Thinking Outside the Bus:  
*Creative Ideas for Rhode Island Public Transit*

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*Light Rail, Bus Rapid Transit, and New Transit Centers*

Roger Leaf

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## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acknowledgments</td>
<td>3</td>
</tr>
<tr>
<td>Forward</td>
<td>4</td>
</tr>
<tr>
<td>Why Transit Matters</td>
<td>6</td>
</tr>
<tr>
<td>Executive Summary</td>
<td>8</td>
</tr>
<tr>
<td>Light Rail</td>
<td>13</td>
</tr>
<tr>
<td>Bus Rapid Transit</td>
<td>17</td>
</tr>
<tr>
<td>Transit Centers</td>
<td>20</td>
</tr>
<tr>
<td>Connectivity</td>
<td>28</td>
</tr>
<tr>
<td>Appendix A – Light Rail Detail</td>
<td>31</td>
</tr>
<tr>
<td>Footnotes</td>
<td>36</td>
</tr>
</tbody>
</table>
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Forward

Despite being the second most densely populated state in the country, just 2.7% of Rhode Islanders use public transportation on regular basis, about half the national average. The densest area of the state, where public transportation could be most impactful, is underserved. According to the U.S. Census, only 8% of commuters in Providence took public transit in 2010, compared to 33% in Boston, 27% in Cambridge, and 21% in Hartford - even New Haven has 50% more transit commuters than does Providence.¹

From 2000 to 2010, the population of Rhode Island grew by just 0.4%, 49th out of the 50 states, while the US grew by 9.7%. Five cities, Woonsocket, Pawtucket, East Providence, Warwick, and Newport - 25% of the State’s population - lost 10,000 people. Central Falls, Providence, Woonsocket and Pawtucket, have the lowest median family incomes of all municipalities in the State. In Providence, the six wealthiest census tracts lost 4% of their population over this period, while the six poorest gained 8%.

At the same time, the State’s least developed areas, fueled by public policies that favor car-dependent suburbs, experienced the greatest population growth. The 25 fastest growing census tracts in the State, nearly all of which are clustered along I-295 in the northern half of the State, and between Route 1 and I-95 in the southern half, grew by over 18,000, or 14.5%, while the rest of the State saw its population drop by 14,000.²

Rhode Island’s current single-hub, bus-only transportation network has not kept up with the State’s changing demographics.

- Kennedy Plaza, the hub for over 70% of all regularly scheduled local and express bus routes in the State,³ is at capacity.
- Job growth in downtown Providence is no longer concentrated in the immediate vicinity of Kennedy Plaza.
- Much of the State’s population growth has been in areas that are away from its primary transit hub.
- The current bus-only system does not attract the full range of potential riders, particularly commuters.
- Because so many Providence commuters travel by car, the required space for downtown parking limits development, and congestion from rush hour traffic encourages further investments in highways.
- Long bus routes to Kennedy Plaza from far away neighborhoods result in less frequent service, which discourages ridership.
- Bus routes (and bus-only transit hubs) have done little to encourage transit-oriented development.
- Buses do not offer economies of scale, and are not particularly environmentally friendly.

To stimulate sustainable economic development, promote smart growth and meet the State’s mobility needs for the 21st century, it seems clear that Rhode Island needs to reconsider its transportation strategy, particularly in its urban core where two-thirds of its citizens live and work. Several initiatives are currently under study, but many of the challenges it faces remain unaddressed.
Why Transit Matters

The goal of public transit is to reduce an area’s dependence on the automobile, particularly at peak travel times, and to improve mobility for everyone, not just people who don’t have access to a car. In areas with limited public transportation, nearly every adult needs a car to get around, which comes at a high cost for the driver, for state and local governments and for the environment. Because of greater congestion and longer drive times, the marginal cost of getting around by car goes up with increased growth, whereas the marginal cost of public transportation can actually go down with increased ridership.

For public transit to be successful, it needs to be as convenient, comfortable and reliable as commuting by car. It does not have to be as quick because transit commuters can use their time more efficiently, but it does have to take people where they want to go, when they want to go there, particularly when roads are most congested.

Good public transportation can make it possible for a working couple to get by with one car. The median household income in Rhode Island is $56,000 per year, and the all-in cost of a car, even at today’s low gas prices, is about $9,000 per year. Maintaining two cars can cost what the average Rhode Island family spends on housing. In contrast, commuting by public transit costs less than $950 per year.

For people with lower incomes, owning even one car can be an economic challenge. The need for better transit to expand job opportunities for people who can’t afford a car to get to work is a critical issue. In fact, in a recent study of factors affecting economic mobility, “commuting time has emerged as the single strongest factor in the odds of escaping poverty. The relationship between transportation and social mobility is stronger than that between mobility and several other factors, like crime, elementary school test scores or the percentage of two-parent families in a community.”

There is a high correlation between greater mobility and increased economic activity. The larger the pool of qualified job applicants that companies can draw from, the more competitive they become, and the more mobile workers are, the wider the range of job opportunities they can pursue, leading to better economic outcomes. Public transportation is good for employers and workers alike.

Public transit is a catalyst for smart growth. It is far more cost-effective for municipalities to provide essential infrastructure, like roads, water and sewer, in
more densely developed areas. Greater density and diversity in land use also significantly reduces congestion and promotes energy efficiency. Cities have a vested interest in providing transit to increase density to lower their other infrastructure costs, and to make them more competitive for jobs. By lowering transportation costs for workers, cities can be much more competitive for development that might otherwise go to remote suburban parks where land and construction costs are cheaper, but government-funded infrastructure costs are much higher.
Executive Summary

One of the biggest challenges that Rhode Island faces today is the need for a comprehensive transportation master plan. Separate initiatives are already under way to design a new transit hub at the Providence train station, construct a new Pawtucket/Central Falls commuter rail station, redesign Kennedy Plaza, relocate the Pawtucket transit hub, develop a circulator bus route for downtown Providence, rehabilitate the 6/10 corridor, and pursue additional parking facilities in downtown Providence and on Capitol hill, yet the success of any one is directly affected the others. A detailed, long-range master plan is needed to ensure that costly projects do not result in sub-optimal outcomes.

