

# EVALUATING THE POTENTIAL FOR TRANSIT-ORIENTED DEVELOPMENT IN RHODE ISLAND





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# 1.0 Project Overview

## 1.0 Project Overview

In January 2018, Professor Ginette Wessel, Grow Smart RI, and HousingWorks RI at RWU began a research effort focused on identifying prime areas for transit-oriented development (TOD) across the state of Rhode Island. The project supports the Rhode Island's Transit Master Plan currently under development and is intended to advance the goals of state-wide plans and policies.

Transit-oriented development promotes communities of diverse ages, incomes, and ethnic and racial backgrounds with attainable housing and healthy lifestyles through walking, biking, and shared mobility. TOD is a strategy to encourage mixed-use development within walking distance of transportation hubs reducing dependence on personal automobiles and sprawling population growth. Social, economic, and environmental benefits of TOD include reduced greenhouse gas emissions among transportation and building sectors and the creation of attainable housing and job opportunities near reliable transit.

In Rhode Island, passenger trains (operated by Amtrak and MBTA) lack trip frequency and desirable speeds while the population continues to grow, live, and commute regionally. The Rhode Island Public Transit Authority (RIPTA) bus system has the most ridership (16 million in 2017) however the agency is challenged to expand service and grow rapid transit effectively statewide. Moreover, RI's affordable housing stock, at just 8.3%, is unable to keep pace with the need and is highly geographically concentrated. The team views these issues as an opportunity to rethink RI's future development and growth patterns to establish compact, mixed-

use communities connected to multiple modes of transportation.

The team leveraged the expertise of Roger Williams University students in Dr. Wessel's urban planning courses. The collaboration engaged 39 RWU students in two, primarily graduate level, courses during the spring and fall semesters: PLAN 521 Spatial Analysis in GIS, and PLAN 301/501 Introduction to Urban & Regional Planning. Students in these courses include a range of disciplines and backgrounds such as architecture, historic preservation, environmental science, and planning policy. The TOD Research Project provided students the opportunity to learn directly from a number of project partners and community professionals including sustainable development professionals at Grow Smart RI, housing experts at HousingWorks RI, transportation consultants, and planners from five Rhode Island municipalities.

In the GIS course, students conducted geospatial analyses of social and economic data to locate promising TOD districts. Students started by developing a series of choropleth maps using Esri's ArcMap application to illustrate a single demographic variable relevant to TOD at the block group level. Next, students analyzed areas of RI with established density for TOD when taking into consideration the population, housing, and employment. The analysis revealed areas most and least suitable for infill development near rail stations and waterways considering the population distribution. The final geospatial analysis included mapping a variety of data combinations with bus, bike, and rail infrastructure. For example, students' work showed locations in which low-income households commuted over 30 minutes to



work, locations of workers who already commute via public transit or walking, or ports that can accommodate ferry access, rail, and parking facilities.

In the Introduction to Urban Planning course, students conducted a deeper investigation at the neighborhood level that involved researching municipal zoning, presence and capacity of utilities, development capacities, as well as existing tools or incentives to encourage TOD at the local level. Six locations were chosen for analysis at a ½ mile radius including:

- Woonsocket Station
- Wickford Junction Station
- Kingston Station
- URI Rail Spur Station
- Westerly Station
- North End Newport

The following topics outlined in the report guided students’ analysis for each location.

- TOD Goals in Existing Plans & Policies
- Social & Economic Profile
- Existing Infrastructure
- Existing Development Conditions
- Desirability
- Assets & Challenges
- TOD Readiness Score
- Development Potential
- Future Opportunities
- Development Scenarios
- Local Policy Considerations

Upon completing the project, students developed this report for local and state decision makers to support research and advocacy efforts surrounding TOD. The document serves as preliminary research regarding TOD in RI and its findings and recommendations are intended to advance the goals of state-wide plans and policies. We view this research document as a critical piece to advancing equitable and sustainable land use and transportation planning across the state.

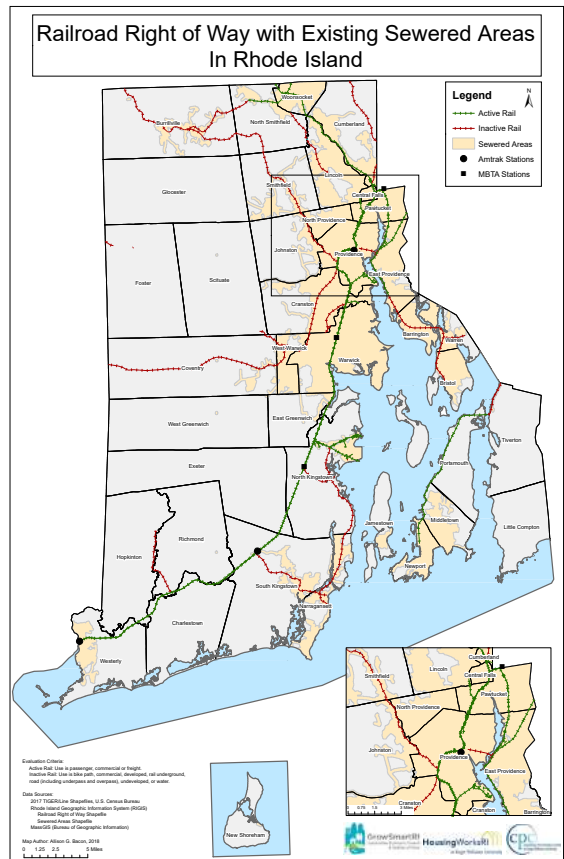


Figure: RI sewer and active rail map. Source: Report authors.



Figure: Newport zoning map. Source: Report authors.



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## 2.1 Rosslyn Ballston Corridor, Arlington County, VA

**City/State:** Rosslyn-Ballston Corridor, Ballston Sector, Arlington County, Virginia

**Location:** Southwest side of the Potomac River in the Washington D.C. metro area.

**Type of Development:** Dense urban mixed-use setting, surrounded on three sides by single family dwelling residential neighborhoods.

**Date Completed:** Ballston Station opened Dec. 1979, with surrounding TOD development ongoing into the present.

**Grants:** More than \$100 million in capital bonds issued by Arlington County, District of Columbia's Federal Highway Interstate Substitution program contributed more than \$1 billion, to the overall R-B Corridor.

**Key Project Stakeholders:** Arlington County Board, Dept. of Community Planning Housing and Development, Dept. of Economic Development, Board appointed citizen's commissions, Washington Metropolitan Area Transit Authority.

### Origins

The Ballston Sector of the Rosslyn- Ballston Corridor TOD originated as part of the general revitalization project for the declining mixed commercial and residential areas surrounding the east-west running Fairfax Drive and Wilson Boulevards, and coincided with the construction of a new heavy-rail transit system. The corridor is situated west of Washington D.C., across the Potomac River. Constructing a subterranean rail system under the city streets, as opposed to the planned use of I-66 as the route, was chosen to invigorate the area's commercial enterprises, and followed a "bullseye" plan whereby "urban villages" would grow around the five planned route stops along the 2.5 mile corridor. While the Rosslyn Metro Station opened in 1977, it wasn't until 1979 that the Ballston Station was put into operation that the R-B Corridor truly came into being. The Ballston sector itself was envisioned as a home for "regional shopping facilities,



Figure: Entrance to Ballston-MU Station. Source: Cox, Alex. 2016. <https://ggwash.org/view/43012/theres-no-place-like-the-ballston-metro-station>

major new offices, apartments, townhouses and shops designed to create a richly varied urban environment," all within a 250 acre area around the metro station (Arlington County 1980, 11).

From the beginning of the project, the major and most active stakeholders have been the Arlington County Board and its various supporting agencies, periodic citizen's commissions, and the Washington Metropolitan Area Transit Authority. The effect of the citizen's commissions on the early planning is evident in the concern with preserving single family dwellings adjacent to the corridor, and a prohibition on high density office development abutting those neighborhoods (Arlington County 1972, 7). Public meetings were held to educate and involve citizens with the planning and development process. The WMATA, being responsible for the past and present operation of transit operations, has had a considerable interest in the development and success of the each of the sectors of the R-B Corridor, not just the Ballston area. Finally, Arlington County's interest lies in providing a desirable and competitive destination for both commercial interests, and potential residence, to which end they have provided capital bonds and a multitude of planning and options to area developers.

## Train Station and Bus Hub

The underground train station runs two east-west lines (Orange and Silver) with an 8-12 minute daytime (5:30am-9:30pm) frequency and 20 minute frequency after 9:30pm (WMATA 2018, “Timetables”). Ballston-MU station reported 9,249 daily metro boardings for 2017 (Arlington Economic Development 2018). The Ballston station is also a major transfer station for the WMATA’s Metrobus service, housing 7 bays for route pickup and drop-off (WMATA 2018, “Station Vicinity Map”). There are currently 12 Metrobus routes with stops at the Ballston-MU station, and several Arlington Transit routes with an approximate frequency ranging between 15-30 minutes during peak weekday hours, and 20-60 minutes during non-peak hours and weekends (WMATA 2018, “Bus Service”).

## Transportation Options and Connectivity

The various bus routes radiate from the Ballston station into the rest of the county, following the rail line between Fairfax and Washington D.C on one axis, and extending south into on the another. There are 54 bike racks present around the entrance and bus transfer station, as well as designated bike lanes in the roadways in the immediate vicinity. There are also “bike-share” bicycles available both at the station, as well as within a short walking distance.

Sidewalks in the Ballston sector are hierarchically based on proximity to the station and major thoroughfares. The widths of these sidewalks range from a minimum of 6ft. to 24 ft. depending on the location and overall road width. These streetscapes are also interspersed with climate appropriate trees, foliage, and decorative street lighting, as designated by the county plan.

## Land Use

Land use in the Ballston sector was reported in 2012 as follows: 21,917,017 SF office, 2,842,169 SF retail, and 29,366 residential units (Arlington County 2012, 51). Given figures for 2018 development include: 206,000 SF of office space, 466,000 SF retail space, and 1,641 housing units currently under



Figure: Rosslyn- Ballston Corridor. Source: Arlington County. <https://projects.arlingtonva.us/planning/smart-growth/rosslyn-ballston-corridor/>

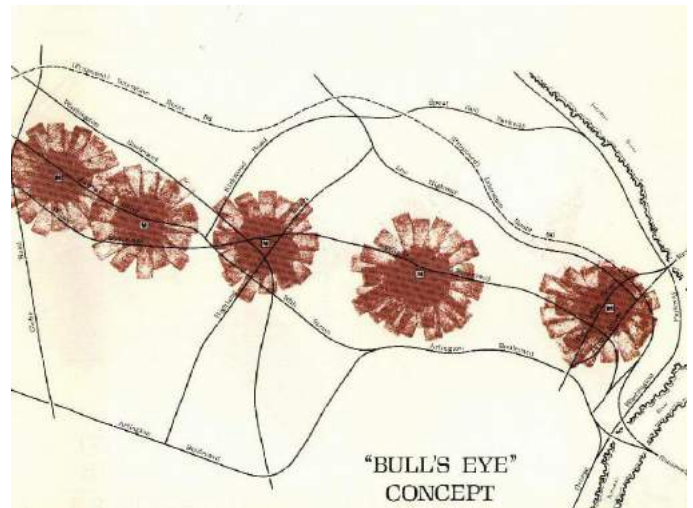


Figure: Rosslyn-Ballston Bullseye Plan. Source: Arlington County. <https://projects.arlingtonva.us/planning/smart-growth/rosslyn-ballston-corridor/>

construction, with a current population of 39,943 within one mile of the Metro station.

## Housing

Within the Ballston sector there are 381 listed units of affordable housing with 162 of those units being designated for persons with disabilities or residents 62 years of age or older (Arlington County 2018, “Housing”). Pricing for these units are rated based on application, and income level of applicant. Average monthly rent in the Ballston-Virginia Square neighborhoods was approximately \$2,100 over the past year.

## Additional Information

The Ballston-MU station, itself is slated for a major renovation and upgrade, with plans to enhance the Metrobus areas of the station, as well as provide more public space, expand bicycle parking, as well as provide additional bus bays to accommodate increased bus and rider traffic. 2018 has also seen the approval of several redevelopment projects, and community improvements, such as approved single and multifamily residential buildings, as well as a park and pond restoration within the neighborhood (Arlington County “Ballston,” 2018).

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## 2.2 The Round, Beaverton, OR

**City/State:** Beaverton, OR

**Location:** Downtown Beaverton, 9 miles outside Portland, OR

**Type of Development:** Suburban

**Date Completed:** 2003

**Key Project Stakeholders:** Community Members, City of Beaverton

### Origin

Beaverton, located just outside of Portland, OR, is a small town with a lively, very walkable downtown. As the former location of a sewage treatment system, the area needed revitalization. A TOD, named The Round, was a way to increase the integration of culture, history, and entertainment in the area.

### Transportation Options and Connectivity

From The Round there are many transportation options. The hub connects of the MAX (Metropolitan Area Express) light rail lines. The light rail gives community members access to Portland City Center as well as many other locations. The Beaverton Transit Center (the next rail stop) has connections to both the red and blue lines directly. The red line give rides access to 7 other stops, ending at the Portland International Airport. During the week the trains runs through Beaverton from 6 a.m. to 1:30 a.m every 15 minutes. On the weekends, the timeframe for trains is the same as it is during the week, however the frequency of trains is less. During peak hours (12:15 p.m.- 12 p.m.) the trains run roughly every 15-20 minutes, but the remaining morning and evening trains run every half hour.

Buses are prominent in this TOD. The main bus route, #54 – Beaverton-Hillsdale Hwy, runs every 15 minutes from 5 a.m. to 12 a.m. This line gives community members direct access to Portland city center.

Beaverton Center also has a number of bike and

### The Round at Beaverton

The city of Beaverton is in negotiations to buy the Coldwell Banker building for \$8.65 million.

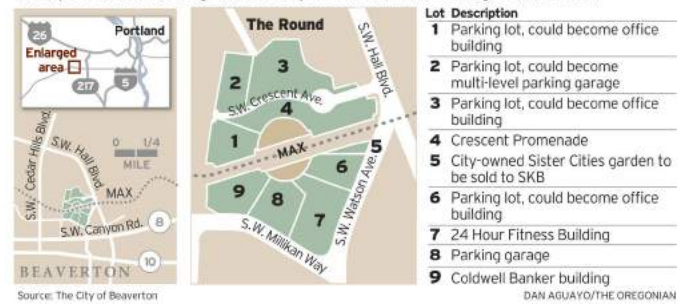


Figure: The Round TOD development. Source: OregonLive.com



Figure: The Round at Beaverton. Source: OregonLive.com

multi-use non-traffic paths for easier transit. These paths do not connect directly to the transit center but biking is possible.

The Round is an excellent location for walkability. The area received a walk score of 95 from walkscore.com. Downtown Beaverton is only minutes away with multiple options for entertainment, food and work. The transportation in this area is also all in a less than 10 minute walking distance, giving the community great connectivity to both Downtown Portland.

### Land Use

The Round is a mixed-use area with both commercial and residential uses. The residential buildings are located in the same section of the TOD, across from the office spaces, but the bottom levels of these buildings are retail. The complex is comprised of two office buildings (Watson and South Office), a parking garage that has ground level



Figure: The Round at Beaverton. Source: OregonLive.com

retail and an additional commercial building with 24,000 SF of retail. Above this retail space there are 63 condominiums. In the center of the crescent shaped building is access to the MAX blue lines.

The South Office Building and Watson building are both located on the West side of the project. These buildings combined give the area about 226,000 SF of office space. The south side office building is solely office space, but the Watson building is mixed use with offices, a Gym, coffee shop and music store. There is additional retail located on the opposite side that includes 3 restaurants and an eye clinic.

In this center area is also a green open space used for multiple functions, but primarily as an event space. Because of the crescent shape of the space and the stepped landscape design, the area creates an area perfect for outdoor theaters and is a frequent concert location. When it is not being used for events, it is a great public gathering space. The waterfall feature located along the edge cascades down the rock wall surrounding the area and creates a sense of tranquility and peace, as an escape from the noise of the surrounding city.

### Housing

The TOD contains 63 upscale condos built in 2003. These luxury homes are spacious and modern. The tenants are close to shopping, entertainment,

restaurants, parks and schools as well as the MAX line allowing for convenient walk able access to all the daily necessities as well as public transportation. The housing includes a gated parking area for LOFT residents as well as 2 other parking garages. An additional parking lot was created for visitors only.

### Additional Information

The Round has many sustainability features included in the design. For interior building design they included features such as water efficient plumbing, energy efficient heating and cooling systems as well as energy efficient windows and increased insulation. Landscape design includes sustainable features as well such as native plants and water conservation methods, and protected green spaces. The property management also has aims of getting the Watson Building LEED certified.

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## 2.3 Kensington Village, Berlin, CT

**City/State:** Berlin, Connecticut

**Location:** 15 miles south-west from Hartford, CT

**Type of Development:** Suburban

**Date completed:** August 2015

**Cost of TOD:** \$900,000

**Grants to Finance the Project:** Department of Economy and Community Development's Brownfield Revolving Loan Fund & TOD Pilot Program

**Key Project Stakeholders:** Town of Berlin

### Origin

The TOD plan seeks to meet three challenges, to attract new people to Kensington Village, maximize Berlin's natural amenities and open space, and to transform existing and underutilized industrial spaces into housing and new businesses. The future vision for the train station area is a vibrant activity hub surrounded by a blend of business and residential uses. The plan defines an architectural theme that will incorporate traditional Berlin brick building materials and other architectural elements of the train station along with newly created pedestrian friendly spaces. The commercial strip of Farmington Avenue and New Britain Road will continue to be revitalized with new retail, office and service businesses along the first-floor frontage but with the incorporation of multi-family housing on the upper floors encouraging a walkable village lifestyle for both shopping and mass transit. The existing single-family housing development pattern and new multi-family residential uses will be developed at infill locations as part of the development or properties that need revitalization.

Another goal of the TOD plan is to reinforce the area as a location for job creation based on opportunities for employees to commute to work. There is potential to significantly increase the concentration of jobs within walking distance of the station through commercial redevelopment projects and the development of underused industrial property. Making more direct pedestrian



Figure: Old station remains and new platform construction at Berlin, CT station. Source <https://commons.wikimedia.org>



Figure: Berlin Station. Source: Google images.

connections between the station, Berlin Steel and Old Brickyard Lane will help establish Berlin's TOD zone as an employment hub taking advantage of improved rail service as it evolves over the next several years. The creation of a parking district is based on the recognition that a growing percentage of residents and employees will be using the train and that shared parking arrangements can be accommodated based on differing peak parking demands.

### Train Station

The Town of Berlin's primary transit facility is its Amtrak train station. Presently the station is served by seven daily Amtrak trains going southbound and seven northbound. As the station is well located and parking is free, there is substantial potential



to increase ridership. Present use of the station is limited by the infrequency of the train service and because the Amtrak pricing is higher than Metro-North and Shoreline East fares. The station is one of the nine stops on the New Haven to Springfield rail corridor that is the object of an intensive effort by the Connecticut DOT to upgrade commuter and intercity rail service. Berlin is the first stop south of Hartford in the initial operating plan for the commuter rail service, so the station has an important role. This is reflected by the size of the proposed parking lot expansion. ConnDOT projects the needed size of the parking lot for the Berlin Station at about 260 spaces making it the largest parking lot planned for any station north of New Haven. It is likely that commuters from a relatively large radius will use the Berlin station to access the New Haven – Springfield commuter rail service.

### **Transportation Options and Connectivity**

Train: Amtrak New Haven – Springfield Line

Bus: CT Transit

41 New Britain/Hartford

47 Franklin Avenue

50 Blue Hills Avenue – Cottage Grove Road

54 Blue Hills Avenue – Blue Hills Extension

512 Berlin Turnpike

There are no bike paths/racks/infrastructure, sidewalk, or rideshare companies.

### **Land Use**

The Berlin Station is located on a private road directly off the town’s main local shopping street. The zone allows for a diverse mix of commercial businesses including retail, office, and service uses as well as mixed-use projects with residential components. North of the station and east of the Amtrak line is zoned as planned industrial space. This includes the abutting Berlin Steel property as well as TIGHTCO and Arkema. The area north of the station and west of the Amtrak line is zoned as general industrial space. This area is developed with several smaller industrial uses in the vicinity of the train station. Beyond the commercial and industrial zones are residentially zoned areas in all directions.



Figure: Berlin Station. Source: Amtrak Photo Archive. (1997, October) <http://www.hebners.net/Amtrak/amtStationB.html>

These residential areas are characterized by well maintained, compact single-family neighborhoods.

### **Housing**

Berlin has about 86% owner occupied, single family residences. Most of the residential development in the station vicinity is single-family housing but there are some two-family rental properties and several larger multi-family developments. Notable multi-family projects under development near the Berlin station include 90-unit condominium development. And a 20-unit senior condominium project just off New Britain Road. These three projects are located within one-half mile of the station. Also, under development, within one mile of the Station, is an 88-unit condominium project features a 72-unit conversion of a former vacant factory and 16 new construction townhouses. Although not deed restricted, many of these units are affordable to families at less than 100% of the area median income. Marjorie Moore Village, a 40-unit elderly affordable rental property and a 21-unit age restricted condo project, both located within a mile of the Train Station.

### **TOD Programs Areas**

The future vision for the train station and station core area is a vibrant activity hub surrounded by a blend of business and residential uses. As

identified in the Town's 2003 Plan of Conservation and Development, the station area is one of two town center nodes along the Farmington Avenue corridor, the other being the Veteran Park/Legion Square area ½ mile east of the Berlin Station. The town defined program areas in the vicinity of the station each with its own existing characteristics and planning vision:

**Kensington Village:** The traditional focal point and mixed-use node in Kensington exhibits many of the characteristics of traditional village centers (mixed-use buildings, sidewalk connectivity, on-street parking, etc.), although some strip commercial characteristics have started to emerge. The village represents a significant opportunity for a re-invigorated, mixed-use center based on the redevelopment of existing sites into a denser configuration with shared parking. A cohesive vision supported by appropriate regulations can create a tremendous opportunity to property owners to increase their economic returns from these properties.

**Single-Family Residential:** The areas surrounding Kensington Village and the other business areas represent stable neighborhoods which have been in existence for many years. No significant changes are being considered for these areas except adaptive re-use of some of vacant structures, notably the former school at 462 Alling Street.

**Multi-Family:** Areas with existing multi-family development or potential for future multi-family development based on location, neighborhood characteristics, and other considerations.

**Public:** The train station area is or will be largely owned or controlled by the town, state and Amtrak. In addition to the station, the area has the potential for establishing civic uses (such as police) and helping support the Business/Village Opportunity Area.

**Business Campus:** An area containing existing



Figure: Berlin Station. Source: Amtrak Photo Archive. (1997, October) <http://www.hebners.net/Amtrak/amtStationB.html>

business and light industrial uses in a campus or park type arrangement.

**Commercial Strip:** The properties fronting Farming Avenue (Route 372) consist primarily of automobile oriented uses and development patterns. Due to the historic use of these areas, a number of lots are small and may represent opportunities to promote consolidation of parcels and redevelopment in a mixed use and pedestrian-oriented configuration.

**Business/Village Opportunity Area:** The area surrounding the station is presently used for low density light manufacturing uses. The area has the potential for more intensive business use to augment the business campus or for redevelopment as a significant mixed use.

**Undetermined:** This area is detached from the existing roadway network and separated from other uses by active railroad lines. Its future use (residential, business, open space, etc.) will depend on how the surrounding areas evolve and on how access can be improved.

**Rail Use:** It is anticipated that the area between the Amtrak and rail freight lines in the vicinity of the train station will remain in rail use. The double tracking is expected to require a realignment of the intersection of the lines in this area.



## **Additional Information**

Berlin has a balanced economy with a local workforce equaling the number of local jobs. The economy is diverse, but the two largest employers are utilities, as Northeast Utilities and COMCAST. Berlin has a moratorium under 8-30g of the Connecticut General statutes because it has made progress toward the State affordable housing goal. The town designated the area in the vicinity of the Train Station as another area for consideration of higher density and mixed income housing.

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## 2.4 Canton Junction & Canton Station, Canton, MA

**City/State:** Canton, Massachusetts

**Locations:** Approximately 15 miles southwest of Boston, MA and approximately 27 northeast of Providence, RI. 15 min walk between Canton Junction & Canton Station.

**Date completed:** The Canton TOD projects are still developing because housing densities have not reached full capacity.

**Funding:** Canton was funded \$1.86 million by the Public Works Economic Development (PWED)

**Key Project Stakeholders:** Town authorities and planning board, Public Works Economic Development (PWED), Consultants Planners Collaborative, Inc.

### Origin

Historically, Canton is home to Paul Revere's copper rolling mill which was developed just after the American Revolution. His mill influenced the developments of several other industrial businesses in the town where it became an industrial center. Like many industrial hubs, the modern age has seized the use for these hubs of industry, causing a declining economy.

Before Canton developed the TOD, nearby shopping malls opened causing the closure of many local stores leaving behind many vacant sites. To restore the economy, the town authorities proposed the revitalization of Canton's downtown so that it would form a better relationship to the stations. In 2000, the town adopted the Canton Center Economic Opportunity District Bylaw to directly encourage transit oriented development and better connect the station itself to the downtown. The new bylaw included policies that would increase allowable densities to one unit per 2000 SF unit and 3000 SF of commercial development per 10,000 SF of land area, encourage mixing residential and commercial uses, as well as promote shared parking for two or more uses that can demonstrate different peak demand. The state of Massachusetts awarded

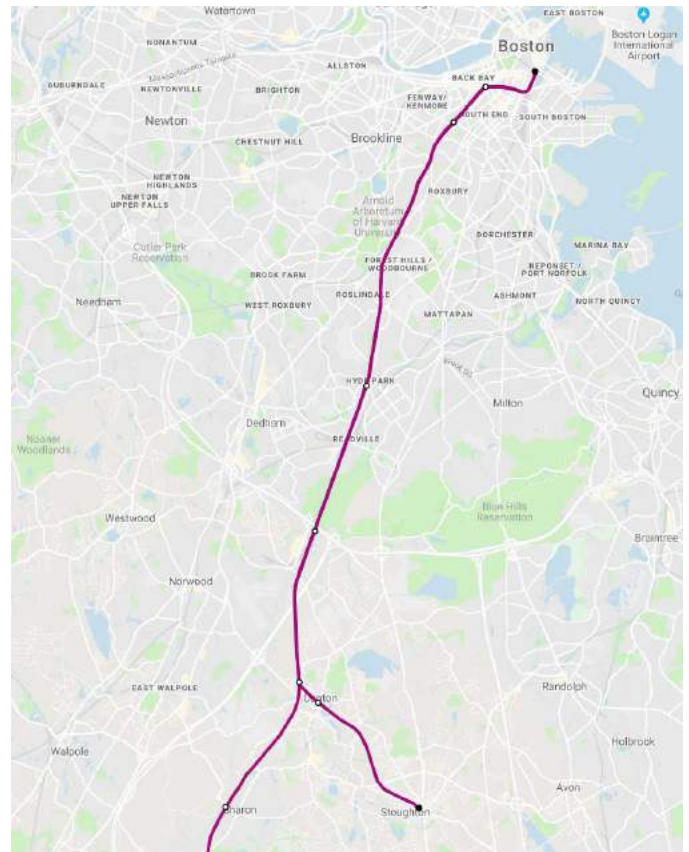


Figure: Commuter Rail – Providence/Stoughton Line. Source: Massachusetts Bay Transport Authority. n.d. [https://www.mbta.com/schedules/CR-Providence/line?date=2018-10-01&direction\\_id=1](https://www.mbta.com/schedules/CR-Providence/line?date=2018-10-01&direction_id=1)

the town of Canton a \$1.86 million Public Works Economic Development (PWED) grant to fund the transformation.

### Train Station

Canton has two commuter rail stations, Canton Junction and Canton Station, which are located  $\frac{1}{2}$  mile from each other. Both stations provide the residents of Canton with a reliable commuting system to downtown Boston and Providence. Residents wishing to travel from Canton Junction to Boston can expect 7 different trains at 7 different times, from 12 p.m. to 10:40 p.m., on the weekends and 25 different trains with different times, from 5:45 a.m. to 11:46 p.m., on a weekdays. At Canton Station trains only make stops on weekdays. Residents can expect the departure of 14 different trains heading towards Boston between the times 6:28 a.m. to 11:43 p.m.

## **Transportation Options and Connectivity**

Both of Canton's stations are part of the Providence/Stoughton commuter line. Canton Junction is the station that connects Providence/Stoughton line to Stoughton Massachusetts. The Providence/Stoughton line only splits at the Canton Junction to connect Canton Center and Stoughton Station.

Access and travel to Canton Station and Canton Junction is made easy for residents who live within a half mile of the stations. Wide sidewalks on both sides of the streets and lowered speed limits create a safe environment for people to reach the stations by foot, eliminating the need for a car or bike. Commuters who live outside of the 1/2 mile radius can still reach the stations easily with a car.

Canton Station and Canton Junction both have enough parking spaces to accommodate those who live in the skirts of Canton and commute to Boston or Providence. Other key features of the TOD include many bars and restaurants located on Washington street just south of Canton Station. This environment provides welcoming opportunities for commuters upon arriving back home.

There are also several neighborhoods and condominium complexes, provided for middle-class workers, located immediately next to these stations. The closest complex has a direct walkway from the Canton Station terminal to every condominium unit right next door. These walkways are out of the way of the streets the residents can safely walk to the terminal in under 2 minutes (Town of Canton Massachusetts, 2015).

## **Land Use**

Land use within Canton's TOD is primarily mixed use and commercial and it is encouraged that they be mixed. The Canton Center Economic Opportunity District Bylaw created a new overlay district to accommodate apartments, townhouses, service-oriented office uses, non-service oriented office uses (for upper floors only), mixed-use with

ground floor retail/personal services/office oriented services, banks, retail under 10,000 square feet, government buildings, hospitals, hotels, transit stations, restaurants (except fast food chains), civic or cultural and community facilities, theaters (except drive-ins), dry-cleaners with cleaning services located outside of TOD overlay district, and others such as parking garages, cafeterias and day care facilities (Town of Canton Massachusetts, 2015).

A number of uses are prohibited from new development inside the TOD including: auto sales/service repair/auto storage and rental, gasoline sales, heavy equipment sales and service, manufactured home sales, salvage yards, industrial uses, towing services/vehicle storage, RV sales/storage, car wash, strip commercial development, mini-storage/self-storage, commercial laundry with on-site cleaning facilities, warehousing and distribution facilities, low density housing (less than 7 units per acre), golf courses, cemeteries, boat sales and storage yards, freight terminals, amusement parks, building contractors, retail uses (except grocery stores larger than 10,000 square feet unless part of mixed-use development), drive-in theaters, drive-through facilities, and commercial parking facilities (Town of Canton Massachusetts, 2015).

Other uses which can be acquired through the submittal of a special permit include: single family homes, commercial surface parking lots, laboratories, fast food establishments, research facilities, stadiums and ports facilities with over 10,000 seats, and grocery stores over 10,000 square feet (Town of Canton Massachusetts, 2015).

## **Housing**

The zoning proved to be the catalyst for a constant stream of new housing development in the downtown, concentrated around the transit stations. Since 2000, five new housing developments totaling 207 new residential units have been built within a five minute walk of the



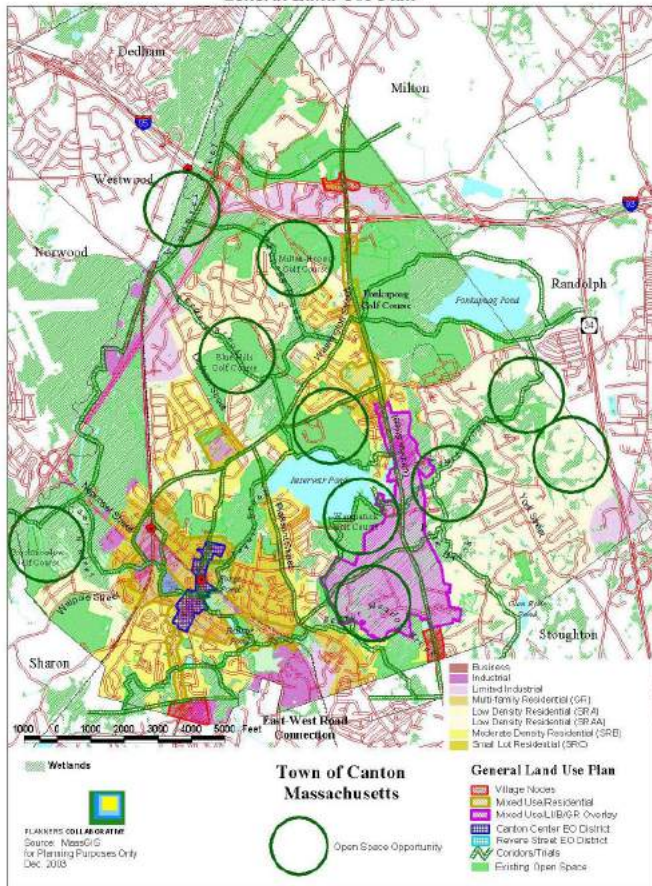


Figure: General Land Use Plan 2004. Source: Town of Canton Massachusetts. "Canton Master Plan Phase II." <https://www.town.canton.ma.us/DocumentCenter/View/312/Master-Plan-Index-PDF>

Canton Center Station. More housing developments for low to moderate income earners have also been in the works, one of which will occupy an existing brownfield. Ultimately, Canton would like for their TOD to become a viable living situation for low income to middle income earners (Town of Canton Massachusetts, 2015).

### Additional Information

Canton also has strong visions for the development of the entire town. Since they do not want the TOD to over populate the entire area, they've developed a master plan to contain the dense housing and provide opportunities to further improve the development of different zones (Town of Canton Massachusetts, 2015).

The main features of their plan include things such as: several neighborhood nodes of increased use and density fully side-walked and trail-connected, a system of paths and sidewalks connecting landmarks, natural and historic features and places to go throughout, increased access to water both visually and physically, and a multi-pronged approach to providing affordable housing (Town of Canton Massachusetts, 2015).

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## 2.5 Meriden, CT

**City/State:** Meriden, Connecticut

**Location:** 47 miles south of Springfield, MA

**Development Type:** Urban

**Dates:** 2009-2018; April 19, 2018

**Grants to Finance Project:** Many of the grants for the projects surrounding the downtown transit hub are awarded by government agencies such as the USEPA to clean up the contaminated brownfield sites. The state of Connecticut will invest nearly \$750 Million in the New Haven Hartford Springfield (NHHS) rail program, including significant investments in Meriden. Over \$200 million has been used for mixed-use developments (including both market rate and affordable housing units), about \$14 Million was spent on a park and flood control area, and \$20 million on Meriden's improved transit center.

### Overview

Meriden has been identified as a key node for enhanced passenger rail service proposed along the New Haven-Hartford-Springfield (NHHS) regional rail corridor. The Plan of Conservation and Development (POCD) was created by the City of Meriden in 2009 that outlines TOD guidelines and goals for future development of the city.

The primary constraint to development within the station area is flooding. The City is working on a Long Term Flood Control Plan. Once implemented, the control plan will remove approximately 100 properties from the 100-year flood zone, creating more potential opportunities for development.

### TOD Programs

Key focus areas in the TOD District include:

1. Meriden Inter-modal Center: A pedestrian link across the rail line from Colony Street to the HUB Park; a new mixed-use, multi-modal interface and parking structure.
2. Colony Street: Revitalize the north-south commercial-retail corridor with strategic infill development and the preservation of historic



Figures: Top, Proposed site plan of the new Meriden Green. Bottom, Proposed row style homes facing the Meriden Green on South Colony looking north. Source: <http://www.meriden2020.com/>

buildings; connect to the new Meriden Inter-modal Center.

3. HUB Park: 14.4-acre park affording public amenities, Harbor Brook flood control, and 150,000 square feet of mixed-use development; the future centerpiece of the Downtown.
4. Meriden Housing Authority site: A plan to provide quality affordable housing for residents of the Mills Housing complex could facilitate construction of a variety of mixed-income residential typologies within walking distance of the Meriden Inter-modal Center.
5. East and West Main Street: Utilizing historic building fabric, plus new infill of the commercial-



Figure: Meriden Transit Center. Source: <http://www.meriden2020.com>

retail streetscape to revitalize and reconnect civic, educational and community facilities.

6. Factory H Area: Potential mixed-use project (100 housing units / 35,000 square feet commercial-retail space) to anchor area south of Hanover Street. Viable development tied to new traffic, greenway and pedestrian connectivity.
7. Pratt Street “Gateway”: A grand, landscaped boulevard that connects the interstates directly to the new City Center will be a catalyst for development to the north and east of the park, connecting to the library and City Hall.
8. In addition to these key focus areas, the development plan also includes:  
60,000 sf of non-residential space downtown  
30,000 sf of retail space.

### Transportation Options at Station

Meriden Station is identified as a station for enhanced passenger commuter rail service as part of the Hartford Line. It is anticipated that as many as 200 trains will depart from the station per week. The station area is comprised of residential, government, and commercial land uses with some small amounts of industrial land uses. The station is anticipated to be used primarily by commuters who arrive by car and park in the station lot which is anticipated to be fully utilized. Available transportation at the station include:

Hartford Line (Train)

Hartford Line Commuter Rail (Train)

CT Transit (Bus)

Route 215 New Haven/Wallingford/Meriden (Formerly C)

Route 561 Westfield Meriden

Route 563 Yale Acres

Route 564 South Meriden

Route 565 West Main Street (formerly C5)

Route 566 East Main Street (formerly C6)

Meriden-Markham Airport (2.8 miles south from Meriden, CT)

### Additional Information

The “Meriden Green”, is a 14-acre flood control park and economic development project located in the heart of downtown. The \$14 million project is a key component of Meriden’s downtown transformation, which includes an unprecedented amount of private, local, state, and federal investment in the areas of flood control infrastructure, brownfield remediation, transportation and housing.

The City of Meriden and the Meriden Housing Authority (MHA) have partnered with Pennrose Properties and the Cloud Company to develop “Meriden Commons”, located at 161 & 177 State Street and 62 Cedar Street in downtown Meriden. The development includes 151 residential units and 5500 square feet of commercial space. Meriden Commons is part of a five-year plan that will allow for the demolition of the Mills public housing project and the construction of four new, private mixed income developments in downtown Meriden.

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## 2.6 Fruitvale Village, Oakland, CA

**City/ State:** Oakland, California

**Location:** 4.5 Miles southeast of downtown Oakland

**Type of development:** Urban

**Date completed:** 2004

**Grants:** 1993 US DOT \$477,000

**Key Project Stakeholders:** Unity Council, US DOT, Bay Area Rapid Transit, La Clínica de La Raza, a California Health Center

### Origin

Originally built by German immigrants in the 19th century, the area which is now Fruitvale, started on the foundation of numerous orchards and canneries. WWII brought in manufacturing industries and an influx of African American and Hispanic workers.

### Historical Development

“The construction of Fruitvale Station brought many changes for the community. Buildings and homes were demolished to make way for the elevated train system. The street grid was reconfigured and giant surface parking lots for commuters were established. All of this activity took place one block away from Fruitvale’s commercial core along East 14th Street, since renamed International Boulevard. As a result, BART travelers’ first glimpses of Fruitvale were of ample parking areas and the service entrances and backsides of the East 14th Street retail strip. The overall impression conveyed an unsafe, unattractive, economically depressed area. Even though it had a bad reputation, the Fruitvale neighborhood became popular with BART commuters for its free parking. The parking brought in many people from other towns and cities, especially nearby, affluent Alameda Island. Yet fear kept many people away from the rest of Fruitvale. Seasoned commuters would tell stories of strictly running from the strain to their cars out of fear due to the bad reputation of Fruitvale.” (ULI, 2005).

### Train Station

Fruitvale Station has a northbound and southbound



Figure: BART Bike Hub. Source: BART Bike Hub, 2018, “Bart Bike Stations,” Accessed September 29, 2018: <https://bikehub.com/bart/#toggle-id-2>



Figure: BART, Completed TOD Projects. Source: <https://www.bart.gov>.

platform that each serve 80 or more trains a day. The northbound platform train stop on Richmond (40 minutes north) and Daily City (40 minutes southwest) starting at 4:32 a.m. on weekdays and 6:32 a.m. on weekends. The southbound trains stop in Dublin/Pleasanton and Warm Springs/South Fremont. These trains come roughly 10 minutes apart and run until 12:30 a.m. every day.

### Bike Infrastructure

Bike stations are located at almost every train station along the East Bay, North Bay, and San



Figure: BART Fruitvale Station. Source: <https://patch.com>.

Francisco lines. At the Fruitvale Station there is free valet bike parking, repairs and sales, and bike link card sales. This station can hold 200 bikes and is open from 6 a.m. to 8 p.m. on weekdays. These bike stations allow people who don't commute with a car to commute freely with a bike, giving residents who may not have access to a car to ride their bike from home to a station, park their bike, then proceed to take the train to their destination. These amenities provide great sustainability aspects, as well as transit flexibility.

### Land Use/Housing

The Fruitvale Transit Village is a 4 acre, mixed-use and mixed-income TOD. The development is part of a much larger 19 acre development with housing for seniors, facade and street improvements, and improved parking strategies. It is connected to both International Boulevard and BART with walkable connections between. It offers a senior center, a Head Start child development center, a city of Oakland Public Library.

Two buildings house roughly 40,000 SF of ground floor retail, 114,509 SF of office space, 20,000 SF for for-profit companies, and 47 apartments, 10 of which are reserved for low-income.

As Jen Gray-Connor states, "Fruitvale is an important case of TOD, but also one that is difficult to replicate. Difficult legal and financial arrangements, and years of political activism

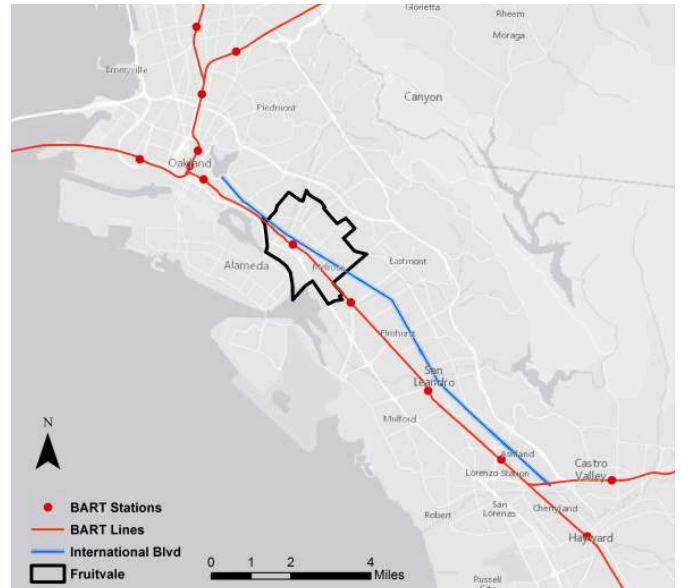


Figure: Fruitvale, Oakland: A Case Study of Transit and Economic Development. Source: Goggin, Brian. N.d. "Fruitvale, Oakland: A Case Study of Transit and Economic Development"

and public involvement brought the project it to completion. The political and community organizing of the kind that produced Fruitvale, and that arguably is crucial to the success of equitable TOD in general, is not too recognized in mainstream planning."

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## 2.7 Plano Station, Plano, TX

**City/State:** Plano, Texas

**Location:** 20 Miles north of downtown Dallas

**Type of development:** Suburban

**Date completed:** 2002

**Grants:** 13.7-million-dollar rail expansion from the US DOT

**Key Project Stakeholders:** Public/private partnership between the City of Plano, Amicus Partners, the US DOT and DART. Developer, RTKL Associates, Inc. transformed a largely vacant tract in the center of town to an attractive, red brick, multi-use village directly fronting the DART station. In addition, The East Plano Development Task Force and City Council created the key development plans allowing the project to become such a success.

### Origin

Much of Plano's success dates back to the 1970's when its population underwent major growth due to urban sprawl. As a result, its downtown changed from a traditional business center to a specialty retail district composed of antique stores and gift boutiques (Plano.gov, 2011). These businesses benefited from Plano's historical setting and a favorable rent structure. Eventually in 1991, a Downtown Development Plan was approved by City Council in which recommended preserving and enhancing the village to create a compact, mixed-use district in close proximity to a new public transit service (Downtown Development Plano, 1991). The East Plano Development Task Force, established in 1996, had high hopes of increasing community involvement around this future station.

Later that decade, it was determined that Dallas Area Rapid Transit service (DART) would expand one of their major light rail lines to pass through Plano's downtown historic district. This 13.7-million-dollar rail expansion was set forth by the US DOT. Plano's enhanced connectivity to its surrounding metropolis essentially opened doors to new functionality, eventually outlined in a more elaborate document released in 1999, *Downtown Plano: A Vision and*



Figure: Downtown Plano After. Source: Schmitt, Angie. Usa. streetsblog.org. December 2, 2011.



Figure. Study Area. Source: Www.plano.gov. January 2018.

*Strategy for Creating a Transit Village.* The overall goal of the city plan was to integrate residential and commercial uses in a compact, pedestrian-oriented environment, surrounding its future light rail station (Downtown Plano, 1999). This document set forth guidelines and goals for Plano's future DART stop location and both its economic and social supporting elements needed for the plan to work successfully.

The Downtown Plano Station was completed in December of 2002, and provided rail service to Plano for the first time since 1948, when the Interurban railway closed. The opening of this station brought DART's Rail System to 44 miles and 34 stations, completing one of the largest rail expansion projects in North America (DART History, 2018).

During this time, the City of Plano also created a tax increment finance district to encourage economic reinvestment along the DART rail corridor. The funds received through ad valorem taxes derived from the growth of the total appraised value were able to be spent on infrastructure, facilities and land within the district to facilitate this economic reinvestment. The city established a code that granted municipalities authority to give funds for services to further economic development. This authority, combined with that associated with tax increment financing, is the basis for most public/private partnership development agreements (Schmitt, 2011). Since 1983, the community has invested about \$1 billion, or roughly \$50 million a year in the public transportation system, city officials say. That includes comprehensive bus and paratransit service as well as light rail (Schmitt, 2011). Plano continues to use Tax Increment Financing money to subsidize the downtown development.

### **Train Station**

During the peak morning and evening hours, trains stop downtown, both north and southbound, at a 6-minute average interval. Each train has the capacity to comfortably carry 300 passengers. The station serves both the Red Line and Orange Line of DART's light rail system (Turner 2012, 18).

### **Transportation Options and Connectivity**

After the opening of the Plano DART Station, located in the middle of the business/government zoning district and sufficiently removed from heavy vehicular traffic, pedestrian and biking connectivity to the platform was enhanced and made easily accessible from all directions. Additionally, drop-off

lanes were provided for riders coming to the station by car and bus (Turner 2012, 18).

Toward the north end of the station platform lies a small bus hub with four bus bay assignments. DART's FLEX Service runs the Shiloh, Collin Creek Mall, and Paratransit lines through this location every hour or with prescheduled calls for pickups at a given location within close proximity to the routes. With FLEX service acting locally and with smaller buses, its purpose is to get commuters to and from the light rail station or to areas with connections to larger bus lines that are located further from the light rail station (DART.org, 2018). With such a large suburban area to cover, integrating multiple uses of transit to get from one type to another is a successful solution to eliminate the personal vehicle from the streets.

In addition to buses, an on-street biking system has been created to enhance connections to multi-use recreational trails, community amenities and learning facilities, along with DART bus and rail transit stops. The routes are made up of roads containing lower traffic volumes and signed so that motorized vehicles and bikers are aware of the biking conditions on any given route. At these stops, bike racks have been provided to allow the integration of transportation types to continue to run smoothly; for example, riding a bike to then get on a train or heavily traveled bus route (DART.org, 2018).

### **Land Use**

As planners began to look at development beyond the station itself, they acknowledged Plano's existing layout containing numerous characteristics that were considered beneficial in the transition to a transit-oriented community. Close proximity to commercial zoning, a gridded street layout and short distance between street and infrastructure also made this futuristic vision realistic (Downtown Plano, 1999).

Although the city had many positive traits, the



number of residential units within walking distance of the DART station was still considered insufficient. One of the primary objectives listed within the plan included the addition of 500-1000 units of housing, both multi-family and “live above” typologies. Planners believed an increase in residencies would greatly contribute to transit ridership and increase retail demand (Downtown Plano 1999, 9.) The city planning board also believed that new housing would absorb vacant and underutilized properties and contribute to nightlife activity.

In 1999, the city enacted Neighborhood Empowerment Zone Number 1 which supports the building of such affordable housing projects as part of the comprehensive plan. The concept of this zone was to reduce the cost of investing or reinvesting in any form of economic development allowing certain development fees to be waived in the construction or remodeling of residential or commercial projects (Neighborhood, 1997). Acts such as this have been created to encourage development in the area and have proved successful in the 1999 Transit Village Plan.

With the introduction of new building types, the issue of how to create larger and new buildings that would encompass the town’s existing traits and history. In response, it was determined that the construction of new buildings ranging from three to four stories would suit the existing context by introducing vertical elements in effort to create an aesthetic separation between buildings. The overall goal was to create new infrastructure that appeared small in scale from a pedestrian’s street view, however, expansive in the horizontal plane.

The basis for these terms was set forth in 1997 with the East Plano Development Task Force’s idea to create a front door initiative. Balconies and awnings were introduced and the streetscape became a main focus to ensure that the main streets and borders of Plano would be inviting and aesthetically pleasing. Burying utility lines, utilizing enhanced paving materials, graphic signage and quality light

fixtures all contributed to the village’s positive connection between new infrastructure and the preservation of Plano’s history and culture (10 Big Ideas 1997, 5).

### **Housing**

Developer Robert Shaw of RTKL Associates, Inc. helped transform a largely vacant tract in the center of town to an attractive, red brick, multi-use village directly fronting the location of the DART station. The TOD began with public improvements costing approximately \$800,000 and funded by a variety of mechanisms including public-private partnerships, land banking, tax increment financing, and empowerment zones. The Eastside Village was built in two phases. The first, a \$17.7 million project including a high-density, mixed-use, 3.6-acre development of 245,000 SF. The new infrastructure included 234 apartments (65 units per acre), 15,000 SF of ground floor retail space, all enclosed within 3-4-story buildings that wrap around a 5-story parking structure.

Today, with the addition of Eastside Village Phase II, the project now features 500 residential units and 40,000 SF of retail and commercial space. Within ½ mile radius of East Village, area demographics include a population total of 4,134 residents, 3,585 employed, 1,582 Total Households and a Median Household Income of approximately \$35,000 (Get Transit, 2011).

In terms of walkability, the project itself is very pedestrian friendly with tree-lined brick paved sidewalks, benches, decorative pole lights, appropriately scaled storefronts and tucked away parking. Its connectivity to the DART light rail station is exceptional, with the station literally at the front door. The walk to municipal buildings and Haggard Park is equally convenient (Get Transit, 2011).

### **Additional Information**

As of January 2018, another vision and strategy update were proposed for the downtown area expanding the currently ½ mile radius to the entire



stretch of Plano, reaching 2 ½ miles outside of the initial 1999 project. The incentive is to create a connection to the outlying neighborhoods which possess the same opportunity to grow. The focus of this new plan will be neighborhood linkage, providing pedestrian friendly streets, more variety of housing and commercial uses, and the possible creation of an arts district. There will be a focus on bringing in even more transportation options including the construction of another DART Station along the upcoming expansion of the Cotton Belt Rail Line (Schmitt 2011). Bus lines and bikeshare programs will adjacently allow a safe and efficient connection between Plano Station and any additional stations added to the DART transit line.

Plano Station, a city located within the borders of Dallas, Texas, is a prime example in how to create a TOD that becomes a “place” rather than a “node”. The cities effort to bring as many people into the area as possible, providing them with housing, a more than sufficient transportation systems, and plenty of shopping and entertainment, has allowed Plano to flourish over the past few decades. As the city continues to adapt and expand outward around from its original DART station, surrounding communities and neighborhoods will gain tremendous value.

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“Get Transit-Oriented...” Get Transit Oriented Mockingbird

# MOVING SOUTH

## DOWNTOWN HAS ROOM TO GROW

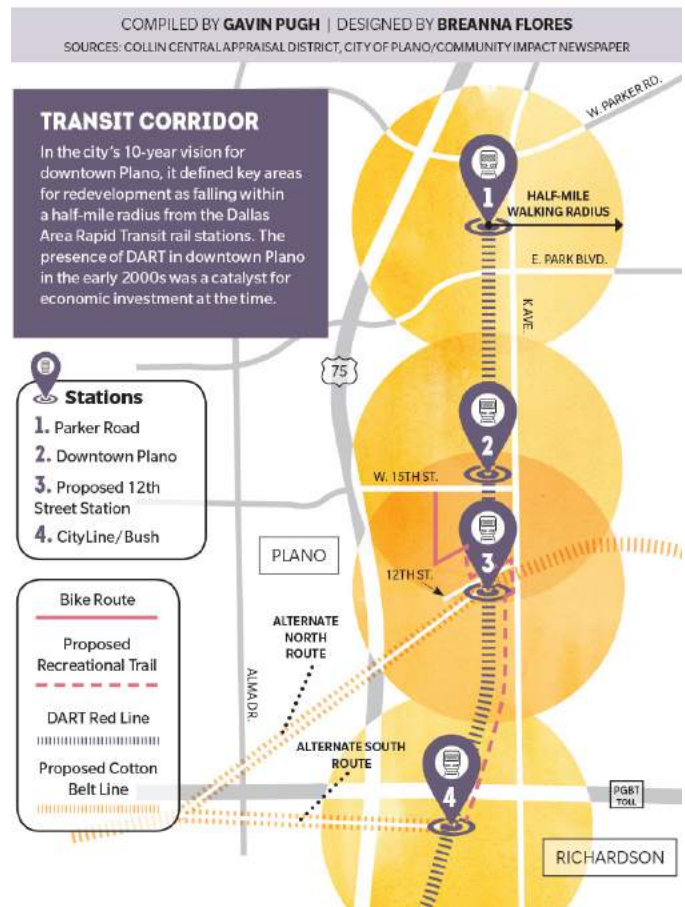


Figure: Flores, Breanna. Moving South. Source: Communityimpact.com.

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## 2.8 Providence Station, Providence, RI

**City/State:** Providence, Rhode Island

**Type of development:** Urban

**Date Completed:** 1986

**Cost of TOD:** \$58,000,000

**Grants:** Funded primarily by Federal grants as part of realignment of railroads, rivers, and roads in the center of Providence.

**Key Project Stakeholders:** City of Providence, State of Rhode Island, Providence Foundation, Federal Railroad Administration, Federal Highway Administration, Amtrak, Rhode Island Department of Transportation, Rhode Island Public Transportation Authority, Greater Providence Chamber of Commerce, Capital Center Commission, Providence & Worcester RR (& their real estate subsidiary of Capital Properties), Massachusetts Bay Transportation Authority, Skidmore Owings & Merrill.

### Origin

Predating the concepts of Transit-Oriented Development and New Urbanism, this station originated in the “Providence Renaissance” of the 1970s. NECIP was part of an effort to preserve passenger rail service from Boston to DC, which tied into the origins of Amtrak. Under NECIP, Providence received a new train station for Amtrak, as well as relocation of disruptive and unsightly tracks underground.

Public sector improvements were completed in phases, with most street alignments occurring first and then followed by the realignment of the Moshassuck and Woonasquatucket Rivers. As the railroad funding was available first, the train station was built some years before private developments were completed. This TOD is the product of good timing (federal railroad funding availability) coinciding with multilevel cooperation between federal, state, local, nonprofit, and private organizations.

### Train Station

This station supports four tracks and serves three



Figure: Capital Center Project: Development Plan. 1979.  
Source: Dan Baudouin.



Figure: Amtrak Stations: Providence. Source: <https://www.amtrak.com/stations/pvd>

passenger routes. Most significant is the Amtrak’s Acela Express, the only US extant high-speed rail route. Acela departs the station approximately every two hours daily, except during early-morning hours. It takes about 45 minutes to pull into Boston’s South Station. Paralleling Acela’s route is Amtrak’s Northeast Regional, which stops in Providence approximately every two hours daily, following similar hours to Acela. The Northeast Regional provides a slower (1.25 hours to South Station), more affordable option for travelers, while providing similar frequency to the Acela.

Complementing Amtrak service is MBTA commuter-rail service of the Providence-Stoughton Line. This line departs during typical commuting hours, approximately every 45 minutes, taking about 1.5 hours to reach Boston’s South Station.

## Transportation Options and Connectivity

Key to Providence Station's bus connectivity is its proximity (0.25 miles) to RIPTA's bus hub in Kennedy Plaza. Five regular bus routes stop at this station. In addition, the R-Line BRT connects the station to Cranston and Pawtucket. A pull-up area for taxis is also present, as are racks for the JUMP Electric Bike Rideshare system. The development is also fairly close to the on-street eastern terminus of the Fred Lippett/Woonasquatucket River Greenway bike trail.

Due to the station's proximity to the RI State House and Providence Place Mall, streets are both monumental in width and complex in orientation, creating obstacles for cyclists and pedestrians. While street crossings are present around the station and the perimeter of the state house lawn, personal experience has indicated long wait times and short walk times to cross Gaspee Street. On the South side of the station, Railroad Street and Park Row West present less severe obstacles, allowing access to Waterplace Park and the nearby residential and commercial high-rises of Capital Center.

## Land Use

Due to moving the tracks underneath the station in the area's redesign of the 1980s, this TOD is characterized by a mix of office, hotel, residential, and retail uses. Open space is to the West end of the development- a segment of lawn which provides continuity with the monumental state house lawn. There is also the developed recreational amphitheater along the Woonasquatucket River in Waterplace Park, which features a series of terraces down to the water for viewing of WaterFire and other events in the new cove.

## Housing

Three residential developments are on-site. These include The Cove, student apartment housing (\$13k/year) for the private Johnson & Wales University, The Avalon at Center Place with 225 housing units, a market-rate apartment development, and Waterplace Condominiums with



Figure: Providence Train Station/Capital Center. Source: Google Maps.

193 units (\$300k-\$1million+ in cost). The Avalon's apartments range in price from \$1900-\$3600/month. These developments offer little in the way in income diversity, unless one counts JWU students receiving financial aid and living at The Cove.

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## 2.9 Mission Meridian Village, South Pasadena, CA

**City/State:** South Pasadena, California

**Location:** Approximately 9 Miles from Los Angeles

**Development Type:** Suburban

**Date Completed:** Fall 2005

**Cost of TOD:** \$25 Million for Mission Meridian Village

**Grants:** \$500,000 Grant from South Pasadena, \$500,000 State Grant

**Stakeholders:** Creative Housing Associates (CHA), City of Pasadena, Los Angeles County Metropolitan Transportation Authority (MTA), California Department of Transportation (Caltrans), Wells Fargo in Partnership with Lambert Development Co.

### Origin

The establishment of the Los Angeles Consolidated Electric Railway in 1895 provided citizens living in South Pasadena with an easier way to commute to jobs in Los Angeles. In 1961 the railway route was converted to a bus route and it was not until 2003 that a light rail, now the Los Angeles County Metro Rail Gold Line, was reintroduced to South Pasadena. During the time that railway travel was inactive in South Pasadena, there was likely a decreased interest in living in the area. However, the reintroduction of a rail once again attracted citizens interested in utilizing this transit method which prompted the development of the Meridian Mission Village.

The parties involved with the creation of the Mission Meridian Village were Creative Housing Associates, City of South Pasadena, the Los Angeles County Metropolitan Transportation Authority and the California Department of Transportation. Development was completed in 2005.

### Train Station

Mission Meridian Village is located next to the Metro Rail Gold Line station, South Pasadena Station. The Gold line is a light rail system that runs between Pasadena and Los Angeles, a major line of transportation for work commutes. The light



Figure: Mission Meridian Village. Source: Moule & Polyzoides.



Figure: Mission Meridian Village. Source: Moule & Polyzoides.

rail operates every 7 minutes during peak hours of typical business days. Weekend and night rail frequency averages from every 12- 18 minutes.

### Transportation Connectivity

While the main transportation asset is the Metro Rail Gold Line, this TOD is also located near the Mission/Meridian bus station. Fourteen bicycle storage and spaces are also included near the Gold Line station to assist those who choose to bike and utilize the light rail transportation. The community voted against the idea of a large parking structure to maintain the community character. It was agreed in 2003 that a two-level subterranean garage would be implemented to avoid obstructing the site.



Figure: Mission Meridian Village. Source: Moule & Polyzoides.



Figure: Mission Meridian Village. Source: Creative Housing Associates.

## Land Use

The land use of this project was evaluated to develop an urban mixed-use environment. The site of the village is located between a traditional Pasadena neighborhood and a historic neighborhood center that is currently experiencing a process of revitalization. This new TOD covers 1.65 acres and incorporates an extensive program of retail, courtyard housing, single family houses, duplexes, California bungalows, and mixed-use lofts. Additionally, 324 parking spaces, two levels below grade have been incorporated into this development for the convenience of commuters, project residents, and neighbors. This TOD demonstrates a great use of suburban density. The incorporation of pathways and courtyards throughout the village brings life, growth and communal activity to the area.

