NJ

2015

BAYSHORE TRANSIT STUDY

RUTGERS
Edward J. Bloustein School
of Planning and Public Policy

2015

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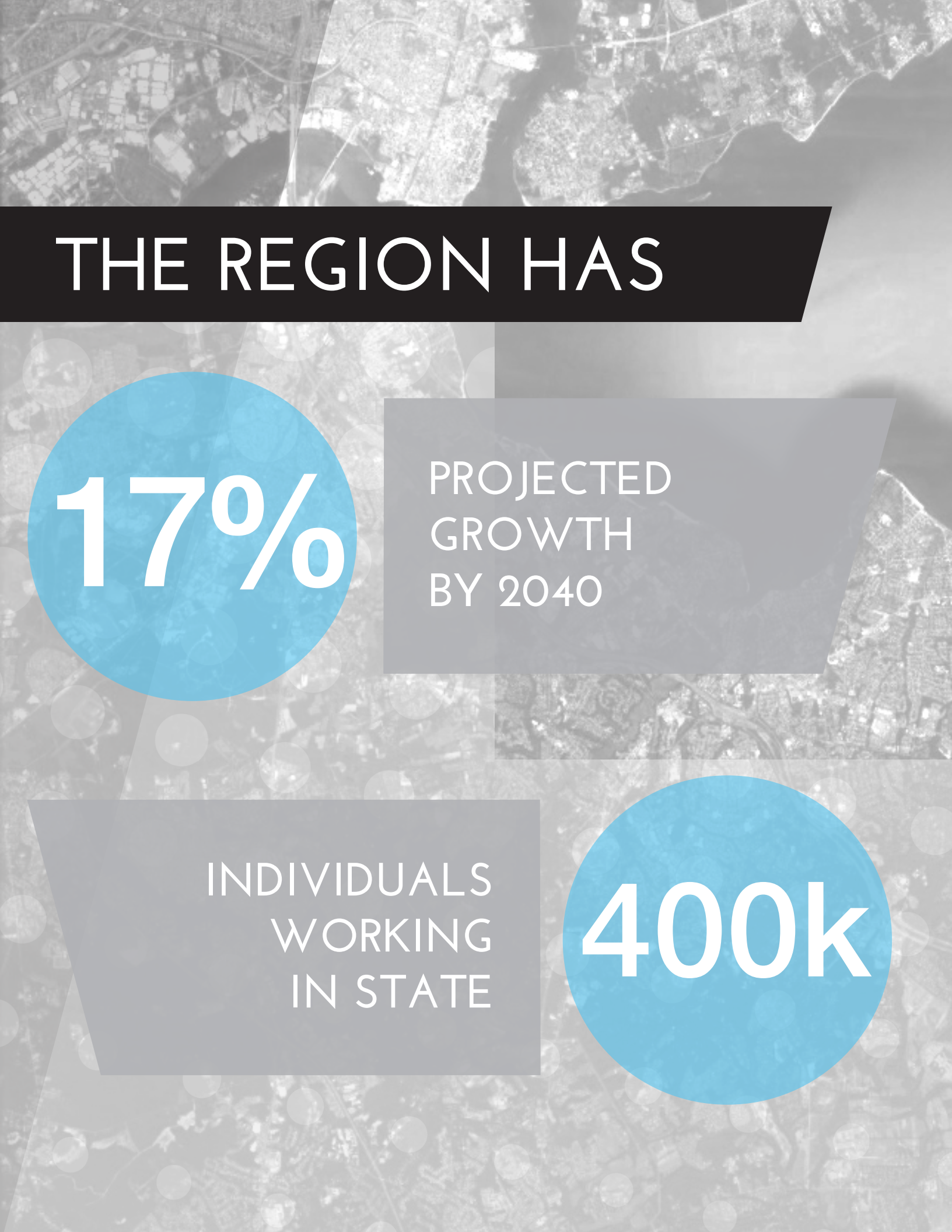

THE REGION HAS

17%

PROJECTED
GROWTH
BY 2040

INDIVIDUALS
WORKING
IN STATE

400k

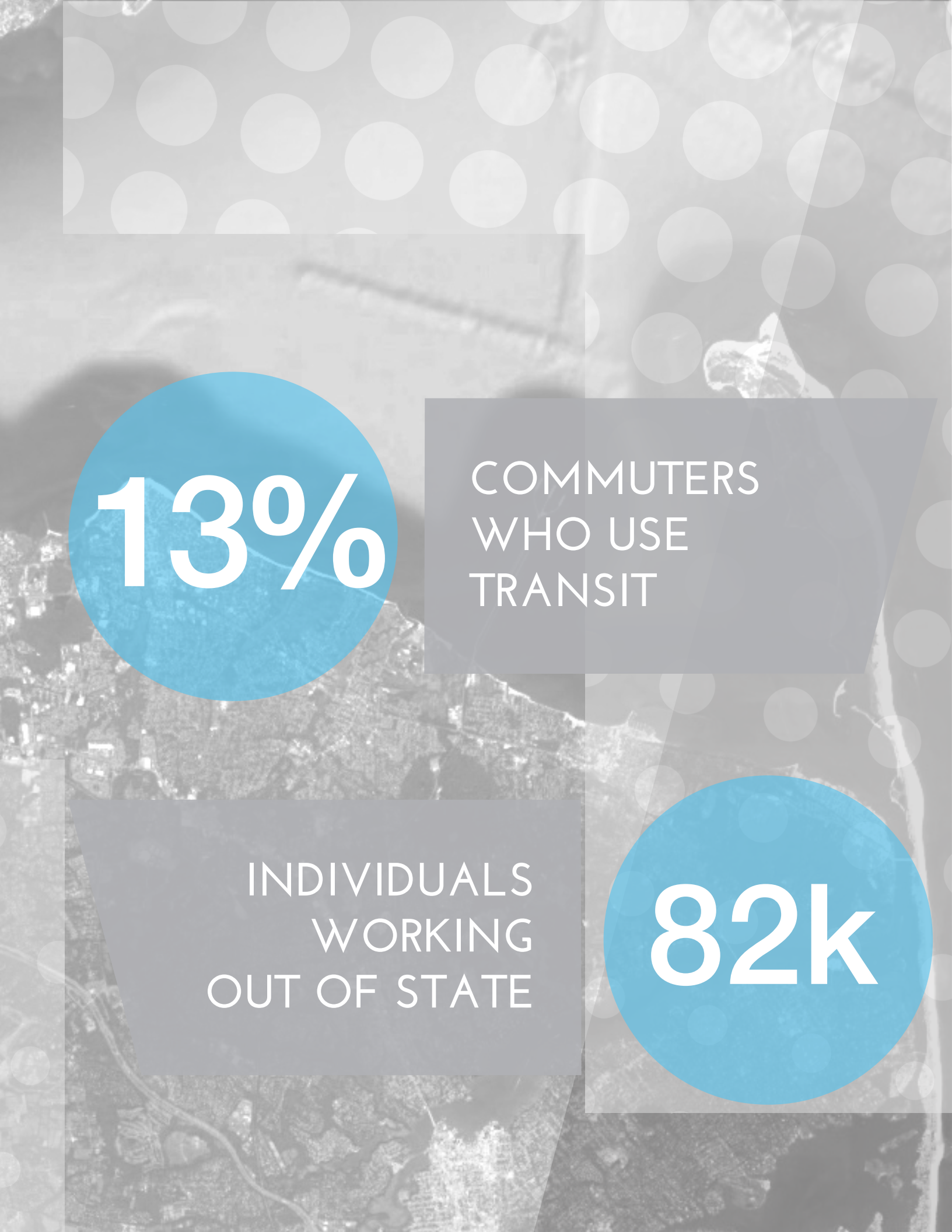
13%
COMMUTERS WHO USE TRANSIT
INDIVIDUALS WORKING OUT OF STATE
82k

TABLE OF CONTENTS

00

EXECUTIVE SUMMARY

01

Executive Summary

The purpose of this document is to present our transit study findings of the Bayshore Study Area in Middlesex and Monmouth counties. The study area includes the municipalities of Woodbridge, Perth Amboy, South Amboy, Sayreville, Old Bridge, Monmouth, Aberdeen, Matawan, Keyport, Union Beach, Hazlet, Keyport, Keansburg, Holmdel, Middletown, Atlantic Highlands, Highlands, Fair Haven, Rumson, Sea Bright, Red Bank, Little Silver, Monmouth Beach, Shrewsbury, Tinton Falls, Eatontown, Oceanport, and Long Branch.

From the data, we made modifications to existing routes in the study area to better serve the communities in the Bayshore Study Region.

Overall, of the 14 routes analyzed, 1 new local route were created, 6 new shuttles routes were proposed, 11 routes were changed, 1 route was eliminated, and a series of non-route changes - such as station additions, upgrades, and ticket machines - were proposed to better provide transit service to existing users and to improve access to residents and employers in the area that depend on it. As a part of this analysis, phasing and a preliminary budget for the recommended routes and services has been provided.

From our research we noticed a few major trends in the region:

1) The study area hosts a variety of high-activity nodes, such as Woodbridge Center Mall, Menlo Park Mall, Brookdale and Middlesex Community Colleges, numerous rail stops along the North Jersey Coastline corridor, and future major redevelopment sites.

2) The area is projected to grow 17% in population size by the year 2040.

3) With 400,000+ workers in the region, there are existing dense retail corridors along Rt. 35, and potential employment increases with redevelopment sites in Sayreville, Holmdel, Fort Monmouth, and Old Bridge.

4) There are high concentrations of aging populations in Fair Haven, Rumson, Little Silver, Shrewsbury, Middletown, Hazlet, Old Bridge, South Amboy, Perth Amboy, Woodbridge.

5) At least 30% of total households concentrated in Perth Amboy, Keansburg, and Red Bank do not have access to automobiles.

Amongst the diversity and complexity of this study area in both size and demographics, we made recommendations to modify existing routes, as well as create new routes to better serve the Bayshore Study Area. Our recommendations and proposals are based on a timeframe of short-, medium-, and long-term goals that are defined by "under 2 years", "2-5 years", and "more than 5 years", respectively, and will be referred to hereafter.

Our recommendations are as follows:

SHORT

1) Bus Ticket Vending Machines at Perth Amboy rail station, Elizabeth rail station, New Brunswick Train Station, Menlo Park Mall, Woodbridge Center Mall, and Middlesex County College.

2) Short-term Traffic Signal Priority for the industrial park areas near Middlesex County College, and small shuttle service for the weekend 810.

3) Modifications to the 817, 834, 831, 832, and 835 stops including extended routes and hours, relocation of stops, and additional evening or weekend round-trips.

MEDIUM

1) Reroute 832 Route, and convert to community shuttle buses for weekend and off-peak service

LONG

1) Bus Ticket Vending Machines at Middlesex County College, and at key stops in Woodbridge Township, Carteret, and Rahway

2) Traffic Signal Prioritization and NJ TRANSIT-wide fare improvements for the 48 route.

3) Implementation of a new 838 Route from Red Bank to Long Branch via Little Silver, Fort Monmouth, Oceanport, Ocean Avenue

4) Phasing of new NJ Transit Express commuter shuttle and hub facility piloted in Old Bridge, off of Exit 120 of the Garden State Parkway

INTRODUCTION

CONTENT

02

In January 2015, NJ Transit asked a studio class at the Edward J. Bloustein School at Rutgers University to conduct a study on transit improvements and recommendations in a region deemed the "the Bayshore Study Area". The Bayshore Study Area is located in central New Jersey on the coast along Middlesex and Monmouth counties.

This region is geographically vast, spanning 27 municipalities, demographically diverse, and has a wealth of transportation resources to pull from, including proximity to the Garden State Parkway, Route 35, and the North Jersey Coast Line rail line. Users range from New York City commuters to local retail workers to underserved transit-dependent populations, and are scattered throughout the whole study area; because of this unique landscape, there are no dominant trends that clearly define and characterize the places or the people.

The aim of fixed route transit planning in the context of this route is to improve the user experience, the connectivity of the region, and provide access to those who depend on NJ Transit. In addition to a demographic review and identification of trip generators and destinations, the studio class also conducted stakeholder interviews with the various municipalities, conducted site visits of the locations and potential bus routes, and reviewed existing and historical service in the area for context and reference.
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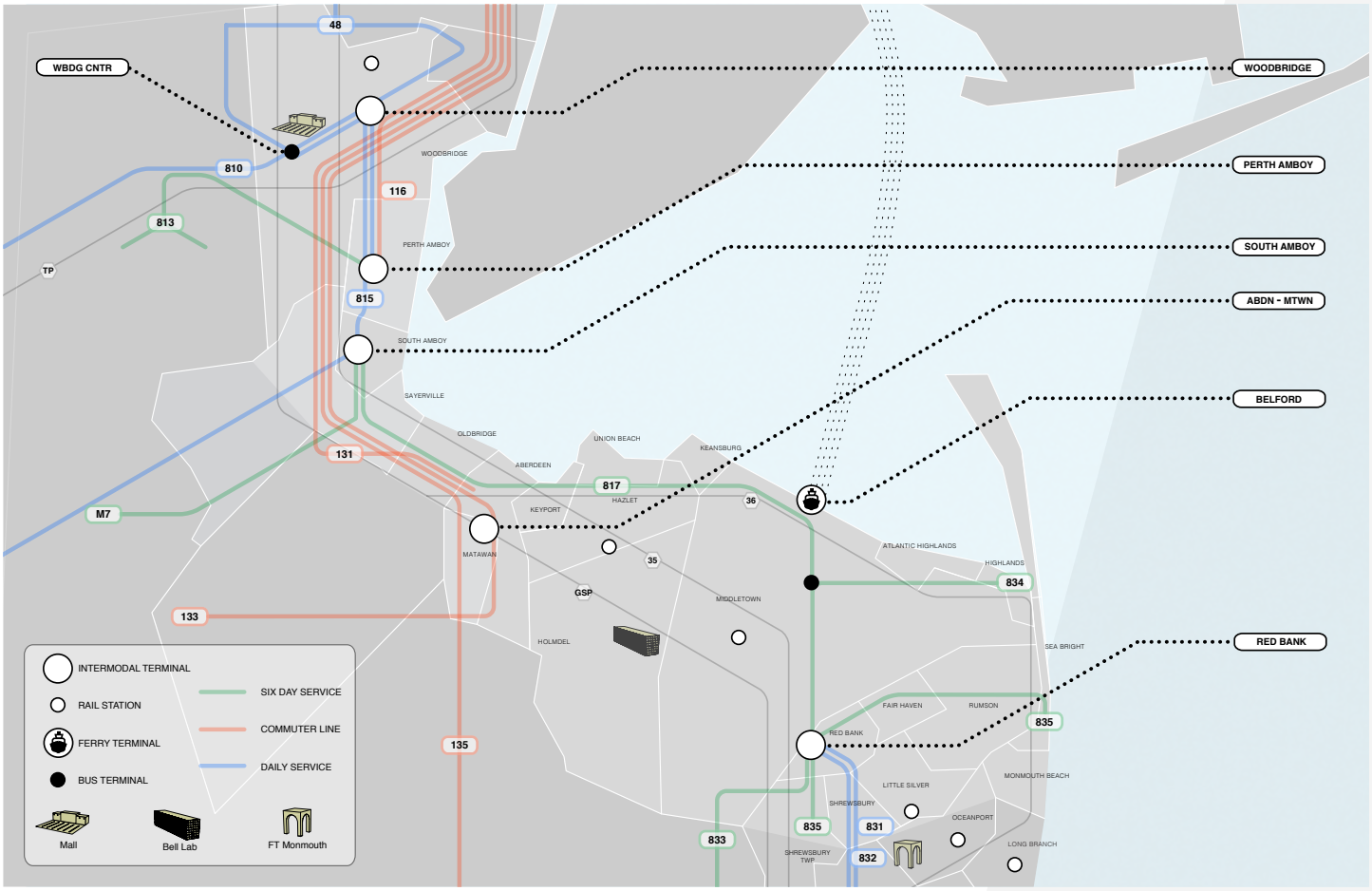
Within the study area, fourteen different local and commuter bus routes that serve the region were analyzed for ridership, reroute proposals, and other recommendations. These routes are incredibly diverse in their trip lengths, their ridership, their users, and their costs. Along with NJ Transit operated routes, local routes in Middlesex and Monmouth counties are also contracted out by NJ Transit to Academy Express LLC and Transdev. In addition to the demographic heterogeneity of the region, this contractual issue posed an additional challenge to the analysis.

As an area that was affected by Superstorm Sandy in 2012, many of the municipalities rank high on the Sandy Community Hardship Index; this means there is potential for reimagining the nature of development in the region. The studio focused on redevelopment projects such as the Bell Works in Holmdel, the Sayreville Waterfront Redevelopment Project, Fort Monmouth Redevelopment, and additional development off of Exit 120 on the Garden State Parkway in Old Bridge. This existing and emerging development in the region creates potential for an improved bus transit network due to the projected increase in jobs and recreational destinations.

The studio's analysis was largely driven by the complexity of the region. Early on, it became apparent that the lack of homogeneity in many facets would be prohibitive to analyzing the study area comprehensively. Thus, the studio group organized its initial proposals around a division of work that was both functional and geographic, where commuter routes were analyzed, local routes were split into "Northern" and "Southern" regions, and transit for redevelopment areas was given individual attention.



MAP OF BUS ROUTES IN THE REGION

9 Key Demographic Findings

1. Overall, the whole Study Area will increase 0.56% per year and approximately 17% in total by 2040 in population. Similarly, households will grow by 0.66% per year and 19% in total by the end of 2040. Employment will increase 1.23% per year and 37% in total by 2040.

2. The areas that are dense, over 3,000 persons per square mile, are concentrated along the Bayshore coast and in the areas immediately surrounding the train stations on the North Jersey Coast Line. The most dense block groups, over 15,000 persons per square mile, are concentrated in Perth Amboy. There are similarly dense single block groups in Keansburg, Woodbridge, and Red Bank.

3. The clusters of low income exist in Perth Amboy and Keansburg. The high income areas are within Holmdel, Fair Haven, Rumson, Little Silver, Tinton Falls, and parts of Shrewsbury, Middletown, and Aberdeen.

4. Employment corridors mirror the length of major roads in the area; Route 35, Route 36, and Route 9. Jobs also cluster in Red Bank, Shrewsbury and Perth Amboy. The prevalence of retail and other service jobs in the area creates a need for span of service that is longer than in areas with more traditional work hours. It is likely that the number of employees in these jobs will increase as the economy picks up from the recession and from the effects of Hurricane Sandy.

5. The region is experiencing an "aging" of the population. Significant populations of elderly people existing in Fair Haven, Rumson, Little Silver, Shrewsbury, Middletown, Hazlet, Old Bridge, South Amboy, Perth Amboy, and Woodbridge. The majority of the "elderly" block groups are in the suburban, wealthy areas.

6. Of workers over 16 years old in the Study Area, the 30-50% of workers in Woodbridge, South Amboy, Perth Amboy travel outside of the State for work. Working within the county of residence is more common in the Study Area. In Middlesex County workers staying within the county are mostly located in Perth Amboy and South Amboy. Of Monmouth County workers, at least 50% are staying in the county for work in a majority of block groups. This is occurring in Middletown, Atlantic Highlands, Shrewsbury, Red Bank, Oceanport, Monmouth Beach, and Holmdel.

7. In the NJTPA region, about 13% of commuters use public transit. This small mode share is also evident in the Bayshore Study Area. This is likely because most households own at least one car and the majority of workers stay in their county of residence, therefore car travel may be the most cost and time effective. The block groups with over 13% of commuters by public transit are generally adjacent to the NJCL train stations. But there are areas in the area with high percentage of public transit commuters in Fair Haven, Rumson, Holmdel, and along the coast in Atlantic Highlands, and Keansburg.

8. Most households in the region have at least 1 car. The suburban nature of the area dictates the need for and use of a car. Some areas have high percentage of households without a car. Auto-less households make up at least 30% of total households concentrated in Perth Amboy, Keansburg, and Red Bank.

9. 1 car households make up at least 30% of total households in Woodbridge, South Amboy, Perth Amboy, Matawan, Aberdeen, Keyport, Hazlet, Keansburg, Middletown, Highlands, Long Branch and Red Bank.

PUBLIC ENGAGEMENT

CONTENT

03

Overview

Overview
Two rounds of stakeholder outreach focus groups were conducted on February 9th, 2015. This meeting assembled a variety of interested parties for preliminary outreach sessions. The studio group conducted a morning and afternoon round of focus groups in order to accommodate the work schedules of all interested parties. Representatives from major employment centers, developments, municipal planning offices and many other agencies were asked to provide input on what was working with New Jersey Transit and what should be improved.

Please refer to Appendix II for a comprehensive list of the participating organizations / people.

There were 3-6 people in each focus group from various organizations in Middlesex and Monmouth Counties including schools, nonprofits, and government agencies. Each group had one student facilitator, one student note-taker, and several student "floaters" who walked around the room to ensure each focus group was doing well. Through dynamic mapping activities and facilitated dialogue, over thirty stakeholders were able to provide insight in to the strengths and weaknesses in their communities, organizations, and region at large.

These written notes were then analyzed for patterns using the qualitative analytics software NVivo. The findings of this outreach session provided instrumental guidance for our team's subsequent research efforts, and in turn provided guidance towards our final recommendations. The findings are summarized below and the reader is encouraged to reference Appendix I for the original transcripts.

Key Findings

The reader is encouraged to reference Appendix II for both a more exhuastive analysis, as well as the original transcripts.

In Summary, the stakeholder outreach sessions indicated that New Jersey Transit needs the following.

NJT NEEDS:

- Additional off peak options
- Improved last miles connections
- More local service options
- Improved customer facilities
- Better route & arrival information
- More reliable service
- Greater emphasis on the customer

STAKEHOLDER OUTREACH FOCUS GROUP

DEMOGRAPHICS

CONTENT

04

Growth in the Region

The Bayshore Region is a complex and diverse area of New Jersey. There are 28 municipalities within the study area, the majority of which are located in Monmouth County. Table 1, right, details the forecasted changes in population, households, and employment for each municipality in the Study Area from the NJTPA Plan 2040 Demographic Projections. Change in terms of population, number of households, and number of jobs is variable within the Study Area. Most municipalities will experience no annualized growth or just nominal annualized growth (growth per year) during the 30 year forecast horizon. However a few municipalities will experience sizeable annualized growth in all sectors of the forecast. Old Bridge, Sayreville, and South Amboy will experience the most growth in the Middlesex County section of the Study Area. Employment growth in these municipalities will be significant for both counties. Sayreville employment is projected to grow 2.2% per year until 2040. South Amboy has expected employment growth of 1.5% per year; this is especially significant because the base year (2010) shows only 1,980 jobs but this is projected to increase to 3,040 jobs by 2040. This is likely due to the planned development in the area. In total, the Middlesex County portion of the study area will experience 0.81% population growth, 1.11% household growth, and 1.29% employment growth, all annualized rates.