No single mode of transit can meet all of Rhode Island’s future transportation needs, including its current all-bus network. However, a hybrid approach could combine the efficiency, service levels and capacity of light rail and BRT, the regional benefits of commuter rail, the flexibility and low up-front cost of bus service, and the vitality of bike lanes and pedestrian corridors. The key is to optimize how they all fit together.

- **Light Rail** – Efficiently moves lots of people along high density corridors, typically intra-city; offers scale benefits on heavily traveled routes that can make operating costs cheaper per passenger-mile than other options. Most effective mode for stimulating development.
- **BRT** – Efficiently moves lots of people along heavily traveled roadways; often less expensive than light rail, but takes up valuable real estate on congested corridors, adding bulk to roadways that can cut up neighborhoods and make them less walkable.
- **Bus** – Low initial cost and more flexible routes; works best over shorter distances and in areas with less density. Buses are not particularly scalable, and can have high operating and environmental costs.

A successful transportation strategy could use the strengths of each mode of transportation, integrated into one seamless network. The right sequencing of projects is also essential for successful implementation.

**Light Rail (LRT).** Concurrent with plans for the 6-10 connector, the State’s highest priority should be to investigate the feasibility of light rail, which could become the most critical component of a new regional transit system. Light rail offers the greatest potential for relieving congestion at Kennedy Plaza, improving mobility in downtown Providence, attracting new transit riders, facilitating the development of new transit centers, stimulating regional economic development, and increasing property values. LRT could directly impact multiple projects that
are already underway, including new transit hubs at Providence Station and in Pawtucket, the downtown circulator bus route, further alterations to Kennedy Plaza, bus super stops in the I-195, and Hospital Districts, the construction of additional parking garages downtown, and the integration of transportation initiatives along the 6/10 corridor.

A new, 14-mile rail line originating in Pawtucket and terminating in Warwick at the InterLink could provide a fast, frequent and comfortable rail connection between downtown Providence and the airport. Regional transit centers could be located along the rail line in Pawtucket, Providence, Cranston, and Warwick. Each hub would serve between 85,000 and 170,000 people, significantly improving intra-city mobility outside of Providence. Sixty percent of the bus routes that terminate at Kennedy Plaza today could instead be rerouted to other transit centers, significantly shortening bus routes and reducing congestion in downtown Providence.

Light rail could connect to Amtrak at Providence Station, and to MBTA commuter rail lines in both Providence and Warwick. Parking at LRT stops in Pawtucket, Warwick, Cranston and Lower South Providence could significantly reduce the demand for parking in downtown Providence. Multiple bus hubs would shorten many bus routes, allowing for more frequent service with no increase in operating costs.

In addition to the transit centers, the light rail line would also have station stops between Smith and Orms Streets to service Capitol Hill, near the Garrahy Courthouse, Point Street, and the Hospital District, eventually replacing multiple downtown bus super stops and the circulator bus route. (See map on page 16.) The light rail line could channel future economic growth into economic development zones that can support increased density, and offer significant opportunities for public-private partnerships.

**Bus Rapid Transit (BRT).** Rebuilding the 6/10 corridor will inevitably involve a transit component, but serious thought must be given to how it would fit into a regional transportation network. The city currently has a transportation planning firm preparing a corridor rebuild strategy, and BRT, including some combination of raised platforms, off board fare collection, and dedicated right of ways, through the 6/10 connector makes a lot of sense.

There is no question that fast-growing neighborhoods of Manton, Hartford, and Olneyville would benefit from improved transit, but without a well used Park and Ride facility, here may not be sufficient density to justify BRT all the way to I-295. The infrastructure is already in place for a turnaround on Route 6 at Killingly Street, which could also be the site of a route consolidator for bus routes from nearby neighborhoods to Olneyville, Providence Station, and Kennedy Plaza, and a transfer point for express bus service originating north and west of the metro area. A second BRT route could also run from Killingly Street to the transit
center at Park Avenue in Cranston, with stops along Route 10 at Olneyville, Cranston Street and Reservoir Avenue. Finally, a BRT route from Kennedy Plaza and Providence Station to a new transit center in East Providence serving the East Bay would complete the east-west transit corridor. (See map on page 18.)

**Transit Centers.** The current single-hub network was predicated in part on the out-of-date assumption that downtown Providence was the only area that could support dense commercial and multi-family residential development. Transit centers, particularly for light rail, can be catalysts for growth, but they often require updating local zoning to encourage nearby development. This would include regulations to reduce parking requirements for new construction, and bonuses for bike routes and amenities that improve pedestrian circulation. All hubs need to establish a strong "sense of place," with safe, pleasant indoor and outdoor waiting areas, and shops for the things one would normally purchase during a typical commute. Special Development Districts and "development ombudsmen" programs could accelerate growth and help coordinate development.

**Providence.** An integrated transit center at Providence Station offers enormous opportunities for stimulating development, which could be optimized by a realignment of Gaspee Street and an extension of Park Row over the Northeast Corridor tracks. This would open up several acres of land for commercial development on the west side of the Northeast Corridor, and preserve sites on the east side of the right-of-way for residential development. Placing the existing parking near the Capitol Building below grade and covering it with parkland would shift open space away from the railroad tracks and onto the Capitol grounds. This undertaking would be expensive, but it could be paid for by the sale of land along Gaspee that would be freed up for development, and would be permanently added to the city’s tax rolls. (See illustration on page 21.)

New transit centers in Cranston, Warwick and East Providence would reduce the number of bus routes to Kennedy Plaza from 41 today to about 17 (see table on page 31), significantly reducing the number bus stops needed at both Kennedy Plaza and Providence Station. In fact, a new, 12-bay bus terminal off Washington Street could provide sufficient transfer points for all the bus traffic to Kennedy Plaza and Providence Station. Curbside bus stops at Providence Station would still be needed, but it would eliminate the need for any bays there (vs. the current proposal of 12-16 bays). However, A reimagined Kennedy Plaza offers the potential for development that would strengthen the City’s most important central square, and encourage real estate development on nearby properties. (See illustration on page 24.)

