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

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

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Thinking Outside the Bus: Creative Ideas for Rhode Island Transit

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There are numerous illustrations throughout this document to indicate proposed transit routes, station stops, and areas suitable for transit-oriented development. This information has been superimposed on images taken from Google Maps, and all underlying images are subject to copyright protections under ©2017 Google.
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.\(^i\)

From 2000 to 2010, the population of Rhode Island grew by just 0.4%, 49\(^{th}\) 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, along Route 6 in Providence, and between US1 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.\(^ii\)

This pattern of low transit use, stagnant growth, and suburban sprawl has been driven in part by the State’s allocation of transportation resources. Rhode Island has underinvested in public transit while spending heavily in road construction, parking facilities and lightly used commuter rail\(^iii\). This underinvestment has resulted in a transit system that does not meet the needs of Rhode Islanders in the 21\(^{st}\) Century.

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

- Kennedy Plaza, the hub for over 75% of all regularly scheduled local and express bus routes in the State,\(^iv\) is at capacity.
- Job growth in downtown Providence is no longer concentrated in the immediate vicinity of Kennedy Plaza.
- The current bus-only network does not serve 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.
- Much of the State’s population growth has been in areas that are away from its primary transit hub.
- 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, 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 underway, but many challenges 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.

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 $8,600 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 $840 per person 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. 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.

Millennials (born between 1982 and 2003) are the largest and most diverse generation in American history. As a group, they favor cities over suburbs, drive less, but ride bikes, walk, and use public transit more. They are the first generation to decide where to live before looking for a job, and as Baby Boomers retire and leave the workforce, Millennials are becoming the most important segment of the American economy. No city today can expect to be competitive for businesses that want to hire Millennials without good public transit.
Public transit is also 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.

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 quick⁹ 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.
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 bus hub, develop a Downtown Transit Corridor in Providence, rehabilitate the 6-10 connector, and pursue additional parking facilities in downtown Providence and in the Capital District, 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.

The State's highest priority should be to complete a feasibility study for a regional transit system with multi-modal transit centers in Warwick, Cranston, Pawtucket and East Providence that would improve local mobility and alleviate the congestion and capacity constraints of Kennedy Plaza, and a transit backbone to connect them. New transit centers would significantly improve intra-city mobility outside of Providence, minimize transfer delays, and offer safer, more comfortable connections to commuter rail as well.

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 to an optimal solution is 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 transit oriented 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 should 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).** Light rail could become the most critical component of a new regional transit system. By connecting a network of regional transit centers that offer the greatest potential for relieving congestion at Kennedy Plaza, it can improve mobility in downtown Providence, attract new transit riders, stimulate regional economic development, and increase property values. LRT could directly impact multiple projects that are already underway, including new Intermodal Transit Center at Providence Station, the Downtown Transit Corridor, ongoing alterations to Kennedy Plaza, plans for bus hubs in Pawtucket and Warwick, and the construction of additional parking garages downtown and in the Capital District.

A new, 14-mile rail line originating in Pawtucket and terminating in Warwick at the InterLink could connect regional transit centers in Pawtucket, Providence, Cranston, and Warwick, and provide a fast, frequent and comfortable rail connection between downtown Providence and the airport. Each hub would serve between 85,000 and 170,000 people, significantly improving mobility outside of Providence. Nearly sixty percent of the bus routes that terminate at Kennedy Plaza today could 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 Providence, Warwick and Pawtucket. Parking at LRT stops in Warwick, Cranston and Lower South Providence could significantly reduce the demand for parking in downtown Providence. Multiple bus hubs would allow for shorter bus routes and more frequent service with no increase in operating costs.

The light rail line could also have station stops between Smith and Orms Streets to service Capital Hill, near the Garrahy Courthouse, Point Street, and the Hospital District, replacing the Downtown Transit Corridor. (See map on page 17.) The light rail line could channel future growth into economic development zones that can support increased density, and offer significant opportunities for public-private partnerships. And it could provide car-free access to the Roger Williams Park and Zoo from anywhere in the metro area.

