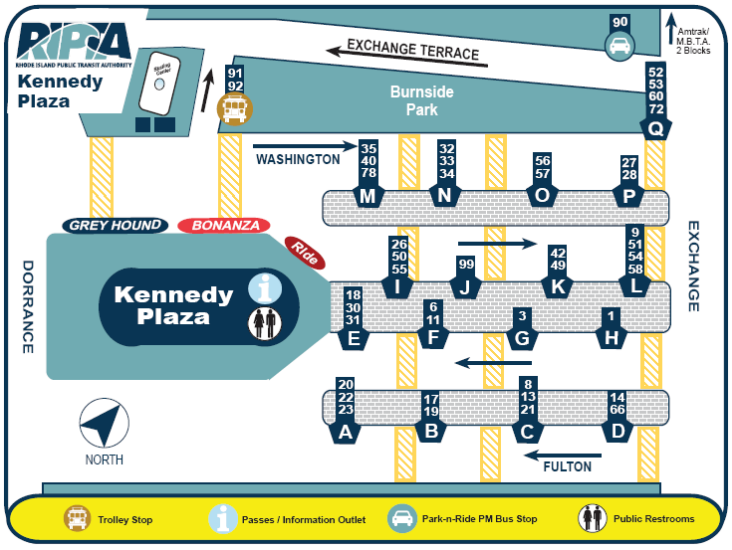
The passenger terminal is open from 6:00 AM to 8:00 PM daily. In addition to RIPTA, Peter Pan Bus Lines and Greyhound Lines also serve the Kennedy Plaza hub.

The Pawtucket Transit Center, located within the Blackstone Valley Visitors Center at Main Street and Roosevelt Avenue in downtown Pawtucket, is served by several RIPTA routes. GATRA Route 24 serves Pawtucket but does not serve the Transit Center. The Transit Center is open from 9:00AM to 4:00PM and provides an indoor passenger waiting area and access to restrooms. It is not staffed by RIPTA personnel.

Olneyville Square is located at the intersection of Westminster Street, Broadway, Manton Avenue, and Hartford Avenue in Providence. RIPTA bus routes—9, 17, 19, 27, and 30—serve Olneyville Square. The Square is a major transfer point within the RIPTA system.

PROVIDENCE INTERCITY AND COMMUTER RAIL STATION

Providence Station, located at 100 Gaspee Street, approximately 1/3 mile from Kennedy Plaza and adjacent to the Rhode Island State House grounds, is served by Amtrak and the Massachusetts Bay Transportation Authority (MBTA) commuter rail service. The station includes a passenger waiting area, ticketing, restrooms, and concessions. Providence Station is served by RIPTA Routes 50, 55, 56, 57 and the Providence LINK Gold Line.



PETER PAN BUS LINES TERMINAL

Peter Pan's main passenger terminal is located at 1 Peter Pan Way in Providence, approximately 2.5 miles north of Kennedy Plaza and directly adjacent to Highway 95 at the Smithfield Avenue exit (25A).

The terminal provides ticketing and an indoor passenger waiting area and includes the Peter Pan maintenance facility. RIPTA Routes 49 and 99 provide service along nearby North Main Street. Peter Pan provides regular free shuttle service between its terminal and Kennedy Plaza.

WARWICK INTERMODAL STATION

The Warwick Intermodal Station, adjacent to T.F. Green Airport, is a component of the planned extension of MBTA commuter rail service south of Providence to Warwick and Wickford Junction. The project includes the rail station, a consolidated rental car facility, a bus hub for RIPTA and intercity buses, and a parking garage for rental car fleets (2,200 spaces) and commuter rail passengers (1,000 spaces). The station will be located south of Coronado Road at Jefferson

Figure 4-10:
RIPTA Passenger Fares and Passes

Fare Product	Cost
Base fare	$1.75
Transfer	$0.50
Senior/Disabled Reduced Fare (off peak)	$0.85
1-Day Pass	$5.00
7-Day Pass	$20.00
RIPTIK book (10 rides; includes transfer upon request)	$17.50
15-Ride Pass (includes transfers upon request)	$23.00
Monthly Pass	$55.00

Boulevard, west of the airport. A 1,250 foot skywalk with moving sidewalks is planned to span the distance between the station and the airport terminal. Construction is anticipated to be complete in the fall of 2010.

4.4. CURRENT FARE STRUCTURE AND PROGRAMS

RIPTA PASSENGER FARES

One of the most significant policies and incentives for capturing and sustaining transit ridership concerns the cash fare and pass programs available to passengers on the system. RIPTA's "One Rate-Ocean State" fare policy provides for a base fare of $1.75 for any fixed route trip in the state, regardless of distance. The same base fare applies for Providence LINK and Park and Ride services. Figure 4-10 summarizes RIPTA's fare products.

UNIVERSITY PASS

RIPTA currently operates a free or reduced fare transit program funded by participating colleges and universities. In the case of those who are able to ride for free they only need show their school ID. Those who receive discounted passes can find them on campus.

Free transit passes are provided to the students, faculty and staff of Brown University, RISD, Johnson & Wales, Roger Williams University, Gibbs College, Providence College, and Salve Regina. Fifty percent discount passes are available for all at University of Rhode Island/Kingston Connection and Commuter Resources Rhode Island (CRRI) Providence. Only Rhode Island College, CRRI Newport, Warwick and Lincoln, Bryant University, Career Education Institute, and the New England Institute of Technology do not subsidize UPass, but monthly passes are available at most of these schools.

4.5. RIPTA'S STATEWIDE TRANSIT IMPROVEMENT INITIATIVES

RIPTA has been responding to the state and regional charge for a broadening of its mission from a transit service provider to a full partner in managing the state's network of transportation options. RIPTA is dedicated to providing seamless, efficient and appealing transportation choices for all Rhode Island residents, and is constantly evaluating its services to respond to growth in ridership, local development trends and changing customer needs. The operation of a responsive, reliable and attractive transit system requires the operation and upkeep of numerous "behind the scene" components (e.g. maintenance facilities, communications equipment, etc.) and the introduction of new technologies to achieve greater operational efficiencies.

RECENT IMPROVEMENTS IMPLEMENTED BY RIPTA

- **Statewide Service Enhancements:** RIPTA is continually evaluating customer needs, with schedule modifications and route adjustments made three times each year. Recent improvements include:

  1) Improved access to large schools, major employers and other key destinations, such as the Naval Undersea Warfare Center in Middletown, Bryant University and Fidelity Investments in Smithfield, Memorial Hospital in Pawtucket and Bellecourt Castle in Newport;
  2) Better connections in South County between the University of Rhode Island (URI), downtown Providence, CCRI and residential areas of Narragansett;
  3) Through-routing of service beyond Kennedy Plaza in Providence, eliminating the need for many customers to transfer when accessing destinations beyond the downtown core;
  4) Improved intermodal connections, with RIPTA buses now connecting the Block Island Ferry and Kingston rail station;
  5) Expanded Flex Service, including a new Flex service zone serving downtown Newport and the Aquidneck Avenue area of Middletown.

- **Fleet Replacement/Vehicle Upgrades:** Regularly scheduled upgrades and replacements to the vehicle fleet have a direct and visible impact on overall system reliability and customer satisfaction. RIPTA has been transitioning its fixed route fleet to clean (ultra low sulfur) diesel with low-floors for enhanced accessibility. Over the past 5 years, a total of 60 new clean diesel buses have been purchased and are now in use throughout the state. An additional 24 of these low-floor buses will be delivered in the fall of 2010. The RIde and Flex vehicle fleets are also being modernized.

- **Facility Improvements:** Bus stops and transit hubs play an important role in increasing the attractiveness, visibility and convenience of public transit. A new state-of-the-art Intermodal Transportation Center was constructed at Kennedy Plaza in 2002, and RIPTA continues to work with the Greater Kennedy Plaza Working Group, recently installing new seating, planters and solar-powered trash compacters. The Newport Gateway Visitor's Center was renovated in 2006. In addition, RIPTA has worked with community

groups and other partners to upgrade local stops, constructing a unique community-designed shelter in Olneyville Square, installing bike racks and benches on Aquidneck Island, and adding new Park and Ride lots in Barrington and West Warwick.

- **Electronic Fare Collection System:** A new, state-of-the-art, electronic fare collection system was installed on all RIPTA buses in 2007, allowing for magnetic swipe technology and automated on-board ticket processing. Benefits include increased customer convenience, faster vehicle boarding, improved passenger counting capability and reduced revenue handling costs.
- **Improved Scheduling & Dispatch Capabilities:** New scheduling and dispatch software for RIPTA's Paratransit and Flex divisions was installed in 2008, improving overall customer service with automated trip confirmation and providing better response to canceled trips, no-shows, or vehicle breakdowns. Other benefits include more efficient trip scheduling and enhanced safety due to improved vehicle communications.
- **Safety & Security:** All RIPTA Driver Safety Programs have been updated over the past three years, with new training requirements now in place for Fixed-Route, Paratransit and Flex drivers. In addition, a comprehensive safety and security evaluation of all RIPTA operations and properties was completed in 2008. Recommendations are now being implemented, including the installation of fencing, lighting and a card-access system at the Elmwood Complex.
- **Commuter Resources & Transit Incentives:** RIPTA supports its transit programs by publicizing information about the availability of transit and implementing programs aimed at increasing transit ridership and carpool usage throughout the state. Many of these programs are co-sponsored by RIDOT and operated through the Commuter Resources Rhode Island program. Recent accomplishments include:

  1) Operating the Keep Eddy Moving program and helping to mitigate congestion during the relocation of I-195 by serving more than 4,500 trips in the Eddy Street area each day.
  2) Implementing a Parking Cash Out Program to help businesses comply with a new law requiring certain employers to offer a RIPTA transit pass in lieu of a subsidized parking space, and a Guaranteed Ride Home Program to support transit users who must get home in an emergency.
  3) Expanding the University Pass (UPass) program, which now supports a total of 16 schools around Rhode Island.
  4) Partnering with Google Trip Planner to share online bus route and schedule information.

ANTICIPATED IMPROVEMENTS TO BE IMPLEMENTED BY RIPTA

The Metropolitan Providence Transit Enhancement Study represents only a small piece of RIPTA's efforts to meet future needs in a responsive manner. The improvements outlined below are funded and planned for implementation over the next few years.

- **Fleet Replacement/Vehicle Upgrades:** RIPTA is now moving to incorporate diesel-electric hybrid technology. Beginning in 20111, RIPTA will accept delivery of 63 hybrid buses. These will be modern, quiet, low-floor vehicles anticipated for service on high-volume priority routes throughout the system. RIPTA's trolley fleet is also being transitioned from compressed natural gas (CNG) to diesel-hybrid technology, with ten new trolley vehicles scheduled for delivery in 2011. These vehicles will be modern transit vehicles that maintain the vintage trolley look for use in downtown Providence and Newport.
- **Facility Improvements:** Upgrades scheduled for FY 2010 include repaving of Kennedy Plaza and adjacent pedestrian walkways, construction of RIPTA's 29th Park and Ride facility at Chalkstone and Sisson in Providence, and repairs to existing maintenance facilities in Providence and Newport (new roofs, lot repaving, bus wash replacement and installation of energy-efficient lighting, windows and doors).
- **New Paratransit Operations & Support Center:** A new paratransit support center is being constructed in Providence. This facility will provide improved maintenance capabilities, indoor storage for up to 204 revenue vehicles, and an easily accessible, customer service center on Elmwood Avenue. Completion of the project in the Spring of 2010 will provide significant operational benefits including increased RIde service reliability, extended vehicle life and reduced energy consumption.
- **Intelligent Transportation System (ITS) Project:** Installation of ITS technology is anticipated to begin in 2010, and will include Computer Aided Dispatch and Automatic Vehicle Identification (CAD-AVL) devices, automated stop announcement capability and real-time customer information devices. These enhancements will improve RIPTA vehicle dispatch and the efficiency of vehicle operations, as well as provide for the sharing of real-time arrival information on RIPTA's website, public displays and phone hot-lines.
- **Aquidneck Island Transportation Corridor Study:** RIPTA is actively participating in a study of potential transportation improvements on Aquidneck Island. The study is being funded by RIDOT and the RI Statewide Planning Program, and administered by the Aquidneck Island Planning Commission (AIPC). RIPTA is actively participating as a member of the advisory committee and has committed to working to implement recommendations for multi-modal alternatives and overall mobility improvements on the island.
- **South County Transit Enhancements:** RIPTA is planning to initiate a study of South County transit enhancements in 2010. This effort will identify and assess a range of potential improvements to enhance existing South County transit services, as well as potential new and expanded services.

5. RECOMMENDED IMPROVEMENTS

The primary product of the Providence Metropolitan Transit Enhancement Study is to recommend a series of transit capital and operating improvements to meet RIPTA's mission to promote, coordinate and operate a range of high-quality, safe, reliable and affordable transportation choices. These recommendations are specifically designed to support RIPTA's efforts to achieve its vision to:

- ✓ Maintain a first-class transit system
- ✓ Improve and grow an intermodal system
- ✓ Increase coordination and cooperation with public and private entities
- ✓ Develop adequate, stable and sustainable funding

In addition to the set of recent and planned initiatives already underway by RIPTA, the study team has identified a specific set of ten (10) recommended improvements to meet current demand and to enable RIPTA to grow with increased demand. RIPTA also has considered the financial implications and the feasibility of implementing each of the recommendations. RIPTA's primary responsibility as the steward of public transit investment is to ensure continued support for ongoing system operations, maintenance and investment in order to provide safe, convenient and efficient transit services. RIPTA must maintain its assets and infrastructure in a "state of good repair."

In consideration of RIPTA's vision as well as all financial and implementation implications, the remainder of this chapter identifies the specific study recommendations designed to meet current transit needs and to grow the Metro transit system. Following a brief introduction below, a complete set of project summary sheets for the ten (10) study recommendations is provided at the end of this chapter.

5.1. MEETING CURRENT TRANSIT NEEDS

The first set of study team recommendations relate to specific enhancements or improvements to enable existing RIPTA services and operations to meet current transit needs. These recommendations include elements to:

- Provide additional bus service
- Improve the transit experience
- Reinvent Kennedy Plaza
- Introduce new downtown Providence transit hubs
- Increase Park and Ride Capacity

1. PROVIDE ADDITIONAL TRANSIT SERVICE

Following a more detailed route-by-route analysis of the system, RIPTA will identify the best ways to expand existing services to meet current and anticipated demand in higher capacity corridors and to better serve key employment and activity centers. RIPTA recognizes that service expansion already is needed, including more frequent service on existing routes, longer spans of service during evening and weekend hours, extensions of existing routes, and the development of new services. RIPTA should continue to strengthen corridors that already enjoy high ridership and a high level of service, such as Chalkstone Boulevard, Cranston Street, Elmwood Avenue, Hope Street and Manton Avenue. Further enhancing these corridors will help to establish the ridership necessary to support future Rapid Bus ser vice.

Although the Metro Transit Study focused on improvements within the Providence area, service expansion is likely warranted in other areas throughout the statewide RIPTA system. A strategic service analysis would: 1) identify potential improvements to all RIPTA routes and services throughout the state; 2) determine how to provide the best service possible and meet additional need within current budget levels; and, 3) determine how to expand service as finances permit. Additional buses would be required in order to increase service levels on most routes.

2. IMPROVE THE TRANSIT EXPERIENCE

The first step to improving the transit experience for riders is to increase the visibility and awareness of transit and what it can offer the individual traveler. The best advertisement of all is a strong set of materials that convey content to potential system users: the maps, brochures, schedules, stop signing, website, real-time information displays, and other 'visible' goods that riders use to interface with the system. The quality of materials and audience for which they are written, the strength of pedestrian wayfinding in the vicinity of transit services, and the naming and branding of key transit hubs and corridors figuratively speak for the system. Transit information is very important – more important than advertising -- to increasing visibility and awareness. Clear and simple information about the transit system will directly expand the inputs in each traveler's personal mode choice equation, helping to reveal the economic benefits of riding transit. Marketing that delivers information has been shown to increase ridership among first-time riders, as well as increase ridership among existing users.

RIPTA's current bus services provide reliable, frequent, convenient, and cost-effective transportation to the majority of Rhode Island's

residents. It is paramount that existing and planned service be accompanied by a program of simple and easy to understand transit informational materials that strengthen the visibility of RIPTA services and attract new customers. Today, RIPTA system information is available in a number of places, on system maps, schedule cards, and RIPTA's website. Buses are well-marked with scrolling information boards that display route information; Kennedy Plaza stops are well-marked; and there are a number of RIPTA advertising pieces on billboards, bus shelters, and in print. The understanding of transit options in Rhode Island from the traveler's perspective is not strong, however: no stops carry system maps, few contain schedule information about the route(s) serving the stop, and no real-time information is available. Better branding of routes, improved customer information, and greater investment in amenities at stops will greatly enhance the convenience and ease of using the RIPTA system.

3. REINVENT KENNEDY PLAZA

Kennedy Plaza is RIPTA's principal hub of operations for the metropolitan area and much of the state. RIPTA proposes to reconfigure the bus berths at Kennedy Plaza in an effort to relieve pedestrian and vehicular congestion and create a more pleasant and welcoming environment. In an effort to reconcile the two main functions of Kennedy Plaza – transit center and urban place – RIPTA has been working with the City of Providence and key stakeholders to rethink the layout of the bus facility and reconsider its connections to the surrounding downtown area. In fact, RIPTA sponsored a Kennedy Plaza workshop in the summer of 2009 to generate visionary ideas for the Plaza and to determine what steps RIPTA might take to support changes to this key downtown location. Based on ideas expressed at the workshop, there is strong interest in redistributing and possibly reducing RIPTA bus operations, potentially around the perimeter of Burnside Park, further freeing up space in the center of the plaza.

4. INTRODUCE NEW DOWNTOWN PROVIDENCE TRANSIT HUBS

Extending RIPTA bus routes beyond the primary downtown destination of Kennedy Plaza to a second hub/terminus just outside of downtown will eliminate the need for many passengers to transfer in order to reach their final, outlying destinations. Four new local hub locations have been identified around the periphery of downtown Providence: West Side (Cahir), College Hill, Capitol Hill and the Hospital District. Development of these hubs would heighten the visibility, accessibility and convenience of transit within the downtown area and will enable RIPTA to reduce bus layover time and the overall level of bus activity in Kennedy Plaza.

5. INCREASE PARK AND RIDE CAPACITY

RIPTA currently serves twenty-eight (28) formal Park and Ride locations where riders can park their cars or receive rides in cars to access RIPTA bus routes, nine of which are in the Metro area. The study team recommends expansion of the Park and Ride program in conjunction with RIDOT, adding new lot locations, introducing more frequent and midday bus services to lots, installing better passenger amenities at these locations, expanding the guaranteed ride home program, and increasing EcoPass participation. This would double the number of Park and Ride locations in Metro Providence.

5.2. GROWING OUR METRO TRANSIT SYSTEM

While the first focus is appropriately on meeting current transit demand, the study team also recommends a set of improvements for new and expanded services to grow the Metro transit system. These recommendations include projects to:

- Initiate rapid bus service
- Build a Providence streetcar
- Strengthen intermodal connections
- Expand programs for commuters
- Encourage transit-oriented development

6. INITIATE RAPID BUS SERVICE

The study team recommends a Rapid Bus starter line on RIPTA's two highest bus ridership routes – 11 Broad Street and 99 North Main Street/Pawtucket. Rapid Bus offers the opportunity to enhance existing bus service to provide faster and more reliable service, a higher level of passenger comfort and amenities, and a distinctive service identity. Rapid bus implemented on Broad Street and on North Main Street would introduce an integrated system of transit measures to significantly improve the speed and attractiveness of bus service. Over time, Rapid Bus would be expanded to other lines in the RIPTA system.

7. BUILD A PROVIDENCE STREETCAR

RIPTA, the City of Providence, and the Study Working Group identified a 2.1 mile streetcar route concept connecting major activity centers and pedestrian-oriented areas in Downcity, the Jewelry District, and College Hill. While final alignment and the operating plan will be finalized in the next phase of planning and engineering, route concepts identified to date include service connecting to Rhode Island Hospital, the Amtrak Station and the College Hill/Thayer St. transit hub via the existing bus tunnel. The concentration of activities within the compact area of central Providence is an excellent candidate for a streetcar circulator. The study presents additional information on estimated costs, the operating plan, ridership and benefits. The proposed starter streetcar line would ensure connections to potential extensions to the north, south, east and west.

8. STRENGTHEN INTERMODAL CONNECTIONS

The study team recommends a series of improvements to enhance existing and upcoming commuter rail services. These include bus service improvements to serve the South Attleboro MBTA station;

additional services to the new Warwick Intermodal Station at TF Green airport scheduled to open in Fall 2010; and, introduction of key stop amenities at Providence Station (the only location within the metropolitan area that serves both MBTA commuter rail and Amtrak trains). This effort would also introduce schedule and fare coordination between RIPTA and GATRA, MBTA, Amtrak and private intercity bus operators. Improved bike and pedestrian connections would be offered throughout the RIPTA system.

9. EXPAND PROGRAMS FOR COMMUTERS

Transit agencies across the country are beginning to benefit from some of the latest ideas for increasing incentives to encourage transit ridership and for expanding innovative programs for commuters. RIPTA is already ahead of many transit agencies in its development of strong transit incentive programs that are breaking down the perception of driving as a better value in terms of cost, time, and convenience. The agency also acknowledges that extensive service improvements that improve transit's speed and reliability will only attract a certain level of ridership without a program of incentives that can make transit a better deal, increase its convenience, and make the value of transit available to more travelers. Building on programs already in place and led by RIPTA staff and the Commuter Resource Rhode Island (CRRI) program, the study team recommends a new effort to expand the reach of the commuter program, including expansion of the universal pass programs and the addition of new programs, such as car and bicycle sharing.