**Pawtucket.** The transit hub in Pawtucket today already serves as a model for hubs in Cranston and Warwick, except that a light rail connection through the urban core to T. F. Green Airport would take the current hub to an entirely new
level. The Pawtucket transit hub already supports a service area of about 125,000 people with 11 bus routes. The hub needs to relocate, and the new site needs to support the Downtown and River Corridor Development Plan along Goff Avenue and Exchange Street. (See map on page 32.)

Cranston. A transit center on Park Avenue near Cranston’s Elmwood Enterprise Zone could serve an area of about 85,000 residents in Lower South Providence, Northeastern Warwick and Eastern Cranston, and connect to a BRT line along the 6/10 corridor. Parking at the center would be easily accessible from I-95 for commuters headed downtown. Its location, adjacent to Roger Williams Park and a few minutes by LRT and BRT to Warwick, Olneyville and downtown Providence, makes it an ideal location for denser residential development. Off-street parking at the hub should attract retail stores as well. (See map on page 35.)

Warwick. The InterLink would become a fully integrated multi-modal transit center, with local bus service area for over 150,000 residents, a light rail connection to downtown Providence and Pawtucket, an MBTA commuter rail link to Boston, ample parking and easy access to I-95, and a direct connection to the third busiest airport in New England. It is hard to imagine that it would not become a major center for offices, restaurants, hotels and conferences. The area around the InterLink is almost completely open for development, but the surrounding neighborhoods are quite dense: the six closest census tracts have a population of over 31,000 people.

East Providence. A transit center in East Providence would enable over 100,000 residents of the East Bay (East Providence, Barrington, Warren and Bristol) to travel within these four towns without having to take a bus to Kennedy Plaza. The hub should be sited in an area that can support denser development, with very easy access to I-195. Travelers from the East Bay to Kennedy Plaza would have to connect in East Providence, but shorter bus routes (running more often), and frequent BRT service could make travel times even shorter.

Special Development Districts. An area master plan is being developed for the Providence Station, and similar plans are recommended for the areas near the Pawtucket, Cranston, Warwick and East Providence transit centers, and the 6/10 connector in Olneyville. Each municipality should consider establishing similar mechanisms to work on zoning changes that encourage greater density and promote public-private partnerships.

Connectivity. The success of a transit network depends upon maximizing interconnections among different modes of transit. BRT needs to connect seamlessly with light rail and bus routes. All BRT and light rail stops should incorporate bike-sharing and bike lanes, and all modes of transit should be able to transport bikes. All downtown transit stops need to be pedestrian-friendly, and all non-downtown LRT stops should provide adequate parking. Free light rail
rides for one or two stops from Providence Station and Kennedy Plaza could improve mobility within downtown Providence.

Wifi on LRT, BRT and in transit centers, real time schedule information (countdown clocks), and mobile apps for tracking transit are all key elements of a fully integrated transportation system. A universal transit card for travel on all Rhode Island transit, as well as parking at LRT stations, would make it possible to provide free or reduced fare transfers from one mode to another. A single card for all modes of transportation, if linked to debit or credit cards (or even student activity cards) for automatic refills would increase customer satisfaction, encourage cross-utilization of services, reduce the handling of cash, provide economy-of-scale benefits, and lower administrative costs.
Light Rail

The conventional wisdom is that light rail would not be appropriate for Rhode Island because there is not adequate density to justify the high up-front investment, and only the most heavily traveled routes could justify the high operating cost. However, the R-Line, which is based on frequent service through the central urban core, has captured 20% of all RIPTA riders. The current Nelson\Nygaard study\textsuperscript{ix} for Kennedy Plaza and the new Providence Station transit hub lists 31 separate bus routes between the two, and ten along Dorrance Street south of Kennedy Plaza, all of which could be reduced dramatically by a light rail line, reducing traffic and congestion, and significantly improving mobility.

The benefits of light rail include:

- Lower operating cost per passenger mile – It costs nearly twice as much per hour to operate light rail vs. a bus (National Averages are $233 vs. $122\textsuperscript{vi}), but a three-car light rail train can carry four to five times as many passengers as one bus. With sufficient demand, the larger passenger capacity makes light rail much cheaper per passenger mile.
- Positive land use impact – Bus routes lack permanence. As a result, developers are far more likely to locate along light rail lines vs. bus routes, leading to greater ridership and higher property values.
- Less noise and air pollution - Light rail is most often powered by electricity vs. diesel-powered buses, making them quieter and more environmentally friendly.
- Higher ridership – Nationally, light rail attracts higher discretionary demand than buses, resulting in significant increases in ridership.
- Greater comfort and reliability – More space per passenger and a smoother, quieter ride leads to greater customer satisfaction, even with no pickup in travel times. Operating on dedicated rail lines, there are no traffic delays.
- Reduced congestion – While BRT and buses reduce congestion compared to automobiles, they still operate on the same highways and city streets as other traffic, which is particularly problematic in downtown areas.

Concurrent with plans for the 6-10 connector, the State’s highest priority should be to complete a feasibility study for light rail, which could become the most critical component of a regional transit system, and would directly impact several studies that are already under way. These include new transit hubs in Pawtucket and at the Providence Station, the downtown circulator bus route, “transit emphasis corridors” along Exchange and Dorrance Streets proposed by the
Nelson\Nygaard study, further alterations to Kennedy Plaza, transit hubs in the I-195 corridor and the Hospital District, additional downtown parking structures, and BRT as part of the 6-10 corridor.

A new, 14-mile rail line originating in downtown Pawtucket and terminating in Warwick at the InterLink would provide the region’s transit backbone. It would connect existing bus hubs in Pawtucket and Kennedy Plaza with new transit centers at Providence Station, in Cranston, and at the InterLink in Warwick, significantly improving local mobility. In addition to connecting to the Amtrak Northeast Corridor in Providence, it would also link to MBTA commuter rail at both Providence Station and in Warwick, and with BRT connections in Cranston, Providence Station, and Kennedy Plaza, significantly improving regional mobility.

