Developing Intermodal Transportation Station Projects: A Public-Private Partnership Approach.

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In order to reduce traffic congestion that adversely affects the quality of life, Rhode Island is exploring and implementing creative financing partnerships to build new intermodal train stations, where train tracks already exist. One of the greatest challenges in conceptualizing intermodal train stations is the financing aspect of these projects. The primary objective of this study is to identify creative financing tools for the proposed train stations in Rhode Island. The focus is on public-private partnerships that would be appropriate for financing train station infrastructure and the economic development of its surrounding area, given Rhode Island's institutional and legal systems.

The researchers first draw upon existing studies of the proposed Warwick Intermodal Station at T.F. Green Airport and Wickford Junction Station in North Kingstown, follow up with studies of other intermodal station development projects across the country, and finally develop a creative finance "toolbox" for the remaining proposed train stations in Rhode Island. These include train stations in East Greenwich, Pawtucket, Cranston, Quonset Point and Charlestown. This toolbox contains "best practices" and the suitability of various financing tools for the development of intermodal stations, given Rhode Island's unique institutional and legal environment. It is suggested that partnerships that pool resources, share risks, and nurture close working relationships among public and private sectors are essential to the implementation of successful intermodal transportation station projects in Rhode Island.
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1. INTRODUCTION

In order to reduce traffic congestion that adversely affects the quality of life, Rhode Island is exploring and implementing creative financing partnerships to build new intermodal train stations, where train tracks already exist. Intermodal public transit networks are a growing national trend and offer many benefits to the public including improved air quality, accessibility through the development of transit-oriented development (TOD), and reduced congestion and energy consumption. One of the greatest challenges in conceptualizing intermodal train stations is the financing aspect of these projects.

According to the 2005 Urban Mobility Report, “congestion continues to grow in America’s urban areas. Despite a slow growth in jobs and travel in 2003, congestion caused 3.7 billion hours of travel delay and 2.3 billion gallons of wasted fuel. The average annual delay for every person using motorized travel in the peak periods in the 85 urban areas studied climbed from 16 hours in 1982 to 47 hours in 2003. This represented a long-term change of 31 hours during the 1982-2003 period. In the Providence Urban Area, the annual hours of delay per traveler was 5 in 1982, 17 in 1993, 31 in 2002, and 33 in 2003. Given the long-term change of 28 hours during the 1982-2003 period, the Providence Urban Area was ranked 26th among the 85 urban areas studied in the country in terms of annual delay per traveler during this period (Schrank and Lomax 2005).

The Road Information Program (TRIP) calculated that, “growth in vehicle travel in Rhode Island is increasing at a rate significantly higher than new lane capacity, resulting in longer travel times for motorists (TRIP 2004).” From 1990 to 2000, the population in Rhode Island increased by 4.5%, which matched the increase found in the number of drivers who drove alone, 4.7%. The number of vehicles per household in 2000 was 1.61, which represented a decrease of -0.8 in 1999. The increase of individuals taking
public transportation only rose by a negligible 0.1%. The average travel time to work in 2000 was 22.5 minutes, which represented a 3.3% increase from 1990. Vehicle travel is expected to increase 25% by 2020, to 10.1 billion vehicle miles of travel (TRIP 2004). From 1995 to 2002, the percentage of congested highways in Rhode Island rose from 30 to 37%, respectively (TRIP 2004). With traffic constantly growing and major highways often being congested, the State of Rhode Island has to invest in alternative modes of transportation, specifically rail transportation that can compete economically with the cost of driving to Providence and paying to park there (Landis 2006).

The primary objective of this research project is to identify creative financing tools for the proposed train stations in Rhode Island. The focus is on public-private partnerships that would be appropriate for financing train station infrastructure and the economic development of its surrounding area, given Rhode Island’s institutional and legal systems. The public-sector stakeholders will include: municipal government, state government and agencies (i.e., Rhode Island Department of Transportation, Rhode Island Public Transit Authority, Rhode Island Airport Corporation, and Rhode Island Economic Development Corporation), redevelopment agencies, and the federal government. In conjunction with the public sector stakeholders, the private partners such as developers, lenders and landowners may serve many purposes including involvement in the planning, designing, developing, financing, construction, management, and operation of the train station project and its surrounding developments.

Public-Private Partnerships represent a cooperative, flexible, and unique financial solution to implementing the train station infrastructure and the development of its surrounding area. Public-Private Partnerships can have many different forms including partnerships where the public and private sector jointly exist, the private sector is minimally involved, the private sector takes primary responsibility of the project, or the private sector retains control and operates the project.
2. RESEARCH PROJECT OBJECTIVES AND SIGNIFICANCE

This project is designed to study the challenges of developing intermodal transportation stations in Rhode Island. Challenges include developing creative financing tools for the train station infrastructure and the development around it as well as addressing the institutional and legal barriers to proposed financing alternatives in Rhode Island.

The researchers first draw upon existing studies of Warwick Intermodal Station at T.F. Green Airport and Wickford Junction Station in North Kingstown, follow up with studies of other intermodal station development projects across the country, and finally develop a creative finance "toolbox" for the remaining proposed train stations in Rhode Island. These include train stations in East Greenwich, Pawtucket, Cranston, Quonset Point and Charlestown. This toolbox contains "best practices" and the suitability of various financing tools for the development of intermodal stations, given Rhode Island's unique institutional and legal environment. It is suggested that partnerships that pool resources, share risks, and nurture close working relationships among public and private sectors are essential to the implementation of successful intermodal transportation station projects in Rhode Island.

3. RESEARCH PROJECT METHODOLOGY AND OUTLINE

The research project uses a case-study approach to accomplish its objectives. The analysis is descriptive and evaluative using primary data collected through interviews of public and private stakeholders within the State of Rhode Island and outside and site visits as well as secondary data collected from the existing literature. Specifically, the project is organized into four tasks as described below:

Task 1: Provide the profile of the seven proposed train stations in Rhode Island, including project history, intended purpose, parties involved, land use and zoning characteristics, environmental considerations and transportation characteristics. The
seven proposed stations are at varying stages in the planning process in Warwick, Wickford Junction in North Kingstown, East Greenwich, Pawtucket, Cranston, Quonset Point, and Charlestown.

Task 2: Review the financing of selected train station case studies from across the country. This includes two proposed stations in Rhode Island (Warwick Intermodal Station and Wickford Junction) that are near the construction phase. This study utilizes these case studies of potential funding structures for the other five stations that are considered for development in the future.

Task 3: Develop a creative finance "toolbox", containing descriptions, pros and cons, and the suitability of various financing tools for the development of train stations and their surrounding areas in Rhode Island, given the state's unique institutional and legal environment.

Task 4: Recommend strategies to promote and enable the practice of the proposed financing tools in Rhode Island.

4. PROFILE OF PROPOSED TRAIN STATIONS IN RHODE ISLAND

Currently, the State of Rhode Island has three active train stations: Providence (servicing Massachusetts Bay Transportation Authority (MBTA), and Amtrak), Kingston, and Westerly (which both service only regional Amtrak trips). Two stations (Warwick Intermodal Station and Wickford Junction Station) have recently been approved for financing as an extension of the MBTA commuter rail service to Boston. It will be the first increase in commuter rail service to Rhode Island since 1988, when service from Providence to Boston was restored after a seven-year break. The Rhode Island Department of Transportation (RIDOT) is expecting the construction of Warwick Intermodal Station to begin this Spring and the Wickford Junction Station a year later in Spring 2007, with service to both stations to begin in 2008 (Landis 2006). These two stations are considered the first phase in a multi-phase commuter rail development in
the State. Long-term, RIDOT is considering extending commuter rail service as far as Westerly, and eventually linking it with the Connecticut Department of Transportation's Shore Line East commuter service, which now connects New London with New Haven (Landis 2006). Figure 1 shows the location of the proposed and existing stations in Rhode Island.

**Figure 1**

**Proposed and Existing Rhode Island Station Locations**

![Map of Rhode Island showing proposed and existing stations.](image-url)
4.1 Warwick Intermodal Station

Background

Project History. The City of Warwick is centrally located in Rhode Island, approximately ten miles south of Providence. Since 1991, more than $210 million has been invested in constructing a new two-story terminal building, access roads, parking facilities and related improvements for Rhode Island's major airport, T.F. Green (Cameron et.al. 2005). The original proposal for a $15 million dollar train station located a mere 1,570 feet—making it the closest connection in the country—from the Airport, occurred in July 1997 (Liberman 1997). Today, eight years later, site control and remediation have been achieved and the groundbreaking for construction is expected to begin in the Spring.