10. ENCOURAGE TRANSIT-ORIENTED DEVELOPMENT

Transit agencies, municipalities and private developers throughout the U.S. are realizing the benefits of transit-oriented development (TOD). By creating dense mixed-use development in close proximity to transit stops, significantly fewer vehicle trips are produced as residents and employees take advantage of the natural synergies between uses and the connections that transit service provides. Transit agencies have realized two significant benefits from TOD. First, agencies have seen great revenue potential from leasing underutilized properties to TODs. Secondly, TODs create significantly higher ridership. The unique ridership profile of TOD produces much higher daily ridership than park & ride lots, without the peak hour capacity crunch created by commuters.

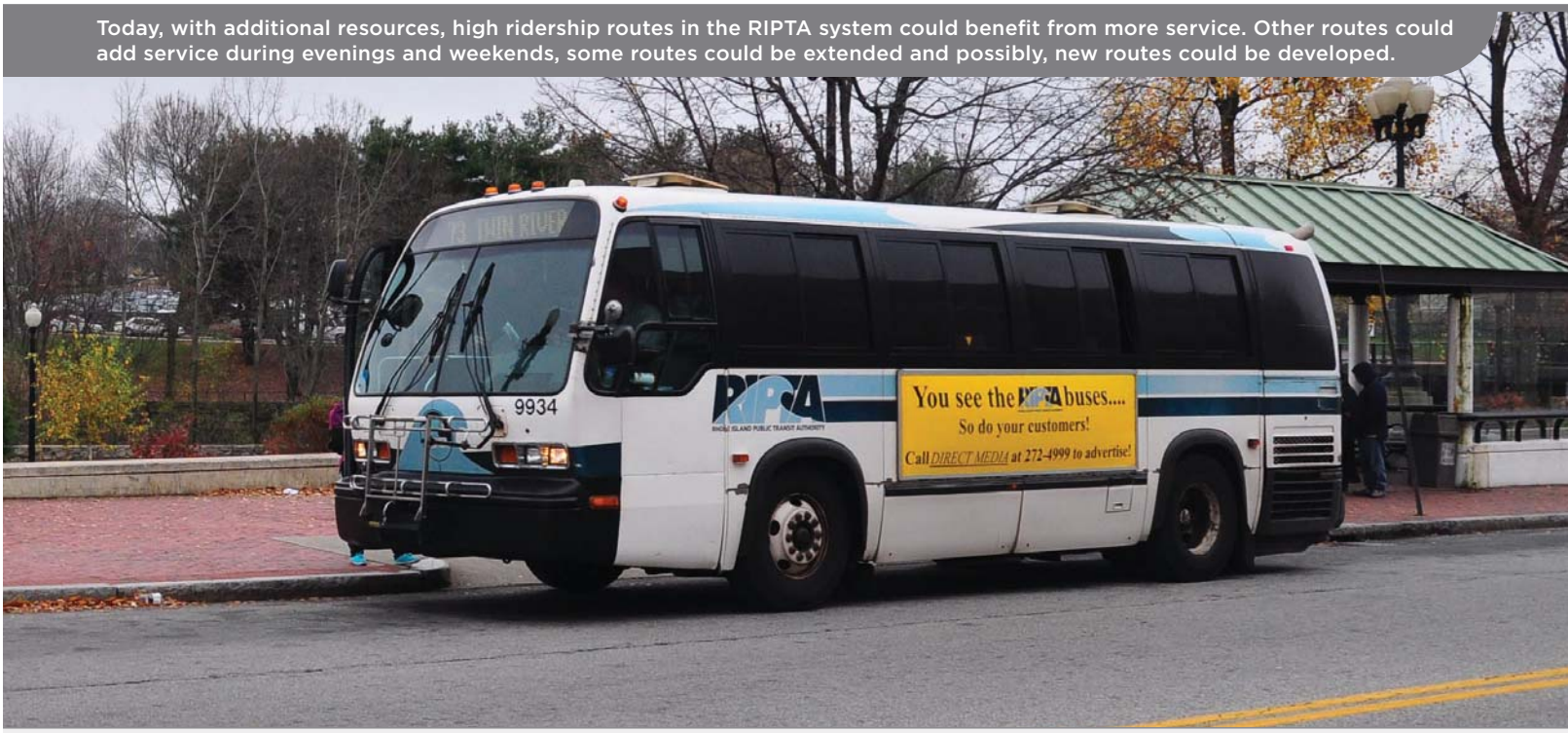
Local governments can offer incentives to developers that encourage increased density and the concentration of mixed-use growth around transit stations. The incentives are often in the form of relaxed zoning requirements, such as allowing a density bonus or removing off-street parking requirements. In some places a new zoning definition is created specifically for the TOD district. These programs involve very little or no cost to the municipality. For example, the City of Providence is completing their Comprehensive Plan, which includes higher corridor density along RIPTA's transit lines to take advantage of the traffic reducing effects of TOD. Otherwise, RIPTA has no formal program to advance TOD at this time. Statewide Planning can also support transit oriented development programs through enforcement of the Land Use 2025 Plan which calls for this type of development. Rhode Island's existing business development tax credit program, the Rhode Island Jobs Growth Act, would be an appropriate mechanism to develop incentives. RIPTA and municipalities can also promote the value of TOD in existing downtowns and walkable districts through existing marketing channels.

5.3. COMPLETE SET OF STUDY RECOMMENDATIONS

The remainder of this chapter presents summaries of each of the ten (10) specific study recommendations designed to meet current transit needs and to grow the Metro transit system.

PROVIDE ADDITIONAL BUS SERVICE

Today, with additional resources, high ridership routes in the RIPTA system could benefit from more service. Other routes could add service during evenings and weekends, some routes could be extended and possibly, new routes could be developed.



RIPTA will improve its existing transit service by simply providing more buses, more often. This cost-effective proposal will increase bus frequency and expand off-peak service on existing routes to key urban areas and institutions so that buses are available when and where they are most needed.

HAVING BUSES THERE WHEN YOU NEED THEM

To use the bus system, riders must know that they can catch a bus when they want to. RIPTA can build on its existing capability and meet ridership demands today by including more frequent service on existing routes, longer spans of service during evening and weekend hours, extensions of existing routes, and possibly the development of new routes. To meet this demand and make the bus system more available and reliable, RIPTA aims to provide a ten percent increase to existing bus service to strengthen corridors that already enjoy high ridership and levels of service, such as Chalkstone Boulevard, Cranston Street, Elmwood Avenue, Hope Street and Manton Avenue. These urban corridors are areas with increased transit need or key destinations, including healthcare facilities, colleges and universities, shopping centers and employment centers. Further enhancing these corridors will help to establish the ridership necessary to support future initiatives, such as "Rapid Bus" projects.

In order to offer expansions of service where they are most needed throughout the state, RIPTA plans to conduct a service analysis to identify potential improvements to routes and services throughout the state, determine how to provide the most cost-effective service possible, and develop a plan to prioritize the expansion of service as finances permit.

EXISTING HIGH-USE ROUTES

RIPTA currently offers nine high-use bus routes in the Providence metro area that serve Olneyville, Cranston, Pawtucket and Warwick.

Expanding RIPTA's existing bus service is a direct way to increase convenience and enhance rider satisfaction.

1

Increase funds to expand RIPTA's bus fleet and operations

2

Update statewide service standards

Conduct statewide public process

Complete strategic service planning effort

3

Prioritize and implement service expansion
as funding permits.

4

Continue implementation
of Service Changes

5

Continue implementation
of Service Changes

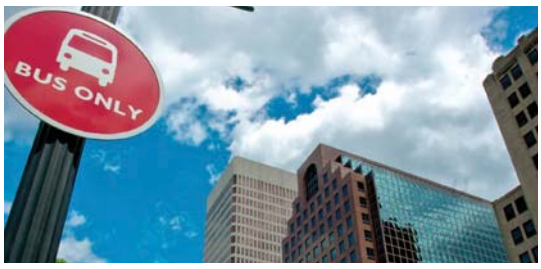
IMPROVE THE TRANSIT EXPERIENCE

Locally designed shelters supported with local partnerships improve passenger amenities and aim to reflect the character of the neighborhood.

Understanding a public transit system is the key to using it. RIPTA will improve the experience of riders by clearly identifying its services and communicating how they work, through branding, providing better information through new technology, and building new bus stops.

KNOW WHAT IT IS AND WHERE IT GOES

Making a public transit system clear to identify, easy to understand, and comfortable to use encourages people to use it. To improve the experience of its system, RIPTA proposes the following three enhancements. The first is develop service brands, including identifiable colors and graphics on vehicles, signage, and information materials, for through routes, rapid bus and transit hubs. An example is the creation of a "20 minute" network that identifies all routes that have a consistent frequency of busses 20 minutes or less apart. These include routes 56, 1/42, 28/50, 31/57, 11/99, transit hubs, LINK trolleys and a future streetcar. A multifaceted marketing program would use mainstream media, social networking and on-street efforts to educate passengers about the redesigned system. The second is to improve all forms of communication between RIPTA and the public. This begins by creating up-to-date RIPTA system maps and sched-



ules and then distributing them effectively on the RIPTA website and at transit hubs and bus stops. In addition, by using new technology, RIPTA can tell riders when the next bus is coming either on bus stop displays or their cellphones. This real-time information reduces the uncertainty of taking the bus and increases rider satisfaction. And finally, RIPTA will build new, well-designed bus stops that are consistent system-wide, yet specific by location, meaning that they can be both immediately identified by riders and useful in looking for detailed information. These will provide a safe and comfortable waiting environment, attract new riders, and project a positive image of the system.

FEATURES	MEDIUM VOLUME STOP	HIGH VOLUME STOP	KEY LOCAL AND HIGH ACTIVITY
Average Weekday Boardings	50-100	100-200	200-500
Number of Stops in Metro Area	58	35	9
RIPTA Bus Stop Sign	√	√	√
Lighting	√	√	√
Sign with Route ID/ Map	√	√	√
Paved/Accessible Area	√	√	√
Shelter/Seating	√	√	√
Trash Can	√	√	√
Current system map		√	√
Current schedule info		√	√
Bike rack		√	√
Unique Design		√	√
Public Art		√	√
Real-time schedule info			√
Fare product vending			√
Local area info/maps			√
Landscaping			√

Above: transit stop features, as they correspond to passenger volume

REAL-TIME BUS ARRIVAL INFORMATION ON YOUR MOBILE DEVICE

Intelligent Transportation System (ITS) technology enables real-time bus arrival information to be displayed online, at bus stops and to cellphones.

Better information and improved bus stops help riders access and enjoy the public transit experience

1

Start Projects

Develop branding plan

Prioritize stops for improved amenities

Create community partnerships for program

2

Develop Projects

Begin branding through routes and transit hubs

Develop web and mobile applications

3

Continue Implementing Projects

Continue to brand through routes

Implement marketing of new system tools

Implement new bus stops at key and high volume stops

4

Continue Implementing Projects

Begin real time information at key stops

5

Continue Implementing Projects

Brand 20 minute network

Implement new bus stops at medium volume stops

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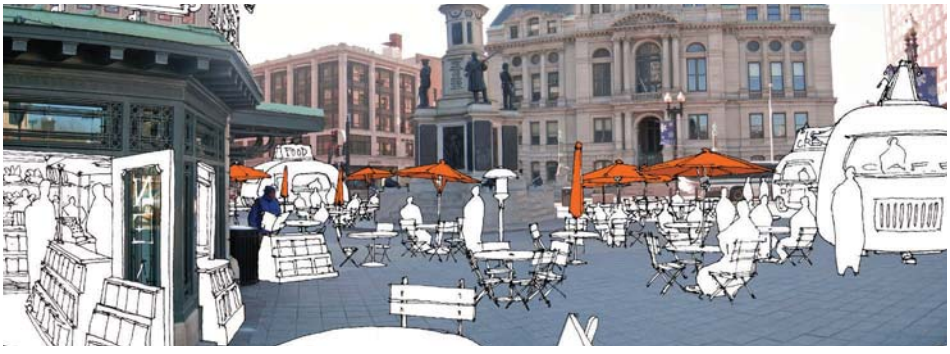
REINVENT KENNEDY PLAZA

Summer festivals and markets are becoming a regular occurrence in Greater Kennedy Plaza. Check www.kennedyplaza.org for upcoming events.

Kennedy Plaza can be both a successful transit center and a vibrant urban place. The redesign of Kennedy Plaza will enhance rider experience, improve pedestrian space, and reconnect downtown Providence to the surrounding neighborhoods.

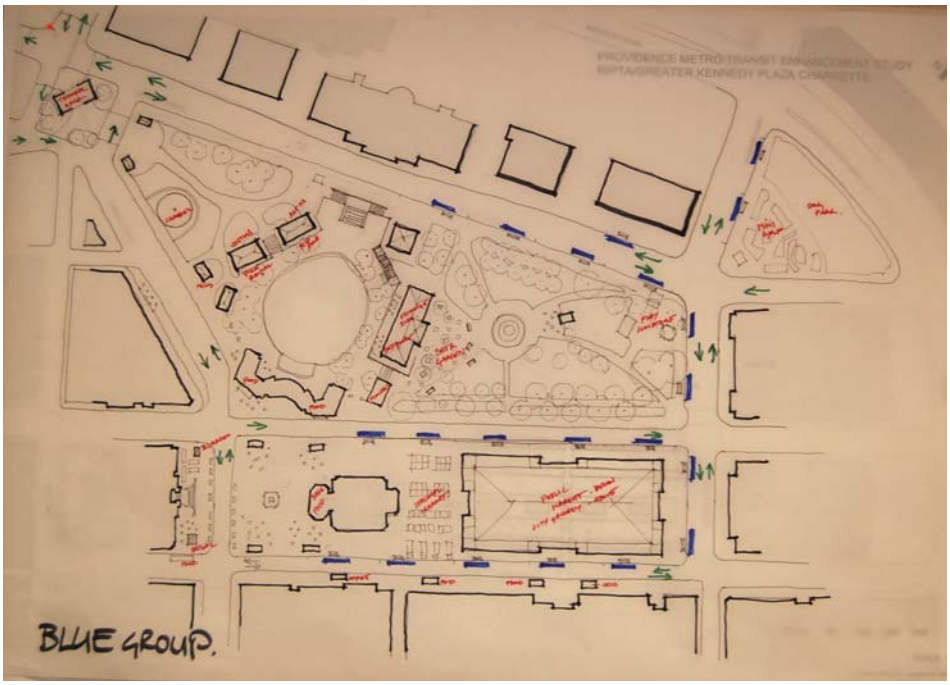
A VIBRANT GATEWAY TO DOWNTOWN PROVIDENCE

Kennedy Plaza, once seen only as a center for boarding buses, is now undergoing a transformation into much more than a transportation hub. The redesigned Kennedy Plaza, while still the center of the RIPTA system, will become a vibrant, centrally coordinated, gateway to the City of Providence that offers activities, events, and commerce, as well as public transit. First steps include the creation of several new smaller hubs outside of downtown for waiting buses. Also, RIPTA will work with the City to disperse the bus berths around Greater Kennedy Plaza, including throughout Biltmore and Burnside Parks and along a new, two-way Exchange Street. This will help RIPTA and the City, working collaboratively, to improve its public space to better serve pedestrians, transit-riders, and those who live and work down-



town. Greater Kennedy Plaza will be better connected to the surrounding neighborhoods as well as to the rest of the city, ushering the way for our city's new streetcar system.

In the summer 2009, RIPTA embarked on this mission by hosting a design workshop in partnership with downtown stakeholders, including the City of Providence, downtown property owners, residents, and local businesses. The re-imagined configuration of transit in Greater Kennedy Plaza will enhance the pedestrian experience, improve vehicular flow, invite expanded commercial and cultural activities, provide economic opportunity and enhance the tax base in the center of our state's Capital City.



GREATER KENNEDY PLAZA PLANNING WORKSHOP

Above: participants in the Greater Kennedy Plaza planning workshop.

Left: some of the concepts generated by the GKP workshop.

Rethinking Kennedy Plaza will provide a productive center to RIPTA's system and benefit the experience of downtown Providence.

1

Develop Short-term Plan

Develop alternatives to existing bus berths

Develop two new peripheral hubs

2

Implement Short-term Plan

Develop two additional peripheral hubs

3

Develop long-term Plan

Implement design for unused berth spaces

Develop new bus operations plans

4

Design and Development for longer-term options

5

Implement long-term enhancements

Construct streetcar accommodations

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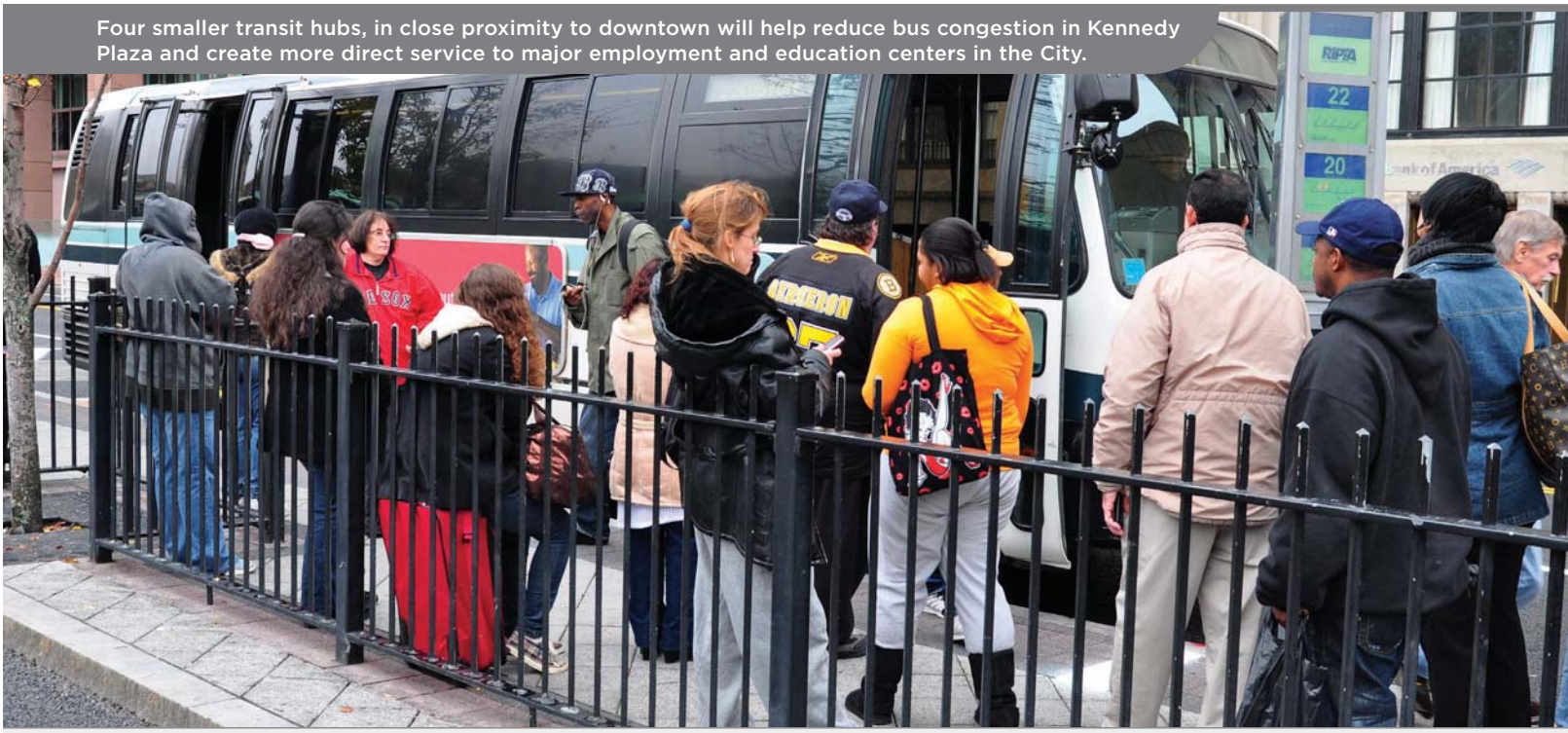
INTRODUCE NEW TRANSIT HUBS

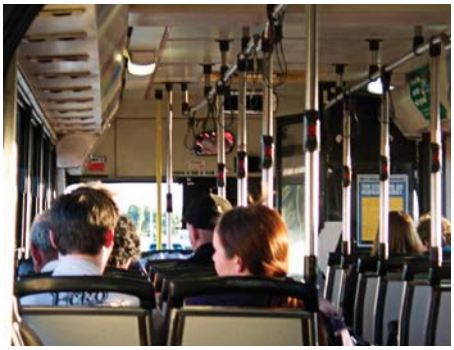


Four smaller transit hubs, in close proximity to downtown will help reduce bus congestion in Kennedy Plaza and create more direct service to major employment and education centers in the City.

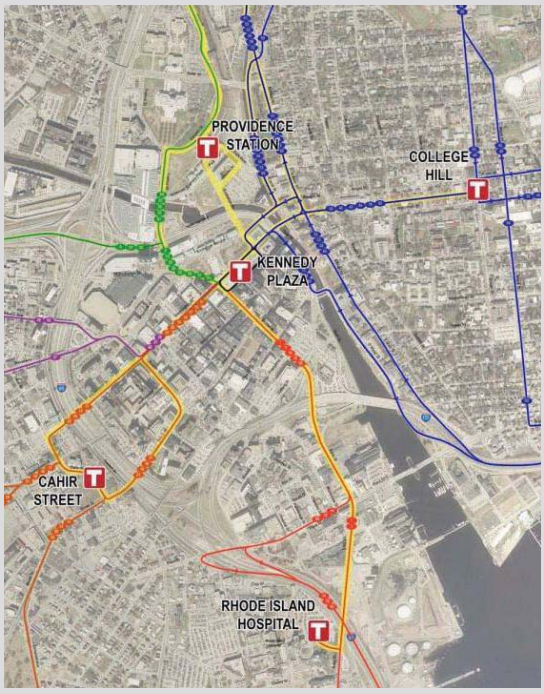
Why change buses when you can go direct? New smaller hubs just outside of downtown Providence will offer riders more efficient routes to the West side, College Hill, Capital Hill and the Hospital District.