Most of the Monmouth County municipalities in the study area will experience only nominal annualized growth in each sector of the forecast. However, some areas are projected to experience sizable growth. Tinton Falls and Oceanport will experience about 1% population and household growth per year and nearly 2% growth in employment. Aberdeen will also experience significant growth in its employment at 1.6% per year. Holmdel is projected to have 1.4% growth in employment per year. Overall the Monmouth County Study Area will experience 0.33% population growth, 0.26% household growth, and 1.15% employment growth, all annualized rates.

These increases will affect the transportation network in the area, especially the increase in employment. NJ Transit has an opportunity to share in and benefit from this growth. As more and more people reside and work in the area, the NJ Transit network can capture new riders and improve service for new and existing riders. Overall, the whole study area population will increase 0.58% per year and approximately 17.3% in total by 2040 in population. Similarly, households will grow by 0.68% per year and 20.4% in total by the end of 2040. Employment will increase 1.21% per year and 36.4% in total by 2040.

		POPULATION			HOUSEHOLDS			EMPLOYMENT		
Town	County	2010	2040	Annualized % Change	2010	2040	Annualized % Change	2010	2040	Annualized % Change
Carteret	Middlesex	22,840	29,050	0.80%	7,590	10,520	1.10%	8,010	9,910	0.70%
Old Bridge	Middlesex	65,380	82,620	0.80%	23,780	32,890	1.10%	11,210	17,160	1.40%
Perth Amboy	Middlesex	50,810	58,390	0.50%	15,420	18,510	0.60%	13,760	17,690	0.80%
Sayreville	Middlesex	42,700	56,950	1.00%	15,640	22,200	1.20%	9,670	18,840	2.20%
South Amboy	Middlesex	8,630	12,230	1.20%	3,370	5,090	1.40%	1,980	3,040	1.50%
Woodbridge	Middlesex	99,590	121,290	0.70%	34,620	44,590	0.80%	54,320	70,470	0.90%
TOTAL MIDDLESEX STUDY AREA		**289,950**	**360,530**	**0.81%**	**100,420**	**133,800**	**1.11%**	**98,950**	**137,110**	**1.29%**
Aberdeen	Monmouth	18,210	20,070	0.30%	6,880	7,370	0.20%	3,540	5,730	1.60%
Atlantic Highlands	Monmouth	4,390	4,530	0.10%	1,870	1,900	0.10%	1,310	1,560	0.60%
Eatontown	Monmouth	12,680	15,360	0.60%	5,370	6,350	0.60%	15,080	21,050	1.10%
Fair Haven	Monmouth	6,120	6,270	0.10%	1,970	1,990	0.00%	910	1,050	0.50%
Hazlet	Monmouth	20,330	21,340	0.20%	7,140	7,350	0.10%	6,050	7,710	0.80%
Highlands	Monmouth	5,010	5,110	0.10%	2,620	2,650	0.00%	920	1,090	0.50%
Holmdel	Monmouth	16,770	20,210	0.60%	5,580	6,530	0.50%	10,310	15,780	1.40%
Keansburg	Monmouth	10,110	10,370	0.10%	3,810	3,860	0.00%	1,770	2,160	0.70%
Keyport	Monmouth	7,240	7,460	0.10%	3,070	3,120	0.10%	2,580	3,020	0.50%
Little Silver	Monmouth	5,950	6,240	0.20%	2,150	2,210	0.10%	2,210	2,570	0.50%
Long Branch	Monmouth	30,720	31,820	0.10%	11,750	11,990	0.10%	9,730	11,790	0.60%
Matawan	Monmouth	8,810	9,240	0.20%	3,360	3,450	0.10%	3,790	4,600	0.60%
Middletown	Monmouth	66,520	70,720	0.20%	23,960	24,980	0.10%	19,950	25,770	0.90%
Monmouth Beach	Monmouth	3,280	3,310	0.00%	1,490	1,500	0.00%	450	520	0.50%
Oceanport	Monmouth	5,860	7,950	1.00%	2,170	2,930	1.00%	3,870	6,580	1.80%
Red Bank	Monmouth	12,210	13,410	0.30%	4,930	5,270	0.20%	12,540	15,200	0.60%
Rumson	Monmouth	7,120	7,640	0.20%	2,340	2,450	0.20%	1,690	2,350	1.10%
Sea Bright	Monmouth	1,410	1,500	0.20%	790	790	0.00%	470	530	0.50%
Shrewsbury Boro	Monmouth	3,810	4,280	0.40%	1,260	1,360	0.20%	5,990	6,930	0.50%
Shrewsbury Twp	Monmouth	1,140	1,190	0.10%	580	590	0.10%	770	900	0.50%
Tinton Falls	Monmouth	17,890	24,120	1.00%	8,360	10,940	0.90%	9,070	15,140	1.70%
Union Beach	Monmouth	6,250	6,400	0.10%	2,140	2,170	0.00%	790	1,000	0.80%
TOTAL MONMOUTH STUDY AREA		**271,830**	**298,540**	**0.33%**	**103,590**	**111,750**	**0.26%**	**113,790**	**153,030**	**1.15%**
WHOLE STUDY AREA		**561,780**	**659,070**	**0.58%**	**204,010**	**245,550**	**0.68%**	**212,740**	**290,140**	**1.21%**
TOTAL GROWTH BY 2040				**17.3%**			**20.4%**			**36.4%**

Table 1. Projections to 2040 of the Bayshore Area. Data Source: NJTPA Population Projections – Plan 2040

POPULATION DENSITY

The population density of the area varies considerably in the area. The areas that are most dense, at over 3,000 persons per square mile, are concentrated along the Bayshore coast and in the areas immediately surrounding the train stations on the North Jersey Coast Line. These patterns are logical as these areas are provide views of the beach, close proximity to recreational areas, and access to transit, respectively. The most dense block groups, over 15,000 persons per square mile, are concentrated in Perth Amboy. There are similarly dense single block groups in Keansburg, Woodbridge, and Red Bank. Identifying these dense areas is important as they provide a critical mass of potential riders for bus service and are often the major destination for many transit riders. See Appendix I for accompanying maps, Figures 1, 1a and 1b.

INCOME

When examined at the Block Group level, the income patterns in the study area show concentrated areas with very low and very high median income. The clusters of low-income persons exist in Perth Amboy and Keansburg. The high-income areas are in Holmdel, Fair Haven, Rumson, Little Silver, Tinton Falls, and parts of Shrewsbury, Middletown, and Aberdeen. Income is related to travel behavior and mode choice due to a couple of factors. Income dictates residential location, which in turn affects mode choice. Income also affects vehicle ownership, which has a substantial effect on mode choice. Those with higher incomes can choose to live a significant distance from work, which will cause the individual to have to drive to work. Because of these factors, the wealthy are more likely to drive, and if they use transit, are more likely to be train passengers. Low-income households and individuals are constrained by financial resources and do not always have access to a vehicle; therefore, low-income populations are often concentrated in center cities or inner ring suburban areas. The residential location and lack of a vehicle forces lower income individuals to use transit, of which bus service is more affordable than train travel. Because of these trends and relation to travel behavior the lower income areas will likely benefit from improved local/regional bus service and the high income, more suburban areas will benefit from commuter bus service to NYC and/or from bus connections to rail. See Figures 2, 2a and 2b in Appendix I for maps of median income in the Bayshore Area.

EMPLOYMENT

As discussed above, there is a significant amount of growth in employment projected for the Bayshore region. In order to provide proper service to customers, it is important to know the locations of jobs and the type of job it is. The type of job and related wage can dictate the means of transportation the employee can afford as well as the hours of travel that can be expected. Lower wage employees are more likely to use the bus. The employment maps in Appendix I (Figures 3, 3a and 3b) show the location of employers with 50 or more employees in the education, health services, and retail fields in the Bayshore Area. The display shows employment corridors that mirror the length of major roads in the area; Route 35, Route 36, and Route 9. Jobs are also clustered in Red Bank, Shrewsbury and Perth Amboy. The prevalence of retail and other service jobs in the area creates a need for span of service longer than traditional working hours. Such establishments are often open from 9am – 9pm and have workers arriving and leaving 1-2 hours before and after closing. It is important to note these differences in commuting times since these employees are typically transit users. It is likely that the number of employees in these jobs will increase as the economy picks up from the recession and from the effects of Hurricane Sandy.

AGE

The Bayshore Area, and North Jersey as a whole, is experiencing an aging of the population. The number of households with people aged 65 and older is increasing. The statewide average of households with seniors is 13.5%; in the NJTPA region, 27% of its total households have seniors residing in them (NJTPA Plan 2040). For the Bayshore Study Area, the percent of the population 60 years and older per block group is displayed in located in Appendix I (Figures 4, 4a and 4b). 37 block groups in the area have a population of over 30% people 60 years or older. The map highlights a couple of areas with significant populations of elderly people: Fair Haven, Rumson, Little Silver, Shrewsbury, Middletown, Hazlet, Old Bridge, South Amboy, Perth Amboy, and Woodbridge. The majority of the "elderly" block groups are in the suburban, wealthy areas. An older population means more elderly drivers and more elderly people who do not drive. The expansion of this population means it is likely that more elderly than before will use transit. Accommodations need to be made in order to serve this population, as their mobility is sometimes limited. Community transit service and vehicles traditionally suit the needs of this population but considerations for this population need to be made in the wider service area and fleet of vehicles.

COMMUTING PATTERNS

The Bayshore Area, and North Jersey as a whole, is experiencing an aging of the population. The number of households with people aged 65 and older is increasing. The statewide average of households with seniors is 13.5%; in the NJTPA region, 27% of its total households have seniors residing in them (NJTPA Plan 2040). For the Bayshore Study Area, the percent of the population 60 years and older per block group is displayed in located in Appendix I (Figures 4, 4a and 4b). 37 block groups in the area have a population of over 30% people 60 years or older. The map highlights a couple of areas with significant populations of elderly people: Fair Haven, Rumson, Little Silver, Shrewsbury, Middletown, Hazlet, Old Bridge, South Amboy, Perth Amboy, and Woodbridge. The majority of the "elderly" block groups are in the suburban, wealthy areas. An older population means more elderly drivers and more elderly people who do not drive. The expansion of this population means it is likely that more elderly than before will use transit. Accommodations need to be made in order to serve this population, as their mobility is sometimes limited. Community transit service and vehicles traditionally suit the needs of this population but considerations for this population need to be made in the wider service area and fleet of vehicles.

PUBLIC TRANSIT MODE SHARE

In the NJTPA region, about 13% of commuters use public transit. This small mode share is also evident in the Bayshore Study Area. This is likely because most households own at least one car and the majority of workers stay in their county of residence; therefore, car travel may be the most cost and time effective. Though this also causes congestion on the roads of the study area, increasing the public transit mode share could help to alleviate this problem. The block groups with over 13% of commuters by public transit are generally adjacent to the NJCL train stations. But there are areas in the area with high percentage of public transit commuters in Fair Haven, Rumson, Holmdel, and along the coast in Atlantic Highlands, and Keansburg. These trends can be examined in Figures 7, 7a and 7b in Appendix I.

AUTO AVAILABILITY

Most households in the region have at least one car. The suburban nature of the area dictates the need for and use of a car. Some areas have high percentage of households without a car. This is probably related to resource constraint rather than a lifestyle choice. There are 14 block groups in which auto-less households make up at least 30% of total households. These block groups are concentrated in Perth Amboy, Keansburg, and Red Bank. Households with 1 car are much more prevalent in the Study Area. There are 136 block groups in the Study Area in which 1 car households make up at least 30% of total households. The spatial trend of these types of households is much more varied, concentrations exist in Woodbridge, South Amboy, Perth Amboy, Matawan, Aberdeen, Keyport, Hazlet, Keansburg, Middletown, Highlands, Long Branch and Red Bank. These two types of households are more likely to produce transit users. See Figures 8, 8a and 8b in Appendix I for details.

REDEVELOPMENT

CONTENT

05

Overview

Major redevelopment proposals in the study area have the potential to change not only the nature of development patterns in Middlesex and Monmouth counties, but likewise to alter the way in which people depend on transit. In Middlesex county redevelopment takes shape in the form of multi- and mixed- use proposals such as the Luxury Pointe development project, as part of the redevelopment of the Sayreville Waterfront and expected development off of Exit 120 of the Garden State Parkway in Old Bridge. Both proposals are in the stages of approval or breaking ground, and could be complete in under five years. In Monmouth county, large scale reuse and redevelopment projects are under consideration, including Fort Monmouth Reuse Plan and Bell Works in Holmdel. With a large mixture of residential, commercial, and retail space, all of these projects need to consider transit mode opportunities.

Middlesex County

SAYREVILLE

Waterfront redevelopment in Sayreville is being headed by the O'Neill Properties Group, with a mix of luxury amenities and residences on a 440 acre, 3 mile waterfront piece of property. The proposal includes a mixture of over 5 million square feet of different uses, including: a 1.6 million square foot fashion mall; a 770,000 square foot marketplace; a 550,000 square foot Power Center; 2,000 upscale multifamily residential units - 565 waterfront townhomes and 1,474 luxury apartments; 40,000 square feet of available office space; and a 750 room hotel. In addition, the development will include 2 marinas.

This large scale project is aimed to cost over 2 billion dollars in total, and is projected to create 5,400 construction jobs and 3,900 permanent jobs upon full build-out. Since the project is being built in phases and environmental remediation has been completed ahead of schedule, ground-breaking is planned for the final months of 2015. Transit planning needs to be considered quickly, with multiple options, as this development comes to fruition in a short amount of time. Our studio proposes the amendment of the 116 commuter route to begin at Sayreville Park and Ride, as well as the creation of a shuttle service to South Amboy rail.

The 116 will follow the same route as normal, but will be amended to serve the Sayreville stops of the original 131 route - Lorraine Avenue and Rt 35, Ernston Road and Mini Mall Drive, Ernston Road and Washington Road, Sayreville Park and Ride, the new Luxury Point development - and then continuing into the existing Perth Amboy, Woodbridge, and Carteret stops. See the following pages.

By the nature of the mixed-use development, a shuttle route will serve both traditional and non-traditional working hours – and so, both schedule types need to be accommodated with an on- and off-peak schedule. This service would likely employ a community shuttle vehicle, with a capacity of 15-26 passengers per trip. A shuttle route is proposed to run as a weekday peak service mainly as a connection for commuters who want the option of rail, with more off-peak times to service retail workers and shoppers. Less frequent weekend hours are also anticipated to service the Luxury Point development amenities, services, and employees.

The shuttle is a 4 stop round trip route beginning in South Amboy to Sayreville, and returning, that is 2 miles in length and 6 minutes in time, designed as a 10 minute trip (4 minute buffer), with a 5 minute loading and unloading driver break at each stop. The AM peak timetable begins with its first trip from South Amboy rail station at 4:45 AM and the final on-peak trip from there at 10:15 AM; and the PM peak timetable begins with its first trip from South Amboy rail station at 3:45 PM and the final on-peak trip from there at 7:15 PM. The off-peak shuttle runs on the hour from 11 AM to 3 PM, and resumes from 8 PM to 10 PM. With the extra 4 minute buffer, more stops can be factored in – such as Sayreville Park and Ride – once the route's ridership is assessed upon the completion of Luxury Point.

Likewise, the developer recently acquired the site of the Amboy Aggregates materials processing plant in nearby South Amboy – which is entitled to up to 1,825 residential units, part of a rail-connected, Raritan Bay waterfront property development. The shuttle route from Sayreville to the South Amboy rail station can be amended to include this site as a stop once it is approved and built out.

OLD BRIDGE

Development at a smaller, but still significant scale, is likewise planned in Old Bridge, just south of Sayreville by a few miles. Alfieri Old Bridge Associates LLC, of Edison has proposed a general development plan to Old Bridge Township on a 139 acre parcel off of Exit 120 of the Garden State Parkway. This is a prime location next to both on and off ramps to the North and Southbound of the Parkway. However, the development has been in contention for the past 20 years, and has changed in nature significantly over that time in what it is proposing to build. Currently, about 300,000 square feet of office space, 382 dwelling units as a mix of 1-2 bedroom apartments and condos, and a possible hotel. This location is likewise located along the North Jersey Coast Line rail tracks, and has potential to be a hub for future NJ Transit infrastructure and development.

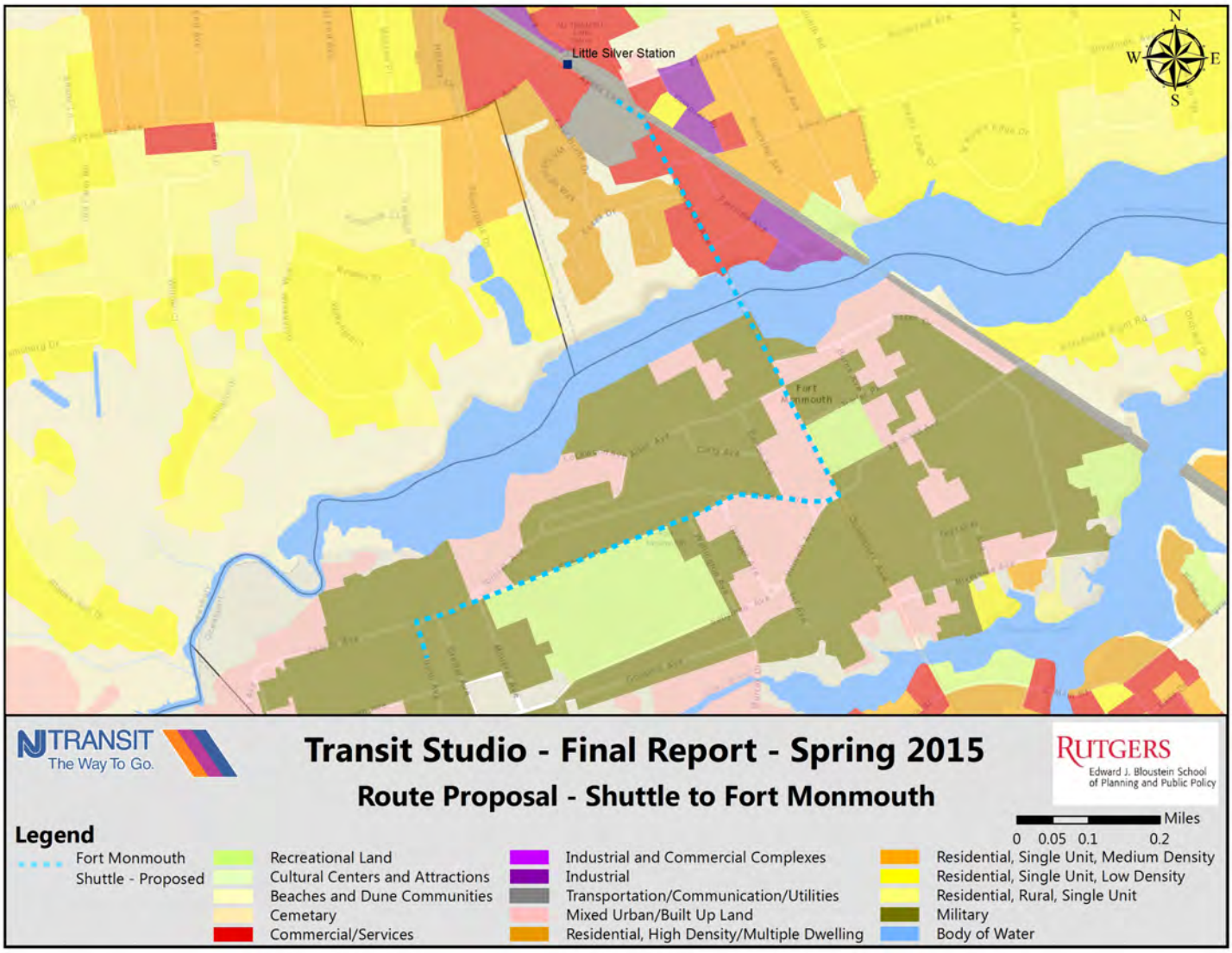
Middlesex County


STUDY AREA
Newark
Elizabeth
New York
Staten Island
Brooklyn
NJ TRANSIT The Way To Go.
Transit Studio - Final Report - Spring 2015
RUTGERS Edward J. Bloustein School of Planning and Public Policy
Route Proposal - 116
Legend
116 - Proposed
Existing Route
Miles
0 0.5 1 2

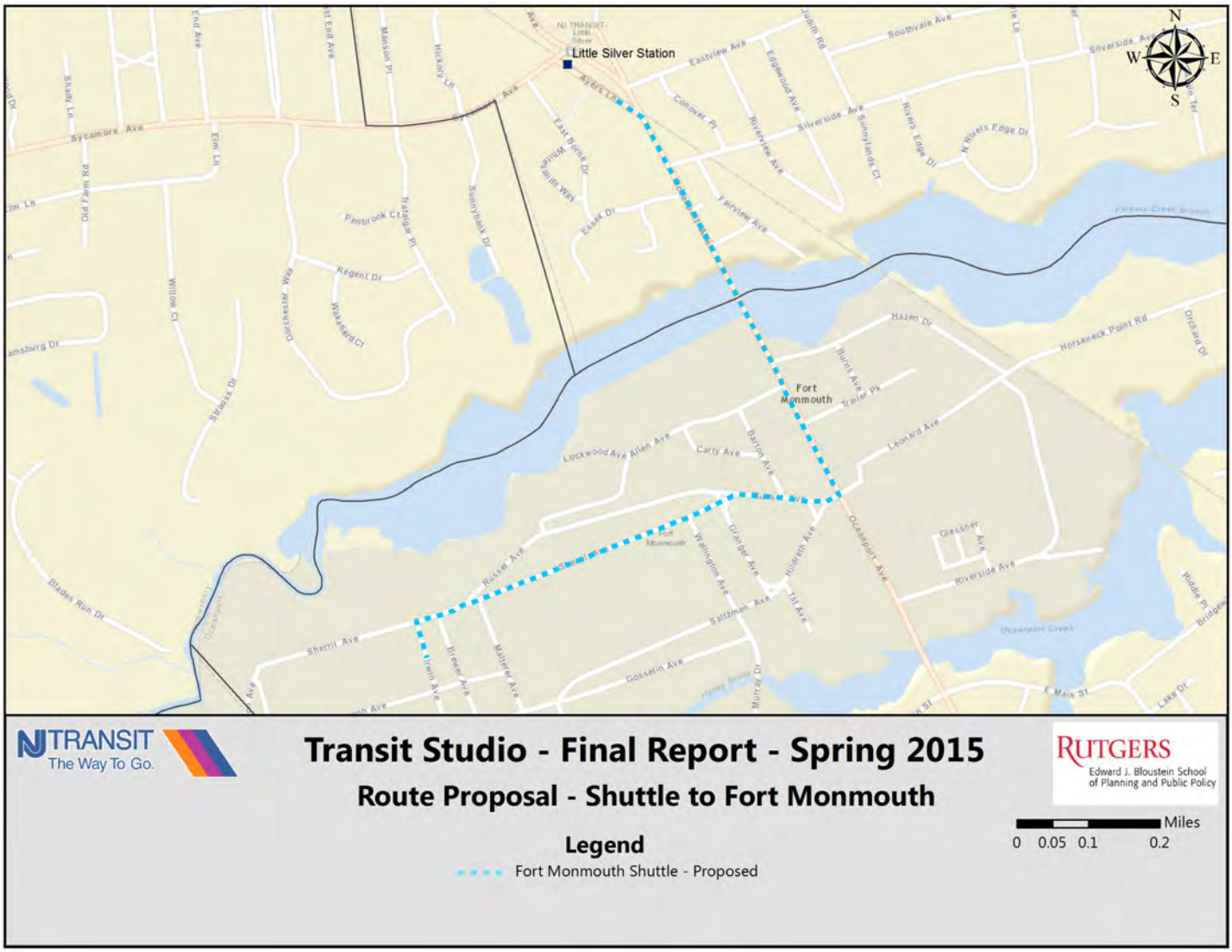
Monmouth County

FORT MONMOUTH

The Fort Monmouth Redevelopment area, headed by the Fort Monmouth Economic Revitalization Authority, is slated to be redeveloped over the course of twenty years. A sprawling site covering 1,126 acres, the site will feature a mix of office/research and development space (2,098,541 square feet), retail (448,344 square feet), hospitality/conference center (310,000 square feet), residential units (1,605 units), and civic buildings (524,594 square feet). A closer look at the surrounding area can be found in the map below.