**Bus Rapid Transit (BRT), Rapid Bus, and Select Bus Service (SBS).** There are multiple forms of express bus service that involve some combination of specialized buses, dedicated rights of way, off-board fare collection, level boarding and signal priority that are intended to increase capacity, avoid delays, and shorten travel times. The optimum combination of each of these factors varies depending upon local travel conditions. In Rhode Island, the greatest benefit is likely to be frequent express service and faster travel times from densely populated neighborhoods away from the center of the urban core to regional transit centers. As volume increases, more BRT features could be added to increase capacity and maintain short travel times.
Along the Routes 6 corridor, there is no question that the fast-growing neighborhoods of Manton, Hartford, and Olneyville would benefit from enhanced transit, but without a well used Park and Ride facility, there may not be sufficient density to justify express bus service 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 a transfer point for local bus routes from nearby neighborhoods to express service to Olneyville, Park Avenue, Providence Station, and Kennedy Plaza. Express bus service 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 19.)

**Transit Centers.** New transit centers in Cranston, Warwick and East Providence could reduce the number of bus routes to Kennedy Plaza from 41 today to about 19 (see table on page 32), significantly reducing the number bus stops needed at both Kennedy Plaza and Providence Station. 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 25.)

Transit centers, particularly with frequent light rail service, 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 comprehensive master plans programs could accelerate growth and coordinate development.

**Providence Station.** A multimodal transit center at Providence Station offers enormous opportunities for transit-oriented development. A new transit center that is connected to the train station could be constructed on the west side of the Northeast Corridor by realigning Gaspee Street and extending Park Row over the NEC right-of-way, which would also open up several acres of land for commercial and retail development near the transit center on the west side of the right-of-way, while reserving sites on the east side for residential development. A light rail stop and a more compact transit center servicing fewer bus routes could open up more land for transit oriented development and reduce the demand for additional parking. This approach puts more property on the City’s tax rolls, and phase one of the project could move ahead more quickly because it would not require the acquisition of land from third parties or the purchase of air rights from Amtrak. (See illustration on page 22.)

**Warwick.** With a hub for as many as 14 bus routes servicing over 150,000 area 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, the InterLink could become the second most important multi-modal transit center in the State. Kennedy Plaza/Providence Station and Warwick would become the two “anchor hubs” of the transit network for the entire region.

**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 express bus service along the 6-10 corridor. Parking at the site 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 express bus to Warwick, Olneyville and downtown Providence, makes it an ideal location for denser residential development. Off-street parking at the transit center should attract retail stores as well. (See map on page 36.)

**Pawtucket.** The current hub in Pawtucket is, in many ways, the model for regional transit centers. Eleven RIPTA bus routes, carrying 2,500 riders, transfer at the hub today. About 23% of these riders connect to the R-Line, which functions like a light rail line, but with less capacity and comfort, and with slower travel times. There is currently a debate about where to relocate this hub, and serious consideration should be given to where it would have the greatest impact on transit-oriented development. All of Pawtucket's transit needs should be taken into account, including downtown businesses and, potentially, the relocation of McCoy Stadium to an area with better access to public transit. (See map on page 33.)

**East Providence.** A transit center in East Providence would enable over 100,000 residents in East Providence, Barrington, Warren and Bristol to travel by transit within the East Bay without having to travel to Kennedy Plaza. The transit center should be sited in an area that can support ample transit-oriented development, with easy access to I-195. Travelers from the East Bay to Kennedy Plaza would have to connect in East Providence, but frequent express bus service and shorter bus routes (running more often) would make travel times even shorter.

**Connectivity.** The success of a transit network depends upon maximizing interconnections among different modes of transit. Express and local bus routes need to connect seamlessly with light rail and commuter rail. All transit centers should incorporate bike-sharing and dedicated bike lanes, and all modes of transit should be able to transport bikes. All downtown transit stops need to link to pedestrian corridors, and all non-downtown LRT stops should provide ample parking. Free light rail rides for one or two stops from Providence Station and Kennedy Plaza could improve downtown mobility and stimulate development.

Wifi, real time arrival and departure information, and mobile apps for tracking transit are all key elements of a fully integrated transportation system. A universal transit card for RIPTA and MBTA transit would make it possible to
provide free or reduced fare transfers, and more convenient payment options for travel to Boston. A single card for all modes of transportation, if linked to debit or credit cards for automatic refills would increase customer satisfaction, encourage cross-utilization of services, reduce the handling of cash, provide economies of scale, and lower administrative costs.
A New Approach to Transit

The State’s highest priority should be to complete a feasibility study for a regional transit system with multi-modal transit centers in Warwick, Cranston, Pawtucket and East Providence that would improve local mobility and alleviate the congestion and capacity constraints of Kennedy Plaza, and a transit backbone to connect them. Such a plan would directly impact several projects that are already underway, including plans for new transit centers in Pawtucket and at the Providence Station, the Downtown Transit Corridor, further alterations to Kennedy Plaza, and additional parking at the Providence Station and near the Garrahy Courthouse.