FIND A HUB AND GO DIRECT

With new smaller hubs, taking the bus will take less time. Extending RIPTA bus routes beyond the primary downtown destination of Kennedy Plaza to other hubs just outside of downtown will eliminate the need for many passengers to transfer to reach their final destinations. In this plan, RIPTA will develop new hub locations in the West Side, College Hill, Capitol Hill and the Hospital District areas. These will attract riders because trips will be more convenient, accessible, and highly visible in new key locations. Additionally, dispersing waiting buses to these new hubs will help the reinvention of Kennedy Plaza by decreasing its congestion.



To implement this plan, RIPTA will begin Phase 1 by continuing to develop the first such hub located on Cahir Street on the West Side of Providence near three Providence High Schools. This hub will include amenities such as new bus shelters, map and schedule information, bike racks, and in the long term real-time arrival information, public art to relate it to its local neighborhood, and new branding of bus service. Phase 1 will also include extending the 49, 52 and 90 routes to the West Side and providing a similar hub on College Hill as part of the extension of routes 55 and 66. Phase 2 will introduce similar new hubs on Capitol Hill and in the Hospital District. The new transit hub initiative will also include a new service plan make sure it is well integrated into the existing bus system.



New hubs will be developed in key locations just outside of downtown Providence.

New hubs offer greater rider convenience through more direct routing and better access at key locations just outside of downtown Providence.

1

Begin Planning for Hub Design

2

Begin Construction of West Side and College Hill Hubs

Evaluate Service Options

3

Complete Construction of West Side and College Hill Hubs

Begin Demonstration Service

4

Begin Construction of Capitol Hill and Hospital District Hubs

5

Complete all four hubs

Begin Full Bus Service

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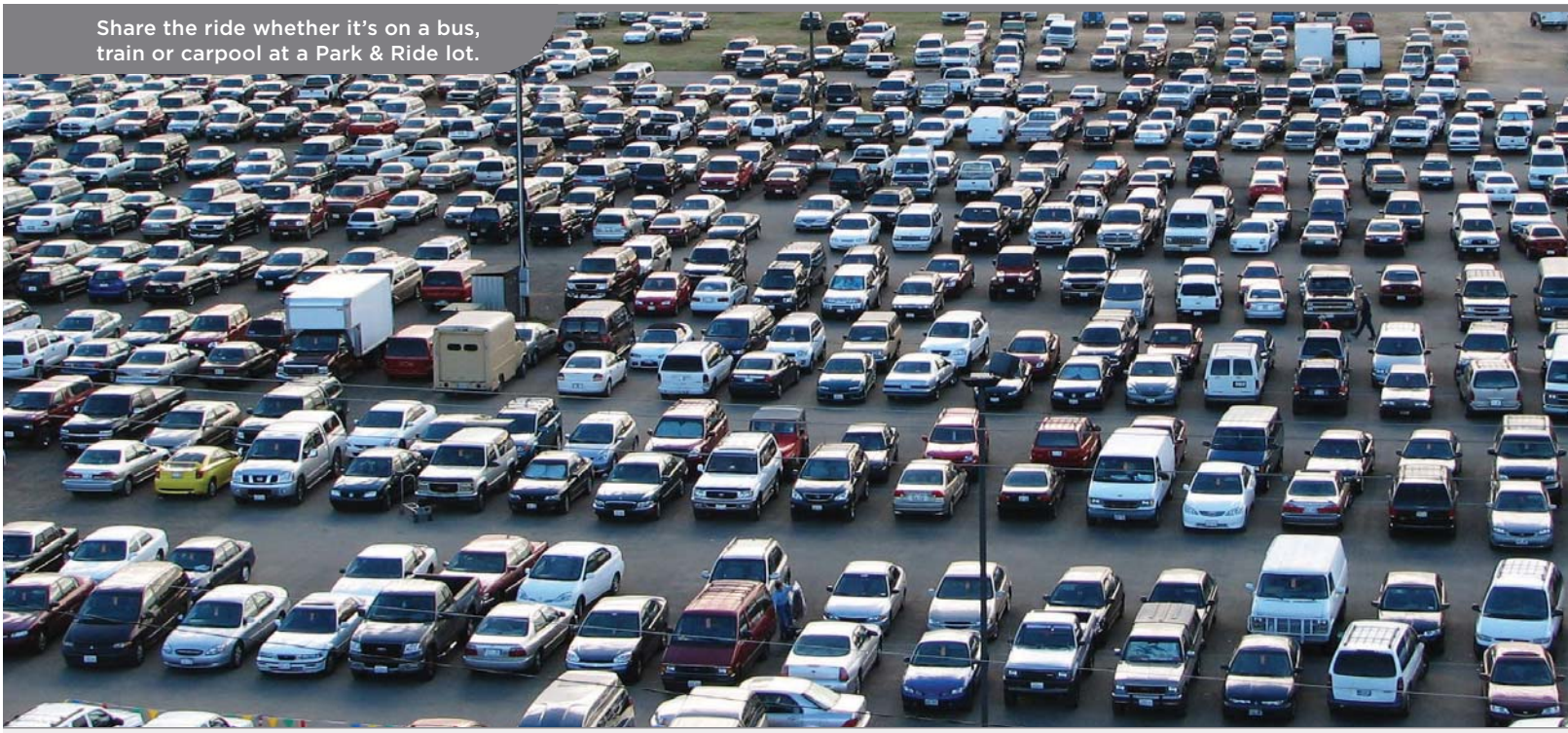
INCREASE PARK AND RIDE CAPACITY


Share the ride whether it's on a bus, train or carpool at a Park & Ride lot.

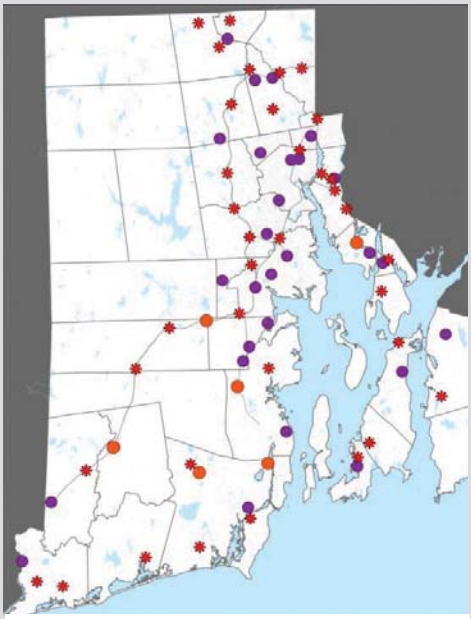
New park and ride locations will make it more convenient to take the bus and increase bus use across the state. Existing service will also be enhanced with improved signage, more frequent buses, and efforts to increase EcoPass participation.

SIT BACK AND RELAX, WE'LL TAKE YOU TO WORK.

The Park and Ride system is an great way to get commuter cars off the highway by providing an easy location to park and frequent service that brings people where they want to go. RIPTA currently serves twenty-eight Park and Ride locations where riders can park their cars or receive rides in cars to access RIPTA bus routes. Nine lots are located in Metropolitan Providence. Many of our existing lots are overcrowded and new lots are needed to serve communities along crowded commuter routes, such as along Interstate 295 in Warwick and Cranston, Interstate 95 in Warwick and Pawtucket and Route 114 in East Providence. Creation of new lots will double the number of Park and Ride locations in Metropolitan Providence and increase services for commuters. A plan to improve and grow the Park and Ride

program includes: addition of new lot locations, introduction of more frequent and mid-day bus service, installation of passenger amenities at these locations, improved signage, expansion of the guaranteed ride home program, and efforts to increase EcoPass participation, our employee transit pass program. This project also represents a significant partnership and coordination between RIPTA, who will provide bus service, and RIDOT, who will assist in land acquisition and lot maintenance.

NEW PARK AND RIDE LOT LOCATIONS



This map shows how much the new lot locations will expand the current Park and Ride System.

Adding new lots and enhancements to the Park and Ride system will help more people commute by bus.

1. **Coordinate Site Selections with RIDOT**
2. **Begin Design and Engineering**
   Evaluate Service Enhancement Options
3. **Install Passenger Amenities and Improved Signage**
4. **Coordinate with employers to increase EcoPass participation**
5. **Open New Park and Rides for Service**

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INITIATE RAPID BUS SERVICE

Rapid Bus is a complete rapid transit system that combines the quality of other modes of transit with the flexibility of buses. RIPTA's first Rapid Bus corridor will use intelligent transportation system (ITS) technology, cleaner and quieter hybrid buses, enhanced passenger amenities and integrated land use policy to provide new transportation options for highly traveled corridors.

RIPTA will introduce Rapid Bus, a new service that will provide uniquely branded vehicles with frequent service and added amenities at stops to significantly improve the speed and attractiveness of bus service.

GET TO WHERE YOU ARE GOING FASTER

Rapid Bus provides frequent, reliable and comfortable transit service in high density activity centers. Two RIPTA routes, the 11 Broad Street and the 99 North Main/Pawtucket, serve over 10,000 riders a day. Implementation of one Rapid Bus service that connects these two lines will make ridership more convenient for existing customers and encourage new ones as well. By linking to transit hubs on Capitol Hill and the Hospital District and future street car lines, this system will reinforce new improvements in RIPTA services. It will also support the City of Providence's efforts to improve commercial corridors in the city, beginning with Broad and North Main Streets. Rapid Bus service will also be expanded to other promising routes in the future to provide a higher level of service to even more riders.

Rapid Bus offers the opportunity to enhance existing bus service to provide faster and more reliable service, a higher level of passenger comfort and amenities, and a distinctive service identity. Rapid Bus transit enhancements include: frequent service, simple routes, limited stops, queue jump lanes, unique identities, distinctive stop facilities, specially branded vehicles, transit signal priority, and real-time arrival information. These features work together to make service fast, reliable, convenient, comfortable and clearly identifiable— characteristics all associated with rail or Bus Rapid Transit service but without the major capital investment and in locations where dedicated lanes are not possible.

PROPOSED RAPID BUS ROUTES

The Routes 11 and 99 carry 10,000 passengers a day. The new Rapid Bus route would link them through downtown Providence.

Rapid Bus creates rail-like public transit service along RIPTA's busiest routes.

1

Begin Engineering, Planning and Design

2

Begin Bus Stop Improvement Plans

Continue Detailed Engineering Design

3

Begin Construction of Infrastructure

Coordinate with Community on Design of Amenities

4

Continue Construction

Finalize Operations Plan

5

Market and Initiate Service

Pursue Rapid Bus on Other Promising Routes

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BUILD A PROVIDENCE STREETCAR SYSTEM

Artist's rendering of what the proposed streetcar pulling up to the Providence Performing Arts Center might look like.

Providence offers an ideal setting for streetcars, and RIPTA and the City of Providence hope to offer them. A new streetcar system would provide reliable, frequent and comfortable transit service that promotes walkable urbanism and is a catalyst for economic development.

RIDING THE RAILS PROMOTES WALKING THE CITY

Streetcars are designed to operate over relatively short distances in mixed traffic and provide urban circulation. A feasibility analysis has concluded that the concentration of activities within the center of Providence makes our city an excellent candidate for a streetcar system and planning will continue towards its development.

To enhance the transit system and economic vitality of the metropolitan area, a streetcar concept has been proposed to serve as a circulator within a roughly two-mile corridor in downtown Providence. A streetcar "Meds to Eds" line within this corridor would connect with existing bus routes and the train station and create connections between the Hospital District and College Hill. This would help people not only get to and from work, school and home, but also offer an easy way to get to events, restaurants, museums, performing arts centers, medical facilities, and key destinations, like the Convention Center, the Amtrak Station, and the Dunkin Donuts Center. The proposed starter line includes plans for points of connection in the future to other neighborhoods and nearby communities.

ECONOMIC BENEFITS TO A STREETCAR SYSTEM

Building responsible infrastructure promotes sustainable development. There is enormous opportunity for economic development to result from the creation of a streetcar system, as witnessed in other communities. Streetcars are often catalysts for new development, revitalizing existing neighborhoods and promoting public transit use by new riders. A preliminary assessment of the development

potential related to the proposed streetcar project estimates 3.0 million square feet of development (but could range from 1.5 – 6.0 million square feet) of vacant and underutilized properties. A significant amount of this development is projected to occur in currently redeveloping areas of the Jewelry District and Downcity. Development is expected primarily in residential, office and retail uses, with estimated job creation of over 3,400 and a population boost to the downtown area of over 2,200.

Building a streetcar system in Providence would generate near-term economic stimulus from construction activity as well as sustained mixed-use development opportunities in areas targeted for economic growth by the City. The construction of the streetcar is estimated to provide 230 new jobs in Rhode Island, over $17 million in sales for local businesses and $10.7 million in additional wages to Rhode Island residents.

Above: Rendering of the view north on Richmond Street across from the planned Brown Medical School, by Kliment + Halsband.

Meds to Eds, proposed routes that would link key destinations in Providence.

New streetcars would help people get around, reinforce pedestrian-friendly Providence, and promote economic development.

1 Conduct Advanced Planning

Select Preferred Route and Develop Financial Plan

2 Initiate Preliminary Engineering

Finalize Alignment and Station Stop Locations

3 Commence Final Design

Produce Detailed Construction Documents

4 Construct Streetcar Project

Build Streetcar Infrastructure and Purchase Vehicles

5 Begin Streetcar Service

Open Initial Segment in Downtown Providence

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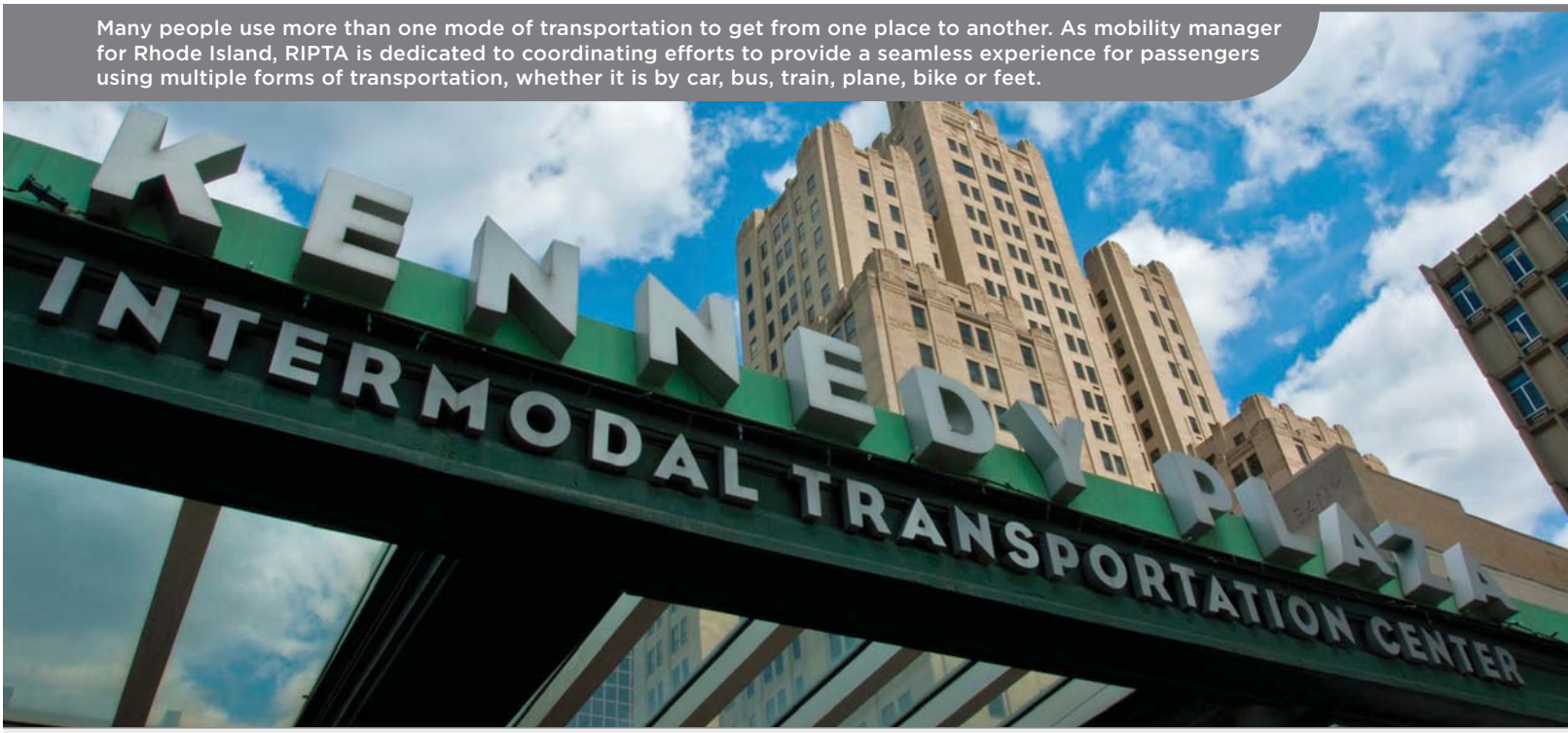
STRENGTHEN INTERMODAL CONNECTIONS

Many people use more than one mode of transportation to get from one place to another. As mobility manager for Rhode Island, RIPTA is dedicated to coordinating efforts to provide a seamless experience for passengers using multiple forms of transportation, whether it is by car, bus, train, plane, bike or feet.

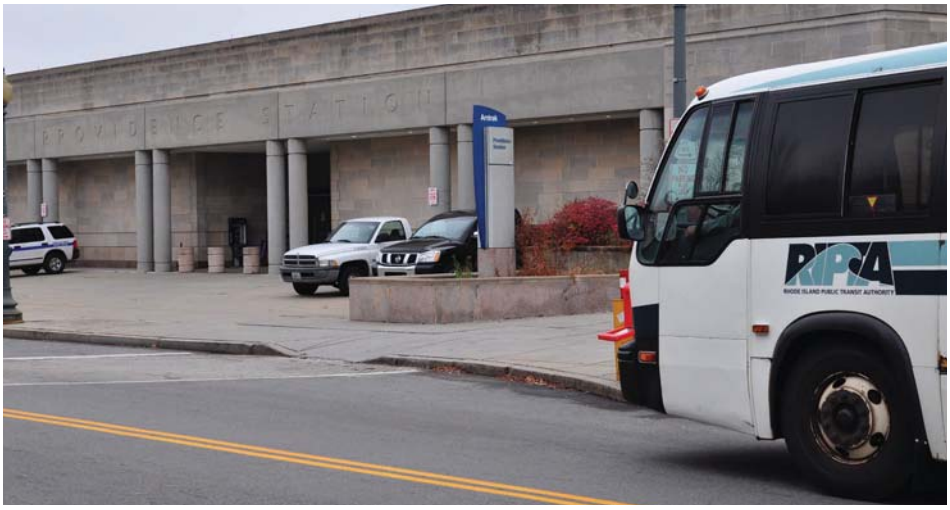


Getting to the right place means linking to the right systems. RIPTA can effectively build its system by connecting to the MBTA commuter rail at South Attleboro and Warwick, the T.F. Green Airport, and the Amtrak station in Providence.

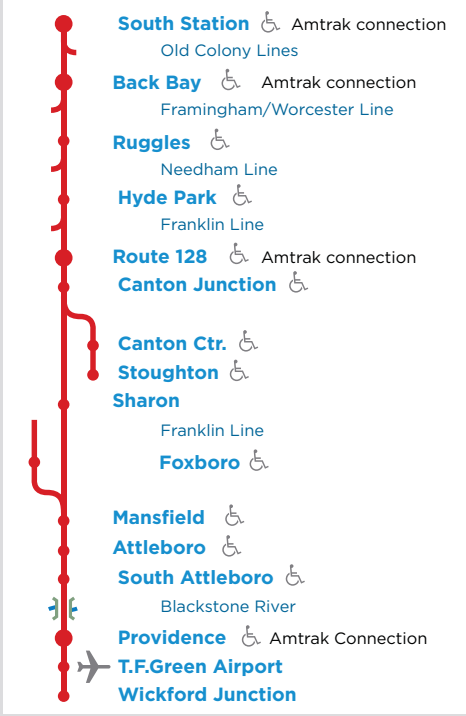
LINKING TRANSIT MAKES IT STRONGER

Airports, regional and commuter rail, buses, bicycles and pedestrian routes all work together to form a complete public transit system. While Rhode Island has all of these at work, RIPTA can be the mobility manager that coordinates with other transit providers to create a seamless experience for riders. In order to create a truly multimodal transportation system, RIPTA must implement a series of improvements to enhance existing and upcoming commuter rail services, as well as bicycle and pedestrian connections. RIPTA proposes three improvements over the next five years. The first is the creation of a bus transfer to serve the South Attleboro MBTA station. This project would extend existing routes from downtown Pawtucket and East Providence via Newport Avenue to a new stop

within walking distance of the station. The second improvement would offer new and reconfigured routes to connect CCRI, the Warwick Mall, the Centre of New England, the Amgen headquarters, as well as local Warwick, East Greenwich and Scituate neighborhoods to the new Warwick Intermodal Station at T.F. Green Airport. Finally, RIPTA would provide additional passenger amenities at the Providence Amtrak Station including more visible bus stops, system maps, real-time bus arrival information, public art and fare vending for RIPTA, MBTA and Amtrak riders. This effort would also facilitate schedule and fare coordination between transit agencies, Amtrak and private intercity bus operators. Additionally, RIPTA would introduce improved bike and pedestrian connections and amenities throughout its system. These would include improved wayfinding, bicycle parking, and higher capacity racks on buses.