## Housing

Housing development for this TOD was completed in 2005. Covering 212,000 SF, there are 14 artist lofts, 50 Craftsman-style townhouses, and three single-family homes. With a total of 67 homes built, the density ratio of the site is 40 homes per acre. Since this area has a higher-income profile, prices were anticipated to range from \$300,000-\$800,000 before its completion. Based on these prices, buyers will need to have substantial income in order to afford the property, which is common for the greater-Los Angeles area. As of today, prices for the homes range from \$400,000 to over \$1,000,000. These numbers are significantly higher compared to the original estimates which is likely due to natural economic inflation as well as the improved attractiveness of the surrounding community. This project was anticipated to be quite successful. For example, all 67 units had sold before construction was even completed.

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## 2.10 Marine Gateway, Vancouver, BC

**Location:** Vancouver, British Columbia

**Type of Development:** Urban

**Key Project Stakeholders:** Advisory Planning Commission, Social Planning Advisory Committee, Parks and Environment Advisory Committee, North Vancouver Chamber of Commerce

### Overview

TransLink, in 1985 opened its first sky train line running between downtown Vancouver and Burnaby. It currently has three rail lines totaling 50 miles of trains which arrive every 100 seconds at its highest intensity. The station is surrounded by a mix of high-rise and low-rise multi-use building developments, green space and contemporary commons block units.

Designed by Perkins + Will in partnership with PCI Developments, the mixed-use TOD presents a precedent for building mixed-use livable communities integrated with transit. Marine Gateway has two neighborhood plazas of 15-storeys office space a 3-story retail and an 11- screen cinema and two residential towers at 25 and 35 storeys centered around a pedestrian friendly street.

### Origin

The character of the city is marked by its proximity to water and mountains with populations of 700,000 and metro region populations close to 3 million people. July of 2005 marked the genesis of the Marine Drive Task Force. The team collaborated to produce guidelines to establish a list of community amenities for the location responding to the diverse people groups living in the area including young families looking for housing near retail, new jobs, community amenities and transit.

### Community Vision

In 2009, the area around the station held a reputation of being “particularly dark and cold” not an inviting location. Marine Drive development



Figure: Marine Gateway TOD. Source: [www.canadianarchitect.com](http://www.canadianarchitect.com)

responded by creating an active safe environment for young people without cars. Marine Gateway sits on a previously underutilized industrial site rezoned for residential uses. Completed in 2016, the development was successful, improving the pedestrian experience along three major streets: Marine Drive, Third Avenue and Forbes Avenue which were previously known for their narrow public paths and vehicle-dominant landscape.

The integration of transit and convenience of retail and amenities has led to continued developments in the area making the corridor an attractive place to live, shop, work and play. Along Marine Drive Corridor, streetscape priority is given to pedestrian, retail and commercial areas with attention to ADA standards. These features include curb ramps at all crosswalk locations for the visually impaired, as well as accessible pedestrian signals. It provides shelter and seating at bus stop locations.

### Area Guidelines

The following guidelines are applied to land developers who seek to amend or facilitate their individual projects. Four key elements were implemented against the motto: “A safe neighborhood where current and future area residents enjoy appealing places to live, work and play.”

1. To create an environmentally-friendly environment that is based on or advances the agendas of the ratings for LEED certification.
2. A high standard of architectural development that gives primary focus to exterior aesthetic. Addressing crime and enhancing the safety measures within the environment through CPTED - Crime Prevention Through Environmental Design-guidelines.
3. To create a distinctive community identity and vernacular aesthetic through sustainable and locally produced building materials, decorative features such as awnings, and adequate lighting and passive design strategies.
4. Urban fabric should reflect living conditions stated by the Official Community Plan designed by the task force.
5. To address and reduce noise pollution.
6. To address light pollution issues which may include but are not limited to directional shielding, intensity levels and reducing building operation use hours.

### **Pedestrian Streetscape**

The development of Marine Drive seeks to enhance healthy and sustainable areas. Parks with independent characters that include wildlife, and ecological sculpting. Incentives for park-n-walk amenities are developed along commercial blocks creating a village-like square.

### **Train Station**

The train station is placed in the intersection of Southwest Marine Drive and Cambie Street. Completed in August 17, 2009, it serves over 9,400 passengers, people indigenous of the Marpole and Vancouver South Slope areas. It includes amenities such as retail franchises and a movie theatre.

The Marine Drive Station is the only Canada Line station in the City of Vancouver with above-ground station platforms. The station provides easy pedestrian cyclist routes to the new Canada Line Bridge across Fraser River.



Figure: Marine Gateway TOD. Source: www.pci-group.com

### **Land Use**

Marine-Drive is divided into nine sub-areas with different themes of envisioning. Each sub area is described in six divisions which includes zoning designations, density, height, vehicular traffic and parking.

- Sub-Area 1 caters to commercial traffic for the entire corridor its height is between 35 to 50 feet and is of commercial use.
- Sub-area 2 is of mixed use and has a theme of commercial ground floor, with up to three stories of residential units above, maintaining a height of 35-50 feet.
- Sub-area 3 is the same as area two but with height of 45 feet.
- Sub-area 4 is a themed a pedestrian friendly village like node with commercial and residential vibrancy. Developments on either side of the street start on a lower level and gradually step back as they proceed.
- Sub-area 5 is defined by as a medium density residential area with building height of up to 35 feet.
- Sub-area 6 is a mixed environment with village-like nodes. It incorporates commercial and residential uses and a vibrant streetscape. Building height in this sub-area are between 25 to 35 feet tall.
- Sub-area 7 is also mixed with up to two storeys of residential uses above.
- Sub-area 8 is a commercial area with up to two stories of residential above.
- Sub-area 9 is a mix of small-scale developments that incorporate both commercial and residential uses on a vibrant pedestrian friendly street. Buildings are between 35 and 45 feet tall.



## Housing

Marine gateway is a mixed-use development that seamlessly integrates a transit hub into the design of the community giving residents and visitors convenient access. Diverse users including residence students of the University of British Columbia live in Marine Drive.

Demands for housing in the area has brought awareness to transit increase and the value of real estate within the location. Housing developments include:

752 Marine- The development offers a one hundred forty-three mixture of studio and one, two and three bedroom condominiums. The towers and a low-rise commercial building will hold a 3100 SF public plaza which is sheltered from the traffic on the corridor. The first two floors function as commercial space with retail and restaurant and childcare spaces.

Tatlow Homes- A small boutique building with thirty-three units of one, two and three bedroom residential units. The Tatlow residential development is well surrounded by walkable services. It is also well surrounded by health promoting and natural surroundings.

Sentinel By Darwin- The tower holds both high-and-low affordability homes and is a gateway to exposure and awareness of public art in the area in social gathering spaces. The tower is LEED gold rated and allows view into the downtown area as well as the Mountains and Stanley Park area. It allows parking for over one hundred and ninety-eight vehicles.

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## 2.11 City Centre Warwick, Warwick, RI

**City/State:** Warwick, Rhode Island

**Location:** 12 miles south of Providence, RI

**Development Type:** Urban

**Date Completed:** Master Plan 2012, December 6, 2010 opening of InterLink Intermodal Center

**Cost of InterLink:** \$267 million

**Grants to Finance the Project:**

\$22.2 million from the state of Rhode Island, including \$11 million for capital costs

\$88.9 million from federal highway funds

\$42 million loan from the federal government due to the Transportation Finance and Infrastructure Act

### Project Stakeholders:

The State of Rhode Island

Department of Transportation (RIDOT)

Rhode Island Airport Corporation (RIAC)

City of Warwick

Commerce RI

Rhode Island Department of Transportation

Rhode Island Airport Corporation

Providence Warwick Convention Visitors Bureau

Federal Highway Administration (FHWA)

Central RI Chamber of Commerce

Property Owners

### Overview

City Centre Warwick forms the gateway to T.F. Green Airport, one of Rhode Island's most important economic engines. As T.F. Green grows, a mix of airport-related uses and commercial strip development has come to characterize the area. In establishing the Warwick Station Redevelopment District (WSRD) in 1998, the City of Warwick recognized the underutilized character of the land between the station and the airport and its potential for redevelopment to advance several goals:

1. Create a place of identity and pride for Warwick and Rhode Island.
2. Provide economic benefits for Warwick and the



Figure: City Center Warwick TOD. Source: RIDOT. <http://www.gcpvd.org>

state.

3. Capitalize on inter-modal transportation resources to foster high-value, high-quality, mixed-use growth.
4. Create a sustainable, livable community by introducing a variety of housing choices connected to an economic growth center and established neighborhoods and by improving access to transportation, housing, and new jobs.

### Train Station

With upwards of 3.5 million people traveling through T.F. Green Airport on an annual basis, the need for travel to and from the airport is essential. According to the 2018 train schedule on the MBTA site, there are approximately ten trains that run from the T.F. Green Train Station inbound to Boston and approximately ten trains that run outbound through the station to Wickford Junction in North Kingstown; the latter is the last stop on the South County Commuter Rail.

The trains run as early as six o'clock in the morning to as late as nine o'clock in the evening. There are currently three functioning tracks that run through this station, with upwards of 414 riders per day. This is nearly double the riders seen in the span between the opening of the station in 2010 to roughly spring 2013 when ridership was between 150 and 230 people per day.

**Land Use**

The proposed land use of this TOD includes approximately 1.5 million square feet of new mix uses. These include 300,000-600,000 SF of new office space, 150,000-300,000 SF of hotel/business conference space, 150,000-300,000 SF of retail and entertainment space, 400-600 new housing units at 1,110 SF per unit, and a possible 1-2 million SF of expansion west of the InterLink.



Figures: Top, Proposed redevelopment plan for Warwick TOD. Bottom, Skywalk that connects the InterLink and Businesses and other Amenities. Source: <http://municipalwebportal.warwickri.gov/>

<b>Overall Balance Of Target Uses For the Inter-modal District</b>	
<i>These percentages may be altered over time to reflect changing macroeconomic and market conditions. Portion of Total Developed Building Floor Area</i>	
<b>Portion of Total Developed Building Floor Area</b>	
Office	20–40%
Hotel	10–35%
Retail/Entertainment	10–20%
Housing	30–45%

Source: Warwick Station Development District Master Plan: A Transit Oriented Development; Page 31

**Transportation Options at Station**

- T.F. Green Airport (PVD)
- MBTA Commuter Rail Service (Providence/Stoughton Line)
- RIPTA Bus Service (Routes 3, 8, 13, 21, 22, 29, 30)
- Potential for future Amtrak Station
- Rental Car Service

**Existing Site Challenges**

Past stages of development gave the district its great transportation potential while also leaving a disparate variety of poorly coordinated land uses. Residential, industrial, auto-oriented commercial, and airport-related uses comprise the area. Transitions between uses are generally poor, placing incompatible uses adjacent to one another and separating uses that could benefit from proximity. For example, homes on Jefferson Boulevard endure four lanes of commercial and commuter traffic. Homes in Hillsgrove North abruptly give way to

restaurants and drive-in banks along Post Road, whose inhospitable pedestrian environment makes these services harder for residents to access. The successful transformation of the district into a mixed-use, pedestrian-friendly, transit-oriented area will require forging good relationships with these existing uses.

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## 2.12 West Hartford, CT

**City/State:** West Hartford, Connecticut

**Location:** Walking distance to the new Elmwood CTfastrak station

**Grants to Finance Project:** The 616 New Park development not only received assistance through the Connecticut TOD Fund, it also received Federal Tax Credits adding up to approximately \$10 million from the Connecticut Finance Housing Authority (CHFA). The Connecticut Department of Housing also contributed \$5 million and the balance, roughly \$20 million, was financed through a local bank.

**Project Stakeholders:** FTA, CTDOT, CCRPA, as well as municipal government leadership from the nine towns within the study area. To further support the success of the transportation infrastructure investments, the Connecticut Department of economic and Community Development, the Connecticut Housing Finance Authority, the Connecticut Department of Housing and the Hartford Local Initiatives Support Corporation (LISC) were active participants in assisting TOD efforts.

### Town Demographics

West Hartford, Connecticut is a town in central Connecticut bordering the capitol city of Hartford. It is a suburb with a population of 63,187 located along the I-84 corridor. The population is majority white (80%) with a median household income of \$91,875 in 2016 (U.S. Census, ACS, 2016). Typical of suburban towns, the majority of West Hartford's residents rely on individual vehicles for daily travel. The majority of the housing stock is single-family detached homes at 66% with only 7% large multifamily (Policy Map, 2018), making the 616 New Park development quite rare for the town.

The Elmwood neighborhood, where the CTfastrak station and TOD area is located, has a slightly higher percentage of small multifamily housing stock as well as a slightly higher percentage of residents who take public transportation, bicycle or walk at 9% (Center for Transit Oriented-Development, 2018).



Figure: Mixed-Use Development Approved in West Hartford CT. Source: Sentry Commercial. August 3, 2016. <https://www.sentrycommercial.com/new-mixed-use-development-approved-in-west-hartford-ct/>

### CTfastrak Project Background

In 1997, several government agencies, including the Central Connecticut Regional Planning Agency (CCRPA), convened to address the increasing traffic congestion and safety deficiencies along I-84 (Wilbur Smith Associates, 1997). The multi-modal study, titled the Hartford West Major Investment Study (MIS), examined a variety of transit improvements and ultimately yielded a detailed plan for a new Bus Rapid Transit (BRT) system. The BRT would consist of 9.4 miles of bus-only transit infrastructure, connecting Central Connecticut communities of Bristol, Cheshire, Hartford, New Britain, Manchester, Newington, Southington, Waterbury, and West Hartford.

After a series of subsequent Environmental Impact Statements over the next few years, funded by the Federal Transit Administration's (FTA) New Starts Program, the Connecticut Department of Transportation (CTDOT) completed its service and operations plans in 2009 (CTfastrak, 2018). By November 21, 2011, the CTDOT and the FTA announced the approval of funding for the BRT system. CTDOT's BRT proposal was approved for \$275 million in Federal Transit Funds through a "Full Funding Grant Agreement" from the FTA. The total cost of the Busway was expected to be \$567 million, which would be achieved by other federal and state sources. Connecticut's contribution to the BRT system will be \$112 million (CTDOT, 2011).



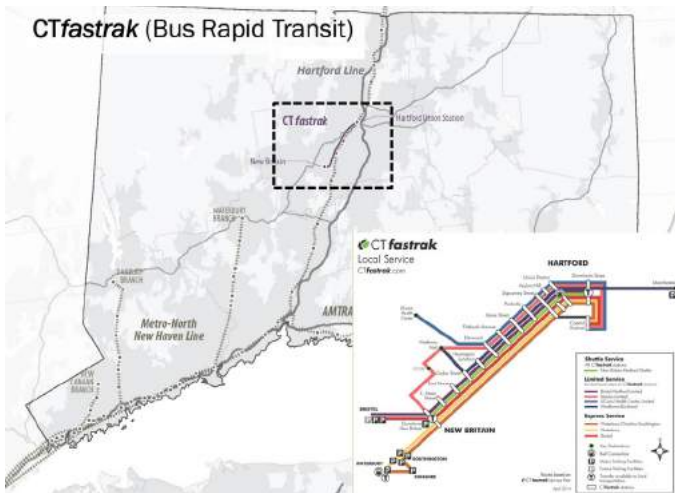


Figure: CTfastrak. Source: Connecticut Department of Transportation. 2018. <https://www.ct.gov/dot/cwp/view.asp?a=1386&Q=504888>

Construction for the project began in early 2012 in New Britain and was operating BRT by March 2015. The BRT was projected to service 16,000 passenger trips per day with direct connections to businesses, hospitals, schools and cultural attractions throughout the corridor. It was designed to create 11 stations. In West Hartford, specifically, the BRT would improve connectivity to Westfarms Mall, the Elmwood neighborhood, and Flatbush commercial corridor, as well as providing fast travel between city and towns.

Execution of this project required coordination across federal, state, and local government agencies. Key stakeholders included the FTA, CTDOT, CCRPA, as well as municipal government leadership from the nine towns within the study area. In order to accomplish such an ambitious overhaul of transit service, the cities and towns along the BRT system had to adapt a regional framework.

In addition to the regional commitment to advancing mass-transit in Central Connecticut, the state created a \$15 million TOD Acquisition and Pre-Development Loan Fund to spur development along the CTfastrak BRT. The fund is administered by the Hartford LISC and provides up to \$3 million in financing for development projects sited within a half a mile of either the CTfastrak stations or the

Hartford Line. All proposed projects must have a residential component, including a minimal percentage of affordable housing units, to be eligible for financing (Hoban, 2015).

### CTfastrak Elmwood Station

CTfastrak began operations on March 28, 2015 and within the first year was averaging between 8,000 and 9,000 passenger trips on weekdays (Connecticut Department of Transportation, 2018). Elmwood Station is located roughly at the midpoint of the 9.4-mile BRT service line. The Elmwood Station is a connection point for the New Britain-Hartford Shuttle, Bristol Hartford Limited, Stanley Limited, UConn Health Center Limited and Westfarms-Buckland line. It is one of three stations located in West Hartford and is the only station in West Hartford in a mixed development corridor with substantial residential stock in close proximity. The other two stations, Flatbush and Westfarms, are located in industrial and commercial corridors.

### Additional Transportation Options and Connectivity

The 616 New Park development is within a short walk of the Elmwood CTfastrak station, giving residents easy access to convenient transit. The CTfastrak connects to the Amtrak line that runs along the Connecticut coast, creating connectivity to cities north and south. The development also borders the Trout Brook bike and pedestrian trail, which gives residents a direct, car-free, route to the restaurants and businesses in West Hartford Center and Blue Black Square (Newton, 2016). The Trout Brook path is also a great recreational amenity that passes through the woods along the river. The location has maintained and lit sidewalks for safe walking to nearby businesses along New Park and Park Avenue.

### Land Use

The site at 616 New Park Avenue was previously a Pontiac dealership site that had been vacant for several years. A year prior to the acquisition of the property, the Town Council changed the zoning

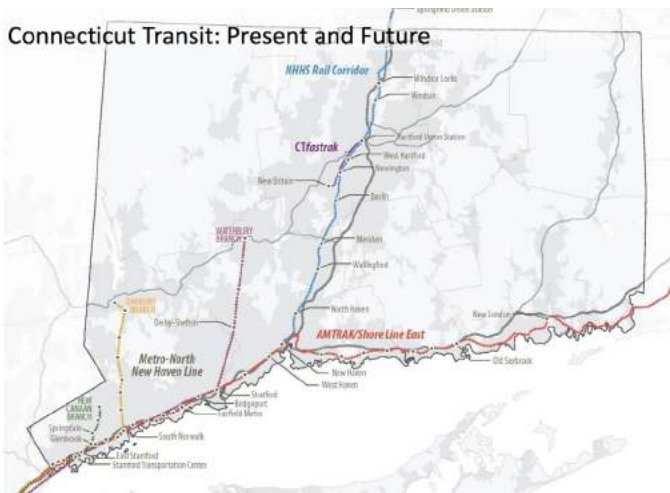


Figure: CTfastrak. Source: Connecticut Department of Transportation. 2018. <https://www.ct.gov/dot/cwp/view.asp?a=1386&Q=504888>

to allow for residential development in what was previously an industrial zone. Leadership within the CTDOT and from the West Hartford Planning Department has encouraged alignment for all new development with the town's Complete Streets Policy, which includes guidance on the Bicycle Facilities Plan, Complete Streets Improvements, and general design oversight (West Hartford, 2018).

## Housing

Overall, Connecticut has put forth a priority for housing development within a half mile from all of the CTfastrak stations to incentivize density. This has been established through the Connecticut TOD Fund administered by the Hartford LISC. The use of this fund was instrumental in the development of 616 New Park Avenue. The 616 New Park project, is a 54 unit mixed-use, mixed-income housing development produced by Trout Brook Realty Advisors, which is the development arm of the West Hartford Housing Authority. The units are a mix of market-rate and workforce housing, where 32 units will serve households with incomes at 60% AMI (area median income) or below. Based on 2016 figures, that equates to a person living alone with an income of \$36,780 or \$52,500 for a family. In addition, 11 units will be permanent supportive housing for veterans. The 11 remaining units will be market-rate (Newton, 2016).

## Summary

The strides that Connecticut has made in the last few years on advancing mass-transit is impressive and should be looked at closely for states considering similar projects. The buy-in from multiple levels of government, nonprofit, financial institutions, and residents was needed to implement the BRT system. With the transportation infrastructure now in place, TOD projects along the transit system are crucial to continue the momentum and increase ridership. The success of projects like 616 New Park Avenue are 'iconic' in catalyzing more mixed-use development around other stations. There is a plan in the works for major TOD surrounding the Flatbush station, located northeast of the Elmwood station.

## Sources

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## 3.0 GeoSpatial Mapping Research

3.1 General Takeaways .....	38
3.2 Single Variable Maps & Findings .....	39
3.3 Suitability Analysis & Findings .....	53
3.4 Multi-Variable Maps & Findings .....	55

### 3.1 General Takeaways

Each of the maps in this analysis include a summary of findings on the mirroring page. The following are general takaways.

**Bus Transportation:** The RIPTA bus system had 16 million riders in 2017, serves 36 of 39 RI communities, and is the most used transportation system in the state. GIS findings show bus routes are generally well connected to communities that have high densities of low-income, single-parent, veteran, student, and senior (65+) households throughout the state. Although the routes are evenly distributed among areas of established population density, the distribution of routes is organized in a hub-spoke network causing long passenger commute times to neighboring communities. The current bus network would benefit from routes that connect adjacent neighborhoods in a grid layout. More analysis on bus service hours and frequency would likely show needed improvements along some routes. Investment in high frequency bus corridors and bus hubs that offer mixed-use development opportunities and connections to other transportation are essential for TOD success in RI.

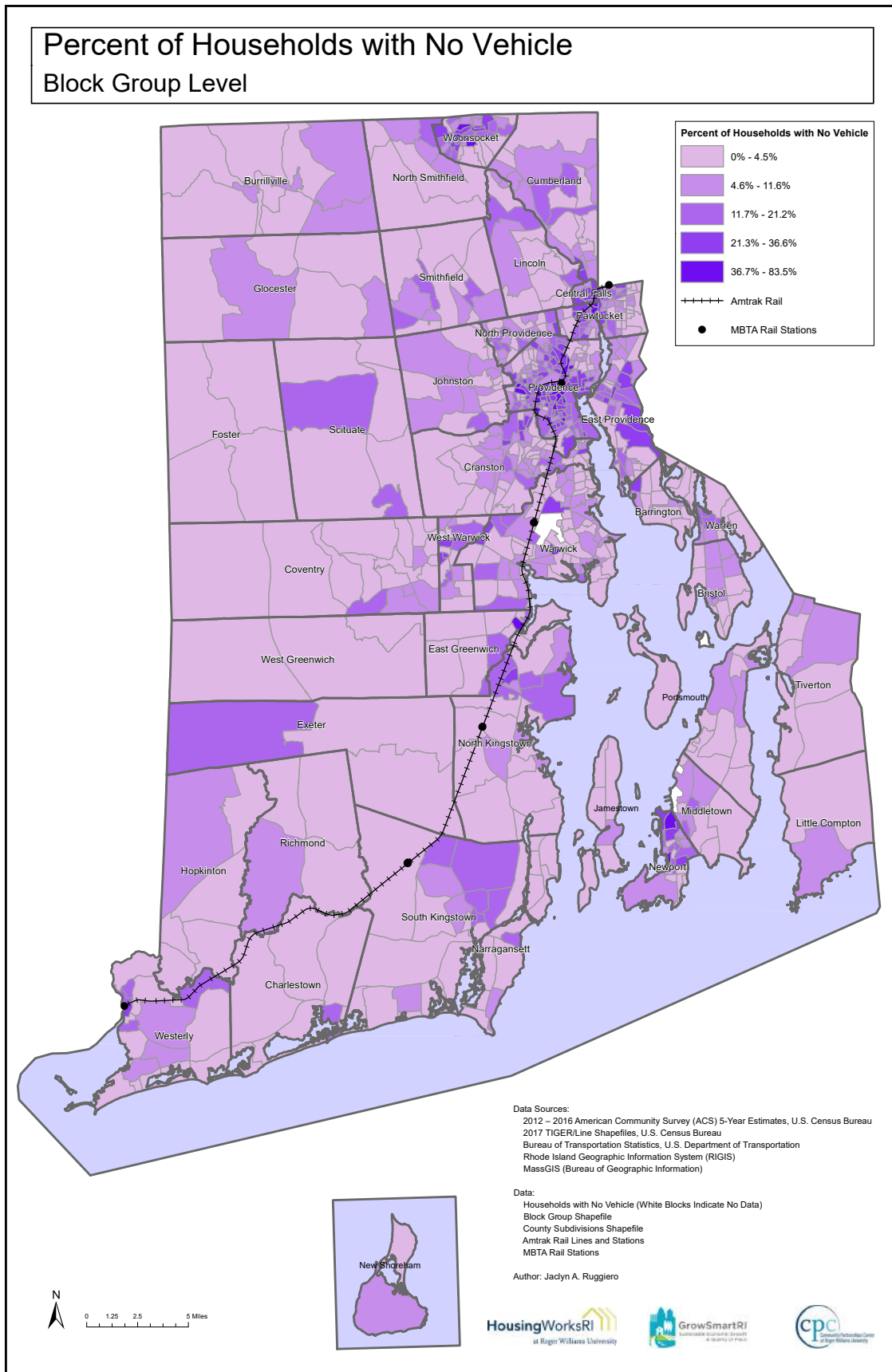
**Rail Infrastructure:** Operating rail stations north of T.F. Green station are located within dense communities, some of whom have TOD underway. Rail stations south of T.F. Green station are sparsely populated rural or suburban settings. Among these southern stations, Westerly's shows the most surrounding density and has regional connectivity west to Connecticut's Mystic and New London stations via Amtrak. The Wickford Junction and Kingston stations are identified as Growth Centers in accordance with the state land use plan, Land Use 2025, despite their low population density. T.F. Green Station is important as a regional connection for travelers and should be considered in rail proposals. Woonsocket, which has existing rail infrastructure and a high density, low-income population, would benefit from rail transportation.

**Housing Diversity:** The analysis showed the multi-unit housing stock is concentrated in areas of former industrial centers and shorelines throughout the state. Providence, Pawtucket, and Woonsocket show the highest concentrations. These same areas have lower than average home values and household incomes.

**Housing and Commute Times:** When examining worker commute times (state average is 24 minutes), the western half of the state has the highest percent of workers commuting 30 minutes or more. These areas also have the least amount of households with income below \$60,000. Conversely, populated centers across the state have shorter commute times and the most amount of households with income below \$60,000. Particular areas of concern, that have at least 75% of households below the median income with at least 40% commuting more than 30 minutes, include downtown areas in Woonsocket, Central Falls, Pawtucket, Providence (also West End, Smith Hill).



### 3.2 Single Variable Maps & Findings



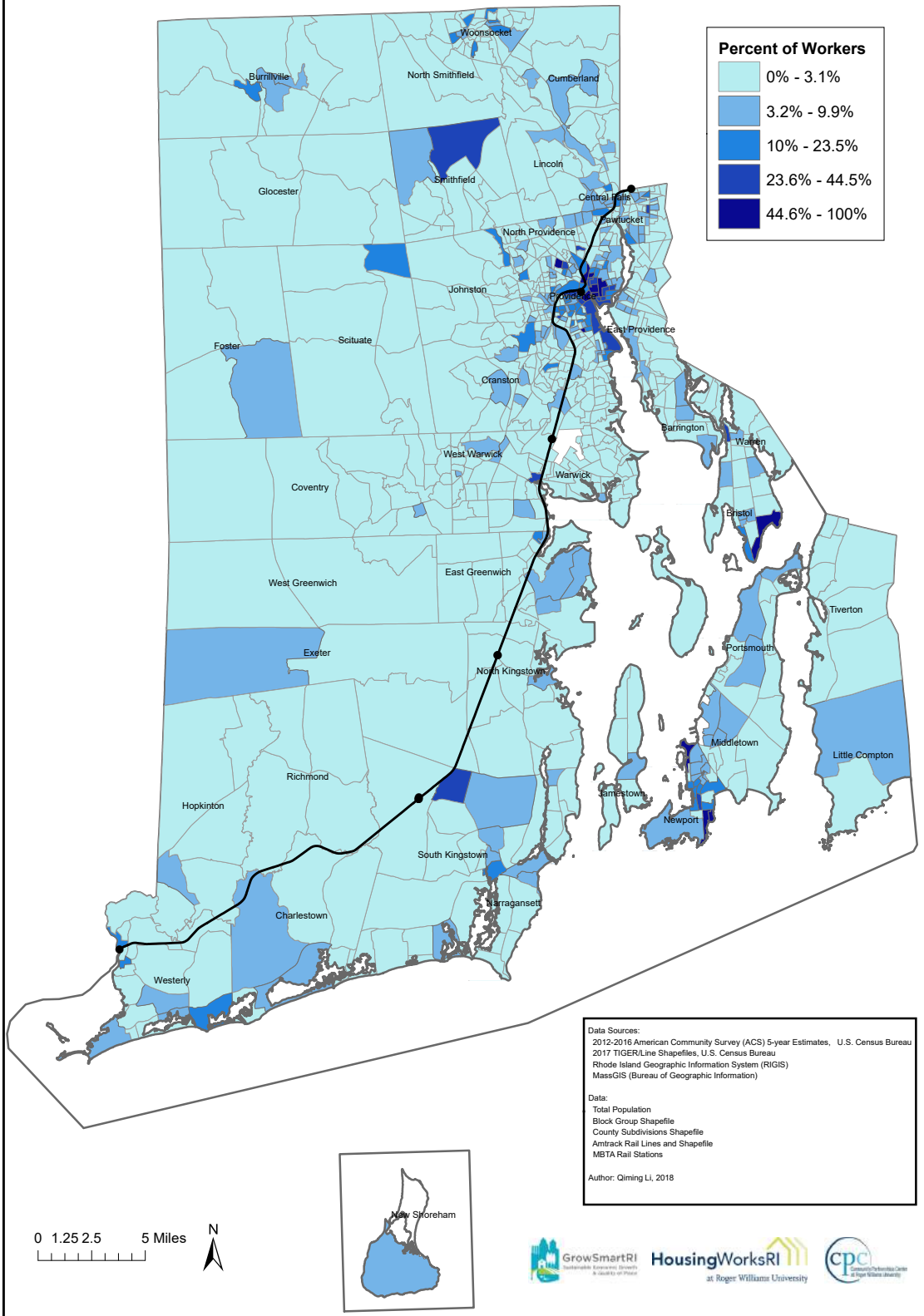
### **Households with No Vehicle**

At the block group level, this map displays the percentage of households that do not own a motorized vehicle, with darker purple indicating higher percentages. White areas have no data available. Areas of low vehicle ownership are scattered throughout the state, with concentrations in and around Providence, but also present in:

- Woonsocket
- West Warwick
- East Providence
- northern North Kingstown
- northern Newport
- western Exeter



**Rhode Island Workers Who Commute Less Than 15 Minutes to Work,  
Excluding by Car  
Block Group Level**





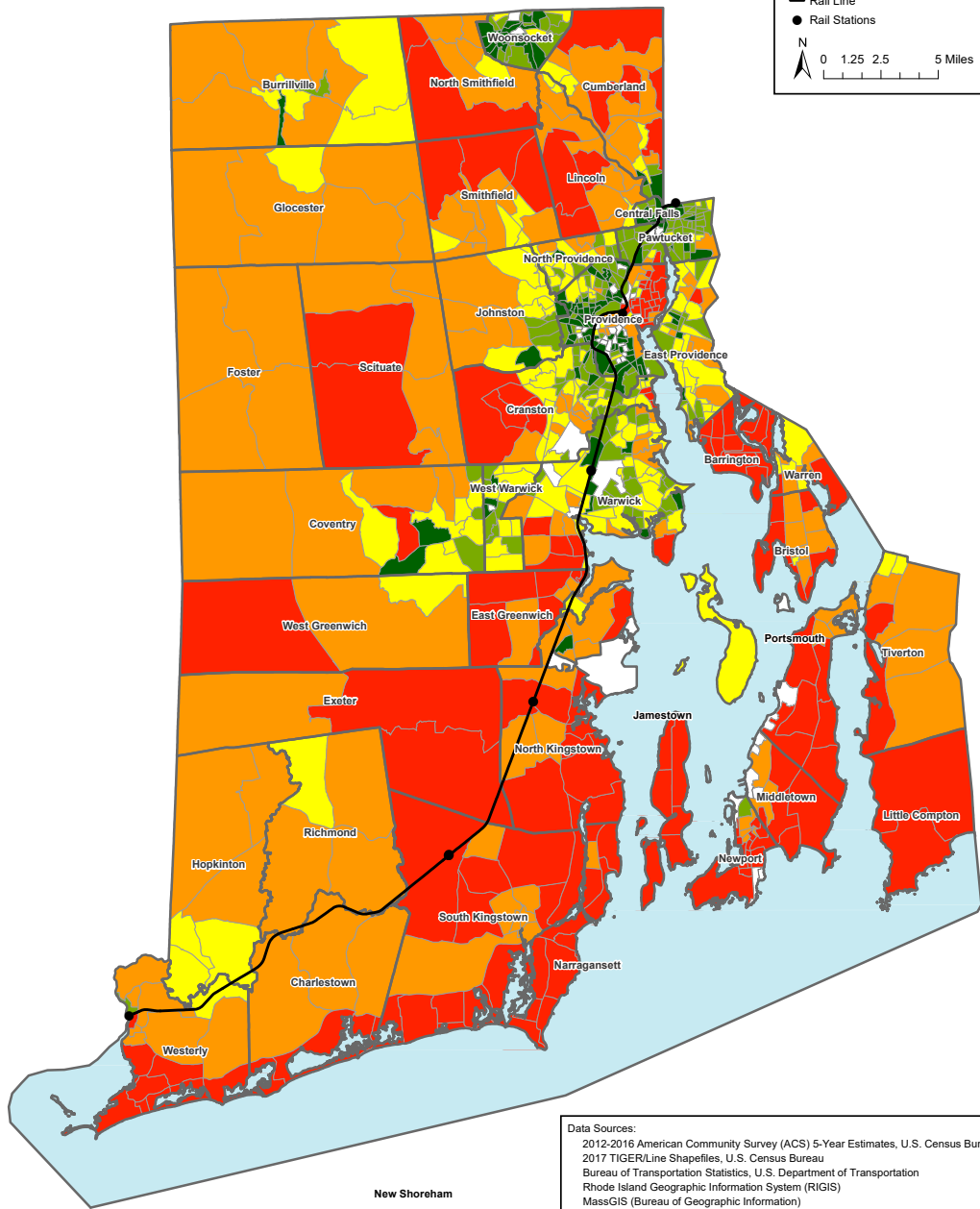
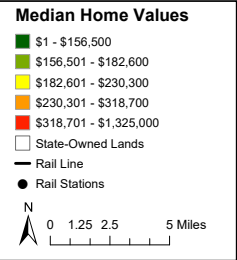
### **Workers Commuting 15 min or Less, Excluding by Car**

This map displays the percentage of workers who commute less than fifteen minutes to work by means other than an automobile. Municipalities with block groups where a quarter or more of workers have these short, non-driving commutes include:

- Smithfield- Bryant University
- Providence, particularly Smith Hill, Downtown, College Hill, & along the riverbanks.
- Bristol- Roger Williams University
- Newport- Salve Regina University
- A solitary block group in South Kingstown, near the rail station



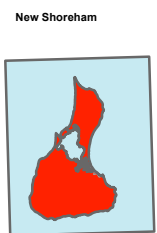
# Rhode Island Median Home Values Block Group Level



**Data Sources:**  
 2012-2016 American Community Survey (ACS) 5-Year Estimates, U.S. Census Bureau  
 2017 TIGER/Line Shapefiles, U.S. Census Bureau  
 Bureau of Transportation Statistics, U.S. Department of Transportation  
 Rhode Island Geographic Information System (RIGIS)  
 MassGIS (Bureau of Geographic Information)

**Data:**  
 Median Home Values, Quantile Classification  
 Block Group Shapefile  
 County Subdivisions Shapefile  
 Shoreline Shapefile  
 Amtrak Rail Lines and Stations  
 MBTA Rail Stations

Annette Mann Bourne, ALM, 2018



## Median Home Values

This map displays the median home values across Rhode Island. White blocks groups indicate state-owned lands. High value regions are generally rural in the north and coastal in the south. Areas where median home values exceed \$318,701 include:

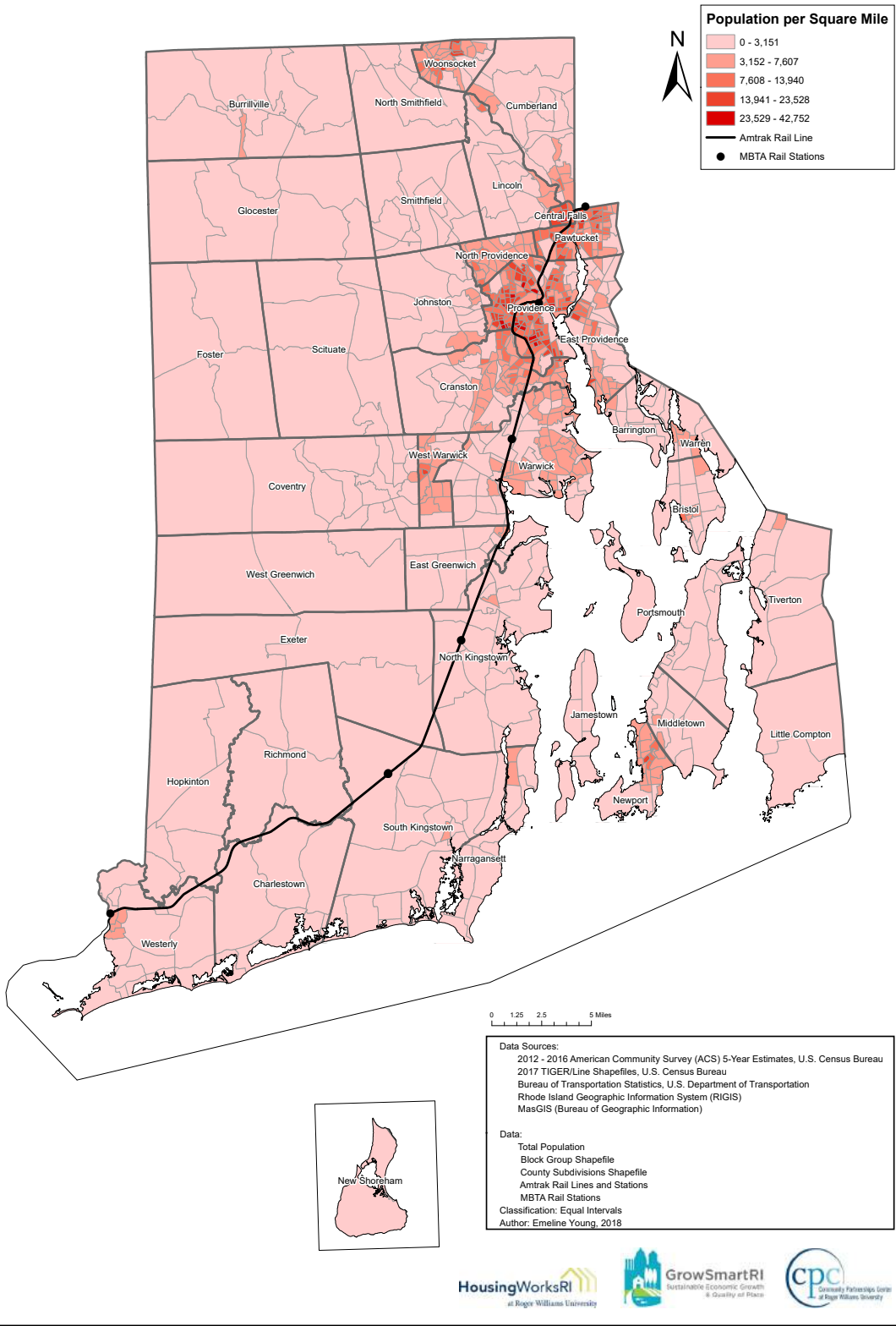
- Northern Smithfield
- Cumberland & Lincoln
- Scituate and western Cranston
- Much of the east side of Providence, especially along the Seekonk River and around College Hill
- Barrington
- Coastal Warren & Bristol
- Coastal Tiverton, and all of Little Compton
- Most of Aquidneck Island, and all of Jamestown
- East Greenwich & West Greenwich
- North Kingstown, South Kingstown, & Exeter
- Coastal Westerly and Charlestown, as well as all of Narragansett & New Shoreham

Low-value areas are concentrated inland around older industrial areas. Areas where median home values are less than \$156,500 include:

- Woonsocket
- Central Falls & Pawtucket
- Parts of Providence, particularly the city's north, west, and south sides.
- Cranston & Warwick
- West Warwick & Coventry
- A solitary block group in North Kingstown, Johnston, North Providence, and Burrilville



# Rhode Island Total Population Density Block Group Level



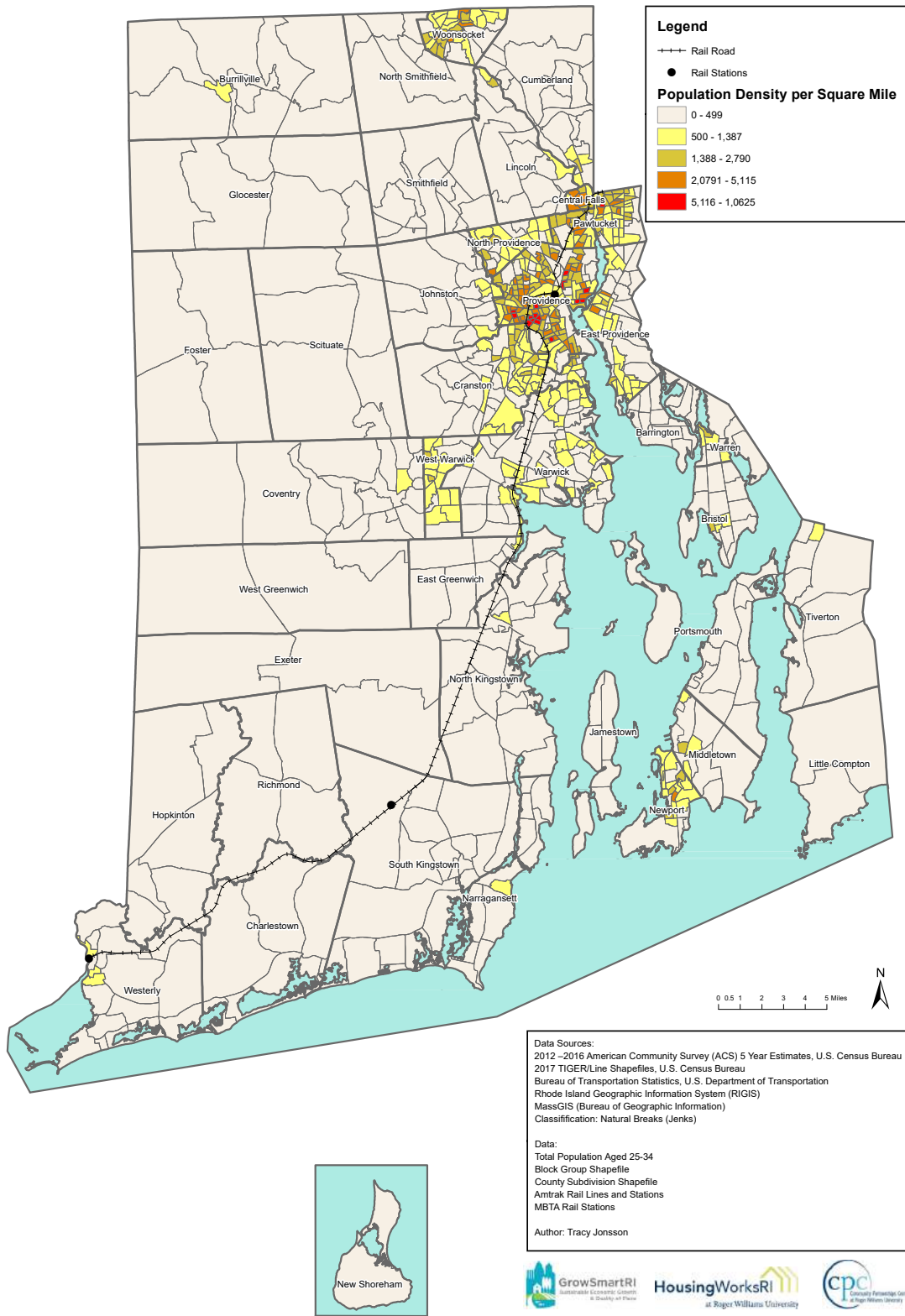
### **Population Density Per Square Mile**

Areas with an exceptional population density include:

- Woonsocket
- Central Falls & Pawtucket
- Much of Providence, as well as some parts of East Providence
- West Warwick
- Newport



# Rhode Island Millennial Population Density Residents Aged 25-34 by Census Block Group



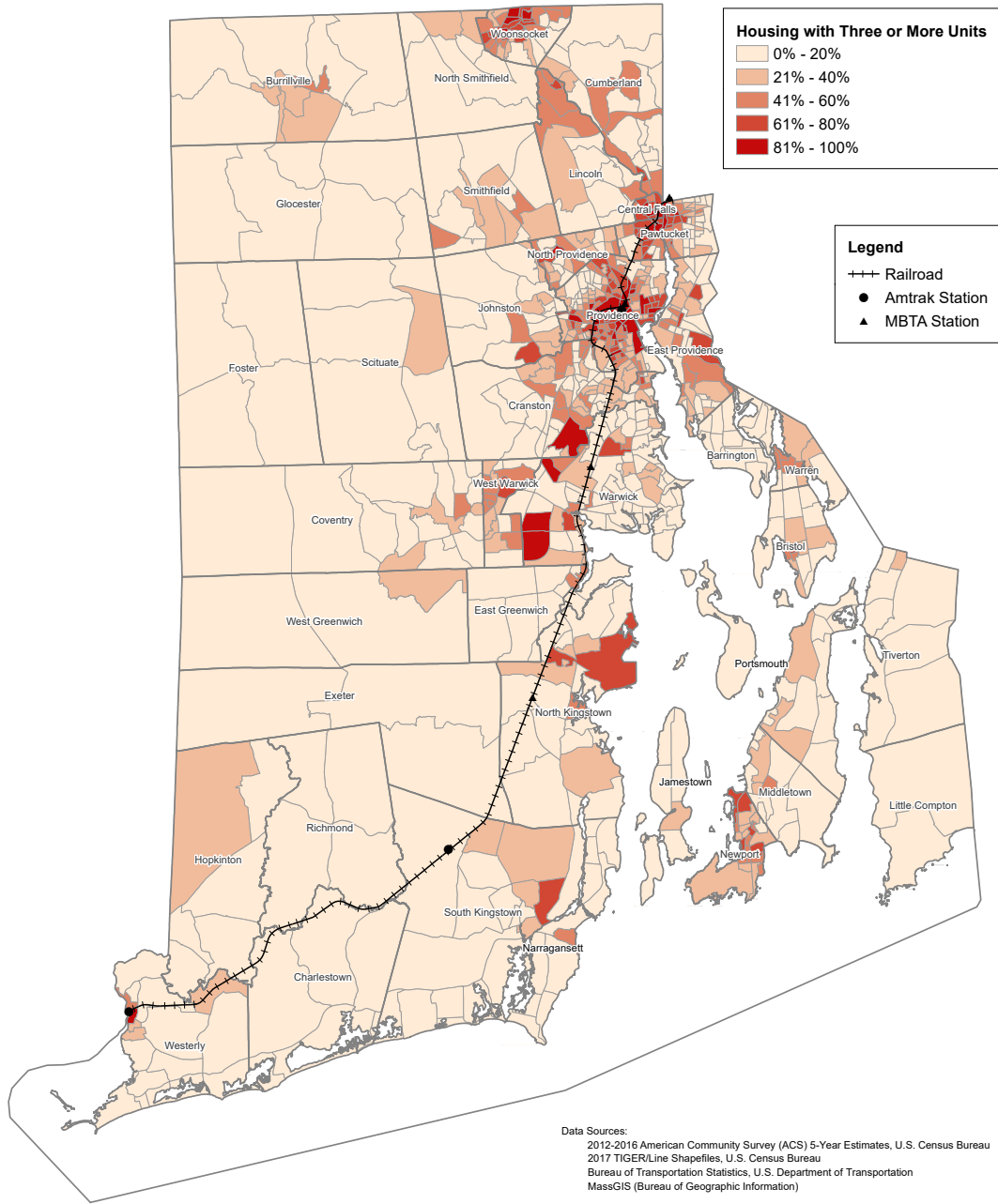
### **Millennial Population Density**

For the purposes of this map, “millennials” are defined as those between 25 and 34 years of age in the year 2018. This large demographic is known for, among other things, their interest in communities that are accessible to pedestrians, bicycles, and public transit. Within Rhode Island, areas that include significant densities of millennials include:

- Woonsocket
- Central Falls & Pawtucket
- Providence, especially the Silver Lake, West End, Elmwood, College Hill, Fox Point, and Wayland neighborhoods



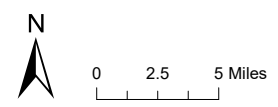
# Percentage of Housing with Three or More Units Block Group Level



**Data Sources:**  
 2012-2016 American Community Survey (ACS) 5-Year Estimates, U.S. Census Bureau  
 2017 TIGER/Line Shapefiles, U.S. Census Bureau  
 Bureau of Transportation Statistics, U.S. Department of Transportation  
 MassGIS (Bureau of Geographic Information)

**Data:**  
 Percent of Housing Structures with 3 or More Units  
 Block Group Shapefile  
 County Subdivisions Shapefile  
 Amtrak Rail Lines and Stations  
 MBTA Rail Stations

Author: Glenn R. Modica, 2018





### **Housing with 3 or More Units**

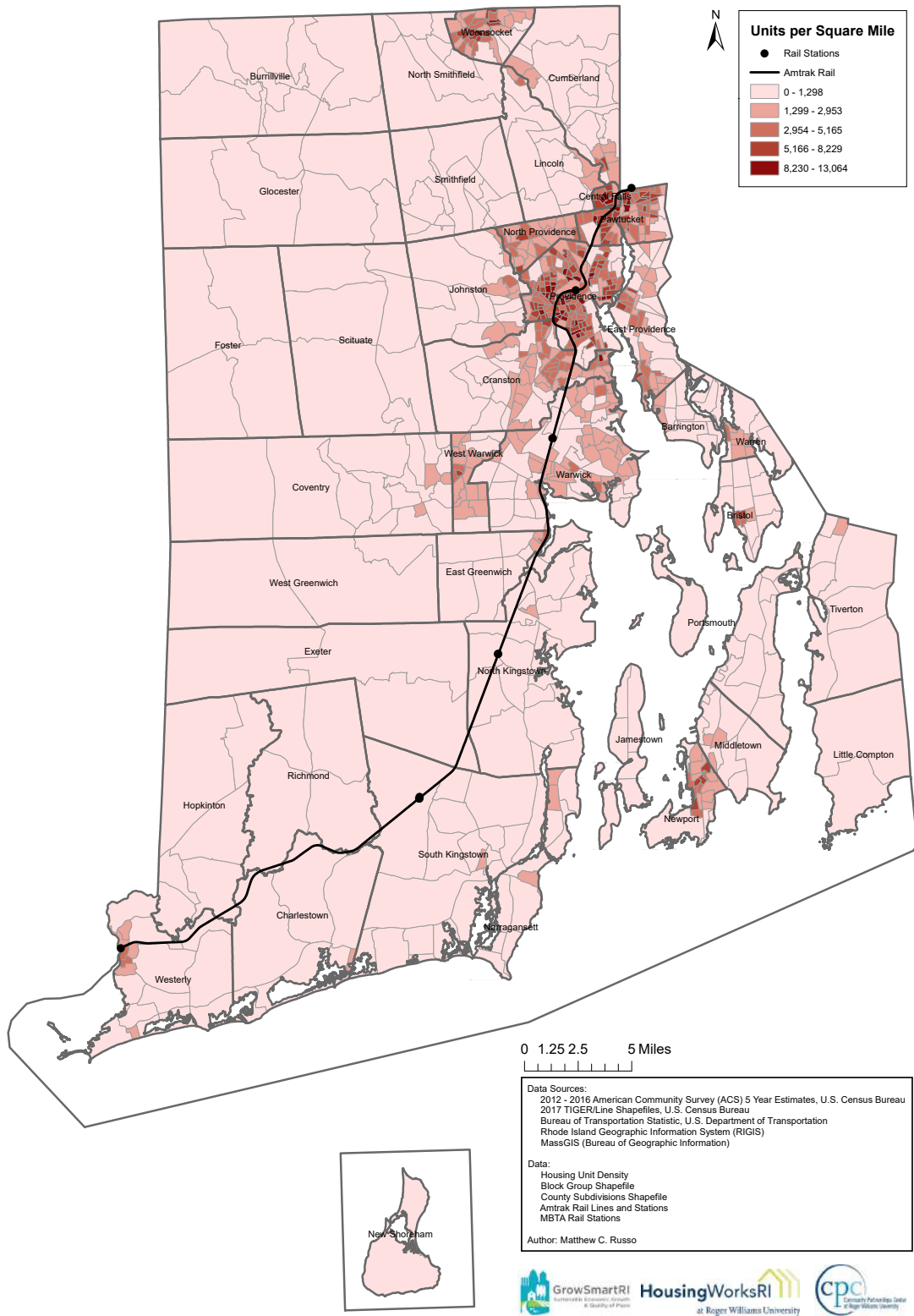
At the block group level, this map displays the percentage of housing stock in an area that is composed of three or more housing units. Municipalities with areas of more than 60% of multi-unit housing include:

- Woonsocket
- Central Falls, Pawtucket, East Providence
- Providence, particularly in neighborhoods along the Moshassuck and Providence Rivers.
- Cranston & Warwick
- North Kingstown, South Kingstown, Newport



# Housing Unit Density in Rhode Island

## Total Units Per Square Mile



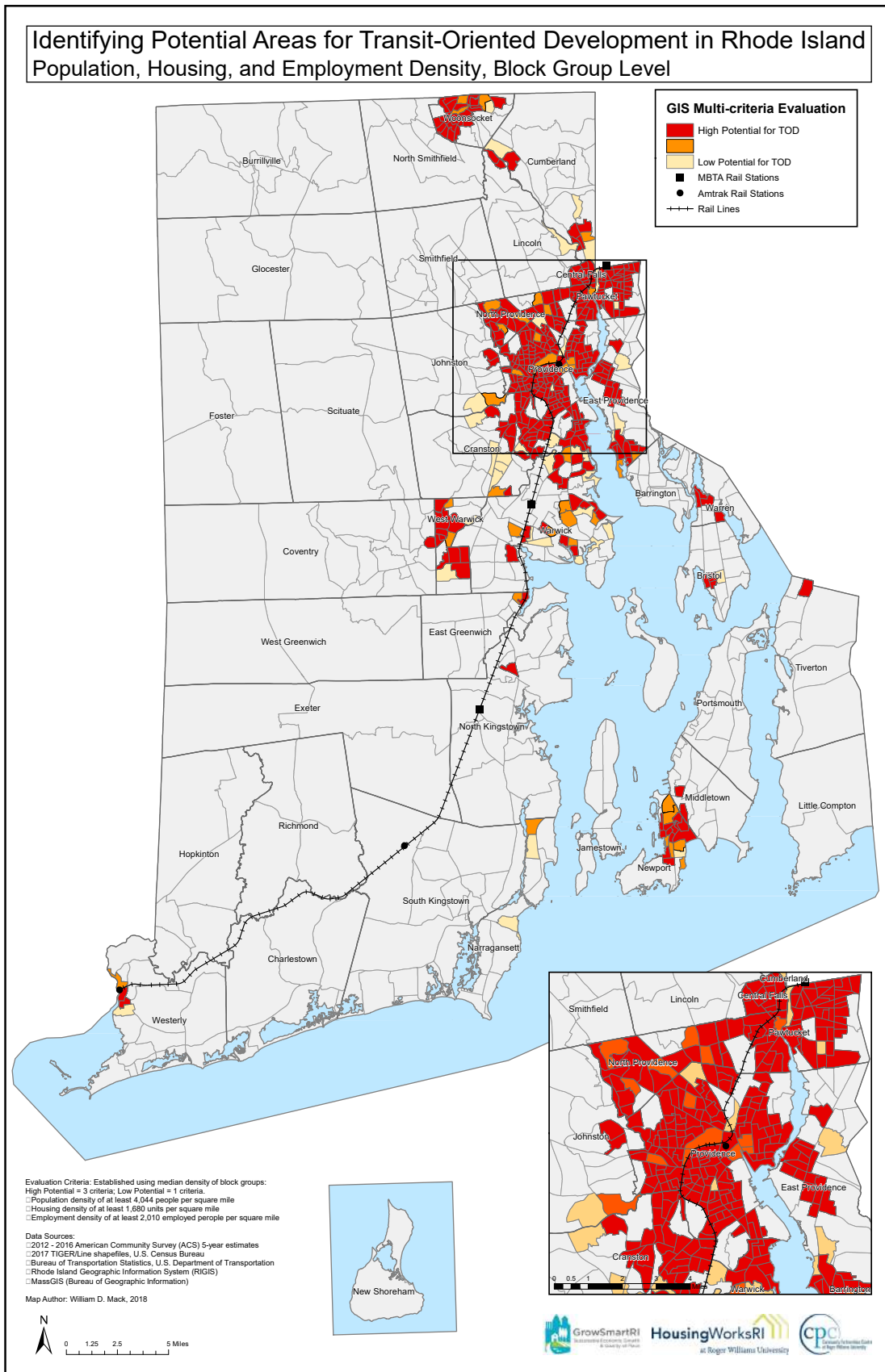
## **Housing Unit Density**

For the purposes of these two maps, a “housing unit” is a building or unit within a building that provides space for a household to live and must be spatially distinct from other units. The map in shades of red displays units per square mile, while the map in shades of orange shows unit density within each acre. Both maps show extremely dense concentrations of housing within:

- Woonsocket
- Central Falls & Pawtucket
- North Providence & East Providence
- Providence, particularly the neighborhoods of Silver Lake, Valley, Smith Hill, Downtown, West End, Elmwood, South Providence & College Hill
- West Warwick & Cranston
- Bristol & Newport



### 3.3 Suitability Analysis & Findings



### **Population, Employed Persons, and Housing Density**

This map illustrates the areas of Rhode Island that have a significant population, housing, and employment density to establish a TOD development. Three criteria were applied:

- Population density of at least 4,044 people per square mile
- Housing density of at least 1,860 units per square mile
- Density of at least 2,010 employed people per square mile

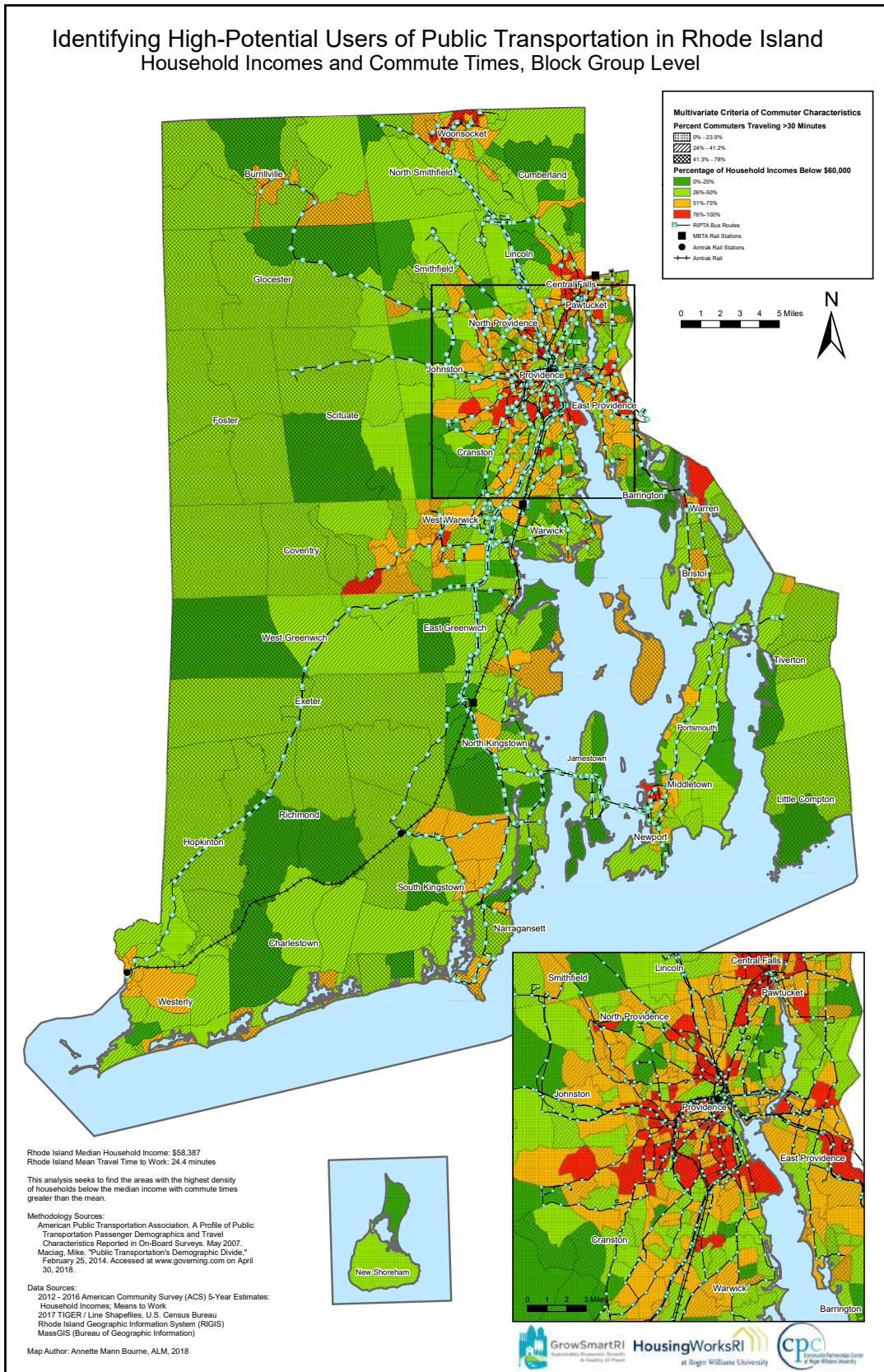
These criteria represent the median densities in Rhode Island. To calculate median population density, one finds the population densities of block groups, orders them by ascending population density, and locates the density at which fifty percent of the population lives at a higher density and fifty percent lives at a lower density.