New transit centers 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 where two bus routes 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 safer, more comfortable transfer points that connect to light rail 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.

A reimagined transit system 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 19.
- Fewer bus routes to Kennedy Plaza would reduce the size of the new transit center at Providence Station, helping to maximize the development potential of adjacent properties.
- 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.
- Light rail from Pawtucket and downtown Providence to the InterLink would provide a convenient, fast and direct connection to T. F. Green Airport.
Numerous studies have shown that new transit centers would be powerful catalysts for nearby real estate development, and would increase nearby property values.\textsuperscript{x}

The Light rail line could significantly reduce both bus and car traffic in downtown Providence, replacing the Downtown Transit Corridor from Providence Station to the Hospital District.

Parking at LRT stops in Pawtucket, Warwick, Cranston and Lower South Providence would reduce the need for parking in downtown Providence and on Capital Hill. Every 250 workers commuting by public transit rather than by car frees up 100,000 square feet of surface parking, or an entire city block, for development.\textsuperscript{xi}
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 16% of all RIPTA riders. A recent Nelson\Nygaard study\textsuperscript{xii} for Kennedy Plaza and Providence Station lists 31 separate bus routes between the two. The proposed Downtown Transit Corridor expects to direct seven bus routes along a single route from Providence Station to the Hospital District. Each of these could be replaced by a light rail line would dramatically reduce traffic and congestion, and significantly improve downtown 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{xiii}), but a two-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 with light ridership lack permanence. As a result, development is far more likely to occur along light rail lines, 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.
- Shorter travel times – Operating on dedicated rail lines, there are no traffic delays. When not operating on roadways, they can travel at higher speeds.
- Reduced congestion – While buses reduce congestion compared to automobiles, they still operate on the same highways and city streets as other traffic, which can be particularly problematic in downtown areas.

A new, 14-mile rail line originating in downtown Pawtucket and terminating in Warwick would provide a transit backbone through the State’s urban core, connecting existing bus hubs in Pawtucket and Kennedy Plaza with new transit
centers at Providence Station, in Cranston, and at the InterLink in Warwick. A network of transit centers would significantly improve local mobility, and connections to Amtrak in Providence and to MBTA commuter rail at Providence, Warwick and Pawtucket Stations would significantly improve regional mobility.

The light rail line could also have station stops between Smith and Orms Streets to service Capital Hill, on Dorrance Street near the Garrahy 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 development districts that can support increased density, and offer significant opportunities for public-private partnerships. Parking at Warwick, Cranston, Lower South Providence stations could reduce the demand for parking in downtown Providence and the Amtrak station, and a Smith/Orms station stop could significantly reduce the need for parking in the Capital District.

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 would also run below grade in the Capital District from Francis to Smith Streets.

A stop at the Roger Williams Zoo could be added to make the park accessible to residents throughout the metro area without having to drive. 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 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 and make transit even more efficient, rather than the current approach, which encourages suburban sprawl and is more car-dependent.

Based on 2015 ridership numbers, by redirecting a significant percentage of current bus traffic to the light rail line, together with the likely 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{xiv}
Light Rail Line

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, Rapid Bus and Select Bus Service

There are multiple forms of express bus service that involve 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. Known as Bus Rapid Transit (BRT), Rapid Bus, Select Bus Service (SBS) and other names, they attempt to combine the greater speed and efficiency of light rail with the flexibility and lower cost of buses. Depending on the design, the cost can vary widely. The average cost of Rapid Bus or SBS can be under $10 million per mile (with limited use of dedicated bus lanes), but Hartford’s BRT line is estimated to cost $61 million per mile\textsuperscript{xv}. 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. RIPTA’s R-Line operates as Rapid Bus, and in inner cities like Cleveland or New York, SBS operates more like a streetcar. However, BRT in particular 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.