MAP OF WARWICK AND T.F. GREEN CONNECTIONS



RIPTA improvements would connect the buses to T.F. Green and the new Warwick MBTA stop.

By connecting to air, rail, bicycle and pedestrian networks, RIPTA will offer local, regional and global travel.

1

Complete Design of South Attleboro Connections

Design Amenities for Providence Train Station

Promote and Coordinate Pedestrian and Bike Access

2

Begin South Attleboro connection

Install Amenities at Providence Train Station

Develop Warwick feeder service

Design and Install Wayfinding Amenities

3

Begin Warwick Feeder Service

Continue to Develop Pedestrian and Bike Access

4

Facilitate schedule and fare coordination between all modes

Continue to Develop Pedestrian and Bike Access

5

Continue to Develop Pedestrian and Bike Access

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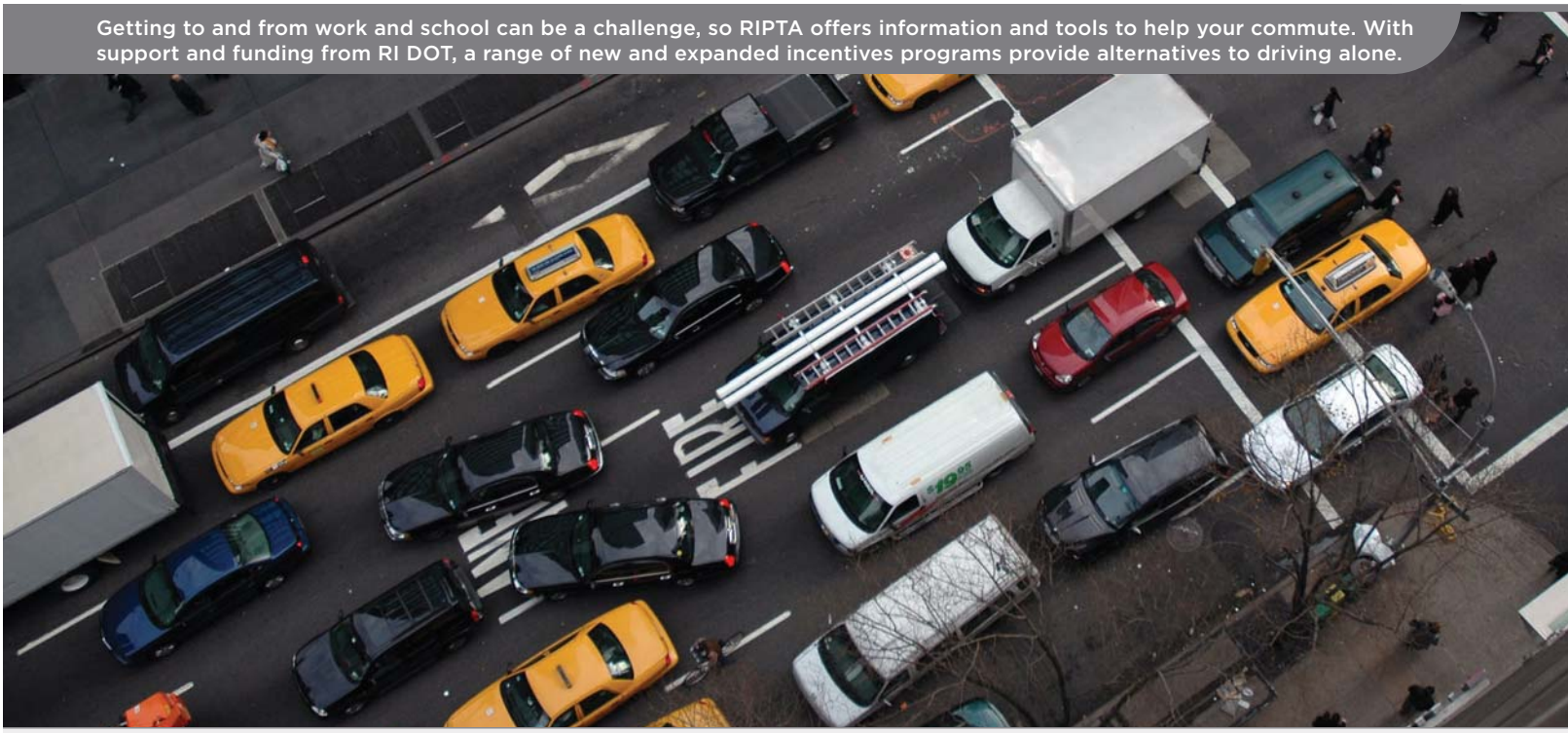
EXPAND PROGRAMS FOR COMMUTERS

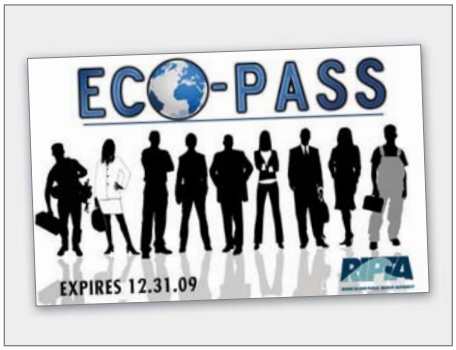
Getting to and from work and school can be a challenge, so RIPTA offers information and tools to help your commute. With support and funding from RI DOT, a range of new and expanded incentives programs provide alternatives to driving alone.



Targeted programs encourage even reluctant commuters to use public transit. An enhanced RIPTA Commuter Resource RI program would offer commuters additional transportation benefits and options, including carpools, transit pass programs, a Transit Resource Center, and car and bicycle sharing.

WE'LL HELP YOU MAKE THE SWITCH

It's hard to change employee driving habits, yet it's expensive for employers to provide parking. RIPTA's Commuter Resource RI program helps both by offering commuters benefits for taking public transit through innovative programs that break down the perception of driving as a better value in terms of cost, time, and convenience. Service improvements that enhance our system's speed and reliability will only attract a certain level of ridership. We also need to provide a program of incentives that can make transit a better deal, increase its convenience, and make the value of transit available to more travelers. To accomplish these goals, RIPTA seeks to expand commuter



COMMUTER RESOURCE RI

alternatives by growing its Commuter Resource RI program, building upon existing programs and establishing new ones. Suggested ways to build existing programs include: establishing a Transportation Resources Center, coordinating interstate carpooling, and expanding parking cash-out, UPASS, EcoPass, and Guaranteed Ride Home programs. RIPTA's new initiatives would include adding a car sharing program, such as ZipCar, and bicycle sharing programs, such as expanding RISD's Pink Bike program. Expanding and creating new programs will encourage participation from employees and others who may not currently use public transit and offer additional transportation options for residents and employers throughout the state.

A TRANSPORTATION RESOURCE CENTER

A one-stop transportation shop can provide commuter information, pass sales, and program enrollment at a staffed store-front location.

Offering a diverse set of benefits can help get commuters out of their cars and onto public transportation.

1. **Begin Program Expansion**
   Hire a New CRRI Director
2. **Estalbish a CRRI Advisory Board**
3. **Continue Expansion of Existing Programs** such as EcoPass
4. **Initiate Car Sharing Program**
5. **Initiate Bike Sharing Program**

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CAPITALIZE ON TRANSIT-ORIENTED DEVELOPMENT

TOD creates mixed-use, higher density communities that encourage people to live, work and shop near transit services and decrease their dependence on driving.

Strong transportation and transit-oriented development can help support each other. RIPTA is seeking ways to promote development projects that are higher-density, mixed-use, and within walking distance of significant transit services.

BUILD ON A GREAT SYSTEM

Transit-oriented development, or TOD, is an approach to development that focuses land uses within a transit corridor or around a transit station. It is a powerful way to use infrastructure to promote sustainable urban growth and typically it is characterized by:

- A mix of uses
- Moderate to high density
- Pedestrian orientation/connectivity
- Transportation choices
- Reduced parking
- High quality design

By creating dense, mixed-use development in close proximity to transit stops, transit becomes a more viable mobility option for residents and employees living and working nearby. As a result, TOD generates significantly fewer vehicle trips than single-use, low density developments that are designed around the automobile. TOD creates lively urban places that encourage activity during all hours of the day, and enables residents to enjoy a lifestyle that is less reliant on automobiles for personal travel needs.

Local governments can offer incentives to developers that encourage increased density and mixed-use growth around transit stations. Creating TOD may require modifications to existing zoning requirements, such as allowing a density bonus to reduce or eliminate off-street parking, and involve very little or no cost to the municipality. These efforts can be supported through implementation of Rhode Island's Land Use 2025 Plan which recognizes the social, economic, and transportation benefits of TOD. The state's business development tax credit program and the Rhode Island Jobs Growth Act also support TOD. In promoting this goal, RIPTA looks to build partnerships with local municipalities, land owners, institutions, developers, and organizations such as Grow Smart RI and the recently formed Coalition for Transportation Choice to support TOD with programs such as location-efficient mortgages or parking district benefits. As a part of these partnerships, RIPTA can promote practices that lead to more sustainable development around transit stations.

BENEFITS TO RESIDENTS

- Contributes to vibrant neighborhoods
- Provides greater transportation choices
- Reduces personal transportation costs
- Uses limited tax resources wisely
- Better access to jobs and housing
- Promotes healthier lifestyle with more walking, and less stress
- reduced pollution and traffic

BENEFITS TO INVESTORS

- Reduces development risk
- Improves profitability
- Increased foot traffic and customers
- Enhances economic efficiencies

RIPTA can play a role, along with other state agencies such as the RI Division of Planning, to facilitate municipal regulatory reform to create vibrant urban places and sustainable economic growth.

1. **Public engagement**
2. **Community vision development**
3. **Creation of legal frame-work to encourage transit oriented development**
4. **Public-private finance plan**
5. **Implementation**

RHODE ISLAND PUBLIC TRANSIT AUTHORITY

TRANSIT 2020

www.ripta.com www.transit2020.com
265 Melrose Street, Providence, RI 02907
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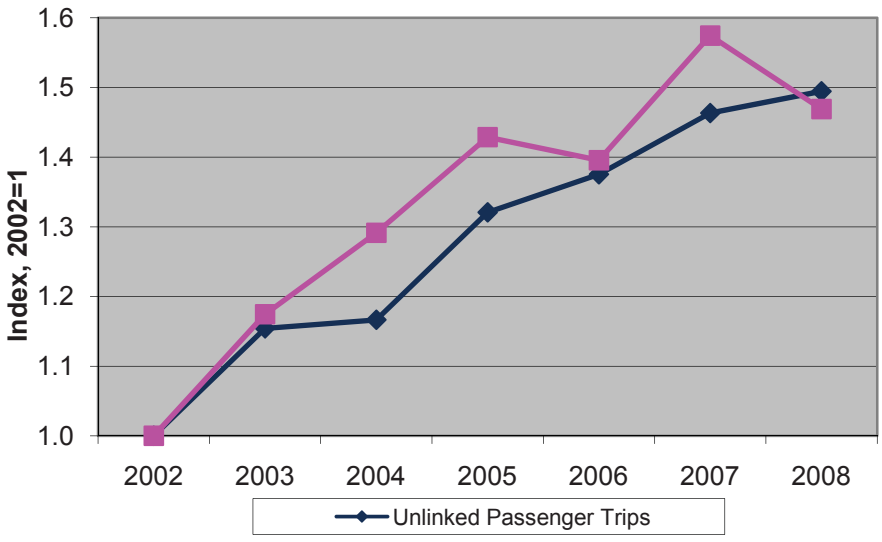
6. BENEFITS AND COSTS OF RECOMMENDED IMPROVEMENTS

This section provides information and estimates of the ridership, benefits, and costs associated with ten recommendations for transit service enhancements in the Providence Metropolitan Area. Benefits of the recommended improvements include travel time savings and congestion relief, mobility benefits to low-income and transit dependent populations, economic development and community benefits, and the economic impacts to Rhode Island businesses and residents. This section also includes estimates of the capital and operating costs of the recommendations.

6.1. TRANSIT RIDERSHIP IMPACTS

RIPTA's overall ridership increased by 39 percent from 1997 to 2008 with even stronger growth in recent years. In FY 2008, RIPTA carried an estimated 24.8 million passengers[1] or roughly 2 million passengers each month. Figure 6-1 shows an index for RIPTA passenger trips and passenger miles from 2002 to 2008. Unlinked passenger trips represent the number of passengers who board public transportation vehicles. The passengers are counted each time they board a vehicle regardless of how many vehicles they use to travel from their origin to their destination. Passenger miles are equal to the product of the number of passengers and the distance traveled in miles. Both unlinked passenger trips and passenger miles have increased by approximately 50 percent during this time period.

Figure 6-1:
RIPTA Passenger Trips and Passenger Miles 2002-2008



Source: National Transit Database

The Metro Transit Study proposes ten key recommendations ranging from a better branding of services to improving the intermodal connectivity of the existing transportation system and the development of new services such as Rapid Bus and Streetcar. Several of these proposed improvements are expected to result in significant ridership increases on new and existing transit services, while other recommendations are intended to enhance the user-friendly qualities of the system and thus boost ridership indirectly.

It is estimated that the proposed improvements will increase system-wide ridership by approximately 8.2 million passengers annually, reflecting a 33 percent annual increase. The Rapid Bus project is estimated to increase annual ridership by more than 600,000 and the Streetcar project is expected to result in an annual increase in ridership of 1-2 million. The remaining ridership will be spread across other recommended improvements. Some of these projects do not produce any predicted ridership increases, but will have an overall positive impact on the convenience and attractiveness of transit, with positive impacts over the long term.

In addition to the estimated ridership impacts, some of the proposed transit enhancements also will reduce travel time for existing transit riders. These include the Rapid Bus project and the development of peripheral hubs in downtown Providence. These travel time benefits are presented in the next section.

6.2. ECONOMIC AND COMMUNITY BENEFITS

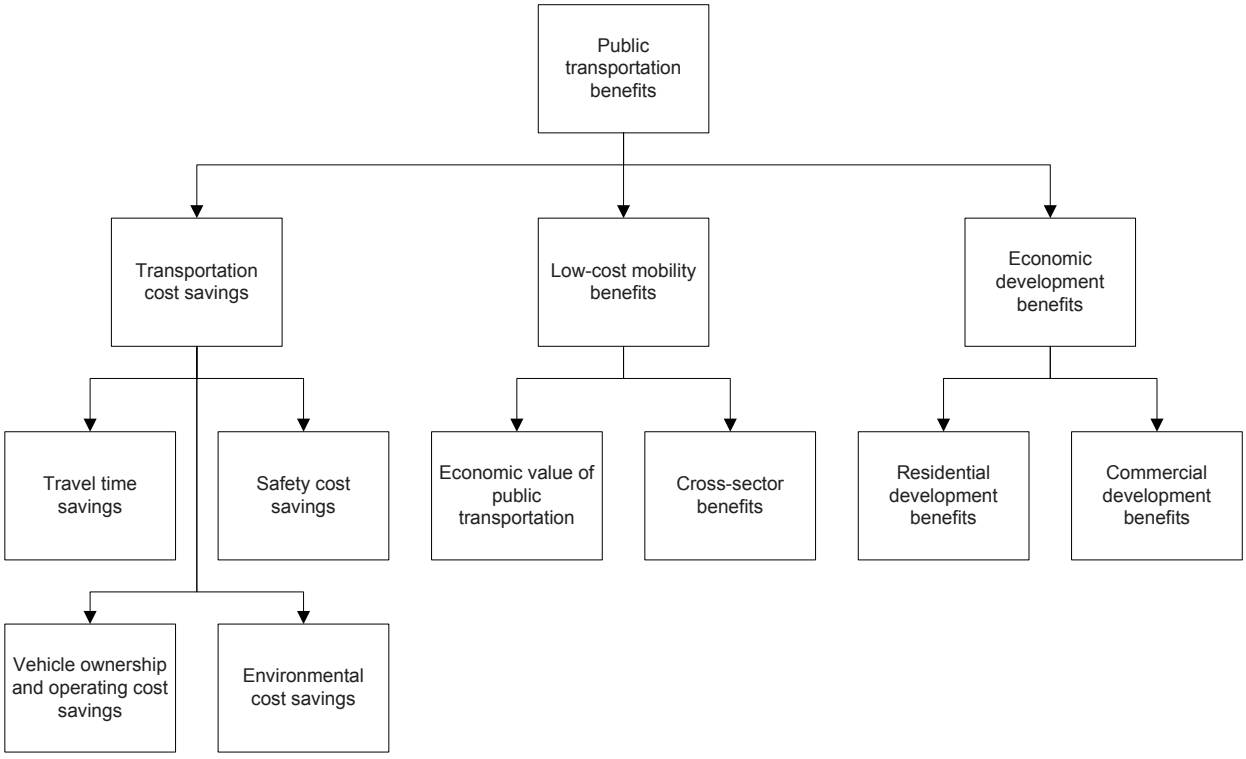
Improving urban mobility is a primary goal of many public transportation investments, but transportation projects can yield other benefits. In the current economic environment, it has become increasingly important to prove the worth of transportation proposals. Several different types of benefits estimates can be utilized to support overall transit enhancement programs, such as the one proposed by RIPTA, as well as the individual projects.

A 2008 study, The Optimal Supply and Demand for Urban Transit in the United States[2] , provided estimates of the benefits attributable to transit service, including those associated with reduced congestion, the environment, health, mobility and economic development. Figure 6-2 illustrates the composition of public transportation benefits, and a description of each category of benefits.

[1] http://www.ripta.com/about

[2] The Optimal Supply and Demand for Urban Transit in the United States, prepared for the American Public Transportation Association, prepared by HDR|HLB Decision Economics, February 22, 2008.

Figure 6-2:
Benefits Attributable to Transit



Transportation Cost Savings: Transportation Cost Savings include travel time savings, savings associated with safety, vehicle ownership and operating cost savings, as well as environmental cost savings. These benefits accrue to both freight and passengers due to the increased use of transit in lieu of automobiles. This leads to improved highway travel times and travel time reliability. The use of transit instead of automobiles reduces auto emissions and greenhouse gases, vehicle operating costs, as well as the associated health damage. Because roads are less congested, safety is also enhanced.

Low Cost Mobility Benefits: Transit saves people valuable time and, for low income passengers in particular, releases household budget funds for other high-valued uses such as housing, food, and childcare. Cross sector benefits include the reduced financial burden on social services. For example, if reliable transit is available, workers can more easily travel to their jobs. This provides more employment options to all workers, but it is especially important to lower income individuals.

Economic Development Benefits: Well designed transit facilities create increased property values and higher densities. Although a portion of the increased value is attributable to capitalization of time savings in the value of land, transit facilities also give rise to "nonuse" benefits in the form of amenity value and agglomeration (i.e., values associated with higher density urbanized living arrangements). These non-use economic development benefits are additive to those described previously.

The Optimal Supply and Demand for Urban Transit in the United States study uses accepted micro-economic principles and analysis to combine the external costs of congestion due to vehicles, the cross-elasticities of demand between modes (e.g., the change in bus ridership when the price of gasoline increases and fewer people drive their cars), and the costs of operating and expanding transit services to determine the conditions of transit supply that maximize the net benefits (benefits minus costs) to users of the transportation system. Estimates of the net benefits from this study of transit at the U.S.-level were applied to RIPTA services on a per passenger mile basis.[3]

As presented in the following table and described in Chapter 3 of this report, $144.8 million in benefits are estimated to be associated with the current level of RIPTA ridership. Most of the benefits are due to time savings associated with transit. The service enhancements proposed in this study are estimated to increase ridership on RIPTA transit by about 8 million passengers a year. Based on the additional passenger miles that will result from the improved service, congestion, mobility, and community development benefits were also estimated. A total of $54.4 million in benefits may be realized. This figure represents an approximate 30 percent increase in overall benefit to the surrounding

[3] National Capital Region Transportation Planning Board Technical Committee, Briefing on Cost-Benefit Analysis Framework for Transit Investment in Washington Region, HDR/HLB Decision Economics, May 2, 2008.

Metropolitan Providence region. Nearly 60 percent of the transportation cost savings are the result of time savings associated with transit. Residential development represents more than half of the total economic development benefits.

The total combined benefits attributable to the RIPTA services, based on passenger miles resulting from the existing service and the enhancements recommended in this study, are $199.2 million. Of this, $131.7 million result from transportation cost savings and $32.6 million from mobility. Total economic development benefits are estimated to be $34.9 million, with most of the development residential.

Table 6-1 summarizes the benefits due to the existing RIPTA service, the enhancements recommended in this study, and the estimated total annual benefits after the enhancements have been implemented.

ADDITIONAL TRANSIT BENEFITS

Increased transit investment and use can have a positive impact on various aspects of environmental quality and the community, and this can yield a positive effect on a region's economic prospects.[4] These positive impacts also improve the livability of a community. In addition to the economic benefits estimated previously in this report, there are benefits that are more difficult to quantify. These benefits also should be included in any assessment of transit service and proposed enhancements, even if only on a qualitative level. These benefits include:

- **Emissions:** Improvements in transit can promote ridership which reduces traffic congestion and reduces vehicle emissions. While this can be monetized to some extent as done above, it is difficult to capture all of the costs associated with emissions. Poor air quality can adversely affect property, and it is up to society to mitigate the damages. Quantifying the costs associated with mitigation can be challenging.
- **Noise:** When the number of vehicles on the roadways is reduced, the level of noise in a community is decreased. This may make an area more hospitable, increasing property values and ultimately tax revenue collected through property taxes.
- **Stress:** Being stuck in traffic is stressful. Studies support this observation, as well as the link between stress and health. Chronic stress can increase the risk of adult onset diabetes and high blood pressure, among other health conditions.[5] This, in turn, increases the costs of health care to individuals and to the community. It also may contribute to a decrease in productivity, which can negatively impact businesses. Improved transit offers travelers an option to driving, which may reduce the level of stress and the health care costs associated with chronic stress.