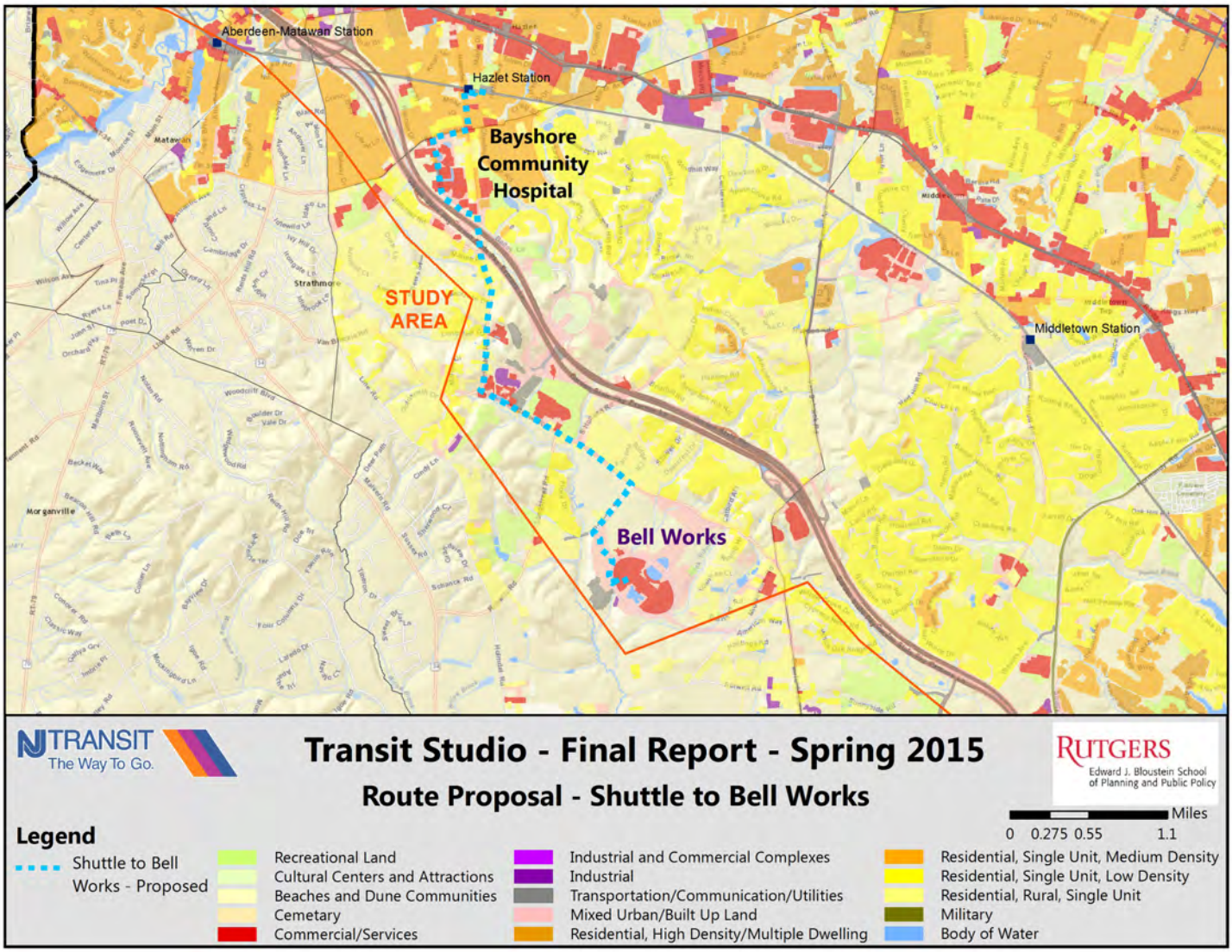
The Reuse Plan for the site projects over 4,000 new residents and over 10,000 new permanent jobs. There is a clear mismatch between the amount of residents on site and the number of workers needed to fill the site. In order to ensure that all prospective workers can reach Fort Monmouth, it is critical to ensure appropriate access to transit. A low-risk solution to this would be for New Jersey Transit to provide shuttle service between the nearby Little Silver train station and the Fort Monmouth site.



Monmouth County

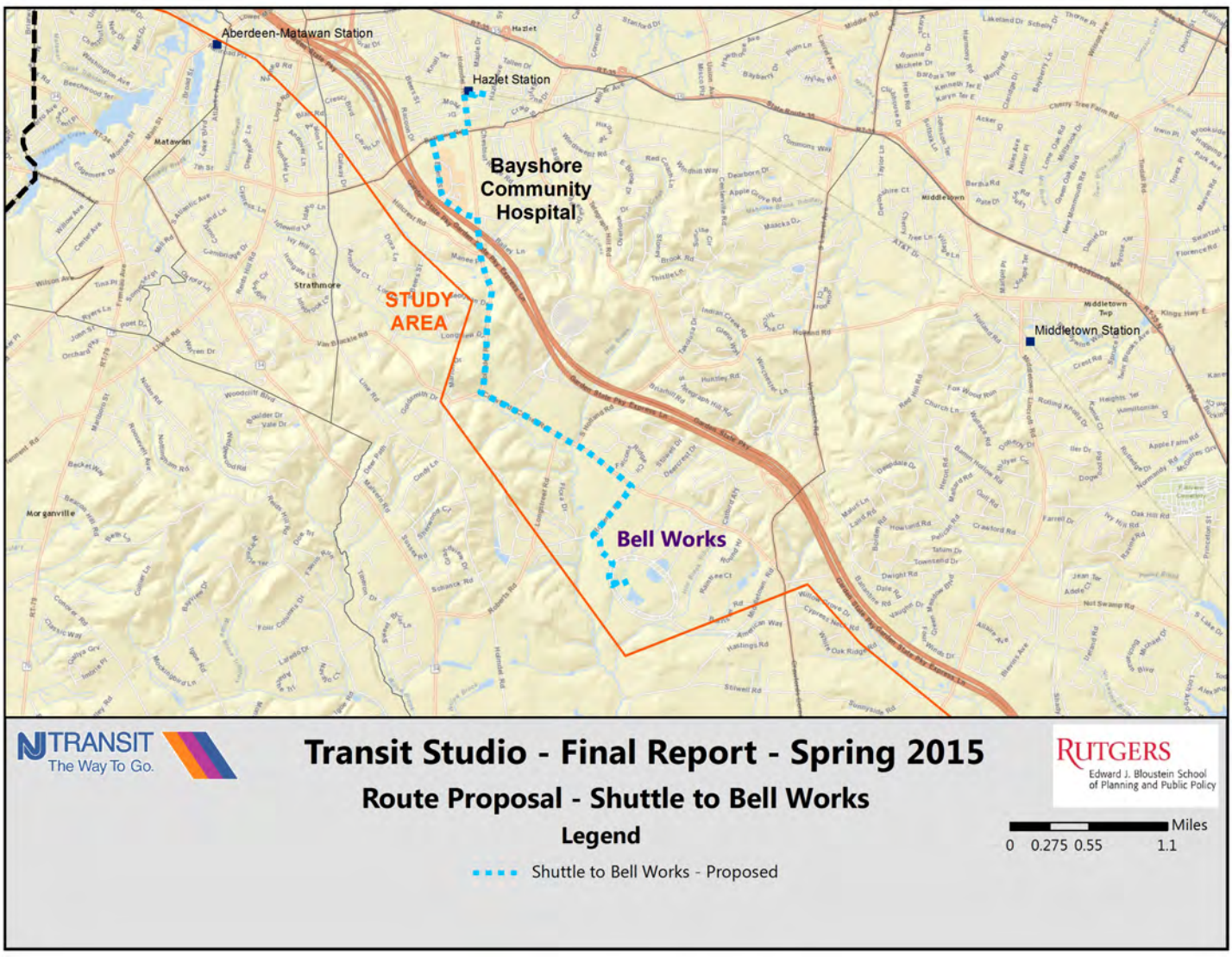
BELL WORKS

The Bell Works site in Holmdel, New Jersey sits on 472 acres, has 1,600,000 square feet of rentable space, and will have a total of 225 homes. 185 of these homes are age restricted, while the remaining 40 homes with be single-family homes with no age restrictions. Given the large number of potential retirees that could live on the site as well as the relative isolation of Bell - Works in the suburbs, it is important to establish links between existing transit service. Shuttle service provides a way to start providing increased access to the site. The Hazlet train station, which lies northeast of the site, provides an optimal location for the shuttle route, as a route from the equidistant Middletown station would face more traffic.



Additionally, the route from the Hazlet station would provide quicker access to the Roberts Road entrance to the site as opposed to the main entrance on Crawfords Corner Road. The map in Appendix III shows the scope of the route and the site itself.

Another justification for the shuttle from the Hazlet station as opposed to the Middletown station is due to the presence of other job sites on the Hazlet route. The Hazlet shuttle route passes the Bayshore Hospital and several medical offices on Holmdel Road and North Beers Street. This would provide additional passengers for the route.



Monmouth County

BELL WORKS

In order for the shuttle to reach both locations, the shuttle would leave the Hazlet station on Holmdel Road, make a right on to Bethany Road, then a left on to North Beers Street to reach the Bayshore Hospital and the medical offices. The shuttle could then continue down South Beers Street and make a right on to Holmdel Road, make a left on to Crawfords Corner Road, and finally make a right on to Roberts Road to enter enter the site.

SHUTTLES

Shuttles for both sites would start by running about once every hour, with a full schedule attached. Service can be added or removed as the sites continue to develop and travel patterns emerge. Given the nature of the development of both the Fort Monmouth and Bell Works sites, both will likely have companies with nontraditional working hours, hence the span of service beyond the "9 to 5" working day. This service would use a community shuttle, which holds 15-26 passengers at a time. If demand for the service increases significantly, both sites may want to consider building bus shelters at their respective locations.

Cost estimates and schedules for both sites can be found in Appendix IV.

EXISTING NEW JERSEY TRANSIT COMMUNITY SHUTTLE

COMMUTER PROPOSAL

CONTENT

06

Introduction

NJ Transit operates many commuter routes currently in the Bayshore Region, including the 116, 131, 133 and 135 routes, as well as other routes operated by Academy Bus Lines. These commuter routes serve a large group of people in the region and enhance the economic competitiveness of the region by bringing in commuters from suburban New Jersey to New York City. While the existing routes successfully serve local commuters, other opportunities exist that may improve the operation of the entire system.

This section features an overview of the different commuter services operated by NJ Transit in the Bayshore Region, the characteristics of current riders. This section also covers the studio group's NJ Transit Express proposal for a new bus terminal and shuttle system to increase frequency and level of service to users. Finally, this section explores alternative funding options to implement service changes.

EXISTING ROUTES

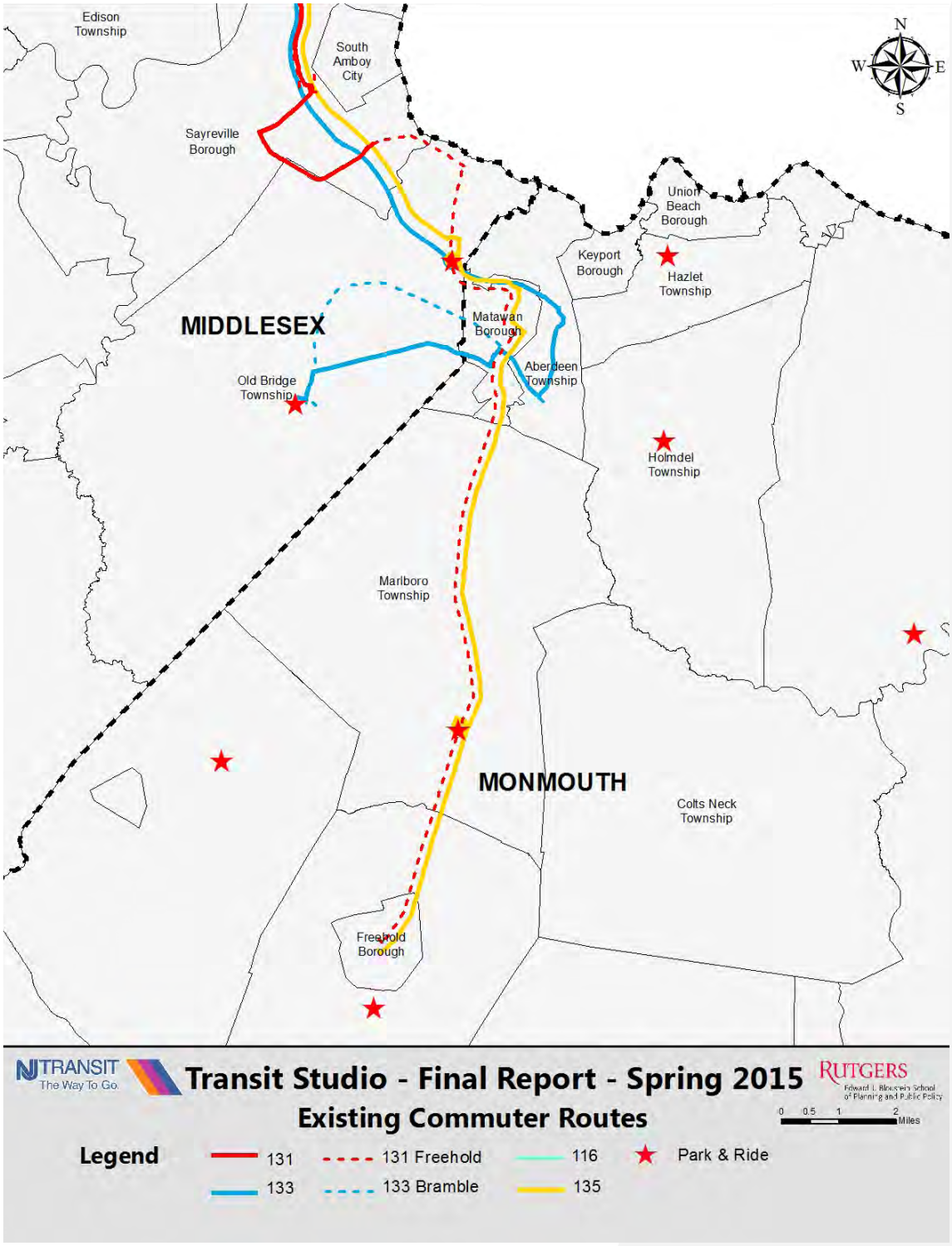
Existing routes include routes 116, 131, 133, and 135, which all travel from locations in the Bayshore Region and terminate at the Port Authority Bus Terminal in midtown Manhattan (see map below).

These routes serve a combined average of almost 2,500 passengers per day, reduce congestion on the major arterials serving central New Jersey, and provide many suburban communities with timely and efficient access to jobs in New York City.

DEMOGRAPHICS

NJ Transit Commuter Route customers traveling from the Bayshore Region tend to be higher income and most commute to New York City on an almost daily basis. The mean income for a commuter in the Bayshore Region is between $77,000, for Route 116, up to $143,000 for Route 135. The average commuter travels to New York City five days a week, with 91% of commuters on Route 131 commuting this often. Additionally, the overwhelming majority of commute route users buy monthly passes, and the majority travel by bus not because it is their only option, but rather because it's the best choice for their trip (NJ Transit Research and Forecasting, 2015).

Given this information, we know that the commuter is a person with more resources than the average transit user. The commute route rider is also more likely to pay a premium for services that they utilize on a daily basis. Finally, such users travel almost exclusively for the purpose of work, and will place high values on both time efficiency and frequency of operation. With this knowledge of the consumer base, we now turn to our proposal for the routes.


Edison Township
South Amboy City
Sayreville Borough
MIDDLESEX
Old Bridge Township
Matawan Borough
Aberdeen Township
Keyport Borough
Union Beach Borough
Hazlet Township
Holmdel Township
Marlboro Township
MONMOUTH
Colts Neck Township
Freehold Borough
N
W
E
S
NJTRANSIT The Way To Go.
Transit Studio - Final Report - Spring 2015
RUTGERS Edward J. Bloustein School of Planning and Public Policy
Existing Commuter Routes
0 0.5 1 2 Miles
Legend
131
131 Freehold
116
Park & Ride
133
133 Bramble
135

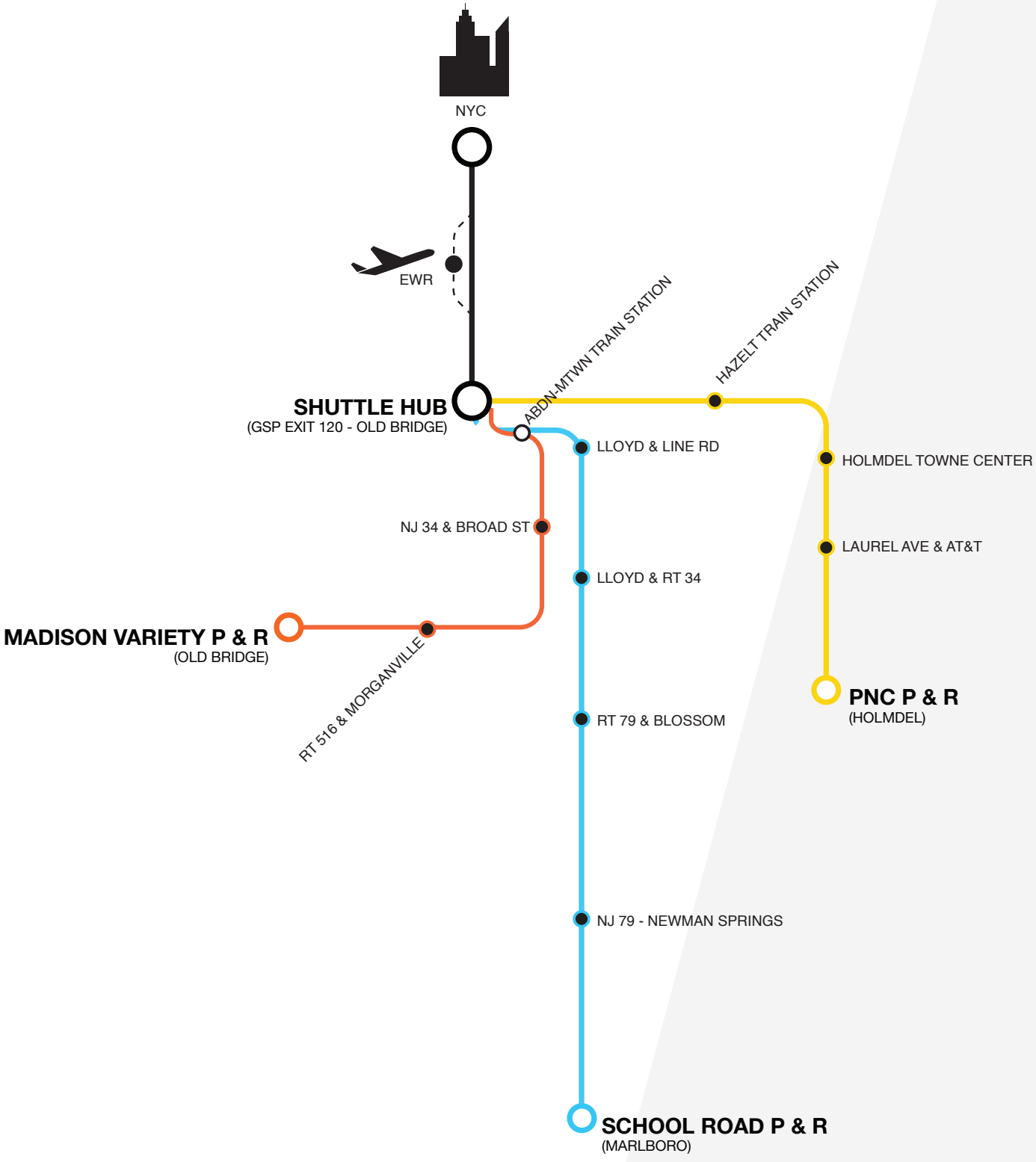
Proposal

As many of the routes travel from the southern area of the Bayshore Region and pass through the Old Bridge area, an opportunity exists to integrate those routes to provide more frequent and comfortable service. Borrowing some of the innovative and comfortable shuttle model from places like the San Francisco Bay Area, we propose to create an entirely new commuter system branded "NJ Transit Express." NJ Transit Express will bring the strengths and level of service of the existing routes, and integrate the final parts of their journeys to New York City into one stream.

With NJ Transit Express, small fuel efficient shuttles will travel to Park & Rides and other key locations in Holmdel, Marlboro, and Old Bridge. They will then travel to a hub terminal in Old Bridge, near Exit 120 on the Garden State Parkway. This will increase frequency, reduce operating costs, optimize labor & vehicle management and increase the attractiveness of commuter service.

The hub would then act a springboard to directly connect the Bayshore Region with New York via commuter buses. To provide both an additional amenity to customers, and a supplemental revenue stream to NJT, those commuter buses would make an additional stop at Newark Liberty Airport.