Figure 2: Warwick Station Area

Figure 3: Warwick Station Area

Intended Purpose. There were three general purposes behind the development of an intermodal station near the T.F. Green Airport in Warwick, Rhode Island. First, developing an intermodal transit station could help to relieve peak hour traffic congestion on the I-95 highway corridor. It would provide better access to the T.F. Green Airport from Providence, as well as extend the Boston commuter rail connection. Second, the Warwick Station has potential to stimulate economic redevelopment in Warwick, Rhode Island. Finally, utilizing an intermodal station to access the T.F. Green Airport has potential to reduce harmful air emissions in the surrounding areas. Additionally, the
Station is located on a Brownfield site, in which all harmful materials have now been removed.

**Parties Involved.** One aspect that makes this project so complex is the number of stakeholders involved in its development. Stakeholders can be divided up into three groups. First, the station funders are comprised of the Federal Highway Administration (FHWA), the State of Rhode Island, and the rental car companies, which collect Customer Facility Charges (CFC). Currently eight rental car companies operate at T.F. Green Airport, taking up 160 spaces of parking (Cameron et.al. 2005). Additional rental companies are located near the primary access road to the Airport. Second, the surrounding land-owners must be taken into account. This includes constituents of Warwick, the newly developed Warwick Intermodal Zone (WIZ) and Gateway Zone, as well as the Rhode Island Airport Corporation and the Warwick Station Redevelopment Agency (WSRA). A final category of stakeholders includes Amtrak, MBTA, Bullfinch Companies, a Massachusetts Developer selected in 2000 by WSRA to oversee the redevelopment of the district, and other private and public interests.

**Land Use and Zoning Characteristics**

**Previous Use.** The land that has now been purchased for the construction of the Warwick Intermodal Train Station was previously Baylis Chemical Disposal Company. Because of its use, this area was identified as a brownfield site. The site was purchased by RIDOT, right-of-ways were created, and the site was remediated early in the project development stages. Funding for much of this work came from the initial FHWA grant with Rhode Island’s required state match. The tracks for this station are already in place and are regularly used by Amtrak.

**Surrounding Uses.** There is a supportive mixture of surrounding uses for the development of an intermodal transit station in Warwick. Highly important to the concept
of intermodalism, the Airport is located in close proximity to the proposed station. Also
surrounding the station are areas of dense commercial and residential development (see
Figure 4). Upon conceptualization of the station Master Plan, the Warwick City Council
established the WSRA. This Agency quickly named a Station Redevelopment District
comprised of an Intermodal District (22-acres of land that connects the station to the
Airport), and a Gateway District (48-acre transitional area) (Cameron et.al. 2005, Depaul

**Land Ownership.** The RIDOT using Transportation Equity Act for the 21st
Century (TEA-21) funds purchased the land that the station will be constructed on.
Other surrounding parcels are still privately owned, and many are included in a Master
Plan as potential future acquisition for economic development.

**Environmental Considerations**

An Environmental Assessment was performed and made public in May of 1999
(Rizzo 2005), and the FHWA issued a ‘Finding of No Significant Impact’ on July 6, 1999
(Rizzo 2005). The Station will help to reduce harmful emissions from around the airport,
and it has been projected that the project will positively affect the traffic in the immediate
area. There were minimal historic impacts.
Transportation Characteristics

Infrastructure. There is also added complexity to this project from the scale of infrastructure being proposed. There are three major aspects of this project. First, a large, fully functional train station will be located on site. The station will include ticket sales and commercial operations.

Second, a car rental facility and parking garage will be constructed. “The parking garage will have 1,000 spaces for Amtrak and MBTA rail commuters and 2,000 spaces for the rental-car fleets now based on airport property” (DePaul 2006). The eight rental car companies currently located in the Airport parking area will relocate to the new garage. This will increase the number of available parking spaces at the Airport for those commuters who wish to drive to the Airport. Additional rental companies located
along the primary access road to the Airport will also relocate into the garage, freeing up some traffic congestion created by shuttle buses (Cameron et.al. 2005). Consolidating the rental car companies makes access easier to customers, frees up traffic congestion and parking availability in and around the Airport, and provides services for the rental companies such as washing and covered parking, and possibly a fueling station.

Finally, an Automated People Mover (APM), estimated at $30,000,000, providing transportation between the parking garage and the Airport was proposed (Devine 2005). This aspect of the infrastructure eliminates the need for shuttle buses. Current plans for the APM call for it to extend from one terminal of the Airport, cross an hourly parking lot and the primary Airport access road, and enter the station (Cameron et.al. 2005). Recently, the APM was replaced by an elevated moving skywalk (Landis 2006).

Mode Selection. The Warwick Intermodal Station will have the highest number of modes available to riders than any other proposed station in Rhode Island. Utilization of the station will provide a rider with access to the T.F. Green Airport, public transportation in form of the Rhode Island Public Transit Authority (RIPTA) bus line, MBTA commuter rail to Providence and Boston, Massachusetts, future potential for access on Amtrak to Boston or New York City, rental car companies, and personal vehicle parking in the garage. Interstate I-95 is easily accessible from the Warwick Station area.

RIDOT is currently planning for eight roundtrips to Warwick and Wickford Junction Stations per day on weekdays, with no service on weekends. The schedule is not fixed but the trips would be concentrated during the morning and afternoon commuting time, possibly with a train a day around mid-day and another in the evening. The RIDOT studies indicate that by 2020, about 1000 riders would take the train from Wickford Junction Station each day, and a few hundred more from Warwick Station. Consultants estimate that about 80 percent of the Wickford Station riders would get off at
Providence, with the rest continuing to Boston. By contrast, about 80 percent of the Warwick Station riders would probably continue to Boston (Landis 2005).

4.2 Wickford Junction Station

**Background**

*Project History.* The Wickford Junction site was historically used as a train station. The station was closed in the 1980s due to lack of use. In the early 1990s, a Comprehensive Plan was created for North Kingstown calling for increased transit mode availability and intermodalism (Town of North Kingstown 2001). In the 1990s, the owner of the land where the station is proposed developed a shopping center with a Walmart and Staples as the anchor stores, and additional retail surrounding them. A train station was an aspect that the owner wished to incorporate in a later development phase.

Discussions about the construction of a station, which would serve as an extension of the MBTA commuter rail line, have produced plans and designs. Public involvement was met through the completion of a public workshop to gather information from the constituents of the area. Although this project was proposed after the Warwick Station, it is expected that its construction will begin in Spring 2007. Plans for the station were submitted in summer of 2005 (Rizzo 2005, Devine 2005, Cohen 2005).

**Figure 5. Wickford Station Area**

**Figure 6. Wickford Station Area**

*Project Purpose.* The construction of a transit station in North Kingstown, Rhode Island serves two primary purposes. First, as previously mentioned, traffic
congestion is an increasing concern for the State of Rhode Island. Construction of a commuter rail station in North Kingstown provides public transportation to Providence and Boston for people living in southern Rhode Island. This would reduce the amount of daily traffic on RI Routes 1, 4 and I-95. This, in turn, could help to reduce air pollution levels. Second, Wickford Junction is part of a larger “Washington County Commuter Rail” Plan. Developed by Pare Engineering in 2005, the plan analyzes the impact of a commuter rail line in Washington County and its potential for TOD (PARE Engineering Corporation 2005). The development of Wickford Junction is the first of what is proposed to be three new stations in the southern part of the state, all of which would be an extension of MBTA.

Parties Involved. As with Warwick, the stakeholders for Wickford Junction can be broken up into three groups. However, unlike Warwick, Wickford’s stakeholders are far fewer in number. First, the funding parties for Wickford are only two—Federal Transit Administration (FTA) and a private developer. Second, the surrounding land is owned by one individual and the residential community is low density. Finally, MBTA, Amtrak, and the Town of North Kingstown and its constituents also have stakes in this project.

Land Use and Zoning Characteristics

Previous Use. The proposed area for construction was historically used as a train station. However, the new station would be on the opposite side of the tracks as the previous one. The tracks are already in place and are regularly used by Amtrak.