Locations that meet all three criteria include:

- Woonsocket
- Central Falls
- Pawtucket
- North Providence
- Providence
- Cranston
- East Providence
- West Warwick
- Coastal areas of Warwick
- Downtowns of Westerly, Warren, Bristol & Newport



### 3.4 Multi-Variable Maps & Findings



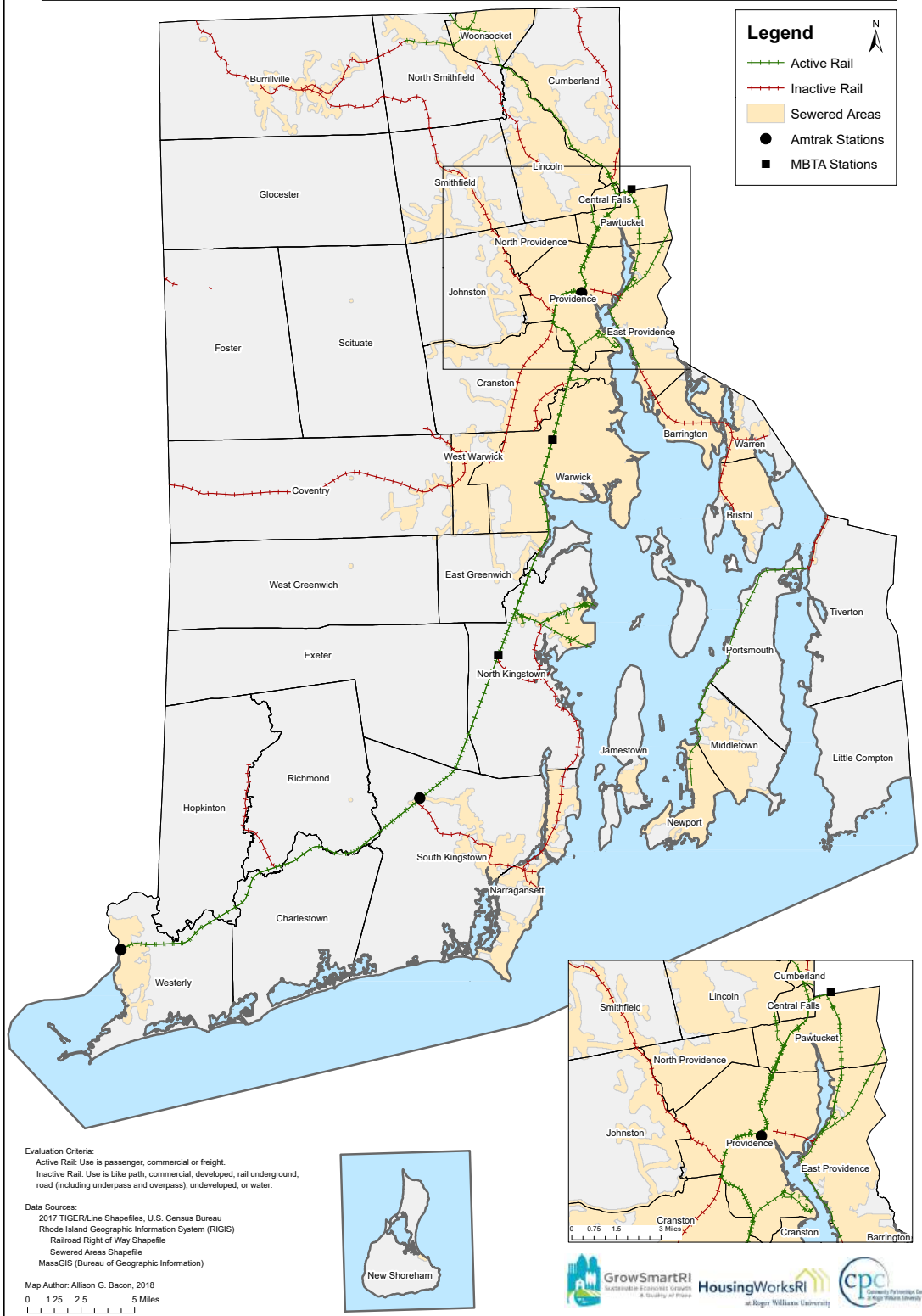
### **Household Income and Commute Time**

This map illustrates the percentage of households whose income is less than \$60,000 and have a commute time to work greater than 30 minutes. The map also locates the RIPTA bus routes in relation to these communities. Block groups that have at least 75% of households below the median income with at least 40% commuting more than 30 minutes include the following areas:

- Downtown Woonsocket
- Downtown Central Falls & Pawtucket
- Providence (Downtown, West End, Smith Hill)
- Coventry



# Railroad Right of Way with Existing Sewered Areas In Rhode Island





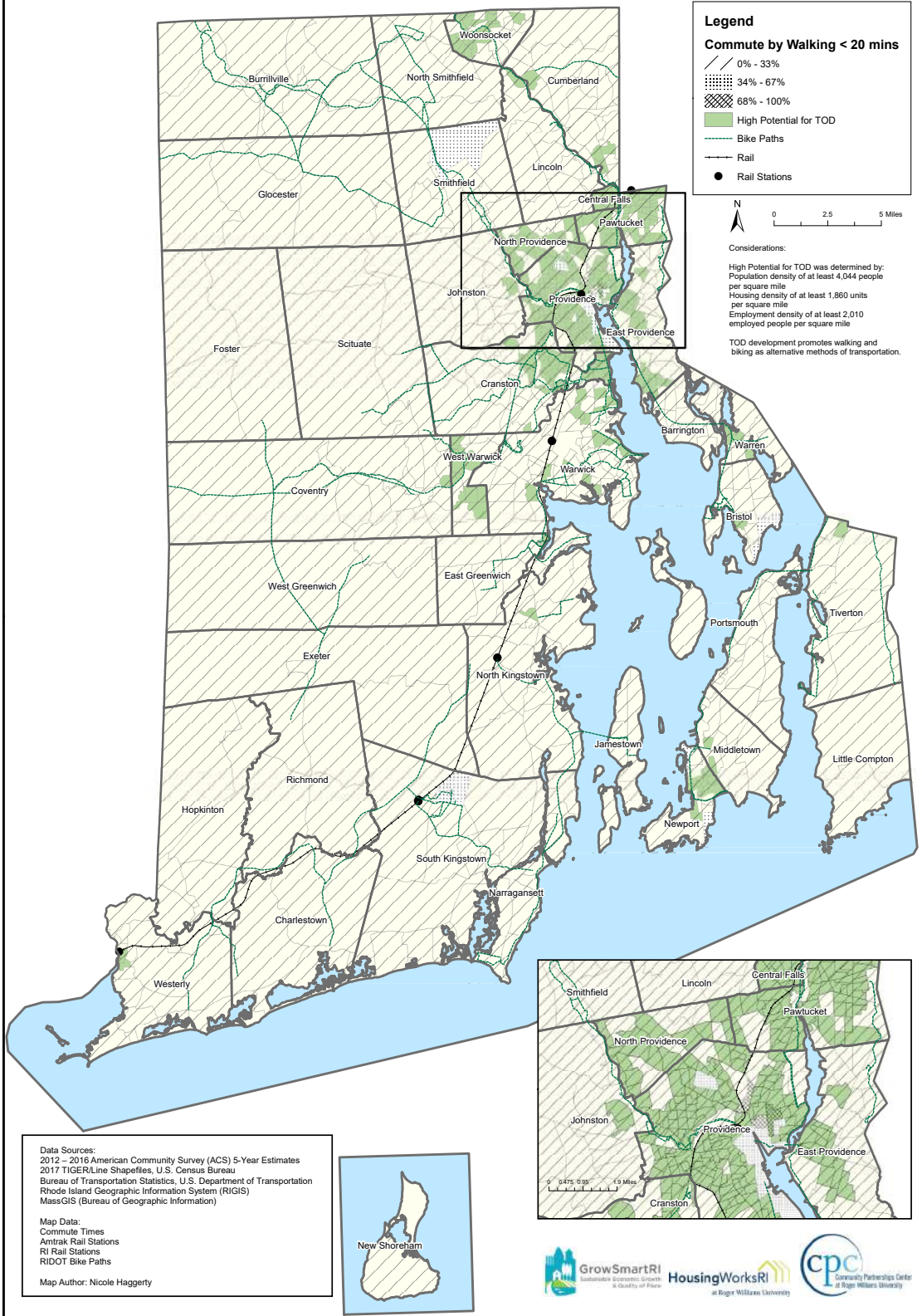
### **Active/Inactive Rail and Sewered Areas**

This map shows the existing rail rights of way and sewered areas in RI. The green rail is active rail used for passenger, freight or commercial use. The red rail is inactive, but shows areas that may still have infrastructure present, making it easier to return to rail use. The tan area shows sewered areas in RI. Areas that are already sewered and have inactive rail opportunities include:

- Burrillville
- Lincoln, Smithfield, North Providence, Johnston
- Providence (Wayland, College Hill, & Olneyville neighborhoods)
- Cranston, West Warwick & eastern Coventry
- South Kingstown & Narragansett
- Barrington, Warren & Bristol



# High Potential for TOD and Walkability Block Group Level

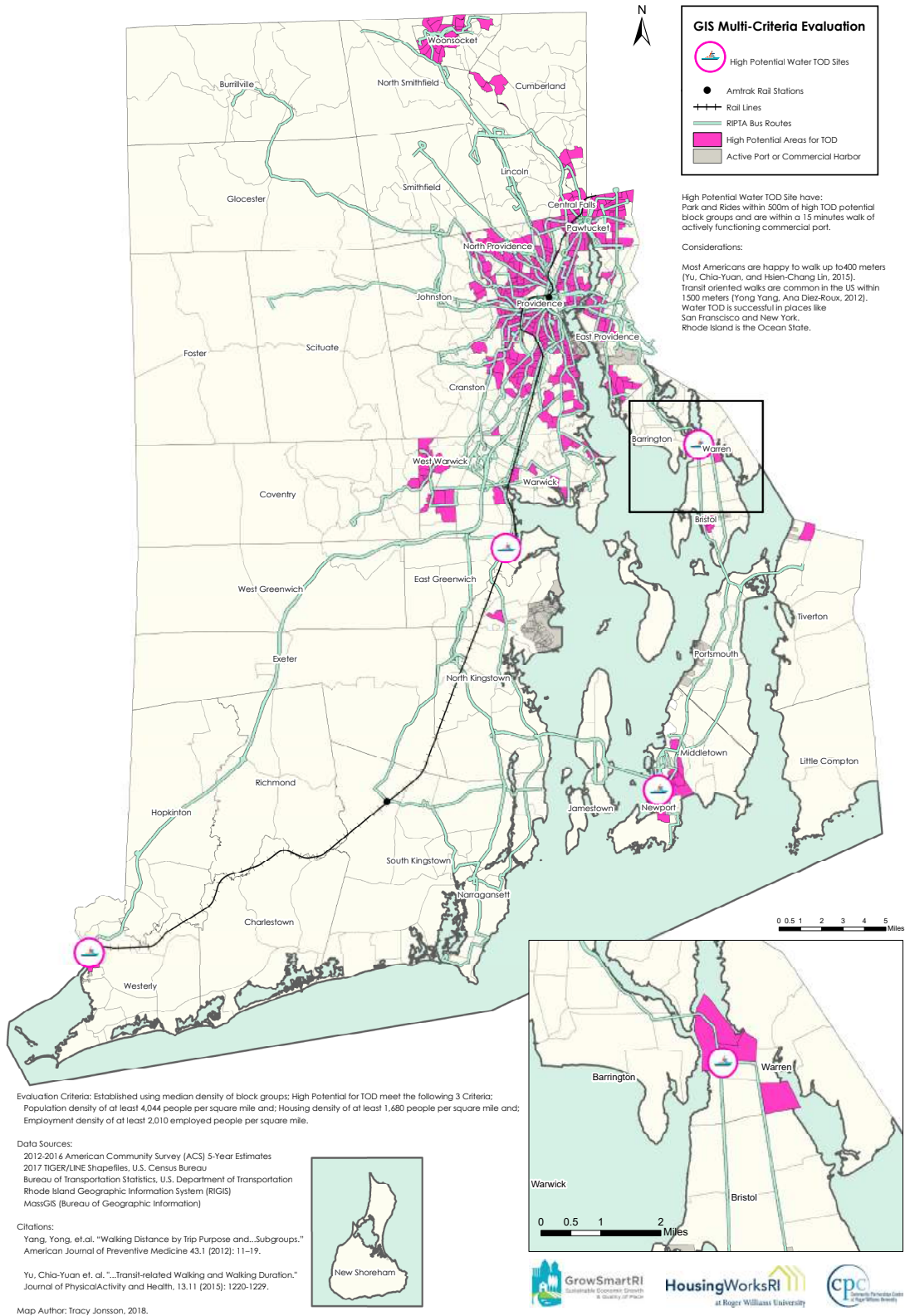


### **Commute by Walking**

This map illustrates the population of workers that commutes by walking. Locations of bike paths and areas of TOD potential are also included. Although uncommon in Rhode Island, there are parts of Providence that have more than two-thirds of residents walking less than 20 minutes to their place of work. These include the neighborhoods of College Hill and Smith Hill. University locations across the state show a third of residents walk to school.



# Port Proximity to Public Transit, Parking, and High Potential TOD Areas in RI For Water Based TOD Feasibility ( Measured by Block Group Level)



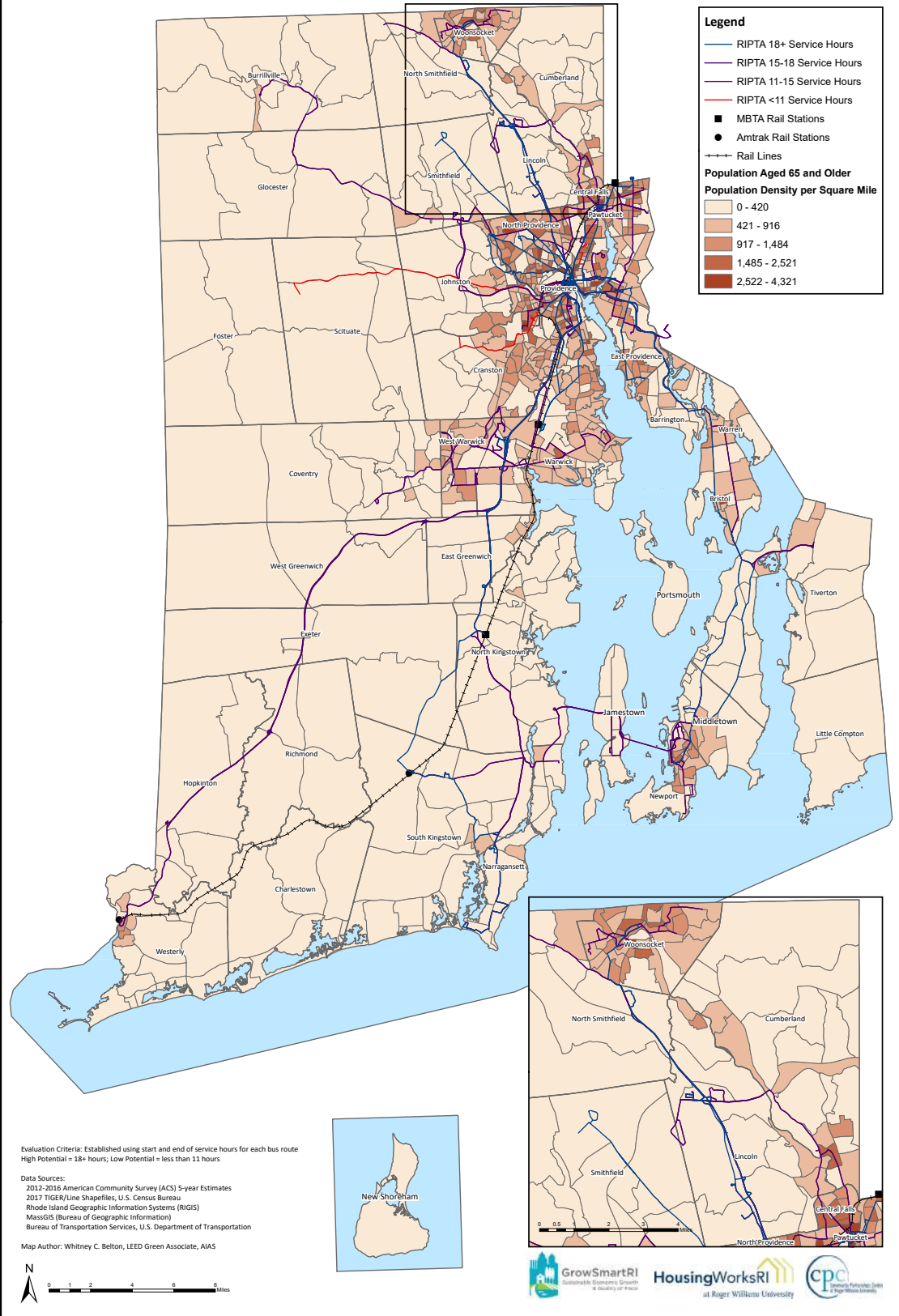
### **Harbors as Potential TOD**

This map considers Rhode Island's waterways as opportunities for increased water transportation such as water-taxi and ferry service. The map identifies ports that have the potential for TOD based on their connection to bus transit and park and ride facilities. These ports include:

- Warren
- Newport
- Warwick
- Westerly



# Seniors and Weekday Bus Service Senior Population, Block Group Level



### **Seniors and Weekday Bus Service**

This map shows the total service hours of RIPTA routes per 24-hour period during weekdays (data 2016), with the routes color-coded based on hours of circulation. Red routes have less than 11 hours of service and blue routes have 18 or more hours of service. It also shows the senior citizens (age 65+) population density per square mile at the block group level.

Areas of moderate to high senior concentration with bus routes that have less than 11 hours of service on weekdays include:

- Eastern Johnston
- Northeast Cranston

Areas of moderate to high senior concentration with bus routes that already have 18 or more hours of service on weekdays include:

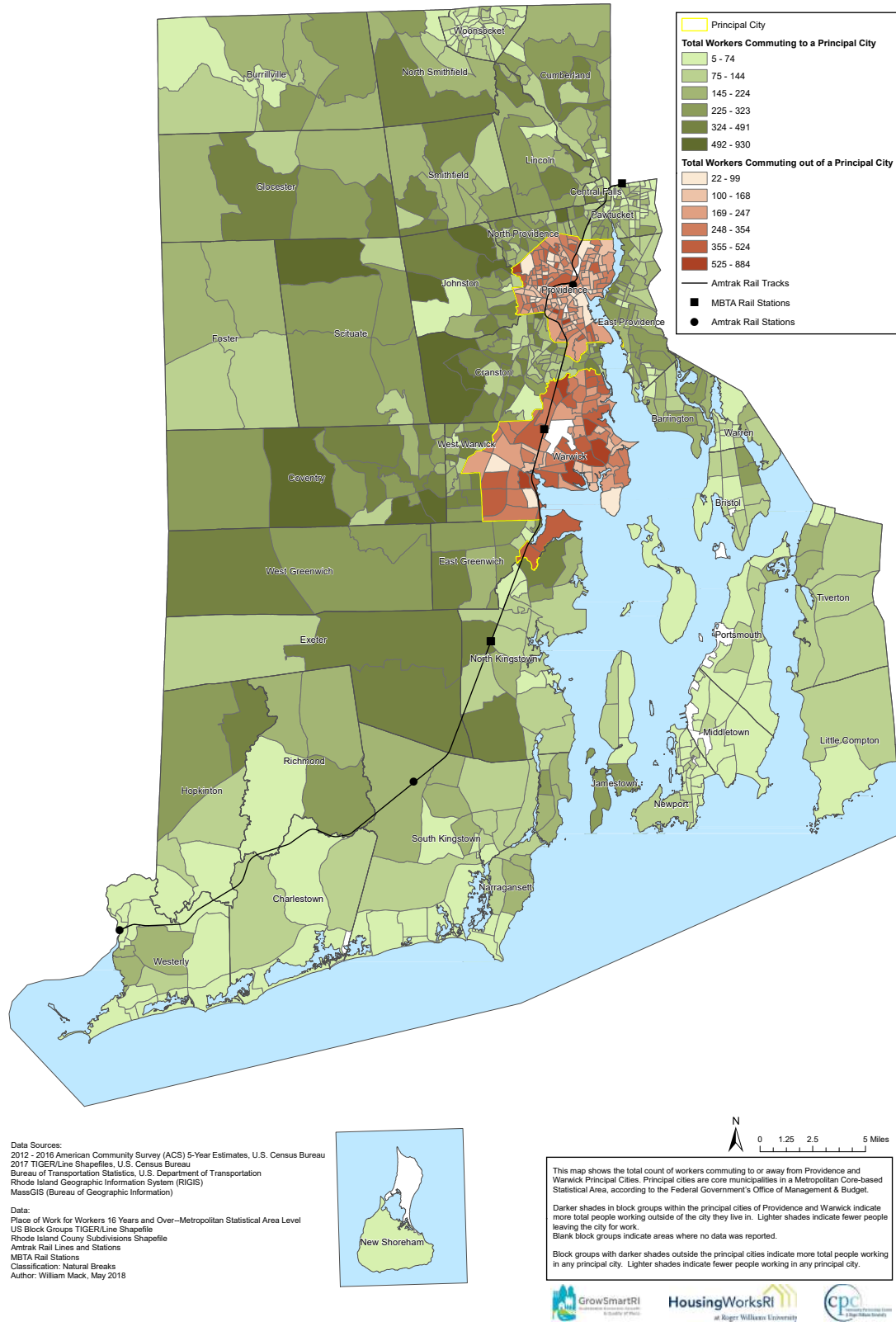
- Woonsocket
- Pawtucket
- North Providence
- Providence
- East Providence
- Bristol
- Middletown

Areas of moderate to high senior concentration with little access to bus transit include:

- Eastern Warwick
- Cumberland



# Rhode Island Worker Commute Habits Block Group Level





## **Worker Commute Habits**

This map is divided into two color-coded areas. Reddish areas indicate the boundaries of principal cities- core municipalities in a metropolitan Core-based Statistical Area, according to the Federal Government’s Office of Management & Budget. In the case of Rhode Island, Providence and Warwick are Principal Cities. Green areas of the map are outside the principal cities.

The purpose of this map is to reveal counts and concentrations of people working and living in different places- people either commuting to or away from principal cities. This reveals the location of “bedroom communities” and similar economic-geographic phenomena.

High concentrations of residents commuting to principal cities are located in a swath of northern and central Rhode Island:

- Cumberland & Lincoln
- Smithfield & North Smithfield
- Burrillville & Scituate
- North Providence & Johnston
- Cranston, West Warwick & Coventry

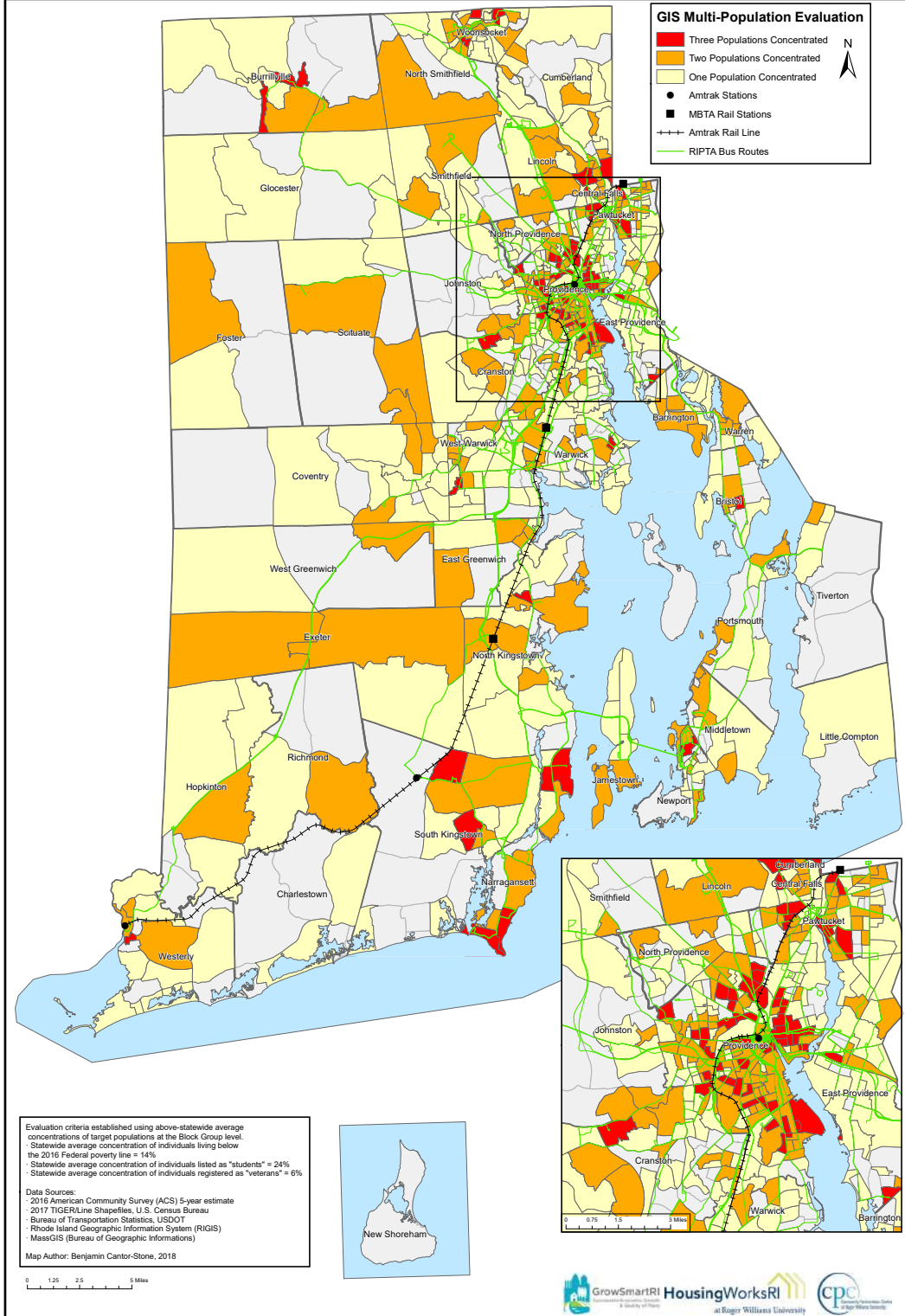
Warwick has multiple block groups with high counts of people traveling outside it for work, particularly in its center and to its north, although some of those may be commuting to the other Principal city of Providence. Unlike Warwick, Providence has fewer block groups with high concentrations of workers commuting outside the city, but they do exist in the following neighborhoods:

- Manton
- West End & Elmwood



# Potential Recipients for Reduced Transit Fares

## Concentrations of Students, Veterans, and the Impoverished at Block Group Level



### **Potential Recipients for Reduced Transit Fares**

Currently, some RI university students, senior citizens, and those with a recognized disability may apply for discounted RIPTA passes. Students in general, Armed Service Veterans, and those of below-average income could be considered potential candidates for reduced fare costs. The three latter populations are scattered throughout the state but are generally well-served by access to public transit. Any expense to increasing ridership amongst these groups would not have to be done through creation of new routes.



# 4.0 Site Analysis

4.1 Woonsocket Station, Woonsocket .....	72
4.2 Wickford Junction Station, North Kingstown .....	102
4.3 Kingston Station, South Kingstown .....	132
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4.5 Westerly Station, Westerly .....	169
4.6 North End, Newport .....	195

## Document Subsections for Each Site:

- TOD Goals in Existing Plans & Policies
- Social & Economic Profile, 1/2 Mile & 1 Mile
- Existing Infrastructure, 1/2 Mile
- Existing Development Conditions, 1/2 Mile
- Desirability, 1/2 Mile
- Assets & Challenges, 1/2 Mile
- TOD Readiness Score, 1/2 Mile
- Development Potential, 1/2 Mile
- Future Opportunities, 1/2 Mile
- Development Scenario, 1/2 Mile
- Local Policy Considerations

## TOD Site Comparison

### 1/2 Mile Radius, 502 acres

This comparative chart provides a snapshot of data collected during the site analysis. Data is calculated for 1/2 mile radius (502 acres) surrounding the station or bus hub using ESRI Business Analyst, zoning ordinances, and field notes. However, the percentage of housing units list below is town-wide.

	Woonsocket Station	Wickford Junction	Kingston Station	Westerly Station	North End Newport
<b>TOD Readiness Score</b>	Emerging	Longe-Range	Longe-Range	Emerging	Ready
<b>Primary Rapid Transit</b>	Future Rail	Rail	Rail	Bus	Bus
<b>Landscape Typology</b>	Town Center	Rural/Suburban	Rural/Suburban	Town Center	Suburban
<b>Population/Acre</b>	12.3	0.6	0.7	6.7	4.7
<b>Jobs/Acre</b>	7.5	2.6	2.5	5.8	8.1
<b>Businesses/Acre</b>	0.7	0.2	0.1	0.6	0.4
<b>Housing Units</b>	3,449	99	161	1,950	1,183
<b>Housing Units/Acre</b>	6.9	0.2	0.3	3.9	2.4
<b>Housing Type</b>	Multi-family	Single-family	Single-family	Multi-family	Multi-family
<b>% Affordable Housing Town-wide</b>	15.9%	8.06%	5.06%	5.22%	15.32%
<b>Shortfall of Units to Meet 10%</b>	Meets Goal	212	478	499	Meets Goal
<b>Underused Land Acres</b>	30	34	55	40	27
<b>Vacant Buildings Square Feet</b>	228,500	0	270,610	Not calculated	92,000
<b>Existing FAR</b>	2.0	1.0	2.0	1.5	1.5
<b>Allowable FAR</b>	3.0	4.0	3.0	2.0	3.0





# 4.1 Woonsocket Station

Woonsocket, RI

Lauren Irons  
Michael Lafond  
Nicholas Marques  
Abdullah Soufan



Photograph: Polar Express Woonsocket, RI , November 18, 2012 Source: <https://www.flickr.com/photos/j-nadeau/8199754825>

# TOD Goals Existing Plans & Policies

The following includes selected TOD related goals retrieved from existing municipal plans and policies.

## Document

Woonsocket Comprehensive Land Use Plan, 2020

## Goals

- GOAL H-1: Diversify housing options for present and future City residents. (C-20)
- GOAL H-4: Ensure that existing low income and special needs residents have safe, decent, and affordable places to live. (C-22)
- GOAL ED-4: Identify Woonsocket as a

“business-friendly” community. (D-13)

- GOAL ED-5: Support Woonsocket’s Main Street as an economic heart of the City. (D-14)
- Goal NCR-1: Protect and preserve Woonsocket’s unique cultural, historic, and heritage resources. (E-46)
- Goal NCR-2: Protect and improve the quality of the City’s natural environment. (E-47)
- Goal OSR-2: Improve the level and quality of maintenance and attention to the City’s parks. (F-17)
- Goal OSR-7: Ensure that City and State parks and recreational facilities meet the diverse needs of Woonsocket resident. (F-20)
- GOAL SF-4: Provide a safe, accessible, and efficient public infrastructure and public works system. (G-28)
- GOAL SF-10: The Woonsocket Housing Authority provides safe, decent housing for Woonsocket’s low-income families and elderly population. (G-33)
- GOAL C-1: Woonsocket enjoys a safe, adequate, and efficient circulation network that meets the varied needs of its residents, businesses, and visitors. (H-32)

- GOAL LU-3: To ensure housing availability appropriate to the income levels of the residents of the City. (I-2)

## Document

Monument Square Redevelopment Plan, 2015

## Goals

- Provide Opportunities for Economic Development.
- Promote Improved and Accessible Public Space.
- Improve Area Infrastructure, Traffic, and Transportation.
- Strengthen and Diversify the Monument Square Residential Community.

## Document

Main Street Overlay Zoning Ordinance, 2015

## Goals

- Section 5.1-4.1- Provide alternative transportation improvement strategies. Broaden the extent of regional transportation networking to connect the city with neighboring communities.



- Section 5.1-4.1- Address traffic flow, travel patterns, and problematic locations. Improvement of circulation of the Main Street area through incorporation of road maintenance, signage and signals.
- Section 2.1-6.2- City Council desires to support growth and concentration of art, cultural and entertainment attractions of the Main Street area.
- Section 2.1-6.5 - Promote the use of vacant and underutilized properties; and encourage a walkable vibrant environment.
- Section 5.1-4.1 – One space of privately-owned off-street parking is required for each residential dwelling in the Downtown Overlay District. This parking space requirement can be met on an off-site location provided that such space lies within six hundred feet of a main entrance to the principal use.”

**Document**

Woonsocket Design Guidelines, 2015  
Paraphrased from document.

**Goals**

Façade Treatment:

- Pedestrian-scale elements such as arcades, patios, canopies and porticoes are incorporated.

Parking Related:

- Parking is located to side or rear of building.
- Number of parking spaces does not exceed 10% of the required minimum.
- Shared use parking (with easements) has been provided.

Landscape Design Goals:

- Outdoor seating is provided for restaurants and coffee shops
- Bicycle racks, bus shelters, and other street furniture.

Signage:

- Signage not only provides wayfaring information for businesses but should promote visual harmony with associated buildings, contribute toward creation of a unique sense of place

**Document**

City of Woonsocket Main Street Livability Plan, 2013

**Goals**

- Goal ED-5- Support Woonsocket’s Main Street as an economic heart of the City.

- Goal OSR-3- Increase visitation and the appropriate use of the city’s parks, conservation areas, and open space lands.
- Goal C-1, Policy C-1.2- Provide adequate routing and signage within and through the City for residents, visitors, and trucks.
- Goal C-1, Policy C-1.4- Improve pedestrian safety and accommodation on city sidewalks and streets
- Goal C-1, Policy C-1.6- Ensure adequate opportunities for alternative modes of transportation.
- Goal LU-6, Police LU-6.1- Develop a revised Zoning Ordinance, consistent with the Goals of the Comprehensive Plan.

# Social & Economic Profile

## 1/2 Mile Radius

Population = 6,196 (12.3 total people per acre)<sup>1A</sup> 👤 = 1,000

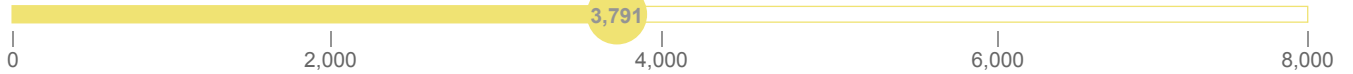


Housing Units = 3,449 (6.9 total household units per acre)<sup>2A</sup> 🏠 = 1,000



Business Summary <sup>3A</sup>

Employees (7.5 total employees per acre)



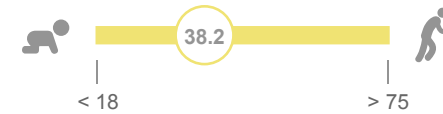
Businesses (0.7 total businesses per acre)



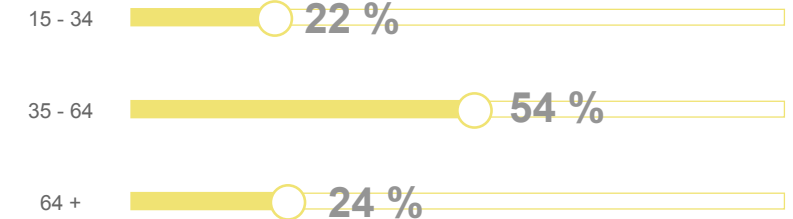
Per Capita Income <sup>4A</sup>



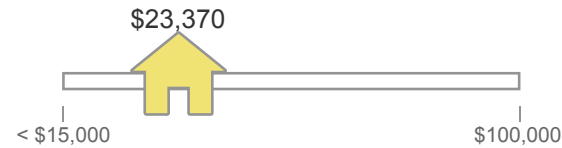
Medium Age <sup>7A</sup>



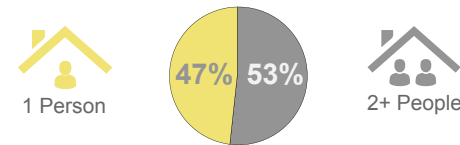
Occupied Housing Units by Age of Householder <sup>9A</sup>



Medium Household Income <sup>5A</sup>



Household Type <sup>8A</sup>



Medium Home Value <sup>6A</sup>



### Data & Figure Sources

- Collected Nov 2018
- <sup>1A</sup> : U.S. Census Bureau, Census 2010 Summary File 1. Demographic and Income Profile.
  - <sup>2A</sup> : U.S. Census Bureau, Census 2010 Summary File 1. Housing Profile.
  - <sup>3A</sup> : Copyright 2018 Infogroup, Inc. All rights reserved. Esri total Residential Population forecasts for 2018.
  - <sup>4A - 8A</sup> : U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2018 and 2023. Market Profile.
  - <sup>9A</sup> : U.S. Census Bureau, Census 2010 Summary File 1. Housing Profile.

# Social & Economic Profile

## 1 Mile Radius

Population = 23,237 (11.6 total people per acre) <sup>1B</sup> = 1,000

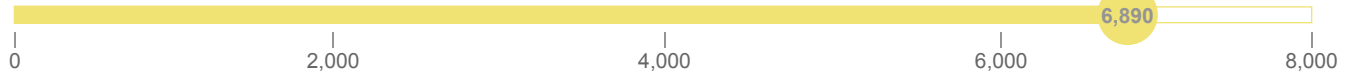


Housing Units = 11,430 (5.7 total household units per acre) <sup>2B</sup> = 1,000

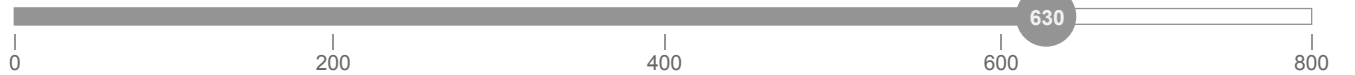


Business Summary <sup>3B</sup>

Employees (3.4 total employees per acre)



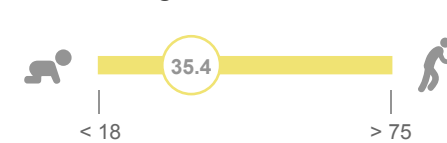
Businesses (0.3 total businesses per acre)



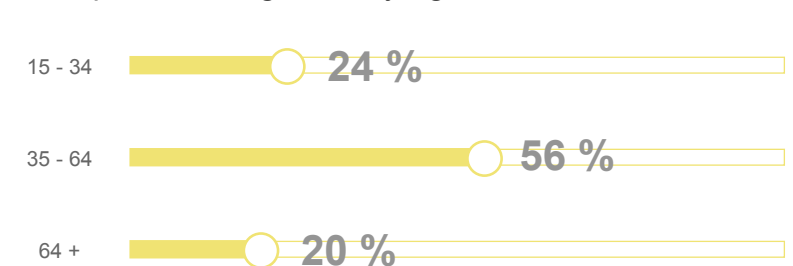
Per Capita Income <sup>4B</sup>



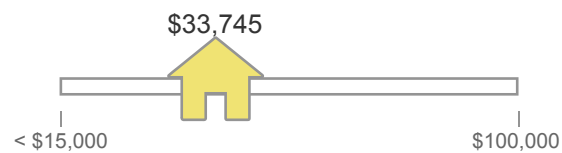
Medium Age <sup>7B</sup>



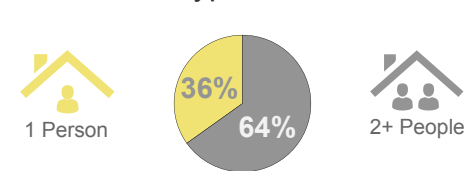
Occupied Housing Units by Age of Householder <sup>9B</sup>



Medium Household Income <sup>5B</sup>



Household Type <sup>8B</sup>



Medium Home Value <sup>6B</sup>



### Data & Figure Sources, Collected Nov 2018

<sup>1B</sup> : U.S. Census Bureau, Census 2010 Summary File 1. Demographic and Income Profile.

<sup>2B</sup> : U.S. Census Bureau, Census 2010 Summary File 1. Housing Profile.

<sup>3B</sup> : Copyright 2018 Infogroup, Inc. All rights reserved. Esri total Residential Population forecasts for 2018.

<sup>4B - 8B</sup> : U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2018 and 2023. Market Profile.

<sup>9B</sup> : U.S. Census Bureau, Census 2010 Summary File 1. Housing Profile.

# Existing Infrastructure

## 1/2 Mile Radius

### Transportation Systems

The following transportation systems operate within the study area.

RIPTA Bus Route 54: Regional and Express route. Long distance. High frequency. Every 30 min or less on weekdays.

RIPTA Bus Route 87: Local bus. All day service on weekdays and on some nights and weekends.

Bike Routes: 1 bike path within the study area on Main Street. The path is integrated into vehicular traffic.

Sidewalk Infrastructure: Adequate connectivity. Only a few block without sidewalk infrastructure.

Park and Ride: None within the study area. Nearest is located 2 miles south of the rail station on Park Ave.

Local Shuttles: None known.

Ride Share Companies: Uber, Lyft

### Station Infrastructure

Accessible Platforms: No



Figure: Photograph of RIPTA bus stop near the train station. Source: Google Maps



Figure: Photograph of Polar Express Train Station. Source: <https://hiveminer.com/Tags/rhodeisland%2ctrainstation>

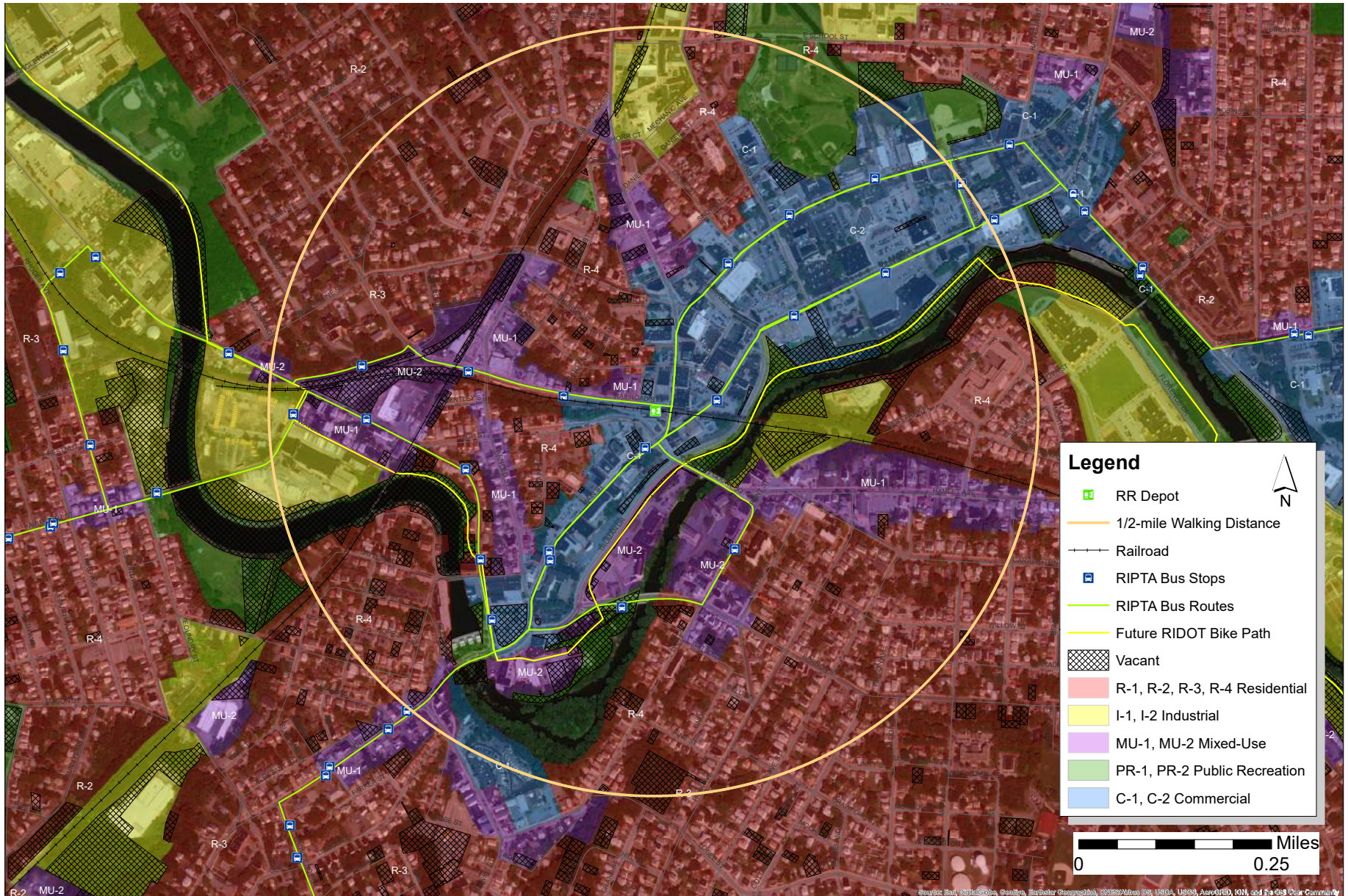
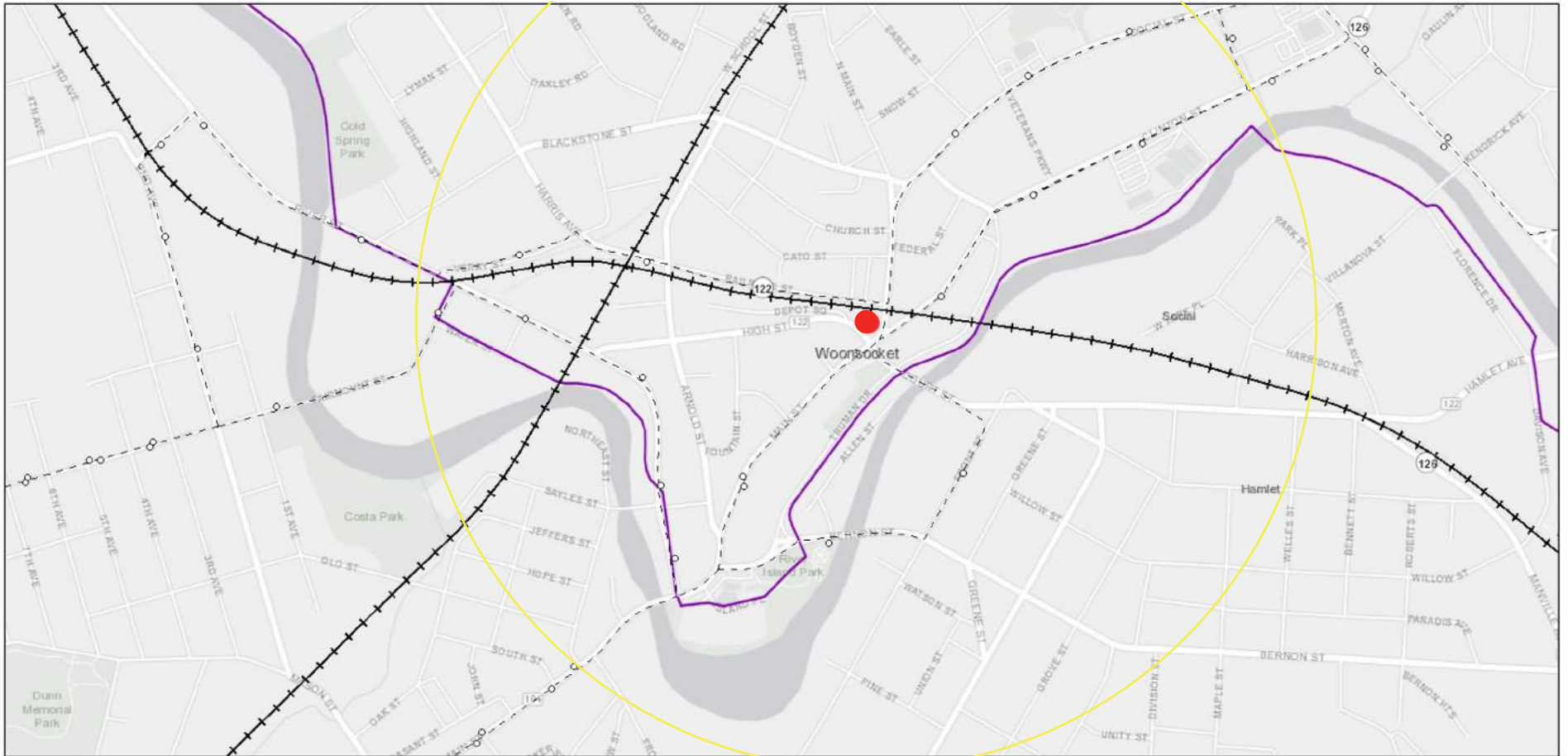





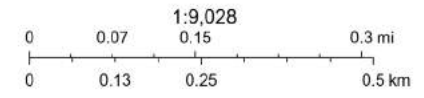


Figure: Map of Existing Zoning and Infrastructure. Source: RI Division of Planning Mapping Application



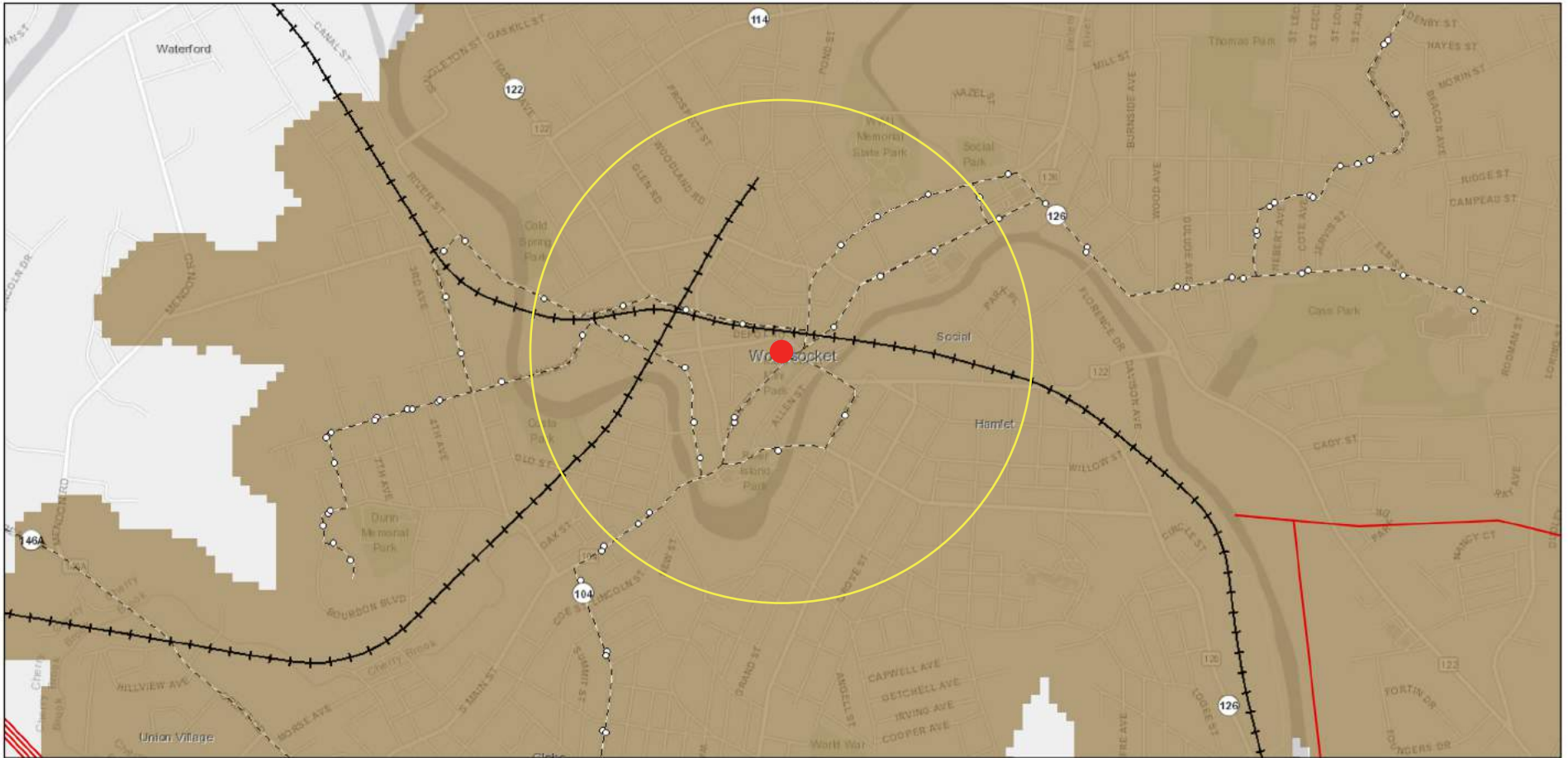
**LEGEND**

-  RIPTA Bus Stop
-  Proposed Bike Path
-  RIPTA Bus Lane
-  Woonsocket train station
-  Rail Lines



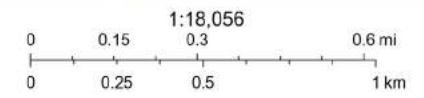
Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community, RIGIS, University of Rhode Island Environmental Data Center

Figure: Map of transportation systems in Woonsocket. Source: RI Division of Planning Mapping Application



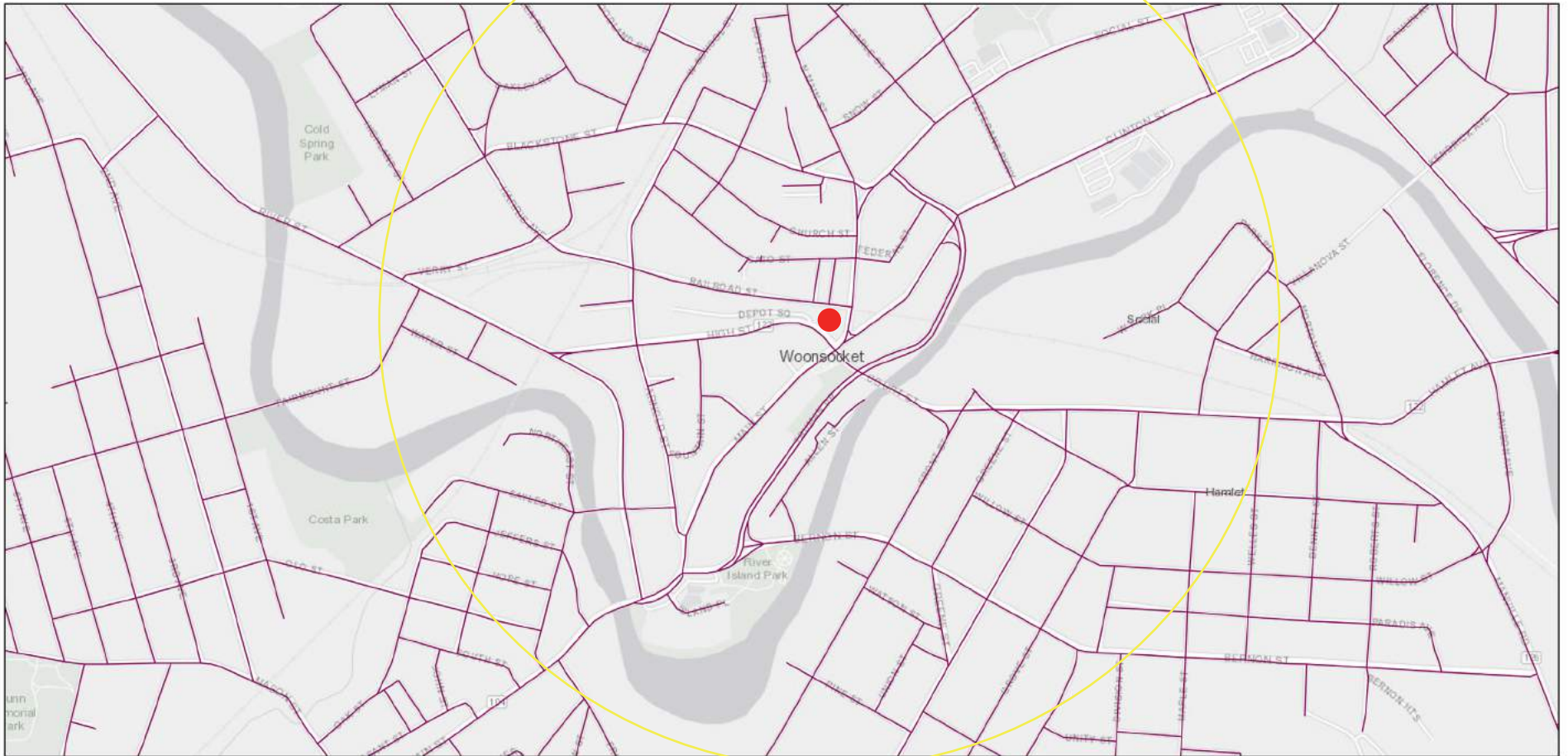
**LEGEND**

- Electrical Lines
- Sewered Areas
- Rail Lines
- Woonsocket train station



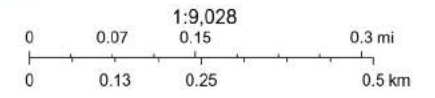
Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community, RIGIS, University of Rhode Island Environmental Data Center

Figure: Map of sewerage areas, electrical lines, and rail transportation. Source: RI Division of Planning Mapping Application



**LEGEND**

- Road Map
- Woonsocket train station



Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community

Figure: Map of existing road network. Source: RI Division of Planning Mapping Application



# Existing Development Conditions

## 1/2 Mile Radius

### Local Support and Stakeholders Investment

Presently Blackstone Valley operates the Polar Express from the rail station during the months of November and December as a holiday train. The Boston Surface Railroad Company is attempting to connect commuter rail transportation between three cities and two states.

The Boston Surface Railroad Company (BSRC) was founded in 2012 to provide metropolitan New England with a privately owned and operated rail service along under served, high-traffic commuter routes that lack a convenient and affordable alternative to travel by car or bus.

BSRC has secured operational authority from the Surface Transportation Board to operate passenger service between Worcester, MA and Providence, RI. BSRC has secured station rights in Worcester, entered into a long-term lease with options for the historic train station in Woonsocket, RI and maintains an amicable working relationship with Amtrak regarding Providence.

### Existing or Planned Projects

Presently there are plans to develop a bikeway along the Blackstone River that will connect to regional towns and bike infrastructure.

**Growth Center Designation:** No.

**Opportunity Zone Designation:** Yes, Census Tract 180.

### Vacant or Underused Building

As shown in the Opportunities Map, there is approximately 30 acres of underused land in the study area. This includes GIS shapefile designations and surface parking lots.

According to the recent assessment of vacant buildings show in the 2013 Main Street Livability Plan, there are 228,500 square feet available for redevelopment.



Figure: Photograph of vacant building adjacent to the train station. Source: Report authors.