The light rail line could also have station stops between Smith and Orms Streets to service Capitol Hill, on Dorrance Street near the Garrahay Courthouse, along Eddy Street near Point Street, and at Blackstone Street in the Hospital District. Transit centers in particular would channel future economic growth into economic development zones that can support increased density, and offer significant opportunities for public-private partnerships. Parking at Pawtucket, Warwick, Cranston, Lower South Providence stations could reduce the demand for parking in downtown Providence, and a Smith/Orms station stop could significantly reduce the need for parking on Capitol Hill.

The light rail line would shadow the existing Northeast Corridor right-of-way from Pawtucket to Providence Station, and from Cranston to Warwick, although new rail bed would have to be built. It would follow the P&W right-of-way from Cranston to Eddy Street/Allens Avenue in Lower South Providence, and operate as a light rail/streetcar hybrid on city streets in downtown Providence, and for five blocks in Pawtucket. It could also run below grade for three blocks along Finance Way from Francis Street to Park Row West.

A stop at the Roger Williams Zoo could be added to make it more accessible to residents throughout the metro area. If justified by future development, stops along Eddy Street or Allens Avenue could be added as well, but developers would likely pay much of the cost. Every bus route terminating at a transit center along the light rail line would have efficient transit connections to downtown Pawtucket and Providence, the Hospital District, Amtrak and commuter rail, and T.F Green Airport. Over time, the areas near the light rail line would become denser, making transit even more efficient, rather than the current approach, which encourages suburban sprawl and will make transit more car-dependent.

Light rail would offer unique benefits to the region.
- Multiple transit hubs along the light rail line would dramatically reduce the number of bus routes terminating at Kennedy Plaza from 41 today to about 17.
- Light rail would reduce the size of the new transit center at Providence Station, helping to maximize the development potential of adjacent properties.
- Light rail would allow planners to completely reimagine the Pawtucket Transit hub.
- Light rail to the InterLink would provide a convenient, fast and direct connection from Pawtucket and downtown Providence to T. F. Green Airport.
- Numerous studies have shown that new transit hubs would be powerful catalysts for nearby real estate development, and would increase nearby property values.\textsuperscript{xii}
- The Light rail line could significantly reduce both bus and car traffic in downtown Providence, ultimately replacing bus super stops in the I-195 corridor, the Jewelry District, and the Hospital District and the proposed circulator bus route.
- Parking at LRT stops in Pawtucket, Warwick, Cranston and Lower South Providence would reduce the need for additional parking in downtown Providence and on Capitol Hill. Every 250 workers commuting by light rail rather than by car would free up 100,000 square feet of surface parking, or an entire city block, for development.\textsuperscript{xii}
- Multiple bus hubs would shorten bus routes. Shorter bus routes would allow for more frequent service, shortening travel times and increasing ridership with no increase in operating costs.

Bus hubs along the rail line would significantly improve intra-city mobility outside of Providence. For example, bus riders traveling from one area of Warwick or Cranston to another that was not on the same bus route would no longer have to travel all the way to Kennedy Plaza to transfer, or make an awkward connection between bus routes where they happen to cross. Instead, area bus routes would connect at regional hubs, making it easier to optimize schedules to minimize transfer delays. They would offer a safer, more comfortable bus transfer points that also connect to light rail, and in some cases to BRT and commuter rail as well.

One criticism of a multiple-hub system is that it could result in more frequent connections when traveling from areas in different cities that are far from the central transit core. However, shorter bus routes, operating on more frequent schedules, would result in less time to connect between rides, resulting in shorter overall travel times.

Based on 2015 ridership numbers, by redirecting a significant number of the current bus traffic to the light rail line, together with an increase in ridership, the Light rail line would be one of the 14 busiest light rail systems in the country by ridership, and the third most heavily traveled based on riders per mile of track.\textsuperscript{xiii}
Blue Squares – Commuter Rail, Light Rail and Bus Transit Centers
Red Squares – Light Rail and Bus Transit Centers
Orange Squares – Major Light Rail Transit Stops

A more detailed description of proposed station stops can be found in Appendix A
Bus Rapid Transit

Bus Rapid Transit (BRT), some combination of specialized buses, dedicated rights of way, off-board fare collection, level boarding, and signal priority, is intended to increase capacity, avoid delays, and shorten travel times. It attempts to combine the greater speed and efficiency of light rail with the flexibility and lower cost of buses. Like light rail, the cost of BRT can vary widely. The average cost of BRT for 2016 Federal Transit Administration New Starts grant requests was $10 million per mile (many of which involved limited use of dedicated bus lanes), but Hartford’s BRT line is estimated to cost $61 million per mile. Operating costs tend to be slightly lower than light rail because of lower vehicle and construction costs.

The majority of BRT systems in the US have been in highly congested areas, such as Hudson River crossings into New York City where bus-only lanes are common, or in inner cities, such as in Cleveland, where they operate more like a streetcar. However, BRT can require a lot of space to operate. Transit stations are needed for raised platforms and off-board fare collection, and dedicated bus lanes can compete for space on existing roadways, and can make highways even greater barriers to pedestrians.

Because of the urgency of dealing with the failing 6/10 connector bridges, RIDOT understandably needs to make the 6-10 corridor a high priority. BRT along this corridor would shorten travel times for transit riders, but serious thought must be given to how it would fit into a regional transportation strategy. For example, according to RIDOT, two thirds of the traffic along Route 6 today neither originates nor terminates in Providence. There is no question that fast-growing neighborhoods of Manton, Hartford, and Olneyville would benefit from improved transit, but without a well used Park and Ride facility, here may not be sufficient density to justify BRT all the way to I-295. Dedicated bus lanes should only be used through select traffic choke points to keep from swelling the size of the 6/10 corridor.

Eastbound BRT on Route 6 could originate at the Killingly Street exit, where the infrastructure is already in place for a bus turnaround. This stop could serve as a transfer point to BRT from express buses originating in more rural areas north and west of the metro area, and as a route consolidator for bus routes from Johnston and nearby neighborhoods to Olneyville, Providence Station and Kennedy Plaza.

The distance from Killingly Street to Kennedy Plaza is about three and a half miles, and from Killingly to Park Avenue in Cranston is just over five miles.
Nevertheless, these two routes represent some of the most heavily traveled roadways in the region. BRT could quickly transport large numbers of people along this east-west corridor to light rail and local bus connections at Kennedy Plaza and in Cranston, and to Amtrak and MBTA service at Providence Station.