Surrounding Uses. Abutting the proposed site for the train station is the Wickford Junction Shopping Center. Since the same developer proposing the station owns the Shopping Center no conflicts are foreseeable. On the outskirts of the proposed area is low-density development (see Figure 7). High-density developments are restricted in this area because of the existence of Hunt Aquifer, which provides restrictions on density and growth in the proposed station area (Cohen 2005).
Additionally, Route 4 the primary route from southern to northern Rhode Island is located less than a mile from the proposed development.

Figure 7

Proposed Wickford Junction Commuter Rail: Surrounding Land Uses

Land Ownership. Private developer Robert Cioe owns, and will continue to own, the land that the station will be constructed on, and the surrounding areas.

Environmental Considerations

The existence of Hunt Aquifer requires low-density development in the surrounding areas, which is not conducive to TOD, high-density mixed uses in the shopping plaza, or excessive impervious surface. Further residential development surrounding the train station is restricted, and commercial development is not encouraged at a large scale in the immediate surrounding areas.

Transportation Characteristics

Infrastructure. This station will not include an actual station structure, just a platform, but will include a mixed-use parking garage. The size of the parking garage
has not been determined at the time this report was written, but will hold either 500 or 1,000 cars (Rizzo 2005, Cohen 2005). Since no station will be present the parking garage will have a variety of uses inside. Potential mixed-uses include a dry cleaner, coffee shop, and possibly a day care facility. The garage will be built and maintained by private developer, and will not become responsibility of the State.

**Mode Selection.** There are far fewer modes that are accessible from Wickford Junction, as compared to Warwick station. Wickford will provide access to the MBTA commuter rail line (to Providence and Boston) for residents of southern Rhode Island. Riders will have the opportunity to travel from their homes in personal vehicles and park them for a minimal fee at the garage. Alternate forms of public transportation are limited in this area; however, a bike / walking path has been proposed to connect the station to the surrounding residential areas (PARE Engineering Corporation 2005).

"The Wickford Junction Station is intended to offer commuters in rapidly growing Washington County an alternative to the increasingly congested Routes 4 and 95 to the north. If 1000 riders who otherwise would have driven take the train from Wickford Station and return each day, traffic would be reduced by 2,000 cars per day. That is less than 4 percent of the more 54,000 vehicles RIDOT traffic counts show traveling on Route 4 north of the station location daily" (Landis 2006).

**4.3 East Greenwich Station**

RIDOT has considered the Town of East Greenwich to have a commuter rail location, after the Wickford Junction and Warwick stations are operational. RIDOT projects an East Greenwich commuter rail station could be operational as early as 2020. To plan and evaluate the feasibility of a TOD and commuter rail station in East Greenwich, two studies have been prepared (Sokoloff and Edwards & Kelcey 2004, Sokoloff et.al. 2004).
Site Location and Description

The proposed site is an underutilized light industrial area just south of Downtown East Greenwich. Rocky Hollow Road, the Maskerchugg River, Main Street, and the rail line bound the site. According to the TOD Master Plan, the proposed project is consistent with smart growth principles that concentrate new development around existing downtown areas. The proposed plan will add to the vitality of Downtown East Greenwich. Given its strategic location 15 miles south of Providence and 65 miles southwest of Boston, and within the State of Rhode Island West Bay Travel Corridor, this site is an ideal location for a TOD. The site consists of lots totaling approximately 18 acres, with four principal property owners.

The rail line runs along the eastern edge of the site. To the east of the rail line is the former landfill and the waterfront. The East Greenwich Bicycle Network, currently in design, will run along the landfill and the waterfront. To the immediate west of the site is a single-family residential neighborhood. The southern end of the site borders the Warwick city line. Rocky Hollow Road borders the north, which is a mix of residential and non-residential uses. The site has good infrastructure.

Land Use and Zoning Characteristics

Current land uses include vacant land, warehouses and light storage facilities, a convenience store, a small office building, and an American Legion hall. Most of the site
is zoned Light Industry and Office. The southeastern end of the site has been identified as a mixed use planned development area on the Town’s future land use map.

Two alternative proposals have been prepared show the site developed as a mixed-use transit-oriented development. The proposals contain four primary uses: commuter rail station, a parking structure, a residential village, and a mixed-use development including multi-family housing, commercial and retail. The residential village is proposed on the opposite end of the site from the rail station. The middle section of the site is designated for parking because its topography is laid out well for housing or commercial development and it is the least suitable location for the rail station. According to the consultants, either option is feasible and viable (Sokoloff et al. 2004).

Figure 10

Proposed East Greenwich Commuter Rail: Surrounding Land Uses
Transportation Characteristics

The East Greenwich 2003 Comprehensive Plan Update addresses a possible commuter rail station as part of the Circulation Element. Amendment 01-1 includes "exploring the feasibility of providing a commuter rail stop in Town." The feasibility study prepared for the proposed train station indicates that both East Greenwich as a whole and the specific study site are feasible and viable locations for a commuter rail station. There are no physical characteristics that preclude the construction of necessary station elements or limit their effectiveness (Sokoloff and Edwards & Kelcey 2004). Five round trips per weekday are identified for the MBTA service extension from and to East Greenwich.

4.4 Pawtucket Station

The City of Pawtucket, located to the north of Providence, is undertaking a feasibility study and site assessment of an old station building in order to restore commuter rail service to Boston and Providence, as well as the proposed train station at the T.F. Green Airport in Warwick.

The Pawtucket's historic early 20th century train station is located on the Central Fall line and has been closed since the late 1950s. By reactivating the commuter rail service, Pawtucket could strengthen its place in the regional economy. The Pawtucket Foundation has been leading efforts to renovate and reopen the station. A study commissioned by the foundation in 2004 found that a Pawtucket MBTA stop would bring 1000 daily riders into the Boston metro area (The Providence Phoenix 2005).

The old Pawtucket Train Station is located on the border between Pawtucket and Central Falls, and is the northern-most station in this study. The cities of Pawtucket and Central falls are very densely populated areas. The two cities have a combined population of 92,000 people in 10 square miles of land (City of Pawtucket 2005).
The historic station structure was constructed in 1916, and serviced Pennsylvania Central Railroad for almost 50 years (City of Pawtucket 2005). Historically, the station was primarily used for passenger transport. After the abandonment of the station, a flea market and a church were established there. There are three lines that run under the station, all of which are owned by Amtrak. An active station in Pawtucket would be located in between MBTA stops in North Attleboro, Massachusetts and Providence, Rhode Island. Pawtucket has recently issued a Request for Qualifications for the completion of a feasibility study for the proposed station (Mara 2005). "The $400,000 feasibility study paid by federal funding will examine the feasibility of restoring train service, determining the number of potential riders, the amount of available parking, and the impact on existing rail operations" (Castellucci 2005).
4.5 Cranston Station

The City of Cranston, located just to the south of Providence and just north of the proposed Warwick Intermodal Station, has also begun the early stages of planning for a future train station. The City has recently petitioned the State of Rhode Island to initiate a study for building a train station in Cranston. Cranston government officials envision a train station that would accommodate Amtrak Acela trains and an extension of the MBTA commuter rail line (Barbarisi 2005).

Although the City of Cranston is one of the most densely populated in the State, the area identified as a potential site for the station is primarily industrial, with tracts of open land. The tracks that would service this station are owned and operated by Amtrak (Rhodes 2005). To date, Cranston has submitted a Transportation Improvement Plan (TIP) to the State, to finance the study of the station, and identify an exact location (Rhodes 2005).
The proposed site is located in an industrial zoned area, close to Route I-95. This location is easily accessible to commuters. The area that has been chosen for the feasibility study is 155 acres, and contains 125 small businesses and some housing (Barbarisi 2005). In an interview with the Providence Journal, the previous Director of Cranston's City Planning Department, Kevin Flynn said that, "the station could breathe life into the area, bringing multi-story office development and high-density residential properties (Barbarisi 2005)."

**Figure 16**

**Proposed Cranston Commuter Rail: Surrounding Land Uses**

![Map showing surrounding land uses](image)

**4.6 Quonset Point Station**

Of all the stations that are being analyzed by this study Quonset Point is located in the most sparsely populated area. Primarily surrounded by industrial uses, the station is only accessible by local roads. Quonset Point has been a primary focus for economic development in the State of Rhode Island. Less than a decade ago Quonset Point was
identified for development of a major sea port. While this proposal has since fallen through, the potential for future port development still exists. Upon the development of a major sea port, the installation of a commuter rail station would be highly beneficial to transport workers, many of which would not be able to live in the immediate areas surrounding Quonset Point (PARE Engineering Corporation 2005).