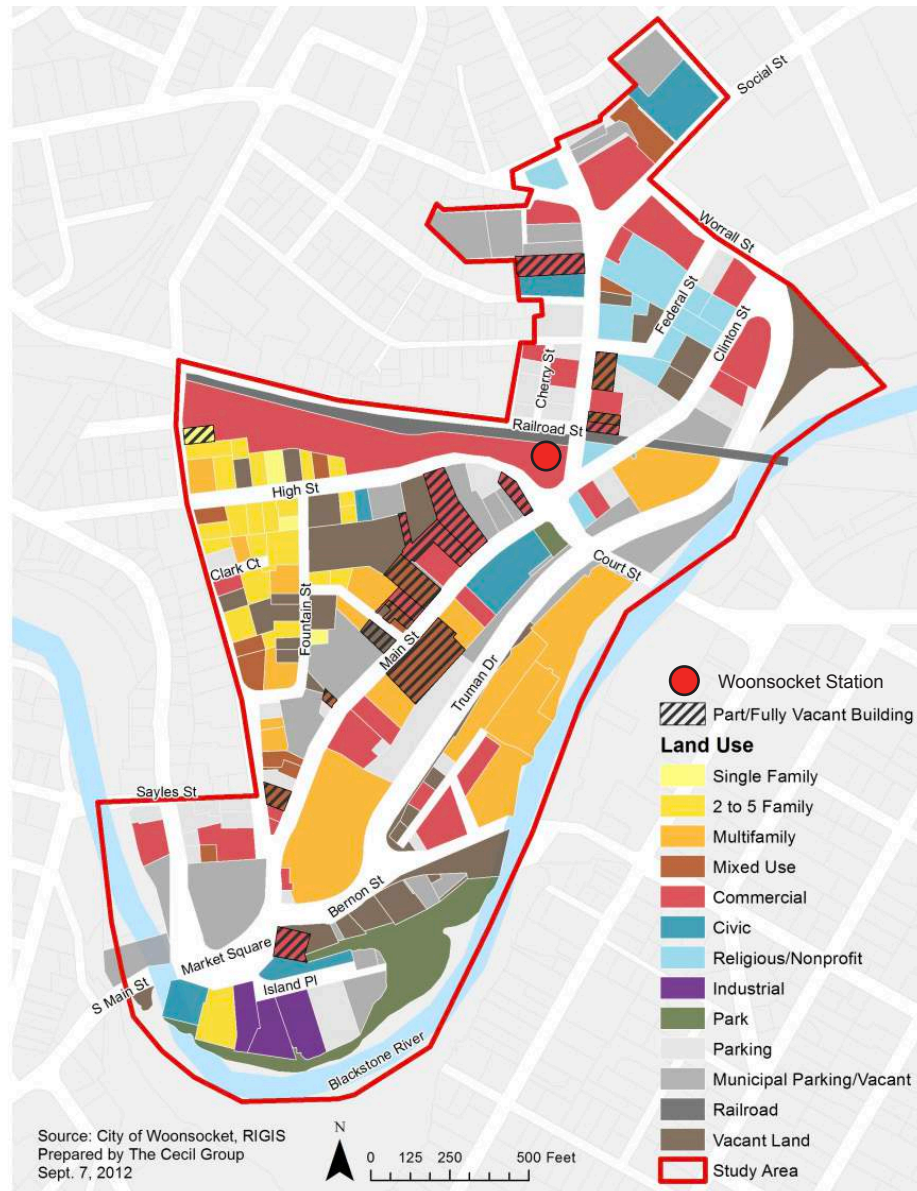


Figure: Map of Vacant Buildings (228,507 SF) in each land use. Source: City of Woonsocket Main Street Livability Plan, 2013. Page 18.

# Desirability

## 1/2 Mile Radius



Figure: Photograph of Walkable Main Street.  
Source: Report authors.

### Cultural Resources

Monument Square serves an area of arts and entertainment including the Stadium Theater, Woonsocket Girls and Boys Club, several dining and drinking establishments. The Museum of Work and Culture is located south of the area.

### Employment Opportunities

Woonsocket is home to CVS which is an international pharmaceutical company that employs almost 10,000 employees between their office building and warehouse. Although the main complex of the company is located within two miles from the area, there is little bus connectivity to downtown Woonsocket to support these workers.

### Retail

Retail includes local based vendors, “mom and pop shops.” There are limited retail chains.

### Schools, Hospitals

CVS and Woonsocket Hospital hire interns from colleges and universities located in Providence and Worcester. Beacon Charter High School for the Arts enrolls students from across RI. Although Mount Saint Charles Academy and Greater Woonsocket Catholic School are outside the study area, they are both private schools located in the City of

Woonsocket and their students come from Rhode Island and Massachusetts.

### Walkability

Areas around the study area are easily accessible by car or walking. Parking is available along the streets and off-street parking lots. Free parking is offered in the City Hall/Longley Lot and High Street Lot.

### Sidewalk Conditions

The sidewalks are provided on both sides of the road with the exception of small areas where the sidewalk has deteriorated over time.

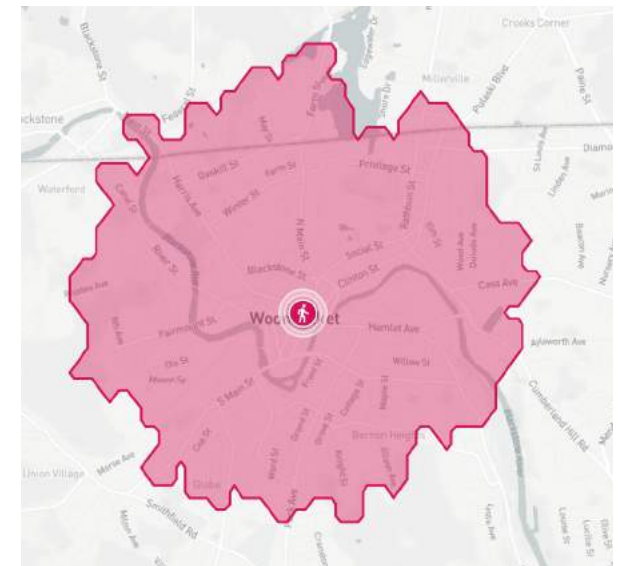
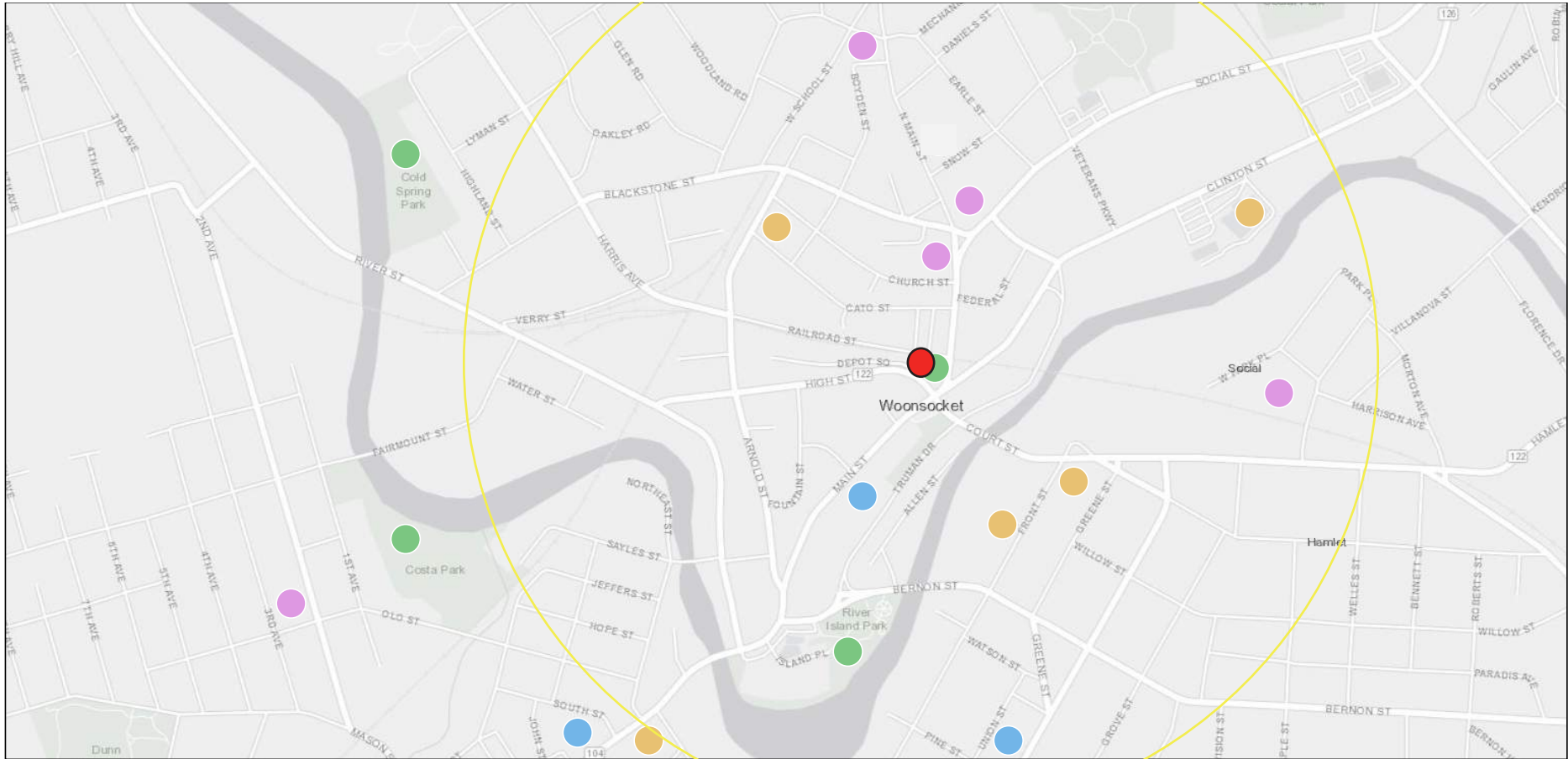
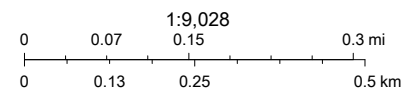


Figure: Map of walkable distance in 30 minutes.  
Source: Travel Time Platform.



November 5, 2018

- Woonsocket Station
- Grocery Store
- Parks
- Retail
- Schools



Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community

Figure: Map of local amenities. Source: Google Maps.



# Assets & Challenges

## Assets

- There is an expected commuter rail to connect to Providence, RI and Worcester, MA that would connect to the Woonsocket train station. This can establish downtown Woonsocket as a critical node of economic activity along a regional transportation network.
- The train station is located within the town's Central Business District and has a relatively large population with lower household incomes.
- Vacant buildings surrounding the rail station provide an easy opportunity for adaptive reuse.
- RIDOT has proposed a bike path along the Blackstone River that then connects Rhode Island towns via bicycle. It is scheduled for completion at the end of 2019.
- CVS headquarters, a large employer in the region, is located on the outskirts of Woonsocket.
- Census tract 180 is designated as an opportunity zone by the state where new investments, under certain conditions, may be eligible for preferential tax treatment.

## Challenges

- There is limited public parking close to the train station to accommodate people commuting regionally.
- RIPTA bus connectivity and frequency could be improved, but are challenged by narrow streets and changing topography.
- No substantial development added to waterfront for public engagement. Currently reserved for the bike path but the topography separates the town center from Blackstone River.
- Price of the expected commuter rail construction and the price of the tickets (in comparison to the less expensive bus passes) among a low-income population.
- Unattractive concrete jersey barriers that protect the bike path from cars affects the desirability of the waterfront.



Figure: Photograph of Polar Express Station Platform. Source: Report authors.

# TOD Readiness

## 1/2 Mile Radius

### TOD Readiness

The TOD Readiness Score summarizes how far a location has progressed toward its full TOD potential and how far it has to go. The following charts show the analysis conducted to determine the readiness of the study area.

### Methodology

Adapted from the TOD Priority Tool, Capital Metropolitan Transportation Authority, Austin, TX.

The TOD Readiness Score can and will change over time as conditions evolve and TOD takes hold in the market. The TOD Readiness Score has 3 levels:

#### Long Range:

Exhibiting few characteristics of TOD

#### Emerging:

Beginning to demonstrate some of the TOD characteristics.

#### Ready:

Showing TOD characteristics in much of the station area, but with gaps that are reasonably expected to be closed.

### Measurement System

Using the existing conditions research, a variety of metrics were developed for three primary TOD topics: existing infrastructure, development potential, and desirability. Each metric was weighted using the following:

5 = Extremely Important to the Success of TOD

4 = Very Important to the Success of TOD

3 = Important to the Success of TOD

2 = Slightly Important

1 = Unimportant

Individual metrics are scored low (1), medium (2), high (3) based on scoring criteria and are equally weighed. The metric total is calculated by multiplying the weight by the score.

The metrics were added to give the study area a total score ranging from 74 to 222. This total is then converted to the composite TOD Readiness Score, using the following equally distributed range:

Readiness Stage	Composite Score Range
Long-Range	74-123
Emerging	124-173
Ready	174-222

Figure: Composite TOD Readiness Score. Source: TOD Priority Tool, Capital Metropolitan Transportation Authority, Austin, TX.

## Woonsocket Station Readiness Matrix, 1/2 mile Study Area

### Readiness Stage: Emerging

	Weights of Importance	Scoring Criteria	Score, Low = 1, Medium = 2, High = 3	Total Score
<b>Infrastructure</b>				
Government Support	4	Weak = The government has done nothing to promote TOD; Moderate = Some effort was made by the municipality to promote development at a few sites through rezoning, investing in related infrastructure, some financial incentives; Strong = The municipality uses its powers to promote TOD such as rezoning, creating a plan with a specific focus on the area, proactive outreach to developers, environmental clean-up.	1	4
Existing Train or Bus Frequency	5	Low = 15+ minute wait ; Medium = 10-15 min, High = <5 min	2	10
Bicycle Connectivity	3	Low = Roads have low or Extremely low comfort level; Medium = Medium comfort level, Bicycle racks; High = High comfort level, bike station	1	3
Highway Connectivity	3	Low = No access to highway interchange or radial/cross-town arterial within 1 mile; Medium = Indirect access to highway interchange or major arterial within 1 mile; High = Direct access to highway interchange, major arterial	2	6
Station Parking	2	Low = No parking at TOD location; Medium = designated surface lot parking; High = designated parking garage	2	4
Sewered Area	5	Low = Little to no sewer infrastructure; Medium = majority sewered; High = all sewered	3	15
<b>Development</b>				
Building Density	4	Low = 1 Story, Medium = 2 Stories, High = 3 Stories	3	12
Land Availability	4	Low = No sites of significant size; Medium = 1-3 sites; 3+ sites	2	8
Vacant Building Availability	4	Low = No buildings; Medium = 1-3 buildings; 3+ buildings	3	12



<b>Woonsocket Station Readiness Matrix, 1/2 mile Study Area</b>				
<b>Readiness Stage: Emerging</b>				
	<b>Weights of Importance</b>	<b>Scoring Criteria</b>	<b>Score, Low = 1, Medium = 2, High = 3</b>	<b>Total Score</b>
Development Activity	4	Low = No projects under development; Medium = 1-2 projects underdevelopment; High = 3+ projects under development	1	4
Existing Housing Density	4	Low = 3 units/ acre; Medium = 4-6 units/acre; High = 6+ units/acre	3	12
<b>Desirability</b>				
Local/Community Retail	4	Low = No local or community stores, Medium = 1-2 local stores, High = 3+ local stores	2	8
Regional Retail	2	Low = No regional stores (Auto Dealers, Big box stores), Medium = 1-2 regional stores, High = 3+ regional stores	1	2
Walkshed Connectivity	5	Low= Major sidewalk gaps, major presence of poor condition, significant accessibility barriers, Low walkscore; Medium = some gaps, some presence of poor condition, occasional accessibility barriers, Adequate walk score; High = Few to no gaps, little presence of poor conditions, few to no accessibility barriers, High walkscore	3	15
Schools	3	Low = No schools (any grade level), Medium = 1 school, High = 2+ schools	3	9
Parks	4	Low = No park open to the public, Medium = 1 park, High = 2+ park	2	8
Hospitals	2	Low = No hospitals, High = 1+ hospitals	1	2
Local and Cultural Resources	3	Low = No cultural resources (museums, historic sites, cemeteries), Medium = 2 cultural resources, High = 3+ cultural resources	3	9
Supermarket/Grocery Stores	4	Low = No grocery, High = 1+ grocery	1	4
Employment Opportunities	5	Low = No major employment centers; Medium = 1 employment center; High = 2+ employment centers	1	5
<b>TOTAL</b>	<b>74</b>		<b>40</b>	<b>152</b>

Figure: TOD Readiness Metric Scoring using three topics: existing infrastructure, development, and desirability. Source: Report authors.



Figure: Main Street : An example of the brick work in the city as a compliment to the street edge. Source: <https://www.loopnet.com/Listing/2-Main-St-Woonsocket-RI/13284827/>

# Development Potential

## 1/2 Mile Radius

### Development Potential

The following chart analyzes the potential future development of the 1/2 mile study area. The analysis uses U.S. Census data collected from ESRI Business Analyst in the fall of 2018 (shown in detail in Social and Economic Profile). The analysis offers a variety of development scenarios for housing, employment, and business density.

Future potential densities in each scenario are calculated using proportions. The future densities proposed in each scenario were derived from a series of TOD studies and discussions that consider the development capacities of rural, suburban, or urban TOD locations with rail or BRT stations. A variety of scenarios are offered due to the diverse landscape typologies researched in this study and to better understand the growth of the location over time.

### Definitions

Underused land may include parcels that do not contain a structure, are declared vacant, contain large surface parking, or are undeveloped and zoned residential.

Underused buildings appear unoccupied and were documented through direct observation.

**Total Underused Land:** 30 acres, See page Opportunities Map, page 96

**Total Underused Buildings:** 228,500 sq ft

### Possible 1 Bedroom Units on Underused Land Only (800SF):

FAR 1.0: 1,633 units

FAR 2.0: 3,267 units

FAR 3.0: 4,900 units

FAR 4.0: 6,532 units

### Possible 2 Bedroom Units on Underused Land Only (1200SF):

FAR 1.0: 1,089 units

FAR 2.0: 2,178 units

FAR 3.0: 3,267 units

FAR 4.0: 4,356 units

### Affordable Housing, Town-wide

15.9% of Woonsocket Housing Stock is Low- and Moderate-Income

The City of Woonsocket meets the State Goal of 10% Affordable Housing Units.

# Development Potential, Woonsocket Station

## Typology: TOD around Commuter Rail Stops

A TOD around commuter rail stops is a transportation hub surrounded by relatively high-density development with progressively lower-density spreading outwards. New TODs may be developed around planned commuter rail stops in Rhode Island. TOD town centers may have a transit station and a few multi-story commercial and residential buildings surrounded by several blocks of townhouses and small-lot signal-family residential. Zoning will emphasize mixed-use development. Potential locations include East Greenwich, Warwick Station, and Westerly. Unit per Acre: 30-50. Typology Classification: RI 5 Year Strategic Housing Plan: 2006-2010, Urban Density Guidelines Matrix, D-6

## Residential Density Potential, 1/2 mile Radius, 502 acres

Scenarios include a range of residential densities to illustrate the future need of residential housing within 502 acres surrounding the station.

	Existing	Scenario A	Scenario B	Scenario C
<b>Residential Density</b> Units/Acre	6.9	20	30	40
<b>Housing Units</b>	3,450	10,000	15,000	20,000
<b>New Housing Units</b>	n/a	6,550	11,550	16,550
<b>Total Area of New 1 Bedroom Units</b> at 800 Square Feet	n/a	5,240,000	9,240,000	13,240,000
<b>Total Area of New 2 Bedroom Units</b> at 1,200 Square Feet	n/a	7,860,000	13,860,000	19,860,000

## Employment Density Potential, 1/2 mile Radius, 502 acres

Scenarios include a range of employment densities to illustrate the future need of job opportunities within 502 acres surrounding the station.

	Existing	Scenario A	Scenario B	Scenario C
<b>Employment Density</b> Jobs/Acre	7.6	15	20	25
<b>Jobs</b>	3,791	7,530	10,040	12,550
<b>New Jobs</b>	n/a	3,739	6,249	8,759
<b>Total Area of New Employment</b> <b>Space</b> at 200 Square Feet/Per Employee	n/a	747,800	1,249,800	1,751,800
<b>Population</b>	6,196	12,307	16,409	20,512

### Business Density Potential, 1/2 mile Radius, 502 acres

Scenarios include a range of business densities to illustrate the future need of business opportunities within 502 acres surrounding the station.

	Existing	Scenario A	Scenario B	Scenario C
<b>Business Density</b> Business/Acre	0.7	1.5	2.5	3.5
<b>Businesses</b>	357	753	1,255	1,757

### Buildout Potential of FAR on Underused Land

Scenarios include a range of floor-area-ratios to illustrate the future development potential given available underused land.

	Existing	Scenario A	Scenario B	Scenario C
<b>Zoning Designations of Underused Land</b>	C-1 Commercial, R-4 Residential	n/a	n/a	n/a
<b>Allowable Building Height FAR</b>	3.0	4.0	5.0	6.0
<b>Underused Land Acres</b>	30	30	30	30
<b>Total Built Space with FAR</b> Square Feet	3,920,400	5,227,200	6,534,000	7,840,800

**Underused Buildings** Square Feet 228,507

Figure: Development potential of residential, employment, and business density. Existing data from ESRI Business Analyst. Developed by: Report authors.

# Future Opportunities

## 1/2 Mile Radius

### Future Opportunities

1. Increase express bus routes from the train station to other points in northern RI, specifically CVS plaza and Woonsocket Hospital.
2. Develop a modest parking facility Garage access and egress from the upper and lower elevations on High St.
3. Keep High Street a one way to Arnold St. which allows traffic to flow in a rotary direction, particularly for smooth egress from the train station/parking facility at peak hours.
4. Change zoning around the station to mixed-use (MU-1) to accommodate commercial use at street level and residential/office space above street level.
5. Remove on-street parking on Main St. from Arnold St. to the Court St., High St intersection to allow for bus and a bike lanes. This will make a safer commute for pedestrians and bicyclists.
6. Improve sidewalks on both sides of High St. Some sidewalks are absent directly in front of the train station.
7. Develop a new bike route to connect the corner of Clinton St and Truman Dr to the proposed bike path along the Blackstone River. This connector can also provide a new public park that will compliment the adjacent library and downtown area.
8. Same as 7.
9. Expand development and rezone to mixed-use along south Social St. including Clinton St. to the Blackstone River and from the train station out to Cumberland Hill Rd. This would will allow for residential expansion.
10. Remove on-street parking on Social St to allow for a shared bike and bus lane creating a safer pedestrian environment.

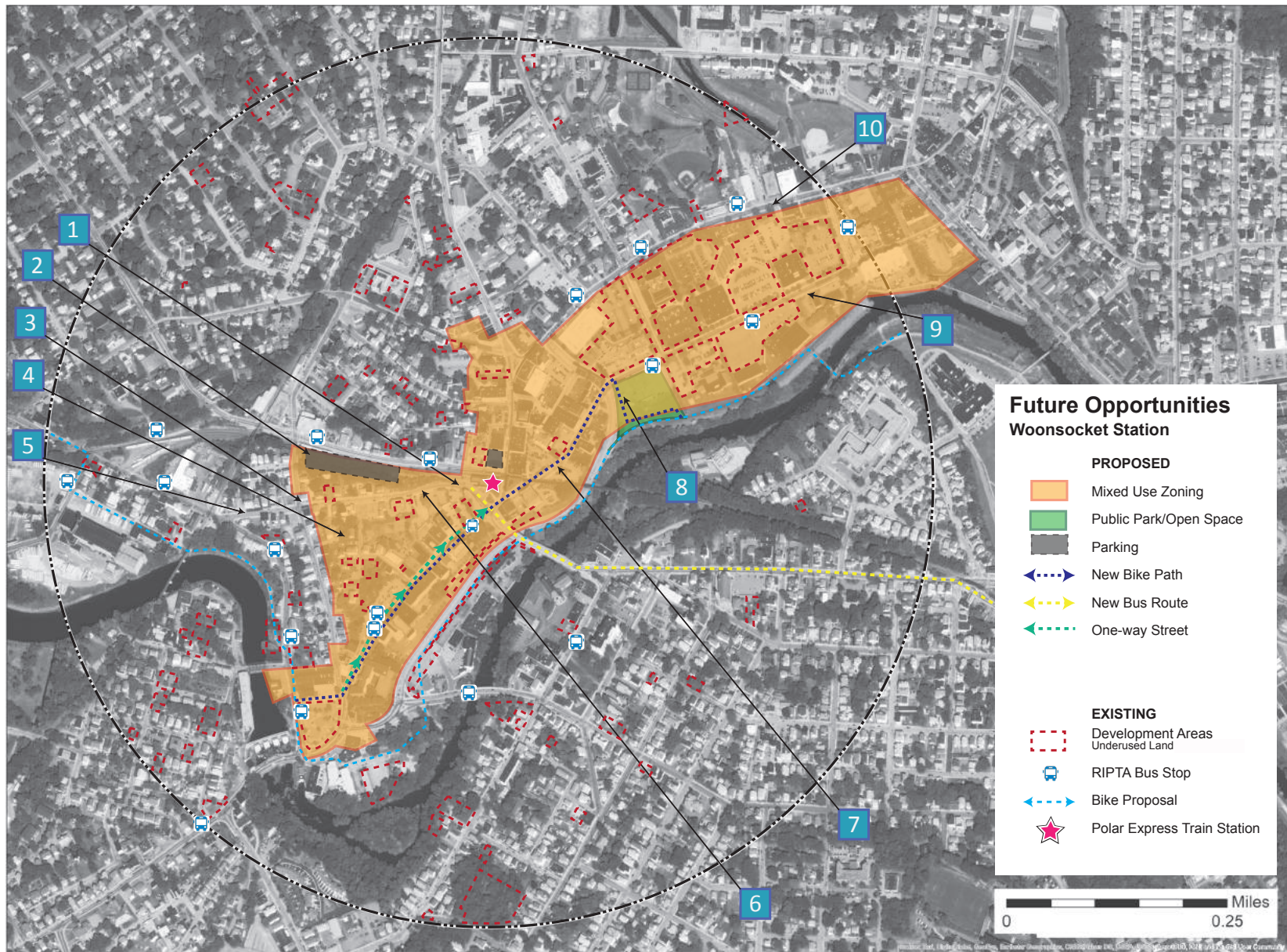


Figure: Map of proposed opportunities for TOD in study area. Source: Report authors.

# Development Scenario

## Development Scenario

The existing conditions on Clinton Street are inadequate and do not efficiently use space. By eliminating on-street parking we suggest the addition of bus and bicycle lanes. Changing the zoning in the area to mixed-use (MU) will allow for retail/commercial at the bottom floor and either residential or office space on the upper floors. We suggest the location would have a FAR of 4.0.

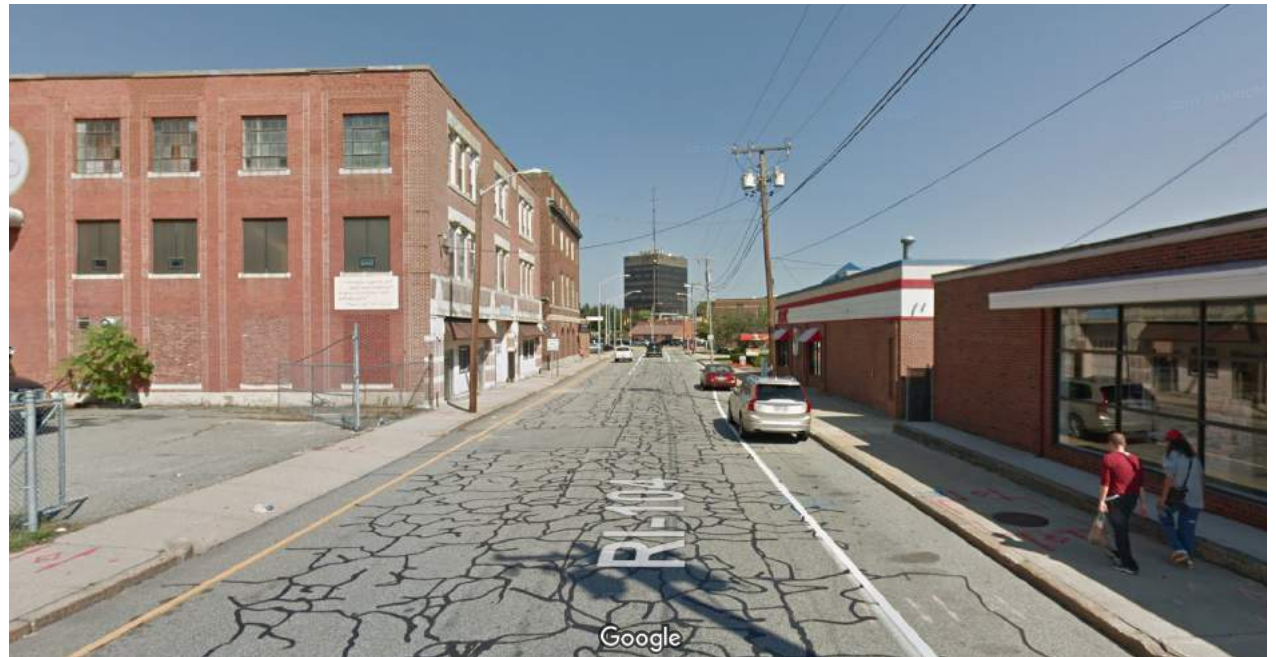


Figure: Existing street view. Source: Google Street View, 2018.



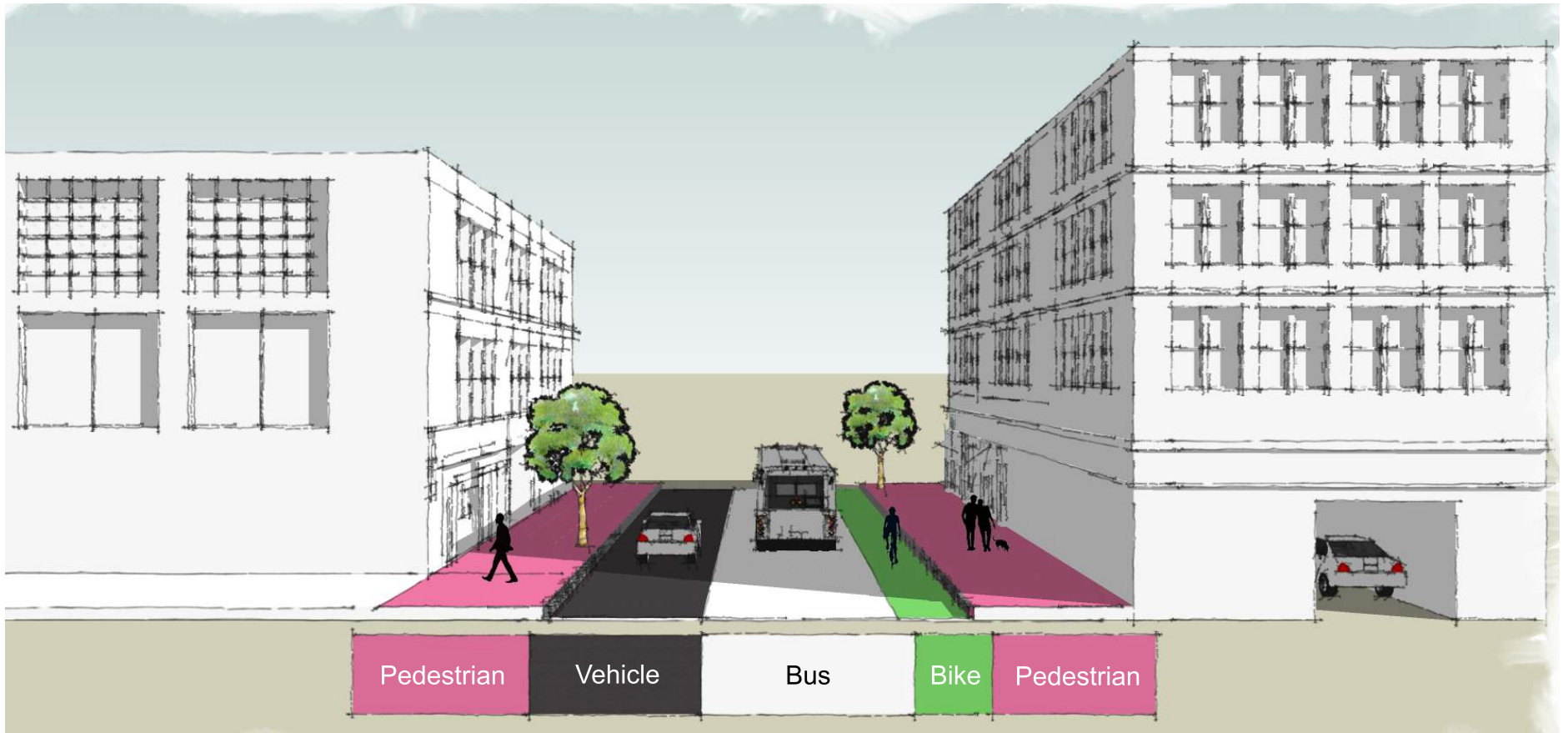


Figure: Illustration of development scenario. Source: Report authors.

# Local Policy Considerations

## Local Policy Considerations

1. Encourage mixed-use zoning to allow for easy access to local shops for residents, reduce automobile dependency, and accommodate housing.
2. Reduce on-street parking to provide for safe routes for bicycles and pedestrians, room on sidewalks for dining tables and leisure, and accommodations for shared transportation.
3. Provide tax credits for historical property to increase incentives for property owners to maintain the historical integrity of the property, and provide for more revenue to property owners for improvements.
4. Participate in RIPTA Transit Master Plan to alter bus routes in northern RI to support transit connections between the rail station and employment centers such as the CVS offices.
5. Adopt a TOD District Vision/Plan to orient future growth towards walkable, rich, compact community.
6. Identify and possibly land-bank properties (including surface parking lots) that represent prime (re)development opportunities.





# 4.2 Wickford Junction Station

North Kingstown, RI

Kristina Brown  
William Clarkson  
Dominic Cirillo  
Andrew Vaccarelli



Photograph: W. Clarkson, 2018

# TOD Goals Existing Plans & Policies

The following includes selected TOD related goals retrieved from existing municipal plans and policies.

## Document

Town of North Kingstown, Comprehensive Plan Update, 2008

## Land Use:

- Wherever possible, continue to encourage the use of conservation development to maintain the historic village character, maximize the use of available infrastructure, conserve open space, protect natural resources, and increase the efficiency of public transit service and other alternative modes of transportation.

- Continue to encourage the use of Planned Unit Developments (PUD) that result in high quality mixed-use projects and create site designs that contribute to overall village character and achieve the various objectives of infrastructure efficiency, use of alternative transportation modes, and open space preservation.

- Continue to encourage design of new neighborhoods at a scale that supports walking and encourages biking.

- Encourage the interconnection of neighborhoods by requiring adequate pedestrian and vehicular access to nearby subdivisions and between commercial centers and other facilities such as schools and parks.



Figure: Nearby Parking. Source: W. Clarkson

- Continue to encourage development of diverse neighborhoods with a variety of housing types that serve varied socio-economic levels and age groups as appropriate.

- Establish new mixed-use centers considering the following:

Targeted Growth Centers on Post Road;  
Implementation of the Village Center zoning;  
TOD at Wickford Junction.

## Housing:

- Encourage and maintain a range of housing opportunities so that North Kingstown can continue to be a community of residents with varied socio-economic characteristics and resources.
- Encourage housing for the town's elderly, disabled, and displaced/homeless population.
- Identify areas and establish boundaries outside self-sustaining lands and lands of critical concern as defined in the Narrow River Special Area Management Plan where sewer services and alternative wastewater management systems would permit increased density in order to provide for multi-family and high density single family developments

without substantially increasing the overall density of the town.

- Develop cooperative agreements with the RIEDC and large local businesses to create affordable workforce housing that supports job growth associated with those entities.
- Provide a range of housing affordable to households below North Kingstown's median income to keep housing costs at or below 30 percent of household income.
- Create joint public/private partnerships to provide affordable housing.
- Promote a residential development pattern that reflects the small town setting with rural flavor and historic village centers.
- Improve and maintain the town's existing housing stock.
- Encourage programs that maintain, rehabilitate, and protect the existing housing stock of homes in the community, with emphasis on adopting energy and water saving measures in rehabilitation of existing structures.

Transportation:

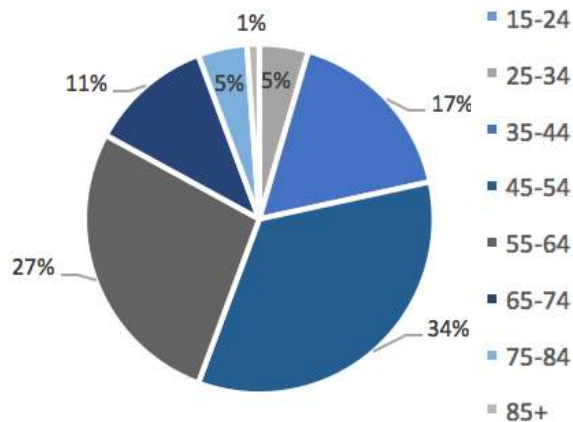
- Provide for the adequate movement of traffic on a regional and local basis through North Kingstown.
- Improve the availability and utilization of alternative transportation models.
- Encourage a land development pattern that supports the use of alternative modes of transportation.
- Encourage development of multi-modal transportation hubs.
- Ensure that alternative modes of transportation (e.g., bus pullouts, parking for multiple occupant cars, car and van pool vehicles, and appropriate shelters) where appropriate in all new and revitalized development.
- Develop a network of bikeways and pedestrian paths/routes to connect existing and planned recreational facilities, open spaces and other destinations throughout the community.
- Enhance the quality of the town's roadways, while maintaining appropriate character within the town.

- Recognize, preserve, and enhance scenic, residential, historic, rural and commercial corridors in the town.

# Social & Economic Profile

## 1/2 Mile Radius

Age of Head of Household  
1/2 mi radius



### Profile Findings, 1/2 Mile Radius

Total Population: 286

Density per acre: 0.6 people per acre

Median Age: 45.2

Total Employees: 1,328

Density per acre: 2.6 employees per acres

Total Businesses: 114

Density per acre: 0.2 businesses per acre

Total Housing Units: 99

Density per acre: 0.2 units per acre

Household Type:

Households with 1 person = 13

Households with 2+ people = 76

Median Household Income: \$120,865

Median Home Value = \$444,176

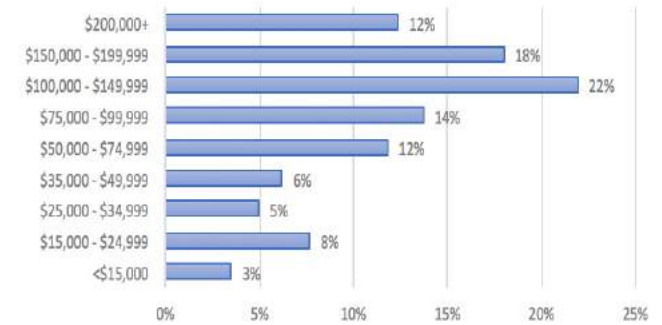
Per Capita Income = \$50,012

### Data & Figure Sources

U.S. Census Bureau, Census 2010 Summary File 1. Copyright 2018 Infogroup, Inc. All rights reserved. Esri Total Residential Population forecasts for 2018. Calculated using Esri's Data allocation method using census block groups. Household population includes persons not residing in group quarters. Average Household Size is the household population divided by total households. Persons in families include the householder and persons related to the householder by birth, marriage, or adoption. Per Capita Income represents the income received by all persons aged 15 years and over divided by the total population. Densities are calculated by a division of 502 acres, the equivalent of a 1/2 mile radius from the station.

### Households by Income

1/2 mi radius  
(2018 Estimates)



### Average Household Size



### Number of Businesses



### Unemployment Rate





# Social & Economic Profile

## 1 Mile Radius

### Profile Findings, 1 Mile Radius

Total Population: 2,456

Density per acre: 1.2 people per acre

Median Age: 43.5

Total Employees: 1,792

Density per acre: 0.9 employees per acres

Total Businesses: 170

Density per acre: 0.5 businesses per acre

Total Housing Units: 910

Density per acre: 0.2 units per acre

Household Type:

Households with 1 person = 184

Households with 2+ people = 726

Median Household Income: \$103,333

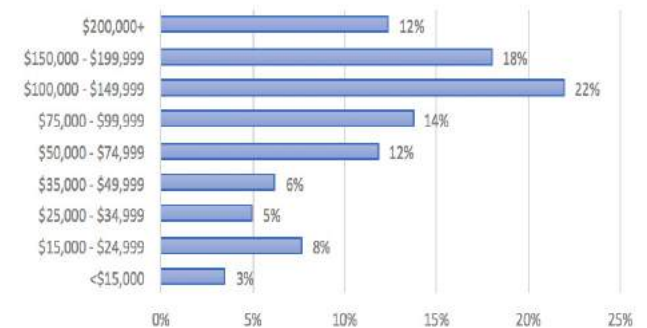
Median Home Value = \$389,189

Per Capita Income = \$45,707

### Data & Figure Sources

U.S. Census Bureau, Census 2010 Summary File 1. Copyright 2018 Infogroup, Inc. All rights reserved. Esri Total Residential Population forecasts for 2018. Calculated using Esri's Data allocation method using census block groups. Household population includes persons not residing in group quarters. Average Household Size is the household population divided by total households. Persons in families include the householder and persons related to the householder by birth, marriage, or adoption. Per Capita Income represents the income received by all persons aged 15 years and over divided by the total population. Densities are calculated by a division of 502 acres, the equivalent of a 1/2 mile radius.

### Households by Income 1 mi radius (2018 Estimates)



### Average Household Size



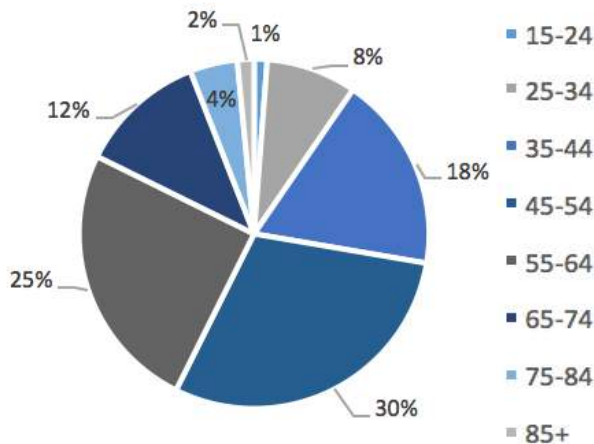
### Number of Businesses



### Unemployment Rate



### Age of Head of Household 1 mi radius



# Existing Infrastructure

1/2 Mile Radius

## Transportation Systems

The following transportation systems operate within the study area.

RIPTA Bus Route 62/66: Long distance. High frequency. Every 30 minutes or less on weekdays. Low Frequency on weekends. Every Hour from 7:00 AM-10:15 PM. 8:20 AM-10:15 PM on Sundays.

Rail Line: MBTA Providence/Stoughton commuter rail. 10 trains a day, No train on weekends, train fare accepts Charlieticket, Cash, or mTicket application.

Sidewalk Infrastructure: Inadequate connectivity. Only a few blocks with sidewalk infrastructure. No sidewalk infrastructure near the station.

Ride Share Companies: Uber, Lyft

Pedestrian Trails: Located just outside the 1/2 mile study area, Ryan Park Trailhead is an opportunity to connect pedestrians to Wickford Junction station.

## Station Infrastructure

ADA Accessible Platforms: Yes  
Parking Garage Area: 250,896 SF  
Parking Spaces: 1,101  
Levels/Floors: 3 levels



Figure: Photograph of Wickford Station Garage Source: Blakeslee



Figure: Photograph of MBTA train. Source: MBTA



Figure: Photograph of MBTA platform. Source: Jeremiah Cox

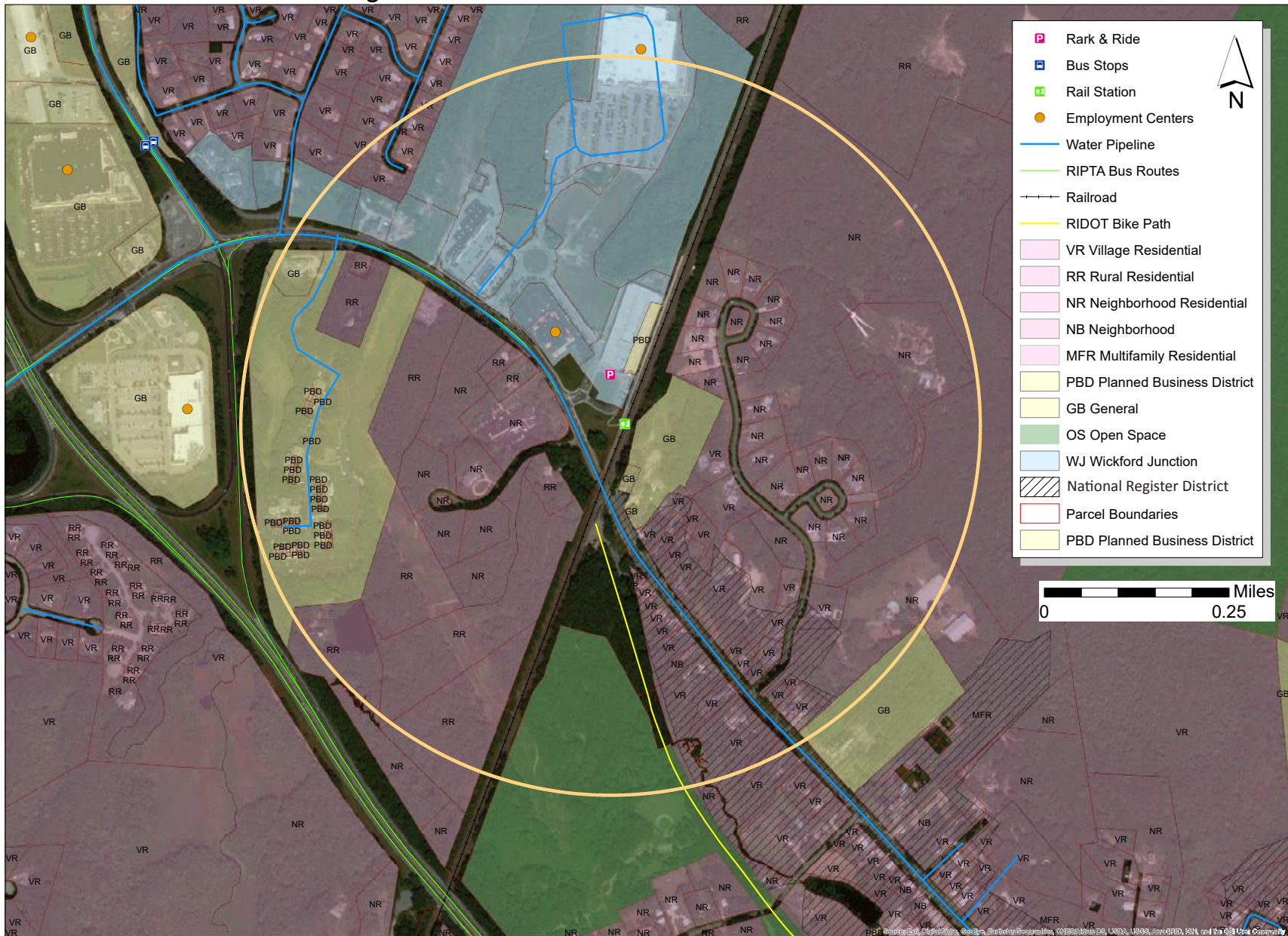
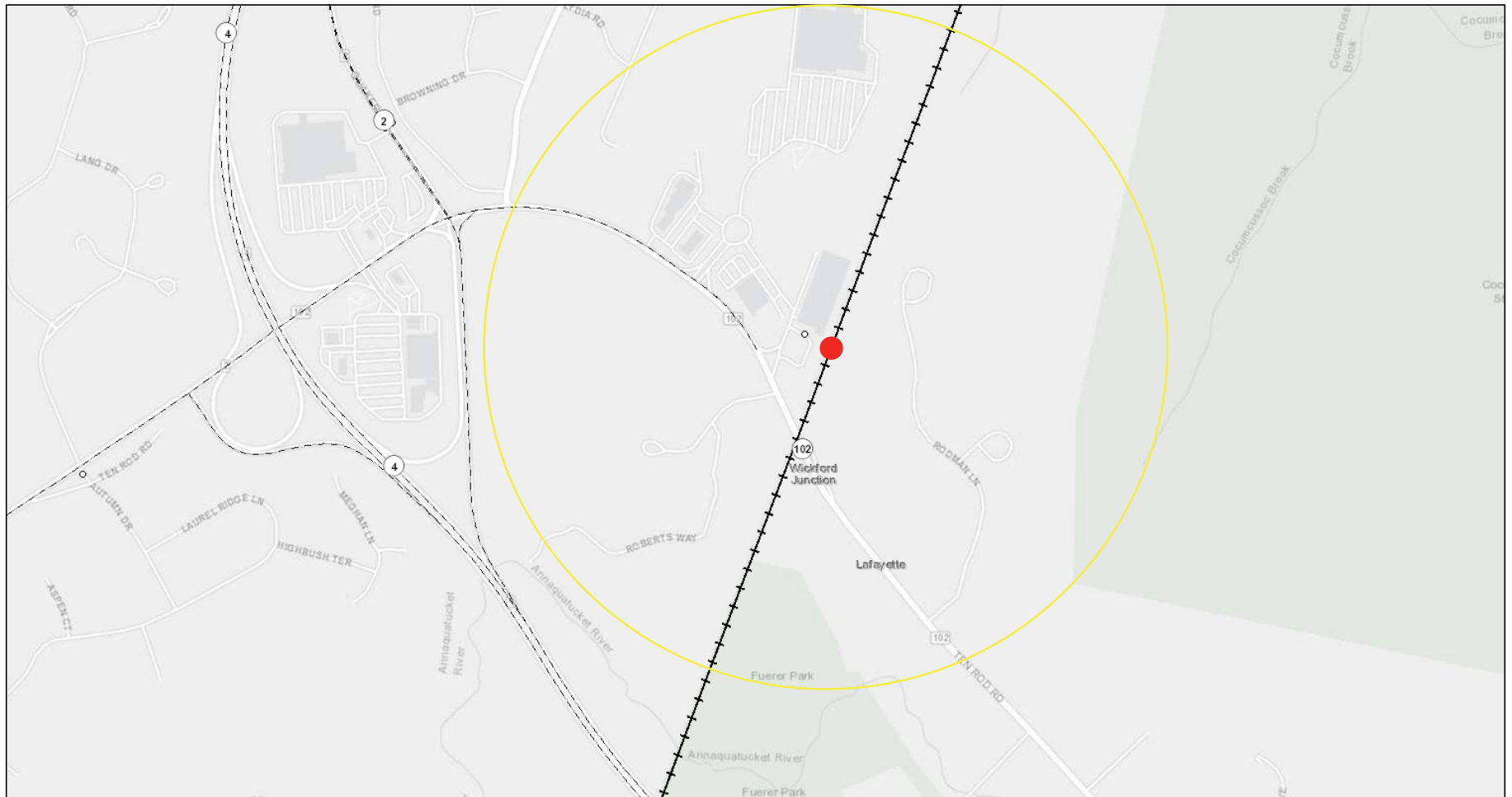
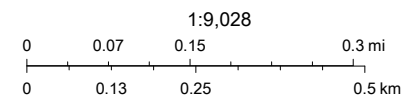


Figure: Existing zoning map of Wickford Junction 1/2 mile study area. Source: Report authors.



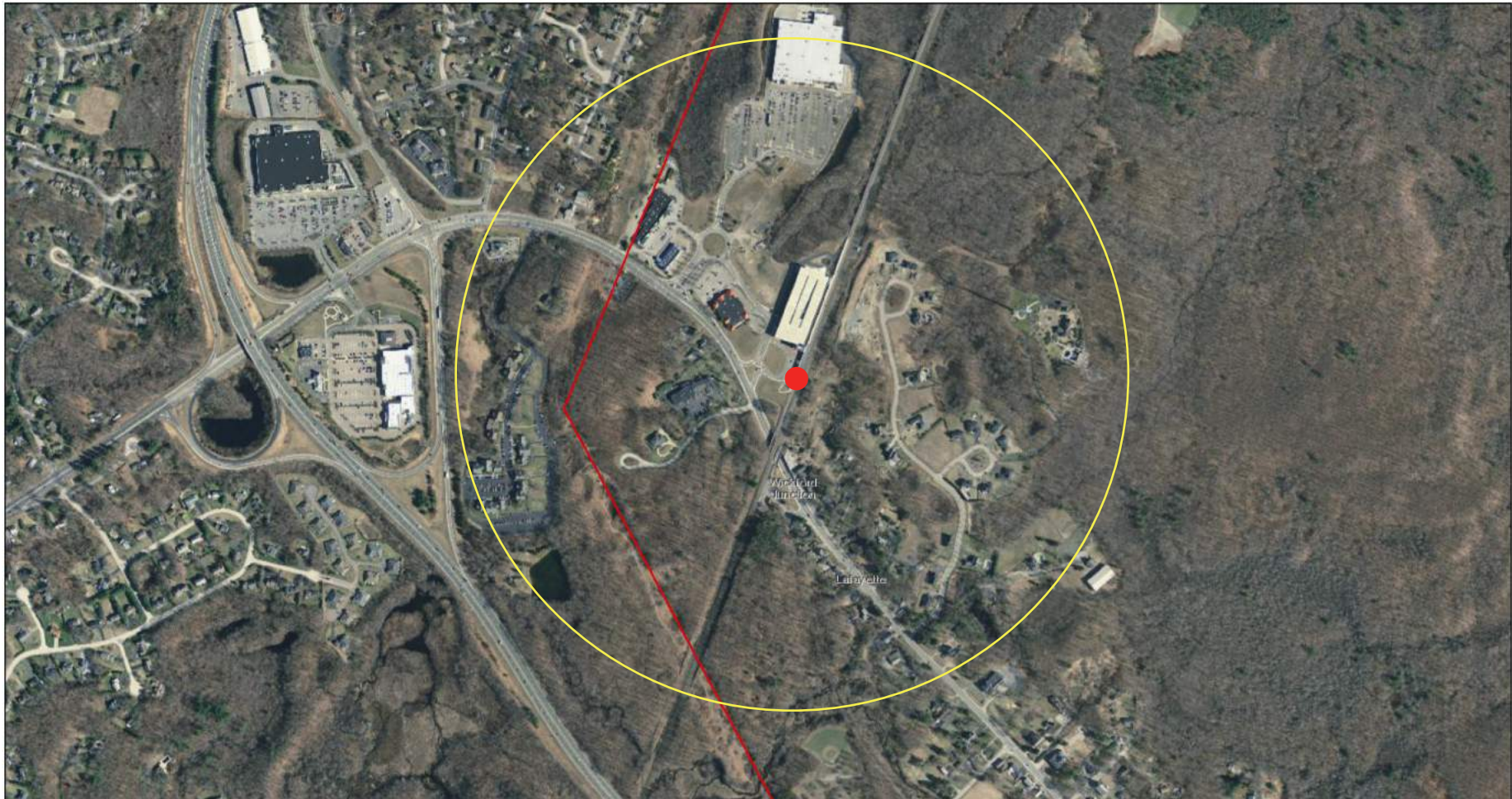
November 22, 2018

- Highway Shields
- Airports
- RIPTA Bus Stops
- Active Rail
- RIPTA Bus Routes
- Wickford Junction Station



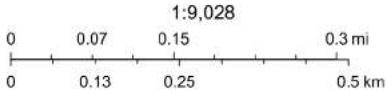
Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community

Figure: Map of existing train and bus routes. Source: RI Division of Planning Mapping Application



November 5, 2018

- Electrical Transmission Lines
- Wickford Junction Station



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Figure: Map of existing electrical lines. Source: RI Division of Planning Mapping Application.

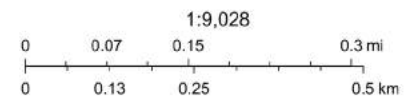


October 30, 2018

**Structures**

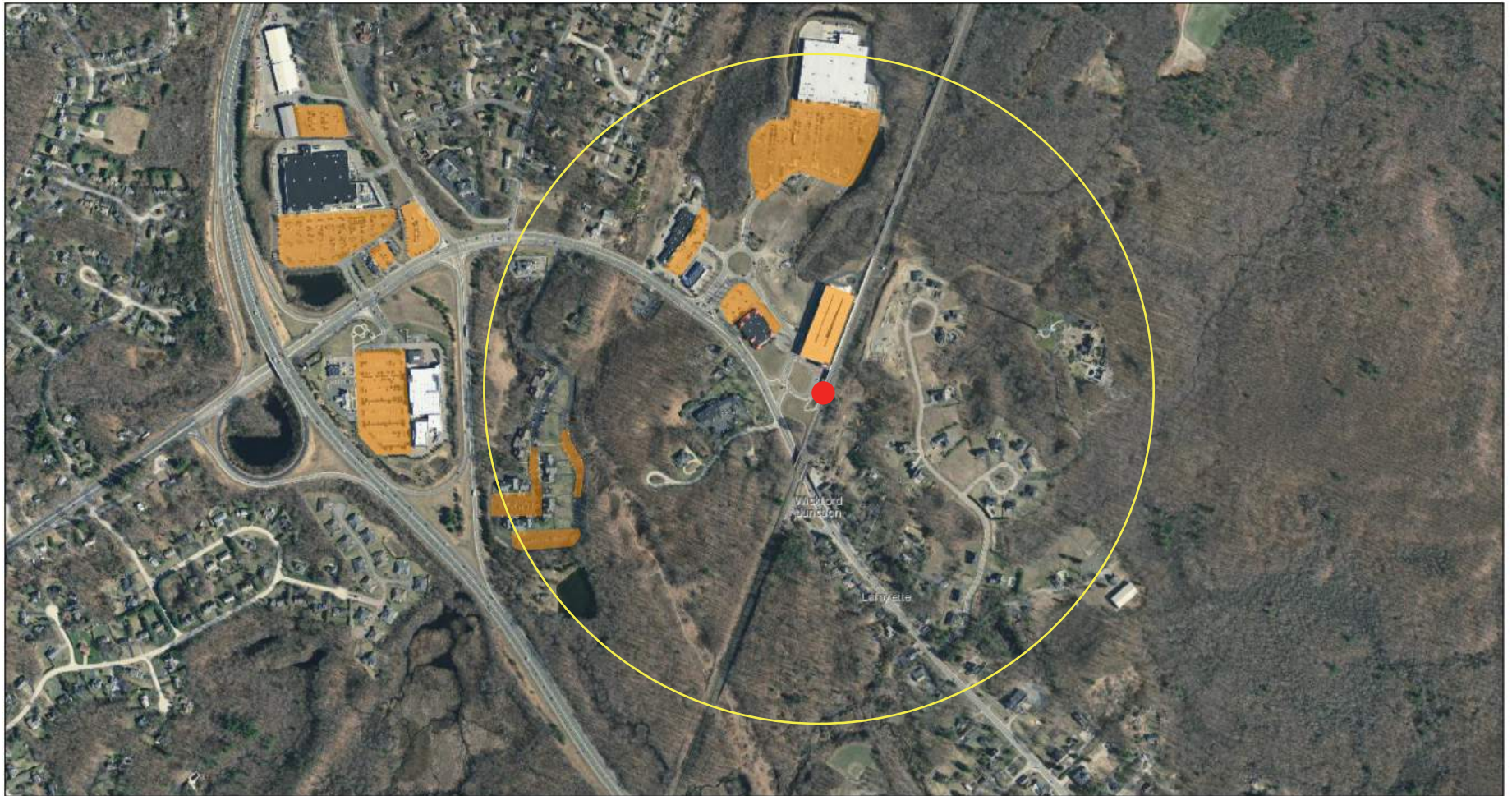
**Rhode Island E911 Sites**

- Miscellaneous
- Commercial
- Residential
- Utility
- Wickford Junction Station



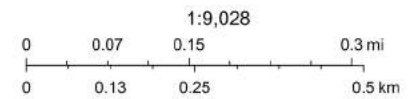
URI EDC, RIGIS, Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community, RIGIS, University of Rhode Island Environmental Data Center

Figure: Map of existing building typology. Source: RI Division of Planning Mapping Application.



October 30, 2018

- Parking
- Wickford Junction Station



URI EDC, RIGIS, Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community

Figure: Map of existing parking. Source: Report authors.

# Existing Development Conditions

1/2 Mile Radius



Source: MBTA

## Local Support and Stakeholder Investment

Stakeholders and supporters of transit-oriented design in the area include RIPTA, Grow Smart Rhode Island, Statewide Planning RI, FHWA, AARP, AIPC, BPAC, municipalities, local developers, community staff, residents, and business owners.