A transit network built around BRT on the 6/10 corridor, and light rail from Pawtucket to Warwick, leaves the East Bay underserved. Today, there are a total of five RIPTA bus routes that serve 100,000 people in the East Bay from East Providence to Bristol, all terminating at Kennedy Plaza. A regional transit hub in East Providence, which is easily accessible from I-195, would significantly improve local mobility within the East Bay area. Frequent BRT service along I-195 from East Providence to Kennedy Plaza would connect the East Bay transit center to the rest of the State’s transportation network. Shorter, more frequent bus routes in the East Bay could also compensate for having to transfer to BRT to get to Kennedy Plaza and Providence Station.

**Bus Rapid Transit**

![Map of Providence and East Bay with BRT routes highlighted]

*Green Squares – BRT, Light Rail and Regional Bus Transit Centers*

*Red Square – BRT and Regional Bus Transit Center*

*Orange Squares – BRT and Bus Transit Stops*
Transit Centers

The current, single-hub transit network is partly the result of legacy thinking that the only area in the region that could support dense commercial development and multi-family housing was in downtown Providence, but light rail and BRT can stimulate development across the region.

Providence Station. Realizing the full development potential from the design of a new transit center at Providence Station means achieving the greatest density closest to the new transit hub, and seamlessly integrating bus, light rail, and commuter and Amtrak rail service. The light rail line, running below grade for three blocks along Finance Way and Park Row West, could have an underground connection directly into Providence Station and new transit center. Realigning Gaspee Street to restore the symmetry of the State House grounds, and extending Park Row over the Northeast Corridor to Gaspee would open up several acres on the west side of the Northeast Corridor, in close proximity to a new transit center, for commercial and retail development. Placing the existing parking area between the Capitol Building and Gaspee below grade and covering it with parkland would move open space away from the railroad tracks and on to the Capitol Building. This would dramatically improve the appearance of the landmark Capitol Building, as well as add value to the new development corridor. Such an undertaking would be expensive, but the cost could be paid from the proceeds of land sales in the new development corridor, which would also become a permanent addition to the city’s tax rolls.

Reducing the number of bus routes to Kennedy Plaza would significantly reduce the size of the transit hub at Providence Station. Connecting the downsized transit center to the station on the Gaspee side, and connecting below grade to light rail on the Park Row side, would allow for a fully integrated structure that brings together BRT, LRT, Amtrak, commuter rail and bus service, and opens up the east side of the station for residential development. A common plaza to preserve the view sheds along Exchange Street could provide a dramatic new pedestrian entrance to both the new transit center, and a new service corridor between the train station and Finance Way/Park Row West could not only serve train, bus and light rail travelers, but also residents and office workers in the surrounding neighborhood as well. The extension of Park Row across the Northeast Corridor right-of-way would open up the train station to access by car/cab along the north façade to replace current entrances along Gaspee and Railroad Street.
New Transit Hub at the Providence Train Station
Key to Proposed Development Plan

1. New Bus Transit Hub with south atrium entrance. With only 17 bus routes to Providence Station and Kennedy Plaza, there would be no need for bus bays at the new transit center, only curb-side bus stops.
2. Amtrak and commuter rail station
3. Open plaza and primary pedestrian entrance to the train station and transit center; aligns with Exchange Place to protect view sheds.
4. Food court and service corridor for train, bus and light rail passengers, nearby office workers, and neighborhood residents.
5. Primary commercial and retail development sites.
6. South lawn over northeast corridor right of way. Protects view sheds from the plaza and the entrance to the train station.
7. Primary development site on Parcel 6, with LRT passing through the site below grade; potential site for residential or hotel development.
8. Secondary development site over right-of-way.
9. Open space and bike path connecting Smith Street to transit center.
10. Relocated Gaspee Street.
11. Park Row extended through to Gaspee Street; car and cab drop-off for train station and transit center, and stop for BRT.
12. Covered underground parking moves parkland onto the Capitol Building grounds.

A likely concern about the relocation of Gaspee Street would be the shift of parkland to around the State House. Some open space close to the Northeast Corridor right-of-way would be lost, but much of it would be replaced by new parkland above the existing parking lot. Open space around the train station probably made a lot of sense in 1979 when the Capitol Center Master Plan was first created. At the time, there was no commuter rail service to Boston, interstate passenger rail was dying, and Amtrak, then only eight years old, was struggling to survive. Today, over 2,000 riders board MBTA trains at the station each business day, and more people travel from New York to Boston by train than by airplane. In fact, the highest commercial rents and lowest vacancy rates in the city are in area closest to the train station.\(^v\) The current open space is virtually unused today because it is surrounded by railroad tracks and parking lots. It would make far more sense to use this corridor for development, and develop new parks closer to where people live and work. This corridor, as well as the light rail stop at the train station, would eliminate some area parking, but the new transit center, with access by bus, BRT, and light rail, a light rail stop between Smith and Orms Streets serving commuters on Capitol Hill, and a new commuter rail station in Pawtucket, demand for area parking should be sharply reduced.

**Kennedy Plaza.** Over time, the commercial and retail space surrounding Kennedy Plaza has either been stagnant or declined sharply, the Superman Building being the best example. While there may be forces at work other than
proximity to the RIPTA bus hub, it clearly has been a contributing factor. The challenge facing RIPTA and the city is to create a way for commercial and residential spaces surrounding the plaza to thrive, while still maintaining a vital transportation center and a safe, inviting pedestrian plaza.

There is no doubt that Kennedy Plaza’s central location will ensure that it will always be the City’s “town square,” and an important transit destination. However, light rail and BRT lines would make it possible to redirect 60% of the bus routes that terminate at Kennedy Plaza today to new transit centers in Warwick, Cranston, and East Providence, and to consolidate bus routes headed downtown along Route 6. The remaining bus routes would be shorter and run more frequently, reducing congestion caused by long wait times to transfer. Light rail would also eliminate the need for Transit Emphasis Corridors for bus traffic along Exchange and Dorrance Streets.