Figure 17

Proposed Quonset Point Commuter Rail: Surrounding Land Uses

The site would be part of the Quonset Davisville Port and Commerce Park, and has been considered in the Quonset Davisville Master Plan (PARE Engineering Corporation 2005). Currently, only the Washington County Transit-Oriented Development Planning Strategy has analyzed this site for development. The town has not prepared plans for its development.
4.7 Charlestown Station

The proposed station in Charlestown is the furthest behind in the planning process. Lying between the existing Amtrak stations in Kingstown and Westerly, Charlestown is a rural, residential community. No location has been selected for development of a station, but station stops were historically located in Shannock, Carolina and Wood River Junction (PARE Engineering Corporation 2005). These areas have seen a relatively small amount of growth and straddle municipal boundaries, making them low priorities for growth centers or transit-oriented development. These villages are not serviced by alternate modes of public transit, such as the RIPTA bus line, and are located on local roads with limited highway access (PARE Engineering Corporation 2005).
5. FINANCING TRANSPORTATION STATIONS: A REVIEW OF CASE STUDIES

In the past, different alternative financing sources have been used to develop intermodal train stations across the country. This part of the report reviews the financing of selected case studies of train stations in Rhode Island and elsewhere in the country. Lessons learned from this review will be used to develop a creative financing toolbox for other proposed train stations in Rhode Island.

Of the seven proposed new train stations in Rhode Island, two have already developed plans for development and the funding has been either allocated or being considered. Ground breaking for Warwick Intermodal Station and Wickford Junction Station are expected to happen in 2006 and 2007 respectively. "With a total estimated cost of $225 million, the two train station projects will be one of the biggest transportation projects in the state – less costly than the $550 million relocation of Route 195 in Providence, but more expensive than the $30-million replacement of the eastbound side of the Washington Bridge, also in Providence or the $118-million planned replacement of
the Sakonnet River Bridge. Like them, the two station projects will be paid for mostly with federal funding. The RIDOT is close to an agreement on the fee for using Amtrak’s tracks for commuter service south of Providence. Negotiations are working toward an annual fee between $1.5 million and $3 million per year (Landis 2006).

5.1 Warwick Intermodal Station

Finding adequate funding for this station has been a challenge since the proposal was introduced. The project was estimated at approximately $160 million. This included: $30 million for the station, $100 million for the parking garage, and $30 million for the APM (Devine 2005). “By replacing the APM with an elevated moving skywalk the estimated cost of the station project increased from about $160 million to $195 million. The skywalk has a higher up-front cost but an overall lower maintenance cost that will save money in the long term” (DePaul 2006). Currently, there are three sources of funding for this project. First, the TEA-21 included $25 million for the construction of the train station and the Automated People Mover (APM). This grant was dependent on the State meeting a 20% match of $6.125 million (Devine 2005). This funding was spent on site control; right-of-ways; clean up; and design.

Second, a low-interest TIFIA loan (Transportation Infrastructure Finance and Innovation Act) was approved for the construction of the parking garage of the station. The loan will be covered by a Customer Facility Charge (CFC) of $3.75 for each car rented at the Green Airport.

Third, the “off-system” bridge funds provided through the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) will be used for the construction of the skywalk. Currently Rhode Island does not have any bridges that qualify as “off-system” (Howell 2004 and Anon 2004).
5.2 Wickford Junction Station

The funding for this project will be a public-private partnership providing a more balanced mixture of public and private funding sources. The public sector funding is expected to be a loan from Federal Transit Administration (FTA) through the New Starts Program. The State has agreed to match 20%. This will generate a total of $31 million for this project (Devine 2005). The public funding will be used to make the necessary improvements on the rail lines, construct the platform, and to purchase five double-decker passenger cars at a cost of $2 million each. Future maintenance of the platform and rails will be performed by the public sector.

In addition to the land, the additional funding for the project will be provided by the private developer for the construction and maintenance of the parking garage, with the State leasing space within it. Private funding will also be used to develop retail activities and a day-care center on the first floor of the garage.

5.3 Miami Intermodal Center

The Miami Intermodal Center (MIC) is a $2.25 billion project that is located just east of Miami-Dade International Airport (MIA). The project is envisioned as a consolidated transfer center for passengers using the airport, intercity and commuter trains, rapid transit, local and intercity buses, and cruise ships in the Port of Miami. The project is being developed by the Florida Department of Transportation (FDOT) and the Miami-Dade Aviation Department with cooperation from the Miami-Dade Expressway Authority, Miami-Dade Transit, Amtrak, and various rental car agencies serving the airport. The MIC is the centerpiece of a series of projects, including a consolidated rental car facility for MIA, a people mover connection to the airport, and a number of road access improvements around the airport (Miami Intermodal Center, Florida Department of Transportation, 2006). The MIC core will include 1.45 million square feet of developable space, with longer range plans calling for 500,000 square feet of office
space, 600 hotel rooms, 350,000 square feet of retail and entertainment space, and 1,400 parking spaces.

The Miami Intermodal Center (MIC) is funded through a number of different sources. First, two direct TIFIA loans totaling $433 million in 1999 provided the impetus to complete the first phase of the MIC Project. A $269 million TIFIA loan secured by state motor fuel tax revenues will enable the fast-tracked acquisition of right-of-way and initiation of work on the MIC core. The second TIFIA loan, for $164 million, will be used to finance the consolidated rental car facility (RCF) and will be secured by rental car fees (Parker 2004). The airport user fees will be used to pay for the construction of the automated people mover.

There are also several other major funding sources for the MIC Project. For Phase One, the MIC will receive $165 million in FHWA grants, about $386 million of FDOT state funds, and a $25 million loan from Florida State Infrastructure Bank (SIB). Eminent domain was used to acquire 70 of the 141 acres of land required for this project. The majority of this land was designated as a blighted area. The remainder of the required land was purchased at market price or better. The purpose of the purchasing the land surrounding the site was to allow for overall redevelopment of the area surrounding the airport.

5.4 AirTrain at Newark Liberty International Airport

AirTrain Newark was built, managed and maintained by the Port Authority of New York and New Jersey. The construction of AirTrain Newark began in May 1997 with the expansion of the existing on-airport monorail system. AirTrain Newark began operating in October 2001 completing the connection between AirTrain Service, New Jersey commuter and Amtrak regional trains. Approximately, over 30,000 passengers use AirTrain Newark to and from the airport per day (The Port Authority of New York and New
AirTrain also serves as an on-airport service, taking travelers between the airline terminals, rental car facilities, hotel shuttles and central parking lots.

The total project cost of approximately $415 million was funded by user fees and Port Authority capital funds (The Port Authority of New York and New Jersey 2006). Use fees are generated through a Passenger Facility Charge (PFC) program under which a $3.00 surcharge is collected for every departing passenger's ticket. No federal, state or local tax dollars were used to fund the project.

5.5 Portland International Airport

Portland, Oregon is fortunate to have a light rail system, the Metropolitan Area Express (MAX) that services the city and its metropolitan area. In 2001, the MAX Red Line was extended to the Portland International Airport thereby making it able to take passengers directly to the airport terminal. To maximize ridership, the airport line offers the highest level of convenience to passengers. The MAX airport station is sited just outside the south entry to the airport terminal. The station is less than 200 feet from the PDX baggage claim and offers one of the most convenient airport stations anywhere (Portland International Airport 2006). The Rental Car Center is located in the parking garage directly across from the airport terminal.

In 1997 Bechtel Enterprises, an international engineering, construction and project management firm approached the region with a proposal to design and construct a MAX extension to the airport under a public-private partnership. The partnership resulted in Bechtel providing a quarter of the project's funding and was contracted to build the light rail extension. The total cost of the project was $125 million, of which $28.2 million was covered by Bechtel Enterprises. City of Portland, Port of Portland, and Tri-County Metropolitan Transportation District of Oregon (TriMet) covered $23.8 million, $28.3 million, and $45.5 million respectively. In return, Bechtel received development rights on a 120-acre mixed-use commercial site located near the entrance to the airport.
This cost sharing partnership meant no federal appropriations, state general funds, or additional property taxes were needed to build the extension of the MAX Red Line (Cameron et al. 2005).