Table 6-1:
Annual Benefits of RIPTA Services – Existing Services and Proposed Enhancements

Economic Benefits (in 2009 $)	Existing Service	Recommended Enhancements	Existing Service Plus Enhancements
TRANSPORTATION COST SAVINGS			
Time Savings	$54,565,000	$20,513,000	$75,078,000
Savings in Vehicle Operating Costs	$22,635,000	$8,509,000	$31,144,000
Emission Savings	$952,000	$358,000	$1,310,000
Accident Cost Savings	$17,590,000	$6,613,000	$24,203,000
Total Transportation Cost Savings	*$95,742,000*	*$35,993,000*	*$131,735,000*
AFFORDABLE MOBILITY			
Value to Low-Income Travelers	$22,251,000	$8,365,000	$30,616,000
Cross Sector Benefits	$1,421,000	$534,000	$1,956,000
Total Affordable Mobility	*$23,672,000*	*$8,900,000*	*$32,572,000*
ECONOMIC DEVELOPMENT			
Residential Development	$15,305,000	$5,754,000	$21,059,000
Commercial Development	$10,080,000	$3,789,000	$13,869,000
Total Economic Development	*$25,385,000*	$9,543,000	*$34,928,000*
TOTAL BENEFITS	***$144,799,000***	***$54,436,000***	***$199,235,000***

[4] Public Transportation and the Nation's Economy: A Quantitative Analysis of Public Transportation's Economic Impact, Prepared by Cambridge Systematics, Inc. and Economic Development Research Group, October 1999.

[5] Study conducted by Stanford University neuroscientist Robert Sapolsky, http://news-service.stanford.edu/news/2007/march7/sapolskysr-030707.html.

- **Pavement:** It is possible to estimate the costs associated with the wear and tear of pavement due to high levels of traffic. What is more difficult to quantify is the impact of pavement run off and contamination. While it is well known that contaminated water can impact health, the extent of this link may be difficult to determine. What is clear is that sickness, regardless of cause, impacts health and health care costs. Transit use helps reduce the wear and tear on pavement, because fewer cars are on the roadways. This can impact the level of runoff and reduce the level of environmental contamination which, in turn, impacts health.

Public transportation provides personal mobility and freedom for people, young and old. Access to public transportation enables people to get to and from work and school, and it makes it easier for individuals to run errands or make appointments. Taking public transportation can reduce stress, roadway congestion, and travel time.

The American Public Transportation Association estimates the 2008 savings from taking transit instead of driving to be $9,499 per household per year. APTA also has determined that bus and rail lines reduce driving by 4,400 miles per household annually. This equates to an individual household reduction of 223 gallons of fuel per year. Communities that invest in public transit reduce the nation's carbon emissions by 37 million metric tons each year, and a single commuter who switches his or her commute to public transportation can reduce a household's carbon emissions by 10 percent and up to 30 percent if a second car is eliminated.

Americans who live in areas served by public transportation also save 646 million hours in travel time and 398 million gallons of fuel annually in congestion reduction alone. According to APTA, 83 percent of older Americans find that public transit provides "easy access to the things they need in everyday life." Furthermore, it serves as a vital link for more than 51 million Americans with disabilities. While many of these benefits specifically accrue to the transit user, they also positively impact the community and the environment.

6.3. CAPITAL AND OPERATING COSTS

The Study team also estimated the capital and annual operating costs for each of the recommended transit enhancements.

CAPITAL COSTS

Capital costs are one-time or infrequently recurring expenditures required to facilitate the provision of transit service. Capital items include vehicles, equipment, facilities, property, and other transit system assets. For the proposed projects, capital costs include construction-related costs as well as costs for buses, bus stop amenities, bicycle racks, and other infrastructure items. Design and study-related costs are also included as capital expenses.

For this study, capital costs were estimated using unit costs developed through local experience, industry research, and recent similar projects in other areas. Where available, costs from other recent RIPTA planning efforts were incorporated to maintain consistency. The capital costs presented herein are based largely on broad project definitions reflecting conceptual-level planning , and will need to be refined as each project advances toward implementation.

OPERATING COSTS

Operating costs are recurring costs associated with the on-going operations and maintenance of the new services and facilities that are proposed. These costs include vehicle operations and maintenance (e.g., operator salaries, insurance, fuel, routine maintenance and major repairs); facility maintenance (e.g., cleaning, general repairs and upkeep); and administration (e.g., staffing and support services).

For proposed new transit services in the set of recommendations, operating costs were estimated using RIPTA's existing operating cost model, based on the hours and miles of service provided. New administrative and maintenance support positions were identified for several projects; costs for these positions were based on existing RIPTA salary and fringe rates. For other projects, it is assumed that new operating costs are marginal and can be absorbed within the existing RIPTA budget without further impacts on staffing levels. The estimated costs of operations-related components of each project are given in the following table. The detailed methodology, assumptions, and calculations for each project are provided in the appendices.

As is the case with the projected capital costs, these estimated operating costs for the recommended projects reflect conceptual-level planning, and will need to be refined as each project advances toward implementation.

SUMMARY OF COSTS BY RECOMMENDATION

Table 6-2: summarizes the primary capital costs for each proposed recommendation. The detailed methodology, assumptions, and calculations for each project are provided in the appendices.

Table 6-2:
Capital and Operating Costs for Each Recommendation

	Recommendation	Capital Cost Estimates	Operating Cost Estimates
1	**Provide Additional Bus service**	• New buses (19): $11,400,000 • Bus stops: $1,000,000 • Strategic Service Plan Study cost: $400,000 • Develop service standards: $40,000 **Total cost: $12,840,000**	• 10% increase in service: $12,200,000 (bus and paratransit) **Total cost: $12,200,000**
2	**Improve the Transit Experience** *Better Branding of Service* *Increase Transit Visibility & Awareness* *Bus Stop Improvement Program*	Better Branding of Service • Branding study: $50,000 • Bus repainting: $225,000 • Bus stop sign changes: $120,000 • Materials / brochures: $50,000 **Total cost: $445,000** Improved Customer Information • Web-based information apps: $250,000 **Total cost: $250,000** Bus Stop Improvement Program • Facilities and amenities for bus stops o Medium-volume stops (58): $1,769,000 o High-volume stops (35): $1,313,000 o Local hubs (9): $450,000 **Total cost: $3,532,000**	Better Branding of Service • No new operating costs for this project **Total cost: $0** Improved Customer Information • Annual printing and updates: $50,000 • 0.25 FTE (marketing): $16,000 **Total cost: $66,000** Bus Stop Improvement Program • 0.25 FTE (maintenance): $12,000 • 0.25 FTE (planning): $20,000 **Total cost: $32,000**
3	**Reinvent Kennedy Plaza**	• Design services: $50,000 • Pavement removal: $100,000 • Paving, planters, benches, etc.: $500,000 • Four high-quality shelters: $300,000 **Total cost: $950,000**	• No new operating costs for this project **Total cost: $0**
4	**Introduce New Downtown Providence Hubs**	Phase 1 • Infrastructure and amenities o West Side: $50,000 o College Hill: $150,000 **Total cost: $200,000** Phase 2 • Infrastructure and amenities o College Hill: $216,000 o Hospital District: $438,000 • New buses (8): $4,800,000 **Total cost: $5,454,000**	Phase 1 • 0.25 FTE (maintenance): $12,000 **Total cost: $12,000** Phase 2 • Additional bus service to hubs: $3,257,000 • 0.25 FTE (maintenance): $12,000 **Total cost: $3,269,000**
5	**Increase Park and Ride Capacity**	• Ten new park and ride lots o Site selection: $100,000 o Infrastructure & amenities: $2,465,000 **Total cost: $2,565,000**	• 0.25 FTE (maintenance): $12,000 **Total cost: $12,000**

Recommendation		Capital Cost Estimates	Operating Cost Estimates
6	**Initiate Rapid Bus Service**	• BRT vehicles: $10.200,000 (already committed) • Signals and intersection work: $3,000,000 ($2.8 million already committed) • Bus stops and branding: $1,000,000 • Vehicle transponders $0 (costs included in existing ITS project) **Total cost: $14,200,000**	• No new operating costs for this project (costs similar to existing operations) **Total cost: $0**
7	**Build a Providence Streetcar**	• Track and guideway: $14,900,000 • Station stops: $1,600,000 • Maintenance facility: $6,300,000 • Utility relocation / site work: $5,500,000 • Systems: $12,500,000 • Streetcar vehicles (5): $20,400,000 • Professional services: $11,000,000 • Unallocated contingency: $3,600,000 **Total cost: $66,000,000-$86,000,000**	• New service: $2,000,000-$3,500,000 **Total cost: $2,000,000-$3,500,000**
8	**Strengthen Intermodal Connections**	<u>S. Attleboro – Bus & Pedestrian Connections</u> • Design costs: $25,000 • Infrastructure and amenities: $196,000 **Total cost: $221,000** <u>Warwick Intermodal – Bus Feeder Service</u> • New buses (16): $9,600,000 **Total cost: $9,600,000** <u>Providence Station Pedestrian Wayfinding</u> • Infrastructure and amenities: $50,000 **Total cost: $50,000** <u>Areawide Bicycle and Pedestrian Connections</u> • Wayfinding signage: $214,000 • Additional bicycle racks: $22,000 • Three-bike racks on buses: $145,000 **Total cost: $381,000**	<u>S. Attleboro – Bus & Pedestrian Connections</u> • No new operating costs for this project (maintained as part of other projects) **Total cost: $0** <u>Warwick Intermodal – Bus Feeder Service</u> • Additional bus service $4,400,000 **Total cost: $4,400,000** <u>Providence Station Pedestrian Wayfinding</u> • No new operating costs for this project **Total cost: $0** <u>Areawide Bicycle and Pedestrian Connections</u> • No new operating costs for this project **Total cost: $0**
9	**Expand Programs for Commuters**	• No capital costs for this project **Total cost: $0**	• 1.0 FTE (Center Director): $103,000 • Materials and printing: $10,000 **Total cost: $113,000**
10	**Encourage Transit Oriented Development**	• No capital costs for this project **Total cost: $0**	• No new operating costs for this project **Total cost: $0**

6.4. ECONOMIC IMPACT ANALYSIS

In the current economic environment it has become increasingly important to demonstrate the economic impact and value-added of any proposed transportation investment. In addition to the economic assessment of current RIPTA services in Chapter 3, the study team estimated the economic impacts for the set of transit enhancements recommended in this study. The total economic impacts estimated for this study include those associated with program construction, one year of service-enhanced operations, and the economic impacts to business once RIPTA service is expanded.

Some economic impacts can produce net economic growth and benefits in a region. Other impacts account for locational shifts in economic activity. A transit investment can shift jobs, for example, when existing firms move from elsewhere in the region or when a firm was planning to locate within the region anyway, but they choose to locate near a transit station. Economic impacts also may be generated through the transfer of money from one entity to another; for example, a publicly funded transit improvement can yield impacts such as employment and income growth related to construction, operation, or maintenance of the transportation investment. Joint development income to local agencies and property tax impacts are examples of this type of transfer economic impact.

Three distinct impacts were measured for the set of recommended transit enhancements:

- Direct Impact: Represents the initial construction and operational expenditures that are received by businesses located in the study area;
- Indirect Impact: Indicates the impact of the additional business spending generated as these businesses sell more output and purchase additional inputs from their suppliers; and
- Induced Impact: Represents the increase in economic activity, over and above the direct and indirect effects, that is associated with increased labor income received by workers and spent on household goods and services purchased from businesses within the study area that otherwise would not have happened.

The total economic impact is determined by summing the direct, indirect, and induced effects. Capital and operating expenses are combined in the input-output model with regional purchase coefficients and other variables to estimate output, employment, value-added and wages. Using tax information, the tax impacts associated with the infrastructure improvement can also be measured.

There are ten individual recommendations included in the Metro Transit Study, including a proposed streetcar. For the analysis, it is assumed that the majority of the materials, including the streetcar vehicles and buses, would be purchased from suppliers and manufacturers outside of Rhode Island. For example, it has been assumed that the modern streetcars at a cost of over $20 million would be manufactured in Oregon (the only U.S. manufacturer of modern streetcar vehicles). It is further assumed that nearly all of the on-site labor would be from within the State of Rhode Island, and a large portion from within Providence County.

While much of the impact would be to construction industries, architecture, engineering and related services would also benefit from the projects included in the overall program.

The estimated construction cost for the proposed Providence Streetcar is approximately $76 million.

This spending is expected to generate 164 jobs in Providence County and 229 jobs for the State of Rhode Island. Nationally, the project is anticipated to result in 1,194 jobs.

Total national output is expected to reach $188.4 million, with Rhode Island output expected to reach $27 million. The streetcar project is estimated to result in $19.7 million in total output for Providence County.

ECONOMIC IMPACTS OF CAPITAL INVESTMENTS

The construction economic impact analysis was conducted based on the major construction labor and materials expenditures in the capital cost budget for each of the recommended enhancements. These costs, totaling $126.3 million, include vehicles, support facilities, track expenses, sitework, signage, and professional services related to the design of the streetcar project.

Implementation of the proposed RIPTA enhancements would require the hiring of additional workers, as well as considerable expenditures on construction related items and services. Based on the associated construction costs and using the nationally recognized IMPLAN economic impact modeling system, economic impacts were estimated. Specifically, output, wages, employment, value added and taxes are calculated in the analysis. 2010 dollars are utilized, and economic impacts to Rhode Island and the United States were estimated.

Increased Employment: As a result of the economic output impacts, the construction of the transit program enhancements would also result in direct, indirect, and induced employment in the state and nation. Total employment impacts in the United States are estimated to total 1,634 jobs. The construction of the infrastructure improvements are estimated to result in 300 jobs in Rhode Island. (Figure 6-3)

Figure 6-3:
Transit Enhancement Program Construction Related Employment Impacts

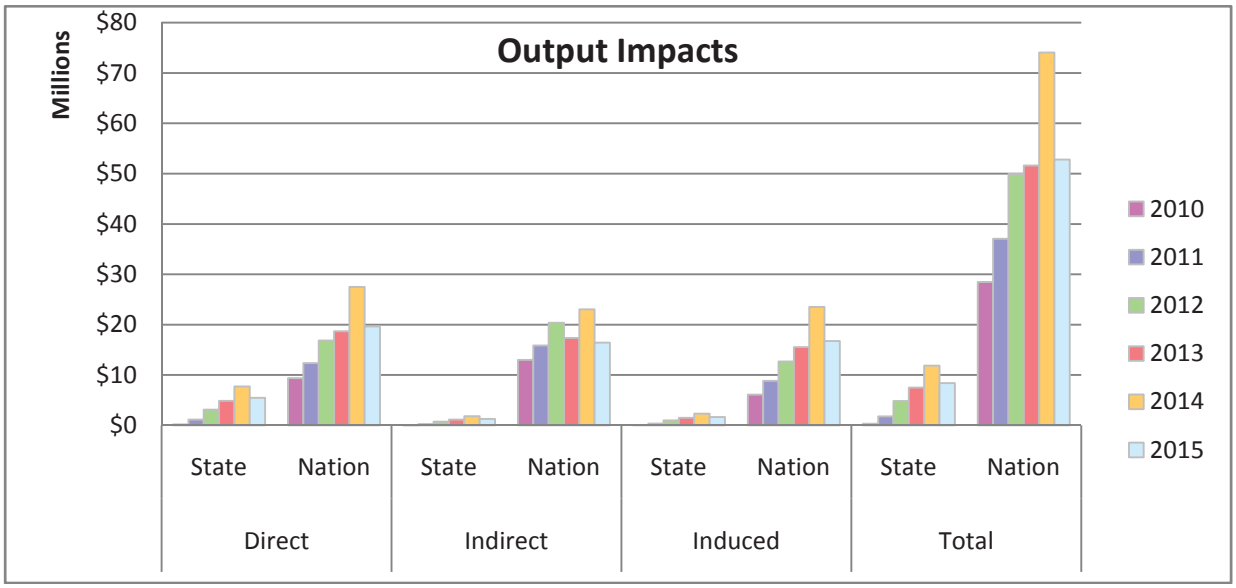
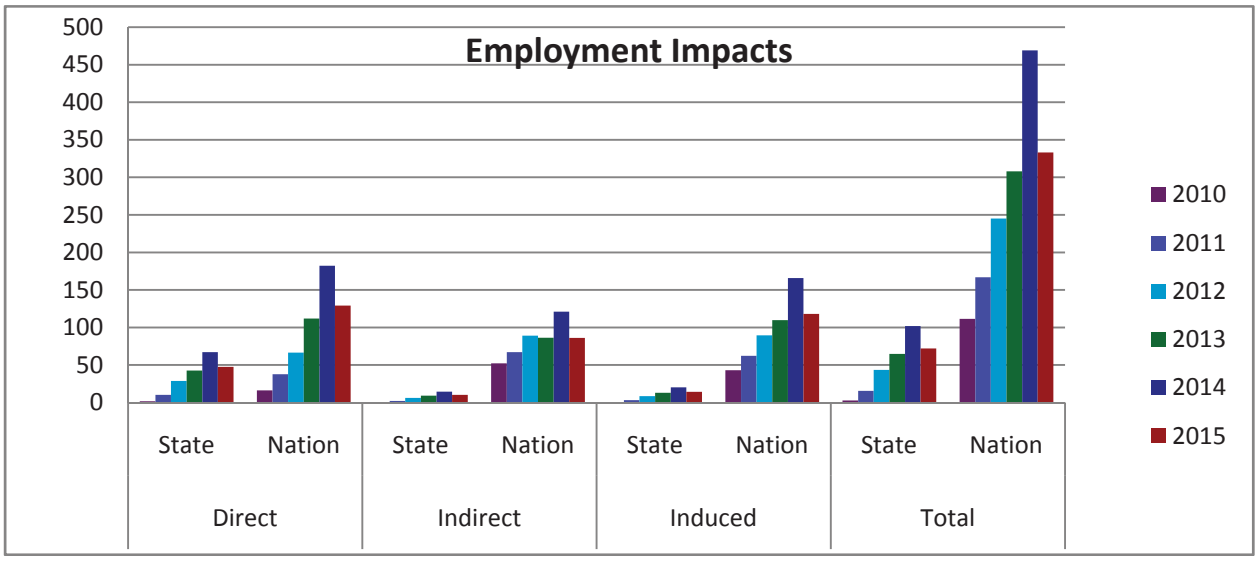


Figure 6-4:
Transit Enhancement Program Construction Related Output Impacts



Increased Economic Output: Direct impacts of the construction of recommended enhancements on total sales (output) in Rhode Island (inclusive of Providence County) are estimated to increase annually from $0.2 million in 2010 to $7.7 million in 2014. By 2015, construction is nearing completion and the direct output for that year is estimated to be $5.5 million.

The total annual sales for the United States (inclusive of Rhode Island) are $28.5 million in 2010, increasing to $74 million by 2014. By the end of construction in 2015, output is $52.8 million. Total annual output impacts for the state, including direct, indirect, and induced effects of construction are largest in 2014, $11.8 million for Rhode Island. These results are presented in Figure 6-4.

Table 6-3 presents the total output by year for the State of Rhode Island and the United States. Construction of the full set of recommendations will yield $34.6 million in output for the state and $293.7 million for the nation.

Additional Economic and Fiscal Impacts: The economic impacts of the proposed transit enhancements extend beyond total sales and job creation. Direct impacts of job creation in the state are primarily in construction-related jobs, as nearly all of the manufacturing is expected to take place outside of the state. The labor to physically build the recommended projects primarily will come from Providence County and Rhode Island.

Indirect and induced impacts are more widespread across varying industries. The number of employees and the additional wages accrued to these workers are another impact of the recommendations. Additionally, there is expected to be an increase in output, tax revenue and gross regional product (value added) due to transit program construction activities. The total short term impacts in these five categories are indicated in the table below.

ECONOMIC IMPACTS OF OPERATIONS AND MAINTENANCE EXPENDITURES

Enhanced RIPTA service provides an economic contribution, in terms of jobs and spending, to Metropolitan Providence and the State of Rhode Island. Once the recommended transit enhancements have been implemented, operations will be expanded and impacts related to the operating expenditures will occur. For example, one project will require the hiring of additional bus drivers. These individuals will presumably spend a portion of their income on purchases within Providence County and the state. This will generate new jobs, additional output, and wages.