Some form of express bus service along the soon-to-be rebuilt 6-10 corridor would shorten travel times for east-west transit riders, but it must be thoughtfully integrated into a regional transportation network. 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 express bus service all the way to I-295. Dedicated bus lanes should only be used through select traffic choke points, such as at the intersection with I-95, to keep from swelling the size of the 6-10 corridor.

Eastbound express bus service on Route 6 could originate at the Killingly Street exit, where the infrastructure is already in place for a bus turnaround. This stop could also serve as a transfer point to express service from local buses, 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. Express bus service 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.

Express bus along Routes 6 and 10, and light rail from Pawtucket to Warwick, leaves the East Bay underserved. Today, there are a total of five RIPTA bus routes that serve over 100,000 people in the East Bay from East Providence to Bristol, all terminating at Kennedy Plaza. A regional transit hub in East Providence that is easily accessible from I-195 (and with ample TOD potential) would significantly improve local mobility within the East Bay area. Frequent express 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. With express bus and shorter, more frequent bus routes in the East Bay, travel times to Kennedy Plaza or Providence Station would actually be shorter.

Express Bus Service

Green Squares – Light Rail, Express and Local Bus Transit Centers
Red Square – Express and Local Bus Transit Center
Orange Squares – Potential Express and Local Bus Transfer Points
Express Bus Route Detail – Downtown Providence
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 regional transit centers can stimulate denser development across the region. New transit centers in Cranston, Warwick and East Providence could reduce the number of bus routes to Kennedy Plaza from 41 today to about 19, significantly reducing the number bus stops needed at both Kennedy Plaza and Providence Station, creating more opportunities for area development.

**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 from Francis to Smith Streets, could have a direct connection to both 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 improve traffic flow and 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 a lawn that is similar in appearance to the west side of the Capitol Building would move open space away from the railroad tracks, would dramatically improve the appearance of the landmark statehouse, and would add value to the new development corridor. Development on the west side of the Amtrak right-of-way would not require the purchase of land or air rights from a third party, would open up more area for development close to the transit center, and would make a greater contribution to the City’s tax rolls.

Reducing the number of bus routes to Kennedy Plaza would significantly reduce the size of the new transit center. Connecting it to the station and to light rail below grade would allow for a single, fully integrated multimodal transit center, and open up the entire east side of the station for residential or hotel development. A common plaza on the south side of the train station would preserve the view sheds along Exchange Street, and provide a dramatic new pedestrian entrance to the train station and the new transit center. A new food and services court between the train station and 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 the transit center to access by
car/cab/express bus along the north façade to replace current entrances to the train station along Gaspee and Railroad Streets.

New Intermodal Transit Center at the Providence Train Station
**Key to Proposed Development Plan**

<table>
<thead>
<tr>
<th>Development Sites</th>
<th>Streets</th>
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<tbody>
<tr>
<td>1. Site of New Intermodal Transit Center</td>
<td>A. Smith Street</td>
</tr>
<tr>
<td>2. Train Station connected directly to ITC and Light Rail</td>
<td>B. Relocated Gaspee Street</td>
</tr>
<tr>
<td>3. Food/Service Court</td>
<td>C. Francis Street</td>
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<tr>
<td>4. Preserved open space above NEC ROW</td>
<td>D. Park Row Extension to Gaspee Street</td>
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<td>5. Covered parking</td>
<td>E. Park Row</td>
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<td>6. Primary TOD Development Sites – commercial and retail west of ROW</td>
<td>F. Park Row West</td>
</tr>
<tr>
<td>7. Phase 2 Development Sites</td>
<td>G. Finance Way</td>
</tr>
<tr>
<td>8. Potential future open space above NEC ROW part of Phase 2 Development</td>
<td>H. Exchange Street</td>
</tr>
</tbody>
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*Yellow Line: Path of Light Rail (below grade from Francis to Smith Streets)*

*Red Circle: Light Rail Station Stop Under ITC*

A possible concern about this approach might be the loss of park land along Gaspee Street, but this would be replaced by more favorably located space adjacent to the State House, and additional future open space over the NEC right-of-way. The current open space is virtually unused today because it is surrounded by railroad tracks and parking lots, and the new open space would be more strategically placed near residential and commercial development to accommodate bike paths and pedestrian corridors. The new transit center, with express and local bus service and light rail, and a new commuter rail station in Pawtucket, should sharply reduce the demand for area parking, and a light rail stop between Smith and Orms Streets should also reduce parking demand on Capital Hill as well.