The reduction in the number of bus routes terminating at Kennedy Plaza would enable RIPTA to compress its bus transit footprint to an area along Washington Street and a new, enclosed bus terminal in the center of Kennedy Plaza. All bus stops along Fulton Street, East Approach and Exchange Terrace could be eliminated, and stops along Washington Street would be positioned far from Dorrance and Exchange Streets. The rest of Kennedy Plaza could then be used exclusively as a public plaza, surrounded by shops, cafes, an indoor waiting room and ticket office for transit riders, and mixed-use development along the perimeter.

The compact, covered bus terminal in the center of Kennedy Plaza could provide up to 12 bus berths, with an entrance from Washington Street. Commercial and mixed-use development around Kennedy Plaza would benefit from a major face-lift of Fulton Street, which has the potential to be the premier business address in the city. Wide, tree lined sidewalks and a row of retail shops along the north side of Fulton Street and the west side Exchange Street would separate these commercial and pedestrian corridors from the bus terminal. The west end of Kennedy Plaza would be an open pedestrian plaza surrounding the Soldiers and Sailors Monument in front of City Hall.
Proposed Development Plan for Kennedy Plaza

Key to Proposed Kennedy Plaza Development Plan
1. Canopied bus terminal; bus egress from Washington Street
2. Waiting room and ticket offices on ground floor, with potential commercial space on upper floors
3. Retail development along Fulton Street
4. Potential development site for residential or office tower
5. Open space: approximately 50 by 75 yards, including Dorrance Street (closed to vehicular traffic from Washington Street to Westminster or Weybosset Streets), and along Exchange Street pedestrian corridor
6. Covered pedestrian corridors from Westminster Street to Fulton Street align with entrances to bus terminal (East passageway is already in place)

Pawtucket. The current hub in Pawtucket is, in many ways, the model for a distributed transit center, except that the light rail connection would attract a much larger and more diverse ridership. Eleven RIPTA bus routes connect to the hub today, carrying 4,500 riders today. About 70% of all riders transfer to the
R-Line, which functions like light rail, but with less capacity and comfort, and slower travel times. However, a ten-minute light rail ride to downtown Providence, and a direct rail link to New England’s third busiest airport would be transformative to Pawtucket’s economy. The location of the new Pawtucket transit hub needs to support the Downtown and River Corridor Development Plan along Exchange Street and Goff Avenue, which coincides with the proposed light rail route, and bus “superstops” along Exchange/Goff could be replaced by light rail stops. (See Appendix A – Light Rail Detail, page 32)

**Lower South Providence.** A light rail stop on Thurbers Avenue at either Eddy Street or Allens Avenue would serve as a transfer point for bus riders from Washington Park and Lower South Providence who were traveling to Warwick, downtown Providence or Pawtucket. If LRT were to run up Allens Avenue, a stop at the intersection of the Thurbers Avenue exit from I-95 and US 1A would be an ideal location for a large parking facility for commuters who could then travel by light rail to downtown Providence. It could also provide parking and bike-friendly transit if there were a ferry terminal at Corliss Cove for seasonal service to Quonset (for connections to the Fast Ferry to Block Island or Martha’s Vineyard) and Newport. This site is also surrounded by enough undeveloped open space to support both big box stores and retailers servicing the nearby neighborhoods, which are significantly underserved today. (See Appendix A – Light Rail Detail, page 34)

**Cranston.** This transit center would be at the edge of Cranston’s Elmwood Enterprise Zone and the site considered by the City of Cranston in 1994 for a commuter rail station. In addition to serving as a multimodal transit hub for bus, light rail, and BRT, its location near the Route 10 exit from I-95 would also make it an ideal location for a parking structure for BRT and light rail riders headed to Olneyville, Pawtucket or downtown Providence. A bike lane could link the center to Roger Williams Park about a quarter mile away, and a pedestrian corridor running south along Frances Avenue could connect to a major center for manufacturing and commercial space between US1 and the Northeast Corridor right-of-way. With access to off-street parking provided by the transit center, the blocks on either side of US 1, north of Park Avenue would offer great potential for retail development serving nearby neighborhoods and riders transferring at the hub. Bus routes from eastern Cranston, eastern Warwick and southwestern Providence (a service area of about 85,000 people) traveling to this transit center rather than to Kennedy Plaza would be significantly shorter, with the potential for more frequent service with no increase in operating expense. (See Appendix A – Light Rail Detail, page 35)

The transit center would straddle the border between Cranston and Providence, potentially complicating development in the area. One approach might be to create two special development districts: one between Route 10 and I-95 in Providence, and another from Fenner Pond to I-95 in Cranston, to encourage multi-family residential and mixed-use development. Each city could work with a
planning firm on zoning and other changes to develop master plan that capitalizes on the proximity to a transportation center that provided quick, comfortable mobility throughout the region. Given the very short travel times to Warwick, Olneyville, and downtown Providence, the area would be ideal for multi-family residential and retail development.

**Warwick.** The InterLink could become a truly multi-modal transit center, with commuter rail to Boston, light rail to downtown Providence and Pawtucket, a regional bus hub serving over 150,000 people, express bus service from as far as Westerly, commuter rail from Wickford Junction (and potentially from Kingston), and its existing Skywalk link to T. F. Green Airport. Like Cranston and Lower South Providence, with direct access to I-95 and US 1, the adjacent parking could be an attractive alternative to downtown parking, and the connectivity between Providence and Warwick opens opportunities for airport hotels as viable options for travelers headed downtown (and visa versa). The area around the InterLink is almost completely open for development, but the surrounding neighborhoods are quite dense: the six closest census tracts have a population of over 31,000 people. Like Cranston and Providence Station, the site offers the opportunity for the development of a comprehensive master plan.

**Johnston.** A bus/BRT station stop along Route 6 would serve more as a route consolidator than a transit center. It could be a stop where express bus routes from Park-and-Ride locations in places like Pascoag and Scituate, and local bus service from Johnston, Hartford, Silver Lake and Manton, could transfer to BRT for express service to Olneyville, Kennedy Plaza, Providence Station, and Cranston. Similarly, Olneyville could become a major transfer point between area bus routes and BRT. The current plans for the 6/10 corridor should include a master plan to coordinate transit and development in the area.