5.6 Lessons Learned

Through the review of the case studies and the literature we have identified four areas that impact the overall funding method and the level of Public-Private Partnership in a project: stakeholders, project infrastructure, location and surrounding land uses, and project risk.

Stakeholders

A primary impact on train station development is the number of stakeholders involved, and their level of cooperation. It would seem that the more stakeholders involved, the greater potential there is for an even mix of public and private funds. However, the opposite seemed true in our Rhode Island case studies. Warwick, who had a far greater number of stakeholders than Wickford, consequently had a much more unbalanced match of public and private funding. However, the potential for private contributions in Warwick has been hindered by the lack of momentum for the project. As construction begins, and physical improvements become noticeable, it should be expected that economic growth around the station will follow. This growth is a source for further private funding. Although Wickford Junction has a more balanced mixture of public and private funding, this seems to be a special case. The land is solely owned by one private developer, who is willing to fund the construction and maintenance of the parking garage for the station.

Another issue that should be mentioned is the relationship between stakeholders. Even one uncooperative stakeholder can lead to project delays and an increased budget. In the case of Warwick and Wickford, Amtrak has caused delays to the projects.
Since Amtrak currently owns the tracks for these stations they should be considered a primary stakeholder. In the past year, Amtrak has posed a barrier because of their growing concern that increased rail traffic will slow down the route. Amtrak has not yet agreed to stop at either of these stations. Additionally, Amtrak has required the construction of side rails at each stop so Amtrak trains are not encumbered.

**Project Infrastructure**

Obviously, the more complex the infrastructure, the more funding that will be required. Projects that involve only a platform are much simpler to fund than those with a fully functioning station. Aside from the construction cost, the permitting is made simpler, and the project length is generally reduced. Introducing mixed uses, whether located in a station or a parking garage is a way to potentially increase the amount of private funding available to a project. Both Warwick and Wickford stations are expected to receive private funding from actual or proposed commercial uses within the developments.

**Location and Surrounding Land Uses**

Surrounding land uses also impact the development of train stations. In the case of Warwick, there are many surrounding uses, districts, and owners. Coordinating these groups can be difficult, time consuming, and costly. However, higher densities can provide opportunities for private contribution and economic growth.

Location is directly related to surrounding land uses, as urban areas tend to be denser than suburban or rural areas. The two case study areas in Rhode Island provide an opportunity to look at both, Warwick being more urban has to utilize in-fill development for the construction of the property. Wickford Junction, a suburban area, has restrictions from the aquifer. Each area type has positive and negative impacts on
station development. However, incorporating TOD into the overall Master Plan requires the higher-densities of urban surroundings.

**Project Risk**

Private funding is often used to off-set risk in a station development. However, riskier projects can become deterrents for private funding. Project risk increases with the number of funding sources and a lengthy project completion. Private funders carefully consider each investment. In Warwick, for example, eight years after project conceptualization, no construction has begun yet. The lack of momentum in the project has caused would-be private sources to hold on investment. A movement forward in this development could increase the potential of obtaining additional private funding sources, and in turn increase revenue for the project, making it less risky.

**Variables to Consider**

What variables impact the location and financing of new train stations? Basic questions surrounding a new project include:

1. What type of station is needed? Will that station be serving suburban travelers who primarily utilize the rail for commuting, or will the station be used to relieve the congestion near major attractions, like an airport?

2. What is the motivation behind building the rail station? Why is one needed given the population, congestion level, and location? Would the area benefit from promoting economic development around the station?

3. Where the station should be built? How should the area be zoned (mixed land use, residential only, retail only)? Which location would promote the highest level of multimodal use and minimize negative impacts on the environment? How will the proposed station fit into the state’s overall transportation system? With the aid of design, which location would provide riders with a sense of safety and security?
4. Given the complexity of planning, financing, and developing projects, who should be involved? To encourage the success of the project, what is the most effective way of involving community constituents?

5. How much will the project cost? Due to the budget constraints in Rhode Island, what type of creative financing is available to match federal funding?

6. How much time will it take to complete the project? The timeliness of a project is tied to the project's risk factors, the number of stakeholders involved, and the complexity of proposed funding.

Figure 21 summarizes the variables that impact the location and financing of train stations.

**Figure 21. The Variables that Impact the Location and Financing of Train Stations**

- **Type of station needed**
  - Intermodal Station
  - commuter station
  - airport connector

- **Project Motivation**
  - promote economic development
  - reduce congestion
  - increase access

- **Location of the station**
  - surrounding landuse/form
  - proximity to major roads
  - zoning (housing/retail)
  - pedestrian/bike access
  - safety perceptions

**What variables impact the location and financing of new stations?**

- **Stakeholders**
  - local government
  - federal government
  - private developers
  - community constituents

- **Cost of the Project**
  - land ownership
  - infrastructure
  - tax base
  - PPP
  - state's funding capability

- **Project's Timeline**
  - project's risk factors
  - number of stakeholders
  - complexity of funding
6. TRANSPORTATION STATION FINANCING TOOLBOX

The following figure shows the proposed financing toolbox for train station projects in Rhode Island.

Figure 22. Transportation Station Financing Toolbox

- **Federal**
  - FHWA 80/20 Match
  - FTA New Starts
  - Bonding
- **State**
  - Bill Appropriation
- **Local**
  - Property Taxes
  - General Funds
  - User Fees

- **Traditional Sources used Innovatively**
  - TIFIA
  - RRIF
  - GANS
  - SIB
  - Developer Exactions
  - Parking Charges
  - Sales Taxes

- **Public**
  - Advertising
  - Naming Rights
  - Concessions
  - Express Federal Service
  - Air Rights
  - CFC’s
  - Privatization of Parking Garages

- **Private**
  - Fund Management
  - DBOM

- **True Innovative Financing Methods**
  - Reduction of Risk
  - Increased Up-Front Cash Flow
  - Increased Reliance on Revenue
  - Decreased Reliance on Debt
  - Increased Attractiveness
  - Increased Private Investment

*All *Italicized* items are sources of revenue, non-*Italicized* items are sources of debt.

6.1 Analyzing the Toolbox

The Boxes

The three boxes in the toolbox represent three sources of transportation financing. First, the box on the left represents sources that have been traditionally used to develop transportation infrastructure and transit systems. Second, the center box represents sources that are traditional in nature, but used in new, innovative ways. Finally, the largest box on the right represents true alternative, innovative methods that
are often less common in today's financing world. These innovative methods are necessary for addressing financing challenges for today's transportation construction.

The toolbox depicts the need to move away from relying on traditional sources, and move towards embracing innovative financing methods. While traditional sources have historically worked to finance the construction of America's infrastructure, rising costs and depleting resources have made these sources increasingly competitive. States that are able to access the traditional resources (almost entirely sources of revenue) are often unable to meet the 20 percent match. Two thousand and six marks the 50th anniversary of the United States Interstate Highway System. With the aging infrastructure, more and more communities are in need of financial sources, making allocation incredibly competitive. State and local government budgets are more likely not to be able to contribute large sums of money.

Finding new and innovative ways to use traditional funding methods is key to stretching resources further. The rising price of oil has negatively impacted industry, including construction, causing the development cost of transit systems and infrastructure to skyrocket. Many of these sources, such as TIFIA, GANS and SIB, are sources of debt meaning they must be repaid. This has two consequences; first, transportation developers must take the repayment into consideration as a cost of construction. And second, the pool of financing resources can be replaced, making it accessible to other projects.

Using truly innovative sources are more important than ever to a projects construction. While innovative sources have not been as commonly used in the United States, their popularity is growing as their benefits become more visible. By creating partnerships between the public and private sector, projects can be developed in a timely, cost efficient manner. By minimizing project risk, investors are more willing to become involved.
The sizes of the boxes in Figure 22 are also important to note. One funding source cannot finance an entire project. The box sizes show the preferred amount of each funding source to contribute to a project. Traditional sources should constitute a small portion of the project financing, while traditional sources used innovatively and true innovative sources, should constitute the bulk of the budget. The boxes could also be visualized as a pyramid of financial structure as seen in Figure 23.

**Figure 23. Pyramid of Financial Structure**

Revenue versus Debt

The toolbox (Figure 22) also illustrates the difference between resources that are sources of revenue or sources of debt. Revenue and debt are very different agents in financing a project. Interest rates applied to debt increase the overall cost of the project. Revenue is the preferred source as it does not need to be paid back, which decreases the risk of a project. However, as mentioned earlier, traditional sources of revenue are becoming more and more competitive and difficult to obtain.