**Kennedy Plaza.** In recent years, the commercial and retail space surrounding Kennedy Plaza has been stagnant, the Superman Building being perhaps the best example. While there may be forces at work other than proximity to the bus hub that dominates the area, it clearly has been a contributing factor. The challenge facing RIPTA and the city is to create a way for a vital transportation center and a safe, inviting open space to coexist, while creating a way for commercial and residential spaces surrounding the plaza to thrive.

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, by redirecting nearly 60% of the bus routes that terminate at Kennedy Plaza today to new transit centers in Warwick, Cranston, and East Providence, there is the opportunity to shrink the transit footprint and open up the Plaza to alternative uses. The remaining bus routes would be shorter and run more
frequently, reducing congestion and long wait times to transfer. Light rail could also replace bus traffic along Exchange and Dorrance Streets – two important pedestrian corridors.

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 and enclosed waiting area in the center of Kennedy Plaza, and a light rail stop in front of City Hall. All bus stops along Fulton Street, East Approach and Exchange Terrace today could be eliminated, and all bus stops along Washington Street would be close to the terminal. The rest of Kennedy Plaza could then be used exclusively as public open space, surrounded by shops, cafes, and mixed-use development along the perimeter.

The compact, covered bus terminal in the center of Kennedy Plaza could provide an alternative to a larger transit center at Providence Station. 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. With reduced bus traffic, Cookson Place could be closed, seamlessly connecting Burnside and City Hall Parks. The west end of Kennedy Plaza could be extended by closing Dorrance between Washington and Fulton Streets to all traffic but the light rail line, and an open pedestrian plaza would surround the Soldiers and Sailors Monument in front of City Hall.
Proposed Development Plan for Kennedy Plaza

Key to Proposed Kennedy Plaza Development Plan

1. Covered bus terminal; bus egress from Washington Street.
2. Waiting room and ticket offices on ground floor; potential commercial space on upper floors with lobby entrance on Fulton Street.
3. Potential development site with retail stores along Exchange Street and commercial or residential space on upper floors with lobby entrance on Fulton Street.
4. Retail stores along Fulton Street connecting two development sites.
5. Public plaza around the Soldiers and Sailors Monument and along Exchange Street – its size determined by the size of the bus terminal. Dorrance Street closed to vehicular traffic between Washington and Fulton Streets.
6. Wide, tree-lined sidewalk along Fulton Street in front of retail shops.

Yellow Line: Path of Light Rail - Red Circle: Light Rail Station Stop
**Warwick.** As 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 its existing Skywalk link to T. F. Green Airport, the InterLink could become a true center of commerce, and the south “anchor hub” for the regional transit network. Like Cranston and Lower South Providence, it is easily accessible from I-95 and US1, and with light rail service to the Providence business district, 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 offers ample opportunities for transit-oriented development. The surrounding neighborhoods are quite dense: the six closest census tracts have a population of over 31,000 people.

**Cranston.** A transit center could be located along Park Avenue, 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 local and express bus and light rail, its location near the Route 10 exit from I-95 would also make it an ideal location for a parking structure for drivers transferring to express bus service to Olneyville, and to light rail to Warwick, Pawtucket or downtown Providence. In addition, its central location would make it an excellent candidate for denser residential and retail development. A bike lane could link the transit 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 light manufacturing and commercial space between US1 and the Northeast Corridor. With access to off-street parking provided by the transit center, the blocks on either side of US1, 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 36)

**Lower South Providence.** A light rail stop on Thurbers Avenue at either Eddy Street or Allens Avenue could serve as a transfer point for bus riders from Washington Park and Lower South Providence who are 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 US1A would be an ideal location for a large parking facility for commuters who could then travel by light rail to downtown Providence. If the Providence ferry terminal were relocated to Corliss Cove for seasonal service to Quonset (for connections to the Fast Ferry to Block Island or Martha’s Vineyard) and Newport, this stop would also provide parking and a bike-friendly transit connection. The site could also
support both big box stores and retailers servicing the nearby neighborhoods, which are significantly underserved today. (See Appendix A – Light Rail Detail, page 35)

**Pawtucket.** The current hub in Pawtucket is, in many ways, the model for a distributed transit center. Eleven RIPTA bus routes, and 2,500 riders transfer at the hub today. About 23% of all riders transfer to the R-Line, which functions like light rail to Providence Station and Kennedy Plaza, but with less capacity and comfort, and slower travel times.