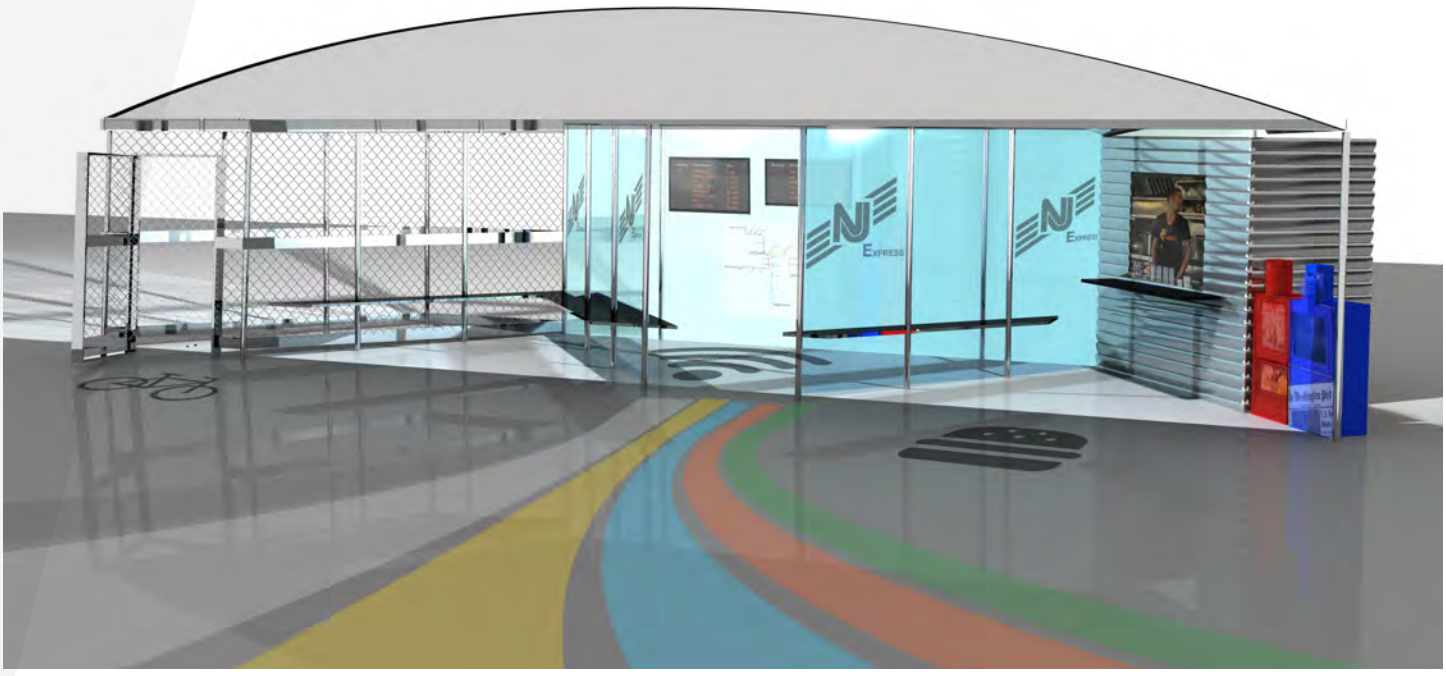
ABOVE: SHUTTLE MOCK UP
RIGHT: POTENTIAL ROUTING STRUCTURE


NYC
EWR
SHUTTLE HUB
(GSP EXIT 120 - OLD BRIDGE)
ABDN-MTWN TRAIN STATION
HAZELT TRAIN STATION
LLOYD & LINE RD
HOLMDEL TOWNE CENTER
NJ 34 & BROAD ST
LAUREL AVE & AT&T
LLOYD & RT 34
MADISON VARIETY P & R
(OLD BRIDGE)
RT 516 & MORGANVILLE
PNC P & R
(HOLMDEL)
RT 79 & BLOSSOM
NJ 79 - NEWMAN SPRINGS
SCHOOL ROAD P & R
(MARLBORO)

Proposal

The full-service terminal is the cornerstone of NJ Transit Express. The bus terminal will be located in Old Bridge, close to new developments. The terminal, which is estimated at a cost of $25 million, will serve as a hub for the region and bring a greater feeling of permanence to bus travel. The completed terminal will simulate the experience of a full service train station, with bathrooms, food, and other services available during commuting hours. While many suburban communities might normally reject the placement of a new bus stop in their neighborhood, the NJ Express terminal will clearly be an asset to the surrounding area, and even enhance property values in the immediate neighborhood.

This terminal will also be flexible, especially because of its location in Old Bridge, which is near the border of Middlesex and Monmouth counties. As commercial and residential development in Sayreville generates possible need for rail service, this bus terminal could easily be converted or amended to accommodate a train station.



ABOVE: TEMPORARY FACILITY MOCK UP DETAIL
LEFT: TEMPORARY FACILITY MOCK UP

Phasing

As this proposal requires a long span of time to construct and operate, as phasing strategy was created. This strategy would allow NJ Transit to both gradually and dynamically plan the service around funding, and customer demand.

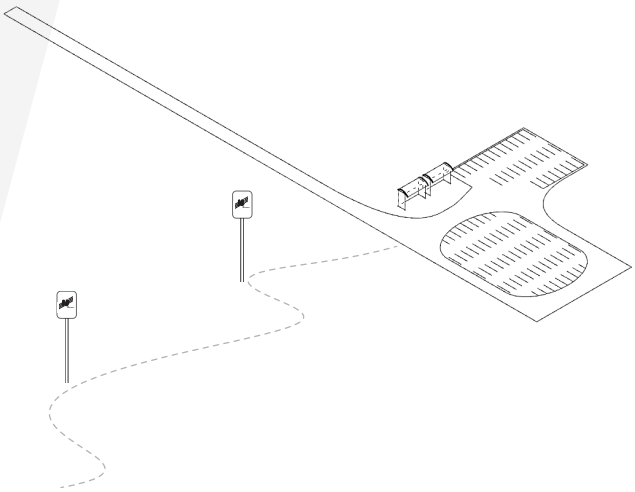
Though beyond this preliminary phasing strategy, additionally measures could be taken to include rail infrastruce creating a multimodal terminal.

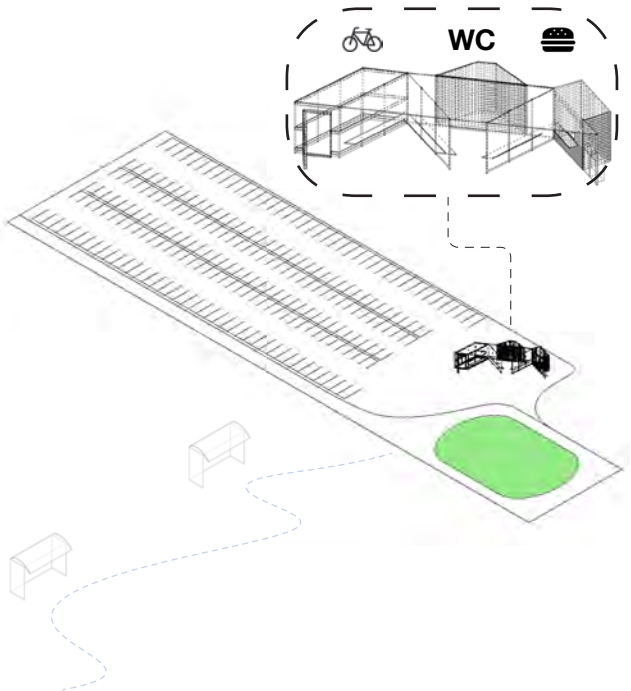
PHASE 1

Phase 1 would cost approximately $485,000 to acquire nine vans to run the service out to the extension areas, and current commuter buses can be used to run the final leg from the Hub to New York City. In this phase, a basic hub and parking lot would be built as well.

PHASE 2

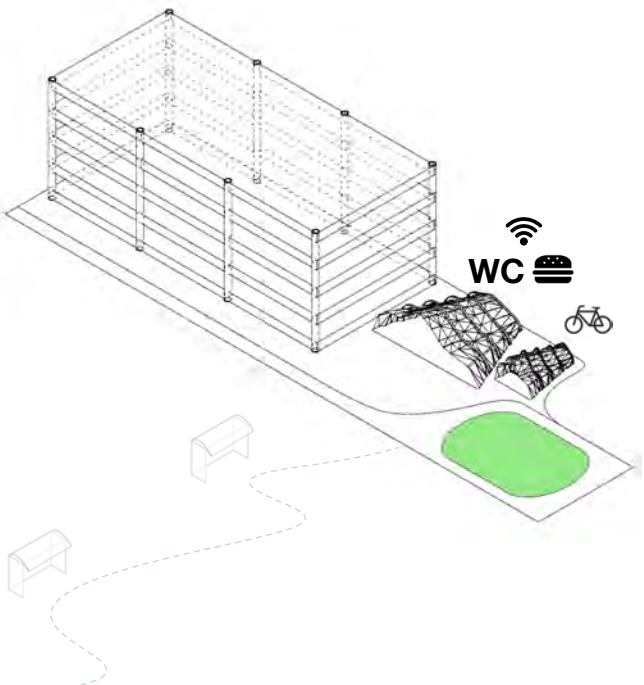
Phase 2 would cost approximately $635,000 to build more permanent bus shelters for the area, as well as improve other aspects of the hub. This phase would also involve expanding existing ground parking spaces.





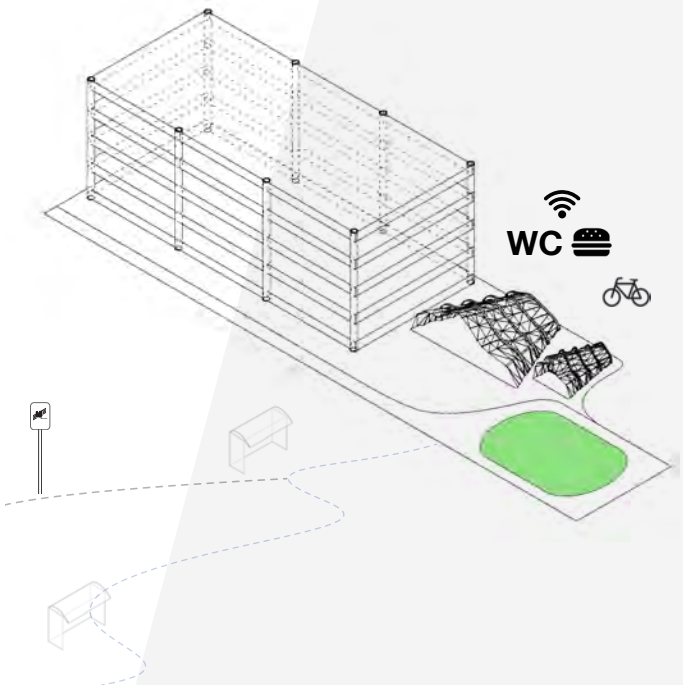
PHASE 3

Phase 3 would cost $25 million to build out the entire terminal, as well as to expand parking into a multilevel parking structure.



PHASE 4A/B

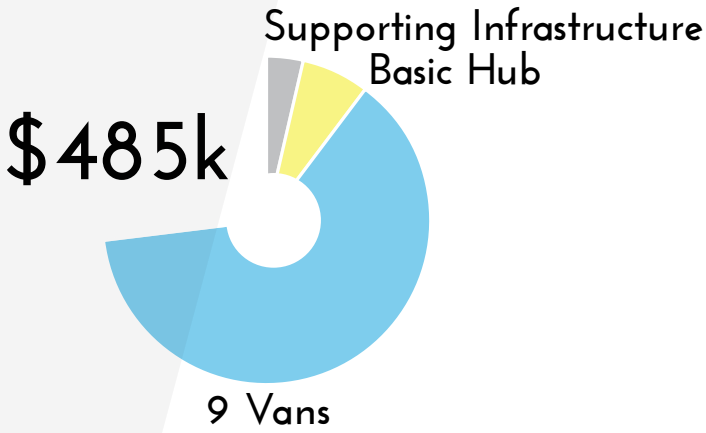
Phases 4a and 4b cost $100,000 and $300,000, respectively. In Phase 4a, two new vans are acquired and new signage indicates any service changes. In Phase 4b, four new vans are acquired and more shelters are built along the routes. Phases 4a and 4b can be repeated and changed as demand needs evolve and further development occurs.



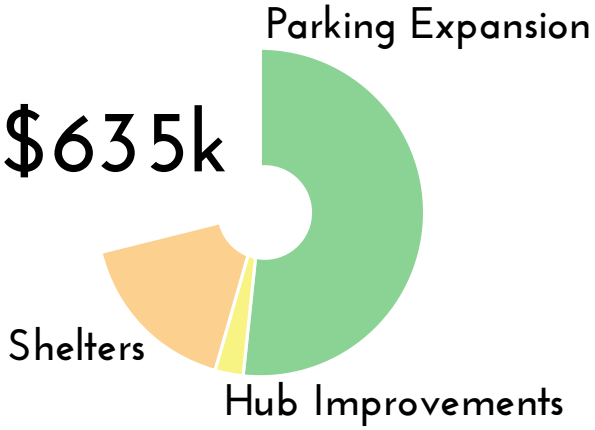
Phasing

Below are several charts roughly breaking down the capital costs. Additional costs could be included in Phase 3 to accommodate additional rail infrastructure.

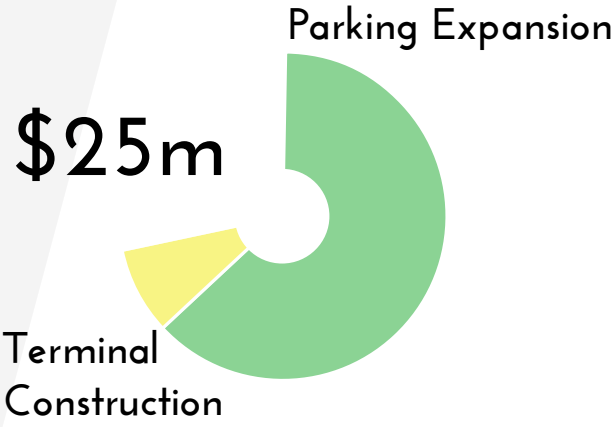
PHASE 1



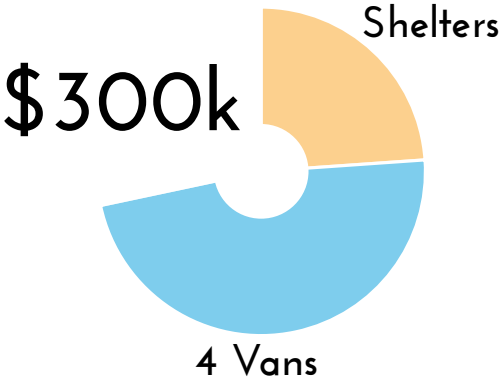
PHASE 2



PHASE 3



PHASE 4B



Funding Strategies

To build large public infrastructure projects under budget constraints, many local governments and agencies have turned to public-private partnerships. These allow for private companies to provide some of the money required to build large and capital-intensive projects, such as a multilevel parking garage. For NJ Transit, partnering with a private entity that could handle the financing and management of the terminal would prove helpful in getting the structure built.

In this public-private partnership (PPP), a private company would raise the capital and manage construction of the terminal for the public agency, in this case NJ Transit. Then, the company works out an arrangement where it leases it back to NJ Transit until it recovers its initial capital investment. This would allow a private company to build the terminal, also, at costs lower than those of a public entity, therefore saving the agency and state money.

Previous examples of PPPs sought by NJ Transit include the Weehawken Ferry Terminal near New York City. For this project, NJ Transit created a proposal and then offered $2.4 million to whichever private company could build and maintain the structure. The City of Chicago has also been successful in contracting out to private companies to manage some of its parking infrastructure, which famously leased 36,000 parking meters for a period of 75 years to Morgan Stanley. This has provided an additional revenue stream to the city, and reduced the amount of personnel costs associated with managing this piece of infrastructure. (See below for an overview of the advantages and disadvantages of public private partnerships for commuter bus terminal construction).

ADVANTAGES

- Reduces upfront capital costs for NJ Transit, which could prove especially difficult to raise in current budget.
- Brings a private partner into the arrangement, which will lend additional technical and financial expertise to the agency.
- Reduces long-term financial risk for NJ Transit and does not rely upon bonds issued by the state.

DISADVANTAGES

- The agency does not retain full ownership of the parking structure for the lease period.
- If the structure does not produce enough revenue, this could shift the lease period longer to the company.
- NJ Transit may lose some revenue to the private company because the company assumes some of the risk associated with the project.

LOCAL BUS PROPOSAL

CONTENT

07

Route 48

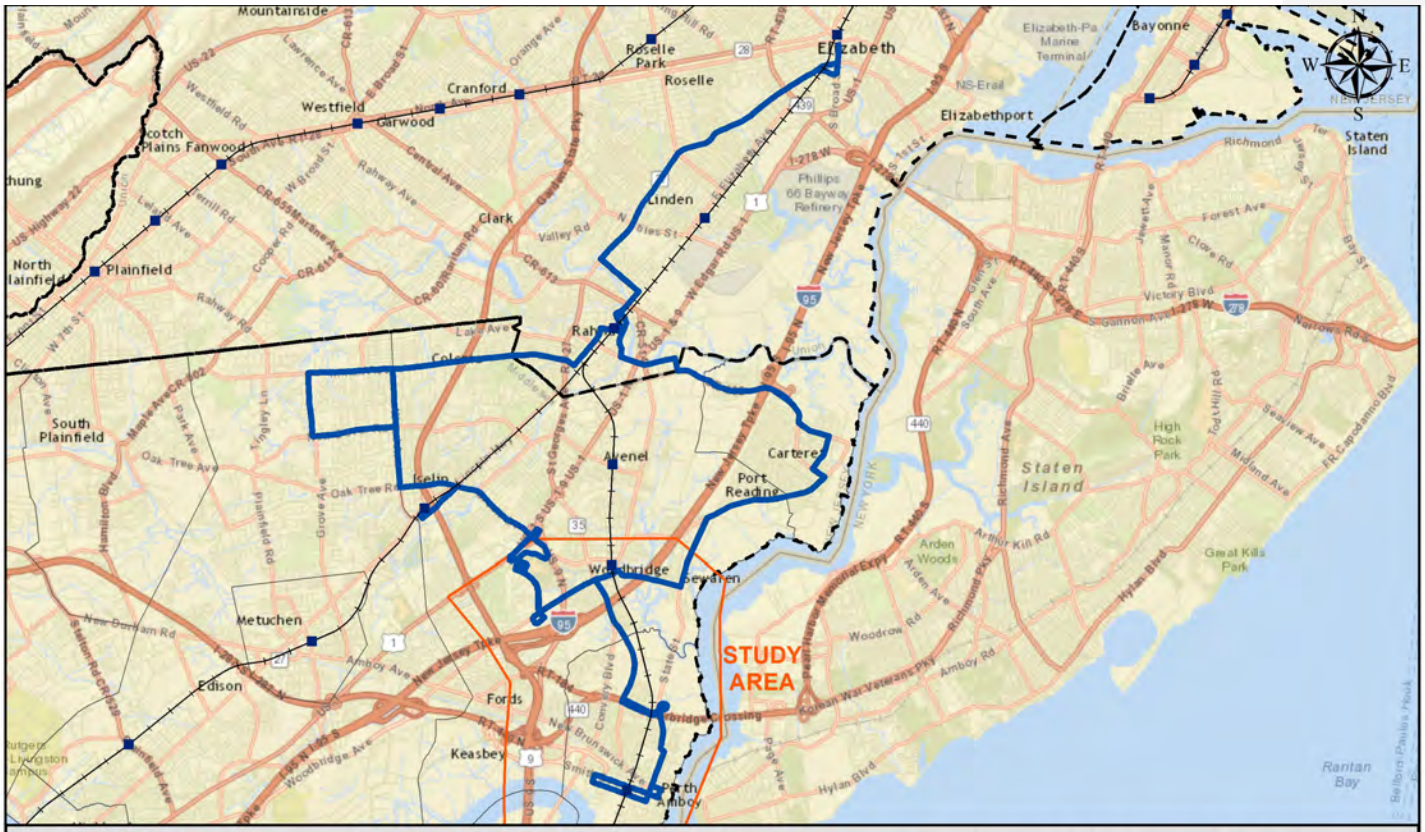
3180 DAILY BOARDINGS

78 DAILY TRIPS

118 WEEKEND TRIPS
SAT + SUN, IF APPLICABLE

116 DAILY SERVICE HOURS

101 WEEKEND SERVICE HOURS
SAT + SUN, IF APPLICABLE



NJ TRANSIT The Way To Go.

Transit Studio - Final Report - Spring 2015

Route Proposal - 48

RUTGERS Edward J. Bloustein School of Planning and Public Policy

Legend

Existing Route

Route 48

SHORT TERM RECOMMENDATION

- Bus Ticket Vending Machines at Perth Amboy rail station, Elizabeth rail station, and Woodbridge Center Mall.
- Clearly distinguish Perth Amboy and Woodbridge Center Mall routes in data collection and analysis

LONG TERM RECOMMENDATION

- Creation of Low Cost Fare Card
- Traffic Signal Prioritization
- Additional Bus Ticket Vending Machines at Woodbridge Township, Carteret, and Rahway

IMPACTS

- Time Savings: 5-10 Minutes Per Trip
- Signal Prioritization: $30k/ intersection
- Smart card vendor: $65k/ stop
- Currency Only Vendor): $13,000

ROUTE DESCRIPTION

The NJ Transit Route 48 is the highest ridership route in the study area, with daily boardings exceeding 3,100 per day. The route provides service along two alternating routes and covers diverse communities ranging from Elizabeth to the north, to Perth Amboy in the south. The first route, identified as the "48 Perth Amboy" runs from Perth Amboy to Elizabeth by way of Rahway, Carteret, and the Woodbridge Town Center. The second route, which serves the north section of Woodbridge Township and terminates at the Woodbridge Center Mall is referred to as the "48 Woodbridge Mall".

Weekday service for the 48 begins at 4:40am with a bus from the Woodbridge Train Station to downtown Elizabeth. At 5:35am 48 Pert Amboy service begins and continues at one hour and twenty minute intervals until the final trip to Elizabeth at 10:54pm and arriving at 12:03pm. Trips headed to Perth Amboy begin at 5:08am and run consistently until 10:33pm with intervals of one hour and twenty minutes.