**East Providence.** A transit center in East Providence would be the locus of bus routes from as far north as Pawtucket, as far south as Bristol, and as far west as the east side of College Hill – improving local mobility within a service area of over 100,000 people. The transit center would connect to Kennedy Plaza and Providence Station by BRT traveling the 3.5 miles on I-195 to Memorial Blvd., and to the east side of College Hill by local bus via Henderson Expressway. It should be located in an area that can support denser development, with very easy access to I-195. Travelers from the East Bay to Kennedy Plaza would have to connect in East Providence, but shorter bus routes (running more often), and frequent BRT service could make travel times even shorter.

**Special Development Districts.** The success of the Capitol Center District underscores the effectiveness of targeted, focused development based on a master plan. A special area master plan is being developed for the area around Providence Station, and similar plans have been recommended in this paper for the areas near the Pawtucket, Cranston, Warwick and East Providence transit centers, and at the 6/10 connector in Olneyville. The Providence Foundation has
recommended that cities designate “ombudsmen” to shepherd projects through the approval process, which would be directly applicable to targeted development around commuter and light rail transit centers. Each municipality should consider establishing similar mechanisms to work on zoning changes that encourage greater density and promote public-private partnerships. There is more than enough development potential within a 2-minute walk of each transit center to produce impressive returns on investment.
Connectivity

The success of a regional transit network depends upon maximizing the interconnections between different modes of transportation. BRT needs to connect seamlessly with light rail and bus routes. All BRT and light rail stops should incorporate bike-share and bike lanes, and all modes of transit should be able to transport bikes. All downtown stops need to be pedestrian-friendly, and all non-downtown LRT stops need to provide adequate parking.

Greater interconnectivity among modes of transportation requires a highly rider-centric approach. Transfers between light rail, BRT and buses should be free. Wifi on LRT and BRT cars and in transit hubs, real time schedule information (countdown clocks), and mobile apps for tracking transit that are accessible on smart phones are all key elements of a fully integrated transportation system. Security cameras should be installed on LRT and BRT cars and in stations, as well as a police presence during off hours. All transit hubs should retain a strong “sense of place,” with safe, pleasant indoor and outdoor waiting areas, and shops for the things one would normally pick up during a typical commute. At minimum, there should be a coffee shop or convenience store near every station stop.

*Universal Fare Card.* A universal fare card for travel on light rail, BRT, and bus, and station parking at transit centers would make it possible to provide free or reduced fare transfers from one mode to another. A single card for all modes of transportation, if linked to personal debit or credit cards (or even student activity cards) for automatic refills would increase customer satisfaction, encourage cross-utilization of services, reduce the handling of cash, provide economy-of-scale benefits, and lower administrative costs.

*Downtown Free Fare Zone.* Allowing free light rail rides for one or two stops from Providence Station and Kennedy Plaza, and reduced fare from Providence Station to Garrahy Courthouse could significantly improve mobility within downtown Providence.

*Putting it All Together.* This new approach to transit could greatly improve mobility and stimulate smart growth from Pawtucket to Warwick, and from Johnston to East Providence – home to two thirds of all Rhode Islanders. It could reduce congestion, shorten travel times, and improve service and customer satisfaction, and increase ridership.
Light Rail and BRT offer many advantages over the current all-bus network

- They could improve mobility in downtown Providence, from Capitol Hill to the Hospital District, and replace downtown bus super-stops and circulator bus routes
- Combined with parking at LRT stops in Pawtucket, Lower South Providence, Cranston and Warwick, they could reduce demand for downtown parking, creating opportunities for denser development
- They could increase the number of transit commuters by attracting discretionary riders in much higher numbers
- BRT could reduce congestion along the 6/10 corridor, and improve mobility, particularly in Olneyville, Manton, Hartford, and Silver Lake, and connectivity between Providence and East Providence
- They would support smart growth and stimulate economic development in key areas
- They are scalable, a major advantage, given that bus service at Kennedy Plaza is close to capacity
- They would reduce the network’s carbon footprint per passenger-mile

Additional transit centers in Cranston, Warwick and East Providence offer many advantages over the current single-hub network

- They reduce the number of bus routes terminating at Kennedy Plaza by 60%, opening up areas of the plaza for non-transit use
- They reduce congestion and bus traffic along downtown “transit emphasis corridors,” improving pedestrian safety
- Fewer bus routes to Kennedy Plaza eliminates the need for bus bays at the proposed Providence Station transit center, reducing the footprint for a fully integrated multi-modal transit center for bus, rail, LRT and BRT
- They shorten most bus routes, allowing for increased frequency of service, shorter transfer times
- They improve regional mobility, particularly within the service areas of each transit center
- They stimulate economic development near transit centers across the region, as well as in downtown Providence

The increased mobility of a multi-modal, multi-hub network would be good for employers and workers alike. It could reduce the need for “commuter cars,” increasing disposable income for area residents, and provide businesses with a larger pool of workers to draw from. But most importantly, it would make Rhode Island a more desirable place to live and work.
New Regional Transportation Network

Key to Regional Transportation Network

**Green Arrows** – Light Rail Line
**Blue Arrows** – BRT Routes
**Tan Arrows** – Local and Express Bus Routes
**Green Squares** – LRT and Bus Hub
**Yellow Squares** – BRT and Bus Hub
**Red Squares** – LRT, BRT and Bus Hub
**Blue Squares** – Commuter Rail, LRT and Bus Hub
**Proposed Redistribution of Bus Routes Across New Transit Hubs**

<table>
<thead>
<tr>
<th>Transit Hub</th>
<th>Service Area (a)</th>
<th>Current</th>
<th>Proposed</th>
<th>Pop. Per Route (b)</th>
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<tr>
<td></td>
<td></td>
<td>Local</td>
<td>Express</td>
<td>Local</td>
</tr>
<tr>
<td>Kennedy Plaza (c)</td>
<td>166,400</td>
<td>33</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>Pawtucket (d)</td>
<td>126,200</td>
<td>11</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>Cranston (f)</td>
<td>85,000</td>
<td>0</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Warwick (e)</td>
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<td>0</td>
<td>12</td>
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<td>Johnston (g)</td>
<td>42,200</td>
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<td>0</td>
<td>3</td>
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<td>East Bay (h)</td>
<td>104,400</td>
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<tr>
<td><strong>Total (i)</strong></td>
<td><strong>680,200</strong></td>
<td><strong>46</strong></td>
<td><strong>8</strong></td>
<td><strong>55</strong></td>
</tr>
</tbody>
</table>

(a) 2010 population of primary service area, by census tract. Does not include areas served by express bus service.