The traditional sources named in our toolbox (Figure 22) are primarily sources of revenue. While these sources have less risk than sources of debt, they are more difficult to obtain. Many traditional state and local sources have been bled dry, and can no longer contribute financially to a project. Federal sources are renewed each year, but
are becoming increasingly difficult to obtain. Many of the traditional sources used innovatively are sources of debt. These resources are renewal (paid back overtime) and are less competitive to obtain. The innovative sources are all sources of revenue.

It is easy to see a pattern moving from unobtainable sources of revenue, to sources of debt that increase project cost and risk, to sources of revenue that are specific to each project. All italicized items in the toolbox (Figure 22) are sources of revenue. The innovative sources of revenue are obtained through the formation of partnerships between the public and private sector. The nature of the intermodal and connectivity business makes public-private partnership the most probable activity and investment strategy. The hope of public-private partnership is that it will give the transportation industry the ability to increase the number and amount of transportation investments. Initially, this effort has not been promising. The public sector approach has been to use the private sector as a contractor, not as a partner. Contracting out work does not involve the private sector in the investment. Therefore, there have been a limited number of successes in public-private partnership (Ankner 2003). Also, U.S. tax laws have generally precluded mixing of tax exempt financing with private equity/debt or revenue sharing. This has reduced the number of public-private partnerships (Yarema 2006).

Public-private partnerships (PPP) should be strongly encouraged, taken lessons learned from Europe, where they are common forms of financing. SAFETEA-LU promotes the application of Public-Private Partnerships by providing tools such as Private Activity Bonds (PABs) that would allow for up to $15 billion in tax-exempt financing to be mixed with private equity (Yarema 2006).

PPP's represent a cooperative, flexible, and unique financial solution to implementing the train station infrastructure and the development of its surrounding area. PPP's are not only a solution to constrained government resources, but improve
the quality and delivery of public services (United Nations Economic Commission for Europe 2002). PPPs can have many different forms including partnerships where the public and private sector jointly exist, the private sector is minimally involved, the private sector takes primary responsibility of the project, or the private sector retains control and operates the project. Many consider this to be a “win-win” situation where the developer gains by having increased accessibility near train stations and the transit agency saves on costs related to construction and maintenance of the facility (Landis et al., Cervero et al. 2002). These business arrangements can be of the form where revenue is shared and/or costs are shared. Revenue-sharing includes parking lot fees, land leases, station connection fees, concession leases for retail development, and air rights. Cost-sharing includes construction and maintenance expenses, and the development of high density communities around train stations.

A successful partnership relies on the strengths of each partner. The public sector has the power to resolve land assembly problems, ensure that the site is development-ready, ease the entitlement process, contribute land, and fund infrastructure costs. Private developers bring the real estate savvy, the contacts with end users, and the understanding of financial resources. Smoothing the entitlement process keeps private sector developers confident, on track, and on schedule— and helps make it possible for them to assume the risks and to produce an outcome that reflects both the community vision and the market reality (Dunphy et al. 2004).

The maximum benefits from a public-private partnership are derived for a transit project when the private partner is involved at the earliest stage in the project’s development. The developer can assist the public entity in developing a plan of finance which best achieves the goal of building the transit system. The purpose of a plan of finance is to obtain equitable financial contributions from the many, disparate
benefactors of the transit project's development including the state, local government, local landowners and businesses, and the traveling public (Kane et al. 2002).

**Movement along the Boxes**

Movement along the boxes (from the left to the right) shows a number of benefits that should encourage public and private sectors to seek new, creative methods of creating a budget for transportation development. The following are benefits received from moving to more innovative ways of financing:

- A reduction in overall project risk.
- An increase in upfront cash flow.
- An increased reliance on revenue and a decreased reliance on debt.
- Increased project attractiveness, which leads to increased private investment.

As is shown in Figure 24, the benefits of moving to more innovative sources are all inter-related. A reduction in overall project risk is the primary goal of a transportation development. Reducing risk increases the attractiveness of the project, which makes investment opportunities more likely. Increased investment opportunities help to increase the amount of up-front cash flow (also reducing the risk of the project). Upfront cash flow increases the reliance on revenue, and decreases the reliance on debt, which, in turn, reduces the overall project risk.
6.2 Itemizing the Toolbox

**Description of Traditional Sources: Federal Level**

*Transportation Legislation 80/20 Match.* Appropriation of federal funds from the various transportation legislations (ISTEA, TEA-21, and more recently SAFETEA-LU) to a state for use in transportation projects requires a financial contribution from the state to the project. For every appropriated amount allocated to a project, the federal government will contribute only 80%, while the state government must contribute the
remaining 20%. For example, a $10,000,000 appropriation requires a state to contribute
$2,000,000 of state funds.

A fundamental problem in the acceptance of funding from transportation legislation is that while the money may be appropriated, if a state can not match the funds, the money will not be distributed. The State of Rhode Island, with many major transportation projects in progress, can no longer make the federal match out of the state budget or other traditional sources.

Federal Transit Administration New Starts Program. The Federal Transit Administration's (FTA) discretionary New Starts program is the federal government's primary financial resource for supporting locally planned, implemented and operated major transit capital investments. The New Starts program funds new and extensions to existing fixed guideway systems in every area of the country. These projects include commuter rail, light rail, heavy rail, bus rapid transit, trolleys and ferries. The program has been considered for the financing of the proposed train station in Wickford Junction.

New Starts projects, like all transportation investments in metropolitan areas, must emerge from a regional, multi-modal transportation planning process that has three phases:

? Phase I (Alternatives Analysis): Local project sponsors are required to perform an alternatives analysis that evaluates the mode and alignment options in the community. This analysis informs local officials and community members on the benefits, costs and impacts of transportation options, so that the community can identify a preference. This phase is complete when local and regional decision makers select a locally preferred alternative, and it is adopted by the Metropolitan Planning Organization (MPO) into its long-range transportation plan.

? Phase II (Preliminary Engineering): During the preliminary engineering (PE) phase of project development, local project sponsors consider their design
options to refine the locally preferred alternative and complete the National Environmental Policy Act (NEPA) process. Preliminary engineering hones the estimates of project costs, benefits, and impacts. In addition, during the PE phase of development, local sponsors finalize management plans, demonstrate their technical capabilities to develop the project, and commit local funding sources.

Phase III (Final Design): Final design is the last phase of project development, and includes the preparation of final construction plans, detailed specifications, construction cost estimates and bid documents.

New Starts projects must undergo evaluation by FTA throughout the entire project development process. Projects are evaluated according to a variety of criteria. As required in Section 5309 (e), the FTA assigns ratings of "highly recommended," "recommended" or "not recommended" throughout the project development process as information concerning costs, benefits and impacts is refined.

Based on these evaluations, the FTA makes decisions about moving projects forward, from preliminary engineering to final design, to annual funding recommendations to Congress, and to the execution of a full funding grant agreement (FFGA). In the Annual Report on New Starts, FTA applies these evaluations to recommend funding for projects anticipated to be ready for an FFGA before the end of the budget fiscal year, and to recommend funding for other meritorious projects.

Criteria. Section 5309 (e) establishes the criteria under which proposed New Starts projects are evaluated. The FTA evaluates the project justification and the local financial commitment according to the following measures:

- **Mobility Improvements**: Measured by travel time benefits per project passenger mile, low-income households served and employment near stations.
Environmental Benefits: Measured by change in regional pollutant emissions, change in regional energy consumption and EPA Air Quality Designation.

Cost Effectiveness: Measured as the cost per hour of travel time saved.

Operating Efficiencies: Measured by system operating cost per passenger mile.

Transit Supportive Land Use & Future Patterns: Measured by existing land use, transit supportive plans and policies and performance, and impacts of policies.

Other: Number of optional factors, including the projected economic impact of project.

Local Financing. The proposed share of total project costs from sources other than Section 5309 New Starts, including: federal formula and flexible funds, the local match required by Federal law, and any additional capital funding.

The application will also be critiqued on: the stability and reliability of the proposed capital financing plan and the ability of the sponsoring agency to fund operational and maintenance of the entire transit system (including existing service) as planned, once the project is built.

Bonding. Bonds are the most common mechanism of financing long-term debt of large-scale and small-scale capital projects. Long-term debt financing allows transit agencies to develop projects quicker than a pay-as-you-go approach. With the issuance of bonds, investors are promised a specified principal amount with interest at a stated rate for a specified time period.