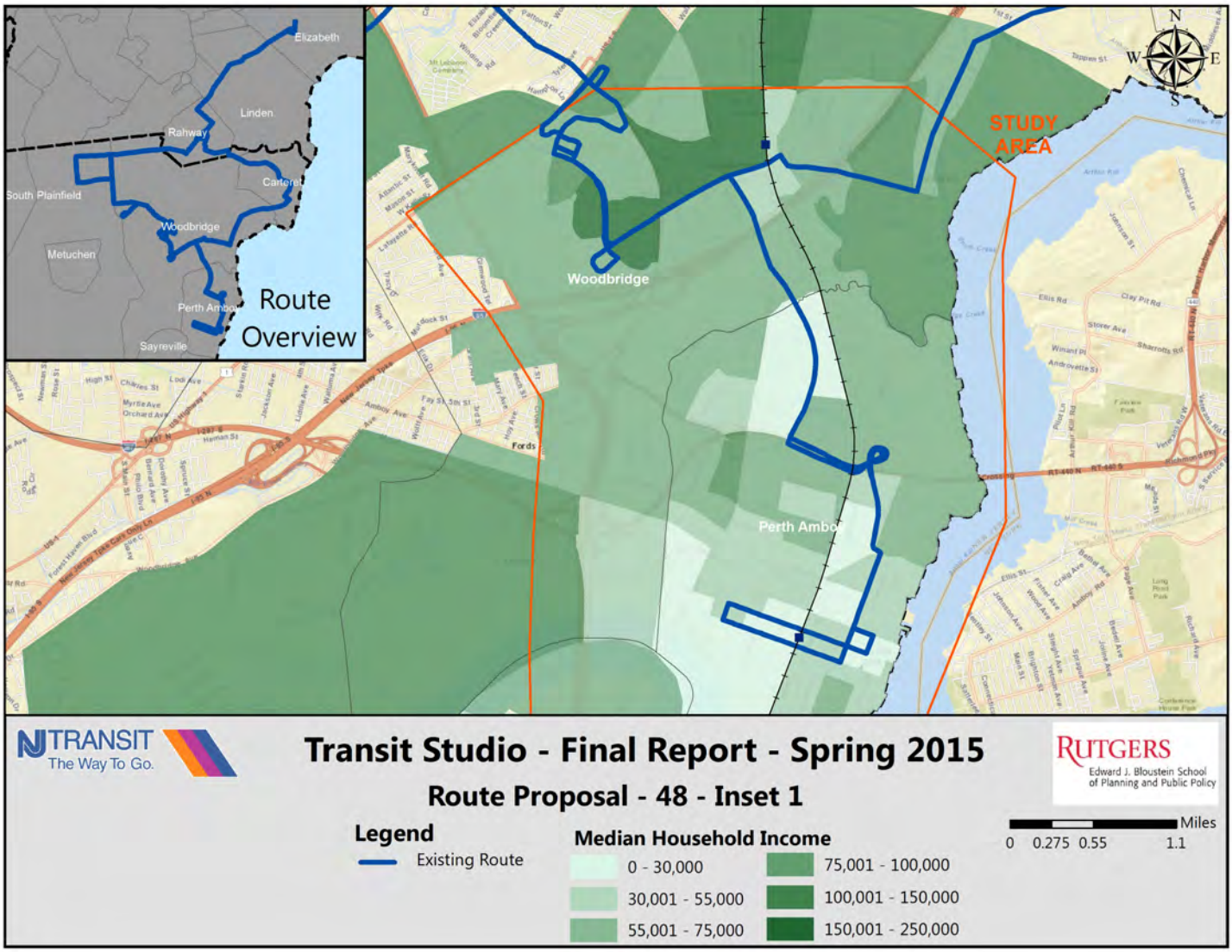
On Saturdays, the two routes terminate at Woodbridge Center Mall meaning that there is no direct service between Perth Amboy and Elizabeth. Direct service is provided from 6:00am to 9:50 am with subsequent trips focused on Woodbridge Center Mall ending at 10:00pm.

Sunday service exclusively uses the 48 Woodbridge Mall routing Woodbridge Center Mall. The first bus from Elizabeth to the mall leaves at 8:00am and with the last bus to the mall departing at 9:13pm. Limited service between Elizabeth and the Rahway Train Station continues through 12:18am.

RIDERSHIP PROFILE

Elizabeth and Perth Amboy, the terminal points for Route 48, both have median household incomes of approximately $44,000 with higher than average bus ridership exceeding 1% of area households. Carteret, Rahway, and Woodbridge Township have higher median household incomes ranging from $58,000 in Rahway to $76,000 in Woodbridge Township.

While Perth Amboy has a visible Hispanic community that accounts for 78.1% of its total population, Rahway and Elizabeth also have "majority-minority" populations. Woodbridge Township, conversely, is 60% White, 10% African American, and 18% Hispanic. Woodbridge also has a very large Asian American community that makes up of 20% of its population.



Route 48

RIDERSHIP PROFILE

Commuter data shows that bus ridership is heaviest in Perth Amboy and Elizabeth. The largely Hispanic majority in Perth Amboy means that NJT serves many riders for whom English is a second language or who have no English proficiency at all. While the riders for both Perth Amboy and Elizabeth can easily be characterized as "Transit Dependent" NJT data shows that these riders disproportionately pay cash and are forced to forgo any discounts on their rides.

In Perth Amboy, there is also a large Hispanic community with riders for whom English is their second language. While these ridership could be easily characterized as "Transit Dependent", they also are effectively premium fare paying riders who pay cash for bus service and do not receive discounts associated with bus passes. NJT estimates that ---- percent of its riders on the route 48 pay cash.

In addition to the demographic characteristics, NJT data shows that approximately 553 passengers of route 48 board the bus at Broad Street and Jersey Avenue everyday. Current operations, above, shows boardings and alights data for the three critical stops on the 48, including Elizabeth.

ROUTE ISSUES

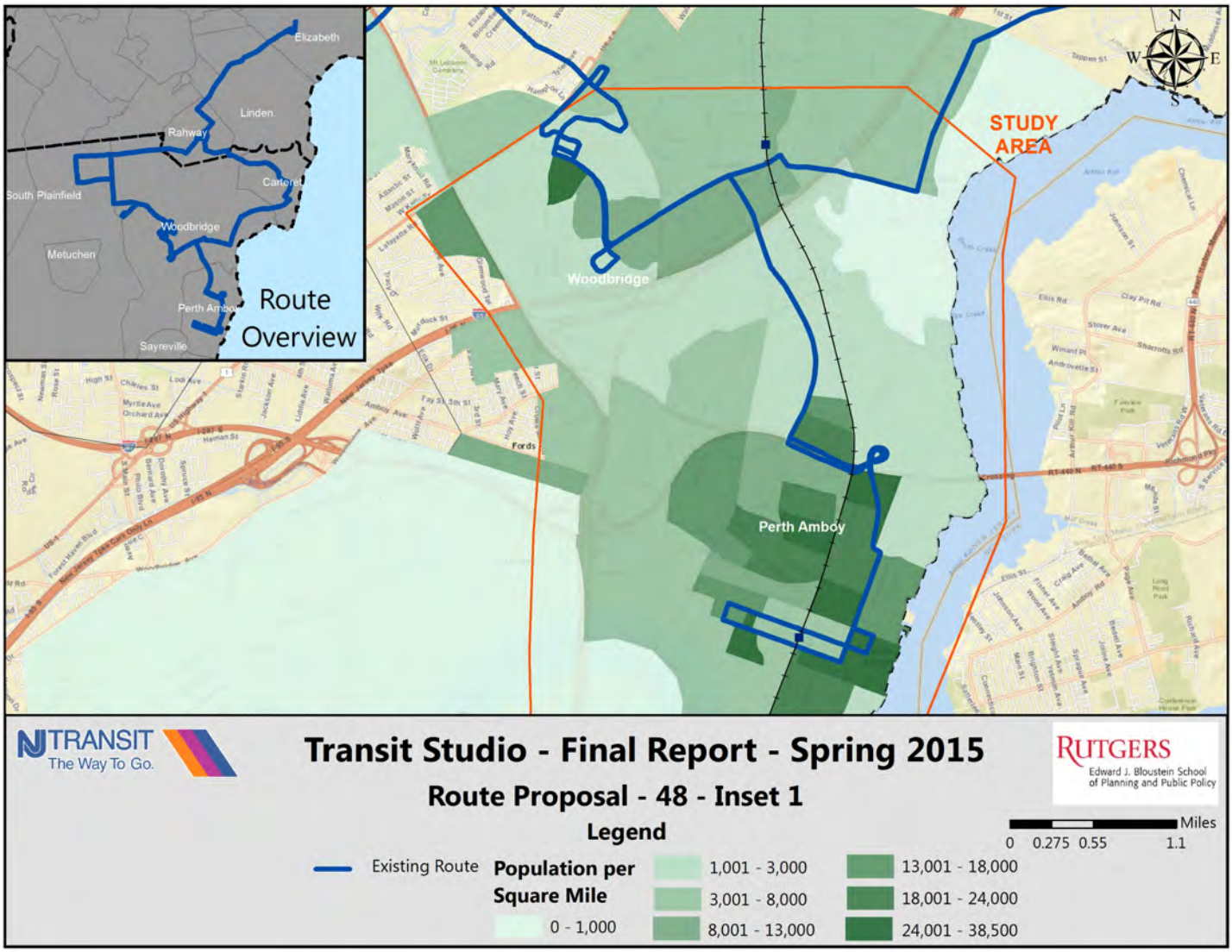
Ridership on the Route 48 is strongest in its northern segments, though much of this is simply due to higher density; the demographics along the 48 Perth Amboy corridor suggest that the current route suffers from its limited service south of Rahway.

Revenue figures for Route 48, are quite strong for a local bus. NJ Transit provides a revenue estimate of $40 per hour the Route 48, however with 80 minute running times, this amounts to $53.30 per trip in revenue and $130.64 in costs per trip, a 40.8% recovery ratio for all trips. This recovery ratio increases to almost 60% when only 48 Perth Amboy trips from the start of service to 5:30 PM are considered. Time savings will have significant benefits on the Route 48, enabling more frequent service with existing equipment. Existing service every 80 minutes is not sufficient to attract riders in the areas the Route 48 serves.

The Route 48 Woodbridge Mall routing is not as strong as the Route 48 Perth Amboy routing. This suggests that it joins two largely independent routes. It appears that service is underutilized on the 48 Woodbridge Mall route, but at the same time, service is insufficient on the 48 Perth Amboy routing. While demographic conditions appear to be unfavorable for local bus service in many parts of Woodbridge, Carterest has several low income areas.

In addition, the high population densities in Carteret are particularly concerning; density (alongside with household income) is a strong predictor of Transit demand, yet while much of Carteret features population densities exceeding 10,000 people per square mile, Carteret is also one of the weaker ridership areas for the Route 48.

The irony here is that the current configuration of the Route 48 actually makes it more difficult to accurately address demand along the two corridors it serves; the route provides valuable service. Several of our stakeholders, including representatives from Perth Amboy and Middlesex County, have identified Carteret as a high impact area where Transit service is particularly limited despite a strong need. Much of the problem here is that while service exists, it is not frequent enough to be useful. Short of adding additional buses to the route, the best available option is to identify ways of shortening running times.



Route 48

SHORT TERM RECOMMENDATION

Bus ticket vending machines are overdue for the Route 48 (and many key stops in the NJ Transit bus system in general) given the heavy ridership levels in the system. It is recommended that ticketing machines be installed in Elizabeth at the intersection of Broad street and Jersey avenue where the majority of 48 riders wait for the bus. Both the 48 Perth Amboy and the 48 Woodbridge Mall routes begin their runs by sitting at their origin point, often for 5 minutes or longer, while waiting for passengers to pay fares. In the current system, buses are late before they even begin their runs.

Off-board fare collection has additional benefits besides improving run times; LEP passengers often have an easier time using a multi-language TVM compared to communicating with a bus driver, and information can be more easily presented through visual interfaces such as TVMs. Woodbridge center mall is also a clear candidate for installation of bus TVMs, as a number of lines converge at this location, including the Route 48.

Off-board fare collection, however, should not be the only element in this process. Exact change payment requires 3.6 to 4.3 seconds per passenger on average. By comparison, pre-payment requires only 2.25 to 2.75 seconds (up to 52% savings), with smart cards averaging 3.0 to 3.7 seconds. Off-board fare collection, on its own, increases service desirability, reduces operating costs through reduced running times, and improves the Transit experience for LEP groups.

OFF BOARD FARE PAYMENT COLLECTION (PHOTO PROPERTY OF AMNY)

LONG TERM RECOMMENDATION

The primary long term recommendation for ticketing at NJT is the development of a low cost but permanent fare card for NJT bus riders. Modeled after fare cards being developed and implemented across the globe, a low cost card would allow the 61% of route 48 riders who pay cash to receive discounted travel. Presently, according to NJT, these riders receive no discount on their trips. The most important metric provided by NJT is that 0% of route 48 riders use the ten trip commuter ticket while 31% use the monthly pass. This reflects the need for fare options that provide discounts and the digital payment of fares at lower cost than both the monthly pass and even the 10 trip commuter pass. Providing an array of low cost ticketing options could potentially reduce the fare, however the experiential improvements should attract new ridership.

Finally, NJT should consider the use of signal prioritization to reduce the time lost at traffic signal. Studies have found that time savings of 10-15 minutes have been regularly reported for these systems.

BUS SMART CARD (PHOTO PROPERTY OF GOVTECH.COM)

Route 810

895 DAILY BOARDINGS

33 DAILY TRIPS

48 WEEKEND TRIPS
SAT + SUN, IF APPLICABLE

33 DAILY SERVICE HOURS

48 WEEKEND SERVICE HOURS
SAT + SUN, IF APPLICABLE

NJ TRANSIT The Way To Go.

Transit Studio - Final Report - Spring 2015

Route Proposal - 810

Legend

Existing Route

RUTGERS Edward J. Bloustein School of Planning and Public Policy

Miles
0 0.325 0.65 1.3

Route 810

SHORT TERM RECOMMENDATION

- Implementation Phase: Bus Ticket Vending Machines at New Brunswick Train Station, Menlo Park Mall, Woodbridge Center Mall

IMPACTS

- Time Savings: 11-15 Minutes Per Trip
- Smart card vendor: $65k/ stop

ROUTE DESCRIPTION

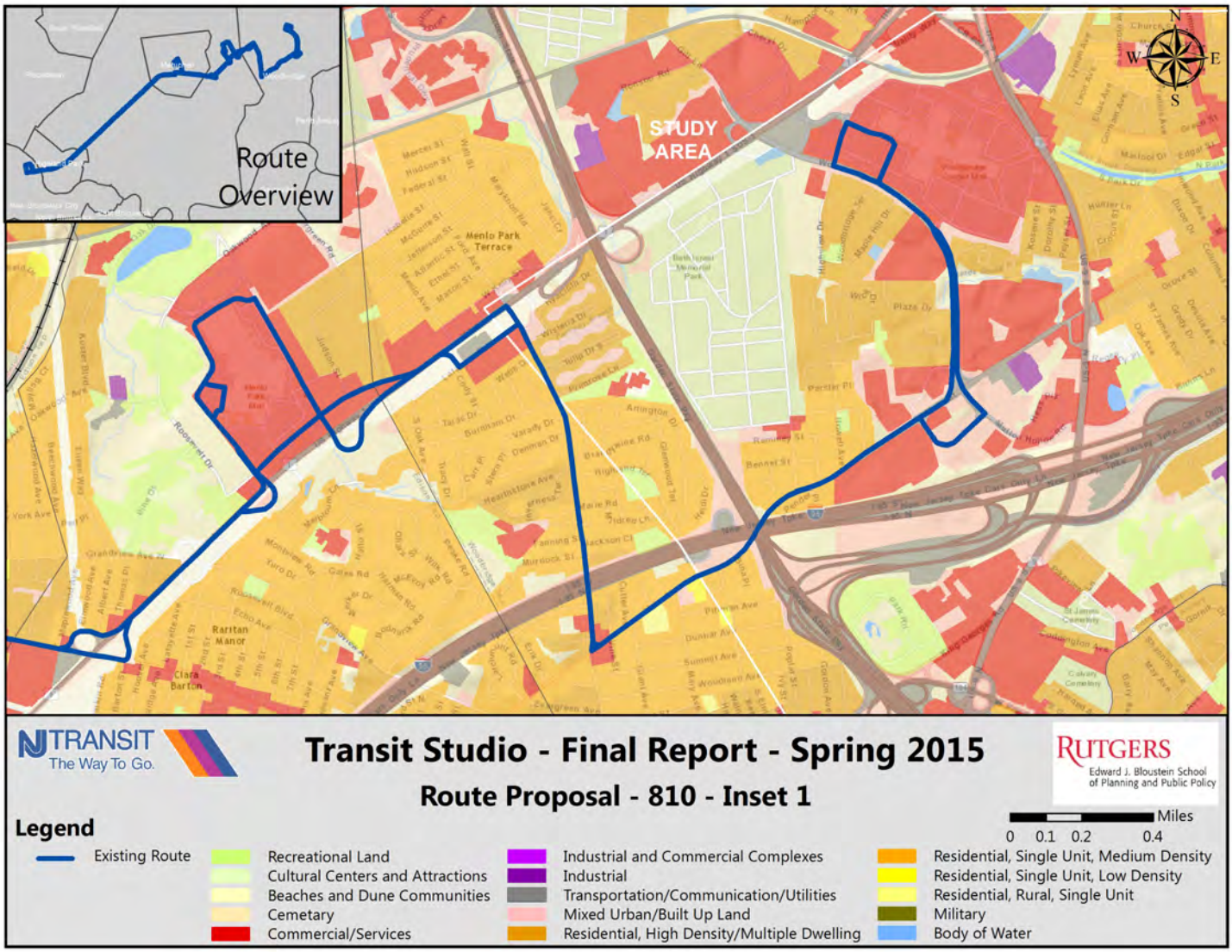
NJ TRANSIT's 810 Route serves a corridor that runs from New Brunswick to Woodbridge Center Mall. The 810 also provides service to Edison, Metuchen, and Menlo Park Mall. Eastbound and westbound service begins at 6:00 AM, with both running until 9:00 PM and a final westbound trip providing service to 10:00 PM. There are no alternate routes and the schedule is consistent throughout the day.

On Saturday and Sunday, the trip times and headways are identical to those provided during the week with later start times and earlier ending times for service. On Saturday, the first bus begins an hour later then weekday service at 7:00am. On Sunday, the first and last buses to Woodbridge Center Mall are at 10:00am and 5:00pm respectively. Sunday service to New Brunswick starts at 11:00am and concludes at 7:30pm.

RIDERSHIP PROFILE

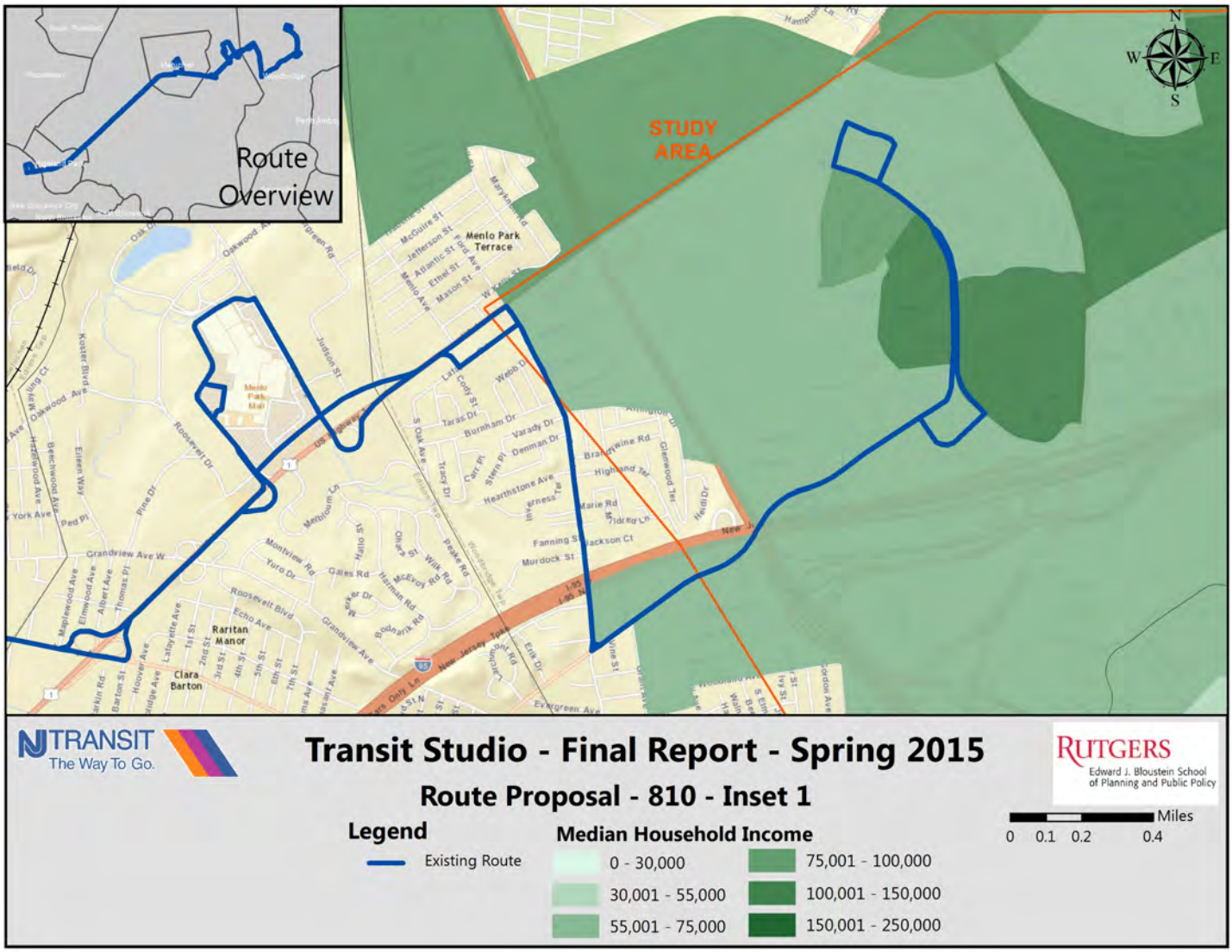
The 810 Route serves a diverse assortment of riders and commuters that visibly includes work commuters, individual riders, families, the elderly, and Rutgers students. New Brunswick train station is a key multimodal anchor for the line, providing connections to MCAT bus service, several other NJ TRANSIT bus routes, the NJ TRANSIT Northeast Corridor Line, and even limited intercity Amtrak service.

New Brunswick is characterized by its position as the home of Rutgers University. However, the city has a reported population of 55,000 that is over 75% Minority. Hispanic Americans account for 50% of the population while African Americans and Asian Americans account for 16% and 7.6% respectively. Median household income for New Brunswick was $39,901; the 810 serves vibrant communities along much of its route, and its operational figures are indicative of a strong local service; weekday trips average 27.5 boardings per hour, which, coupled with maximum loadings averaging only 16 passengers, shows that most trips only cover a segment of the route.



Route 810

Metuchen has a median household incomes of $103,000 and median owner occupied properties are valued at $387,000. While this is not the average bus transit demographic in the U.S., Metuchen also serves as a retail point along the route that also includes direct access to the Metuchen rail station. Menlo Park Mall and Woodbridge Center Mall provide the final two destinations for the 810 Route. Weekday Riders to these points include shoppers and mall employees. NJ TRANSIT data shows that 131 passengers board at Menlo Park Mall while 137 passenger alight there. At Woodbridge Center Mall, 92 passengers board.



ROUTE ISSUES

The 810 Route has high ridership; while it does not have overall ridership levels that match the 813 and 48, it operates on a clear corridor with high demand throughout, and its running time already allows hourly service at all times of day using two buses. Current service is hampered by excessive delays due to several factors, most notably passenger boarding. On-time performance is a serious concern; only 3 weekday trips were on time 85% of the time or more in September 2014, while six were on time less than 50% of the time in the same period. Even small benefits to running time will yield improvements to on time percentages with the current timetable.

Neighborhood routes such as the 810 thrive on consistent on-time performance, and usually see ridership suffer when that service is not provided; it is possible that even small gains to performance could have strong positive revenue and ridership impacts, as more passengers are willing to use the route for longer trips (higher number of trips and higher revenue per trip).