Table 6-3:
Total Output Impacts ($Millions)

	Output	
Year	**State**	**Nation**
2010	$0.3	$28.5
2011	$1.8	$37.0
2012	$4.8	$49.9
2013	$7.5	$51.6
2014	$11.8	$74.0
2015	$8.4	$52.8
Total	**$34.6**	**$293.7**

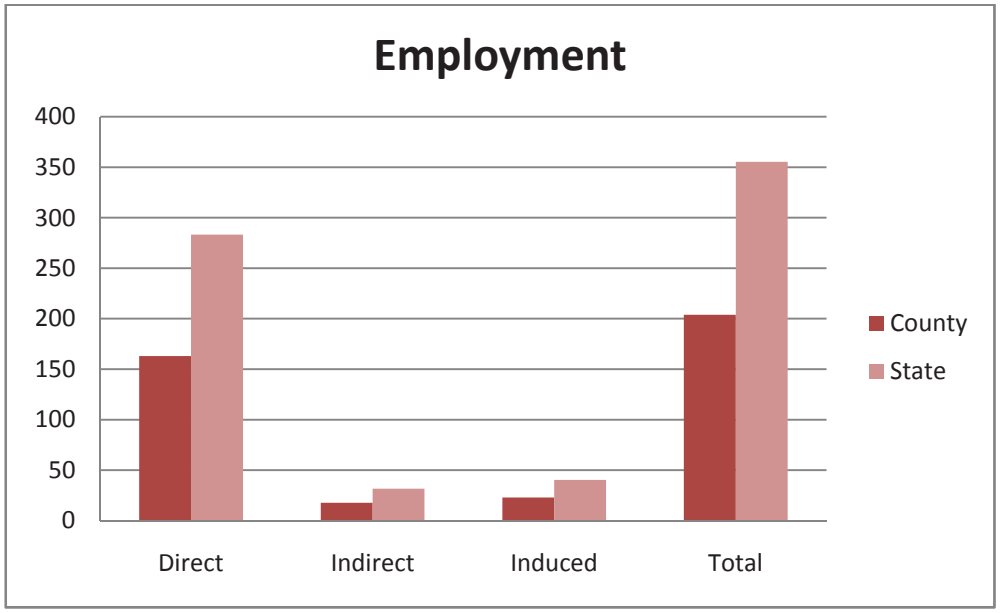
Total annual operating expenditures associated with the recommended improvements are calculated to be $18.9 million. Based on the expenditures associated with a year of operations and using the IMPLAN economic impact modeling system, output, wages, employment, value added and taxes are calculated in the analysis. 2010 dollars are utilized, and economic impacts to Providence County and Rhode Island were estimated.

Increased Employment: As a result of the economic output impacts, operations expenditures will also result in direct, indirect, and induced employment in the county and state. Total employment impacts are 204 jobs for Providence County and 355 jobs for Rhode Island. Of these, 163 and 283, respectively, are directly related to the operation of the improved transit system. These results are presented in the Figure 6-5.

Table 6-4:
Total Impacts of Transit Enhancement Construction on Employment, Wages, Value Added, Output and Tax ($ Millions)

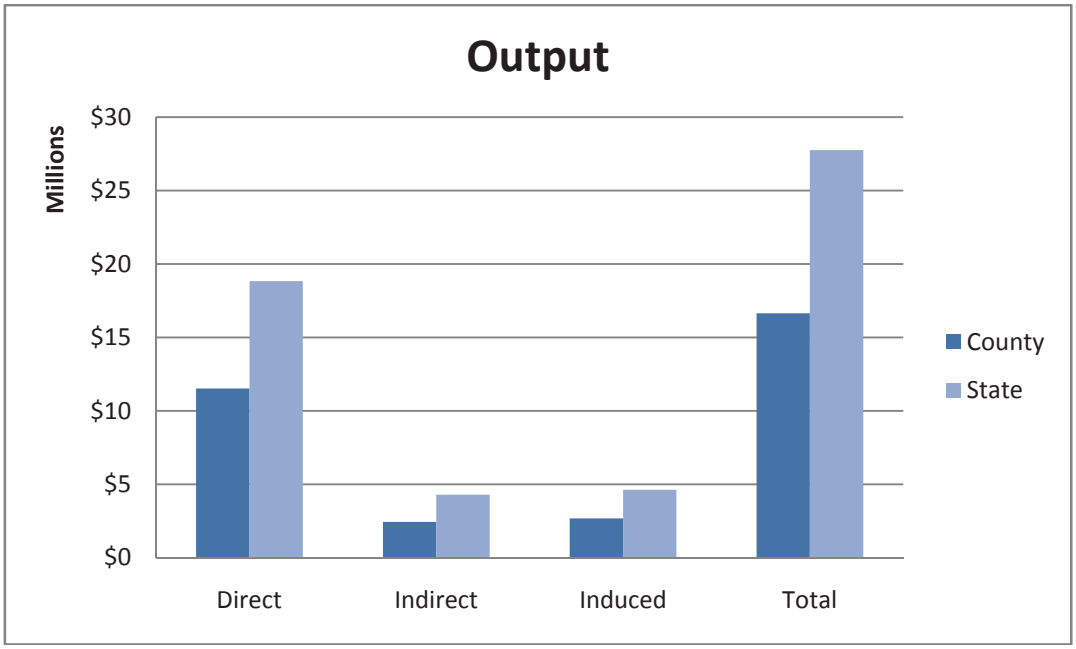
	Employment	Wages	Value Added	Output	Taxes
State	300	$14.4	$17.5	$34.6	$4.1
Nation	1633	$88.8	$132.2	$293.7	$31.2

Figure 6-5:
Transit Enhancement Program Operations Related Employment Impacts



Increased Economic Output: Direct impacts of the operation of recommended enhancements on total annual sales (output) in Providence County are calculated to be $11.5 million in 2016, the first year of operation. The total direct sales are $18.8 million for Rhode Island (inclusive of Providence County). Total annual impacts, including direct, indirect, and induced effects, of the operation of the recommended enhancements are $16.6 million for Providence County and $27.8 million for Rhode Island. These results are presented in the Figure 6-6.

Figure 6-6:
Transit Enhancement Program Operations Related Output Impacts



Additional Economic and Fiscal Impacts: The economic impacts of the recommended transit enhancements extend beyond total sales and job creation. Direct impacts of job creation in the county and state study areas are primarily in transit and passenger service jobs.

Indirect and induced impacts are more widespread across varying industries. The number of employees and the additional wages accrued to these workers are another impact of the recommended enhancements. Additionally, there is expected to be an increase in output, tax revenue and gross regional product (value added) for each of the study areas due to the operations of the improved transit system. The total short term impacts in these five categories are indicated in Table 6-5 below.

ECONOMIC IMPACT ON BUSINESSES

Numerous studies have been conducted that examine the job creation and business revenue impacts of investment in public transit. They suggest that a well maintained and functioning transit system saves time for transit users and reduces transportation and business costs. As a result, businesses devote less of their resources to transportation costs, enabling them to offer more competitive products and grow, which is a benefit to themselves and to supporting businesses.

Public transportation investment expands service and improves mobility, and if it is sustained over time may impact the economy by providing:

- Travel and vehicle ownership cost savings for public transportation passengers and those drivers who switch to transit. This leads to a shift in consumer spending;
- Reduced traffic congestion for those traveling on highways. This leads to increased travel cost savings for businesses and households;
- Business operating cost savings associated with worker wage and reliability effects of reduced congestion;
- Improved access to labor with more diverse skills because traffic congestion is reduced and transit service is enhanced. Business productivity increases;
- Additional regional business growth due to the indirect impacts of business growth on supplies and induced impacts when workers spend their wages; and
- At a national level, these cost savings and other productivity impacts can affect international competitiveness.

According to *Economic Impact of Public Transportation Investment*, every $1 billion of annual investment in public transportation over time results in more than $1.7 billion of net annual additional Gross

Table 6-5:
Annual Impacts of Transit Enhancement Operations
on Employment, Wages, Value Added, Output and Tax ($Millions)

	Employment	Wages	Value Added	Output	Taxes
County	204	$6.2	$8.4	$16.6	$2.0
State	355	$9.9	$13.4	$27.8	$3.3

Domestic Product (GDP) due to cost savings. This is in addition to the economic impacts generated by construction and operation of a transit system. Assuming that this national estimate is applicable to Rhode Island, RIPTA enhanced service is estimated to result in $247.5 million in net annual GDP over time (this is the annual effect in the 20th year). The report also estimates that 400,000 jobs are generated by the year 2020 due to transit induced GDP of $23.4 billion per year. Using the Rhode Island estimate of $247.5 million in net annual GDP over time, this would translate into 4,231 jobs.

SUMMARY OF BENEFITS AND COSTS

Based on the results of this study, it is expected that:

- The proposed transit improvements will increase system-wide ridership by approximately 8.2 million passengers annually, representing approximately 30 percent increase over the 2008 levels.
- In total, $144.8 million in annual benefits associated with congestion reduction, improved mobility, and economic development can be associated with the current level of RIPTA ridership.
- The recommended transit enhancements will result in additional congestion reduction, improved mobility, and community development benefits of $54.4 million annually. This represents a 38 percent increase in the overall level of benefits realized from the regional transit system.
- The entire construction program for recommended enhancements of $126 million will yield $34.6 million in output for the state and $293.7 million for the nation.
- Total employment impacts associated with these construction expenditures are 1,634 jobs for the U.S. The construction of the infrastructure improvements are estimated to result in 300 jobs in Rhode Island.
- Total operating expenditures of $18.9 million annually will result in total output impacts, including direct, indirect, and induced effects, of $16.6 million for Providence County and $27.8 million for Rhode Island.
- Total employment impacts associated with the first year of operations are 204 jobs for Providence County and 355 jobs for Rhode Island.
- Long-term, RIPTA enhanced service is estimated to result in $247.5 million in net annual GDP over time (the annual effect in the 20th year) due to transit-induced cost savings experienced by businesses and 4,231 jobs.

7. MOVING THE PLAN FORWARD

7.1. SUMMARY OF CAPITAL AND OPERATING COSTS

The estimated capital costs and ongoing annual operating costs required to implement each Metro Transit Study recommendation are summarized in Figure 7- 1 below. The total capital investment required to implement these recommendations would be approximately $126.7 million (in $2009). Once implemented, an additional $18.9 million in annual operating costs would be required to support the operation and maintenance of these new transit projects.

Figure 7-1:
RIPTA Proposed Enhancements Capital and Operating Costs
(in 2009 dollars)

RECOMMENDATION	CAPITAL COST	ANNUAL OPERATING COST
Provide Additional Bus Service	$12.8 M	$8.2 M
Improve the Transit Experience	$4.3 M	$134 K
Reinvent Kennedy Plaza	$950 K	0
Introduce New Transit Hubs	$5.7 M	$3.3 M
Increase Park and Ride Capacity	$2.6 M	$12 K
Initiate Rapid Bus Service	$14.2 M	0
Build a Providence Streetcar System	$76 M	$2.7 M
Strengthen Intermodal Connections	$10.2 M	$4.4 M
Expand Programs for Commuters	0	$113 K
Capitalize on Transit Oriented Development	0	0
TOTALS	**$126.7 M**	**$18.9 M**

7.2. HOW DO WE PAY FOR THESE IMPROVEMENTS?

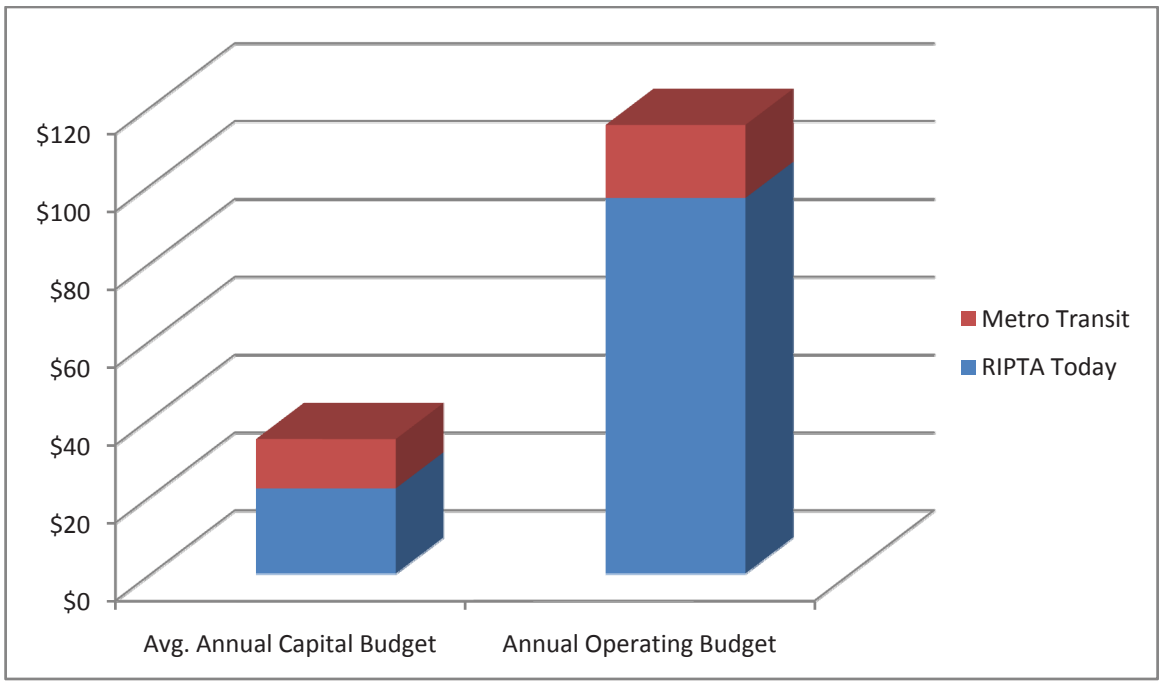
The strategies for funding and operating public transit projects in Rhode Island have been much the same for several decades. (An overview of current public transit financing strategies used in Rhode Island is provided in Chapter 3.) RIPTA supports its capital program largely through the application of federal transit programs, with state capital assistance and/or general obligation bonds serving as the required local match. Operating revenues are realized through passenger fares, advertising receipts and other transit programs, with approximately 40 percent of RIPTA's operating budget coming from a 9.75 cents per gallon share of the state gas tax. Figure 7- 2 compares the size and scope of the proposed Metro Transit improvements to RIPTA's current Capital and Operating budgets. RIPTA's requested Capital Budget for FY2011 to FY2015 is approximately $109.28 million or about $21.9 million per year over the next five years. The proposed Metro Transit improvements would represent more than a 50 percent increase in average capital program spending, if implemented over a 10-year timeframe. RIPTA's Annual Operating Budget for FY2010 is $96.5 million. When fully implemented, the proposed Metro Transit Study improvements would require an additional $18.7 million, or a 19.5 percent increase in annual operating costs compared to today. Clearly more new avenues for funding these improvements must be explored.

A GROWING ADVOCACY FOR ADDITIONAL STATE SUPPORT

The desire to identify new and sustainable long-term funding streams for RIPTA has been at the forefront of many discussions in Rhode Island over the past few years. The Governor's Blue Ribbon Panel and the General Assembly have considered and discussed several potential new methods for changing the way RIPTA operations are funded, looking to provide a sustainable, long-term revenue stream for transit programs throughout Rhode Island.

Non-governmental entities are also calling for change. In 2008, the New Public Transit Alliance (NuPTA) convened a forum of civic and business leaders to discuss pending RIPTA service cuts and the

Figure 7-2:
Cost Comparison of Metro Transit Study Recommendations vs. RIPTA's Current Budgets



feasibility of introducing new funding streams to provide a more dependable, long-term financing structure for RIPTA operations. In a subsequent report , NuPTA evaluated a range of public transit funding alternatives used in other states and localities and recommended that the Governor and General Assembly consider such options to provide greater levels of support for transit operations in Rhode Island.

No specific strategy or plan for increasing the levels of state support to allow for transit improvements and expanded RIPTA operations has been identified or advanced as of this date.

OPPORTUNITIES FOR ADDITIONAL FEDERAL SUPPORT

In addition to the federal transportation funds currently used to support transit in Rhode Island today (see Chapter 3), there are other existing federal programs that have not traditionally been pursued by RIPTA or Rhode Island, but that could be targeted for transit expansion.

The Federal Transit Administration's (FTA's) **New Starts and Small Starts** program is designed to assist local agencies in new fixed guideway transit start-ups (rail and bus). The cost of new rail and exclusive-lane bus systems can be high, sometimes in the billions of dollars, and there is much national competition for funds under this program. A part of the program referred to as "Small Starts" is available for rail and bus projects seeking less than $75 million in federal funds, with a total estimated project cost of less than $250 million.

The FTA process for qualifying a project for "New Starts and Small Starts" funding is comprehensive and may take many years. New Starts/Small Starts funds are awarded only if FTA finds that the project is:

- Based on planning and Alternative Analysis;
- Justified based on a review of a set of established criteria, including transit supportive land use policies, cost effectiveness, and effect on local economic development; and
- Supported by an acceptable degree of local financial commitment.

Another federal program that could be considered for a larger project such as the Providence Streetcar is the **Transportation Infrastructure Finance Innovation Act (TIFIA) Loan Program** which provides credit enhancements and direct loans for projects. To qualify for TIFIA assistance, a project must have a minimum capital cost of $50 million and meet specified financial and project management requirements.

Re-Authorization of the Federal Transportation Bill

With the expiration of the current six-year federal transportation funding authorization (SAFETEA-LU) in 2009, both the United States Congress and the current administration have indicated a desire to introduce changes favorable to transit in the next round of the enabling legislation. While the actual content of a new transportation authorization bill is still not clear, proposals and discussions to date reveal that some significant policy changes and program requirements could be forthcoming.

A number of emerging reauthorization proposals have been

introduced. In June 2009, bi-partisan leadership of the House Transportation & Infrastructure (T&I) Committee presented a proposed blueprint for re-authorization which emphasized the need for more intermodal system investment and identify four core strategies for public transit investments:

1. Providing a state of good repair;
2. Restoring transit rail systems;
3. Providing mobility and access to transit dependent individuals; and
4. Planning, designing, and constructing new transit lines and intermodal facilities.

Additionally, US Representative Earl Blumenauer (Oregon) has proposed two new streetcar-supportive federal programs:

- FAST STARTS Act of 2009: A grant program intended to expedite streetcar projects across the United States; and,
- The Streetcar Revitalization Act of 2009: A program that would revise Small Starts program requirements to enable additional consideration of streetcar projects.

USDOT and FTA leadership is seriously considering significant changes in New Starts/Small Starts policy and program requirements. For example, the new administration's emerging shift in direction is changing the New Starts evaluation criteria to reflect additional considerations such as economic development opportunities and land use impacts. This policy shift has already benefitted streetcar projects, including a federal funding approval for an extension of the Portland Streetcar in Oregon.

Livable Communities and Sustainability

The new administration has also demonstrated that significant emphasis will be placed on all surface transportation investment, including transit that supports livable communities and sustainability. These goals have been clearly illustrated in recent application and proposal requirements for federal funding under the ARRA stimulus programs, as well as in other federal programs and executive orders.

In addition, the White House has established a Livability Initiative, a joint venture the U.S. Department of Transportation, the U.S. Department of Housing and Urban Development, and the Environmental Protection Agency. These federal departments are now working cooperatively to advance livability and sustainability initiatives.

Immediately prior to publication of this report, the Secretary of Transportation announced the first new funding program under the Livability Initiative, availability of $280 million for urban circulator projects such as streetcars, buses and bus facilities to support communities, expand business opportunities, and improve quality of life while also creating jobs.

Climate Change Legislation

Congress is considering a number of proposed pieces of climate change legislation. Some of the more "transit-friendly" legislative proposals would dedicate a portion of cap and trade allocations to transportation investments that reduce carbon emissions which contribute to climate change, including formula funding for investment in public transportation and high-speed intercity passenger rail. Such legislative efforts present a potential opportunity for increase future federal investment in transit infrastructure, clean technologies, innovative services, and operations.

HOW TO FUND A PROVIDENCE STREETCAR?

Building a Providence Streetcar is the most capital intensive of the recommended improvements introduced in the Metro Transit Study and would represent the most ambitious transit investment advocated in RIPTA's history. This $76 million project represents 60 percent of the total capital investments put forth by this study, and nearly 15 percent of the anticipated increases in annual operating costs.

Clearly, the Providence Streetcar presents a particular challenge in terms of both capital investment and ongoing operations. More importantly, no two recent US streetcar projects have used the same funding scheme. Instead, they have creatively leveraged a mix of local, federal funds and private funds and opportunities. A variety of potential funding strategies are presented and discussed in the Providence Streetcar Opportunities Report (see Appendix).

RIPTA and its partners should continue to monitor emerging developments in the availability of potential federal funding. Based on the known experiences of other streetcar development efforts, however, the decision to pursue federal funding should not be made in haste. The federal process significantly increases the time needed to implement a project, and there is no guarantee that federal funding will ultimately be received. Even if federal funding can be secured, the project development and approval process is lengthy and challenging. Providence should take the steps necessary so as not to preclude any future opportunity of receiving federal support, but local leaders may want to also consider implementing a locally funded "starter line" in order to more quickly complete and operate the project. Local leaders should also look to identify opportunities for public-private partnerships, such as advertising, joint development, concession agreements, park and ride agreements, lease equipment agreements, grant anticipation notes, revenue anticipation notes, infrastructure banking and design-build-operate-maintain-finance (or DBOMF) strategies, or some combination of the above.

The development of a viable financing plan for a Providence Streetcar will be a key component of more detailed project development work to be completed in proposed subsequent phases of study. This financing and implementation plan will be a critical step in taking a potential streetcar project from concept to reality.

7.3. RIPTA'S NEXT STEPS

RIPTA'S STATEWIDE STRATEGIC PLAN

Any recommendations for enhancing transit within the Metropolitan Providence area must be considered within the broader context of RIPTA's overall statewide program. As mentioned in the earlier sections of this report, RIPTA has a range of planned and proposed improvement projects that include both statewide initiatives (i.e., Intelligent Transportation Systems, Improved Paratransit Maintenance, etc.) as well as local planning efforts and projects targeted for specific regions of the state (e.g., Aquidneck Island, South County, etc.).

Recognizing that the scope of desired improvements is beyond its near term funding capacity, RIPTA's Board of Directors has initiated a more formalized strategic planning process. Supported by RIPTA's Planning Department, the Board's Strategic Planning Subcommittee has begun a comprehensive review of technical materials (e.g., service standards, passenger counts, recent planning studies, maintenance records, etc.) to help identify overall system needs. Most importantly, the Board will work with RIPTA staff to set priorities for system repair and asset replacement, service enhancements and system expansion. It also will establish a vision and timeframe for addressing statewide transit needs in a cost-effective, sustainable manner.