## Growth Center Designation

A Developmental Growth Center is located along Ten Rod Road, aiming to align public infrastructure and enhance future developments and investments. The state's Land Use 2025 Plan endorses the formation of smaller regional centers and the emergence of new centers for growth (Planning.RI.Gov).

**Opportunity Zone Census Tracts:** None.

## Vacant or Underused Buildings

There are no vacant or underused buildings in the study area.

## Vacant or Underused Land

As shown in the Opportunities Map, there is approximately 34 acres of vacant land, most of which lies within the center of the junction and along Old Baptist Road, next to the Walmart Superstore.

## Residential Housing Densities

According to the Land Use Land Cover data that classifies housing using lot size (following page), the most prominent residential housing densities in the area lie within a 1/8 - 1/4 acre range.



Source: MBTA





October 30, 2018

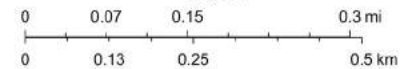
Land Use Land Cover 2011

Land Use / Land Cover 2011

- High Density Residential (<1/8 acre lots)
- Medium High Density Residential (1/4 to 1/8 acre lots)
- Medium Density Residential (1 to 1/4 acre lots)

- Medium Low Density Residential (1 to 2 acre lots)
- Low Density Residential (>2 acre lots)
- Commercial (Sale of products and services)
- Commercial/Residential Mixed
- Commercial/Industrial Mixed
- Industrial (manufacturing, design, assembly, etc.)
- Institutional (schools, hospitals, churches, etc.)
- Cemeteries
- Power Lines (100' or more width)
- Roads (divided highways > 200' plus related facilities)
- Airports (and associated facilities)
- Railroads (and associated facilities)
- Waste Disposal (landfills, junkyards, etc.)
- Water and Sewage Treatment
- Other Transportation (terminals, docks, etc.)
- Developed Recreation (all recreation)
- Cropland (tiltable)
- Orchards, Groves, Nurseries
- Confined Feeding Operations
- Pasture (agricultural not suitable for tillage)
- Idle Agriculture (abandoned fields and orchards)
- Brushland (shrub and brush areas, reforestation)
- Deciduous Forest (>80% hardwood)
- Softwood Forest (>80% softwood)
- Mixed Forest
- Water
- Wetland
- Vacant Land
- Transitional Areas (urban open)
- Mines, Quarries and Gravel Pits
- Beaches
- Sandy Areas (not beaches)
- Mixed Barren Areas
- Rock Outcrops

1:9,028



URI EDC, RIGIS, RIDOA, RIDEM, Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community

Figure: Map of Land Use Cover 2011. Source: RI Division of Planning Mapping Application

This is a statewide, seamless digital dataset of the land cover/land use for the State of Rhode Island derived using automated and semi-automated methods and is based on orthophotography captured in spring 2011.

# Desirability

## 1/2 Mile Radius



Figure: Historic home in Lafayette Village Historic District. Source: The Providence Journal.

### Cultural Resources

Cultural assets include a portion of Lafayette Village Historic District (extending southeast of the station along Ten Rod Road, beyond the 1/2 mile study area), and RI Computer Museum Learning Lab (in Meadows Professional Office Park, west of the station).

### Employment Opportunities

Local employment includes: Walmart, Roberts Health Center, and professional offices in Meadows Professional Office Park. There is a Stop & Shop, Home Depot, and National Grid are located just outside the west edge of study area.

### Retail

There is approximately 173,200 Sq. Ft. (Google area calculator) of retail space split between: Walmart, Staples, Petco, Webster Bank, Aesthetic Dentistry of Wickford, Frankie's Italian Bistro, and other smaller retailers. Retail space is concentrated in a plaza on the unnamed road connecting Ten Rod to Walmart's parking lot.

### Schools, Parks, Hospitals

There are no schools or hospitals within the study area. A small portion of Ryan Park borders the southern area edge.

### Walkability

The area immediately surrounding Wickford Junction Station is walkable, with a Walmart and a small retail plaza within a five-minute distance. However, sidewalk access ends beyond the plaza to the west, and at the rail-track overpass immediately south of the station at Ten Rod Road. The walking score of the area is 34, making the area "car dependent."

### Sidewalk Conditions

Sidewalks, where existing, are fairly new, and in good condition, and appear wide enough for bicycle as well as pedestrian traffic.

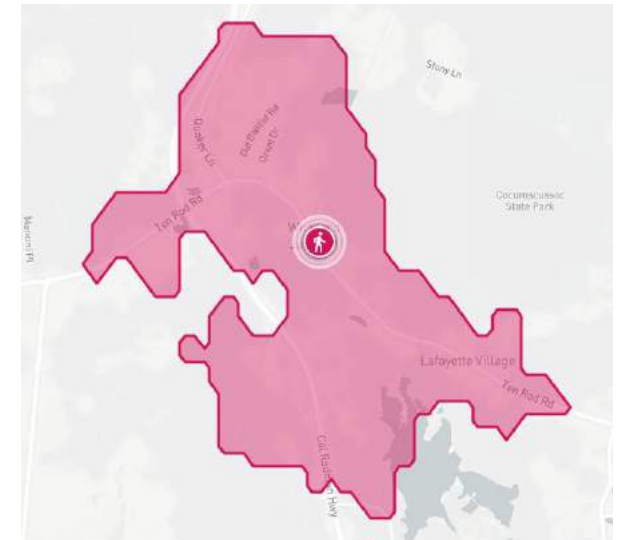


Figure: Map of walkable distance in 30 minutes. Source: Travel Time Platform.

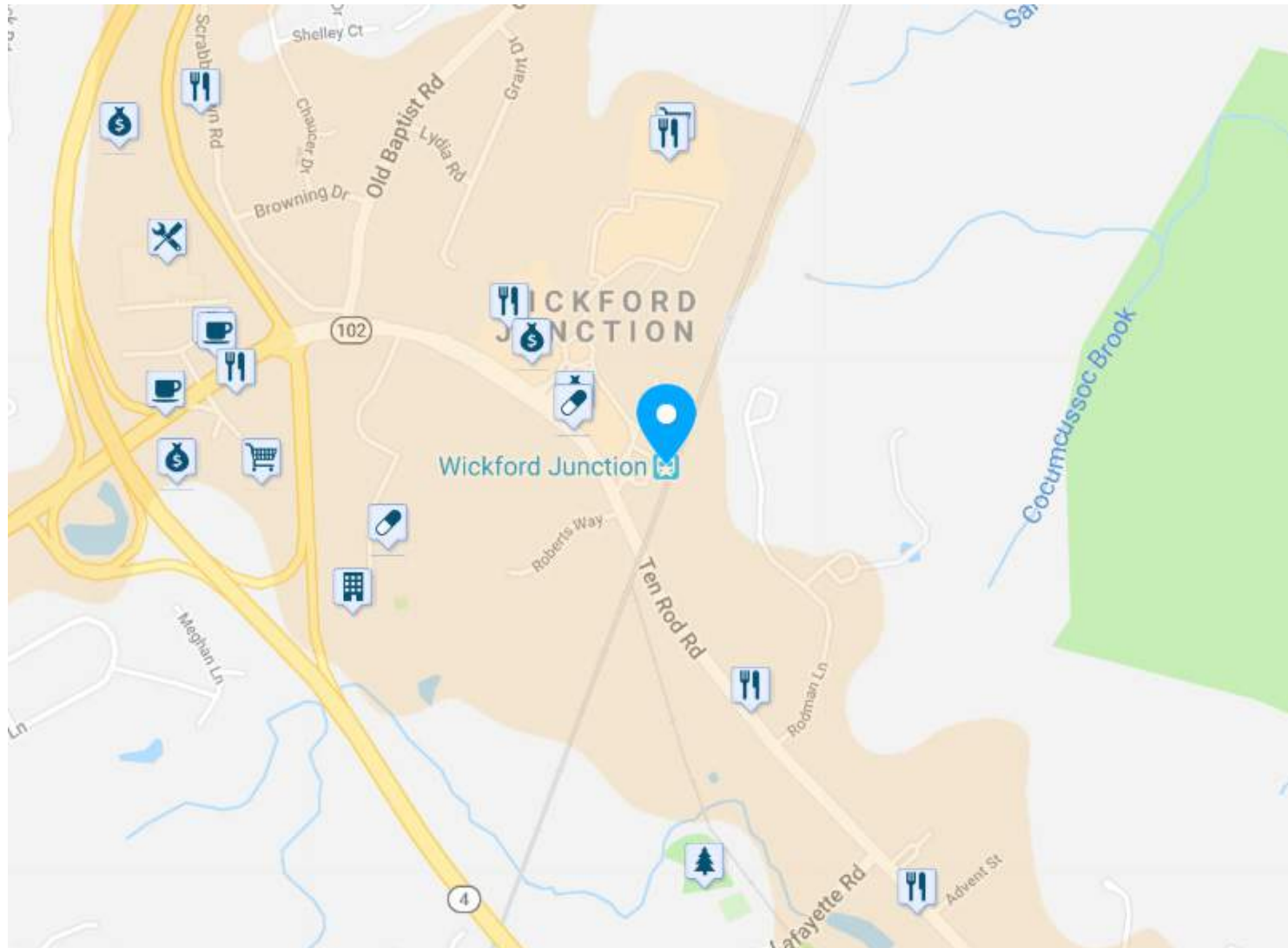


Figure: Map of local retail and amenities within 30 minutes walking distance. Walkscore is 34 “car dependent”.Source: walkscore.com

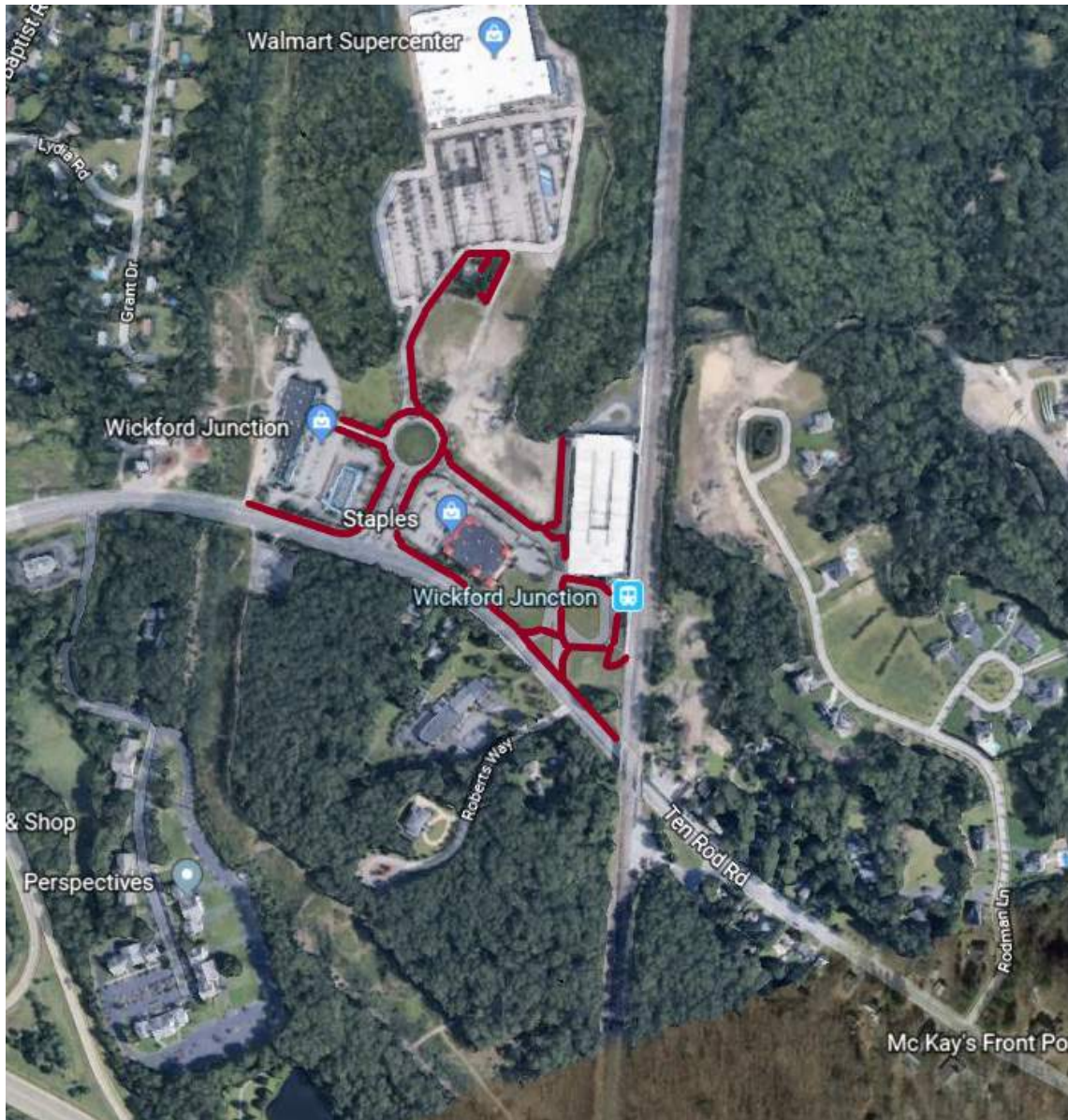


Figure: Map of sidewalk presence. Highlighted areas represent sidewalk coverage within a half-mile radius of Wickford Junction Station Source: Google Earth.



Figure: Example of sidewalk around station. Source: W. Clarkson

# Assets & Challenges

## Assets

- The existing transit infrastructure is an asset to the area providing regional connectivity via train and bus to surrounding areas.
- The study area was rezoned to Wickford Junction District (WVD) in 2013 and is described as a mixed-use, transit-oriented, economic development center. This will create incentives for development around the train station.
- The location has high connectivity the highway and other arterial routes making the station easy to access by vehicle.
- There is ample parking for regional commuters at the train station.
- The existing development in the area is largely commercial and offers access to regional retail, including access a supermarket.
- The existing commercial and office development offers access to potentially walkable jobs.
- The large amount of underutilized land surrounding the train station has development potential.

## Challenges

- The greatest challenge is the lack of sewer infrastructure. Sewer is absent in the entire area, therefore any future development would need to build appropriate waste water treatment facilities.
- The study area falls within a Groundwater Overlay Zone, which reduces density to one unit per two acres in the absence of sewers. The area also requires work to mitigate nitrate loading in the ground water.
- Infrequent weekly train service and lack of service on the weekends is a challenge to increase rail ridership.
- The station area does not have adequate bike lanes or bike racks and lacks a comfortable biking environment. This limits inter-modal accessibility to the station and increases vehicle use.
- There exists limited sidewalk infrastructure outside of the train station. Without sidewalks, pedestrian access from surrounding residential and commercial areas is prohibitive.
- Surrounding residential stock is low density, detached single family homes. Low density limits the potential for frequent use of the trains and buses.

# TOD Readiness

## 1/2 Mile Radius

### TOD Readiness

The TOD Readiness Score summarizes how far a location has progressed toward its full TOD potential and how far it has to go. The following charts show the analysis conducted to determine the readiness of the study area.

### Methodology

Adapted from the TOD Priority Tool, Capital Metropolitan Transportation Authority, Austin, TX.

The TOD Readiness Score can and will change over time as conditions evolve and TOD takes hold in the market. The TOD Readiness Score has 3 levels:

#### Long Range:

Exhibiting few characteristics of TOD

#### Emerging:

Beginning to demonstrate some of the TOD characteristics.

#### Ready:

Showing TOD characteristics in much of the station area, but with gaps that are reasonably expected to be closed.

### Measurement System

Using the existing conditions research, a variety of metrics were developed for three primary TOD topics: existing infrastructure, development potential, and desirability. Each metric was weighted using the following:

5 = Extremely Important to the Success of TOD

4 = Very Important to the Success of TOD

3 = Important to the Success of TOD

2 = Slightly Important

1 = Unimportant

Individual metrics are scored low (1), medium (2), high (3) based on scoring criteria and are equally weighed. The metric total is calculated by multiplying the weight by the score.

The metrics were added to give the study area a total score ranging from 74 to 222. This total is then converted to the composite TOD Readiness Score, using the following equally distributed range:

Readiness Stage	Composite Score Range
Long-Range	74-123
Emerging	124-173
Ready	174-222

Figure: Composite TOD Readiness Score. Source: TOD Priority Tool, Capital Metropolitan Transportation Authority, Austin, TX.

<b>Wickford Junction Station Readiness Matrix, 1/2 mile Study Area</b>				
<b>Readiness Stage: Long Range</b>				
	<b>Weights of Importance</b>	<b>Scoring Criteria</b>	<b>Score, Low = 1, Medium = 2, High = 3</b>	<b>Total Score</b>
<b>Infrastructure</b>				
Government Support	4	Weak = The government has done nothing to promote TOD; Moderate = Some effort was made by the municipality to promote development at a few sites through rezoning, investing in related infrastructure, some financial incentives; Strong = The municipality uses its powers to promote TOD such as rezoning, creating a plan with a specific focus on the area, proactive outreach to developers, environmental clean-up.	2	8
Existing Train or Bus Frequency	5	Low = 15+ minute wait ; Medium = 10-15 min, High = <5 min	1	5
Bicycle Connectivity	3	Low = Roads have low or Extremely low comfort level; Medium = Medium comfort level, Bicycle racks; High = High comfort level, bike station	1	3
Highway Connectivity	3	Low = No access to highway interchange or radial/cross-town arterial within 1 mile; Medium = Indirect access to highway interchange or major arterial within 1 mile; High = Direct access to highway interchange, major arterial	3	9
Station Parking	2	Low = No parking at TOD location; Medium = designated surface lot parking; High = designated parking garage	3	
Sewered Area	5	Low = Little to no sewer infrastructure; Medium = majority sewered; High = all sewered	1	5
<b>Development</b>				
Building Density	4	Low = 1 Story, Medium = 2 Stories, High = 3 Stories	1	
Land Availability	4	Low = No sites of significant size; Medium = 1-3 sites; 3+ sites	3	12
Vacant Building Availability	4	Low = No buildings; Medium = 1-3 buildings; 3+ buildings	1	4

Figure: TOD Readiness Metric Scoring using three topics: existing infrastructure, development, and desirability. Source: Report authors.

<b>Wickford Junction Station Readiness Matrix, 1/2 mile Study Area</b>				
<b>Readiness Stage: Long Range</b>				
	<b>Weights of Importance</b>	<b>Scoring Criteria</b>	<b>Score, Low = 1, Medium = 2, High = 3</b>	<b>Total Score</b>
Development Activity	4	Low = No projects under development; Medium = 1-2 projects underdevelopment; High = 3+ projects under development	1	4
Existing Housing Density	4	Low = 3 units/ acre; Medium = 4-6 units/acre; High = 6+ units/acre	1	4
<b>Desirability</b>				
Local/Community Retail	4	Low = No local or community stores, Medium = 1-2 local stores, High = 3+ local stores	2	8
Regional Retail	2	Low = No regional stores (Auto Dealers, Big box stores), Medium = 1-2 regional stores, High = 3+ regional stores	2	4
Walkshed Connectivity	5	Low= Major sidewalk gaps, major presence of poor condition, significant accessibility barriers, Low walkscore; Medium = some gaps, some presence of poor condition, occasional accessibility barriers, Adequate walk score; High = Few to no gaps, little presence of poor conditions, few to no accessibility barriers, High walkscore	1	5
Schools	3	Low = No schools (any grade level), Medium = 1 school, High = 2+ schools	1	3
Parks	4	Low = No park open to the public, Medium = 1 park, High = 2+ park	1	4
Hospitals	2	Low = No hospitals, High = 1+ hospitals	1	2
Local and Cultural Resources	3	Low = No cultural resources (museums, historic sites, cemeteries), Medium = 2 cultural resources, High = 3+ cultural resources	2	6
Supermarket/Grocery Stores	4	Low = No grocery, High = 1+ grocery	3	12
Employment Opportunities	5	Low = No major employment centers; Medium = 1 employment center; High = 2+ employment centers	3	15
<b>TOTAL</b>	<b>74</b>		<b>34</b>	<b>113</b>

Figure: TOD Readiness Metric Scoring using three topics: existing infrastructure, development, and desirability. Source: Report authors.



# Development Potential

## 1/2 Mile Radius

### Development Potential

The following chart analyzes the potential future development of the 1/2 mile study area. The analysis uses U.S. Census data collected from ESRI Business Analyst in the fall of 2018 (also shown in the Social and Economic Profile). The analysis offers a variety of development scenarios for housing, employment, and business density.

Future potential densities in each scenario are calculated using proportions. The future densities proposed in each scenario were derived from a series of TOD studies and discussions that consider the development capacities of rural, suburban, or urban TOD locations with rail or BRT stations. A variety of scenarios are offered due to the diverse landscape typologies researched in this study and to better understand the growth of the location over time.

### Definitions

Underused land may include parcels that do not contain a structure, are declared vacant, contain large surface parking, or are undeveloped and zoned residential.

Underused buildings appear unoccupied and were documented through direct observation.

**Total Underused Land:** 34 acres, See Opportunities Map, page 126

**Total Underused Buildings:** 0 acres

### Possible 1 Bedroom Units on Underused Land (800SF):

Possible Number of 1 Bedroom Units	
Floor Area Ratio (FAR)	Number of Units
1.0	1,851
2.0	3,702
3.0	5,553
4.0	7,404

### Possible 2 Bedroom Units on Underused Land (1200SF):

Possible Number of 2 Bedroom Units	
Floor Area Ratio (FAR)	Number of Units
1.0	1,234
2.0	2,468
3.0	3,703
4.0	4,937

### Affordable Housing, Town-wide

8.06% of North Kingstown Housing Stock is Low- and Moderate-Income

Shortfall of Affordable Housing Units:

10%: 212 units- State Goal

15%: 395 units

20%: 526 units

10% State Goal Achievable with Availability of Underused Land: Yes

# Development Potential, Wickford Junction

## Typology: TOD around Commuter Rail Stops

A TOD around commuter rail stops is a transportation hub surrounded by relatively high-density development with progressively lower-density spreading outwards. New TODs may be developed around planned commuter rail stops in Rhode Island. TOD town centers may have a transit station and a few multi-story commercial and residential buildings surrounded by several blocks of townhouses and small-lot signal-family residential. Zoning will emphasize mixed-use development. Potential locations include East Greenwich, Warwick Station, and Westerly. Unit per Acre: 30-50. Typology Classification: RI 5 Year Strategic Housing Plan: 2006-2010, Urban Density Guidelines Matrix, D-6

## Residential Density Potential, 1/2 mile Radius, 502 acres

Scenarios include a range of residential densities to illustrate the future need of residential housing within 502 acres surrounding the station.

	Existing	Scenario A	Scenario B	Scenario C
<b>Residential Density</b> Units/Acre	0.2	10	20	30
<b>Housing Units</b>	99	4,950	9,900	14,850
<b>New Housing Units</b>	n/a	4,851	9,801	14,751
<b>Total Area of New 1 Bedroom Units</b> at 800 Square Feet	n/a	3,880,800	7,840,800	11,800,800
<b>Total Area of New 2 Bedroom Units</b> at 1,200 Square Feet	n/a	5,821,200	11,761,200	17,701,200

## Employment Density Potential, 1/2 mile Radius, 502 acres

Scenarios include a range of employment densities to illustrate the future need of job opportunities within 502 acres surrounding the station.

	Existing	Scenario A	Scenario B	Scenario C
<b>Employment Density</b> Jobs/Acre	2.6	10	15	20
<b>Jobs</b>	1,328	5,108	7,662	10,215
<b>New Jobs</b>	n/a	3,780	6,334	8,887
<b>Total Area of New Employment</b> <b>Space</b> at 200 Square Feet/Per Employee	n/a	755,938	1,266,708	1,777,477
<b>Population</b>	286	1,100	1,650	2,200

### Business Density Potential, 1/2 mile Radius, 502 acres

Scenarios include a range of business densities to illustrate the future need of business opportunities within 502 acres surrounding the station.

	Existing	Scenario A	Scenario B	Scenario C
<b>Business Density</b> Business/Acre	0.2	1.0	1.5	2.0
<b>Businesses</b>	114	570	855	1,140

### Buildout Potential of FAR on Underused Land

Scenarios include a range of floor-area-ratios to illustrate the future development potential given available underused land.

	Existing	Scenario A	Scenario B	Scenario C
<b>Zoning Designations of Underused Land</b> WJ Wickford Junction TOD, NR Neighborhood Residential, RR Rural Residential, GB General		n/a	n/a	n/a
<b>Allowable Building Height FAR</b>	4.0	5.0	6.0	7.0
<b>Underused Land Acres</b>	34	34	34	34
<b>Total Built Space</b> Square Feet	5,924,160	7,405,200	8,886,240	10,367,280

**Underused Buildings** Square Feet 0

\*Four stories or up to a height of 50' represents the bonus density allowable for the inclusion of affordable housing or the use of Transfer Development Rights (TDR). Otherwise Wickford Junction is zoned for a maximum height of 38'.

Figure: Development potential of residential, employment, and business density. Existing data from ESRI Business Analyst. Developed by: Report authors.

# Future Opportunities

## 1/2 Mile Radius

The following list of future opportunities are identified on the accompanying map.

### Transportation

- Increase the frequency of train service to the station, either through MBTA service, or a new intra-state rail network. Transitioning to an intra-state rail network will increase frequency and efficiency, expanding use of the train station by riders traveling throughout RI instead of limiting the ridership to those traveling to Providence or Boston. An intra-state rail network would enhance the viability of train ridership as an alternative to automobile travel.

- Provide pedestrian and cycling infrastructure along Ten Rod Road to increase accessibility to the station, especially between the station and Wickford Village. Enhanced accessibility may increase ridership through making inter-modal connections seamless as well as help to activate an increased density of retail/commercial development around the station.
- Create a RIPTA bus line or micro transit to Wickford Village and Quonset. Adding accessibility to these locations will increase the viability of Wickford Junction as a transit hub for the region and improve inter-modal connectivity.
- Continue to promote Wickford Junction as a viable commuter rail option to those who would drive to the station and take the train to Providence or Boston.

### Building

- Develop mixed-use development that includes local retail and multi-family residential. This will establish the station as moderate retail and residential destination, creating a sense of place.
- Develop retail/office space around the station. This will not only serve the surrounding population but could potentially draw commuters to the station as a minor employment destination.

- Reconfigure lot sizes to provide multi-family residential opportunities with a focus on smaller lot sizes and technical assistance on the construction of accessory dwellings units. This will create greater density, possibly increase use of transit, and help to stimulate the economic potential of the station area, while maintaining current character of the neighborhood.

### Parking

- Identify underutilized parking areas to re-purpose into office/retail, or outdoor recreation spaces. This will increase the efficient use of land around the station, potentially reduce the amount of impermeable surface on site, and increase the overall desirability the station as a place.
- Transition ground-level space in the station parking structure into retail space. This will activate the street for pedestrian use and service riders as well as current and prospective residents.

### Open Space

- Preserve the abundance of open “green” space around the station. Open space maintains the remote feeling of the area while fostering a sense of community space.
- Consider using this open space to provide “pocket parks,” and outdoor recreation amenities to enhance the desirability of the development zone.

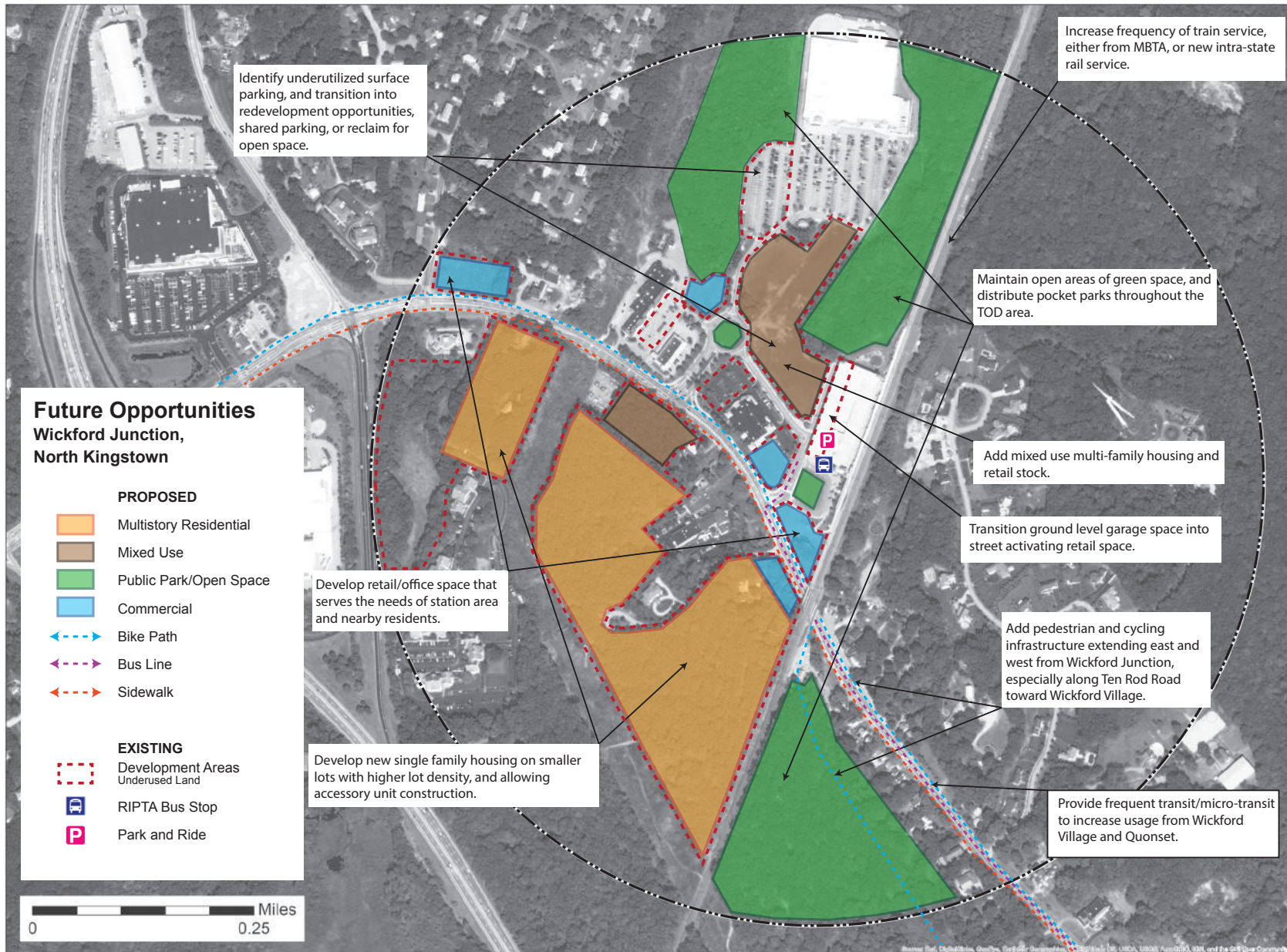


Figure: Map of proposed opportunities for TOD within 1/2 mile of Wickford Junction Station. Report authors.

# Development Scenario

## Development Scenario

This development scenario is adjacent to the existing Staples and PetCo next to the train station. We recommend a 15'-0" first floor retail space with 10'-0" residential above. Mixed-use development optimizes walking and biking within the area to the train station.

We recommend a FAR 4.0 which is allowable with Wickford Junction TOD zoning if development includes affordable housing units. Proposals that include affordable housing should be prioritized by the planning board to promote housing diversity.



Figure: Existing street view. Source: Google Street View, 2018.

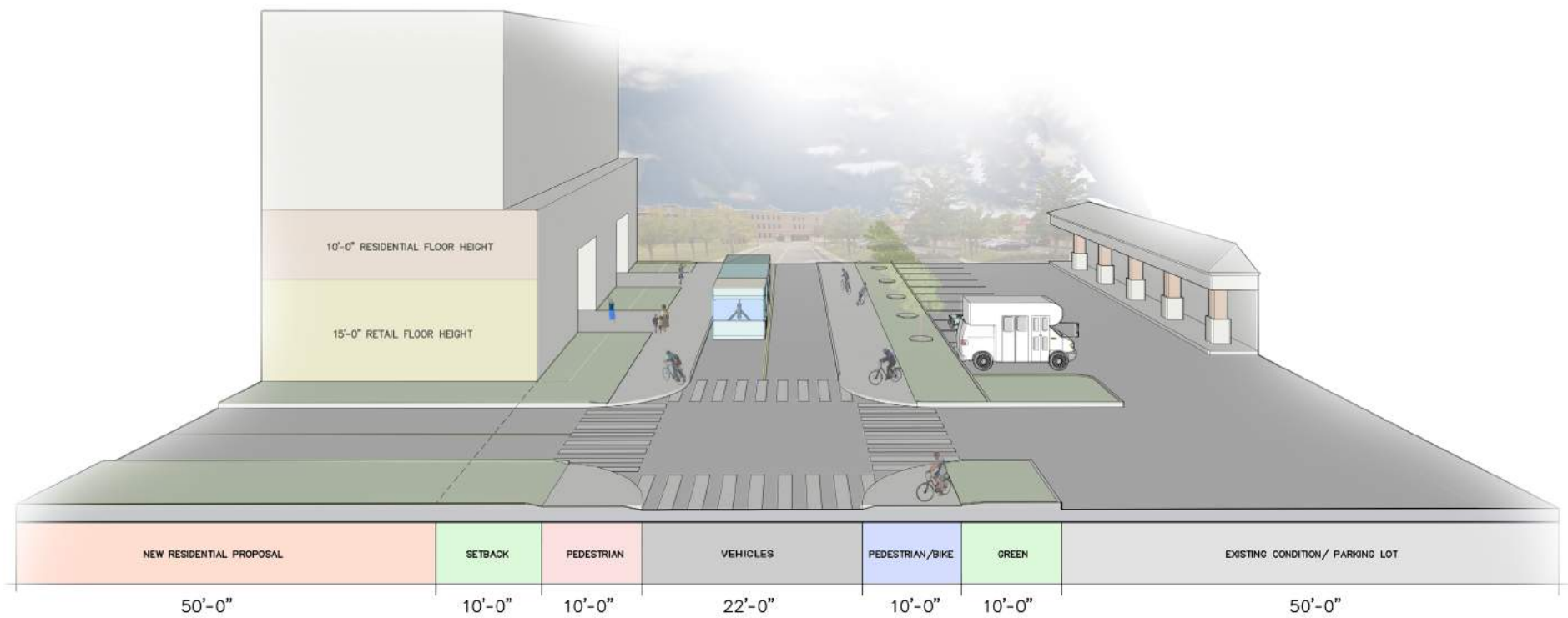


Figure: Illustration of potential development scenario. Developed by: Report authors.

# Local Policy Considerations

**1. Revise existing Wastewater Management Facilities Plan** to address the lack of sewer in the Wickford Junction TOD District through decentralized wastewater facilities or sewer extension.

**2. Seek out existing research or innovative practices of technological advancements** in housing development within groundwater recharge areas to aid in revision of Wastewater Management Facilities Plan.

**3. Collaborate with statewide planning** to create a plan and seek funding to sewer the study area.

**4. Further promote zoning reforms and existing incentives** for the Wickford Junction TOD District to attract private investment in walkable, mixed use, pedestrian-oriented development.

**5. Partner with RIPTA to create high-frequency bus trips** from denser metropolitan areas to the south and to the east (Wickford Village) to bring commuters to the train station.

**6. Participate in the development of RI's Transit Master Plan** to ensure that seamless connections to and from the train station are integrated into future inter-modal transit plans.

**7. Adopt "Green and Complete Streets" planning agenda** for the Wickford Junction Village to establish walkable and bikeable development that evokes a local, village feel. Propose a municipal 'Green and Complete Streets' ordinance that ensures consideration for including natural storm water and walkable/bikeable design principles into all road repair and reconstruction projects.

**8. Adopt local zoning reforms to encourage Accessory Dwelling Units (ADUs)**, in accordance with recently passed state law that allows single-family homeowners to build these units by right as a tool to

address underutilized properties and provide additional affordable housing.

**8. Adopt local zoning reforms to encourage Accessory Dwelling Units (ADUs)**, in accordance with recently passed state law that allows single-family homeowners to build these units by right as a tool to address underutilized properties and provide additional affordable housing.

**9. Create a Wickford Junction TOD District Vision/Plan** to broaden community engagement in the future growth of the area.

**10. Reform parking requirements in the TOD district** to promote shared parking models, re-visioning of existing surface parking lots, and accommodate pedestrians throughout the TOD.

**11. Identify and possible land-bank properties** (including surface parking lots) that represent prime (re)development opportunities.







# 4.3 Kingston Station

South Kingstown, RI

Heather Byrnes  
Tyler Davis  
Eline Hilgersom  
Matthew Russo  
Alex Zuchero



Photograph: Kingston Station, Source: Warren Beckwith

# TOD Goals Existing Plans & Policies

The following includes TOD related goals retrieved from existing municipal plans and policies.

## Document

West Kingston Village Plan Report, 2015

## Goals

Paraphrased from document.

Common Threads- Managing Change and Preserving Community Character, Page 9:

- Potential for commuter rail expansion.
- Higher train station use can increase appeal of living in the village which could increase traffic and lead to increased commerce and

employment opportunity.

- Zoning ordinance changes to allow for mixed use along Route 138. The majority of this area is currently industrial use land.

- Denser housing can create the need for increased community spaces and walkable areas.

Connectivity and Circulation, Page 12:

- Multimodal village using Amtrak, RIPTA, and bike path.

- Integration of the current infrastructure.

- Better signage and speed control in specified areas.

- Reconstruction of 138, improvements to sidewalk and more continuous sidewalk from URI also resurfacing of the road.

Expansion/Future Development plans at the University of Rhode Island, Page 14:

- Properly manage URI's increased traffic congestion and stormwater runoff as the campus population grows.
- Create a road that allows for multimodal transportation such as buses, bikes, and pedestrian walkways.

- Resurfacing roads and restructuring roads for multimodal options.

- Bike Path Connector URI campus to West Kingston Park.

- Town should continue to participate in Campus Master Plan.

Future Viability of Industrial Use, Page 22:

- Creation of an economic/business liaison could promote redevelopment of existing sites.

- Mixed use zoning could lead to a more attractive central area with the potential for a commuter rail system.

## Document

Circulation Action Plan, South Kingstown Community Plan Update, 2013

## Goals

- Identify and preserve greenway areas to create a system of green trails and guide the future growth of the town.
- Identify areas of opportunity for enhancing the pedestrian, bike, and public transit networks to support a multi-modal approach to transportation and provide an appealing pedestrian environment.

- To integrate safe transportation modes in the town without disrupting the aesthetic, environmental, and cultural values of the community.
- To encourage multi-modal transportation opportunities throughout town to support a healthy, equitable transportation system for all residents including seniors, youth and low-income populations who may not have equal access to personal car transport.
- To promote street design that is safe, inviting, attractive, and supports healthy, active modes of transportation.
- To ensure that circulation improvements protect the quality of life in the community.
- To work with state and federal agencies to improve safety and accessibility for residents, visitors, and students

### Document

Transportation and Parking MasterPlan  
University of Rhode Island, Page 2-3:  
Paraphrased from document.

### Goals

- Roadways – This component encompasses complete streets. Improvements are focused on enhanced intersection operations, traffic calming, and reducing traffic in the

campus core thereby reducing conflicts with pedestrian and bicycle travel.

- Parking – This element requires the efficient use of available parking resources and evaluation of the parking system including management, pricing, enforcement, and assignment policies.

- Shuttles – The use of RIPTA bus service as a primary travel mode is steadily increasing in popularity, requiring increased fleet, more frequent service, and convenient stop locations. The parking strategy will require additional transit connections within the campus boundaries to link fringe parking areas to employment and educational centers. URI’s growth is underpinned by transit enhancements, an expanded UPass program, added RIPTA engagement, and other transit incentives that reduce reliance on personal mobility.

- Pedestrians – Safe and comfortable pedestrian circulation is critical at any campus, thus it is important to support these users through expansion of the current network and provide increased connectivity, access, and safety across campus.

- Bicycles – The bicycle component intends to implement amenities and designated

routes to create a comprehensive, safe, and regionally connected network serving the campus.

Goal: Move parking out of the campus core to create a more pedestrian and bike friendly environment while accommodating needs for service vehicles and accessible spaces.

Goal: Transform campus roadways into “complete streets” and create URI branded gateways at key locations so that there is a sense of arrival to campus that does not exist.

# Social & Economic Profile

## 1/2 Mile Radius

### Profile Findings, 1/2 Mile Radius

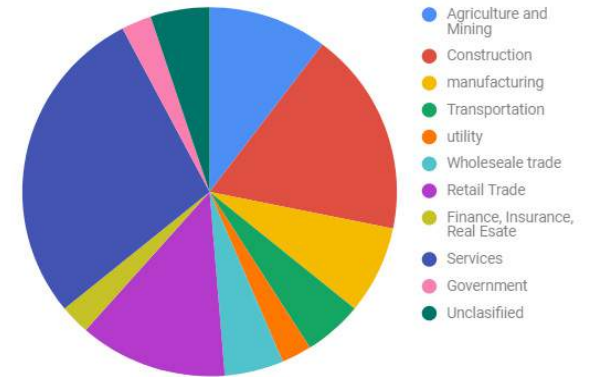
Total Population: 345  
 Density: 0.7 people per acre  
 Median Age: 47  
 Female Median Age: 49  
 Male Median Age: 47

Total Employees: 1,278  
 Density: 2.5 employees per acre  
 Total Businesses: 40  
 Density: 0.08 businesses per acre

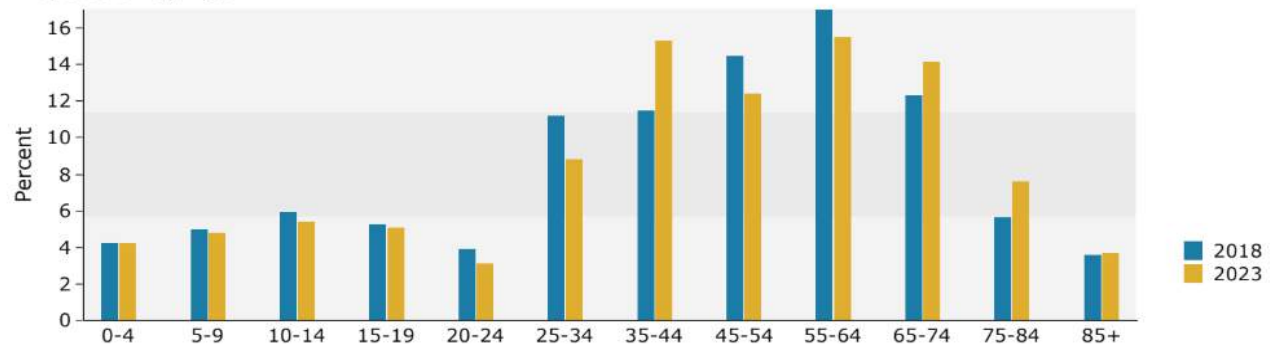
Housing: 161 units  
 Density: 0.32 units per acre

Median Household Income: \$98,321  
 Median Home Value = \$355,208  
 Per Capita Income = \$40,212

Major Businesses by Category



Population by Age



### Data & Figure Sources

ESRI- Business Analyst  
<https://bao.arcgis.com/esriBAO/index.html#>  
 U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2018 and 2023.

# Social & Economic Profile

## 1 Mile Radius

### Profile Findings, 1 Mile Radius

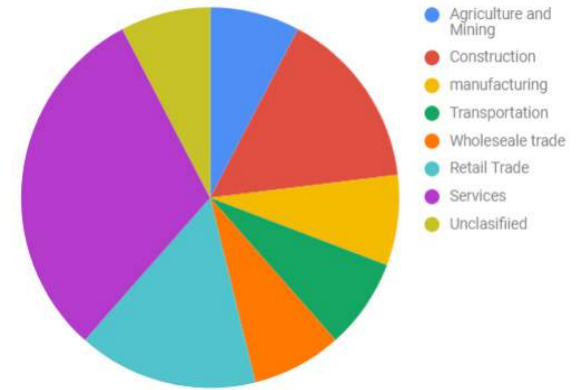
Total Population: 588  
 Density per acre: 0.3 people per acre  
 Median Age: 47  
 Female Median Age: 48  
 Male Median Age: 46

Total Employees: 1,900  
 Density per acre: 0.9 employees per acre  
 Total Businesses: 60  
 Density per acre: 0.03 businesses per acre

Total Housing Units: 253  
 Density: 0.13 units per acre

Median Household Income: \$98,570  
 Median Home Value = \$354,667  
 Per Capita Income = \$39,585

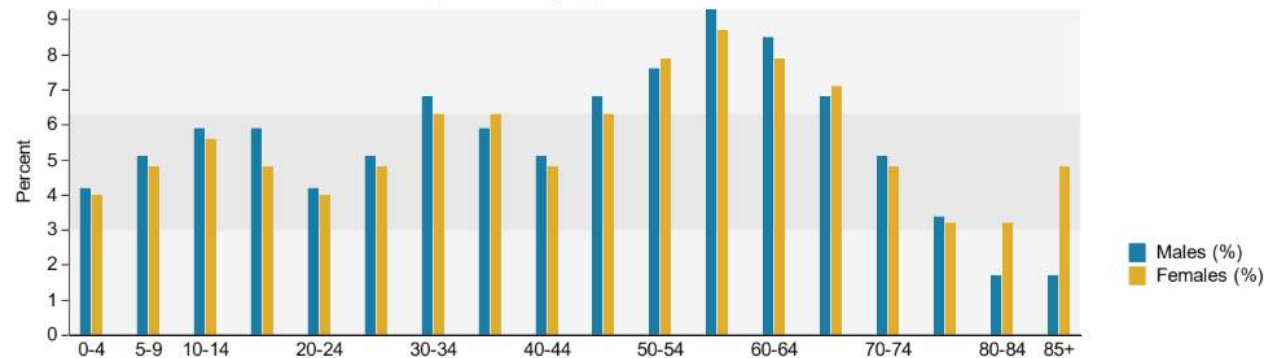
Major Businesses by Category



### Data & Figure Sources

ESRI - Business Analyst  
<https://bao.arcgis.com/esriBAO/index.html#>  
 U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2018 and 2023.

2018 Population by Age and Sex



# Existing Infrastructure

## 1/2 Mile Radius



Figure: Photo of Schneider Electric. Source: dowedengineering.com

### Transportation Systems

The following transportation systems operate within the study area.

RIPTA Bus Route 64:  
Newport/URI Kingston. Limited stops.  
Low Frequency.

RIPTA Bus Route 62:  
URI/Providence Station. Long distance.  
Limited stops. High frequency.

RIPTA Bus Route 66:  
URI/Galilee. Long distance. High frequency.

Amtrak Route: Northeast Regional  
Morning/Mid. Afternoon 1.5/4 Hrs.  
Evening about every 2 Hrs.  
20-30 min to Providence  
1.5 Hours to Boston

Bike Routes: William C. O'Neil Bike Path runs from Amtrak's Kingston Station to within a mile of Narragansett Pier. Other bike routes exit along Kingstown Road and side streets connecting to URI.

Sidewalk Infrastructure: Exist only within close proximity to Kingston Station (Rt.138 roundabout) and within URI campus.

URI Rhody Shuttle Service: Strictly URI Visitors, Students, Faculty & Staff

Ride Share Companies: Uber, Lyft, ZipCar



Figure: Photograph of train station. Source: Warren Beckwith

### Station Infrastructure

Accessible Platforms: Yes

Parking at Station: 65,245 Square Feet (1.5 acres)



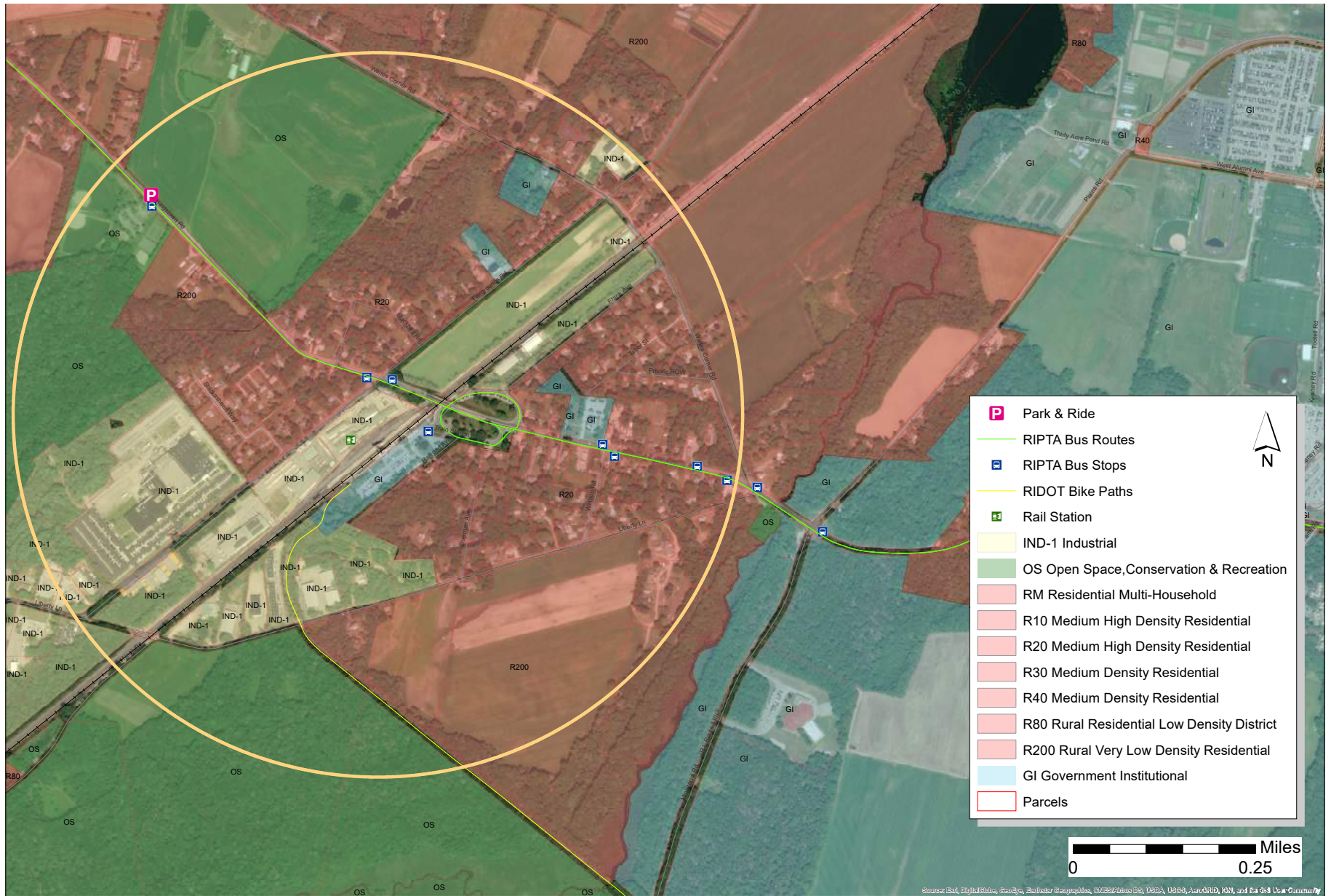


Figure: Map of existing infrastructure and zoning. Source: Municipal GIS Shapefiles.

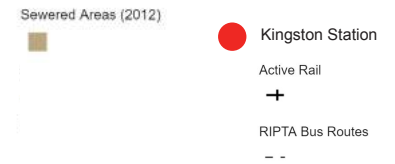
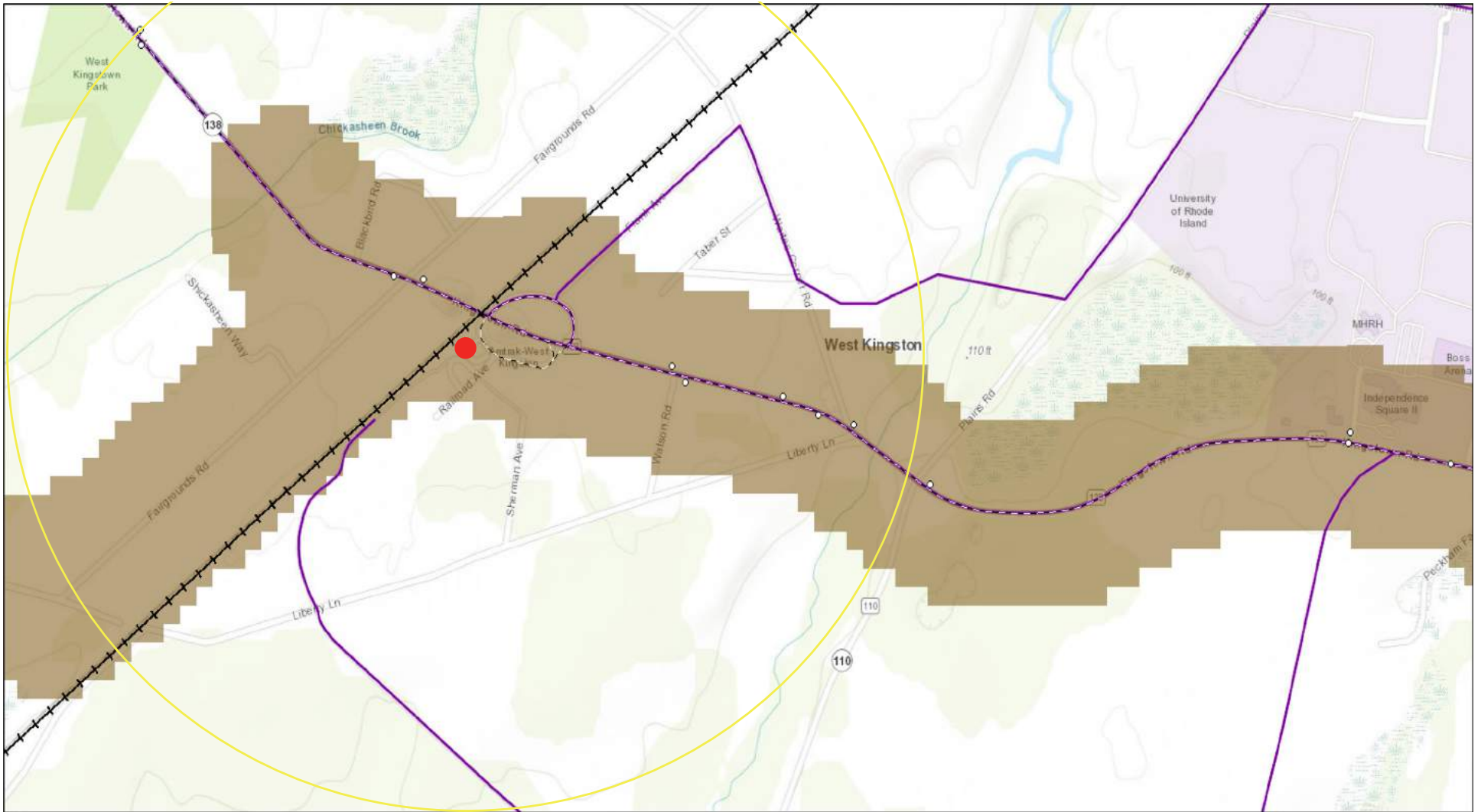


Figure: Map of sewerage areas and transportation. Source: RI Division of Planning Mapping Application



Figure: Map of Rhody Shuttle Service. Source: web.uri.edu

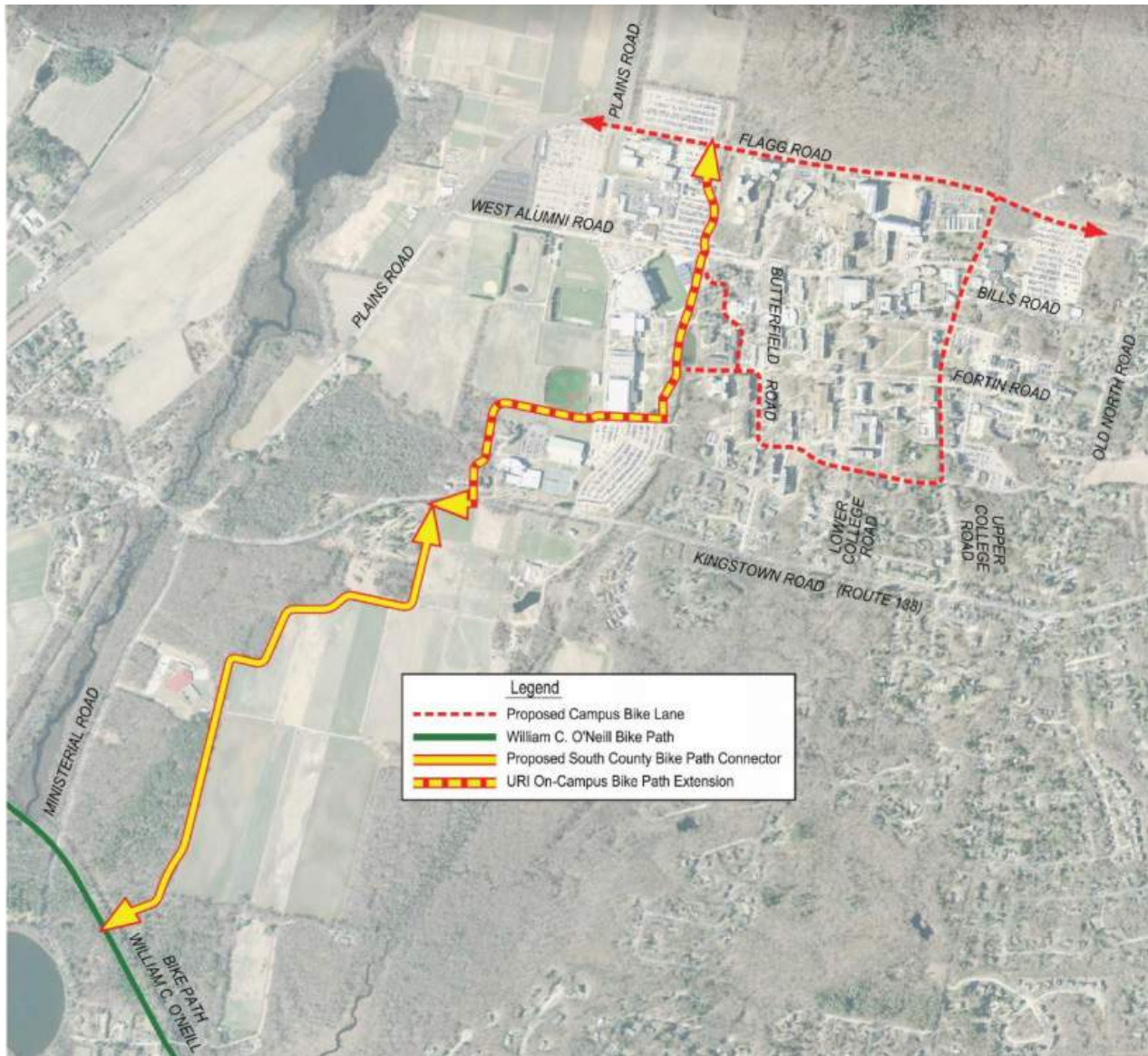


Figure: Map of existing and proposed bike paths. Source: Master Plan Reports: Transportation and Parking Master Plan URI, Kingston Campus.

# Existing Development Conditions

## 1/2 Mile Radius



Figure: Photograph of residential typology in South Kingstown. Source: Google Maps

### Existing or Planned Projects

At the moment there are no projects being developed. The current zoning makes it hard to plan for development since a large part of the land use around Kingston Station is zoned Industrial, IND-1 and Residential, R-20, which is surrounded by Open Space OS and Residential R-200 zoning. These zoning designations make it hard to develop higher density and mixed-use.

The most common reoccurring vision for the community includes mixing small numbers of residential units with neighborhood scale commercial development. This type of housing model is currently not permitted in the R-20 district.

URI is planning to expand their campus. A new student residence building will be built on a now existing parking lot.

There has also been discussion about developing a Main Street plan to provide mixed use near campus.

In the future, there will be an expansion of the Kingston Station parking lot, due to the increasing demand for train, bus and bicycle parking. RIDOT developed design plans to expand the parking lot as part of the Route 138 Reconstruction Project. The plans

include the addition of 135 parking spaces to the south and relocation of the existing stormwater detention pond, as well as an additional 45 spaces to the north, adjacent to the signal tower.

There is a demand for small-scale industrial business incubator space within West Kingston's industrial area as evidenced by occupancy demand at the condominium developments on Frank Avenue and Liberty Lane.

### Vacant or Underused Land

55 acres calculated

A large part of the land in West Kingston is a contiguous ring of unprotected agricultural land. This increases the vacant developable land, but protection of the agricultural heritage of the area is critical to preserving its overall character and sense of place. The majority of these vacant parcels are lands associated with the existing turf farms. Dependent on the underlying zoning district, future development of this land would be subject to environmental limitations.

### Vacant or Underused Buildings

270,605 square feet calculated

Schneider Electric is the Town's largest private sector employer, yet a portion of the usable building space is currently vacant.