RIPTA recently received a $7 million grant to relocate the current transit hub to the proposed Pawtucket train station, although the logic of such a move seems questionable. It is likely that fewer commuters would travel to the new station by bus than the number of current RIPTA riders traveling by bus to downtown Pawtucket today. The addition of parking with access to the new train station would likely do far more to increase ridership from Pawtucket by attracting MBTA riders from Providence, where parking is both expensive and in short supply. Also, adding parking in Pawtucket for MBTA riders rather than in the Capital District would be probably more cost-effective.

Bus service to the train station would likely grow MBTA ridership over time as Pawtucket became a more popular bedroom community for Boston, but a more cost-effective approach to moving the transit center to the train station might be a Pawtucket circulator bus route that is timed to the small number of MBTA arrivals and departures each day. The route could link the train station to the transit center and to area parking, as well as to other future development activity.

The potential for transit-oriented development near the new train station would be driven by better access to Boston, whereas TOD near the transit center would be driven by a stronger connection to Providence and Warwick. Perhaps the greatest source of TOD would be the area in between. (See Appendix A – Light Rail Detail, page 33)

**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 express bus traveling along I-195 to Memorial Blvd., and to the east side of College Hill by local bus via Henderson Expressway. The hub should be located in an area that can support transit-oriented development, with 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 express bus service could make travel times even shorter.

**Special Development Districts.** The success of the Capital Center District underscores the effectiveness of targeted, focused development based on a
thoughtful master plan. A similar approach should be taken for areas that are within a short walking distance of the Pawtucket, Cranston, Warwick and East Providence transit centers, and along the transit corridor through downtown Providence. Zoning laws need to be reviewed to ensure that they stimulate rather than impede growth. For example, near transit centers, residential development should cap the number of parking spaces per unit rather than establish minimums. Commercial developers should be able to decide the most cost-effective formula for providing parking for commuters. Development plans should not only coordinate commercial, residential and retail development, but also issues like parking, pedestrian corridors, bike lanes, and open space. The cost of a transit network on this scale is significant, but it can pay dividends if state and local governments work together to maximize the economic benefits of greater private investment, job creation, and more efficient use of existing infrastructure. 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 a thoughtful balance of coverage and speed, and maximizing the interconnections between different modes of transportation. Express and local bus routes need to connect seamlessly with LRT and commuter rail. All express bus 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 for commuters.

Greater interconnectivity among modes of transportation requires a highly rider-centric approach. Transfers between light rail and bus routes should be free, and the schedules of local bus routes at regional transit centers need to be carefully coordinated to minimize wait times. Wifi on light rail and in transit hubs, real time schedule information such as 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 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 transit center.

Universal Fare Card. A universal fare card for travel on light rail, bus, MBTA, and station parking at transit centers would make it possible to provide free or reduced fare transfers anywhere in the RIPTA network, and more convenient payment options for travel to Boston. Linking the card to a personal debit or credit card (or even a student activity card) 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. The data from card use could also provide a useful data to optimize service, assuming privacy issues can be addressed.

Downtown Free Fare Zone. Allowing free or reduced light rail rides for short rides from Providence Station and Kennedy Plaza to Capital Hill, Garry Courthouse or the Hospital District (perhaps by swiping the fare card when entering and leaving the rail line) could significantly improve mobility within downtown Providence.
**Putting it All Together.** This new approach to transit could greatly improve mobility and stimulate smart growth throughout the State’s urban core – home to two thirds of all Rhode Islanders. It could reduce congestion, stimulate economic development, shorten travel times, improve service and customer satisfaction, and increase ridership.

Light Rail and express bus service offers many advantages over the current all-bus network:

- It could improve mobility in downtown Providence, from Capital Hill to the Hospital District, and replace the Downtown Transit Corridor with a more comfortable travel experience.
- The network is more scalable, a major advantage, given that bus service at Kennedy Plaza is at capacity.
- Better, faster, more comfortable service could increase the number of transit commuters by attracting discretionary riders in much higher numbers.
- Express bus service could reduce congestion along the 6-10 corridor, and improve mobility, particularly in Olneyville, Manton, Hartford, and Silver Lake, and East Providence.
- Parking at LRT stops and a higher percentage of commuters traveling by public transit would reduce demand for downtown parking, creating opportunities for denser development.
- It would reduce the network’s carbon footprint.