There are three basic types of bonds that transit agencies use today to finance projects. They are limited recourse bonds, general promissory pledge of system revenues, and general obligation full faith and credit pledges. Limited recourse bonds
are backed by specific revenue streams, i.e. gasoline taxes, property taxes, sales taxes, and pledges of future federal or grant funds (GANS). General promissory pledges come directly from farebox revenues and advertising. This practice is not very common because user fees rarely fully cover operating expenses, much less systems' capital expenditures. Only in large metropolitan areas like Los Angeles County, New York City, and Washington D.C. is this possible. General obligation bonds which are backed by the taxing authorities, local or state governments, are rarely used in transit projects. This is due to the high competition from other local agencies such as the public school system and the health department for funding. The investment community favors this form because the risks are perceived to be lower due to the larger number of investors involved and the backing of the government (TCRP 2003).

**Description of Traditional Sources: State Level**

*Bill Appropriation.* A state can allocate money to a transportation project through the preparation of a bill appropriation. Bill appropriations can allocate money from one source (potentially one that is over allocated) to another. For example, in the case of Warwick Intermodal Station, the budget did not support the construction of the APM. The "off-system" bridge funds provided through SAFETEA-LU will be used for the construction of the APM. Currently Rhode Island does not have any bridges that qualify as "off-system". The amendment of the bill appropriation lifted restrictions to the use of funds for "off-system" bridges and can be applied to the APM (Howell 2004, Anon 2004).

**Description of Traditional Sources: Local Level**

One of the more attractive ways to pay for transportation infrastructure and improvements is through revenue. Important differences separate one revenue source from another, including who is entitled to collect them and who decides how they are used. Revenues are collected at three levels: federal, state and local.
Revenue from local government plays an important but often overlooked role in transportation finance. It is predicted that the role of local government in transportation finance is likely to increase in the 21st century. General funds and property taxes have traditionally been the primary local revenues supporting transportation. However, the increased pressure to produce revenue for transportation spending and for leveraging scarcer Federal and state funds has caused local governments to turn increasingly to non-traditional revenues.

**Property Taxes and General Funds.** Property taxes within a community make up the majority of a municipality's general funds. General funds are the primary source for many local contributions to develop various projects. However, general funds are used to finance numerous projects, not specifically transportation based ones. As many transportation projects are incredibly expensive, general funds fall short from being able to take a primary responsibility in funding them, thus increasing reliance on federal and state funding.

**User Fees.** Use of public transit is rarely without charge. A majority of the revenue from user fees of public transit systems has traditionally been used for maintenance and operation. Allocating a portion of user fees towards future project construction is an option for generating revenue. However, since public transit agencies are often under funded, further allocation of user fees could result in a forced raise in rates.

**Description of Traditional Sources Used Innovatively: Federal Level**

**Transportation Infrastructure Finance and Innovation Act (TIFIA).** According to the Federal Highway Administration, "TIFIA allows the United States Department of Transportation (U.S. DOT) to provide direct credit assistance to sponsors of major transportation projects. Credit assistance can take the form of loans, loan guarantees, or lines of credit; while the total amount of credit can not exceed 33% of the total cost of
the project (Federal Highway Administration 2002)." Authorized in 1998 through TEA-21, TIFIA provides credit, rather than grants, to major transportation projects. As a source of debt (instead of revenue), TIFIA does not draw from funds already allocated within a State. In other words, TIFIA does not require a state match, which is difficult for many states to meet.

As previously mentioned, the TIFIA program has three offers for credit assistance: direct loans, loan guarantees, and financing costs. Loan guarantees and lines of credit provide sources of capital should project revenues fall short of amounts needed to repay commercial project investors. Direct loans must be repaid within 35 years following project completion. The U.S. DOT often offers the comparable U.S. Treasury rate to applicants with little risk of default. TIFIA credit instruments can offer project sponsors an excellent way to boost debt service coverage and enhance senior project obligations at an affordable cost (Federal Highway Administration 2002). Credit instruments offer a commitment from the U.S. DOT to aid in shortfalls in revenues in the ten years after project completion. They offer another source of revenue for a project if required during construction and following completion.

TIFIA loans can finance a broad range of projects including: highway, transit, passenger rail, and certain intermodal projects, such as the Warwick Intermodal Station. The funds can be applied for from both public and private agencies. The cost of a TIFIA project generally reaches $100 million, of which TIFIA can only account for 33 percent of the project. The following diagram from the FHWA Innovative Financing Primer depicts the balancing of provisions considered when reviewing applications for the program:
The following are criteria for selection into the TIFIA program:

- National or Regional Significance
- Creditworthiness
- Private Participation
- Project Acceleration
- Technological Innovation
- Budgetary Costs
- Environmental Impacts
- Reduction of Grant Assistance.

**Railroad Rehabilitation and Improvement Financing (RRIF).** The Railroad Rehabilitation and Improvement Financing Program (RRIF) was established under TEA-21 and was amended and increased ($35 billion) under SAFETEA-LU. The program provides direct loans and loan guarantees for the purposes of acquiring, improving, and rehabilitating intermodal or rail equipment or facilities, refinancing outstanding debt, and developing new intermodal or railroad facilities. The program supports innovative financing by encouraging joint ventures among corporations, state and local governments, and railroads whose projects include at least one railroad. Priority is given to projects that "preserve or enhance rail or intermodal service to small communities or rural areas (Federal Railroad Administration 2006).

**Grant Anticipation Notes (GANS).** As a short-term note, GANs are issued in anticipation of future revenues. Credit enhancement products offer security and credit
support to transportation projects that involve private partners or the municipal bond market. This additional security improves the marketability of bonds to attract investors and lower interest rates, and potentially lower overall project financing costs (Federal Highway Administration 2002).

**Description of Traditional Sources Used Innovatively: State Level**

**State Infrastructure Bank (SIB).** State Infrastructure Banks (SIBs) are revolving infrastructure investment funds for surface transportation that are established and administered by states. SIBs may be capitalized with regular Federal-aid highway apportionments and state funds and can offer a range of flexible financial assistance, including loans and various forms of credit enhancement. Candidate projects for SIB assistance include any transit capital project eligible for Federal assistance under Title 49 of the U.S. Code. SIBs can provide financial support to both public and private sponsors of eligible transportation projects, and can assist in financing any stage of the project's development. There are no Federal share restrictions on the cost of projects eligible to receive SIB assistance.

SIBs can provide two principal forms of credit assistance: loans and credit enhancement products. Loans are the most common form of assistance offered by SIBs. Each SIB has flexibility to structure loans specifically to meet an individual project's needs by offering below market interest rates and favorable repayment terms. Types of loans that SIBs can offer include subordinate loans, short-term construction loans, and interest-only loans during construction periods. Credit enhancement products offered through a SIB can provide additional security or credit support to transportation projects that are funded primarily through other means, such as the municipal bond market or private participation. States have broad discretion as to the kinds of credit enhancement products they wish to offer: possibilities include guarantees, interest rate subsidies, lines of credit, bound insurance, and provision of capital reserve funds.
States may need to adopt specific enabling legislation to authorize the creation of a SIB. The administration and operation of the SIB can be located within the state DOT, in an independent entity, or split between multiple agencies.

In 1995, the Federally-capitalized transportation revolving loan fund concept took shape as the SIB pilot program, authorized under Section 350 of the NHS Act. This pilot program was originally available only to a maximum of 10 states, but then was expanded to include 38 states plus Puerto Rico under the 1997 U.S. DOT Appropriations Act. TEA-21 established a new SIB pilot program, but limited participation to four states – California, Florida, Missouri, and Rhode Island.

The 1995 pilot program requires that states keep highway and transit funds separate, but TEA-21 removed this requirement, allowing the funds to be melded.

**Description of Traditional Sources Used Innovatively: Local Level**

*Special Assessments.* Special assessments are charges, similar to taxes, placed on property because the property benefits from certain public improvements. Those public improvements may include, but are not limited to, streets, sidewalks, sanitary sewers, waterlines, and traffic signals. The special assessment process begins with the establishment of a benefit district, including its boundaries and the proposed public improvement, the estimated cost of the public improvement and the method of assessment of the costs of the public improvement to property within the district. Also, Tax Increment Financing (TIF) could be used to direct a portion of future tax revenues within a sphere of influence for rail stimulated development to pay for infrastructure and other improvements (Kane et al. 2002).