SHORT TERM RECOMMENDATION

As noted above, the primary short term recommendation for Route 810 is the provision of bus ticket vending machines at the New Brunswick rail station at Somerset and George Street, the Metuchen rail station at Main Street and Woodbridge Ave, Menlo Park Mall, and Woodbridge Center Mall. The pilot program machine(s) at Woodbridge Center Mall would serve both the 810 and 48 lines along with other routes, lowering the costs of providing the infrastructure at that location for each route since the benefits are split (in actuality, these TVMs would serve all routes at Woodbridge Mall).

With the implementation of bus ticket vending machines at Woodbridge Center Mall and other locations, the 810 will be one of the routes benefiting from that service and providing measures on how trips times are impacted.

Route 813

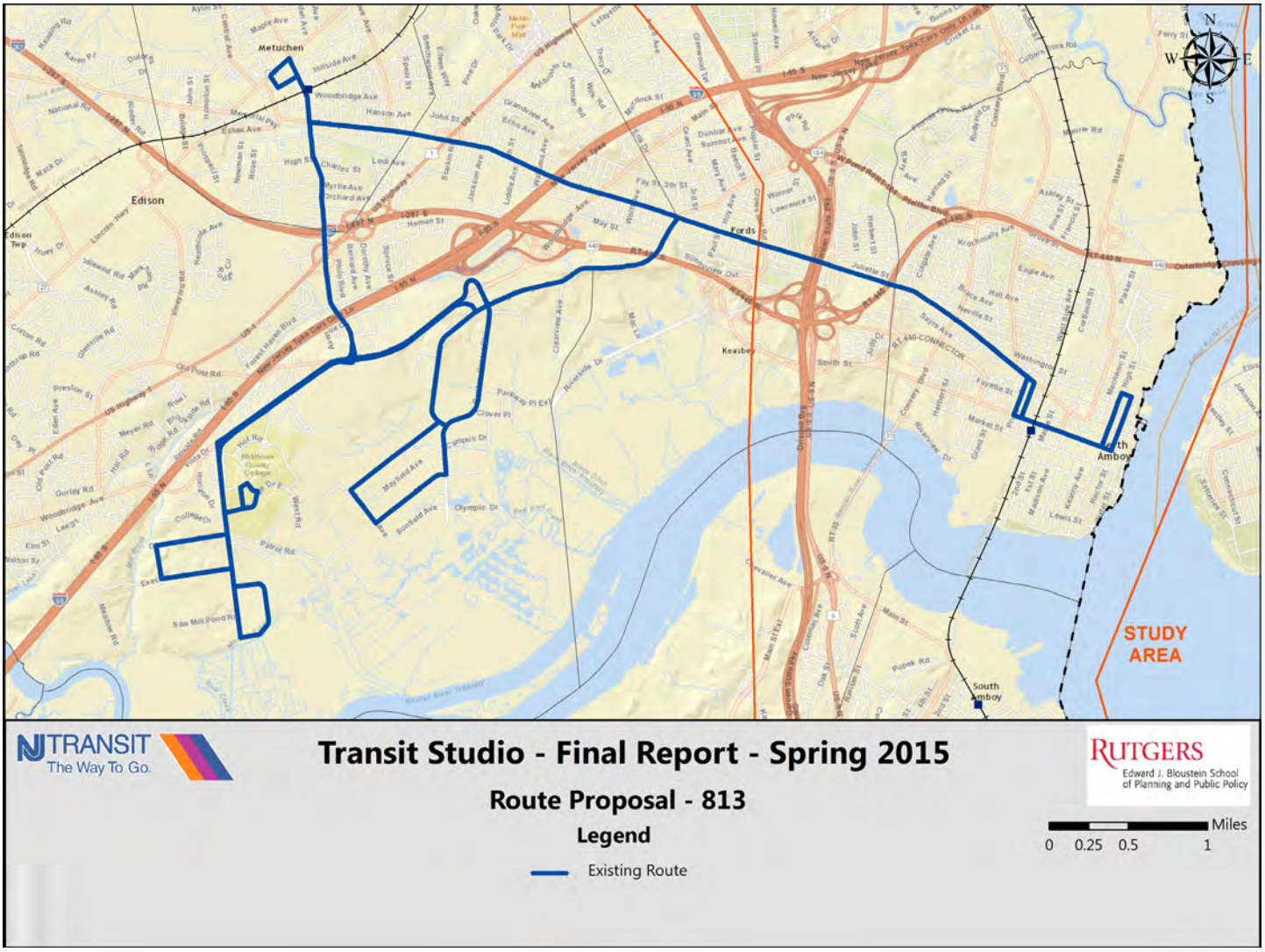
1132 DAILY BOARDINGS

41 DAILY TRIPS

21 WEEKEND TRIPS
SAT + SUN, IF APPLICABLE

41 DAILY SERVICE HOURS

12 WEEKEND SERVICE HOURS
SAT + SUN, IF APPLICABLE


Metuchen
Edison
Fords
Keasbey
South Amboy
STUDY AREA
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NJTRANSIT
The Way To Go.
Transit Studio - Final Report - Spring 2015
Route Proposal - 813
Legend
Existing Route
RUTGERS
Edward J. Bloustein School of Planning and Public Policy
Miles
0 0.25 0.5 1

Route 813

SHORT TERM RECOMMENDATION

- Traffic Signal Priority should be incorporated for the industrial park areas near Middlesex County College.
- Bus Ticket Vending Machines at Middlesex County College.
- Evaluate Small shuttle service

IMPACTS

- Time Savings: 3-4 Minutes Per Trip
- Signal Prioritization: $30k/ intersection
- Smart card vendor: $65k/ stop

ROUTE DESCRIPTION

Route 813 runs from the corner of Rector Street and Washington Street in Perth Amboy to Middlesex County College in Edison. The route serves Metuchen, Edison's Raritan Center and the Heller Industrial Park in route to the Middlesex County College. The runtime per trip is 49 minutes and trips run from 6:00am to 10:00pm every weekday.

Route 813's Saturday service provides service to Middlesex County College from 7:00am to 11:30am. After 11:30am service terminates at Metuchen before returning to Perth Amboy. This limited service runs from 1:00pm to 6:00pm. There is no Sunday service for route 813.

Service to Heller Industrial Park is limited to four trips per day on weekdays. The first two occur on the outbound trip from Perth Amboy at 8:15 and 6:50. The remaining two trips occur on the 3:30pm and 5:15pm inbound trips returning to Perth Amboy.

RIDERSHIP PROFILE

The 813, like the 810 Route, serves a diverse population. Middlesex County College is the primary stop on Route 813. Passenger loading on the 813 tends to be highest in Woodbridge and New Brunswick, with heavy boarding and alighting activity in these areas as well as Metuchen and Middlesex Community College. Rider reviews corroborated this; Middlesex College was a significant source of passengers on weekdays. The 813 route, in addition to its other roles, provides vital access service for Middlesex County College, which had 12,064 credit students and 20,000 non-credit students spread over its three campuses in 2014.

Perth Amboy has a median income of $44,000. Only 1% of its residents commute to work by bus on a regular basis. Over 70% of the population is Hispanic, which makes Perth Amboy a "majority-

minority" community. Perth Amboy also hosts sites for Middlesex County College which is located near Perth Amboy's vocational high school and has an enrollment of approximately 800 students. The 813 Route is a vital link for many of Middlesex County College's students, providing valuable service to and from major communities in the area to campuses.

ROUTE ISSUES

The primary issue facing Route 813 is the marked drop in Saturday ridership. During the morning runs there are few riders on the route. This falls in line with the heavy usage from Middlesex Community College students; demand for these types of services is often lower on weekends than weekdays. The maximum loadings for the AM Peak period on Saturdays is roughly 10, dropping to approximately 5 riders per trip in the afternoon. Boardings per hour, however, remain relatively high, averaging 17.3 per hour across all Saturday trips, which, coupled with the low maximum loadings, suggests that many of the trips are shorter, with passengers discharging and boarding en route. This suggests that the 813 has significant levels of demand along its other segments on Saturdays, while demand to and from Middlesex Community College is naturally lower.

SHORT TERM RECOMMENDATION

Given the low ridership levels for Saturday trips, we recommend use of smaller equipment on Saturdays. While the 813 Route was the subject of a similar study last year that concluded the 813 would benefit from express service on weekends, we believe that the high number of short trips that the Saturday 813 buses generate may indicate the need for the 813 to remain at least in part a local route.

In addition to the lack of ridership, NJ Transit has the opportunity to improve the already short runtimes for route 813 by utilizing signal priority at the nearly empty cross streets that lead up to the college. This area is entirely industrial but includes several traffic stops that increase trip time. The immediate expenses on infrastructure can be offset through the improvements to operational factors such as running time and operational cost.

Route 815

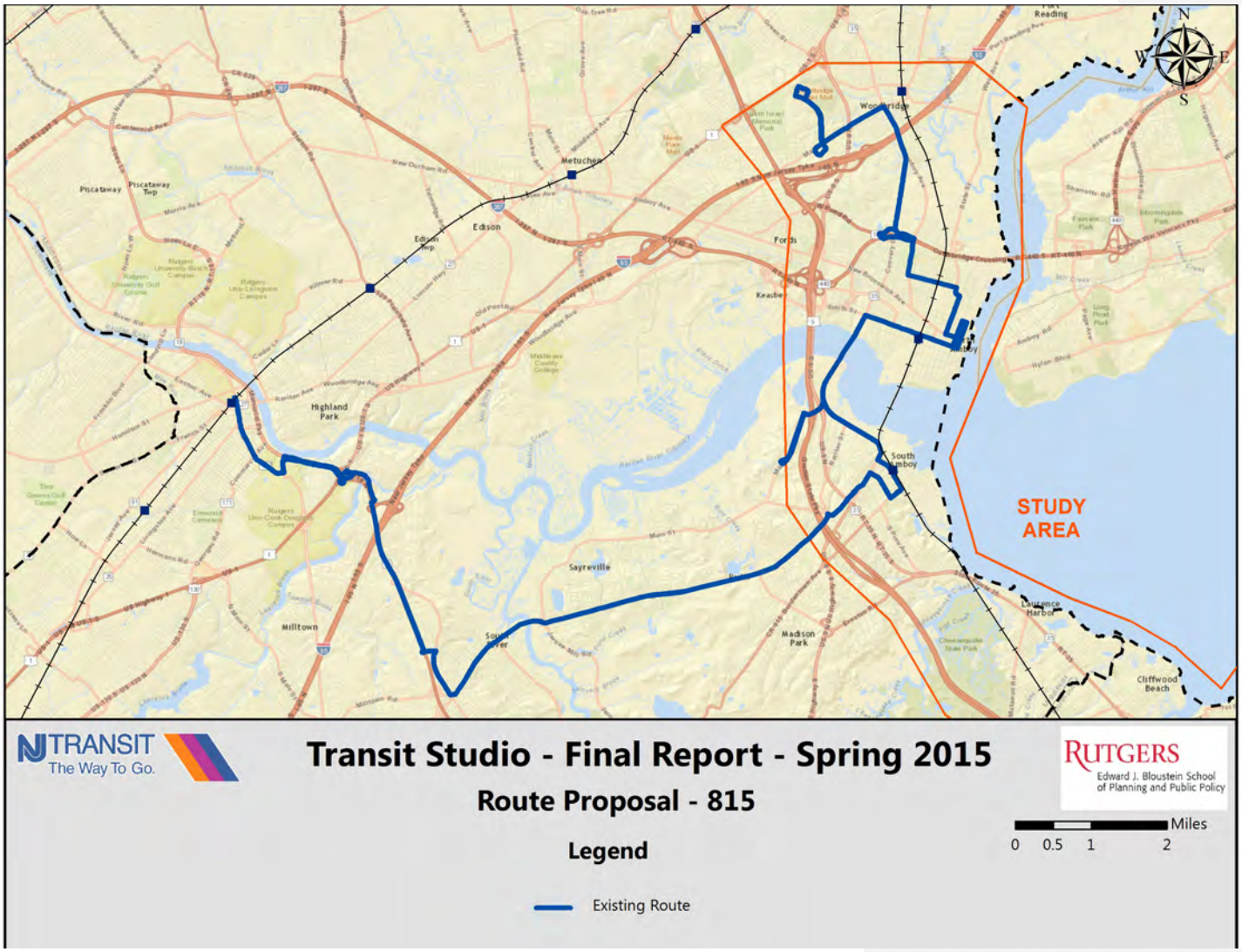
1534 DAILY BOARDINGS

51 DAILY TRIPS

38 WEEKEND TRIPS
SAT + SUN, IF APPLICABLE

72 DAILY SERVICE HOURS

69 WEEKEND SERVICE HOURS
SAT + SUN, IF APPLICABLE


Reading
Woodbridge
Metuchen
Piscataway
Piscataway Twp
Edison
Edison Twp
Fords
Keasbie
Highland Park
South Amboy
STUDY AREA
Sayreville
Milltown
Madison Park
Cliffwood Beach
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NJTRANSIT
The Way To Go.
Transit Studio - Final Report - Spring 2015
Route Proposal - 815
Legend
Existing Route
RUTGERS
Edward J. Bloustein School of Planning and Public Policy
Miles
0 0.5 1 2

Route 815

SHORT TERM RECOMMENDATION

- Divert route to Old Bridge Turnpike from Route 18
- Serve Route-35 prior to terminating at Woodbridge Center Mall

IMPACTS

- No new capital costs.
- Ridership Increase

ROUTE DESCRIPTION

The 815 Route is a northern local route operated by NJ Transit between New Brunswick, East Brunswick and Woodbridge Center Mall on weekdays, Saturdays and Sundays. On weekdays, service is hourly and runs from about 6 AM to the last run ending around 11:30 PM to New Brunswick. On weekends, this route operates on 75-minute headways, from 8 AM to 11:40 PM on Saturdays and 8:48 AM to 8:58 PM on Sundays. The route is currently operated by NJ Transit

Buses operate from the New Brunswick Rail Station via George Street, then Route 18 southbound to Ferris Street, then westward through South River to Sayreville along Main Street and Washington Road offering connections to the North Jersey Coast Line at South Amboy Rail Station and Perth Amboy station. From Perth Amboy, the vehicles use local arterial roads to Woodbridge Township before terminating at Woodbridge Center Mall. Outbound buses do the complete opposite.

RIDERSHIP PROFILE

Ridership on the 815 is consistently high and is one of the busiest routes in Middlesex County. There appears to be lower ridership on short trips from Woodbridge Mall to Perth Amboy than on other buses, though this can be explained in part by the smaller number of destinations served by these buses.

The most heavily utilized stops on the 815 are as follows:

- **George Street/New Street/Liberty Street**
(58 WKD Boardings – 52 WKD Alightings)

- **George Street/Paterson Street**
(112 WKD Boardings – 71 WKD Alightings)

- **Midstate Mall**
(59 WKD Boardings – 60 WKD Alightings)

- **Rail Station at Somerset Street**
(60 WKD Boardings – 76 WKD Alightings)

- **Woodbridge Center Mall**
(195 WKD Boardings – 190 WKD Alightings)

These five stops accounted for around one-third of the total daily weekday boardings (34.75%) and alightings (30.94%). Passenger traffic appears to be heaviest heading from New Brunswick. Inbound trips experience slightly lower ridership; given that there are several different bus routes in this corridor, it is possible that some passengers use one route in one direction, and another for reverse trips.

ROUTE ISSUES

The study group found that the 815 is generally a strong route, but has some room for improvements. In particular, the outbound routing from New Brunswick serves Mid-State Mall in East Brunswick, but passengers are forced to cross Route 18 – a busy, high speed state road - to access the mall. In addition, there are gaps in coverage along Route 35, which is only partly covered through existing 815 service. Finally, passengers boarding in New Brunswick or Perth Amboy tend to ride the route in its entirety, 90 minutes, which is typically a 20-minute car ride. With an abundance of long trips, it's possible that improving the bus' effectiveness as a major east-west connector could yield significant benefits.

SHORT TERM RECOMMENDATIONS

In the short term, the studio recommends that the 815 route be altered at several key points. First, Route 815 should divert to the Old Bridge Turnpike instead of continuing along Route 18. This would allow for passengers to access Mid-State Mall without having to cross the highway portion of Route 18, as well as serving commercial services along Old Bridge Turnpike. A map of this reroute is available in Appendix V.

Second, The Route 35 corridor is partially served by the 815 and no other bus serves the northern portion of the corridor. An alignment that better features Route 35 would be beneficial, due to higher employment density in this area. On average, 50 weekday passengers would be affected by this diversion. A map of this reroute is available in Appendix V.

Finally, the studio recommends an additional evening trip leaving Woodbridge Center Mall to accommodate employees who may end their shift when the mall closes at 9:30 and employees along the RT-35 corridor who have later shifts as well. Mileage along the route will remain generally unchanged (as will running time), however this new routing will better serve communities in the area.

MEDIUM TERM RECOMMENDATIONS

In the medium term, the studio recommends implementation of an express route between New Brunswick and Perth Amboy, which would operate only at limited stops. Our stakeholders have repeatedly identified the need for improved east-west service; unfortunately, the distance from the North Jersey Coast Line to the Northeast Corridor line increases dramatically south of Perth Amboy, as the Bayshore communities run southeast for some distance.

Route 817

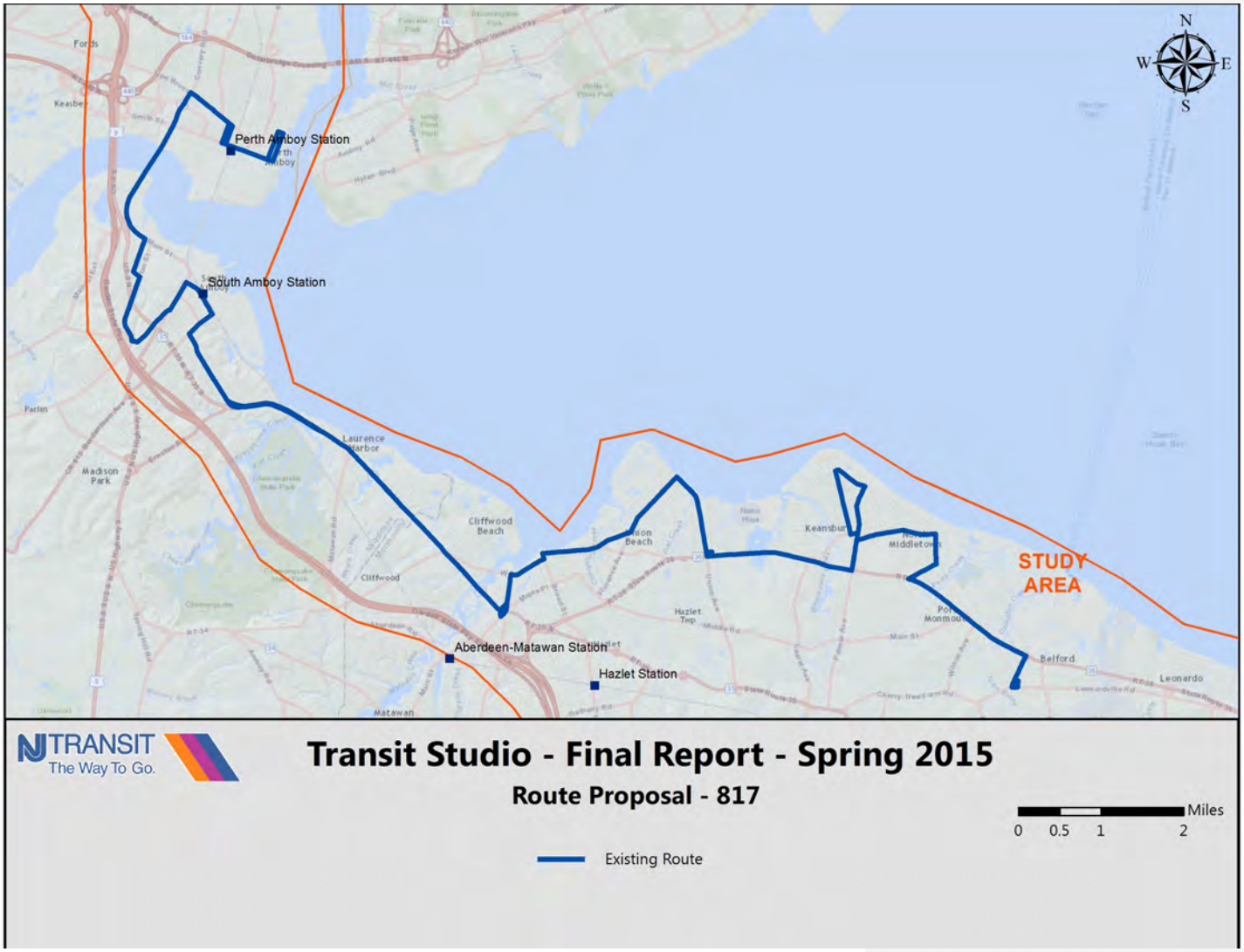
488 DAILY BOARDINGS

28 DAILY TRIPS

25 WEEKEND TRIPS
SAT + SUN, IF APPLICABLE

41 DAILY SERVICE HOURS

37 WEEKEND SERVICE HOURS
SAT + SUN, IF APPLICABLE


N
W
E
S
Perth Amboy Station
South Amboy Station
Laurence Harbor
Cliffwood Beach
Cliffwood
Aberdeen-Matawan Station
Hazlet Station
Matawan
Keansburg
Belford
Leonardo
STUDY AREA
NJTRANSIT
The Way To Go.
Transit Studio - Final Report - Spring 2015
Route Proposal - 817
Miles
0 0.5 1 2
Existing Route

Route 817

SHORT TERM RECOMMENDATION

- Divert to the Route 35 Corridor in Middletown Township.
- Extend from Campbell's Junction to the Highlands
- Extend hours of operation

IMPACTS

- 10% Ridership Increase
- Capital Cost: $280,000 (1 Bus)
- Operating Cost: Increases by 61% or $744,000 due to additional PM trips and physical route expansion

ROUTE DESCRIPTION

The 817 route is the successor of the former Middlesex Bus Company's Route 7, which traveled much of the same route as the current 817. However, the former Route 7 was later discontinued between Keansburg and Campbell's Junction, a segment that is still served by the Route 817 today. The 817's current operating hours and frequency are largely the same, but with additional service offered on Saturday, service the historical Route 7 did not have.

The 817 Route currently operates on the North Jersey Coast along the Raritan Bay and Sandy Hook Bay between Perth Amboy and Campbell's Junction in Middletown Township. Service operates on weekends and Saturdays, with hourly headways from 5:00 AM until 6:00 PM on weekdays and a more limited 6:00 AM to 5:00 PM service on Saturdays. The route currently operates under contract by Academy Express, LLC.

This route begins at Rector and Washington Streets in Perth Amboy and ends at Campbell's Junction. The route has a scheduled one hour and fifteen minute runtime.