MOVING FORWARD: FIRST STEPS IN IMPLEMENTING METRO TRANSIT RECOMMENDATIONS

While RIPTA and other transit advocates in Rhode Island remain hopeful that future changes in both the state and federal transportation financing arenas will translate into increased support for the maintenance and expansion of transit programs, there is no certainty that these changes will take place. To be realistic in terms of setting expectations for implementation, as well as fiscally prudent in terms of funding and advancing the Metro Transit Study recommendations, we must assume that funding will remain at least at current program levels over the upcoming years. RIPTA is confident that current federal funding and programming will continue at least at similar levels over the short-term, allowing us to move forward with certain actions called for in this report.

The table below identifies the first steps RIPTA plans to take in advancing the Metro Transit Study recommendations. These include a range actions that require relatively low levels of capital investment, take advantage of other RIPTA programs that are currently underway (e.g., Intelligent Transportation System (ITS), new bus purchases, etc.), and can be carried out with minimal impact on RIPTA's operating budget. In some instances – for example, #6 - Initiating Rapid Bus Service – we are able to commit to full project implementation over the next few years. For other, more capital-intensive, longer-term projects, Figure 7- 3 reflects only that planning can be initiated or that smaller, first phases of a project can be constructed.

Increased capital support, whether through federal programs or other less traditional avenues, would be required to advance any additional Metro Transit recommendations beyond those identified above. Increased operating revenues would also be required to support the associated increases in RIPTA's annual operating budget. RIPTA cannot commit to a timeframe for further investment without guaranteed levels of increased federal support, whether through reauthorization of the Surface Transportation Act or other programs. It also needs a detailed plan to support increased operating costs through additional state support, new revenue generating programs, or new partnership agreements.

Given what is known today, it is reasonable for RIPTA to establish a goal to pursue increased levels of federal program support. This could include:

- Higher levels of federal funding authorized for transit;
- Targeted Federal support for transit expansion (e.g., congressional earmarks, New Starts/Small Starts);
- Greater use of existing federal programs (e.g., CMAQ or Transportation Enhancement); or
- Other new Federal Programs under discussion in Congress today (e.g. Livable Communities).

A greater challenge is finding the local support to match these federal dollars and to identify the ongoing support to operate and maintain these projects on an annual basis.

For example, the Governor's Blue Ribbon Panel put forth a scenario (Funding Scenario #2),whereby RIPTA gas tax receipts would increase incrementally over a 10 year period providing RIPTA with the ability to expand its transit programs. As proposed, the amount of additional operating revenue provided to RIPTA would increase to an additional $21 million annually. This increase would help maintain existing operations in the face of inflationary pressure and allow for some expansion of transit programs. RIPTA's Board of Director's foremost priority is to maintain the transit services and supporting infrastructure in place today and, as finances permit, they must weigh the benefits of advancing a range of potential transit improvements across the State of Rhode Island. However, it is important to recognize that the level of additional revenues proposed by the Blue Ribbon Panel and to be dedicated to transit programs would in the range needed to fully implement the Metro Transit recommendations.

RIPTA is committed to pursuing new funding strategies and new sources of revenue to advance these improvements yet recognizes that, in order to be successful, this effort must involve outside partners and advocates to fundamentally change the way transit is envisioned and supported in Rhode Island. This "Call to Action" is presented in the last chapter of this report.

Figure 7-3:
Short Term Strategies for Moving Forward

	Is funding currently committed for this action?	If not, is it likely to be found w/in the current budget?	Has Planning Process Started?	Est. Capital Cost (2009$)	Est. Annual Op. Cost (2009$)
#1 Provide Additional Bus Service				$12.8 M	$8.2 M
·Public outreach/statewide route evaluation	-	✓	-		
·Order buses to support new service levels	-	-	-		
·Expand service as funding permits	-	-	-		
#2 Improve the Transit Experience				$4.3 M	$134K
·Brand key routes and services	-	✓	-		
·Improve customer information	-	✓	-		
·Bus stop improvement program	-	✓	-		
#3 Reinvent Kennedy Plaza				$950K	$0
·Consider alternative bus berth configurations	-	✓	✓		
·Demo service to West Side & College Hill hubs	✓	-	✓		
·Identify and construct preferred design	-	-	-		
#4 Introduce New Transit Hubs				$5.7 M	$3.3 M
·Install hub amenities: West Side & College Hill	-	✓	✓		
·Construct Hospital District & Capital Hill hubs	-	-	✓		
·Implement full service to new hubs	-	-	-		
#5 Increase Park and Ride Capacity				$2.6 M	$12K
·Coordinate with RIDOT on site selection	-	✓	-		
·Design improvements	✓	-	-		
·Construct improvements	-	✓	-		
#6 Initiate Rapid Bus Service				$14.2 M	$0
·Order new diesel-hybrid vehicles	✓	-	✓		
·Design/install green light extension system	✓	-	✓		
·Design/install stop amenities	-	✓	-		
·Initiate service	✓	✓	✓		
#7 Build a Providence Streetcar System				$76.0 M	$2.7 M
·Conduct Alternatives Analysis & Env. Assessment	-	-	-		
· Design system; Procure vehicles	-	-	-		
·Construct and Operate Streetcar	-	-	-		
#8 Strengthen Intermodal Connections				$10.2 M	$4.4 M
·Design/construct S. Attleboro Station connection	✓	-	✓		
·Modify routes to serve Warwick Intermodal	-	-	✓		
·Install key stop amenities at Providence Station	✓	✓	-		
#9 Expand Programs for Commuters				$0	$113K
·Hire a Director of CRRI; Appoint Advisory Board	-	✓	-		
·Expand CRRI programs	✓	✓	✓		
#10 Capitalize on Transit Oriented Development				$0	$0
·Collaborate with other entities and partners	✓	✓	✓		

8. STRENGTHENING THE TRANSIT SYSTEM

The primary product of the Metro Transit Study is a series of recommendations to meet RIPTA's mission to promote, coordinate and operate a range of high-quality, safe, reliable and affordable transportation choices. In addition to the specific recommendations, the study team has identified potential increased investment in commuter rail and higher capacity transit corridors consistent with other state and regional planning efforts. These corridors include connections from Downtown Providence to Warwick, Cranston, Pawtucket, Olneyville, with additional corridors serving Providence to East Providence, the I-195 corridor, and freight rail corridors. In most cases, the identified corridors have not proven to exhibit the necessary current transit demand to justify higher-level service. Some corridors, however, may offer the opportunity for enhanced service. This section of the report discusses recommendations for identifying and promoting future enhanced transit service along some of these other corridors. In doing so, this section more broadly addresses the intense level of cooperation and collaboration between RIPTA and its partners that will be needed to support the growth of the metropolitan transit system.

For ground based transit, a transit corridor represents the potential market area (typically a few blocks to a half-mile wide) that surrounds a transit route. (Water-based transit corridors also can be defined.) The land uses that exist and the activities that take place within a transit corridor are fed by the transit service that runs through it, and the people living, working, and/or seeking recreation within the corridor provide riders for the transit service. A strong transit system needs strong transit corridors. As more people conduct their daily activities within transit corridors, and as the corridors provide the transportation connections that riders need, a number of positive results are anticipated. Transit system ridership and revenues should increase; traffic congestion should not grow as quickly; beneficial environmental effects should be realized, including lower fuel consumption and lower emissions from transportation activities; and personal benefits should be realized, including a reduced need for household spending on transportation.

In looking to identify candidate corridors, it is important to remember that transportation demand is a key characteristic of the projects recommended in this study for new and expanded services. The level of expected demand, in turn, can be based on a number of factors, including existing boardings (as with the Rapid Bus service recommended on Routes 11/99); the ability to connect major activity centers that are likely to exchange traffic (as with the downtown streetcar); and projections of residential and employment density (in both cases). Current or reasonably expected demand must be present for a project to go forward. Efforts to promote transit demand in any prospective transit corridor therefore should be of paramount importance.

8.1. PLANNING CONTEXT

To make a significant investment in transit infrastructure for any particular corridor, the investment has to make sense on several levels. Demand and cost are the key considerations for developing new or expanded service along any corridor. In addition, the proposed transit investment must be consistent with planning goals for the corridor, and those goals must be developed based on the current conditions and infrastructure within the corridor.

Demand can be existing or reasonably projected future demand. Cost includes initial capital costs and ongoing operation and maintenance costs. Demand should influence the technology to be employed, including the frequency of service. Technology and frequency of service, in turn, must be balanced against the costs associated in providing the service. As a result, transit corridor investment decisions should not be made based on a predetermined technology, nor should they be too heavily dependent on the location of the easiest-to-build route.

To date, a number of new transit services in Rhode Island – most notably ferry service and commuter rail service – have been introduced and advanced as individual projects, largely without any comparison of the benefits that could be achieved by making similar levels of investment in other parts of the transit system. These independently-advanced projects have many distinct benefits, and the goal is that similar major investments can be evaluated and coordinated as part of a comprehensive statewide transit system. Making investment decisions without appropriate consideration of the systemwide effects has proved to be problematic in other locations in the U.S. The work of the Metro Transit Study provides a broad framework for identifying and prioritizing transit investments. It is important to make clear that this study recommends that decisions about all major transit investments be made within the context of the larger metropolitan and statewide transit system.

Levels of demand can and do change over time. This means that the location and intensity of current transit demand can be influenced by planning decisions beginning today. In order to increase demand in specific corridors, preparing them for a higher level of transit service, especially rail-based service, a broad spectrum of political bodies, agencies, and organizations will need to work together to create an environment that is supportive of transit as a viable mobility solution. The sections below titled "Steps to Strengthen Corridor Viability" and "Actions for Growing Corridors of the

Future" offer some direction in working to strengthen selected transit corridors over the course of time.

8.2. TYPICAL CORRIDORS FOR CONSIDERATION

Many metropolitan areas around the country have identified potential high-capacity transit corridors based on the availability of existing infrastructure and/or available excess capacity, in addition to consideration of strong existing transit demand. This can be a very important strategy in older and well-established urban areas like the Providence metropolitan area, where the dense character of existing development and neighborhood reactions would make it very difficult to introduce and develop new transit infrastructure in new corridors within the urbanized area. However, established transportation corridors with existing infrastructure (active, underutilized or abandoned) might be good candidates for further development as transit corridors, provided the right demand exists or can be established. Typical corridors include (in approximate order of difficulty, i.e., cost to implement):

1. Underutilized rail corridors.
2. Abandoned rail corridors.
3. Highway lanes, medians, or shoulders.
4. Underutilized major local roads.
5. Heavily utilized major local roads.

These typical corridors are often examined in the context of creating a rail transit line; however, it is equally possible to establish enhanced bus service along most of them as well, especially as a dedicated busway or, in the case of major highways, a High Occupancy Vehicle (HOV) lane. Local examples of each are discussed below.

1. Underutilized rail corridors – Established metropolitan areas often possess rail corridors with existing operational tracks that are not being used to their full potential for all or portions of the day. Such underutilized rail routes are frequently looked upon as potential corridors for implementing new transit service. Typically these corridors are the result of historic freight rail service, and they do not necessarily follow a path that connects well to dense residential areas or to sites with significant employment near a downtown terminal. Underutilized rail corridors in the Metro Providence area include the tracks of the Providence and Worcester Railroad (PWRR) from Pawtucket northward toward Woonsocket. Other options include the additional track built alongside the Amtrak's Northeast Corridor tracks as part of the Freight Rail Improvement Project (FRIP). Planning and design efforts aimed at capitalizing on the underutilized PWRR and FRIP tracks are already underway. These efforts are discussed below in the section titled "Identified Metro Corridors of Interest."

2. Abandoned rail corridors – Another source of potential transit corridors are abandoned rail lines. These rail alignments are similar to the underutilized corridors described above, except that the formerly used tracks are either unserviceable due to their deteriorated condition or have been removed altogether. In many cases, regular rail service has not existed on abandoned corridors for 50 years or more. Abandoned rail corridors suffer from some of the same drawbacks as active, underutilized corridors. In addition, reinstating service on abandoned corridors typically involves considerable expense in restoring deteriorated or missing infrastructure.

Examples of abandoned rail corridors in the Providence metropolitan area include the former Pontiac Secondary Track (extending from the Amtrak's Northeast Corridor to the Pastore Center), the Washington Secondary line of the former Hartford, Providence & Fishkill Railroad running southwest from Providence, and the East Side Railroad tunnel and moveable bridge running from North Main Street in Providence under the East Side and into East Providence. Each of these routes highlights additional issues typically encountered in reestablishing rail service on abandoned corridors, including neighborhood opposition due to service being run close to existing houses along the route (e.g., Pontiac Secondary), resistance to reclaiming abandoned routes that have subsequently been converted to bike paths (e.g., Washington Secondary), or restoring river crossings (e.g., the moveable bridge between Providence and East Providence).

1: Seekonk River Railroad Bridge from Providence to East Providence

In 1994, RIDOT conducted a study of rail corridors around the state, in part to determine whether any abandoned rail corridors might be revived as transit corridors. The RIDOT study concluded that none of the abandoned rail corridors was feasible for reinstating transit service. Discussion of service to Pastore Center and to East Providence is provided below in the section titled "Identified Metro Corridors of Interest."

3. Highway lanes, medians, or shoulders – Co-locating transit corridors within a state or interstate highway route is often a consideration. In some cases there is an attempt to use the highway shoulder or median for dedicated transit service; in other cases existing or newly constructed travel lanes are dedicated as High Occupancy Vehicle (HOV) lanes, which can be used by both transit vehicles and other vehicles carrying more than one person at a time. In fact, park-and-ride service that uses a major highway is really a less visible way of doing the same thing. Apart from park-and-ride service, however, the three main impediments to using existing highway corridors are: (1) a lack of available right of way; (2) a related lack of good pedestrian connections to potential station locations; and (3) the general incompatibility of typical highway development patterns with desired transit oriented development practice.

Use of highway lanes tends only to be an option in areas where there is very heavy transit usage. The Lincoln Tunnel in New York City is an example. Otherwise, there is a tendency for public outcry about taking highway lanes that are perceived to be unused most of the time. Use of shoulders and medians would likely require reconstruction of the roadbed and/or reorientation of existing interchanges, both of which are often viewed as too expensive, absent a very high transit demand. Transit service in a highway median has been used for high-capacity service in a number of U.S. cities. The example of Chicago's rapid transit lines, which were built in the highway medians of I-57 and I-90 are frequently offered as an example. On these Chicago routes, the transit infrastructure was built at the same time the highways were built, which allowed for good integration. However, the poor quality of pedestrian access to the transit station from the surrounding neighborhoods, as well as the unpleasant waiting conditions at the stations (especially as passengers wait during winter in the salt spray of the highway) have been problematic from the beginning.

Major Providence area highway corridors that might be considered include the I-95 in the north-south direction and I-195, as well as Route 6, from the east and west, respectively. Route 146 could also be considered. RIDOT's 1997 Metropolitan Providence Transportation Improvement Study examined HOV lanes on I-195 as one of many options to improve capacity between East Providence and Providence. The HOV option on I-195 was dismissed from further consideration due to its low utilization rate, and I-195 is currently being rebuilt without it. In general, the use of highway corridors (except as park-and-ride routes) is not expected to be an option in the Providence area at this time, particularly due to the enormous expense associated with retrofitting bridge structures along any major highway route.

4. Underutilized major local roads – Existing major roads that are not yet at capacity provide a rare opportunity for implementing transit infrastructure, including, at the highest level of investment, streetcars and light rail systems. Unfortunately, wide roads in a dense metropolitan area that are operating below their capacity typically do not have enough travel demand to warrant transit service without strong planning and regulatory support to promote such growth. In cases where there is a strong will and strong support for developing appropriate land uses, such corridors certainly bear further examination. Allens Avenue along the Providence waterfront and Promenade Street along the Woonasquatucket River Valley are prime examples and are discussed further in the section titled "Identified Metro Corridors of Interest."

2: Allens Avenue in Providence near Cranston

5. Heavily utilized major local roads – Most of the principal bus routes mentioned previously as candidates for rapid bus service fall into this category. These include Broad Street, Elmwood Avenue, Chalkstone Street, Smith Street, North Main Street in Providence and Pawtucket, Reservoir Avenue in Cranston, and Taunton Avenue in East Providence. The greatest impediment to implementing dedicated transit infrastructure in this type of corridor is the expected reduction in automobile carrying capacity along the roadway, due to general travel lanes being replaced by dedicated transit right-of-way. Recommendations for rapid bus treatments (as opposed to bus rapid transit or light rail) for some of these corridors are partially in acknowledgement of this impediment, since rapid bus service typically does not involve a dedicated transit right-of-way. Future studies of these corridors should examine in detail the people carrying capacity, as opposed to the automobile carry capacity, of these corridors if dedicated transit infrastructure is to be installed and operated. Considerations for instituting rapid bus service and streetcar service are addressed elsewhere in this report.

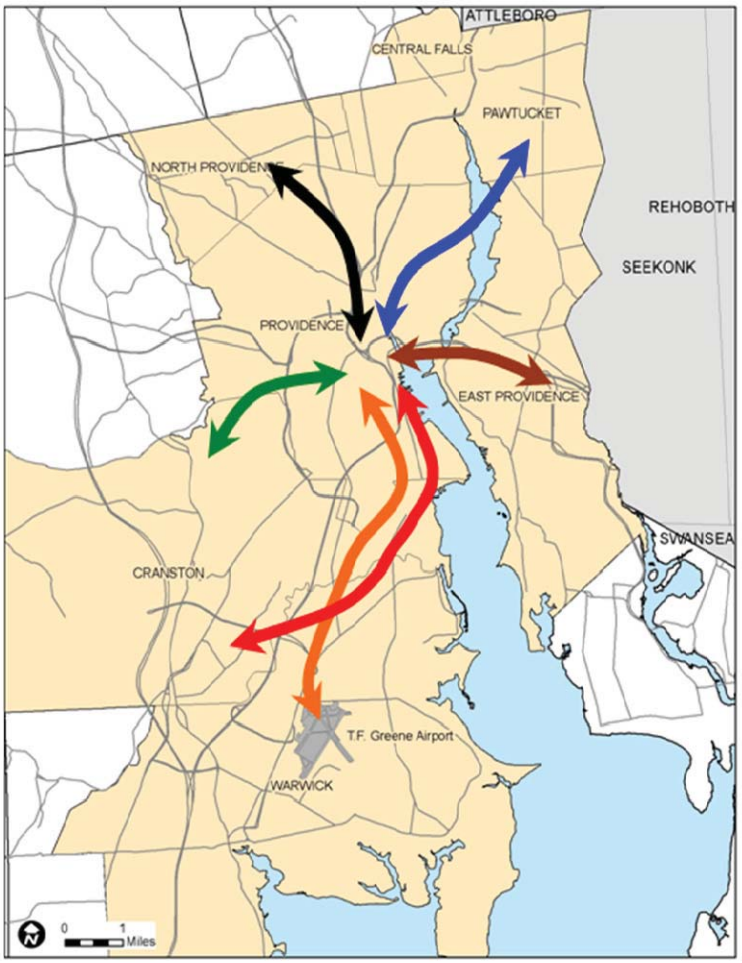
8.3. IDENTIFIED METRO CORRIDORS OF INTEREST

There are a number of possible corridors that might be considered for developing future higher-capacity transit service. Several of these corridors were specifically identified as part of the City's Transit 2020 Working Group, and as part of other studies and reports. These previously identified corridors include:

1. Downtown Providence to Warwick
2. Downtown Providence to Cranston via Allens Avenue
3. Pawtucket to Providence
4. Downtown to Olneyville via Promenade and Valley Streets
5. Providence to East Providence
6. The I-195 Corridor
7. The Freight Rail Improvement Program (FRIP) Track

With the exception of the rapid bus service recommended for the Pawtucket to Providence corridor, the work of the Metro Transit Study indicated that none of these corridors had a high enough existing demand to warrant service beyond basic city bus service at this time. This does not mean, however, that demand cannot be increased in the future. Characteristics of these corridors are discussed in greater detail below.

1. Downtown Providence to Warwick – This corridor would connect key destinations in Warwick and Cranston with downtown Providence. Service from Providence to the Warwick Intermodal Center at T.F. Green Airport, part of RIDOT's South County Commuter Rail (SCCR) project, is set to begin operations in the very near future. The SCCR service makes substantial use of the underutilized FRIP tracks, which run parallel to Amtrak's Northeast Corridor tracks. Initial SCCR service between downtown and the airport is planned to be provided at a frequency that is suited for the business commute. Therefore, it will not provide a steadily-flowing, all-day connection initially. In order to provide more frequent service along the corridor, the Providence Foundation has completed a preliminary study of service along the same corridor and beyond it northward to Pawtucket and Woonsocket. (See more about Pawtucket service below.) The Rhode Island Intrastate Commuter Rail Feasibility Study concluded that a service could be developed between Woonsocket and Warwick with a capital cost in the range of $140 million to $180 million, provided a particular transit technology (diesel multiple units or DMUs) could be made available. It is worth noting that DMUs that meet Federal Railroad Administration regulations are not currently being manufactured in the United States, but efforts are being made to reinstate domestic production. Ridership predictions in the Rhode Island Intrastate Commuter Rail Feasibility Study are approximately 5,000 boardings per day, which compares with the current daily ridership of the RIPTA's Route 99 bus service.