Figure: Photograph of Vacant or Underused Buildings. Source: Google Maps

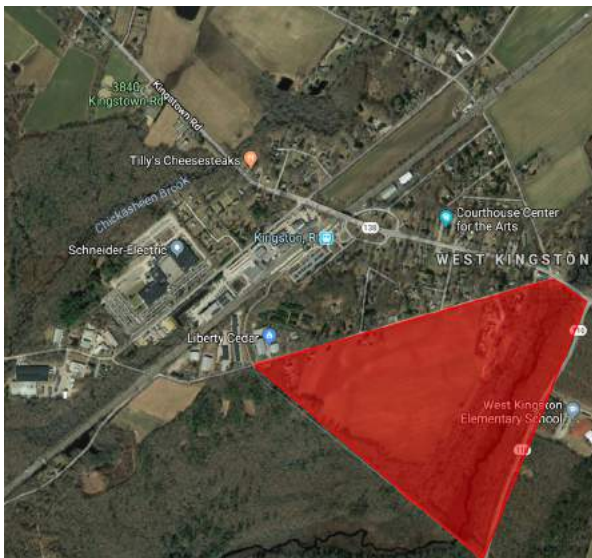


Figure: Photograph Vacant or Underused Land. Source: Google Maps

The former Arnold Lumber site at Waites Corner is another industrial site of concern as it is partially vacant and in need of rehabilitation.

### **Growth Center Designation**

Yes, Growth Centers are defined as having “a core of commercial and community services, residential development, and natural and built landmarks and boundaries that provide a sense of place,” making them dynamic and efficient centers for development.

### **Opportunity Zone Designation**

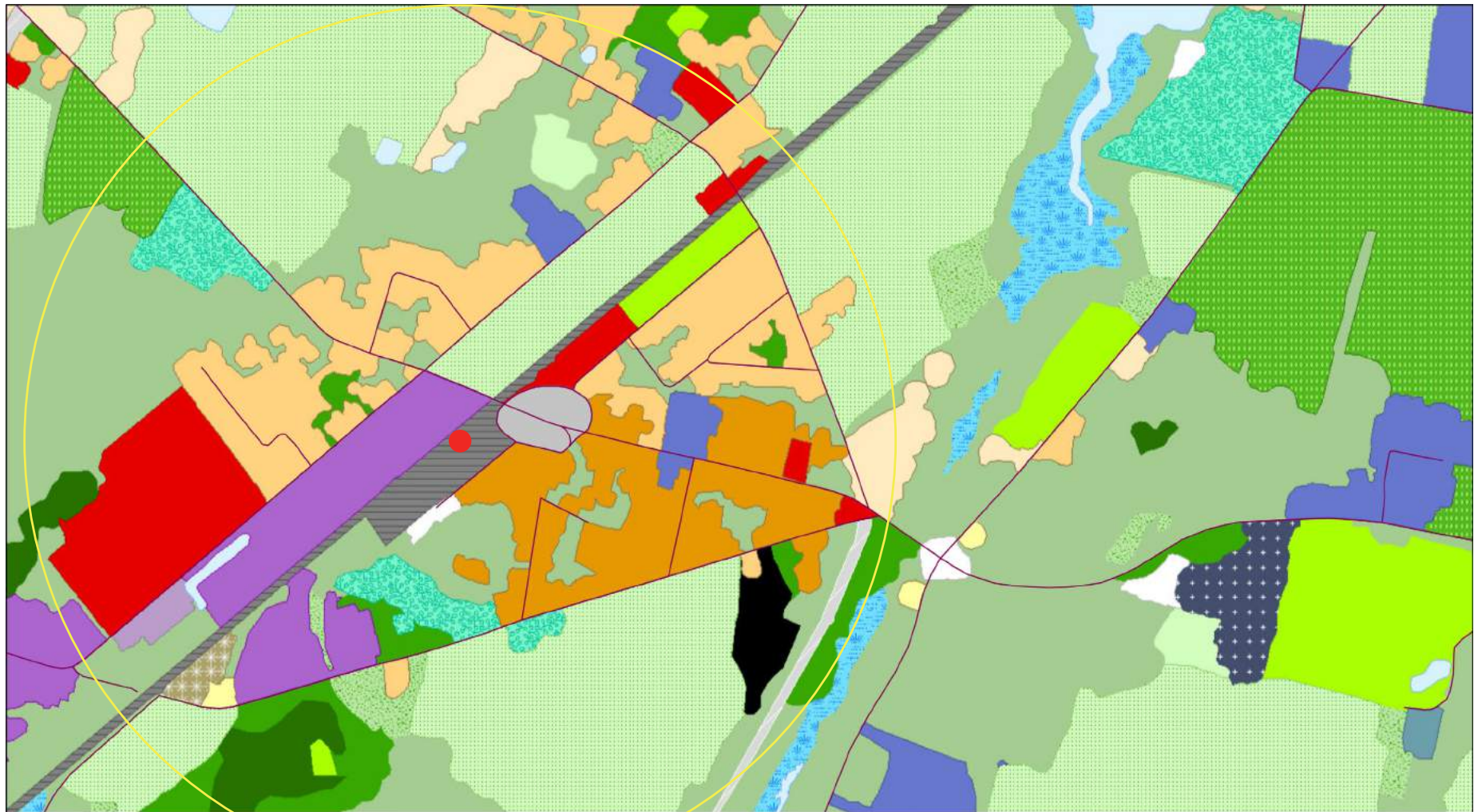
Yes, Census Tract 514

### **Residential Housing Densities**

Housing in the area is zoned as R20 Medium High Density Residential District. This district allows a residential density of up to 2.2 dwelling units per acre. The lot sizes for single-household detached dwellings is 20,000 square feet.

Residential directly near the station is R200 Rural Very Low Density District. This district allows a residential density of up to 0.2 dwellings per acre. The minimum lot size for single-household detached dwellings is 200,000 square feet.

According to the Land Use Land Cover data (following page) that classifies housing using lot size, the dominant density type in the area is Medium High Density Residential 1/4 to 1/8 acre lots.



- Land Use / Land Cover 2011
- High Density Residential (<1/8 acre lots)
  - Medium High Density Residential (1/4 to 1/8 acre lots)
  - Medium Density Residential (1 to 1/4 acre lots)
  - Medium Low Density Residential (1 to 1/2 acre lots)
  - Low Density Residential (>2 acre lots)
  - Commercial (Sale of products and services)
  - Commercial/Residential Mixed
  - Commercial/Industrial Mixed
  - Industrial (manufacturing, design, assembly, etc.)
  - Kingston Station

- Cemeteries
- Power Lines (100' or more width)
- Roads (divided highways > 200' plus related facilities)
- Airports (and associated facilities)
- Railroads (and associated facilities)
- Waste Disposal (landfills, junkyards, etc.)
- Water and Sewage Treatment
- Other Transportation (terminals, docks, etc.)
- Waste Disposal (landfills, junkyards, etc.)
- Developed Recreation (all recreation)
- Cropland (tillable)

- Orchards, Groves, Nurseries
- Confined Feeding Operations
- Pasture (agricultural not suitable for tillage)
- Idle Agriculture (abandoned fields and orchards)
- Brushland (shrub and brush areas, reforestation)
- Deciduous Forest (>80% hardwood)
- Softwood Forest (>80% softwood)
- Mixed Forest
- Water
- Wetland
- Vacant Land
- Transitional Areas (urban open)

- Mines, Quarries and Gravel Pits
- Beaches
- Sandy Areas (not beaches)
- Mixed Barren Areas
- Rock Outcrops

Figure: Map of Statewide Planning Land Use 2011. Source: RI Division of Planning Mapping Application

This is a statewide, seamless digital dataset of the land cover/land use for the State of Rhode Island derived using automated and semi-automated methods and is based on orthophotography captured in spring 2011.

# Desirability

## 1/2 Mile Radius

### Employment Opportunities

The industrial zoning surrounding the site has created a density of employment opportunities in proximity to the station. However, the regional rail service at the station is infrequent, forcing workers to rely on other modes of transportation such as the automobile. In addition, there is a lack of retail employment opportunities because the industrial zoning around the transit hub does not support commercial/retail spaces.

### Cultural Resources

Cultural resources such as museums, historic sites, and cemeteries are located outside of the half mile radius from Kingston station and are not in a feasible walking distance.



Figure: Photograph of Kingston Village. Source: Google Maps

### Schools, Parks, Hospitals

University of Rhode Island  
West Kingston Elementary School  
West Kingston Park  
South County Hospital, 6.2 miles



Figure: Photograph of Tefft Park. Source: Google Maps



Figure: Photograph of South County Historic Center. Source: <http://southcountyhistorycenter.org>



## Walkability

Walk score measures the walkability of any address based on the distance to nearby places, pedestrian friendliness, and topography. Points are awarded based on proximity to amenities. The lower the score, the farther a location is away from amenities. Kingston Station has a walk score of **18** and a bike score of **45**. This low walk score demonstrates a dependency and need for buses or a secondary system of transportation to support a larger transit hub. This also illustrates the need to improve existing bike paths/lanes in order to enhance connectivity to support the transit hub.

## Sidewalk Conditions

A lack of decent sidewalks creates major issues for the area. The desirability for walking is poor in this area.

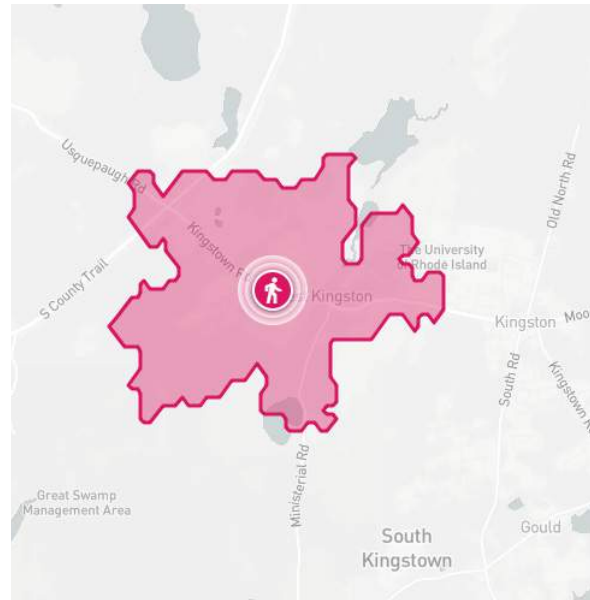


Figure: Map of walkable distance in 30 minutes. Source: Travel Time Platform.



Figure: Photograph of sidewalk. Source: Google Maps



Figure: Photograph of sidewalk. Source: Google Maps

Walk Score	Transit Score	Bike Score
Bike Score measures whether an area is good for biking based on bike lanes and trails, hills, road connectivity, and destinations.		
90-100	<b>Biker's Paradise</b>	Daily errands can be accomplished on a bike
70-89	<b>Very Bikeable</b>	Biking is convenient for most trips
50-69	<b>Bikeable</b>	Some bike infrastructure
0-49	<b>Somewhat Bikeable</b>	Minimal bike infrastructure

Figure: Photograph of Bike Score. Source: www.walkscore.com

Walk Score	Transit Score	Bike Score
Transit Score measures how well a location is served by public transit based on the distance and type of nearby transit lines.		
90-100	<b>Rider's Paradise</b>	World-class public transportation
70-89	<b>Excellent Transit</b>	Transit is convenient for most trips
50-69	<b>Good Transit</b>	Many nearby public transportation options
25-49	<b>Some Transit</b>	A few nearby public transportation options
0-24	<b>Minimal Transit</b>	It is possible to get on a bus

Figure: Photograph of Transit Score. Source: www.walkscore.com

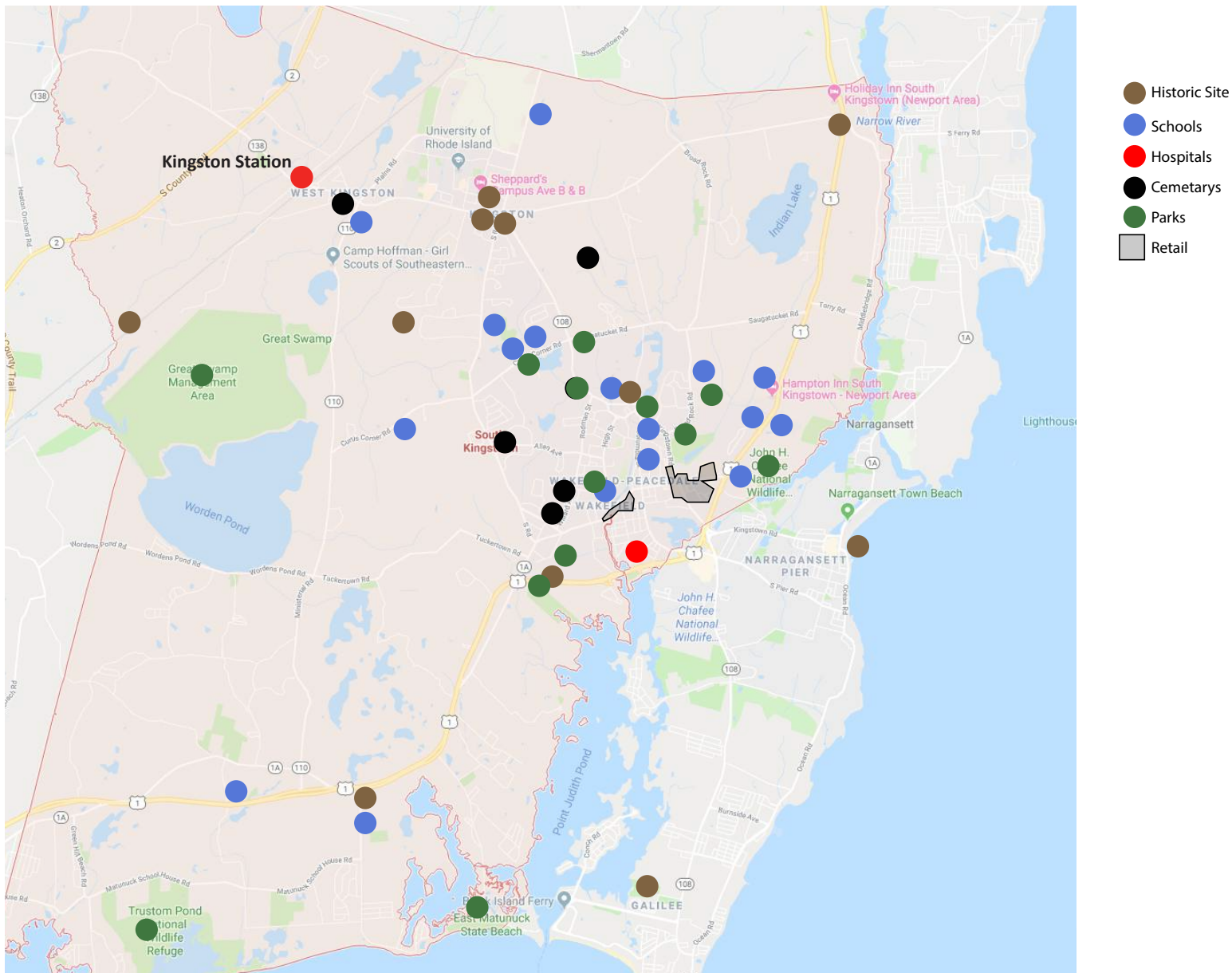


Figure: Map of local amenities. Source: Google Maps.

# Assets & Challenges

## Assets

- Station proximity to University of Rhode Island (URI) provides potential ridership (students/faculty/visitors). The recently renovated rail station was a major investment.
- The current residential zoning adjacent to Kingston Station has the potential to be rezoned for a flux industrial zone to support mixed-use development.
- The large industrial and educational areas (URI) surrounding the site offer many jobs.
- Census Tract 514 is designated as an Opportunity Zone by the state where new investments, under certain conditions, may be eligible for preferential tax treatment.
- Access to a bike path in proximity to Kingston Station supports a secondary method of transportation to navigate locally or to the university.

## Challenges

- The area surrounding the station is zoned industrial use. This poses challenges for increasing any development in the area without risking a loss of manufacturing.
- URI is discussing a rail spur near campus, which would need considerable coordination for the success of the existing Kingston station.
- Wetland area surrounding industrial zone can not be used for development.
- The area has poor walkability around the station including intersections and bridges.
- Zoning supports low density housing.
- There is no grocery store within a 1 mile radius of the area, making it difficult for people to access food without having to use transportation.
- South Kingston station only serves Amtrak regional service and is expensive to travel to Boston or Providence. RIPTA can not replace commuter rail given the low frequency of service.

# TOD Readiness

## 1/2 Mile Radius

### TOD Readiness

The TOD Readiness Score summarizes how far a location has progressed toward its full TOD potential and how far it has to go. The following charts show the analysis conducted to determine the readiness of the study area.

### Methodology

Adapted from the TOD Priority Tool, Capital Metropolitan Transportation Authority, Austin, TX.

The TOD Readiness Score can and will change over time as conditions evolve and TOD takes hold in the market. The TOD Readiness Score has 3 levels:

#### Long Range:

Exhibiting few characteristics of TOD

#### Emerging:

Beginning to demonstrate some of the TOD characteristics.

#### Ready:

Showing TOD characteristics in much of the station area, but with gaps that are reasonably expected to be closed.

### Measurement System

Using the existing conditions research, a variety of metrics were developed for three primary TOD topics: existing infrastructure, development potential, and desirability. Each metric was weighted using the following:

5 = Extremely Important to the Success of TOD

4 = Very Important to the Success of TOD

3 = Important to the Success of TOD

2 = Slightly Important

1 = Unimportant

Individual metrics are scored low (1), medium (2), high (3) based on scoring criteria and are equally weighed. The metric total is calculated by multiplying the weight by the score.

The metrics were added to give the study area a total score ranging from 74 to 222. This total is then converted to the composite TOD Readiness Score, using the following equally distributed range:

Readiness Stage	Composite Score Range
Long-Range	74-123
Emerging	124-173
Ready	174-222

Figure: Composite TOD Readiness Score. Source: TOD Priority Tool, Capital Metropolitan Transportation Authority, Austin, TX.

## Kingston Station Readiness Matrix, 1/2 Mile Study Area

### Readiness Stage: Long-Range

	Weights of Importance	Scoring Criteria	Score, Low = 1, Medium = 2, High = 3	Total Score
<b>Infrastructure</b>				
Government Support	4	Weak = The government has done nothing to promote TOD; Moderate = Some effort was made by the municipality to promote development at a few sites through rezoning, investing in related infrastructure, some financial incentives; Strong = The municipality uses its powers to promote TOD such as rezoning, creating a plan with a specific focus on the area, proactive outreach to developers, environmental clean-up.	2	8
Existing Train or Bus Frequency	5	Low = 15+ minute wait ; Medium = 10-15 min, High = <5 min	1	5
Bicycle Connectivity	3	Low = Roads have low or Extremely low comfort level; Medium = Medium comfort level, Bicycle racks; High = High comfort level, bike station	2	3
Highway Connectivity	3	Low = No access to highway interchange or radial/cross-town arterial within 1 mile; Medium = Indirect access to highway interchange or major arterial within 1 mile; High = Direct access to highway interchange, major arterial	1	3
Station Parking	2	Low = No parking at TOD location; Medium = designated surface lot parking; High = designated parking garage	2	4
Sewered Area	5	Low = Little to no sewer infrastructure; Medium = majority sewered; High = all sewered	1	5
<b>Development</b>				
Building Density	4	Low = 1 Story, Medium = 2 Stories, High = 3 Stories	1	4
Land Availability	4	Low = No sites of significant size; Medium = 1-3 sites; 3+ sites	1	4
Vacant Building Availability	4	Low = No buildings; Medium = 1-3 buildings; 3+ buildings	1	4
Development Activity	4	Low = No projects under development; Medium = 1-2 projects underdevelopment; High = 3+ projects under development	1	4
Existing Housing Density	4	Low = 3 units/ acre; Medium = 4-6 units/acre; High = 6+ units/acre	1	4
<b>Desirability</b>				
Local/Community Retail	4	Low = No local or community stores, Medium = 1-2 local stores, High = 3+ local stores	2	8
Regional Retail	2	Low = No regional stores (Auto Dealers, Big box stores), Medium = 1-2 regional stores, High = 3+ regional stores	1	2

## Kingston Station Readiness Matrix, 1/2 Mile Study Area

### Readiness Stage: Long-Range

Walkshed Connectivity	5	Low= Major sidewalk gaps, major presence of poor condition, significant accessibility barriers, Low walkscore; Medium = some gaps, some presence of poor condition, occasional accessibility barriers, Adequate walk score; High = Few to no gaps, little presence of poor conditions, few to no accessibility barriers, High walkscore.	1	5
Schools	3	Low = No schools (any grade level), Medium = 1 school, High = 2+ schools	2	6
Parks	4	Low = No park open to the public, Medium = 1 park, High = 2+ park	1	4
Hospitals	2	Low = No hospitals, High = 1+ hospitals	1	2
Local and Cultural Resources	3	Low = No cultural resources (museums, historic sites, cemeteries), Medium = 2 cultural resources, High = 3+ cultural resources	1	3
Supermarket/Grocery Stores	4	Low = No grocery, High = 1+ grocery	1	4
Employment Opportunities	5	Low = No major employment centers; Medium = 1 employment center; High = 2+ employment centers	3	15
<b>TOTAL</b>	<b>74</b>		<b>27</b>	<b>97</b>

Figure: TOD Readiness Metric Scoring using three topics: existing infrastructure, development, and desirability. Source: Report authors.

# Development Potential

## 1/2 Mile Radius

### Development Potential

The following chart analyzes the potential future development of the 1/2 mile study area. The analysis uses U.S. Census data collected from ESRI Business Analyst in the fall of 2018 (shown in detail in Social and Economic Profile). The analysis offers a variety of development scenarios for housing, employment, and business density.

Future potential densities in each scenario are calculated using proportions. The future densities proposed in each scenario were derived from a series of TOD studies and discussions that consider the development capacities of rural, suburban, or urban TOD locations with rail or BRT stations. A variety of scenarios are offered due to the diverse landscape typologies researched in this study and to better understand the growth of the location over time.

### Definitions

Underused land may include parcels that do not contain a structure, are declared vacant, contain large surface parking, or are undeveloped and zoned residential.

Underused buildings appear unoccupied and were documented through direct observation.

**Total Underused Land:** 55 acres = 2,395,800SF,  
See Opportunities Map, page 156

**Total Underused Buildings:** 270,609SF

Developable Land	Total Units
55 acres = 2,395,800 SF	
FAR 1.0	
1 Bedroom 800 SF	2,995
2 Bedroom - 1200 SF	1,997
FAR 2.0	
1 Bedroom 800 SF	5,990
2 Bedroom - 1200 SF	3,993
FAR 3.0	
1 Bedroom 800 SF	8,984
2 Bedroom - 1200 SF	5,990
FAR 4.0	
1 Bedroom 800 SF	11,979
2 Bedroom - 1200 SF	7,986
Vacant Buildings	
270,609 SF	Total Units
1 Bedroom	333
2 Bedroom	226

### Affordable Housing, Town-wide

5.61% of South Kingstown Housing Stock is Low- and Moderate-Income

Shortfall of Affordable Housing Units:

10%: 478 units- State Goal

15%: 1,279units

20%: 1,705 units

10% State Goal Achievable with Availability of Developable Land: Yes

# Development Potential, Kingston Station

## Typology: TOD around Commuter Rail Stops

A TOD around commuter rail stops is a transportation hub surrounded by relatively high-density development with progressively lower-density spreading outwards. New TODs may be developed around planned commuter rail stops in Rhode Island. TOD town centers may have a transit station and a few multi-story commercial and residential buildings surrounded by several blocks of townhouses and small-lot signal-family residential. Zoning will emphasize mixed-use development. Potential locations include East Greenwich, Warwick Station, and Westerly. Unit per Acre: 30-50. Typology Classification: RI 5 Year Strategic Housing Plan: 2006-2010, Urban Density Guidelines Matrix, D-6

## Residential Density Potential, 1/2 mile Radius, 502 acres

Scenarios include a range of residential densities to illustrate the future need of residential housing within 502 acres surrounding the station.

	Existing	Scenario A	Scenario B	Scenario C
<b>Residential Density</b> Units/Acre	0.32	10	20	30
<b>Housing Units</b>	161	5,031	10,063	15,094
<b>New Housing Units</b>	n/a	4,870	9,902	14,933
<b>Total Area of New 1 Bedroom Units</b> at 800 Square Feet	n/a	3,896,200	7,921,200	11,946,200
<b>Total Area of New 2 Bedroom Units</b> at 1,200 Square Feet	n/a	5,844,300	11,881,800	17,919,300

## Employment Density Potential, 1/2 mile Radius, 502 acres

Scenarios include a range of employment densities to illustrate the future need of job opportunities within 502 acres surrounding the station.

	Existing	Scenario A	Scenario B	Scenario C
<b>Employment Density</b> Jobs/Acre	2.5	5	10	15
<b>Jobs</b>	1,278	2,556	5,112	7,668
<b>New Jobs</b>	n/a	1,278	3,834	6,390
<b>Total Area of New Employment</b> <b>Space</b> at 200 Square Feet/Per Employee	n/a	255,600	766,800	1,278,000
<b>Population</b>	345	690	1,380	2,070



### Business Density Potential, 1/2 mile Radius, 502 acres

Scenarios include a range of business densities to illustrate the future need of business opportunities within 502 acres surrounding the station.

	Existing	Scenario A	Scenario B	Scenario C
<b>Business Density</b> Business/Acre	0.08	1.5	2.5	3.5
<b>Businesses</b>	40	750	1,250	1,750

### Buildout Potential of FAR on Underused Land

Scenarios include a range of floor-area-ratios to illustrate the future development potential given available underused land.

	Existing	Scenario A	Scenario B	Scenario C
<b>Zoning Designations of Underused Land</b>	R-2 Residential, I-2 Industrial	n/a	n/a	n/a
<b>Allowable Building Height FAR</b>	3.0	4.0	5.0	6.0
<b>Underused Land Acres</b>	55	55	55	55
<b>Total Built Space with FAR</b> Square Feet	7,187,400	9,583,200	11,979,000	14,374,800
<b>Underused Buildings</b> Square Feet	270,609			

Figure: Development potential of residential, employment, and business density. Existing data from ESRI Business Analyst. Developed by: Report authors.

# Future Opportunities

## 1/2 Mile Radius

### Future Opportunities

1. Increase bike accessibility to the station by creating a bike lane that runs along the proposed bridge, over the wetlands, to URI. This bike lane can strengthen the connectivity between the TOD and URI.
2. Develop high-frequency bus rapid transit from Waites Corner Road along the rail crossing over the wetlands, to W Alumni Avenue.
3. Create an overlay zoning district to support mixed-use development. This will allow increased density of residential and commercial spaces to support commuter rail ridership.
4. To provide people the opportunity to live near the station, amend current zoning to encourage and streamline the permitting process for accessory dwelling units (ADU).
5. Use inclusionary zoning to provide a wider range of housing options. This requires a given share of new construction to be affordable by people with low to moderate incomes.
6. Reduce dimensional requirements, such as minimum lot sizes, to allow homes to be built closer together.
7. Create complete streets that include bike lanes, pedestrian walkways, and stormwater management systems to increase walkability within the area. This is especially important for roads, 138, Fairgrounds Road and Liberty Lane, all which would run through the proposed neighborhood areas and connect the area to the train station and URI.
8. Increase RIPTA service frequency to the TOD area to in order to decrease usage of automobiles.

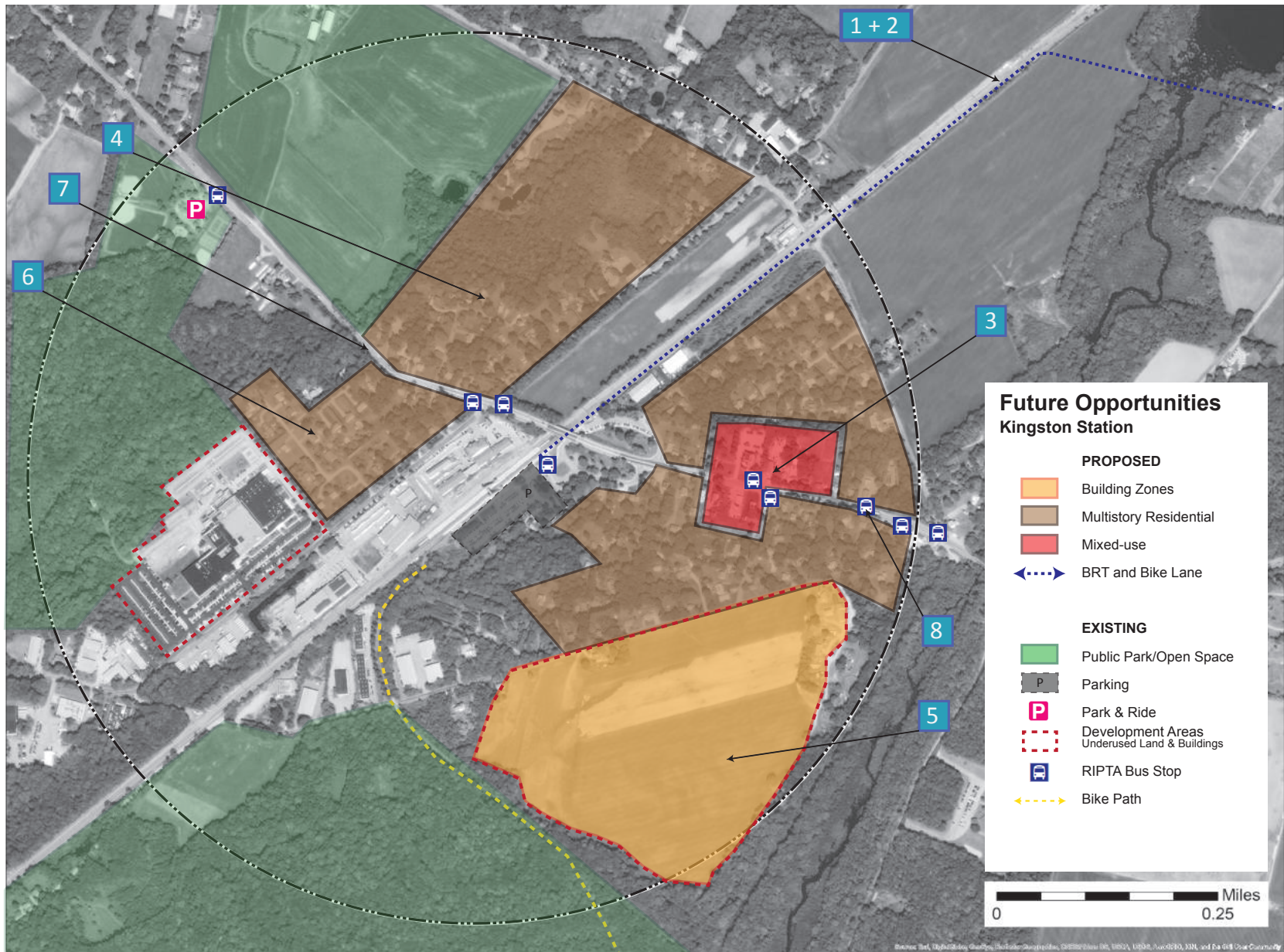


Figure: Map of proposed opportunities for TOD in study area. Source: Report authors.

# Development Scenario

## Development Scenario

We propose development at the intersection of Kingstown Road (RI-138) and Watson Road.

Our goal is to create a development which will allow the station to serve as a major transportation hub, while strengthening community connection with URI.

We propose new development to include 30 to 50 foot building height, commercial, residential and office space, and a BRT and bike lane roadway.

The density of the area is currently 3.0 FAR. Our proposal suggests 4.0-5.0 FAR in the mixed-use area with the rest of the developable land remaining within the 3.0 FAR. Currently, this area is mostly single family homes.



Figure: Existing street view. Source: Google Street View, 2018.

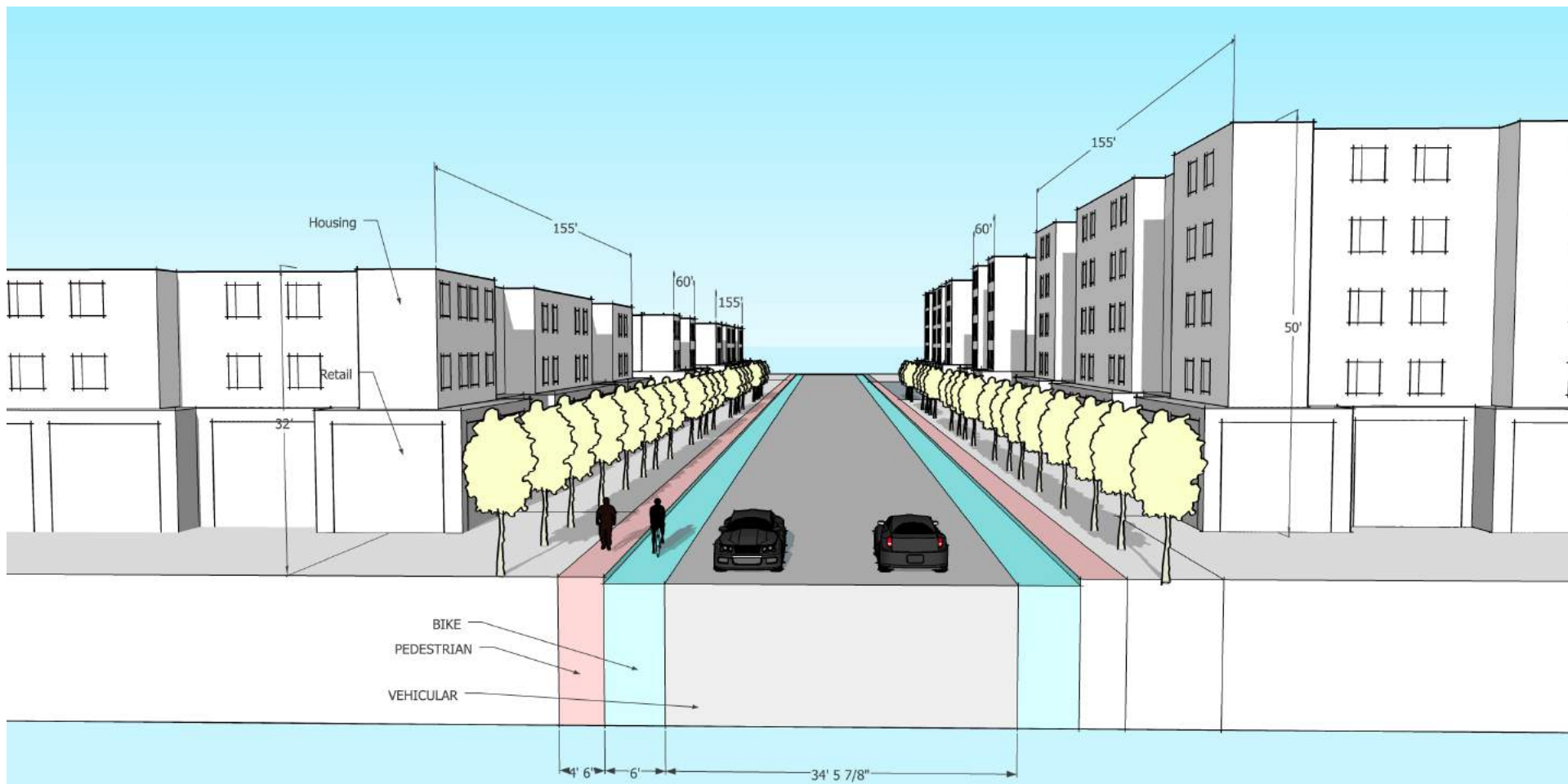


Figure: Illustration of potential development scenario. Source: Report authors.

# Local Policy Considerations

## Local Policy Considerations

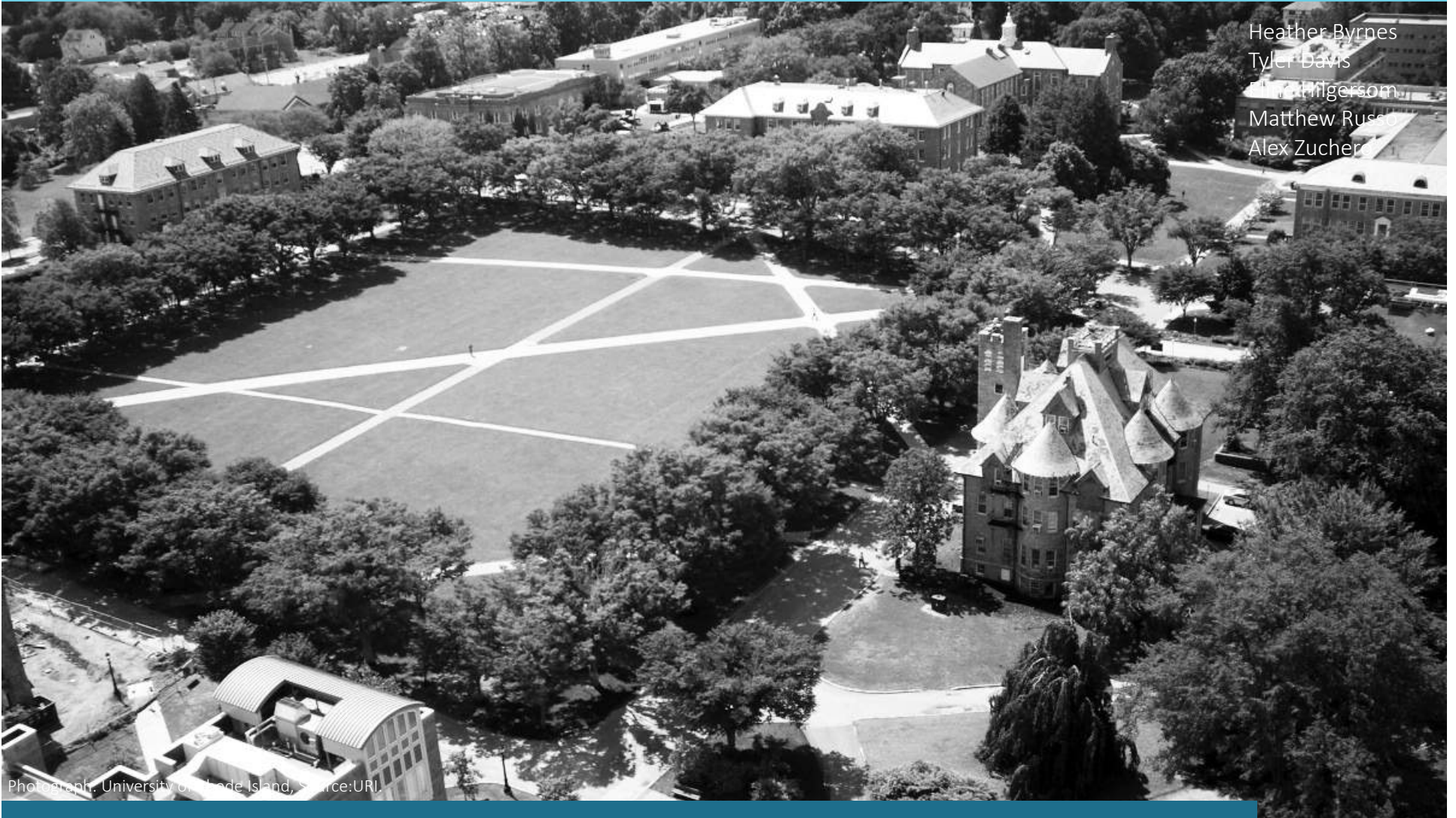
1. Increase frequency of RIPTA bus service to allow for easier transportation between cities and decrease automobile use.
2. Participate in RIPTA Transit Master Plan to plan for and optimize transit service in TOD District.
3. Create an overlay zoning district of mixed-use development to allow for increased density of residential and commercial spaces to accommodate future housing needs and support ridership at the station. Adopt a municipal TOD District Vision/Plan to orient future growth towards walkable, transit rich, compact communities.
4. Reduce minimum lot sizes in residential areas to allow for increased density in housing. This can help to increase ridership of new transportation routes but also to generate economic growth.
5. Propose a municipal ordinance that ensures consideration of street design that increases walkability, bikeability, and stormwater design into road repairs and redesigns.
6. Ensure that the municipal Comprehensive Plan is up to date and adequately reflects the opportunities to leverage, optimize, and preserve the community's assets.
7. Identify and possibly land-bank properties (including surface parking lots) that represent prime (re)development opportunities.
8. Work closely with URI to select final location for a TOD. The proposed schemes in this report are considered separately but have potential to be integrated through collaboration.



# 4.4 URL Rail Spur Station

South Kingstown, RI

Heather Byrnes  
Tyler Davis  
Tim Hilgersom  
Matthew Russo  
Alex Zucherman



Photograph: University of Rhode Island, Source: URI



# Development Potential

1/2 Mile Radius

## Development Potential - URI/Rail Spur

The following chart analyzes the potential future development of the 1/2 mile study area. The analysis uses U.S. Census data collected from ESRI Business Analyst in the fall of 2018 (shown in detail in Social and Economic Profile). The analysis offers a variety of development scenarios for housing, employment, and business density.

Future potential densities in each scenario are calculated using proportions. The future densities proposed in each scenario were derived from a series of TOD studies and discussions that consider the development capacities of rural, suburban, or urban TOD locations with rail or BRT stations. A variety of scenarios are offered due to the diverse landscape typologies researched in this study and to better understand the growth of the location over time.

## Definitions

Underused land may include parcels that do not contain a structure, are declared vacant, contain large surface parking, or are undeveloped and zoned residential.

Underused buildings appear unoccupied and were documented through direct observation.

## Total Underused Land:

42.15 acres = 1,836,054 SF, See Opportunities Map, page 166

## Total Underused Buildings: None

Developable Land	Total Units
42.15 acres = 1,836,054 SF	
FAR 1.0	
1 Bedroom 800 SF	2,295
2 Bedroom - 1200 SF	1,530
FAR 2.0	
1 Bedroom 800 SF	4,590
2 Bedroom - 1200 SF	3,060
FAR 3.0	
1 Bedroom 800 SF	6,885
2 Bedroom - 1200 SF	4,590
FAR 4.0	
1 Bedroom 800 SF	9,180
2 Bedroom - 1200 SF	6,120

# Development Potential, URI/Rail Spur

## Typology: TOD around Commuter Rail Stops

A TOD around commuter rail stops is a transportation hub surrounded by relatively high-density development with progressively lower-density spreading outwards. New TODs may be developed around planned commuter rail stops in Rhode Island. TOD town centers may have a transit station and a few multi-story commercial and residential buildings surrounded by several blocks of townhouses and small-lot signal-family residential. Zoning will emphasize mixed-use development. Potential locations include East Greenwich, Warwick Station, and Westerly. Unit per Acre: 30-50. Typology Classification: RI 5 Year Strategic Housing Plan: 2006-2010, Urban Density Guidelines Matrix, D-6

## Residential Density Potential, 1/2 mile Radius, 502 acres

Scenarios include a range of residential densities to illustrate the future need of residential housing within 502 acres surrounding the station.

	Existing	Scenario A	Scenario B	Scenario C
<b>Residential Density</b> Units/Acre	0.06	10	20	30
<b>Housing Units</b>	28	4,667	9,333	14,000
<b>New Housing Units</b>	n/a	4,639	9,305	13,972
<b>Total Area of New 1 Bedroom Units</b> at 800 Square Feet	n/a	3,710,933	7,444,267	11,177,600
<b>Total Area of New 2 Bedroom Units</b> at 1,200 Square Feet	n/a	5,566,400	11,166,400	16,766,400

## Employment Density Potential, 1/2 mile Radius, 502 acres

Scenarios include a range of employment densities to illustrate the future need of job opportunities within 502 acres surrounding the station.

	Existing	Scenario A	Scenario B	Scenario C
<b>Employment Density</b> Jobs/Acre	2.1	10	15	20
<b>Jobs</b>	1,034	4,924	7,386	9,848
<b>New Jobs</b>	n/a	3,890	6,352	8,814
<b>Total Area of New Employment</b> <b>Space</b> at 200 Square Feet/Per Employee	n/a	777,962	1,270,343	1,762,724
<b>Population</b>	4,615	21,976	32,964	43,952

### Buildout Potential of FAR on Underused Land

Scenarios include a range of floor-area-ratios to illustrate the future development potential given available underused land.

	Existing	Scenario A	Scenario B	Scenario C
<b>Current Building Height FAR</b>	1.0	3.0	4.0	5.0
<b>Underused Land Acres</b>	42	42	42	42
<b>Total Built Space with FAR Square Feet</b>	1,829,520	5,488,560	7,318,080	9,147,600

Figure: Development potential of residential, employment, and business density. Existing data from ESRI Business Analyst. Developed by: Report authors.

# Future Opportunities

## 1/2 Mile Radius

### Future Opportunities

1. Increase bike accessibility to the station by creating a bike lane that runs along the proposed bridge, over the wetlands, to URI. This bike lane can strengthen the connectivity between the TOD and URI.
2. Develop a high-frequency bus rapid transit from Waites Corner Road along the rail crossing over the wetlands, to W Alumni Avenue.
3. Create an overlay zoning district of mixed use development. This will allow increased density of residential and commercial spaces support ridership and the need of commuter rail. Implemented in phases to ensure resources remain steady.
4. New RIPTA Bus Hub to increase service frequency to the TOD area. This will increase ridership of buses and decrease usage of automobiles.
5. Completion of URI Proposed Campus Bike Lane to connect campus to new TOD. Create complete streets that include bike lanes, pedestrian walkways, and stormwater management systems to increase walkability within the area.
6. Introduce Park & Ride for regional commuters to access the bus and rail hub.

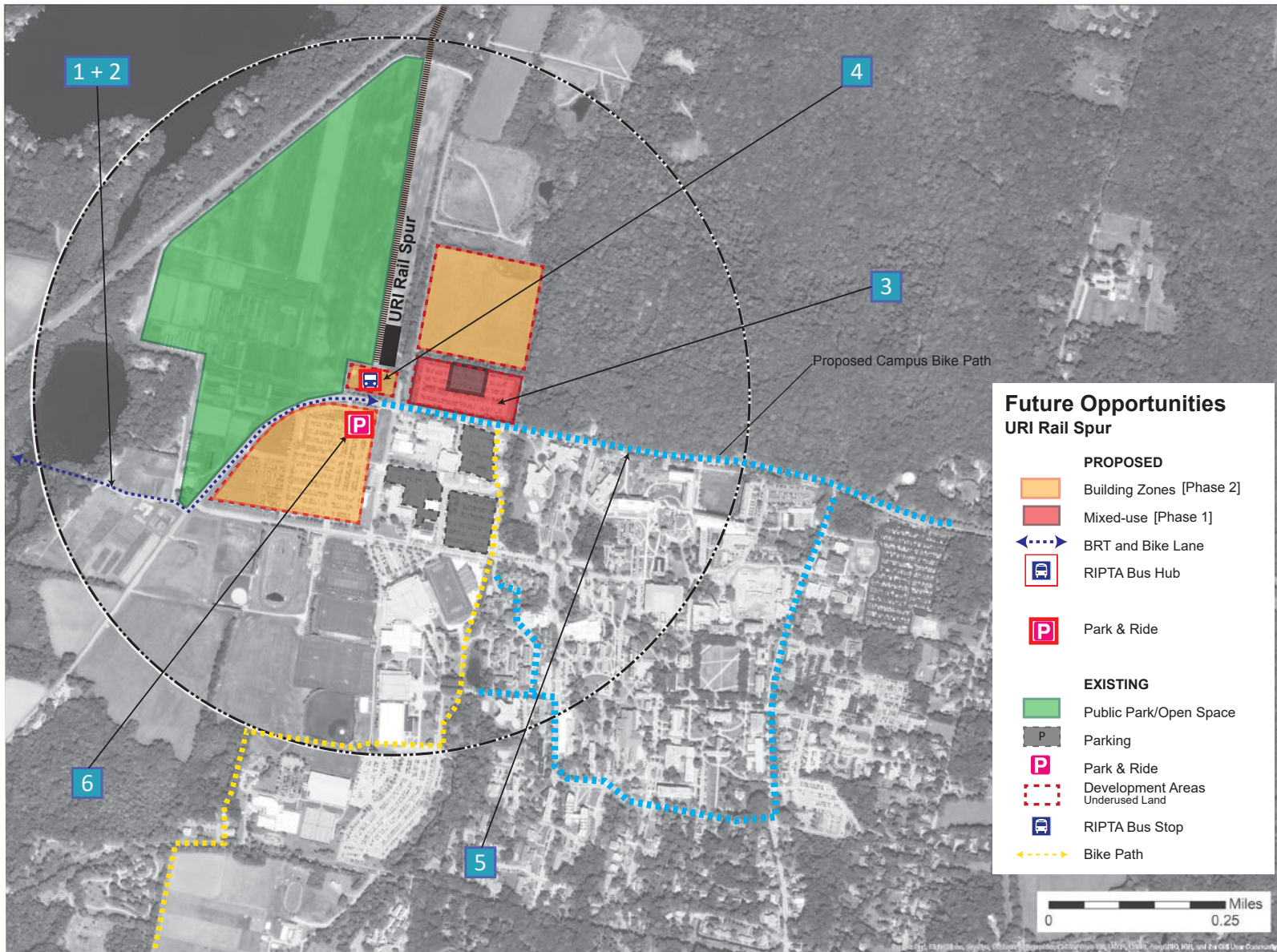


Figure: Map of proposed opportunities for TOD in study area. Source: Report authors.

# Development Scenario

## Development Scenario

We propose development at the northeast and northwest corners of Flagg Road and Plains Road. The designated land for this proposal will be implemented in a suburban setting along URI's northern edge.

We propose new phased development to include 50 foot building height, commercial, residential and office space, a BRT and bike lane roadway, a URI Rail Spur and bus hub.

Phasing within the new development will allow for steady growth and will not run project resources dry. The goal is to minimize risk within the new development and allow the TOD to grow as needed.



Figure: Existing street view. Source: Google Street View, 2018.

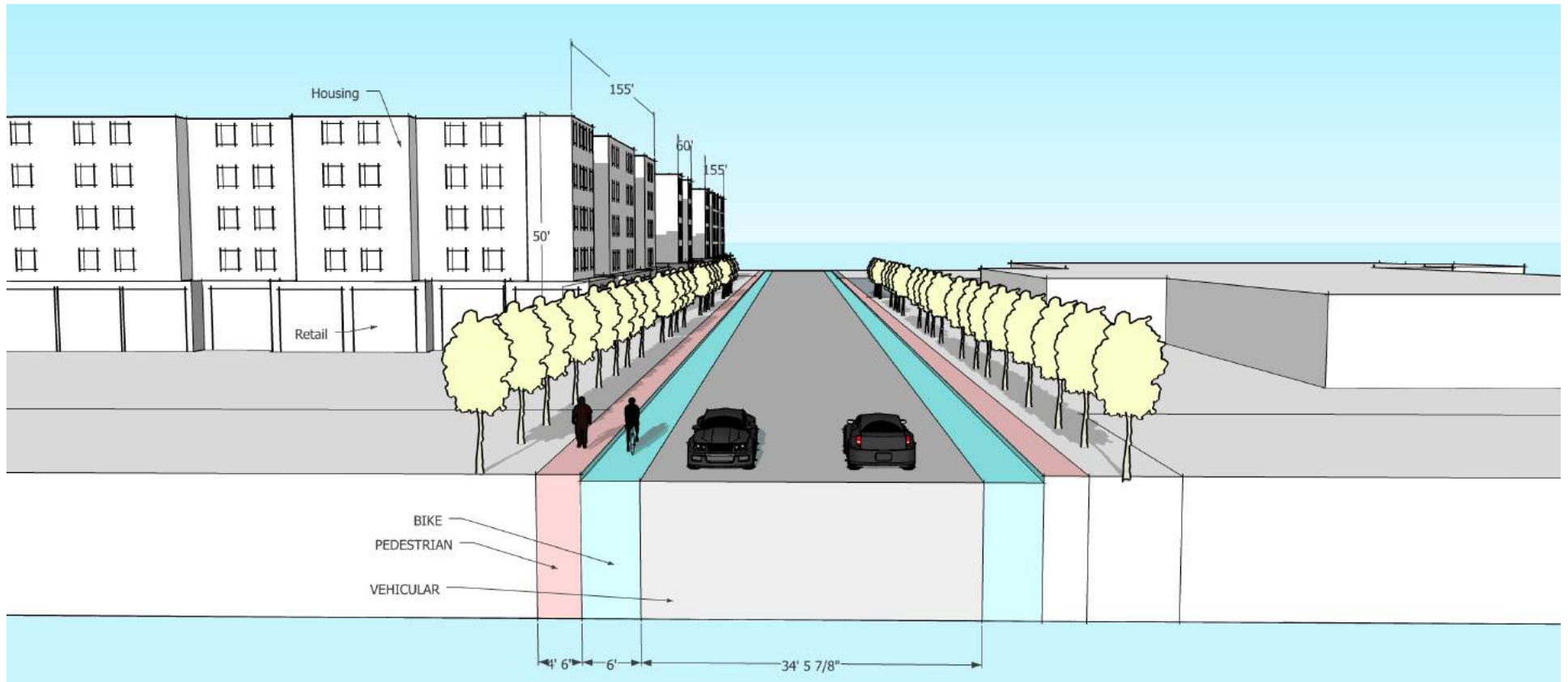


Figure: Illustration of potential development scenario. Source: Report authors.

# 4.5 Westerly Station

Westerly, RI

Amanda Donelan  
Cory Von Dassel  
Linda Renalzo  
Kaita Gudo



Westerly Station, January 18, 2007. Source: <https://photos.ceris.com>



# TOD Goals Existing Plans & Policies

The following includes TOD related goals retrieved from existing municipal plans and policies.

## Document

The Town of Westerly Comprehensive Plan, 2010

## Goals

- Residents who provided input to the development of this Comprehensive Plan agreed that commuter rail accessibility should be a high priority for transportation improvements within Westerly. 3.7.4
- There is a comprehensive pavement management plan in place that determines specifically where money is to be used for

resurfacing of roadways and there is bond money available for roadway reconstruction, roadway drainage, and overall improvements to town roads. 3.7.1

## Transportation:

- Construct a safe bike path that is a loop along Atlantic Avenue to Weekapaug Road to Shore Road west to Crandall Avenue and back to Atlantic Avenue. This is Phase I of the Westerly Bike Trail System; additional parts of the system (Phase II) shall be planned during implementation of Phase I. Act 1.5
- Enact an ordinance that regulates the use of the unimproved portion of town streets, except for right of access and other permitted uses, to reduce unsightly appearance and dangerous traffic situations. Act 2.2
- Provide good pedestrian connections through densely-built neighborhoods and nonresidential districts through public projects and revised development standards. Work towards a town-wide network of connected sidewalks and trails. Act 2.5
- Work with Amtrak and elected officials to increase the number of daily stops in Westerly during the summer months. Publicize the availability of current Amtrak service. Act 3.2
- Initiate a parking shuttle system for under-utilized or new parking space at major

retailers for a shuttle bus loop that will include transportation centers (train station and airport), river and shoreline business districts, and beaches. Act 3.3

- Work with RI, MA and CT state agencies and federal officials to support commuter rail service for Westerly. Act 3.5

## Economic Development:

- The Westerly Tax-Free Arts District, located in the historic downtown, provides sales and personal tax exemptions for artists who live and work in the district or sell their original art in the district. 3.3.3
- Westerly State Airport offers aviation maintenance, commercial passenger and charter service but not freight service. The airport has the potential for a larger role in the economy although proximity to residential areas presents challenges to any expansion of services. 3.3.4
- Westerly has the opportunity to promote economic development based on features such as its location midway between Boston and New York City and near leading academic institutions, access to Interstate 95, and a train station with the potential for expansion of Amtrak and introduction of commuter rail services. 3.3.4
- Modify zoning and land use regulations

to support adaptive reuse of vacant and underused industrial and commercial buildings and associated areas (for example, mill villages). Act 4.2

- Recruit the Community College of Rhode Island and/or other educational institutions to provide local businesses and residents with educational and vocational opportunities. Act 4.2

Preservation of Natural Resources & Open Space:

- Modify the zoning code to adopt a Salt Pond overlay district as specified by the CRMC Special Area Management Plan (SAMP). Act 1.1

- Develop a systematic prioritized plan, including potential funding alternatives, to acquire open space for water resources protection, habitat protection, and water-dependent recreation and to protect farmland, forests and natural landscapes. Act 1.4

- Enforce stormwater control and sediment-control ordinances; require best management practices (BMP's) to control non-point pollution; monitor the effects of these steps; and modify pollution-prevention actions as necessary. Act 1.6

- Extend sediment and erosion-control ordinances to include single and two-family

houses as part of the building permit process. Act 1.7

- Develop a river corridor overlay district and incorporate it in an updated zoning ordinance. Act 1.8

- Provide all local land-use decision makers at least one in-service program each year addressing new developments related to contemporary preservation and conservation issues for their consideration and possible implementation. Act 1.9

- Amend the Zoning Map to show lands that are permanently protected open space. Act 1.10

Improvements to Infrastructure & Existing Structures:

Objective 1. Promote approaches to growth management to better conserve infrastructure, land and natural resources.

Objective 2. Provide wastewater treatment to prevent unsanitary conditions; and carefully prioritize expansion of the service area of the existing plant.

Objective 3. Consider the investment in infrastructure to foster economic development including water, waste water treatment and well-site development.

Objective 4. Decrease Westerly's dependence on petroleum-related energy sources through a municipal strategy of conservation and renewable energy generation.

Objective 5. Upgrade the town's technological capabilities across all school and municipal departments for greater employee productivity and public accessibility.

Objective 6. Match water demands associated with new development and redevelopment with available capacity.

Actions:

- Enact an ordinance that prevents any increase in zoning density (down-zone) except (A) land within the Downtown Revitalization Area which already has water and sewer service and (B) areas that are outside the Downtown Revitalization Area and also outside the RI CRMC Salt Pond Special Area Management Plan which could be rezoned from zoning district designation RR-60 to LDR-40 but only after the municipal water system is extended to those areas. Act 1.2

- Recognize that the existing wastewater treatment plant has a finite capacity as detailed in the December 27, 2007 report by the Beta Group. Prioritize any sewer service expansion plans based on environmental protection and economic development, with full consideration of the limits of current

capacity. Pursue all available state and federal funding to enlarge the wastewater treatment plant consistent with its design capacity.

- Study and develop strategies to address potential sea-level rise, storm surge, and other climate-change impacts on Westerly's infrastructure. Act 6.8

#### Housing:

- Review housing and demographic data regularly to determine whether stated goals are being met and revise as necessary to achieve goals. Act 5.1
- Apply to state and federal housing programs for low- and moderate-income housing rehabilitation and development funds and support efforts of housing groups to secure and use those funds. Act 5.2
- Accommodate the needs of hospitality and tourism industry employers to provide housing for their seasonal employees with consideration of the potential impact on the local workforce and protection for the affected neighborhoods. Act 5.3
- Consider additional property tax relief for elderly taxpayers who have made Westerly their primary residence to help them remain in their homes. Act 5.4

- Develop and implement a program to focus and coordinate affordable housing initiatives and funding as an integral part of Westerly's efforts in neighborhood revitalization and rehabilitation with priority given to existing housing over new Construction. Act 5.5

- Evaluate and revise Inclusionary and Comprehensive Permit ordinances to ensure neighborhoods are not impacted by density bonuses and environmental integrity is not compromised. Act 5.6

- Revisit zones that allow mixed-use development to incorporate Floor Area Ratios, such that retail and commercial uses are primary and residential uses are secondary. Act 5.7

- Consider the feasibility of an Affordable Housing Overlay District that offers incentives and links to other affordable housing strategies. Act 5.8

- Continue to work with nonprofit and public agencies in creating affordable housing opportunities in Westerly. Act 5.9

- Work with mill owners to incorporate affordable housing units in proposed redevelopment projects. Act 5.10

- Develop a demonstration project that incorporates affordable housing incentives

for the Downtown Arts District and is geared towards low-income artists. Act 5.11

- Adopt a tax credit for property owners undertaking substantial rehabilitation of existing structures and accessory apartments to incentivize the incorporation of affordable housing units. Act 5.12

- Evaluate an accessory affordable apartment program that would permit accessory apartments in all of the Town's commercial zones, provided that occupancy is geared towards low and moderate income tenants. Act 5.14

- Support regional initiatives that promote and create affordable housing, including the Washington County Community Development Corporation. Act 5.15

- Target neighborhoods for revitalization efforts through the development of neighborhood plans and link implementation with other affordable housing strategies. Act 5.16

# Social & Economic Profile

## 1/2 Mile Radius

### Profile Findings, 1/2 Mile Radius

Total Population: 3,361

Density per acre: 6.7 person/acre

Median Age: 39.5

% Millennial (20-35): 21%

Total Employees: 2,894

Density per acre: 5.8 employees/acre

Total Businesses: 311

Density per acre: 0.6 per/acre

Total Housing Units: 1,950

Density per acre: 3.9 units per acre

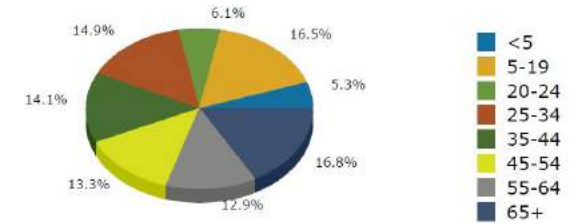
Average Household Size: 2.05

Median Household Income: \$51,166

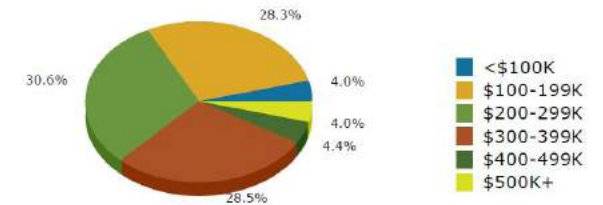
Median Home Value = \$263,372

Per Capita Income = \$31,939

2018 Population by Age



2018 Home Value



### Data & Figure Sources

Source: These data are based upon national propensities to use various products and services, applied to local demographic composition. Usage data were collected by GfK MRI in a nationally representative survey of U.S. households. Esri forecasts for 2018 and 2023.

Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2018 and 2023.

Data on the ESRI Business Summary report is calculated using Esri's Data allocation method which uses census block groups to allocate business summary data to custom areas.

U.S. Census Bureau, 2012-2016 American Community Survey.

U.S. Census Bureau, Census 2010 Summary File 1. Esri converted Census 2000 data into 2010 geography.

# Social & Economic Profile

## 1 Mile Radius

### Profile Findings, 1 Mile Radius

Total Population: 9,841

Density per acre: 5.0 person/acre

Median Age: 41.4

% Millennial (20-35): 19.6%

Total Employees: 5,171

Density per acre: 2.6 employees/acre

Total Businesses: 508

Density per acre: 0.3 per/acre

Total Housing Units: 5,163

Density per acre: 2.6 units per acre

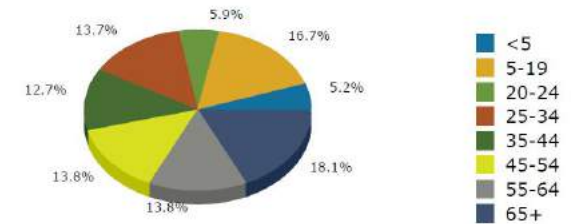
Average Household Size: 2.16

Median Household Income: \$54,203

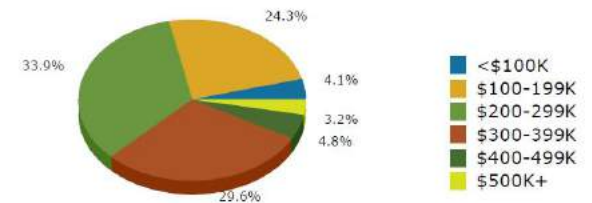
Median Home Value = \$265,375

Per Capita Income = \$31,905

2018 Population by Age



2018 Home Value



### Data & Figure Sources

Source: These data are based upon national propensities to use various products and services, applied to local demographic composition. Usage data were collected by GfK MRI in a nationally representative survey of U.S. households. Esri forecasts for 2018 and 2023.

Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2018 and 2023.

Data on the ESRI Business Summary report is calculated using Esri's Data allocation method which uses census block groups to allocate business summary data to custom areas.

U.S. Census Bureau, 2012-2016 American Community Survey.

U.S. Census Bureau, Census 2010 Summary File 1. Esri converted Census 2000 data into 2010 geography.

# Existing Infrastructure

## 1/2 Mile Radius



Photograph of train station. Source: Amanda Donelan

### Transportation Systems

**Rail Lines:** Westerly Station is located on 14 Railroad Ave and is owned by The State of Rhode Island. The platforms at the train station are low height platforms. The ADA policy requires high platforms for ease of access. Parking is found near the train station, offering about 21,600 sq. ft. of parking area. There is also parking along the road near the train station for the train station and local stores.

**Bus Lines:** The RIPTA service runs to the Westerly Station bus via the 95x route that make 3 runs to Providence in the morning and 3 back to Westerly in the evening.

The Rural Ride #301 runs to Westerly on Fridays and must be called 24 hours in advance for custom pickup or drop off. The Rural Ride will make stops at:

- Westerly Train Station
- Downtown Westerly
- Westerly Senior Center
- Franklin/Aldi's Grocery
- Walmart (Dunn's Corners)
- Village/Main (Bradford)
- Main/Champlin (Ashaway)
- Saugatucket Springs (Hopkinton)
- Wood River Health
- Main/Spring (Hope Valley)
- Stilson Road/Stop & Shop

RIPTA's Flex Service route #204 runs to Westerly Station, Westerly Walmart, Stedman Center, and Salt Pond Plaza. Users can also request stops at Westerly Airport, Westerly Hospital, Westerly Senior Center, Westerly Train Station, ALDI Grocery Store, and Stop & Shop. The service runs on weekdays from 6am to 6:30pm and must be called 24 hours in advance.

**Bike Trails:** The bike trails are mostly shared on streets with cars, as designated signs mark shared lanes. Streets with the bike share lanes are found on Canal Street, Friendship Street, and High Street.

**Ride Share Companies:** Lyft and Uber provide services in Westerly RI. These services are utilized via user's requests.



Photograph of RIPTA bus stop. Source: Amanda Donelan

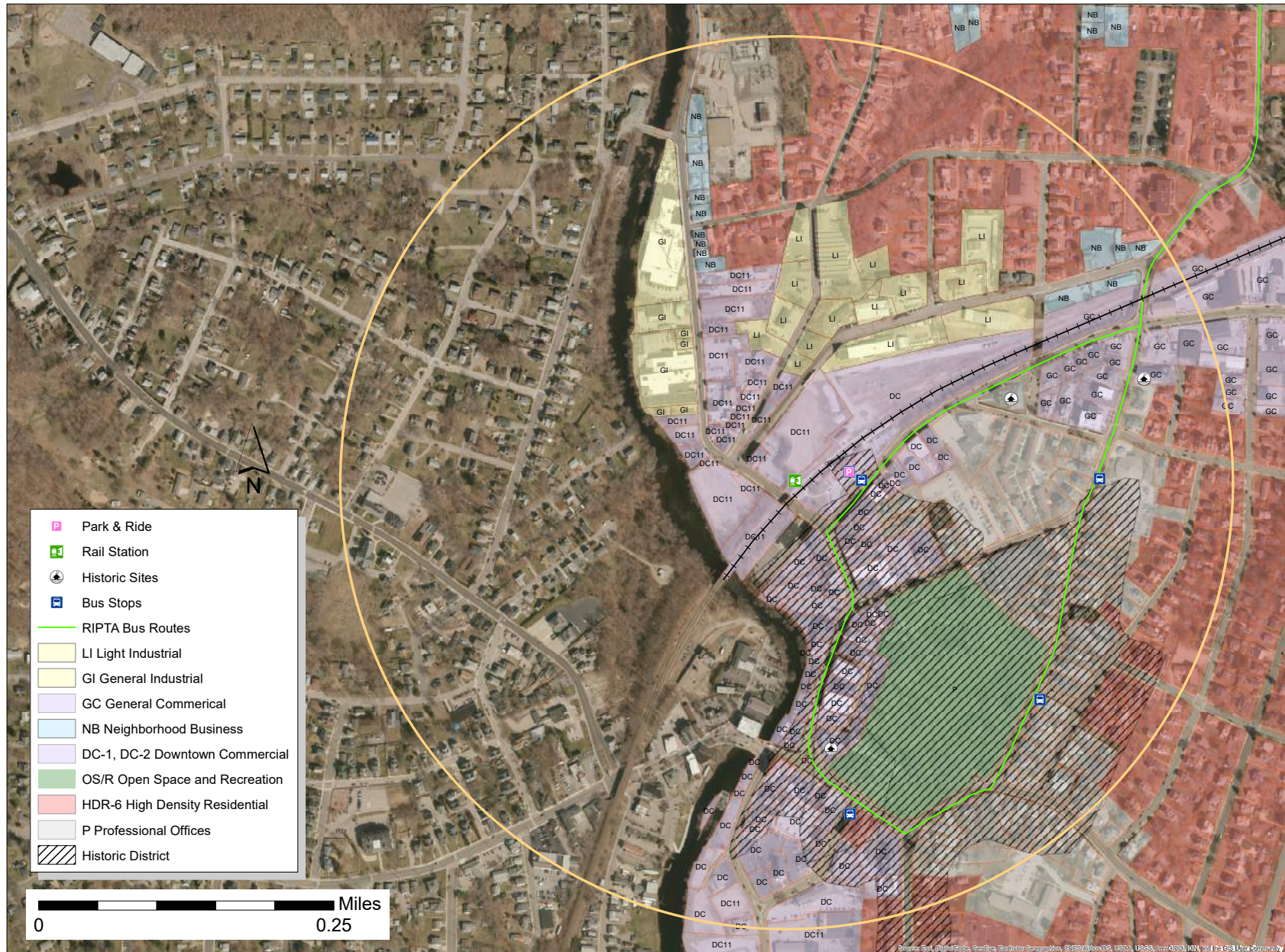
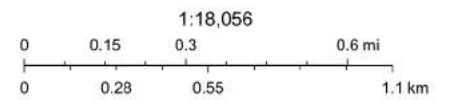


Figure: Map of existing infrastructure and zoning. Source: Municipality GIS Shapefiles.



- Westerly Station
- Sewered Area



URI EDC, RIGIS, RIGIS, University of Rhode Island Environmental Data Center (URIEDC), Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community, RIGIS, University of Rhode Island Environmental Data Center

Figure: Map of sewerage areas, electrical lines, and transportation. Source: RI Division of Planning Mapping Application



# Existing Development Conditions

1/2 Mile Radius



Photograph of Downtown. Source: Amanda Donelan

## Existing or Planning Projects

Residential units are being incorporated into existing commercial structures in the downtown area. With the completion of the Westerly Educational Center there are plans to expand surrounding areas.

## Vacant or Underused Land 40 acres

There are infill opportunities in the downtown area where parking lots are a significant portion of the ground cover. Much of this space is located near the Pawcatuck River, an area that is valuable for its proximity to Main Street. Through observational methods, it has been determined that the majority of land north of the train station is not utilized to its fullest potential.

## Vacant or Underused Buildings

Unknown whether buildings are vacant or under construction.

**Growth Center Designation:** None

**Opportunity Zone Designation:** Yes, Census Tract 508.01

## Residential Housing Density

According to the Land Use Land Cover data that classifies housing using lot size (following page), the majority of housing in the study area is high housing density (1/8 acre lots).



Photograph of vacant lot. Source: Amanda Donelan



Photograph of residential. Source: Cory Von Dassel



Figure: Map of Land Use Cover 2011. Source: RI Division of Planning Mapping Application

This is a statewide, seamless digital dataset of the land cover/land use for the State of Rhode Island derived using automated and semi-automated methods and is based on orthophotography captured in spring 2011.

# Desirability

## 1/2 Mile Radius



Photograph of Rooney Park. Source: Amanda Donelan

### Cultural Resources

The Westerly Library  
YMCA  
Granite Theater  
Colonial Theater  
Elks Lodge  
Pleasant Street Baptist Church  
Abba's House of Prayer  
Church at Westerly  
Immaculate Conception Roman Catholic Church  
Grace United Methodist  
Christ Episcopal Church  
Congregation Sarah Zedek  
Central Baptist Church  
Seventh Day Baptist Church  
St. Pius X Rectory  
Friends Religious Society  
The Church of Jesus Christ of Latter Day

### Employment Opportunities

Westerly Hospital  
CVS Health  
The Moore Company  
The Washington Trust Company  
Darlington Fabrics  
Westerly Public Schools

### Retail

The downtown area contains of about 1,719,187 sq.ft. of retail space.

### Schools, Parks Hospitals

Virtu Arts Festival, Wilcox Park  
Rooney Park  
Virtu Arts Festival Wilcox Park  
Westerly Education Center  
Westerly High School



Map of walkable distance in 30 minutes. Source: OpenStreetMap

### Walkability and Sidewalk Conditions

All roads within 1/2 mile of Westerly Station have sidewalks. Sidewalk conditions could be improved with the implementation of more streetlights, and with consideration to their placement on the sidewalk.

[www.walkscore.com](http://www.walkscore.com) gives Westerly, RI a walk score of 87 out of 100. This means that Westerly is considered "very walkable."

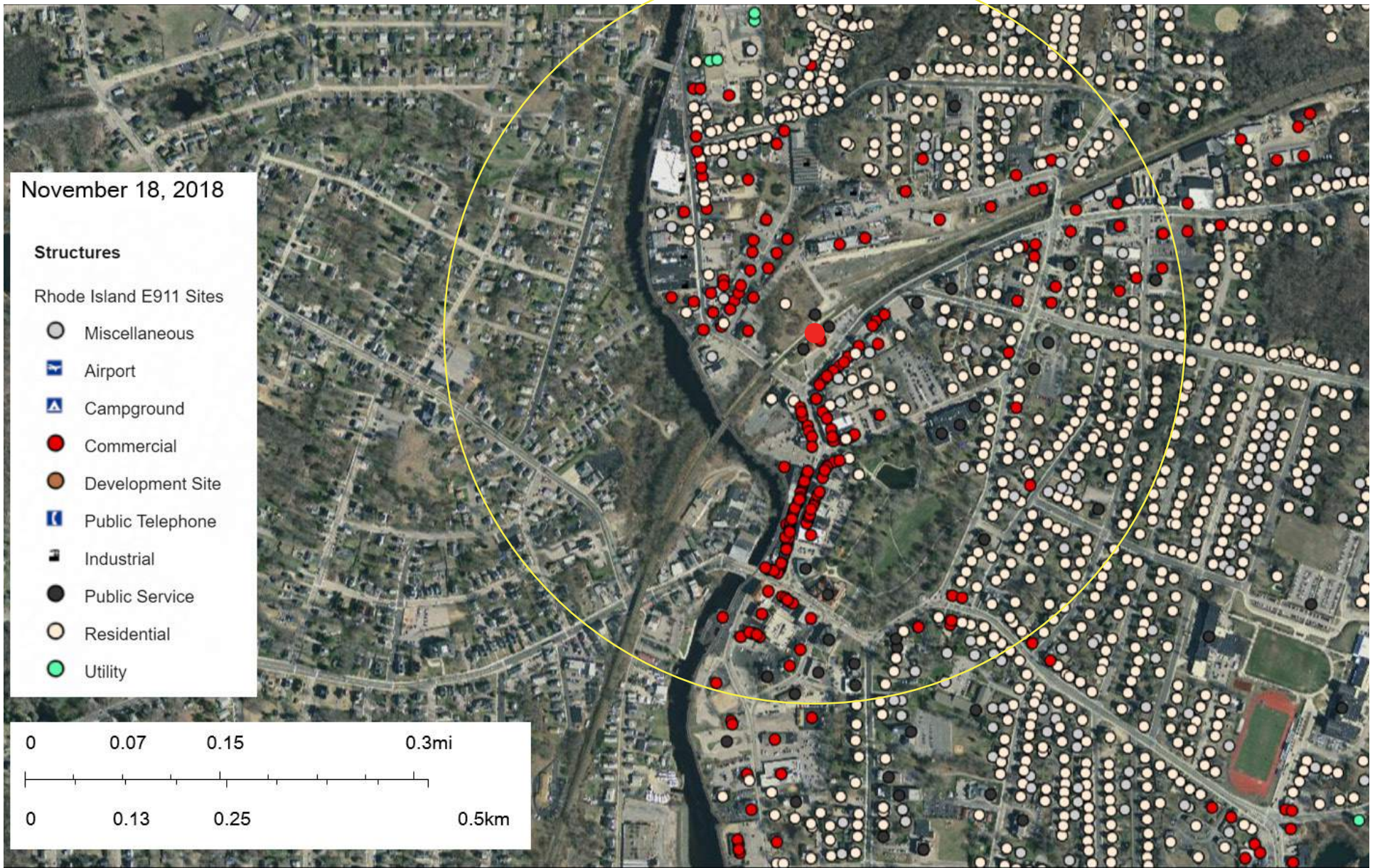


Figure: Map of local amenities. Source: RI Division of Planning Mapping Application

# Assets & Challenges

## Assets

- Westerly has rail and bus infrastructure which provides local and regional connectivity, however more frequent service is needed.
- Westerly has a compact urban fabric with moderate to high housing density in proximity to open space and downtown services.
- The Town of Westerly has effective communication with its residents to allow for efficient project development and future planning.
- The community has strong support for artistic and cultural events within Westerly from local and regional communities.
- Census tract 508.01 is designated as an Opportunity Zone by the state where new investments, under certain conditions, may be eligible for preferential tax treatment.

## Challenges

- New development potential is limited to infill of vacant or underused land.
- Renovations need to be made to the train station platform to comply with ADA and achieve rapid off/on loading of passengers .
- There is opposition to the acquisition of privately owned land for infill development opportunities.
- Bringing more social and cultural diversity to the city of Westerly.

# TOD Readiness

## 1/2 Mile Radius

### TOD Readiness

The TOD Readiness Score summarizes how far a location has progressed toward its full TOD potential and how far it has to go. The following charts show the analysis conducted to determine the readiness of the study area.

### Methodology

Adapted from the TOD Priority Tool, Capital Metropolitan Transportation Authority, Austin, TX.

The TOD Readiness Score can and will change over time as conditions evolve and TOD takes hold in the market. The TOD Readiness Score has 3 levels:

Long Range:

Exhibiting few characteristics of TOD

Emerging:

Beginning to demonstrate some of the TOD characteristics.

Ready:

Showing TOD characteristics in much of the station area, but with gaps that are reasonably expected to be closed.

### Measurement System

Using the existing conditions research, a variety of metrics were developed for three primary TOD topics: existing infrastructure, development potential, and desirability. Each metric was weighted using the following:

5 = Extremely Important to the Success of TOD

4 = Very Important to the Success of TOD

3 = Important to the Success of TOD

2 = Slightly Important

1 = Unimportant

Individual metrics are scored low (1), medium (2), high (3) based on scoring criteria and are equally weighed. The metric total is calculated by multiplying the weight by the score.

The metrics were added to give the study area a total score ranging from 74 to 222. This total is then converted to the composite TOD Readiness Score, using the following equally distributed range:

Readiness Stage	Composite Score Range
Long-Range	74-123
Emerging	124-173
Ready	174-222

Figure: Composite TOD Readiness Score. Source: TOD Priority Tool, Capital Metropolitan Transportation Authority, Austin, TX.

<b>Westerly Station Readiness Matrix, 1/2 mile Study Area</b>				
<b>Readiness Stage: Emerging</b>				
	<b>Weights of Importance</b> (Leave, do not adjust!)	<b>Scoring Criteria</b>	<b>Score, Low = 1, Medium = 2, High = 3 (Assign Score)</b>	<b>Total Score (Multiply Weight X Score)</b>
<b>Infrastructure</b>				
Government Support	4	Weak = The government has done nothing to promote TOD; Moderate = Some effort was made by the municipality to promote development at a few sites through rezoning, investing in related infrastructure, some financial incentives; Strong = The municipality uses its powers to promote TOD such as rezoning, creating a plan with a specific focus on the area, proactive outreach to developers, environmental clean-up.	2	8
Existing Train or Bus Frequency	5	Low = 15+ minute wait ; Medium = 10-15 min, High = <5 min	1	5
Bicycle Connectivity	3	Low = Roads have low or Extremely low comfort level; Medium = Medium comfort level, Bicycle racks; High = High comfort level, bike station	1	3
Highway Connectivity	3	Low = No access to highway interchange or radial/cross-town arterial within 1 mile; Medium = Indirect access to highway interchange or major arterial within 1 mile; High = Direct access to highway interchange, major arterial	2	6
Station Parking	2	Low = No parking at TOD location; Medium = designated surface lot parking; High = designated parking garage	2	4
Sewered Area	5	Low = Little to no sewer infrastructure; Medium = majority sewered; High = all sewered	3	15
<b>Development</b>				
Building Density	4	Low = 1 Story, Medium = 2 Stories, High = 3 Stories	2	8
Land Availability	4	Low = No sites of significant size; Medium = 1-3 sites; 3+ sites	1	4
Vacant Building Availability	4	Low = No buildings; Medium = 1-3 buildings; 3+ buildings	2	8
Development Activity	4	Low = No projects under development; Medium = 1-2 projects underdevelopment; High = 3+ projects under development	3	12

<b>Readiness Stage: Emerging</b>				
	<b>Weights of Importance</b> (Leave, do not adjust!)	<b>Scoring Criteria</b>	<b>Score, Low = 1, Medium = 2, High = 3 (Assign Score)</b>	<b>Total Score (Multiply Weight X Score)</b>
Existing Housing Density	4	Low = 3 units/ acre; Medium = 4-6 units/acre; High = 6+ units/acre	2	8
<b>Desirability</b>				
Local/Community Retail	4	Low = No local or community stores, Medium = 1-2 local stores, High = 3+ local stores	3	12
Regional Retail	2	Low = No regional stores (Auto Dealers, Big box stores), Medium = 1-2 regional stores, High = 3+ regional stores	1	2
Walkshed Connectivity	5	Low= Major sidewalk gaps, major presence of poor condition, significant accessibility barriers, Low walkscore; Medium = some gaps, some presence of poor condition, occasional accessibility barriers, Adequate walk score; High = Few to no gaps, little presence of poor conditions, few to no accessibility barriers, High walkscore	2	10
Schools	3	Low = No schools (any grade level), Medium = 1 school, High = 2+ schools	2	6
Parks	4	Low = No park open to the public, Medium = 1 park, High = 2+ park	2	8
Hospitals	2	Low = No hospitals, High = 1+ hospitals	1	2
Local and Cultural Resources	3	Low = No cultural resources (museums, historic sites, cemeteries), Medium = 2 cultural resources, High = 3+ cultural resources	3	9
Supermarket/Grocery Stores	4	Low = No grocery, High = 1+ grocery	3	12
Employment Opportunities	5	Low = No major employment centers; Medium = 1 employment center; High = 2+ employment centers	2	10
<b>TOTAL</b>	<b>74</b>		<b>40</b>	<b>152</b>

Figure: TOD Readiness Metric Scoring using three topics: existing infrastructure, development, and desirability. Source: Report authors.



# Development Potential

## 1/2 Mile Radius

### Development Potential

The following chart analyzes the potential future development of the 1/2 mile study area. The analysis uses U.S. Census data collected from ESRI Business Analyst in the fall of 2018 (shown in detail in Social and Economic Profile). The analysis offers a variety of development scenarios for housing, employment, and business density.

Future potential densities in each scenario are calculated using proportions. The future densities proposed in each scenario were derived from a series of TOD studies and discussions that consider the development capacities of rural, suburban, or urban TOD locations with rail or BRT stations. A variety of scenarios are offered due to the diverse landscape typologies researched in this study and to better understand the growth of the location over time.

### Definitions

Underused land may include parcels that do not contain a structure, are declared vacant, contain large surface parking, or are undeveloped and zoned residential.

Underused buildings appear unoccupied and were documented through direct observation.

**Total Underused Land & Buildings:** 40 acres [1,742,400 SF], See Opportunity Map

### Possible 1 Bedroom Units (800SF):

FAR 1.0 = 2,178 units

FAR 2.0 = 4,356 units

FAR 3.0 = 6,534 units

FAR 4.0 = 8,712 units

### Possible 2 Bedroom Units (1200SF):

FAR 1.0 = 1,452 units

FAR 2.0 = 2,904 units

FAR 3.0 = 4,356 units

FAR 4.0 = 5,808 units

### Affordable Housing, Town-wide

5.22% of Westerly Housing Stock is Low- and Moderate-Income

### Shortfall of Affordable Housing Units:

10%: 499 units - State Goal

15%: 1,433 units

20%: 1,911 units

10% State Goal Achievable with Availability of Underused Land: Yes

Affordable Housing Data: 2018 Housing Fact Book, HousingWorks RI at RWU.

# Development Potential, Westerly Station

## Typology: TOD around Commuter Rail Stops

A TOD around commuter rail stops is a transportation hub surrounded by relatively high-density development with progressively lower-density spreading outwards. New TODs may be developed around planned commuter rail stops in Rhode Island. TOD town centers may have a transit station and a few multi-story commercial and residential buildings surrounded by several blocks of townhouses and small-lot signal-family residential. Zoning will emphasize mixed-use development. Potential locations include East Greenwich, Warwick Station, and Westerly. Unit per Acre: 30-50. Typology Classification: RI 5 Year Strategic Housing Plan: 2006-2010, Urban Density Guidelines Matrix, D-6

## Residential Density Potential, 1/2 mile Radius, 502 acres

Scenarios include a range of residential densities to illustrate the future need of residential housing within 502 acres surrounding the station.

	Existing	Scenario A	Scenario B	Scenario C
<b>Residential Density</b> Units/Acre	3.9	10	20	30
<b>Housing Units</b>	1,950	5,000	10,000	15,000
<b>New Housing Units</b>	n/a	3,050	8,050	13,050
<b>Total Area of New 1 Bedroom Units</b> at 800 Square Feet	n/a	2,440,000	6,440,000	10,440,000
<b>Total Area of New 2 Bedroom Units</b> at 1,200 Square Feet	n/a	3,660,000	9,660,000	15,660,000

## Employment Density Potential, 1/2 mile Radius, 502 acres

Scenarios include a range of employment densities to illustrate the future need of job opportunities within 502 acres surrounding the station.

	Existing	Scenario A	Scenario B	Scenario C
<b>Employment Density</b> Jobs/Acre	5.8	10	15	20
<b>Jobs</b>	2,894	4,990	7,484	9,979
<b>New Jobs</b>	n/a	2,096	4,590	7,085
<b>Total Area of New Employment</b> <b>Space</b> at 200 Square Feet/Per Employee	n/a	419,131	918,097	1,417,062
<b>Population</b>	3,361	5,795	8,692	11,590

### Business Density Potential, 1/2 mile Radius, 502 acres

Scenarios include a range of business densities to illustrate the future need of business opportunities within 502 acres surrounding the station.

	Existing	Scenario A	Scenario B	Scenario C
<b>Business Density</b> Business/Acre	0.6	1.0	2.0	3.0
<b>Businesses</b>	311	518	1,037	1,555

### Buildout Potential of FAR on Underused Land

Scenarios include a range of floor-area-ratios to illustrate the future development potential given available underused land.

	Existing	Scenario A	Scenario B	Scenario C
<b>Zoning Designations of Underused Land</b>	R-2 Residential, I-2 Industrial	n/a	n/a	n/a
<b>Allowable Building Height FAR</b>	2	3.0	4.0	5.0
<b>Underused Land &amp; Buildings Acres</b>	40	40	40	40
<b>Total Built Space with FAR</b> Square Feet	3,484,800	5,227,200	6,969,600	8,712,000

Figure: Development potential of residential, employment, and business density. Existing data from ESRI Business Analyst. Developed by: Report authors.

# Future Opportunities

## 1/2 Mile Radius

This list of future opportunities are identified on the following map.

1. Develop a bike lane that links Pawcatuck to Westerly alongside the railroad bridge near downtown Westerly.
2. Expand bus routes through Westerly's residential area and locations beyond the TOD study area.
3. Develop a riverfront walking and biking path alongside the Pawcatuck River.
4. Build connections with Connecticut's Shoreline East railway services.
5. Modify the rail bridge crossing at Canal Street to incorporate lighting and artistic murals to connect downtown Westerly to the industrial area north of downtown.

6. Remove one lane of parking in downtown Westerly and construct class two bike lanes and street trees.

7. Reinstate the Westerly Station and ensure construction brings platforms to ADA standards.

8. Redefine zoning regulations to incorporate more residential options in commercial areas.

9. Utilize URI 2014 design plans for development of 2.5 acre lot on Canal Street as open green space for residents. <https://web.uri.edu/lar/outreach-projects/westerly-park-designs/>

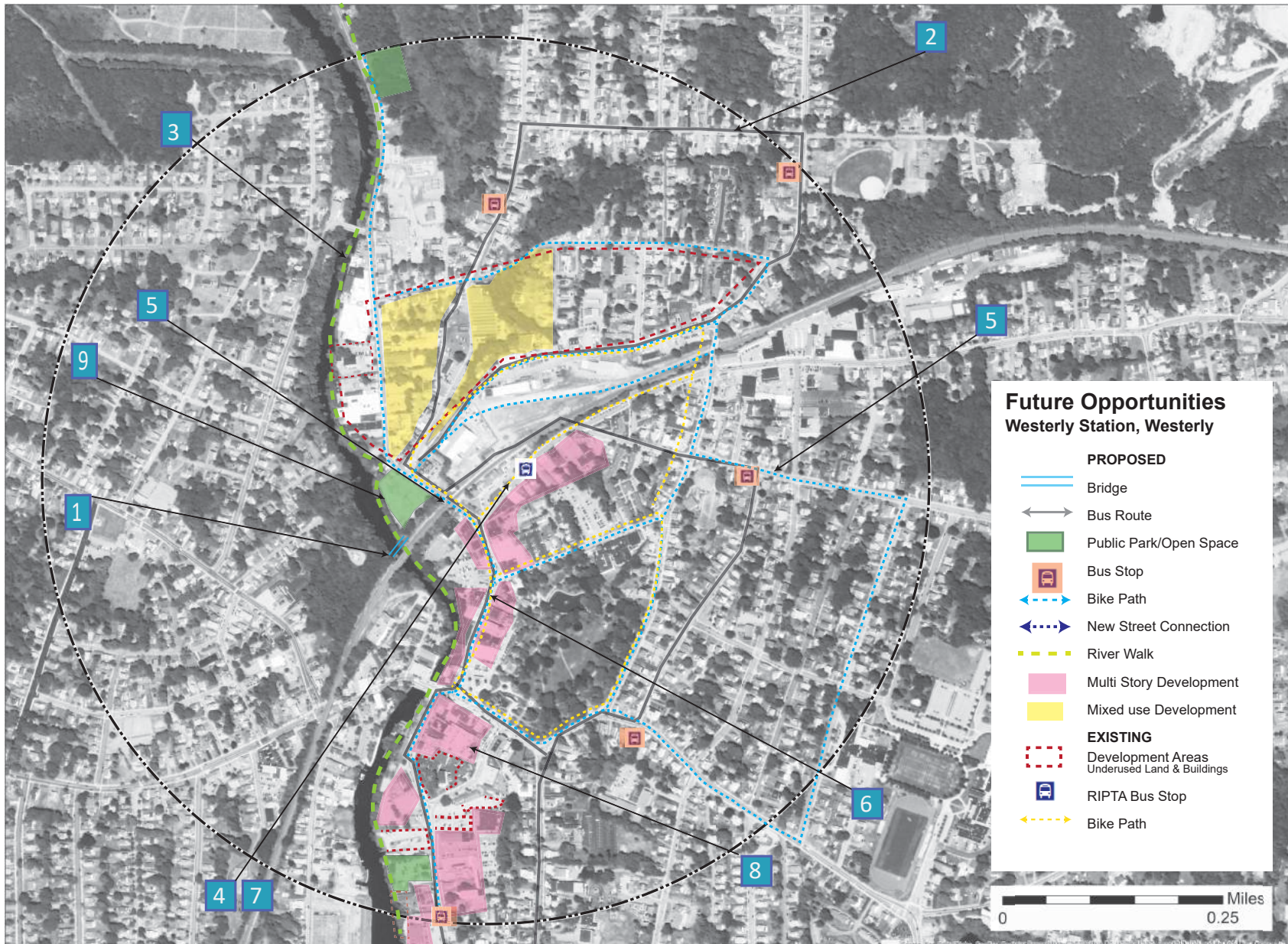


Figure: Map of proposed opportunities for TOD in study area. Source: Report authors.

# Development Scenario

## Development Scenario

This scenario is located on High Street within the downtown area. We chose this location due to several reasons:

- This area has the highest potential for economic expansion.
- Improving mixed-use zoning will allow people to live within the center of commerce.
- This area is in close proximity to cultural amenities such as Wilcox Park and Pawcatuck, CT.

- There is potential to build up to the maximum height given the current zoning ordinances. We are also proposing the removal of one parking lane for a bike line separated via street trees.

The proposed density in downtown Westerly is currently at is FAR 3.0 and we are recommending Westerly aim to be a FAR 4.0 with building setbacks at 3 stories.



Figure: Existing street view. Source: Google Street View, 2018.



Figure: Illustration of potential development scenario. Source: Report authors.

# Local Policy Considerations

## Local Policy Considerations

1. Improve mixed-use zoning within the commercial downtown area.
2. Reduce minimum parking spaces per household for new developments to promote safety and walkability.
3. Expand the current RIPTA services to include a bus route with frequent schedule time availability within the TOD study area to promote accessibility to public transportation.
4. Reevaluate the street design to include more non-automobile oriented streets within the downtown.
5. Explore the potential of a walking trail within the land adjacent to the river to promote the river as a community node.
6. Adopt a municipal TOD District Vision/Plan to orient future growth towards walkable, transit rich, compact communities.
7. Participate in RIPTA Transit Master Plan to plan for and optimize transit service in TOD District.
8. Identify and possibly land-bank properties (including surface parking lots) that represent prime (re)development opportunities.





# 4.6 North End Newport

Newport, RI

Harley Spinks  
Franco Iannacito  
Liam Connors  
Kenneth Kramer



Figure: North End, Newport. Source: <http://whatsupnewp.com>

# TOD Goals Existing Plans & Policies

## Document

City of Newport Comprehensive Land Use Plan, 2017

## Goals

Transportation and Circulation:

- To provide a comprehensive, multi-modal transportation system for all users.
- To link into the overall regional multi-modal transportation network on Aquidneck Island.
- To provide appropriate funding and financing of transportation infrastructure.
- To use state-of-the-art design and technology to create a safe, efficient,

environmentally sound and user-friendly transportation system.

- To provide sufficient and suitably located parking, designed to eliminate, mitigate or reduce impacts.

Economic Development:

- To develop a robust and diverse economy, providing suitable employment opportunities for residents, and a stable tax base.

Housing:

- To preserve and protect existing housing resources in the community.
- To preserve and enhance existing moderate workforce and low moderate income (LMI) housing.
- To reduce the percentage of seasonally vacant homes and increase neighborhood stability and vitality.

Land Use:

- To provide a balanced City consisting of residential, commercial, and employment uses consistent with the character, environmental resources and vision of the community.
- To develop a planning framework that helps the city respond to the impacts of sea

level rise, storm surge and increased flooding.

Community Services & Facilities:

- To provide a full range of quality public services and facilities to its residents.
- To provide suitable and enhanced facilities to serve the City's senior population.

Open Space and Recreation:

- To provide a range of appropriate open space and outdoor recreational amenities for use by residents and visitors.
- To provide a connected system of open space and outdoor recreational amenities throughout the City that are strategically linked to transportation, public facilities, neighborhoods and appropriate private facilities.
- To protect and enhance public access to shoreline and waterfront areas.

Historical & Cultural Resources:

- To enhance the protection and survivability of historic resources from the impacts of climate change, sea level rise and storm hazards.

# Social & Economic Profile

## 1/2 Mile Radius

### Profile Findings, 1/2 Mile Radius

Total Population: 2,379

Density per acre: 4.7 people per acre

Median Age: 28

Total Employees: 4,089

Density per acre: 8.1 employees per acre

Total Businesses: 192

Density per acre: 0.38 businesses per acre

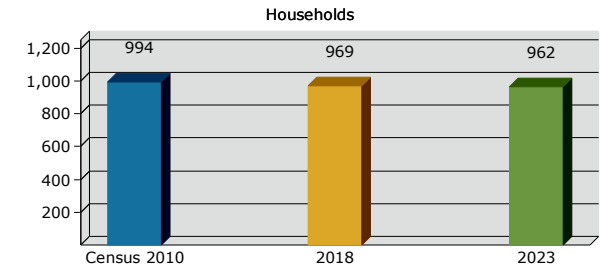
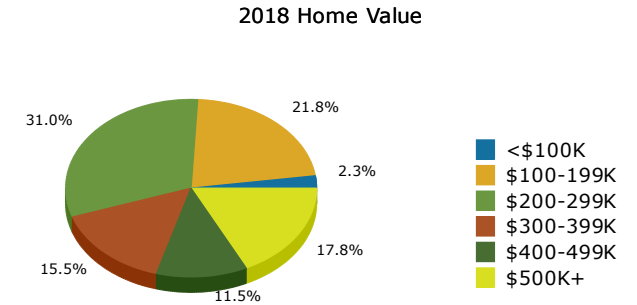
Total Housing Units: 1,183

Density per acre: 2.4 units per acre

Median Household Income: \$40,362

Median Home Value = \$283,333

Per Capita Income = \$23,182



Average Household Size



Unemployment Rate



192

Total Businesses



4,089

Total Employees

### Data & Figure Sources

U.S. Census Bureau, 2012-2016 American Community Survey.

U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2018 and 2023.

U.S. Census Bureau, Census 2010 Summary File 1.

# Social & Economic Profile

## 1 Mile Radius

### Profile Findings, 1 Mile Radius

Total Population: 12,465

Density per acre: 6.2 people per acre

Median Age: 35

Total Employees: 13,319

Density per acre: 6.6 employees per acre

Total Businesses: 480

Density per acre: 0.24 businesses per acre

Total Housing Units: 5,773

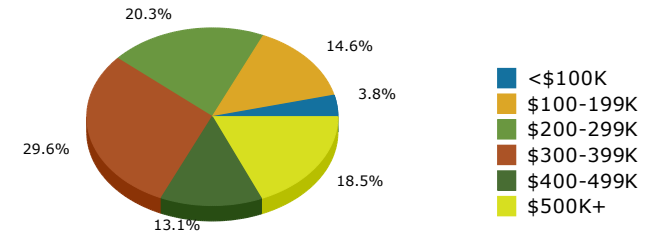
Density per acre: 2.9 units per acre

Median Household Income: \$59,266

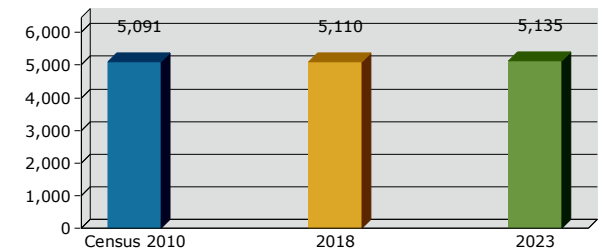
Median Home Value = \$340,780

Per Capita Income = \$33,066

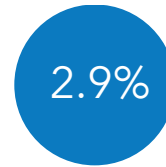
2018 Home Value



Households



Average Household Size



Unemployment Rate



Total Businesses



Total Employees

### Data & Figure Sources

U.S. Census Bureau, 2012-2016 American Community Survey.

U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2018 and 2023.

U.S. Census Bureau, Census 2010 Summary File 1.

# Existing Infrastructure

## 1/2 Mile Radius



Figure: Photograph of train station. Source: [vacationsmadeeasy.com/NewportRI/pointsOfInterest](http://vacationsmadeeasy.com/NewportRI/pointsOfInterest)

### Transportation Systems

The following transportation systems operate within the study area.

RIPTA Bus Route 60: Long distance. High frequency. Every 30 minutes or less on weekdays.

RIPTA Bus Route 63: Within TOD region. Every 30 minutes or less on weekdays, 45 or less on the weekends. Newport to Middleton.

RIPTA Bus Route 64: Medium Distance. Every 1-2 hours or less on weekdays, 2-3 hours or less on the weekends.

RIDOT Park and Ride located at Stop and Shop.

Bike Routes: No existing bike routes within the study area.

Sidewalk Infrastructure: Plenty of sidewalks within the area, but many are poor quality and fragmented.

Ride Share Companies: Uber, Lyft



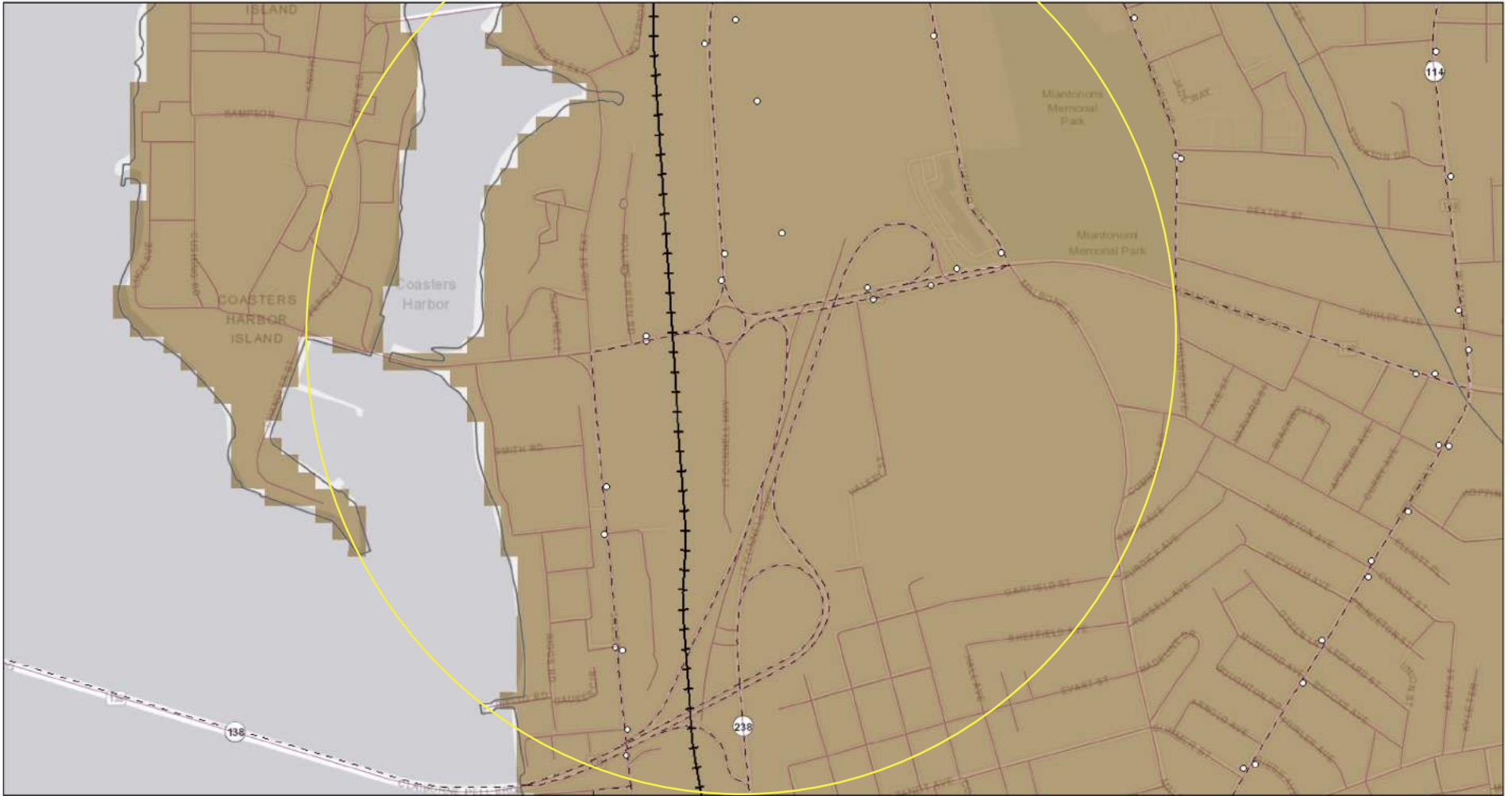
Figure: RIPTA Stop at former casino: Google Street



Figure: Photograph of Newport Gateway. Source: [newportri.com](http://newportri.com)

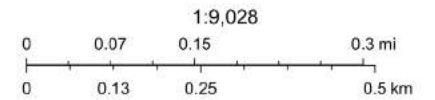


Figure: Map of existing infrastructure and zoning. Source: Report authors.



November 6, 2018

- RIDOT Roads (2016)
- Sewered Areas (2012)
- RIPTA Bus Stops
- - - RIPTA Bus Routes



RIGIS, University of Rhode Island Environmental Data Center (URIEDC), Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community, RIGIS, University of Rhode Island Environmental Data Center

Figure: Map of sewered areas, electrical lines, and transportation. Source: RI Division of Planning Mapping Application.



# Existing Development Conditions

1/2 Mile Radius

## Existing or Planned Projects

Future development in the area will likely focus on job creation. Newport would like to diversify their economy in response to sea level rise and climate change, and alter its identity to be more resilient.

A new transportation link from the Pell Bridge into the North End is underdevelopment.

## Vacant or Underused Land

Approximately 27 acres of vacant and underused land. Identified on the Future Opportunities Map using Newport GIS shapefiles.

## Vacant or Underused Buildings

Approximately 92,000 square feet. Calculated using the Newport Daily News and Casino buildings.

**Growth Center Designation:** None

## Opportunity Zone Designation:

Yes, Census Tract 405

## Residential Housing Densities

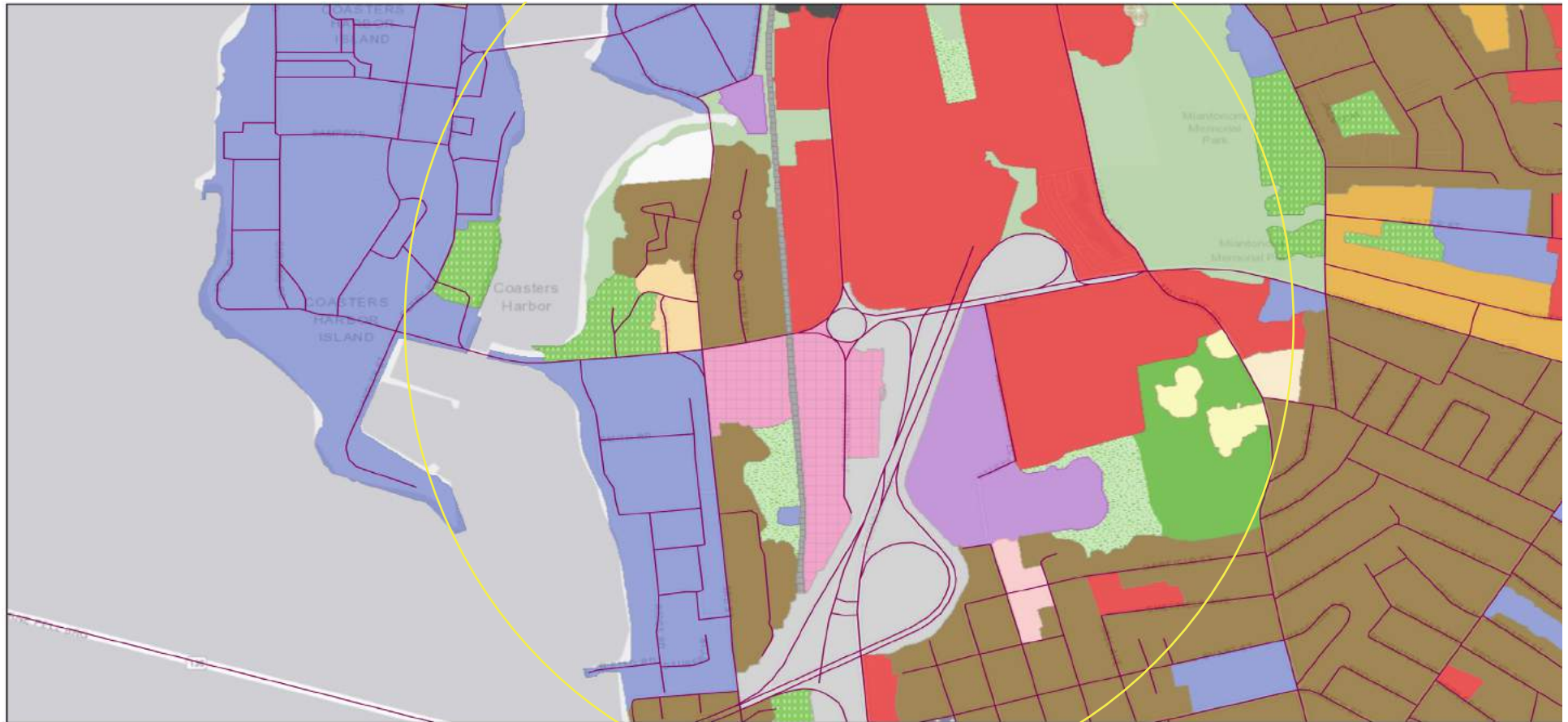
According to the Land Use Land Cover Map (following page) data that classifies housing density using lot size, the majority of housing in the study area is high-density residential (<1/8 acre lots).



Figure: Photograph of The Admiralty Development on Admiral Kalbfus Road. Source: <https://www.apartments.com>



Figure: Photograph of Festival Field Apartments on Girard Ave. Source: Google Maps



This is a statewide, seamless digital dataset of the land cover/land use for the State of Rhode Island derived using automated and semi-automated methods and is based on orthophotography captured in spring 2011.

Figure: Map of Land Use Cover 2011. Source: RI Division of Planning Mapping Application.

# Desirability

1/2 Mile Radius



Figure: Photograph of North End.

## Cultural Resources

Naval Museum on Coasters Harbor Island  
Numerous historic homes just south of the study area.  
Betania Iglesia Christiana Church

## Employment Centers

Stop and Shop  
Walmart  
Naval Hospital  
US Naval War College  
Naval Academy

## Retail

280,000 square feet of retail. Large retail stores include Walmart, Stop & Shop, TJ Maxx, Old Navy. Retail is most concentrated along JT Connell Highway.

## Schools, Parks, Hospitals

Newport Hospital , 0.3 miles away  
Miantonomi Memorial Park  
Hunter Park  
US Naval War College School  
Dr Michael Sullivan School  
Naval Justice School  
CCRI Satellite Campus

## Walkability

The walkability of the area is adequate within the residential areas but moderate to poor around the commercial sections. Although

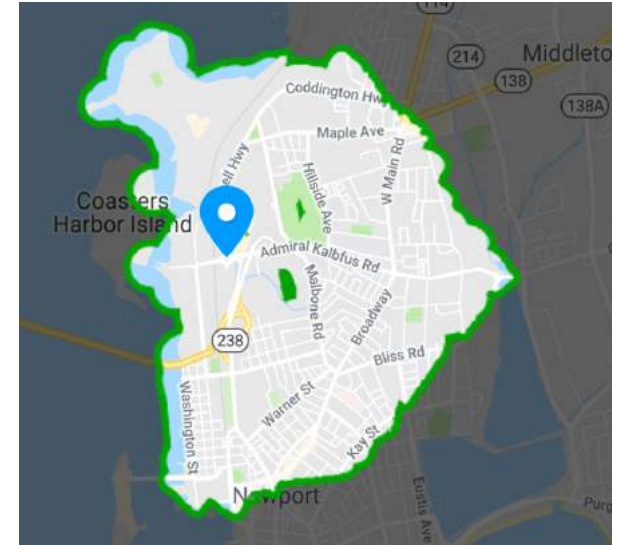


Figure: Map of walkable distance in 30 minutes.  
Source: Travel Time Platform.

the major retail stores area is close to the residential neighborhoods, it is dangerous to walk between them due to lack of crosswalks and sidewalks. The walkscore for this area is 53.

## Sidewalk Conditions

The sidewalk conditions within this area are moderate to poor. The sidewalk in best condition are found within the residential neighborhoods. The sidewalks that are in moderate to poor condition are found along JY Connell Hwy and Admiral Kalbfus Road where there are broken segments and damaged pavement. Some roads throughout this area lack sidewalks altogether.



Figure: Map of sidewalk presence. Source: Google Earth.

# Assets & Challenges

## Assets

- Existing innovation and defense industry as well as the retail sector create job opportunities for local and regional residents.
- At 2.4 housing units per acre, there area has a moderate density that could support the early stages of TOD development.
- Limited commercial vacancy shows thriving industries and economic activity.
- Census tract 405 is designated as an Opportunity Zone by the state where new investments, under certain conditions, may be eligible for preferential tax treatment.

## Challenges

- Re-purposing the capped landfill and brownfield sites from existing industrial land uses.
- Close proximity to bay coast will require resilient design strategies that may conflict with new development plans.
- The area is susceptible to gentrification given the lower income households in the area.
- Separated land uses have led to a low-density, auto-oriented community.

# TOD Readiness

## 1/2 Mile Radius

### TOD Readiness

The TOD Readiness Score summarizes how far a location has progressed toward its full TOD potential and how far it has to go. The following charts show the analysis conducted to determine the readiness of the study area.

### Methodology

Adapted from the TOD Priority Tool, Capital Metropolitan Transportation Authority, Austin, TX.

The TOD Readiness Score can and will change over time as conditions evolve and TOD takes hold in the market. The TOD Readiness Score has 3 levels:

#### Long Range:

Exhibiting few characteristics of TOD

#### Emerging:

Beginning to demonstrate some of the TOD characteristics.

#### Ready:

Showing TOD characteristics in much of the station area, but with gaps that are reasonably expected to be closed.

### Measurement System

Using the existing conditions research, a variety of metrics were developed for three primary TOD topics: existing infrastructure, development potential, and desirability. Each metric was weighted using the following:

5 = Extremely Important to the Success of TOD

4 = Very Important to the Success of TOD

3 = Important to the Success of TOD

2 = Slightly Important

1 = Unimportant

Individual metrics are scored low (1), medium (2), high (3) based on scoring criteria and are equally weighed. The metric total is calculated by multiplying the weight by the score.

The metrics were added to give the study area a total score ranging from 74 to 222. This total is then converted to the composite TOD Readiness Score, using the following equally distributed range:

Readiness Stage	Composite Score Range
Long-Range	74-123
Emerging	124-173
Ready	174-222

Figure: Composite TOD Readiness Score. Source: TOD Priority Tool, Capital Metropolitan Transportation Authority, Austin, TX.

## North End Newport Readiness Matrix, 1/2 mile Study Area

### Readiness Stage: Ready

	Weights of Importance	Scoring Criteria	Score, Low = 1, Medium = 2, High = 3	Total Score
<b>Infrastructure</b>				
Government Support	4	Weak = The government has done nothing to promote TOD; Moderate = Some effort was made by the municipality to promote development at a few sites through rezoning, investing in related infrastructure, some financial incentives; Strong = The municipality uses its powers to promote TOD such as rezoning, creating a plan with a specific focus on the area, proactive outreach to developers, environmental clean-up.	3	12
Existing Train or Bus Frequency	5	Low = 15+ minute wait ; Medium = 10-15 min, High = <5 min	2	10
Bicycle Connectivity	3	Low = Roads have low or Extremely low comfort level; Medium = Medium comfort level, Bicycle racks; High = High comfort level, bike station	1	3
Highway Connectivity	3	Low = No access to highway interchange or radial/cross-town arterial within 1 mile; Medium = Indirect access to highway interchange or major arterial within 1 mile; High = Direct access to highway interchange, major arterial	3	9
Station Parking	2	Low = No parking at TOD location; Medium = designated surface lot parking; High = designated parking garage	2	4
Sewered Area	5	Low = Little to no sewer infrastructure; Medium = majority sewered; High = all sewered	3	15
<b>Development</b>				
Building Density	4	Low = 1 Story, Medium = 2 Stories, High = 3 Stories	2.5	10
Land Availability	4	Low = No sites of significant size; Medium = 1-3 sites; 3+ sites	3	12
Vacant Building Availability	4	Low = No buildings; Medium = 1-3 buildings; 3+ buildings	2	8

<b>North End Newport Readiness Matrix, 1/2 mile Study Area</b>				
<b>Readiness Stage: Ready</b>				
	<b>Weights of Importance</b>	<b>Scoring Criteria</b>	<b>Score, Low = 1, Medium = 2, High = 3</b>	<b>Total Score</b>
Development Activity	4	Low = No projects under development; Medium = 1-2 projects underdevelopment; High = 3+ projects under development	2	8
Existing Housing Density	4	Low = 3 units/ acre; Medium = 4-6 units/acre; High = 6+ units/acre	3(7.9units/acre)	12
<b>Desirability</b>				
Local/Community Retail	4	Low = No local or community stores, Medium = 1-2 local stores, High = 3+ local stores	3	12
Regional Retail	2	Low = No regional stores (Auto Dealers, Big box stores), Medium = 1-2 regional stores, High = 3+ regional stores	3	6
Walkshed Connectivity	5	Low= Major sidewalk gaps, major presence of poor condition, significant accessibility barriers, Low walkscore; Medium = some gaps, some presence of poor condition, occasional accessibility barriers, Adequate walk score; High = Few to no gaps, little presence of poor conditions, few to no accessibility barriers. High walkscore	2	10
Schools	3	Low = No schools (any grade level), Medium = 1 school, High = 2+ schools	2	6
Parks	4	Low = No park open to the public, Medium = 1 park, High = 2+ park	3	12
Hospitals	2	Low = No hospitals, High = 1+ hospitals	3	6
Local and Cultural Resources	3	Low = No cultural resources (museums, historic sites, cemeteries), Medium = 2 cultural resources, High = 3+ cultural resources	2	6
Supermarket/Grocery Stores	4	Low = No grocery, High = 1+ grocery	3	12
Employment Opportunities	5	Low = No major employment centers; Medium = 1 employment center; High = 2+ employment centers	2	10
<b>TOTAL</b>	<b>74</b>		<b>46.5</b>	<b>183</b>

Figure: TOD Readiness Metric Scoring using three topics: existing infrastructure, development, and desirability. Source: Report authors.



# Development Potential

## 1/2 Mile Radius

### Development Potential

The following chart analyzes the potential future development of the 1/2 mile study area. The analysis uses U.S. Census data collected from ESRI Business Analyst in the fall of 2018 (shown in detail in Social and Economic Profile). The analysis offers a variety of development scenarios for housing, employment, and business density.

Future potential densities in each category are calculated using proportions. The future densities proposed in each scenario were derived from a series of TOD studies and discussions that consider the development capacities of rural, suburban, or urban TOD locations with rail or BRT stations. A variety of scenarios are offered due to the diverse landscape typologies researched in this study and to better understand the growth of the location over time.

### Definitions

Underused land may include parcels that do not contain a structure, are declared vacant, contain large surface parking, or are undeveloped and zoned residential.

Underused buildings appear unoccupied and were documented through direct observation.

**Total Underused Land:** 27 acres

**Total Underused Buildings:** 92,000 sq ft

### Possible 1 Bedroom Units on Underused Land (800SF):

FAR 1.0: 1,470 units

FAR 2.0: 2,940 units

FAR 3.0: 4,410 units

FAR 4.0: 5,880 units

### Possible 2 Bedroom Units on Underused Land (1200SF):

FAR 1.0: 980 units

FAR 2.0: 1,960 units

FAR 3.0: 2,440 units

FAR 4.0: 3,920 units

### Affordable Housing, Town-wide

15.32% of Newport Housing Stock is Low- and Moderate-Income.

The City of Newport Achieves the 10% State Goal of Affordable Housing Units.

# Development Potential, North End, Newport

## Typology: Metropolitan Corridor

A metropolitan corridor, may be located in a suburban area, is less densely populated and though it has the infrastructure for retail, business and residential use, it generally carries more height restrictions. Examples include Reservoir Ave. and Park Ave. in Cranston, Warwick Ave. in Warwick, Post Rd. in North Kingstown and Newport Ave. in Pawtucket and East Providence. Unit per Acre: 20-40, Typology Classification: RI 5 Year Strategic Housing Plan: 2006-2010, Urban Density Guidelines Matrix, D-6

## Residential Density Potential, 1/2 mile Radius, 502 acres

Scenarios include a range of residential densities to illustrate the future need of residential housing within 502 acres surrounding the station.

	Existing	Scenario A	Scenario B	Scenario C
<b>Residential Density</b> Units/Acre	2.4	10	20	30
<b>Housing Units</b>	1,183	4,929	9,858	14,788
<b>New Housing Units</b>	n/a	3,746	8,675	13,605
<b>Total Area of New 1 Bedroom Units</b> at 800 Square Feet	n/a	2,996,933	6,940,267	10,883,600
<b>Total Area of New 2 Bedroom Units</b> at 1,200 Square Feet	n/a	4,495,400	10,410,400	16,325,400

## Employment Density Potential, 1/2 mile Radius, 502 acres

Scenarios include a range of employment densities to illustrate the future need of job opportunities within 502 acres surrounding the station.

	Existing	Scenario A	Scenario B	Scenario C
<b>Employment Density</b> Jobs/Acre	8.1	10	15	20
<b>Jobs</b>	4,089	5,020	7,530	10,040
<b>New Jobs</b>	n/a	931	3,441	5,951
<b>Total Area of New Employment</b> <b>Space</b> at 200 SF/Per Employee	n/a	186,200	688,200	1,190,200
<b>Population</b>	2,379	2,921	4,381	5,841

# Development Potential, North End, Newport

## Business Density Potential, 1/2 mile Radius, 502 acres

Scenarios include a range of business densities to illustrate the future need of business opportunities within 502 acres surrounding the station.