RIDERSHIP PROFILE

Ridership on the 817 is light, however it serves a critical link between the Amboys and Middletown area that would otherwise be devoid of local bus service. By serving the many municipalities along the Northern Jersey Coast, many residential and employment areas are served, providing area passengers with critical, lifeline transit service. The potential to grow ridership also exists along this route, as the area recovers from Hurricane Sandy and new development sites start to take shape.

The 817's five most heavily used stops were as follows:

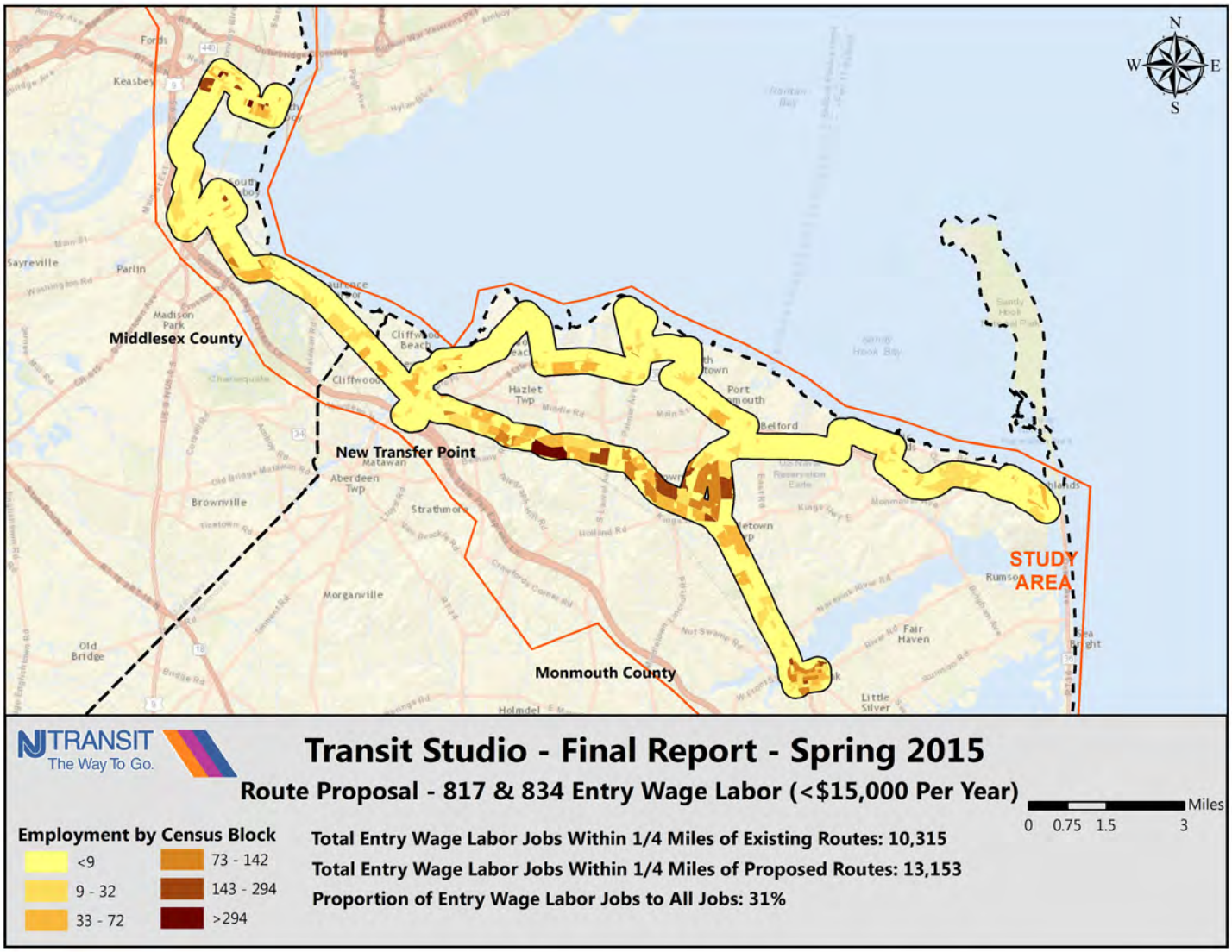
•Campbell's Junction; Middletown
(26 daily boardings, 43 daily alightings)

•South Amboy Rail Station
(26 daily boardings, 22 daily alightings)

•Broad St at Front St; Keyport
(14 daily boardings, 20 daily alightings)

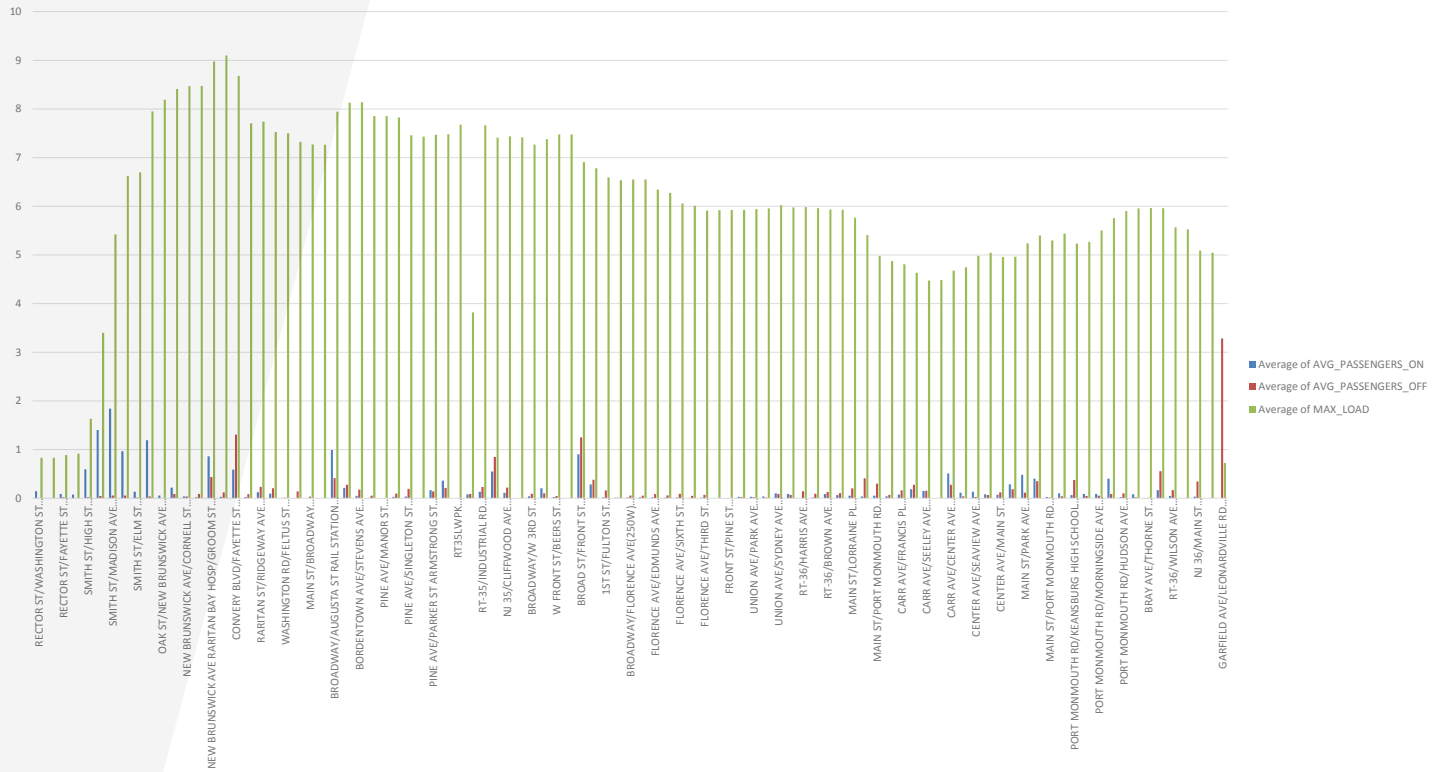
•Smith St at Madison Ave; Perth Amboy
(29 daily boardings, 1 daily alighting)

•Smith St at State St; Perth Amboy
(1 daily boarding, 28 daily alightings)

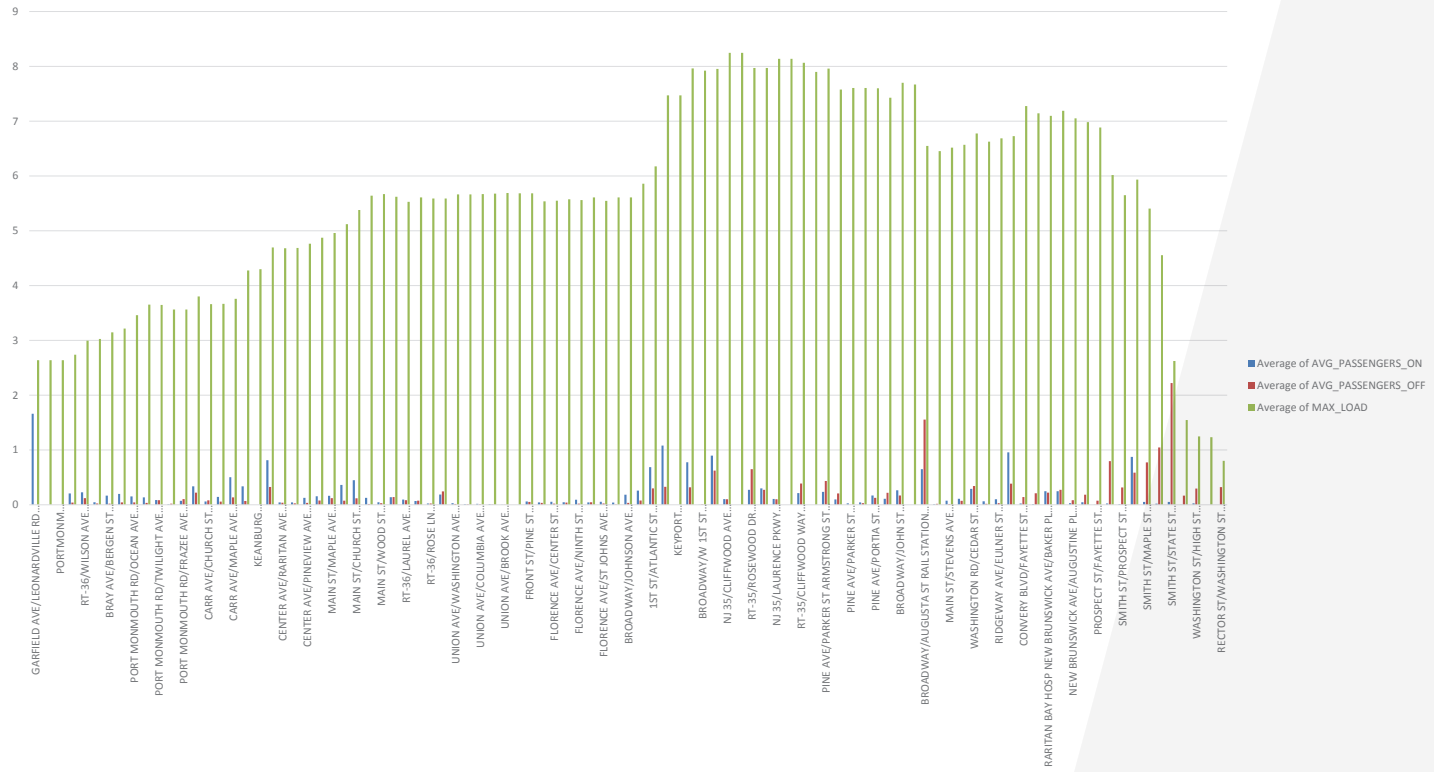


Route 817

817 RIDERSHIP - INBOUND



817 RIDERSHIP - OUTBOUND



Route 817

ROUTE ISSUES

Stakeholders stressed the importance of improving connections to employment centers in order to attract more riders. While the 817 currently serves many office, retail, and industrial sites along Route 36, it circumvents many employment sites farther down Route. This stretch of Route 35 from Keyport to New Monmouth Road in Middletown houses several shopping centers that collectively represent hundreds of jobs, primarily in the retail sector. Omitting corridor is a critical loss; research has consistently shown that individuals with lower-paying jobs, like those found in the retail sector, have a relatively higher likelihood to use public transit to get to and from work (HuffPost). Despite the untapped ridership potential of the Route 35 corridor, it is important to keep in mind that the current 817 route serves many residential and downtown areas.

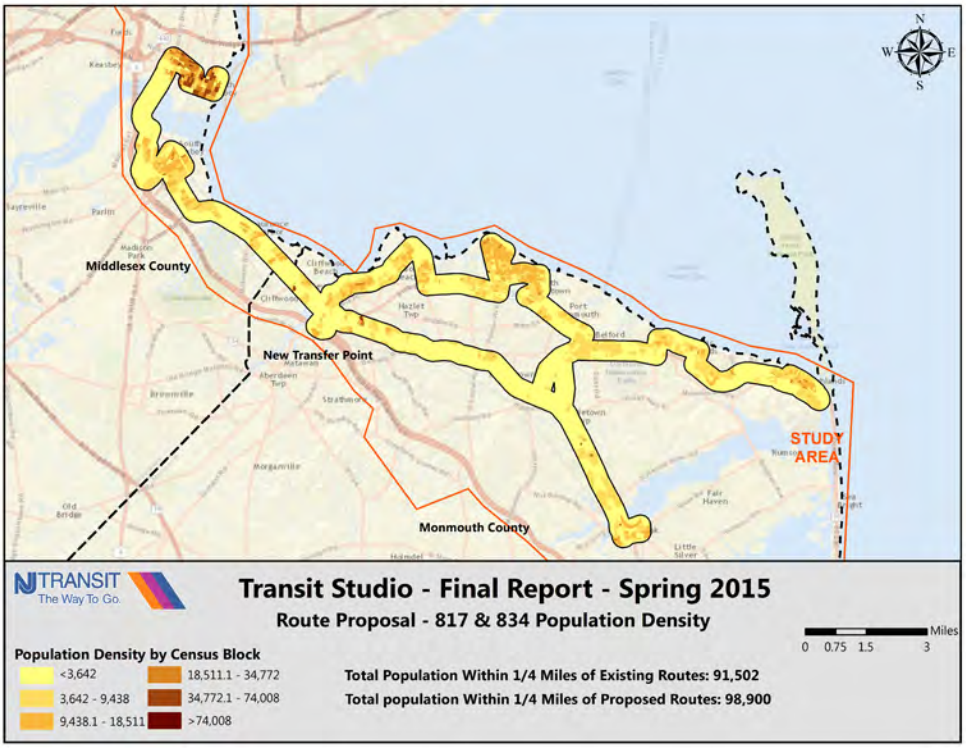
SHORT TERM RECOMMENDATION

In order to improve access to the employment sites along the Route 35 corridor south of Keyport, our recommendation is to reroute the 817 to this corridor. By doing so, the many retail employers along Route 35 would be connected with transit service to the rest of Route 35 farther north towards the Amboys. This would also decrease the travel time of the route as the Route 35 alignment would allow for higher travel speeds than the current Route 36 alignment and its associated deviations to serve the downtowns and residential areas of Keyport, Union Beach, and Keansburg. However, by rerouting the 817, service to these key areas would be sacrificed, which is not recommended. Due to the significant residential population and existence of employment sites in this area, it is advised that bus service still be provided along the Route 36 corridor.

To reconcile the existing route with the proposed route, we recommend an alteration to Route 834 service which currently operates between the Red Bank rail station and the Highlands (see Route 834 section for more information). In conjunction with this change of the 834 route, route 817 would not only serve the Route 35 corridor, but would continue down Route 35 and turn left to travel north on New Monmouth Road, serve Campbell's Junction and serve the Campbell's Junction to the Highlands branch of the current 834 route. While this extension of Route 817 would increase the total travel time, it is counterbalanced with the reduction of time from rerouting buses to the Route 35 corridor. Therefore, the total runtime would be 91 minutes, an increase of only 15 minutes beyond the current 76 minute runtime.

In order to maintain hourly headways, it is recommended that NJ Transit operate an additional vehicle for the 817 service. This would require a total of four (additional?) buses due to the proposed increase in distance and runtime. This is warranted for two reasons - relatively low maximum passenger loads, and allow for an increase in span of service. We propose to increase the span of service in order to adequately serve and attract the many retail employees that work within a quarter mile of the new 817 alignment. This increase in span of service would expand the current evening operating hours from 6 PM to 9 PM, with the last bus departing its origin at 9 PM.

These changes to the 817 route would result in an estimated $745,000, or 61% per year increase in operating costs; however it should be noted that much of this additional cost is attributed to the extension serving the Highlands along the current route 834 that we are proposing to reroute. By realigning route 817 while still serving the communities along the Route 36 corridor (see Route 834 section below), it offers tremendous potential to increase and grow local bus ridership in North Jersey Coast area, potentially offsetting some of the cost increase.


Middlesex County
New Transfer Point
STUDY AREA
Monmouth County
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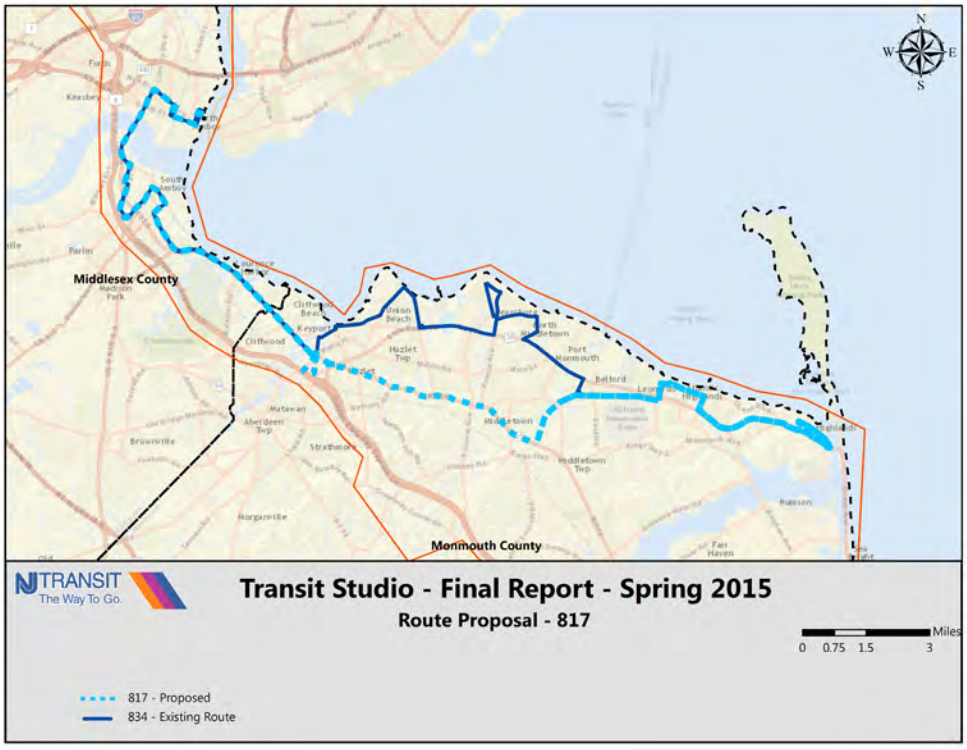
NJTRANSIT
The Way To Go.
Transit Studio - Final Report - Spring 2015
Route Proposal - 817 & 834 Population Density
Miles
0 0.75 1.5 3
Population Density by Census Block
<3,642
3,642 - 9,438
9,438.1 - 18,511
18,511.1 - 34,772
34,772.1 - 74,008
>74,008
Total Population Within 1/4 Miles of Existing Routes: 91,502
Total population Within 1/4 Miles of Proposed Routes: 98,900


Middlesex County
Monmouth County
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The Way To Go.
Transit Studio - Final Report - Spring 2015
Route Proposal - 817
Miles
0 0.75 1.5 3
817 - Proposed
834 - Existing Route

Route 831

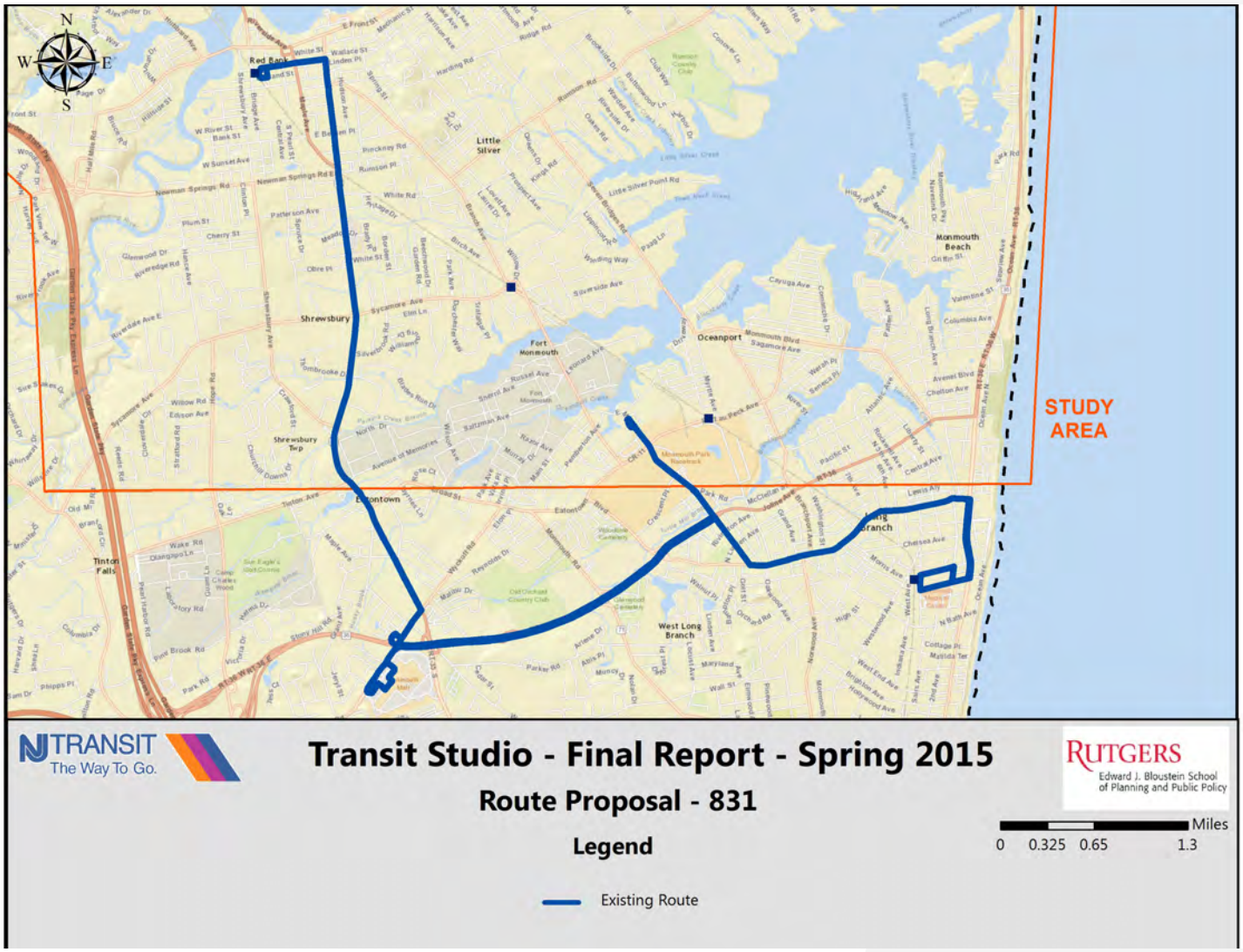
514 DAILY BOARDINGS

26 DAILY TRIPS

40 WEEKEND TRIPS
SAT + SUN, IF APPLICABLE

26 DAILY SERVICE HOURS

31 WEEKEND SERVICE HOURS
SAT + SUN, IF APPLICABLE


N
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STUDY AREA
Red Bank
Little Silver
Shrewsbury
Shrewsbury Twp
Fort Monmouth
Oceanport
Monmouth Beach
Long Branch
West Long Branch
Tinton Falls
Eatontown
NJTRANSIT
The Way To Go.
Transit Studio - Final Report - Spring 2015
Route Proposal - 831
Legend
Existing Route
RUTGERS
Edward J. Bloustein School of Planning and Public Policy
Miles
0 0.325 0.65 1.3

Route 831

SHORT TERM RECOMMENDATION

- Relocate Monmouth Mall stop
- Add additional evening round-trips on Weekdays and Saturdays

IMPACTS

- 3-5% Ridership Increase
- Capital Cost: $10,000 for new stop
- Operating Cost: Additional $105,000 / year for new PM trips

ROUTE DESCRIPTION

As with the other Red Bank hub routes, there have been few changes made to the 831 route since NJ Transit began managing the service, and the route is largely unchanged from its pre-NJ Transit routing as Boro Buses' 1 Route. The primary change to the 831 has been the long-term transition of the route from a peak-hours commuter service under Boro Buses, into an hourly local bus route. Service under Boro Buses' was during peak hours only, though shortly after NJT takeover, service was expanded during midday hours, while lowered during the AM and PM peaks, resulting in the current hourly service.