Additional ongoing planning efforts in the Providence to Warwick corridor include the second phase of RIDOT's SCCR project and the City of Cranston's efforts to institute a transit oriented development (TOD) district near Wellington Street along the rail corridor. The Metro Transit Study recommends that all of these various planning efforts be integrated and that the resulting feasibility results be considered explicitly within the operating and funding context of the overall transit system.

2. Downtown Providence to Cranston via Allens Avenue – Allens Avenue is a prime example of an underutilized major local roadway. It clearly offers a wide right-of-way, with good access to downtown Providence from the port area and from Cranston. Allens Avenue is often suggested as a rail transit corridor because of the presence of rails within the limits of the roadway. In its current condition, the Allens Avenue corridor suffers a lack of transit demand for the 2-mile long "dead zone" of low intensity land uses from the Johnson and Wales Harborside Campus Street to the Jewelry District. The sight of rails in the roadway is also misleading, as there is little indication they could be reused in anyway as part of a new transit system.

Allens Avenue should be considered as a future high-level transit corridor; however, plans for such high-level service must account

for the amount of time it will take to develop sufficient density along the corridor to warrant such a service. The City of Providence, through its ongoing Comprehensive Plan efforts, has identified the Allens Avenue corridor as a "Growth District," and the viability of Allens Avenue as a transit corridor will hinge on the city's success in growing density and activity in the district. The Allens Avenue corridor has also been suggested as a potential northernmost link in a route between downtown Providence and points in Cranston and farther south. Present levels of demand do not appear to warrant the expense of implementing a $25 million to $50 million per mile high-level service along such an expanded route at this time. Establishing the viability of such a route will require a considerable effort from many parties to build sufficient density.

3. Pawtucket to Providence – There are at least two opportunities for providing higher-level transit service between Pawtucket and Providence. RIPTA's Route 99, which runs from downtown Pawtucket and downtown Providence, currently has the second highest ridership of any RIPTA bus route. As a result of the existing demand, this report has recommended that Route 99 service be upgraded as part of a proposed rapid bus route. The possibility of providing a rail-based connection between Pawtucket and Providence has also been the subject of much discussion.

Rail-based studies have focused on re-establishing a commuter rail station in Pawtucket, either at the site of the historic Pawtucket/Central Falls train station or at a nearby location in Pawtucket. The most recent studies include the 2007 Pawtucket/Central Falls Commuter Rail Facility Site Analysis and Feasibility Study conducted by the City of Pawtucket, and the 2009 Rhode Island Intrastate Commuter Rail Feasibility Study conducted by the Providence Foundation. The Pawtucket study identified the possibility of a $27 million to $100 million project to reestablish a commuter rail station. If this project was pursued, it would allow passengers to travel from Pawtucket to Providence (and then towards Boston or Warwick) using existing railroad infrastructure. The Providence Foundation study (noted above in the "Downtown Providence to Warwick" section) would capitalize on the new Pawtucket station to provide additional service northward to Woonsocket. RIPTA should continue to work with the City of Pawtucket and RIDOT to further refine the costs and benefits of rail-based service between Providence and Pawtucket, and prioritize investments within the context of a systemwide planning effort.

3: North Main Street in Providence near the Pawtucket line

4. Downtown to Olneyville via Promenade and Valley Streets – The Valley corridor is another example of a corridor centered on an underutilized major roadway, similar to the Allens Avenue corridor discussed above. Like Allens Avenue, the Valley corridor also has been designated as a "Growth District" in the City's Comprehensive Plan process, and like Allens Avenue, the Valley corridor currently exhibits very low density development along much of its length.

In addition, the Valley corridor suffers from at least two disadvantages that Allens Avenue does not. First, the Valley corridor is separated from the downtown area by Providence Place Mall and Amtrak's Northeast Corridor. Efforts to provide high-level service along the Valley Corridor will need to focus on ways to successfully overcome these physical barriers without severely impacting potential service. Second, the Valley corridor is not as viable for providing a link in a longer distance system to portions of the metropolitan area beyond Valley Street. With these exceptions, the same caveats apply to the Valley that were noted above for Allens Avenue.

5. Providence to East Providence – High-level transit service between Providence and East Providence, including the possibility of reutilizing the East Side Rail Tunnel and the abandoned Seekonk River Bridge, were recently reviewed as part of RIDOT's 1997 Metropolitan Providence Transportation Improvement Study (MPTIS). The MPTIS report identified a number of options for directly connecting East Providence to downtown Providence and estimated costs (in 1997 dollars) for a range of high-level services. These range from a $20 million option that would utilize buses on a dedicated right-of-way over the Henderson Bridge and through the East Side Tunnel to a $90 million option that would utilize light rail vehicles travelling over the Seekonk River Bridge and through the East Side Rail Tunnel. Escalation in construction prices, as measured by typical construction price indices, indicates that the cost of the bus and light rail options would be approximately double today, $40 million to $160 million, respectively.

Demand in 1997 did not indicate the need to invest in a high-level service. This is likely to continue to be the case until such a time that considerably more residential density is developed in key

locations in East Providence. The ongoing redevelopment of the East Providence waterfront may provide the necessary density, and RIPTA and the Cities of Providence and East Providence should periodically revisit the success of the waterfront redevelopment to assess the need for high-level service.

6. The I-195 Corridor – East-west portions of the I-195 corridor were examined by RIDOT's 1997 study discussed above. The reconnection of portions of the Jewelry District to downtown Providence, as a result of the I-Way project's relocation of I-195, is an important consideration in planning for the recommended streetcar system. As a result, this corridor is addressed in Section 4.3 of this report "New Services."

7. The FRIP Track – Over the past decade, a new railroad track was installed adjacent to Amtrak's Northeast Corridor (NEC) track as part of RIDOT's Freight Rail Improvement Project (FRIP). Originally designed to provide enhanced freight rail service to and from the port facilities at Quonset Point in Davisville, the FRIP track has now become the linchpin in a number of plans to initiate passenger rail service along its length from its beginning in Pawtucket to its point of divergence from the NEC at Davisville. The soon-to-be-opened first phase of the South County Commuter Rail (SCCR) project will be the first passenger rail project to take advantage of the FRIP track and provide commuter rail service without interfering with the adjacent Amtrak service. Additional projects mentioned above also contemplate using the FRIP track, including the Pawtucket/Central Falls commuter rail station, the proposed Woonsocket-to-Warwick intrastate commuter rail line, and a new transit station in Cranston that would serve as the anchor for TOD activities. Any of these projects would need to be addressed as part of a comprehensive transit planning process and acknowledge the very limited track capacity that might be available once the SCCR project comes on line.

8.4. STEPS TO STRENGTHEN CORRIDOR VIABILITY

In order to develop the appropriate demand for high-level service in the specific corridors and general corridor types discussed above, a number of tasks must be undertaken by proponents of an expanded transit system. Tasks include the following:

1. Choose corridors for future high-capacity transit service;
2. Consider appropriate transit technologies;
3. Provide systemwide modeling to show impact and help prioritize investments;
4. Enact land use controls to assure sufficient demand;
5. Seek funding for high-capacity service based on increased demand; and
6. Desgin, construct, and implement the service.

Some of these tasks are more difficult than others and most involve considerable interaction with agencies and resources outside RIPTA's direct control. A brief discussion of each task follows.

1. Choose corridors for future high-capacity transit service – Aside from the streetcar corridor and incremental improvements to the existing corridors exhibiting the highest level of ridership, this study was not able to identify an immediate need for any new transit corridors. New corridor development will require a concerted effort over time from many different parties. While RIPTA can support the development of new corridors, cities and towns interested in promoting new corridor development will need to commit to these improvements. With support from Statewide Planning, the state legislature, and their own governing bodies, cities and towns will need to build the regulatory framework to support dense development along selected corridors. As these corridors are selected, RIPTA can then begin to plan for how to build and operate the necessary transit infrastructure.

2. Consider appropriate transit technologies – There are a wide range of transit technologies available, each of which may be appropriate for use in a particular corridor depending upon the expected number of passengers, frequency of trip making, and the physical characteristics of the corridor. Common transit technologies include the following:

- Express Bus
- Bus Rapid Transit (BRT)
- Heritage Streetcar
- Modern Streetcar
- Light Rail Transit (LRT)
- Commuter Rail
- Heavy Rail

The characteristics of these specific technologies are summarized in the graphic on the following page. Variations on these technologies also exist, and some of them have already been discussed in this report. They include Rapid Bus service, which offers a subset of the characteristics of BRT technology, and Diesel Multiple Units, which are a specialized form of Commuter Rail technology. The RIPTA system is currently a bus-based system and as such, it is particularly well-suited to serving an urban area the size and density of the Providence metropolitan area. Some of the other technologies that might be applicable for high-demand corridors in Metro Providence include the modern streetcar (as recommended downtown) for medium to high densities over relatively short distances. Other options include light rail for longer corridors with more widely spaced pockets of concentrated activity, and commuter rail service along the Northeast Corridor and FRIP tracks for longer distances where commuter trains provide a natural extension of existing MBTA service.

3. Provide systemwide modeling to show impact and help prioritize investments – RIPTA needs to work with Statewide Planning and others to develop and maintain transportation modeling and analysis tools that can help evaluate the systemwide impacts of major transit investments. Although it is always valuable to have estimates of the performance of a transit investment along any particular corridor, it is just as important to know the effect of that investment or competing investments on the performance of the broader transit system. Statewide Planning's work to develop the transit capability of the statewide travel demand model, as well as other modeling tools, will be critical to this effort.

4. Enact incentives and land use controls to assure sufficient demand – Once a potential corridor has been selected and as its potential systemwide benefits are being tested, the real work of building the corridor must begin. Commitment will be required from state and local elected officials and appointees to support concentrated residential and/or employment growth within the selected corridor. Tools available to the state and local government bodies fall under the general headings of transit incentives and Transit Oriented Development; these are addressed throughout the Study.

5. Seek funding for high-capacity service – Federal funding is likely to remain the main funding source for implementing new service in designated transit corridors. As corridors are identified and analyzed, and once substantial commitment has been shown for developing these corridors, RIPTA can lead the effort to make the case for federal investment. RIPTA also can help coordinate efforts to secure the often substantial local match required to obtain federal funding. The commitment of state and local governments will need to be demonstrated through the requisite local match for funding.

6. Design, construct, and implement the service – Once funding is secured, RIPTA (in coordination with its partners) will need to assume new roles in designing, building and operating service. Building and operating facilities for bus service and other rubber-tire service is already well within RIPTA's capabilities. Building and operating other high-level transit services, especially rail-based services, will require a shift in RIPTA's organizational capabilities. RIPTA will need to develop its own skills to match the challenge of building dedicated guideways and other large-scale capital facilities. It will also need to address the new challenges presented by the opportunity to operate new transit technologies beyond bus and paratransit service. RIDOT will be a key partner in this process.

8.5. RECOMMENDED ACTIONS FOR STRENGTHENING THE TRANSIT SYSTEM

Based on the information presented above, this study recommends the following specific actions be undertaken by RIPTA and its partners in and around the Providence Metropolitan area, including municipalities, state agencies, the state legislature, and transit advocates.

RIPTA – RIPTA needs to be at the center of coordinating efforts to choose corridors for higher-level transit service investments. As the state's designated Mobility Manager and primary recipient of Federal Transit Administration (FTA) funding, RIPTA has a more comprehensive understanding of transit funding and operations issues than any other statewide agency. RIPTA will need to provide guidance in balancing the costs and benefits of proposed transit investments, and in helping to prioritize corridors for implementation.

Municipalities – The cities and towns within the metropolitan areas need to work with RIPTA to help identify and prioritize potential transit corridors. The municipalities also need to enact strong land use controls and introduce meaningful TOD incentives. Without this level of commitment from local government, it will be very difficult to provide justification for designing and building a high-level transit facility. RIPTA staff, as well as the staff at Statewide Planning, can work closely with municipal governments to provide advice and recommendations on how to structure revised zoning and other ordinances to support the growth of transit corridors.

State Agencies – State agencies, most specifically RIDOT and Statewide Planning, need to strengthen their interaction with and support of RIPTA's corridor-building activities. RIPTA and RIDOT need to continue coordinating their activities as they relate to commuter rail projects, pedestrian and bicycle projects, and the transit-supportive elements of road and bridge projects. RIDOT coordination should include addressing commuter rail investments within the context of the overall state transit system, and not as stand-alone projects. Statewide Planning must continue to develop the transit modeling capabilities of the statewide travel demand model and share their expertise with RIPTA planners. Statewide Planning will also need to continue development of plans and supporting materials that enable local and state government to actively support the development of transit corridors. This would include support of local planning initiatives, as well as transit-supportive legislation.

State Legislature – The state legislature can help build transit corridors in a number of specific ways. For example, writing and enacting legislation that will support future development in designated transit corridors. As a first step, this might include adopting legislation to enforce the recommendations of Statewide Planning's Land Use 2025 Report. The state legislature can also aid the development of transit corridors through the generally transit-supportive act of creating new funding mechanisms for RIPTA.

Transit Advocates – Finally, transit advocates can do more of what they have been doing. This includes any and all steps to reinforce the benefits of a strong transit system. Identifying strong candidate corridors for high-level service, pushing for creation of compact development along identified transit corridors, encouraging ridership, and seeking additional sources and mechanisms for transit funding aids in this reinforcement. RIPTA is committed to continuing its strong relationship with the transit advocate community in the metropolitan area and around the state.

Transit Technology

Technology	Heavy Rail	Commuter Rail	Light Rail	Modern Streetcar	Heritage Streetcar	Bus Rapid Transit	Express Bus
Example Cities	Washington DC New York Subway Chicago	Boston Chicago San Francisco	Denver Charlotte Minneapolis	Portland Tacoma Seattle	New Orleans San Francisco Kenosha	Los Angeles Pittsburgh Eugene	Most Cities Served by Bus Systems
Approximate Cost Per Mile (Millions)	$150-$250	$3-$20	$40-$120	$20-$35	$5-$25	$4-$50	$1-$2
Service Type	Regional/Urban	Regional/ Interurban	Regional/ Urban	Urban Circulator	Urban Circulator	Regional/Urban	Regional/Urban
Station Spacing/Type (Miles)	Urban Core <1 Periphery 1-5 Station/Platform	2-5 Station/Platform	.25-2 Sidewalk Sign/ Station/Platform	.25 Sidewalk Sign/ Platform	.25 Sidewalk Sign/ Platform	.25-2 Sidewalk Sign/ Station/Platform	Limited Stops Along Normal Bus Routes
Peak Service Frequency (Minutes)	5-10	20-30	5-20	8-15	8-15	3-20	10-30
Average Speed (MPH)	30-50	30-50	15-30	8-12	8-12	10-30	30-60
Alignment/ROW Width	Separate ROW 25-33 Feet	Existing Freight ROW/ 37+ Feet	Street Running or Separate ROW/11-33 Feet	Street Running 11-24 Feet	Street Running 11-24 Feet	HOV or Separated Median/28 Feet	Street Running
Typical Power Source	Electric	Diesel/Hybrid	Electric	Electric	Electric	Diesel/Hybrid	Diesel/Hybrid
Photos							

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9. SHIFTING THE CONVERSATION IN RHODE ISLAND

Any recommendations for enhancing transit within the Metropolitan Providence area must be considered within the broader context of RIPTA's overall statewide program, RIPTA has a range of planned and proposed improvement projects that include both statewide initiatives as well as local planning efforts and projects targeted for specific regions of the state.

9.1. REALIZING THE BENEFITS OF TRANSIT

Today, the existing RIPTA system provides the State of Rhode Island with an estimated $144.8 million in benefits. These benefits are realized by residents and businesses across the state, in terms of transportation cost savings, affordable mobility and economic development.

This Metro Transit Study has identified a range of additional improvements that would better meet existing transit demand and help grow the system within a six-community metropolitan study area. These improvements would increase statewide transit ridership by approximately 8.2 million passengers per year and provide Rhode Island with an additional $54.4 million in transportation, mobility and economic benefits. Additional economic impacts would be generated directly and indirectly as a result of construction and operating expenditures related to the recommended improvements. Over the long term, implementation of the recommended Metro Transit enhancements would result in an estimated $247.5 million in net annual GDP due to transit-induced cost savings to businesses, as well as 4,231 new jobs.

Yet, to realize these benefits, Rhode Island must be willing to make larger investments in the transit infrastructure of today and commit to supporting an expanded transit program over the longer term. Implementing the improvements called for within this report would cost an estimated $126.7 million, and would require an estimated $18.9 million to operate and maintain on an annual basis. And, as RIPTA and its Board of Directors are acutely aware, there are outstanding transit needs and opportunities for expansion beyond the Metro Study area that must also be put forth as part of this discussion.

9.2. A CALL TO ACTION

Even prior to this Metro Transit Study, there had been a growing call for renewed investment in Rhode Island's transit system. Those contributing to this call represent a wide spectrum of interests and perspectives.

In their 2008 report to Governor Carcieri, the Blue Ribbon Panel on Transportation issued a "Call to Action." This statement recognized the key contributions that transportation infrastructure investments make to the overall economic health of our state and emphasized the immediate need to reinvest in the critical networks that support the movement of people and goods. The Blue Ribbon Panel further recognized the importance of a strong, effective transit system and clearly stated that transit system needs should be part of any statewide transportation funding solution.

A year earlier, the Special Legislative Commission to Study Transit had been charged with the task of identifying methods to streamline RIPTA operations. Despite this charge, the Legislative Commission realized that current operations are not adequate to meet growing needs and new funding must be identified to expand the system. They called for RIPTA to become Rhode Island's Mobility Manager and for restructuring, reinvestment and creative financing to allow RIPTA to function as a major resource in addressing the state's transportation needs. Both the Legislative Commission and the Blue Ribbon Panel acknowledged legislative action is needed to identify new, long-term, reliable funding sources for RIPTA operations.

A CALL TO ACTION

As issued by The Governor's Blue Ribbon Panel on Transportation (Dec. 2008).

"It is time to take charge of our own destiny. The economy and the quality of life of the people of Rhode Island depend on safe and reliable transportation. Continued deterioration of our infrastructure will only serve to perpetuate the downward spiral we are in. Studies have shown that investment in transportation will yield great economic benefits for the State.

There is no silver bullet to solve our transportation funding crisis. Every strategy recommended by the Blue Ribbon Panel will have its challenges. The Panel is mindful of the impacts that the proposed funding options will have on families in Rhode Island. Some may think that we cannot afford to invest in our infrastructure at this time, but we really have no other choice. We must act now, for if we do not, the future costs to rebuild our infrastructure, as well as the cost to the economy, will only be higher.

It is time to do what is right and invest in the future of our State. These are our bridges, our roads, and our buses. Reason and wisdom must prevail, and provide the courage for us to make the investment necessary to preserve our transportation system for future generations."

Beyond government walls, there is a growing advocacy pushing the state to commit to greater levels of transit investment. In October 2009, the Coalition for Transportation Choices set forth their vision which calls for "a 21st century transportation system that enhances our economy and provides all Rhode Islanders with healthy transportation choices." The Coalition represents about a dozen independent non-profit groups that have unified to advocate for an intermodal transportation system that is sustainable and provided with predictable funding for future growth.

On the national level, there is growing recognition that transportation is the foundation for a variety of other policy goals; for example, More Livable Communities, Affordable Housing, Smart Growth, Energy Efficiency, Job Access, Aging in Place, etc. New programs are being developed that may open new avenues for collaboration between transit agencies and other community efforts.

The benefits of Rhode Island's transit system have been clearly stated from a variety of perspectives, and the desire to support and grow this system is clear. We must capitalize on this discussion and encourage all residents to view the transit system through a wider lens. Transportation is a common resource that can help the state achieve many of its other environmental, economic development and quality of life goals. By carefully envisioning, planning and providing transportation investments, we can help reduce energy consumption, improve air quality, encourage development near existing infrastructure and support overall mobility for all Rhode Island residents, communities and businesses.

9.3. GARNERING STATE AND LOCAL PARTNER SUPPORT

Those calling for action must now come together to identify the financial means to better maintain, enhance and expand RIPTA services, allowing RIPTA to fully meet its mandate to serve as Mobility Manager, and to help Rhode Island achieve the community, environmental and economic benefits that are so critical to our future.

RIPTA's new vision clearly states their commitment to increasing coordination and cooperation with both public and private partners. These partners include state and local land officials (RIDOT and Statewide Planning), other transit and transportation providers (MBTA, GATRA, RIAC, Amtrak, universities, social service agencies, and medical service providers), housing developers, health care providers, and others. RIPTA is willing to support these partners by providing transit services to meet the diverse needs of their constituents and to achieve overall statewide and community goals. In turn, these partners must be called upon to make decisions and investments that positively impact the efficiency and effectiveness of transit (e.g., land use, new development, and community-based care).

The City of Providence recognizes this work is vital to securing our economic and environmental futures while protecting our quality of life. Mayor Cicilline has been a leader in efforts to expand transportation choices, beginning with Transit 2020. Looking ahead, Providence will lead a new era of transit advocacy, creating an Action Committee to ensure the successful execution of recommended improvements for Metropolitan Providence. Like Providence, surrounding communities in the metropolitan area will play a central role in moving these efforts forward. As members of the Transit 2020 Action Committee, and as advocates in their own communities, local leaders will continue to work with RIPTA implement projects and grow our transit system. Key state agencies include Rhode Island Department of

Transportation and Rhode Island Statewide Planning, two partners that share the vision of a coordinated, multimodal transportation system for Rhode Island.

Finally, these partners must join the call to ask state decision-makers to identify new revenue sources and long term sustainable funding to support transit operations in Rhode Island, as well as to support strategic growth and expansion of the system. RIPTA pledges to serve as a leader in this effort and to clearly communicate the benefits, savings and return on transit investments that the recommended Metro Transit improvements, and other projects throughout Rhode Island, will bring to the taxpayers of this state.