	Existing	Scenario A	Scenario B	Scenario C
<b>Business Density</b> Business/Acre	0.4	1.5	2.5	3.5
<b>Businesses</b>	192	753	1,255	1,757

## Buildout Potential of FAR on Underused Land

Scenarios include a range of floor-area-ratios to illustrate the future development potential given available underused land.

	Existing	Scenario A	Scenario B	Scenario C
<b>Zoning Designations of Underused Land</b>	R-10 Residential, I-2 Industrial	n/a	n/a	n/a
<b>Allowable Building Height FAR</b>	3	4.0	5.0	6.0
<b>Underused Land Acres</b>	27	27	27	27
<b>Total Built Space with FAR</b> Square Feet	3,528,360	4,704,480	5,880,600	7,056,720
<b>Underused Buildings</b> Square Feet	92,000			

Figure: Development potential of residential, employment, and business density. Existing data from ESRI Business Analyst. Developed by: Report authors.

# Future Opportunities

## 1/2 Mile Radius

This list of future opportunities are identified on the following map.

### 1. Transportation Hub

We propose a transportation hub in the North End situated at the off-ramp of the Claiborne Pell Bridge to reduce traffic congestion in Newport. Direct access off of the bridge into the hub makes it convenient to access downtown Newport or local employment centers. The transit hub would accommodate a parking facility, bus parking and passenger loading, ticketing, bicycle infrastructure and/or bike share, a park and ride for regional commuters, and drop-off for carpools or ride share.

During peak tourists seasons, frequent buses between the new transit hub and downtown Newport will reduce vehicular congestion and increase pedestrian safety. Primary bus routes serving the transit hub would operate along JT Connell Hwy and Admiral Kalbfus Road.

### 2. Public Safety Center

A public safety center would strengthen public resources in this area of Newport. There would be ample opportunities with freed up land from the Pell Bridge Realignment Project.

### 3. Street Network

The lack of walkability due to the extensive web of roads challenges the area and divides the North End and Downtown areas. A new street grid provides stronger road connectivity and joins the two neighborhoods. JT Connell Hwy would provide access between northern and southern sections of Newport, while the perpendicular roadways allows for better circulation through the area.

### 4. Mixed-Use & Residential Zoning

Most of the area is currently zoned Commercial Industrial which serves automotive businesses and large retail. In order to diversify the land uses, increase

residential opportunities, and create a more pedestrian friendly environment, we suggest rezoning the area as mixed-use. This will expand the economic and employment opportunities with diverse commercial and office development, while allowing residents to live near employment.

### 5. Open Space & Public Parks

Parks and open space are limited in the area. Responding to Newport's resiliency planning, we suggest the waterfront area be transformed over time to a public park that includes a seawall, pedestrian pathway along the water, and floodable plains and plazas that capture water when capacity has exceeded, and also serve as recreational facilities.

### 6. Bus Stops

The addition of new bus stops in JT Connell Hwy will allow for visitors and locals to access major areas of interest and improve connectivity.

### 7. Bike Paths

To further improve circulation between residential, commercial, and recreational areas we propose a bike path along the abandon rail and bike lanes throughout the neighborhood.

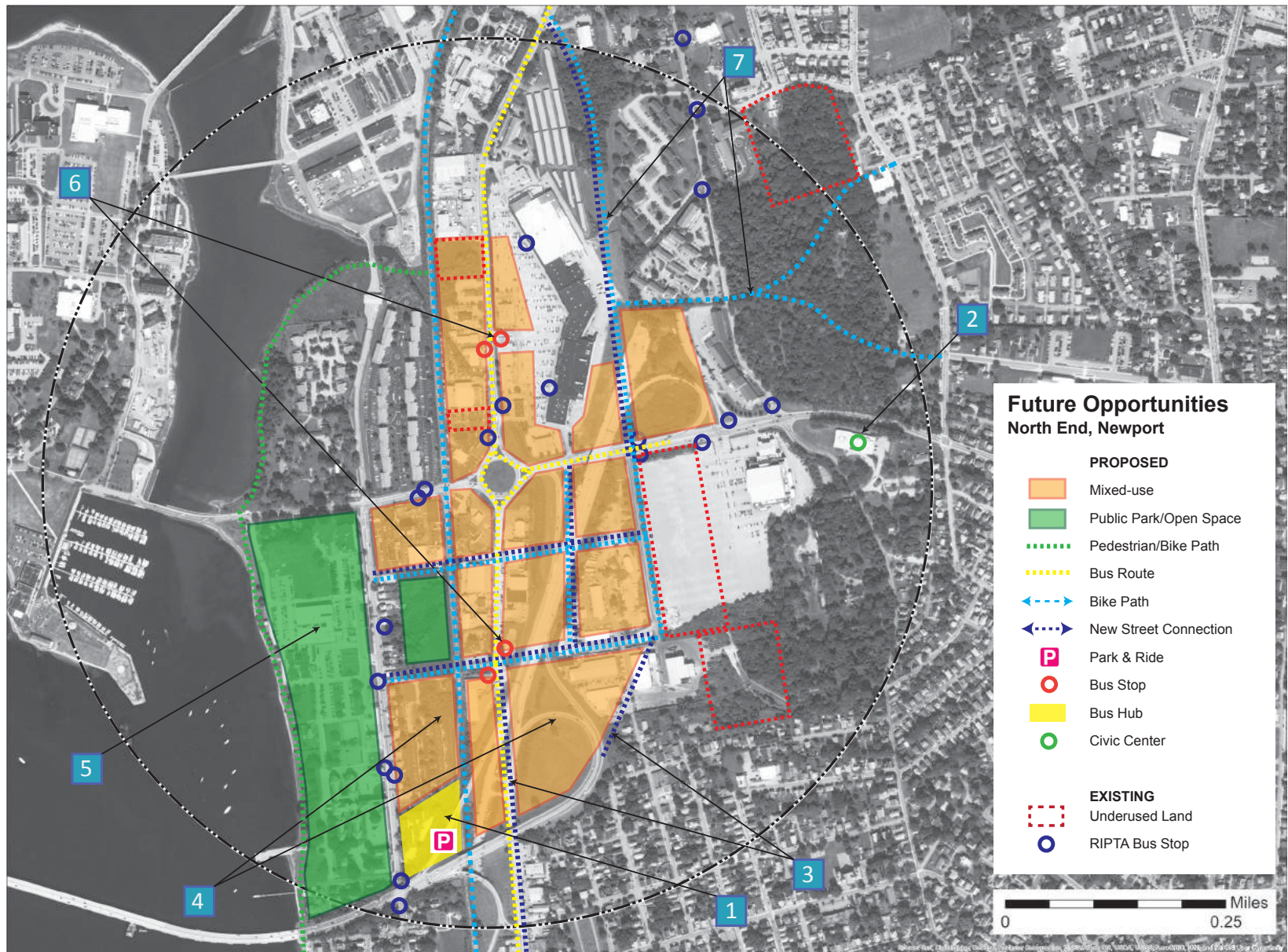


Figure: Map of proposed opportunities for TOD in study area. Source: Report authors.

# Development Scenario

## Development Scenario

This section is looking at the redevelopment of JT Connell Hwy, which includes small retail shops along with large retail such as Walmart, Stop and Shop. We propose this street will be the backbone of the area and will play a key role for the TOD.

The changes that we propose add human scale to the street front. Mixed-use development would be added to the front of the existing shopping center to align development with the JT Connell Hwy street edge.

We propose a FAR of 3.0 to support the proposed mixed-use development and bring sufficient activity to the new bus stops and bike paths. On the opposite side of the street we proposed 2-3 story town homes.



Figure: Existing street view. Source: Google Street View, 2018.



Figure: Illustration of potential development scenario. Bike lane may also be included. Source: Report authors.

# Local Policy Considerations

## Local Policy Considerations

1. Establish a transit hub at the end of the Pell Bridge ramp and to provide Newport residents and visitors alternative modes of transit to enter the North End, Historic District and downtown Newport. The hub will reduce vehicular traffic with shared buses and shuttles.
2. Collaborate with RIDOT and RIPTA to establish a complete streets program that will accommodate all forms of transportation and improve circulation in the North End.
3. Over time change zoning of the coastal land from residential to open space for the community. As sea level rise increases, encourage residents to move from the area. Implement sustainable stormwater strategies using landscape design.
4. Establish a public safety presence in the North End with a public safety center.
5. Develop a funding plan for bike infrastructure and pathways encouraging connectivity between residential, commercial, and recreational areas.
6. Adopt a TOD District Vision/Plan for the community to orient future growth towards walkable, transit rich, compact communities.
7. Change zoning to mixed-use to accommodate higher densities within the area in order to accommodate future housing needs and employment opportunities.
8. Identify and possibly land-bank properties for future use (including surface parking lots) that represent prime (re)development opportunities.



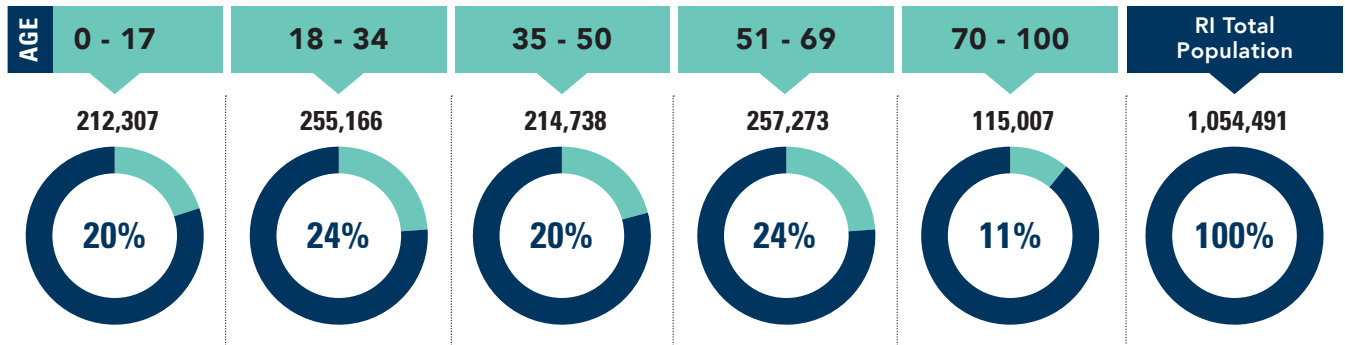


# Appendices

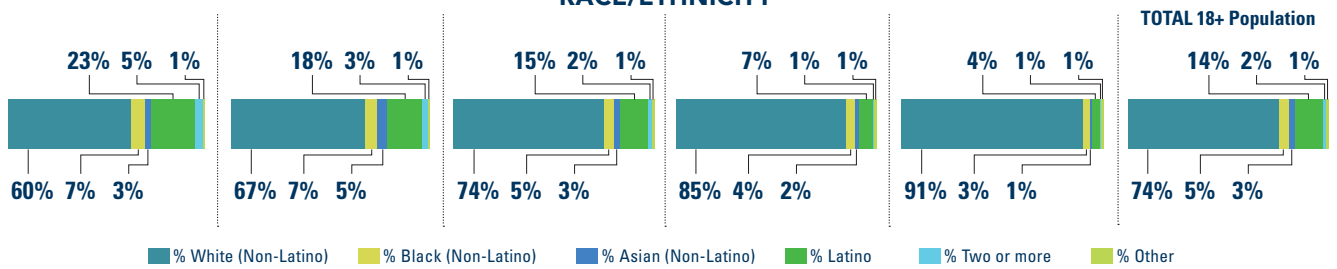
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Roger Williams University News	
EcoRI News	
Bristol Patch	

# RHODE ISLAND POPULATION

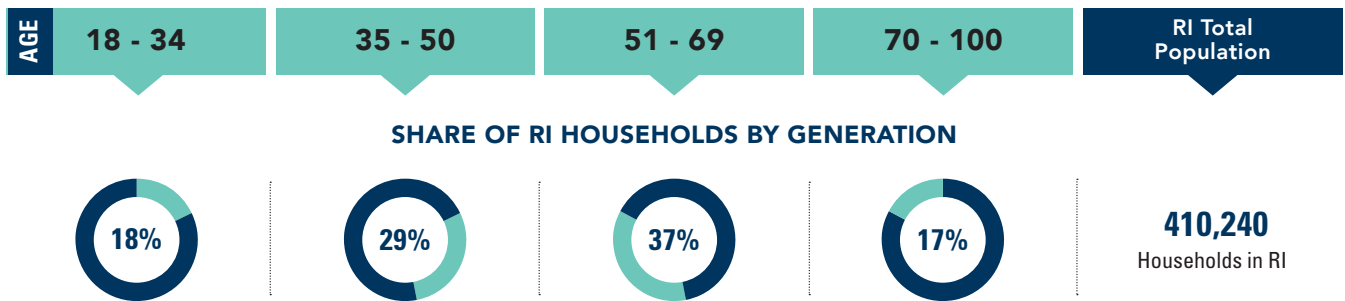
## AGE (IN 2016)



## RACE/ETHNICITY



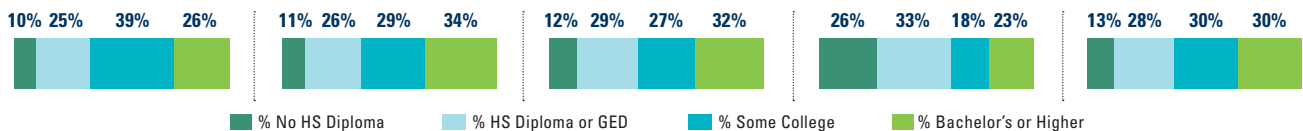
## SHARE OF RI HOUSEHOLDS BY GENERATION



## OWNER HOUSEHOLDS VS. RENTER HOUSEHOLDS



## EDUCATIONAL ATTAINMENT



## MEDIAN PERSONAL INCOME



Source: U.S. Census Bureau, American Community Survey, 5-Year Estimates, 2012-2016 and Public Use Microdata survey, Population and Housing Unit Records.

# NEWPORT

POPULATION **24,570** | HOUSEHOLDS **10,688** | MEDIAN HOUSEHOLD INCOME **\$59,794**

40% OWN

60% RENT

## MEDIAN SINGLE FAMILY HOME PRICE

**\$452,000**

Assumed down payment  
**\$15,820**

Mortgage amount  
**\$443,813**

Monthly housing payment  
**\$2,966**

**\$118,623**

Income needed to afford this

### MEDIAN HOME PRICE: COMPARISON



## AVERAGE 2-BEDROOM RENT

**\$1,753**

**\$70,120**

Income needed to afford this

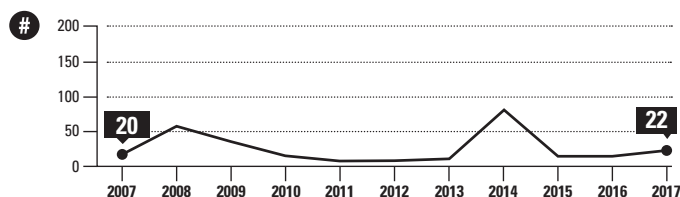
### RENTAL / 2BR: COMPARISON



## HOUSING STOCK

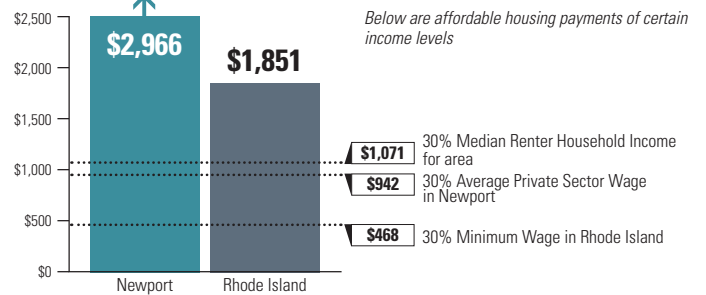
Total **13,102** | Single family **39%** | Multifamily **61%**

### New Units Authorized



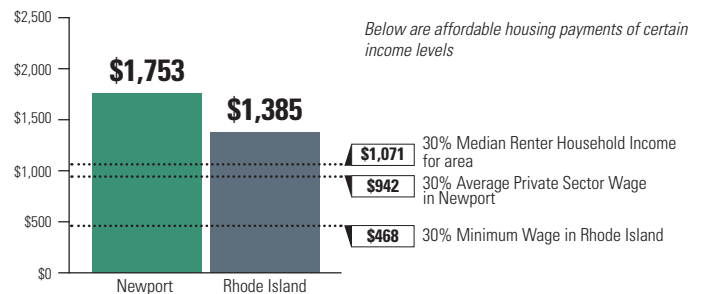
## AFFORDABILITY

### OWNERS: MONTHLY COST OF MEDIAN PRICE HOME



**COST BURDENED OWNERS: 31%** | Rhode Island: **30%**  
A household is considered burdened if it spends more than 30% of its income on housing costs.

### RENTERS: MONTHLY COST OF AVERAGE 2BR



**COST BURDENED RENTERS: 45%** | Rhode Island: **51%**  
A household is considered burdened if it spends 30% or more of its income on housing costs.

## LONG-TERM AFFORDABLE HOMES

RI General Law: 45-53-3(9) Low or Moderate Income Housing

**CURRENT 15.3%** % of year-round housing stock | **1,785** # of long-term affordable homes

Elderly **25%** | Family **64%** | Special Needs **8%**

### NEWLY ADDED

Ownership - Rental -

### PRESERVED RENTALS

-

State-Funded **BUILDING HOMES RHODE ISLAND: Rounds I, II & III**

**BUILT (BHRI I & II) 171** | **FUNDED (BHRI III) -**

# NORTH KINGSTOWN

POPULATION  
**26,232**

HOUSEHOLDS  
**10,271**

MEDIAN HOUSEHOLD INCOME  
**\$84,726**

75% OWN

25% RENT

## MEDIAN SINGLE FAMILY HOME PRICE

**\$330,000**

Assumed down payment  
**\$11,550**

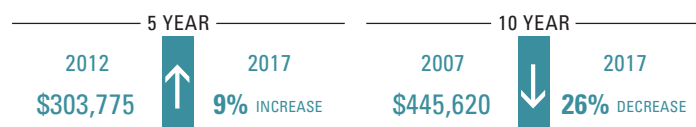
Mortgage amount  
**\$324,023**

Monthly housing payment  
**\$2,395**

**\$95,810**

Income needed to afford this

### MEDIAN HOME PRICE: COMPARISON



## AVERAGE 2-BEDROOM RENT

**\$1,583**

**\$63,320**

Income needed to afford this

### RENTAL / 2BR: COMPARISON



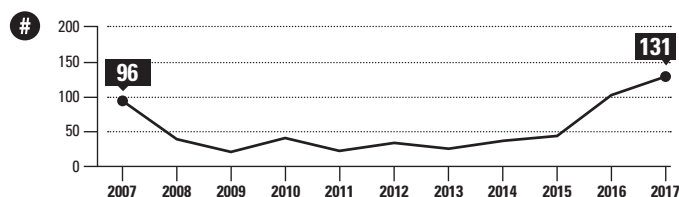
## HOUSING STOCK

Total  
**11,160**

Single family  
**72%**

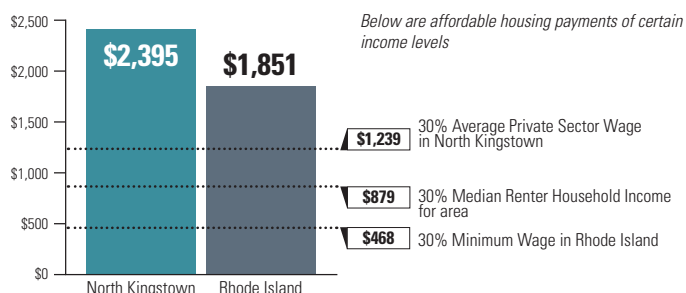
Multifamily  
**28%**

### New Units Authorized



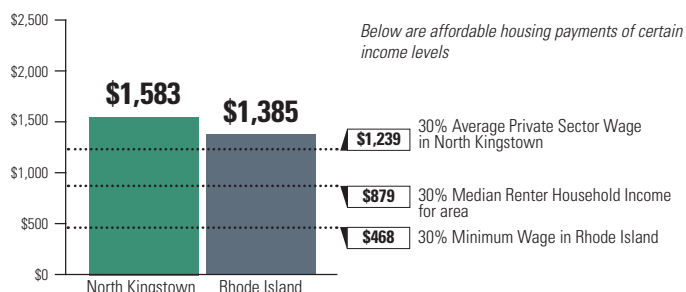
## AFFORDABILITY

### OWNERS: MONTHLY COST OF MEDIAN PRICE HOME



**COST BURDENED OWNERS: 28%** | Rhode Island: **30%**  
A household is considered burdened if it spends more than 30% of its income on housing costs.

### RENTERS: MONTHLY COST OF AVERAGE 2BR



**COST BURDENED RENTERS: 44%** | Rhode Island: **51%**  
A household is considered burdened if it spends 30% or more of its income on housing costs.

## LONG-TERM AFFORDABLE HOMES

RI General Law: 45-53-3(9) Low or Moderate Income Housing

**CURRENT 8.1%** % of year-round housing stock

**883** # of long-term affordable homes

Elderly  
**23%**

Family  
**63%**

Special Needs  
**14%**

### NEWLY ADDED

Ownership -

Rental -

### PRESERVED RENTALS

-

State-Funded **BUILDING HOMES RHODE ISLAND: Rounds I, II & III**

**BUILT (BHRI I & II) 67**

**FUNDED (BHRI III) -**

# SOUTH KINGSTOWN

POPULATION **30,651** | HOUSEHOLDS **10,460** | MEDIAN HOUSEHOLD INCOME **\$73,801**

**72% OWN**

**28% RENT**

## MEDIAN SINGLE FAMILY HOME PRICE

**\$349,000**

Assumed down payment  
**\$12,215**

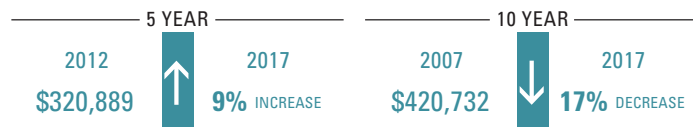
Mortgage amount  
**\$342,679**

Monthly housing payment  
**\$2,426**

**\$97,050**

Income needed to afford this

### MEDIAN HOME PRICE: COMPARISON



## AVERAGE 2-BEDROOM RENT

**\$1,355**

**\$54,200**

Income needed to afford this

### RENTAL / 2BR: COMPARISON



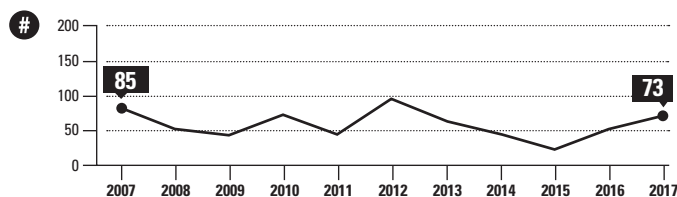
## HOUSING STOCK

Total  
**13,056**

Single family  
**78%**

Multifamily  
**22%**

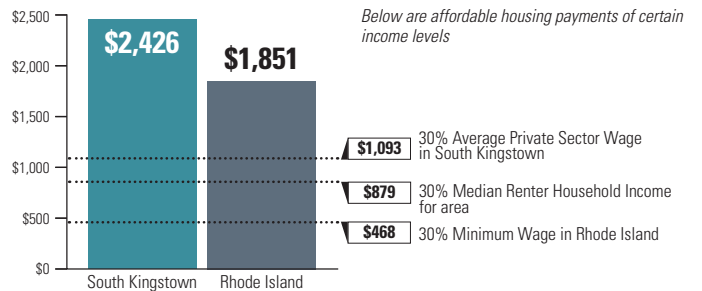
### New Units Authorized



## AFFORDABILITY

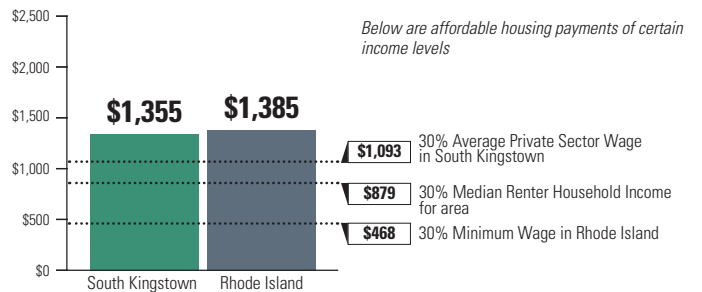
Housing is considered affordable when a household spends 30% or less of its income on housing costs.

### OWNERS: MONTHLY COST OF MEDIAN PRICE HOME



**COST BURDENED OWNERS: 28%** | Rhode Island: **30%**  
A household is considered burdened if it spends more than 30% of its income on housing costs.

### RENTERS: MONTHLY COST OF AVERAGE 2BR



**COST BURDENED RENTERS: 53%** | Rhode Island: **51%**  
A household is considered burdened if it spends 30% or more of its income on housing costs.

## LONG-TERM AFFORDABLE HOMES

RI General Law: 45-53-3(9) Low or Moderate Income Housing

**CURRENT 5.6%** % of year-round housing stock

**612** # of long-term affordable homes

Elderly  
**56%**

Family  
**26%**

Special Needs  
**17%**

### NEWLY ADDED

Ownership -

Rental -

### PRESERVED RENTALS

-

State-Funded **BUILDING HOMES RHODE ISLAND: Rounds I, II & III**

**BUILT (BHRI I & II) 20**

**FUNDED (BHRI III) -**

# WESTERLY

POPULATION **22,655** | HOUSEHOLDS **9,746** | MEDIAN HOUSEHOLD INCOME **\$60,800**

**62% OWN** | **38% RENT**

## MEDIAN SINGLE FAMILY HOME PRICE

**\$316,950** Assumed down payment **\$11,093** Mortgage amount **\$311,209** Monthly housing payment **\$2,106**

**\$84,243** Income needed to afford this

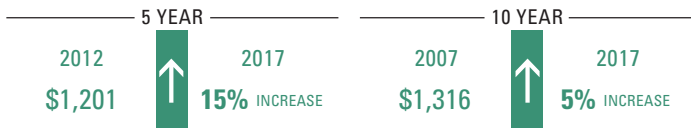
### MEDIAN HOME PRICE: COMPARISON



## AVERAGE 2-BEDROOM RENT

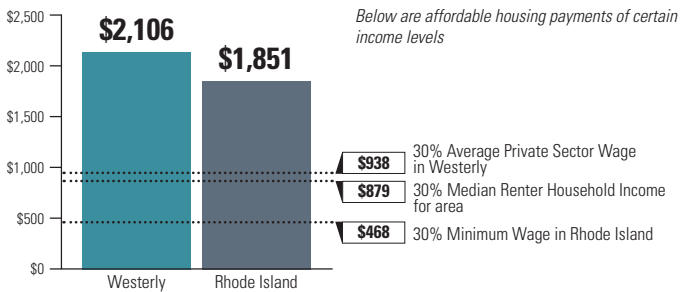
**\$1,377** Income needed to afford this **\$55,080**

### RENTAL / 2BR: COMPARISON



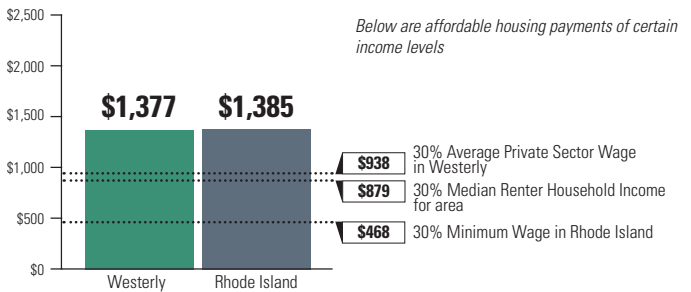
## AFFORDABILITY

### OWNERS: MONTHLY COST OF MEDIAN PRICE HOME



**COST BURDENED OWNERS: 26%** | Rhode Island: **30%**  
A household is considered burdened if it spends more than 30% of its income on housing costs.

### RENTERS: MONTHLY COST OF AVERAGE 2BR

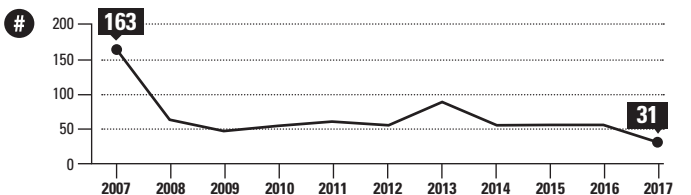


**COST BURDENED RENTERS: 54%** | Rhode Island: **51%**  
A household is considered burdened if it spends 30% or more of its income on housing costs.

## HOUSING STOCK

Total **12,524** | Single family **65%** | Multifamily **35%**

### New Units Authorized



## LONG-TERM AFFORDABLE HOMES

RI General Law: 45-53-3(9) Low or Moderate Income Housing

**CURRENT 5.2%** % of year-round housing stock | **544** # of long-term affordable homes

- Elderly **66%**
- Family **21%**
- Special Needs **13%**

**NEWLY ADDED** | **PRESERVED RENTALS**

Ownership - Rental -

State-Funded **BUILDING HOMES RHODE ISLAND: Rounds I, II & III**

**BUILT (BHRI I & II) 15** | **FUNDED (BHRI III) -**

# WOONSOCKET

POPULATION **41,272** | HOUSEHOLDS **17,248** | MEDIAN HOUSEHOLD INCOME **\$37,235**

38% OWN

62% RENT

## MEDIAN SINGLE FAMILY HOME PRICE

**\$180,000**

Assumed down payment  
**\$6,300**

Mortgage amount  
**\$176,740**

Monthly housing payment  
**\$1,497**

**\$59,868**

Income needed to afford this

### MEDIAN HOME PRICE: COMPARISON



## AVERAGE 2-BEDROOM RENT

**\$1,138**

**\$45,520**

Income needed to afford this

### RENTAL / 2BR: COMPARISON



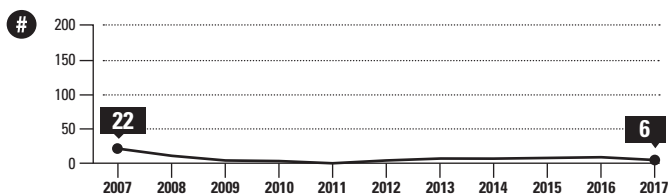
## HOUSING STOCK

Total  
**19,480**

Single family  
**27%**

Multifamily  
**73%**

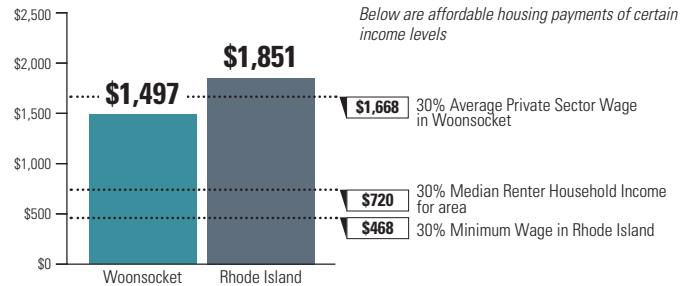
### New Units Authorized



## AFFORDABILITY

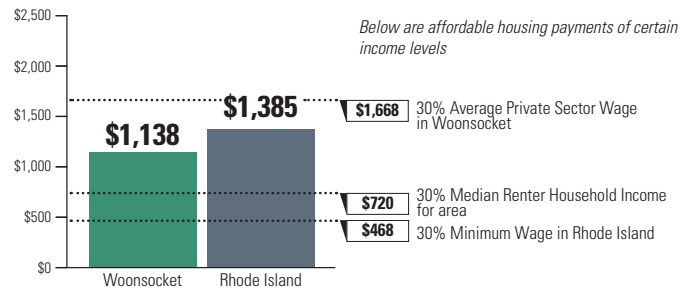
*Housing is considered affordable when a household spends 30% or less of its income on housing costs.*

### OWNERS: MONTHLY COST OF MEDIAN PRICE HOME



**COST BURDENED OWNERS: 36%** | Rhode Island: **30%**  
A household is considered burdened if it spends more than 30% of its income on housing costs.

### RENTERS: MONTHLY COST OF AVERAGE 2BR



**COST BURDENED RENTERS: 49%** | Rhode Island: **51%**  
A household is considered burdened if it spends 30% or more of its income on housing costs.

## LONG-TERM AFFORDABLE HOMES

*RI General Law: 45-53-3(9) Low or Moderate Income Housing*

**CURRENT 15.9%** % of year-round housing stock

**3,047** # of long-term affordable homes

Elderly  
**42%**

Family  
**53%**

Special Needs  
**5%**

### NEWLY ADDED

Ownership -

Rental -

### PRESERVED RENTALS

-

State-Funded **BUILDING HOMES RHODE ISLAND: Rounds I, II & III**

**BUILT (BHRI I & II) 97**

**FUNDED (BHRI III) -**



**Urban Density Guidelines Matrix**

The following classifications are located in Urban Service Areas as defined in the Statewide Land Use Plan, and are served by public water and sewer.

**Urban Centers**

*Unit per Acre 60-170*

An urban center is a large and densely populated urban area with a civic, social and cultural infrastructure. It is zoned for mixed use residential, groundfloor retail and business and also provides open space for public and private uses. It is easily walkable or accessible through various modes of public and personal transit. Examples of urban centers include Downtown Providence, Newport and Pawtucket.



77 units per acre



84 units per acre



125 units per acre

**Urban Corridors**

*Unit per Acre 40-80*

An urban corridor serves as a main thoroughfare in a densely populated area. It has the civic and cultural elements of an urban community and contains infrastructure for retail, business and residential use. Examples include Elmwood Ave. and Broad St. in Providence and North Main St. in North Providence.



44 units per acre



62 units per acre



66 units per acre

**Metropolitan Corridors**

*Unit per Acre 20-40*

A metropolitan corridor, may be located in a suburban area, is less densely populated and though it has the infrastructure for retail, business and residential use, it generally carries more height restrictions. Examples of this include Reservoir Ave. and Park Ave. in Cranston, Warwick Ave. in Warwick, Post Rd. in North Kingstown and Newport Ave. in Pawtucket and East Providence.



28 units per acre



28 units per acre



34 units per acre

**Town Centers**

*Unit per Acre 15-30*

A town center is a traditional downtown at a smaller scale, where a town's civic, commercial and social infrastructure is concentrated. In Rhode Island, it is characterized by first floor retail and under utilized upper stories. It is zoned with greater height restrictions. Facilities are situated within walking distance of private residences. Examples of this include Warren, Bristol and East Greenwich



18 units per acre



19 units per acre



23 units per acre

**Village Centers**

*Unit per Acre 8-15*

A village center is smaller than a town center, and will generally have first floor retail and offices frequently with upper story residential. Private residences are within close proximity. Examples include Lonsdale, Conimicut, and Peacedale.



11 units per acre



13 units per acre



15 units per acre

**Transit Oriented Developments Urban Centers**

*Unit per Acre 60-150*

A TOD in an urban center concentrates developments around existing downtown areas, adjacent to a commuter rail, maximizing access by transit and non-motorized vehicles. Urban centers normally have the infrastructure for intermodal transportation, allowing convenient access to rail and bus lines as well as parking structures. Zoning will emphasize mixed-use development which encourages and facilitates walkability. Locations include Downtown Providence and Pawtucket.



**Transit Oriented Developments around Commuter Rail Stops**

*Unit per Acre 30-50*

A TOD around commuter rail stops is a transportation hub surrounded by relatively high-density development with progressively lower-density spreading outwards. New TODs may be developed around planned commuter rail stops in Rhode Island. TOD town centers may have a transit station and a few multi-story commercial and residential buildings surrounded by several blocks of townhouses and small-lot single-family residential. Zoning will emphasize mixed-use development. Potential locations include East Greenwich, Warwick Station, and Westerly.



### **Rural Village Center Density Matrix**

Matrix based on generalized goals for areas with no access to public sewer; lots will use ISDS\* or I/A - Innovative Alternative Septic System  
Conservation subdivisions and compact development are encouraged.

**Actual density will depend on site specific location.**

**Site must take into consideration adjacent land uses, soil quality, availability of water, and the density of the overall watershed.**

	Single Family Housing (Average 3 Bedroom Units)		Multifamily Housing (Average 2 Bedroom Units)
<b>Private Well</b>	Fair to Good Soil or I/A*	1 to 2 units / acre (20,000-40,000 sq.ft)	
	Excellent Soil	2 units / acre (20,000 sq.ft)	
<b>Public Water</b> (includes public water systems and wells serving more than 25 people)	Fair to Good Soil	2 to 4 units / acre (15,000-20,000 sq.ft)	4 to 10 units/acre
	Excellent Soil	5 to 6 units / acre (7,000-10,000 sq.ft)	Best suited to large building to allow septic field

**The following images are examples that will enhance inclusionary zoning or more compact development in low density zoning districts**

Examples of multiple units with a single family appearance



Examples of compact development



\*ISDS - Individual Sewage Disposal System

The images used in the matrices were obtained from the following sources:

Kathleen Dorgan & Deane Evans, "Best Practices in Affordable Housing"

[www.mbta.com/](http://www.mbta.com/)

[www.designadvisor.org](http://www.designadvisor.org)

[www.designcenter.umn.edu](http://www.designcenter.umn.edu)

[www.transitorienteddevelopment.org](http://www.transitorienteddevelopment.org)

## Appendix 3: Opportunity Zone Information for Selected Towns

### Opportunity Zone Information

#### Census Tracts within TOD Study Areas

Source: LOCUS Opportunity Zone Locator: <https://smartgrowthamerica.org/opportunity-zones/>  
Data retrieved August 2018. Population and job counts are no longer available per tract on website.

#### **Woonsocket, Census Tract 180**

Neighborhood: Downtown

Typology: Urban

Rail Stops: 1

Population: 2,504

Jobs: 2,999

Brownfield Sites: 3

Rapid Transit Connectivity: Rail Station, Bus

#### **South Kingstown, Census Tract 514**

Neighborhood: University of Rhode Island

Typology: Rural

Rail Stops: 1

Population: 555

Jobs: 3,373

Brownfield Sites: 1

Rapid Transit Connectivity: Rail Station, Bus

#### **Newport, Census Tract 405**

Neighborhood: North End

Typology: Suburban

Rail Stops: 0

Population: 4,362

Jobs: 1,503

Brownfield Sites: 0

Rapid Transit Connectivity: Bus

#### **Westerly, Census Tract 508.01**

Neighborhood: Downtown; Site of train station

Typology: Suburban

Rail Stops: 1

Population: 5,877

Jobs: 3,480

Brownfield Sites: 4

Rapid Transit Connectivity: Rail station, Bus

# Evaluating Social and Economic Trends for Transit-Oriented Development Potential Using GIS

Ginette Wessel, Ph.D. | Assistant Professor of Architecture, Roger Williams University

In January 2018, Dr. Ginette Wessel, GrowSmart RI, and HousingWorks RI began a research effort focused on identifying prime areas for transit-oriented development across the state of Rhode Island. The project supports the State of Rhode Island's Transit Master Plan development aiming to create communities of diverse ages, incomes, and ethnic and racial backgrounds with attainable housing and healthy lifestyles through walking, biking, and shared mobility.

TOD is a strategy to encourage mixed-use development within walking distance of transportation hubs reducing dependence on personal automobiles and sprawling population growth. Social, economic, and environmental benefits of TOD include reduced greenhouse gas emissions among transportation and building sectors and the creation of housing and job opportunities near reliable transit.

In Rhode Island, passenger trains (operated by Amtrak and MBTA) lack trip frequency and desirable speeds while the population continues to grow, live, and commute regionally. The Rhode Island Public Transit Authority (RIPTA) bus system has the most ridership (16 million in 2017) however the agency is challenged to expand service and grow bus rapid transit effectively statewide. Moreover, RI's affordable housing stock, at just 8.3%, is unable to keep pace with the need and is highly geographically concentrated. The team views these issues as an opportunity to rethink RI's future development and growth patterns to establish compact, mixed-use communities connected to multiple modes of transportation.

The team leveraged the expertise of Roger Williams University students in Dr. Wessel's Spatial Analysis in GIS and Introduction to Urban Planning courses. In the first course, students conducted

data to locate promising TOD districts. In the second course, conducted this fall, students will conduct a deeper investigation at the neighborhood level that involves researching municipal zoning, known wetlands, presence and capacity of utilities, development capacities, as well as existing tools or incentives to encourage TOD at the state and local level. Students will use Esri's Story Maps application to develop their analyses.

The advantage of using GIS to begin our research allowed the team to collectively assess Rhode Island's existing conditions and recent trends geographically using quantitative information. Students researched and collected data from the 2012 - 2016 American Community Survey (ACS) 5-Year Estimates provided by the U.S. Census Bureau. They found a number of characteristics to measure TOD including population density and change, household income, family size, resident age, modes of transit, commute times, and housing density, value and type. To capture a detailed picture, the data was collected using block group geographic units - statistical divisions of census tracts that generally contain between 600 and 3,000 people. Federal and state open data sources such as RIGIS, MassGIS, Data.gov, and U.S. Department of Transportation provided geographic shapefiles for flood zones, historic districts, railways, sewers, and bus infrastructure that included temporal information about railway use, bus service hours, and traffic intensity.

Students started by developing a series of choropleth maps using Esri's ArcMap application to illustrate a single demographic variable relevant to TOD at the block group level. Students formatted the ACS data, retrieved TIGER/Line shapefiles, and then joined them using the block group identification number. This allowed them to apply a classification

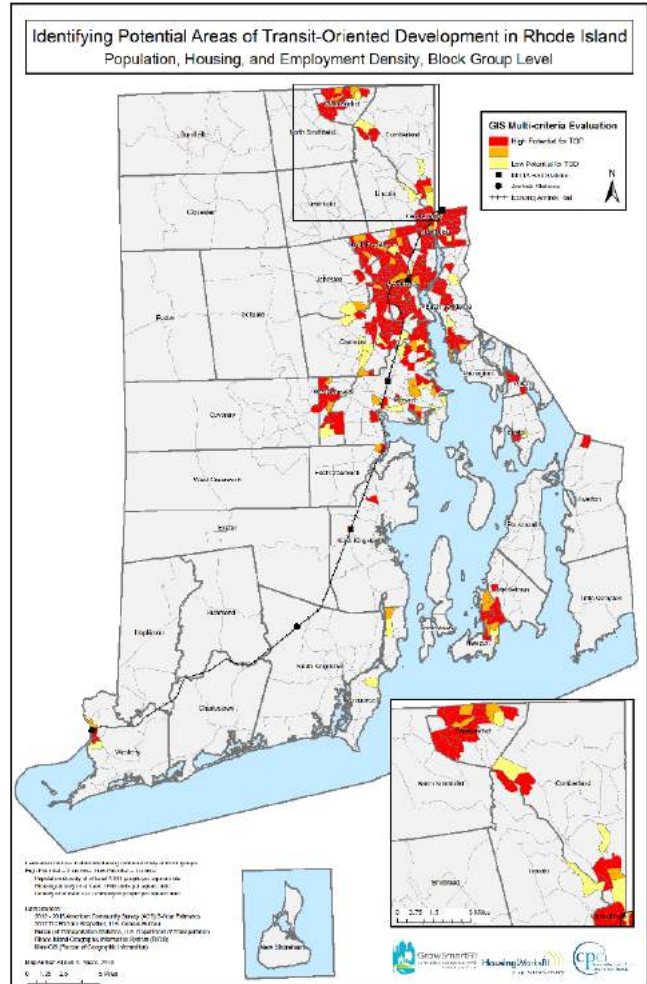
scheme and assign graduated colors to render the quantitative values visible. The maps were evaluated for their areas of TOD potential including the areas with significant walkability, multi-family housing, low vehicle ownership, millennials, and seniors.

Second, students analyzed areas of RI with established density for TOD when taking into consideration the population, housing, and employment. After collecting the ACS data, students calculated the median block group densities across the state and used them to create new layers that represent a range of density conditions: high (3 criteria), moderate (2 criteria), and low potential TOD areas (1 criteria). The analysis revealed areas most and least suitable for infill development near rail stations and waterways considering the current population distribution.

The final geospatial analysis included mapping a variety of demographic data combinations with bus, bike, and rail infrastructure. Students' work showed key areas in which low-income households commuted over 30 minutes to work, locations of workers who commute via public transit or walking, or ports that can accommodate ferry access, rail, and parking facilities, among others. Students found RI has a hub and spoke bus network that reaches a number of vulnerable and established neighborhoods, however routes between neighborhoods and bus frequency need to be further studied. Rail stations south of Providence, which are sparsely populated in rural/suburban settings, may offer development opportunities if rail electrification and the local bus network are improved. Students also found the established multi-unit housing stock at former industrial centers and shorelines across the state could be preserved and leveraged for TOD opportunities that provide water transportation.



Image 1. Map of workers who commute by walking combined with the location of bike paths and areas of TOD potential.



Images 2. Map of TOD suitability potential considering population, housing, and employment density.

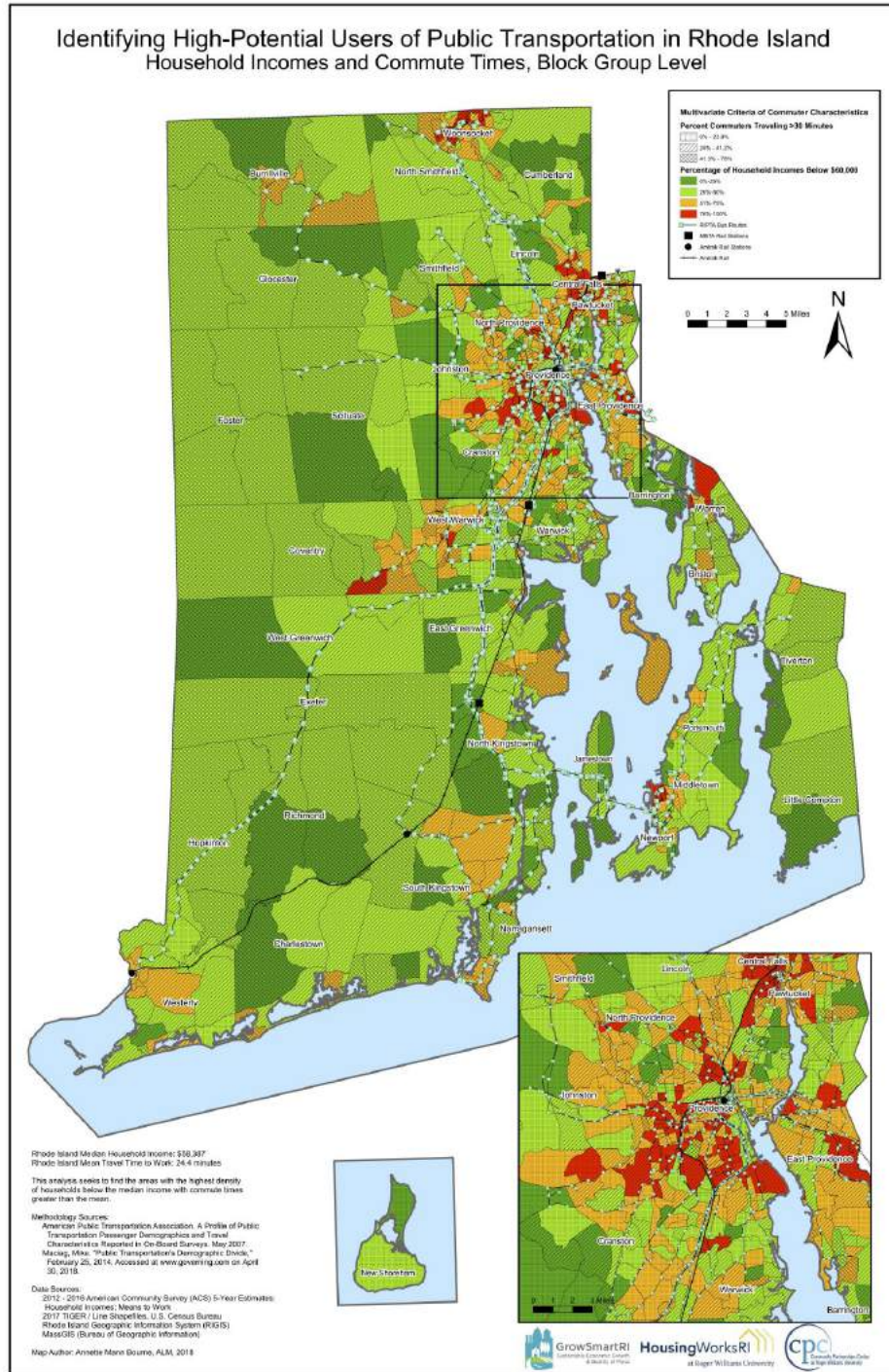
This project allowed students to gain experience working collaboratively with planning professionals and conducting geospatial analysis with GIS tools to study transit-oriented development potential in RI. Geospatial analysis provides planners with a geographic understanding about a

number of demographic conditions of a population that are typically nonspatial, data records. The synthesis of data and space via GIS is fundamental for professionals who need to interpret the legibility of the landscape that swiftly changes and produces new meanings.

These tools and methods allow planners to carry out informed discussions and make decisions based upon quantitative evidence about where to strengthen the state's investment in transportation and housing infrastructure.

# RWU students map out possible R.I. transit-development locales

By **Emily Gowdey-Backus** - June 15, 2018 4:50 am



PRODUCED BY STUDENTS at Roger Williams University, this geographic information system map identifies areas in the state where public transportation would be commonly used if built. / COURTESY ROGER WILLIAMS UNIVERSITY

BRISTOL – Months of collaboration and partnership with Grow Smart Rhode Island and HousingWorks RI culminated in mid-May when Roger Williams University students presented geographic information system maps identifying locations within the state that are well-suited to transit-oriented development.

“From a sustainability point of view, the focus on walkability, shared modes of transportation and compact development can reduce our carbon footprint and preserve vulnerable ecological areas in Rhode Island,” said RWU assistant professor of architecture Ginette Wessel in a statement.

The three organizations have been working since January to apply such a designation to areas bordering Rhode Island’s rail corridor and high-frequency bus routes. This, the first of three stages, aims to spur housing opportunities linked to local transit.

Rhode Island communities that have expressed interest include Providence, Cranston, East Providence, South Kingstown, North Kingstown, Westerly, Woonsocket and Cumberland.

In a statement, John Flaherty, deputy director of Grow Smart Rhode Island, argued “transit-oriented development” is a win-win-win for the state.

In his remarks, he added: “It can provide a significant boost to our economy, accommodate our need for substantial new housing development and do so in a way that’s good for the environment. The business and residential market has shifted in favor of ‘walkable urban’ neighborhoods, so pursuing these opportunities plays to our strength and makes Rhode Island a more competitive place for investment.”

Throughout the semester, 18 students conducted research as part of the GIS in planning, design and conservation course. More than 40 GIS maps were displayed May 14 when the research was presented to the public.

In addition to the three nonprofits, the R.I. Division of Statewide Planning and other state agencies gave input to the research.

*Emily Gowdey-Backus is a staff writer for PBN. You can follow her on Twitter @FlashGowdey or contact her via email, [gowdey-backus@pbn.com](mailto:gowdey-backus@pbn.com).*

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# REVISED DRAFT of news release

Fitzpatrick, Edward

Fri 5/4/2018 4:45 PM

To: John Flaherty <JFlaherty@GrowSmartRI.com>; Wessel, Ginette <gwessel@rwu.edu>;



Roger Williams University  
Office of Public Affairs  
One Old Ferry Road  
Bristol, Rhode Island 02809-2921  
**News Release**

**FOR IMMEDIATE RELEASE**

**Contact: Edward Fitzpatrick**  
Director of Media and Public Relations  
Roger Williams University  
[efitzpatrick@rwu.edu](mailto:efitzpatrick@rwu.edu)  
(401) 254-3198

-  
**RWU STUDENTS MAP OUT R.I. LOCATIONS**  
**PRIMED FOR TRANSIT-ORIENTED DEVELOPMENT**

-  
**Grow Smart Rhode Island partnering with RWU and HousingWorksRI  
to identify opportunities along rail corridors and bus routes in Rhode Island**

**BRISTOL, R.I., May 7, 2018** – On May 14, Roger Williams University students will exhibit Geographic Information System maps identifying the spots in Rhode Island that are ripe for transit-oriented development.

Since January 2018, Grow Smart Rhode Island has been working with RWU and HousingWorks RI at RWU to identify the opportunities and challenges of development along Rhode Island's rail corridor and high-frequency bus routes.

The State of Rhode Island is developing a transportation master plan, and this research group is collaborating with the Rhode Island Division of Statewide Planning and other state agencies to find ways to spur housing and job creation in locations with the capacity to best accommodate growth through access to robust transit.

“Finding the opportunities for and implementing transit-oriented development represents a triple win for Rhode Island,” said John Flaherty, deputy director of Grow Smart Rhode Island. “It can provide a significant boost to our economy, accommodate our need for substantial new housing development and do so in a way that's good for the environment. The business and residential market has shifted in favor of ‘walkable urban’ neighborhoods, so pursuing these opportunities plays to our strength and makes Rhode Island a more competitive place for investment.”

“Our goal is to think of more sustainable modes of transportation that ultimately reduce greenhouse gas emissions from vehicles and focus development in areas that are compact and walkable, preserving farmland and conservation areas,” RWU Assistant Professor of Architecture Ginette Wessel said. “The students are not only learning skills with the Geographic Information System software but are gaining broader awareness of how to incorporate real-world planning issues into the work that they are doing.”

The GIS mapping represents the first of three phases of a project that will analyze potential locations for transit-oriented development in Rhode Island, a state with a robust system of bus transportation but a rail system lacking sufficient frequency, Wessel said. Communities that have expressed an interest in future collaboration include Providence, Cranston, East Providence, South Kingstown, North Kingstown, Westerly, Woonsocket and Cumberland, she said.

Students will help to identify and evaluate priority districts and conduct an in-depth review of existing conditions, zoning, development capacity and the availability of utilities. Teams of graduate students will focus on the four most promising districts and prepare a series of case studies to illustrate the opportunities within these districts.

This semester, 18 students conducted research as part of a course titled “GIS in Planning, Design and Conservation,” and they will exhibit a total of 40 to 50 maps on May 14. The exhibit will run from 7 to 8 p.m. in Room 131 of the School of Architecture, Art and Historic Preservation, on RWU’s Bristol campus. The exhibit is free and open to the public.

**About RWU:** With campuses on the coast of Bristol and in the heart of Providence, R.I., Roger Williams University is a forward-thinking private university committed to strengthening society through engaged teaching and learning. At RWU, small classes, direct access to faculty and guaranteed opportunity for real-world projects ensure that its nearly 4,000 undergraduates – along with hundreds of law students, graduate students and adult learners – graduate with the ability to think critically along with the practical skills that today’s employers demand. Roger Williams is leading the way in American higher education, confronting the most pressing issues facing students and families – increasing costs, rising debt and job readiness.

# Roger Williams Students Map Out R.I. Locations Primed for Transit-Oriented Development

[ecori.org/transportation/2018/5/18/students-map-out-ri-locations-primed-for-transit-oriented-development](https://www.ecori.org/transportation/2018/5/18/students-map-out-ri-locations-primed-for-transit-oriented-development)

## Roger Williams Students Map Out R.I. Locations Primed for Transit-Oriented Development



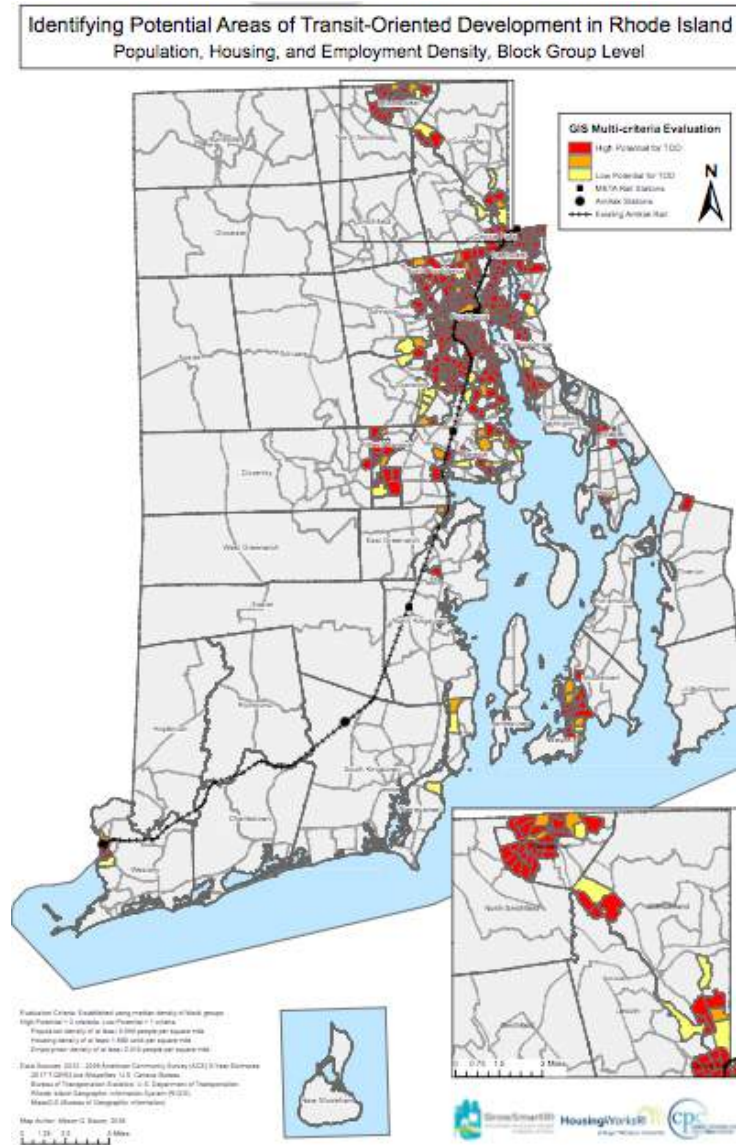
Roger Williams University assistant professor of architecture Ginette Wessel, left, and four of her students, Benjamin Cantor-Stone, Allison Bacon, Jackie Ruggiero and Tracy Jonsson, spent this past semester mapping transit-development opportunities. (Frank Carini/ecoRI News)

### By FRANK CARINI/ecoRI News staff

BRISTOL, R.I. — Since January, Roger Williams University students have been working with Grow Smart Rhode Island and HousingWorks RI to pinpoint the opportunities and challenges of development along Rhode Island's rail corridor and high-frequency bus routes.

This research group is also collaborating with the Division of Statewide Planning, the Rhode Island Public Transit Authority and other state agencies to find ways to spur housing and job creation in locations with the capacity to best accommodate growth through access to robust transit.

“Finding the opportunities for and implementing transit-oriented development represents a triple win for Rhode Island,” said John Flaherty, Grow Smart’s deputy director. “It can provide a significant boost to our economy, accommodate our need for substantial new housing development and do so in a way that’s good for the environment. The business and residential market has shifted in favor of walkable urban neighborhoods, so pursuing these opportunities plays to our strength and makes Rhode Island a more competitive place for investment.”



This three-semester collaboration is designed to find ways to spur housing and job creation in locations with the capacity to best accommodate growth through access to transit.

During the recently completed semester, 18 students conducted research as part of a course titled “GIS in Planning, Design and Conservation,” and on May 14 they exhibited 50 geographic information system (GIS) maps identifying the spots in Rhode Island that are ripe

for transit-oriented development. The students learned methods of spatial analysis with GIS software and gained professional experience working on real-world planning issues.

ecoRI News recently spoke with the course's professor, RWU assistant professor of architecture Ginette Wessel, and four students — Benjamin Cantor-Stone, Allison Bacon, Tracy Jonsson and Jackie Ruggiero — about their work.

Besides mapping locations built on certain criteria, such as demographics and sustainability, the 18 graduate students each also mapped an area of interest. Jonsson, for example, looked at the Ocean State's water-based transit-development opportunities.

Cantor-Stone mapped the populations of where transit-users who receive discounts are located; Bacon looked at public transit options in the Blackstone River valley; and Ruggiero mapped transit access for single mothers.

"Transit-oriented development is a mixed-use community that encourages people to live near transit services and decrease their dependence on driving," Wessel said. "From a sustainability point of view, the focus on walkability, shared modes of transportation and compact development can reduce our carbon footprint and preserve vulnerable ecological areas in Rhode Island."

The GIS mapping represented the first of three phases of an ongoing three-semester project that will feature different students who will analyze potential locations for transit-oriented development in Rhode Island. Municipalities that have expressed an interest in future collaboration include Providence, Cranston, East Providence, South Kingstown, North Kingstown, Westerly, Woonsocket and Cumberland.

Students will help to identify and evaluate priority districts and conduct an in-depth review of existing conditions, zoning, development capacity, and the availability of utilities. Teams of graduate students will focus on the four most promising districts and prepare a series of case studies to illustrate the opportunities within these districts.

# Students Find Locations That Need Transit Development

Roger Williams is partnering with Grow Smart RI and Housing Works RI

By News Desk, News Partner | May 7, 2018 7:18 pm ET

Like 11 Share



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*Photo courtesy of Roger Williams University*