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 nearly 60%, opening up areas of the plaza for non-transit use.
- They reduce downtown congestion and bus traffic, improving pedestrian safety.
- They shorten most bus routes, allowing for increased frequency of service and shorter transfer times with no increase in cost.
- They improve regional mobility, particularly within the service areas of each transit center.
- They stimulate transit-oriented 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 transportation costs, 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 more competitive regionally, and a more desirable place to live and work.
New Regional Transportation Network

Green Arrows – Light Rail Line
Blue Arrows – Express Bus Routes
Tan Arrows – Local Bus Routes

Green Squares – LRT and Bus Hub
Yellow Squares – Local and Express Bus Hub
Red Squares – LRT 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 Local</th>
<th>Current Express</th>
<th>Proposed Local</th>
<th>Proposed Express</th>
<th>Pop. Per Route (b)</th>
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<tbody>
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<td>Kennedy Plaza (c)</td>
<td>166,400</td>
<td>33</td>
<td>8</td>
<td>16</td>
<td>3</td>
<td>10,400</td>
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<tr>
<td>Pawtucket (d)</td>
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<td>11</td>
<td>0</td>
<td>11</td>
<td>0</td>
<td>11,500</td>
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<td>Cranston (f)</td>
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<td>0</td>
<td>6</td>
<td>1</td>
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<tr>
<td>Warwick (e)</td>
<td>156,000</td>
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<td>3</td>
<td>14,200</td>
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<td>Route 6 (g)</td>
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<td>East Bay (h)</td>
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<td>17,400</td>
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<td><strong>Total (i)</strong></td>
<td><strong>680,200</strong></td>
<td><strong>46</strong></td>
<td><strong>8</strong></td>
<td><strong>53</strong></td>
<td><strong>13</strong></td>
<td></td>
</tr>
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</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 proposed local and three express routes are double counted. Some routes would be replaced by light rail, and others would be divided into two shorter routes.
Appendix A - Light Rail Detail

Pawtucket
- Green line indicates light rail line
- Red circle represents a major transit center
- Blue circle represents a potential site for a stop to be developed through a public-private partnership
- Yellow circle represents potential stop to support transit-oriented development near the proposed commuter rail station
- Orange lines represent proposed commuter rail station
- Dotted circles represent target areas for development - 1/8 of a mile (2-3 minute walk) from transit stop
Downtown Providence

- Green line indicates light rail line
- 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
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 site for a stop to be developed through a public-private partnership
- Circles represent target areas for development - 1/8 of a mile (2-3 minute walk) from transit stop
- Dotted line indicates alternative light rail route
Cranston Transit Hub

- Red circle represents a major bus transit center for local and express bus and light rail
- 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 According to RIDOT, Rhode Island spent over $600 million on the I-195 relocation, and plans to spend $400 million on the 6-10 connector: over $1 billion to speed traffic through Providence. $257 million was spent on commuter rail facilities at the InterLink and Wickford Junction, and an additional $40 million is earmarked for construction of the Pawtucket commuter rail stop: nearly $300 million for three new stations with a likely average daily MBTA ridership of about 600, or $500,000 per average daily rider. At the same time, the average capital investment in RIPTA is $10-15 million per year (roughly half is for replacement of old buses), or about $100 per average daily rider.

iv 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.

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, April 2016, the average cost of car ownership was $8,558 per year, a six year low, based on 10,000 miles driven per year.

vii A RIPTA E-Monthly Pass for unlimited statewide travel costs $70 per month, or $840 per year.

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

ix 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.

x U.S Research Roundup: The Impact of Transit on Property Values, Urban Land Institute, by Rachel MacCleery. August 7, 2013
The Effects of Rail Transit on Property Values: A Summary of Studies, Parsons Brinkerhoff, February 2001
Impacts of Rail Transit on Property Values, Roderick B. Diaz, Booz Allen & Hamilton (A study of 12 rail projects in North America)

xi 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 10% of car commuters car pool, 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.

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.

Source: Federal National Transit Database.

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>
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<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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<td>San Diego</td>
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<tr>
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<tr>
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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.