*Developer Exactions.* A provision in the development approval process that requires a developer to give or provide something to a local government. Exactions may include cash payments that go into a fund utilized to purchase land for open space, parks, schools, etc.
Parking Charges. Charges collected from the public for the use of local parking facilities and transit services can be used to help finance its maintenance and operation.

Sales Taxes. Additional taxes can be placed on entire municipalities or only the businesses that will benefit directly from the development of public transit. Utilizing sales taxes as an additional form of revenue is not an easy proposition to make to many businesses, who often feel over-taxed. However, when the benefit is clearly visible businesses are more willing to take part.

For example, the recent development of the Dulles commuter rail line in Virginia has utilized sales taxes from businesses located along the line. These businesses agreed willingly to participate in additional taxes because of the direct benefit they will receive in the future.

Description of Innovative Sources: Public Sector

Advertising. Advertising rights can be sold to private developers and entities to help fund the construction, operation, or maintenance of a transit station. Advertising opportunities can be found within a station, on a train, or on the side of a bus to name a few. Charging monthly or quarterly for advertising brings a continuous stream of revenue, instead of a large lump sum.

Naming Rights. The rights to name a transit station can be sold for revenue towards the station construction. This transaction would create a one-time, lump sum to be put towards financing.

Concessions. A relatively new financing alternative in the United States, the use of concession arrangements are commonly used in Europe to extend the reach of the public sector. Responsibility (such as construction and financing risks) for a project is transferred from the public sector to the private sector. Through the use of concessions, the public sector does not give up the ownership rights of the project, but can benefit from private sector planning and management.
A primary instrument in arranging concessions is a long-term contract. Usually negotiated between a public agency and a private or quasi-private agency, the contract stipulates the terms of the agreement. Appropriate contract provisions ensure that construction quality, facility operations and maintenance, and traffic flow meet certain goals set forth by the public agency (Federal Highway Administration 2003). Concession contracts are typically negotiated for a period of 30 years. During this time, the private agency receiving these contracts agree to design, build, finance, operate and/or maintain a given project over the life of the concession. At the end of this concession period, the original concession is either renegotiated or the facility turned over to an appropriate public entity (Federal Highway Administration 2003).

While used primarily in the construction of highways, concessions could be extended to the public transit sector through creative contracting. Concession agreements allow the public sector the following benefits:

- Leveraging of its ability to build and finance transportation infrastructure since concessionaires function essentially as extensions of the state.
- Apply the innovation, expertise, and experience of the private sector to transportation projects.
- Project completion is greatly accelerated and project costs can be reduced by up to 25 percent.

Express Federal Service. An agreement with an express federal service (such as Fed-Ex or UPS) can also create a public-private partnership where the transit platform, station, or parking garage can be the location for a drop box. The express federal service would pay a ‘rental fee’ for space used at the transit location, and this fee can be applied to the development of the station. Additionally, a transit location is an ideal and convenient location for commuters to access these drop boxes.
**Air Rights.** Allowing the sale of un-used, zoned air space above the transit station can provide an opportunity to collect revenue. Much like naming rights, this would most likely be a one-time lump sum transaction between the owning agency and a private developer.

**Customer Facility Charges (CFCs).** Customer Facility Charges, as an innovative financing tool, are becoming more commonly used to support airport capital improvement projects. The charges are applied to each individual who rents a motor vehicle at an airport. These additional facility charges are collected by the car rental companies and paid to the airport corporation to support the design and construction of dedicated roadways, the building of consolidated rental car facilities, and the construction of intermodal train stations to reduce congestion and improve access to travelers and local residents.

The Warwick Intermodal Station has been able to utilize CFC’s through agreements with rental car companies on site at the airport. Each rental car company charges a nominal fee per each rental to be applied to TIFIA loan payments in the future.

**Privatization of Parking Garages.** Parking garages are another opportunity to provide revenue to a project, while reducing overall maintenance and operation costs. Partnering with a private developer to construct and maintain a parking garage for exclusive use by a transit station is an efficient way to reduce costs for the owning agency as well as creating an attractive profit for the private developer. Additionally, parking garages designed by a private developer are often state-of-the-art to maximize profit.

The Wickford Junction Station, as currently proposed is a public-private partnership. The developer owns the land and has financed the design of the parking garage. The parking garage, once constructed, will remain in control of the private developer. Regularly scheduled maintenance and security measures that may not have
been affordable to the public agency will keep the parking garage safe, structurally sound, and clean long into its use.

**Description of Innovative Sources: Private Sector**

**Fund Management.** Allowing private entities to manage and control the financing and funding of a public transit development can also prove to be a helpful partnership. Private entities have the ability to manage funds in the name of profit, something that public entities are often unable to accomplish. By partnering with a private fund management agency revenue and profit will be maximized and all transactions will occur in the most cost and time efficient manner possible.

**Design Build Operate Manage (DBOM).** DBOM is one form of a public-private partnership where the public agency seeks the technical expertise of a private contractor or team of contractors to design, build, operate, and maintain the facility. Some refer to this type of partnership as a turnkey agreement where the private contractor agrees to design and build a complete facility during a specified time period for a fixed price. The private entities take on the total risk of the project and after completion remain involved in the long term operation and management of the facility. Costs for the public sector are minimized and the private sector is placed in a position to collect revenue over the life of the project. Some of these approaches include privatization of asset management, operation of high occupancy toll lanes, and long term maintenance warranties (U.S. General Accounting Office 1999, TCRP 2003). The DBOM approach has recently been emerging in the United States for transit projects. The 1996 contract award for the Hudson-Bergen Light Rail Transit Project in New Jersey was one of the first examples of DBOM contracting for new rail starts in the United States (Kane et al. 2002).
7. CONCLUSION AND RECOMMENDATIONS

The State of Rhode Island has actively pursued the development of a number of new intermodal train stations and extending the MBTA service to stations south of the city of Providence such as Warwick and North Kingstown. This major initiative will promote the greater use of public transit in the state and help to reduce the dependency on automobile as the primary mode of transportation for commuting to work places in Rhode Island and Boston Area.

In addition to the existing active stations in Providence, Kingston and Westerly, the state has the potential to develop seven new train stations in the future. Collectively these stations will serve major urban (Providence, Pawtucket, Warwick and Cranston) and rapidly growing suburban communities of the state (North Kingstown, East Greenwich, South Kingstown, Westerly and Charlestown). Of the seven proposed stations, four will promote the redevelopment of areas around them (Warwick, East Greenwich, Pawtucket and Cranston). The other three stations will promote new development around them (North Kingstown and Charlestown) with the potential to become major mixed-use suburban activity centers.

Two projects have already been approved in Warwick and Wickford. If RIDOT approves the additional proposed stations, Rhode Island will have 10 train stations. Precautions must be taken such as: addressing how each station will impact the entire system, the proximity between stations, and the frequency between trains. Currently the proposed schedules are restrictive. A limited number of trains will operate in the early morning and late evening for commuters. This scheduling only meets the needs of workers during the traditional work hours, and would not meet the needs of second and third shift workers. Therefore, the economically depressed, who are often those who work the nontraditional hours, could not benefit from the commuter rail service. In
addition, financing all of these stations will be a tremendous burden on a state that is already experiencing a financial crisis.

In its exploration this research project has identified many variables that should be considered when developing intermodal train stations in the future. In addition to stakeholders, project infrastructure, location, and project risk, the following areas are also important to future development. First, Rhode Island should try to balance spatial distribution of future jobs and housing opportunities throughout the state, while keeping an emphasis on linking the two with alternate forms of transit. Second, in the early stages of development the public sector should play a major role to address the community and environmental impacts of the project. Public funding can spark an interest, which could provide opportunities to tie in private investments. Third, connectivity between intermodal stations should be maximized to further reduce traffic congestion. Finally, given the high cost of developing new stations, it is suggested that these projects be planned and developed in a number of phases supported by a single master plan and an overall financing package.

The future financing of new train stations in Rhode Island will require using a variety of sources, specifically truly innovative sources. In the past, the State of Rhode Island has used alternative sources of financing for transportation projects, including bonds, State Infrastructure Bank and TIFIA. Like other states, Rhode Island has a limited experience in using the public-private partnership approach to finance its transportation projects. By creating different forms of partnerships between the public and private sectors, train station infrastructure and the development around it can be built in a timely and cost efficient manner in the future.
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