(b) 2010 population per local bus route as a proxy for demand. The more suburban the service area, the lower the demand.

(c) 75% of Providence; most of North Providence.

(d) Pawtucket, Central Falls, parts of southern Cumberland and Lincoln, and eastern part of North Providence.

(e) West Warwick, 40% of Cranston; 80% of Warwick; parts of Coventry, and East Greenwich.

(f) Eastern 60% of Cranston; Pawtuxet, Lakewood and Spring Garden in Warwick; Reservoir, Lower South Providence in Providence.

(g) Johnston; Manton, Hartford and Silver Lake in Providence.

(h) East Providence, Barrington, Warren and Bristol, and the East Side of College Hill in Providence.

(i) Three routes are double counted between Pawtucket and Kennedy Plaza today. Some proposed routes would be replaced by light rail, and others would be divided into two shorter routes.
Appendix A - Light Rail Detail

Pawtucket

- Red circle represents a major bus and light rail transit center
- Blue circle represents a potential site for a second stop to be developed as a public-private partnership
- Dotted circles represent target areas for development - 1/8 of a mile (2-3 minute walk) from transit stop
Downtown Providence

- Red circles represent major transit centers
- Orange circles represent major station stops
- Circles represent target areas for development - 1/8 of a mile (2-3 minute walk) from transit stop
- Dotted green line indicates potential below grade segment of light rail line
Providence Hospital and Allens Avenue

- Red circle represents a major bus transfer point, commuter parking, and potential location of seasonal ferry service
- Orange circle represents a major stop
- Blue circle represents potential future stop, paid for by developers
- Circles represent target areas for development - 1/8 of a mile (2-3 minute walk) from transit stop
Cranston Transit Hub

- Red circle represents a major bus transit center for bus, LRT and BRT
- Yellow circle represents potential future light rail stop at Roger Williams Park/Zoo
- Circle represents target area for development - 1/8 of a mile (2-3 minute walk) from transit stop
InterLink Transit Hub

- Red circle represents a major bus transit center for LRT, bus, and commuter rail
- Circle represents target area for development - 1/8 of a mile (2-3 minute walk) from transit stop
Footnotes

i U.S. Census American Community Survey, 2010.

ii 2010 U.S, Census data, by census tract. Taken from RI Community Profiles (profiles.provplan.org.)

iii Of RIPTA's 55 regularly scheduled local and express bus routes, 41 terminate at Kennedy Plaza, 11 terminate at the Pawtucket bus hub (some overlap between the two), 3 in Newport, 2 in Warwick, and 1 in Woonsocket.

iv According to the U.S. Census American Community Survey, commuters nationally using public transit from outside a principal city take twice as long as those who drive; 47.7 minutes vs. 23.7 minutes. Part of this difference may be due to the fact that the people with the longest commutes are more likely to take public transportation.

v According to the U.S. Census, the median household income for the State of Rhode Island from 2008 to 2012 was $56,102. Over the same period, the median household income for the city of Providence was $38,243.

vi AAA annual “Your Driving Costs” survey, May 2014, the average cost of car ownership was $8,876 per year, based on 15,000 miles driven per year.

vii There are 250 business days in a year. Assuming 13 days for vacation and other reasons and a $2 fare, twice a day, comes to $948 a year.

viii The Impact of Neighborhoods on Intergenerational Mobility by Raj Chetty and Nathaniel Hendren, Harvard University, April 2015.

ix The Nelson\Nygaard Downtown Transit Alternatives study proposed having 25 bus routes utilize Exchange Street to get from the Proposed transit hub at the train station to Kennedy Plaza. In addition to Exchange St., two other streets would become "Transit Emphasis Corridors:" 12 bus lines would be routed along Washington Street from Empire to Kennedy Plaza; 10 along Dorrance from Pike Street to Kennedy Plaza; and 5 would be routed down South Water St. and up South Main to/from I-195.

x Source: Federal National Transit Database.


The Effects of Rail Transit on Property Values: A Summary of Studies, Parsons Brickerhoff, February 2001

Impacts of Rail Transit on Property Values, Roderick B. Diaz, Booz Allen & Hamilton (A study of 12 rail projects in North America)

xii A standard parking space with perpendicular rather than angled parking space is 9 feet by 18 feet, plus 24 feet for an aisle, or 378 square feet per space. Assuming 90% of car commuters drive alone, parking for 250 car commuters
would take up 238 spaces, or 90,000 square feet, plus 10,000 square feet for entranceway and exit lanes, pay booths, etc.

According to RIPTA’s 2015 annual report, an average of 60,000 passengers per day traveled on its 55 fixed bus routes. If the redesigned transit network generated 30% more riders, and two thirds of those riders traveled by light rail for some portion of their travel route, average daily light rail ridership would be 52,000 passengers per day. Based on American Public Transportation Association’s ridership figures for 4Q 2015, RI Light Rail would rank 14th in the nation based on average daily riders, and third in the nation based on riders per mille.

<table>
<thead>
<tr>
<th>City</th>
<th>Average Daily Riders 4Q 2015</th>
<th>System Length (Mi.)</th>
<th>Riders per Mile</th>
<th>Rank (Riders per Mile)</th>
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<tbody>
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<td>Boston</td>
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<td>Denver</td>
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<td>1,596</td>
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<td>44.8</td>
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<td>RIPTA (see above)</td>
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</table>

Hartford’s 9.4-mile BRT line along an abandoned rail right-of-way, called CTfastrak. Completed in 2015, it is the first BRT line CT, and the second in New England. The total cost was $570 million ($400 million from Federal funds), or $60.64 million per mile.

CBRE New England Market Outlook 2015 - Survey of commercial real estate markets in MA, CT, NH, RI and ME.