The 831 Route operates between Red Bank and Long Branch through Monmouth Mall on weekdays and Saturdays, and between Long Branch and Monmouth Mall only on Sundays. The route runs from 6 AM to 7 PM with hourly headways on weekdays, with a later starting time on Saturdays, and with later starting and earlier service closing on Sundays. The route currently operates under contract by Transdev.

The route operates from the Red Bank Rail Station via Monmouth Street, then south on Broad Street to Wyckoff Boulevard, and continues south to reach Monmouth Mall. From there, the route continues south down Route 36 before joining Broadway (County Route 537), then shortly turning south on Ocean Avenue before turning west on Morris Avenue to reach the Long Branch Train Station. Northbound buses reverse this, but use Pavilion Avenue in downtown Long Branch instead of Morris Avenue.

RIDERSHIP PROFILE

Ridership on the 831 is modest but stable; the route is the second busiest of the five main Red Bank hub bus routes (831-835), with a total 14,188 trips in October 2014. As with other Red Bank routes, most activity tends to take place at a small number of key stops. The 831's five most heavily used stops were as follows::

•Monmouth Mall
(79 daily boardings, 79 daily alightings)

•Red Bank Rail Station
(67 daily boardings, 56 daily alightings)

•Broadway/3rd Avenue
(65 daily boardings, 5 daily alightings)

•Long Branch Rail Station
(55 daily boardings, 11 daily alightings)

•Route 36/K-Mart
(11 daily boardings, 30 daily alightings)

These five stops accounted for 53.8% of daily boardings and 35.2% of daily alightings. Passenger traffic appears to be moderate in both directions throughout the day, though it appears that more passengers use northbound buses than southbound buses. Ridership on the route is stable, with an average of 20 boardings per hour; however the first southbound trip of the morning (departing Red Bank at 5:50 AM) averages only 5 daily trips, which is significantly below the average for the route.

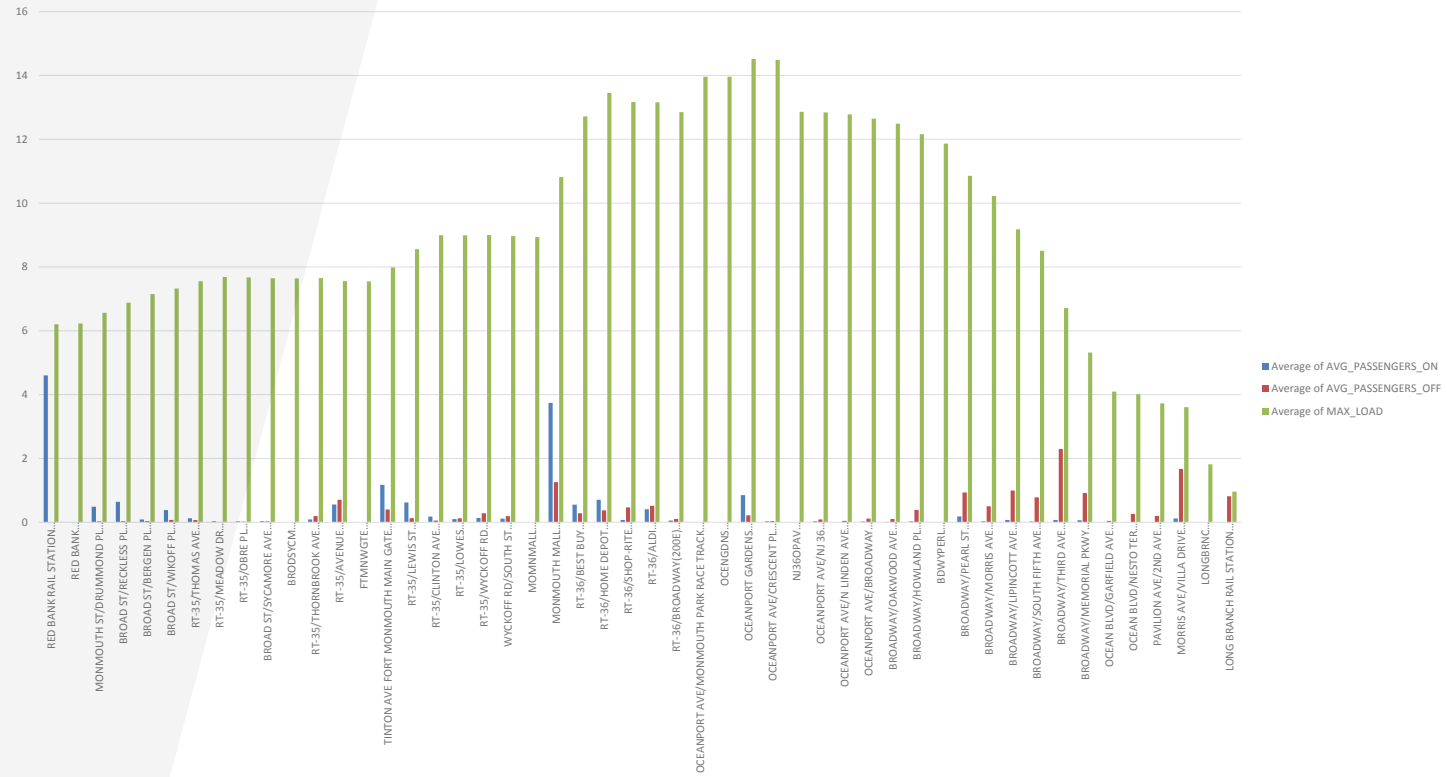
Heavier loadings occur on the Monmouth Mall-Long Branch segment of the 831; Monmouth Mall is a key loading/unloading point for the route.

ROUTE ISSUES

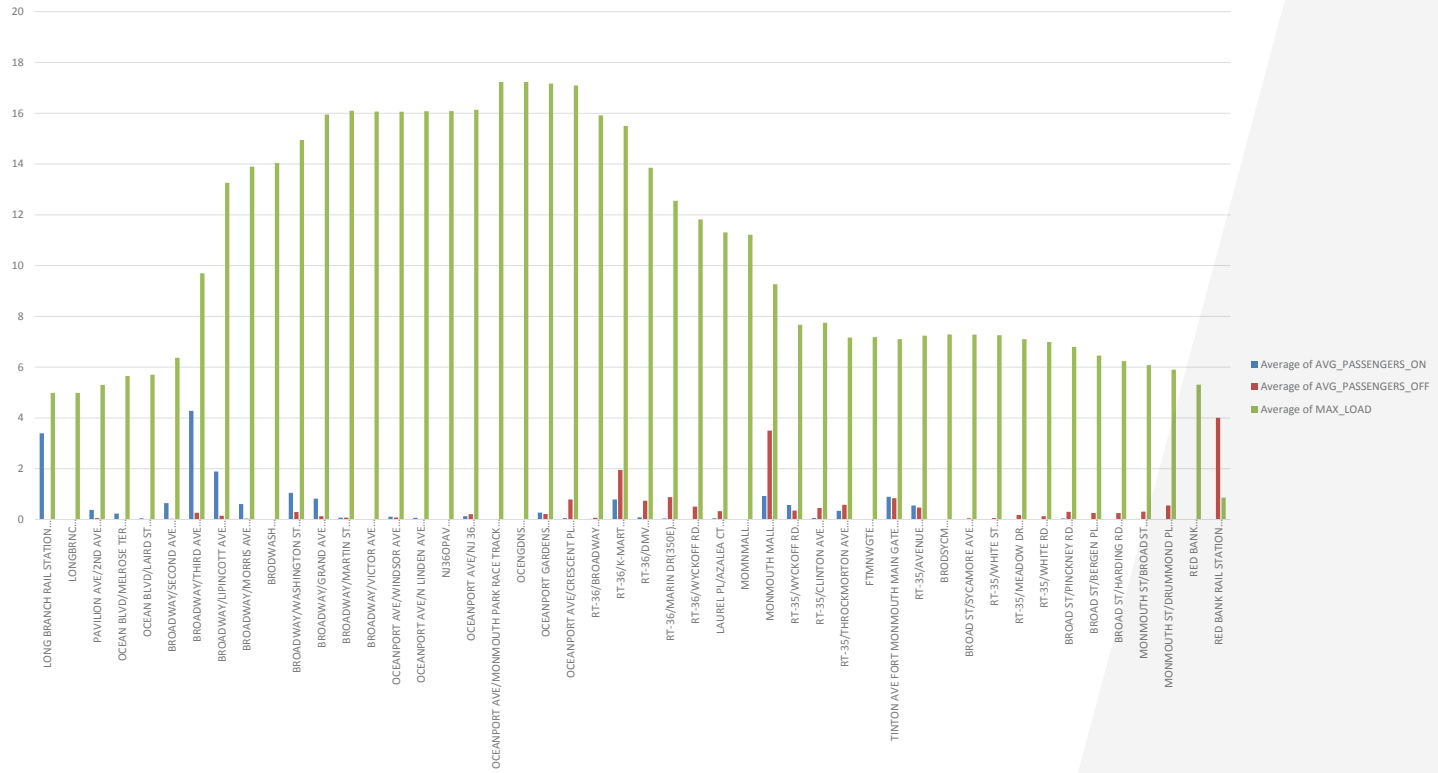
One of the legacies of the route's origins as a commuter route is that service closes earlier than on the similar 832 Route. As a result, while the 831 and 832 share many characteristics, most passengers prefer the 832's longer scope of service even though more than 30% of trips on the 832 could be completed using either the 831 or 832. The lack of post-rush hour service is a noticeable issue; multiple stakeholders from the area voiced concerns about limited off-peak service, underscoring that existing service is highly valued and that there is demand for additional service.

Route 831

831 RIDERSHIP - INBOUND



831 RIDERSHIP - OUTBOUND



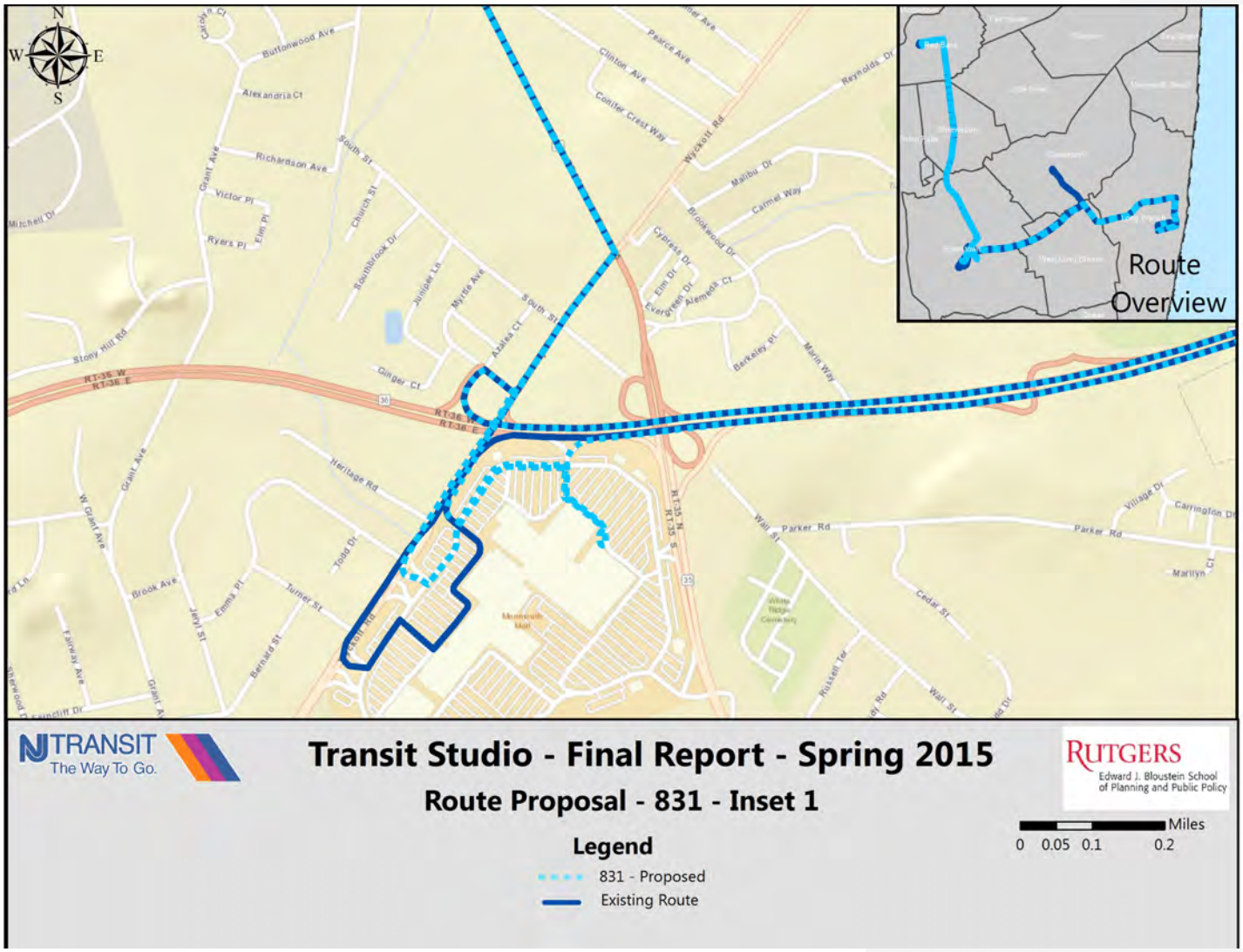
Route 831

RECOMMENDATION

In line with recommended changes to the 832 route, the 831 route would relocate to a new bus stop at the northeast side of Monmouth Mall. Unlike the 832 route, however, the 831 would continue to service Wyckoff Boulevard. This unfortunately would necessitate a slightly more indirect routing that would add 1-2 minutes to average running times, however this is more than offset by the 832's cost savings from this relocation.

In addition, we recommend adding evening service for the 831 route in the form of two additional evening round-trips on weekdays, and one on Saturdays; Sunday service would remain unchanged. Daily costs of these changes are estimated at $380 per weekday, and $190 per Saturday, through the addition of 3.8 additional weekday service hours and 1.9 on Saturdays.

These changes would not require additional equipment, as existing buses would merely operate for an additional two hours per day. While maximum loading does drop on current late afternoon trips in both directions, loadings on the current last buses are still within norms for buses in the area at these times. The nearby 832 has a later afternoon peak in maximum loadings, with more passengers boarding close to 5 PM in both directions. This suggests that additional service would enable service for a wider customer base, particularly those working midday and afternoon shifts.


N
W
E
S
Route Overview
NJTRANSIT
The Way To Go.
Transit Studio - Final Report - Spring 2015
Route Proposal - 831 - Inset 1
RUTGERS
Edward J. Bloustein School of Planning and Public Policy
Miles
0 0.05 0.1 0.2
Legend
831 - Proposed
Existing Route

Route 832

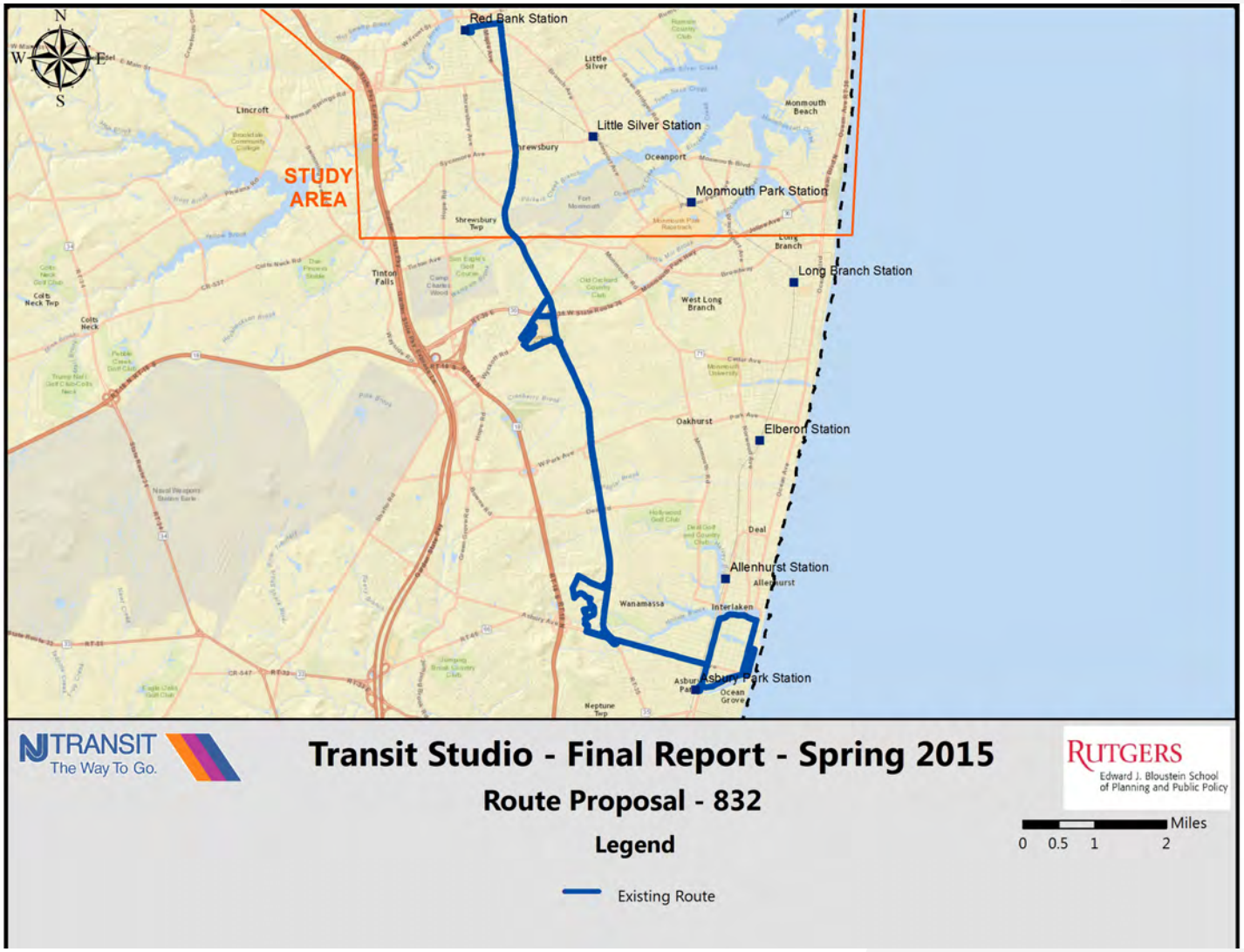
842 DAILY BOARDINGS

37 DAILY TRIPS

57 WEEKEND TRIPS
SAT + SUN, IF APPLICABLE

42 DAILY SERVICE HOURS

62 WEEKEND SERVICE HOURS
SAT + SUN, IF APPLICABLE


Red Bank Station
Little Silver Station
Monmouth Park Station
Long Branch Station
Elberon Station
Allenhurst Station
Asbury Park Station
STUDY AREA
Lincroft
Little Silver
Monmouth Beach
Oceanport
Shrewsbury
Shrewsbury Twp
Tinton Falls
Colts Neck Twp
Colts Neck
West Long Branch
Oakhurst
Deal
Wanamassa
Interlaken
Ocean Grove
Neptune Twp
N
S
E
W
NJTRANSIT
The Way To Go.
Transit Studio - Final Report - Spring 2015
Route Proposal - 832
Legend
Existing Route
RUTGERS
Edward J. Bloustein School of Planning and Public Policy
Miles
0 0.5 1 2

Route 832

SHORT TERM RECOMMENDATION

- Bypass Brielle Avenue
- Relocate Monmouth Mall stop

MED. TERM RECOMMENDATION

- Reroute via Shrewsbury Avenue between Red Bank and Shrewsbury
- Convert route to community shuttle buses for weekend and off-peak service

IMPACTS

- Potential for new ridership from Shrewsbury Township
- Operating Cost: Decrease $50,000 per year due to time savings
- Capital Cost: $25,000 - $35,000 for new signage and facilities at relocated stops

ROUTE DESCRIPTION

Route 832 is one of the five current routes radiating from the Red Bank Rail Station. Like the other 830-series routes, the 832 Route traces its lineage to Boro Buses, as the #2 Route. New Jersey Transit took on the route in 1984, and the route was originally operated by Monmouth Bus Lines under contract, but has changed hands several times and is now operated under contract by Transdev. The route has changes little over this 30 year period, except for several small additions in the early 1990's including the deviation to serve Seaview Square in 1998, with an extension east from the Asbury Park Train Station in 2001.

The 832 Route currently runs from Red Bank to Asbury Park via Monmouth Street in Red Bank, then south on Route 35 to Wyckoff Boulevard, then via Monmouth Mall before returning to Route 35. Buses then turn west onto Sunset Avenue, South on Brielle Avenue, then east on Ring Road to reach Seaview Square, then via Asbury Avenue into Asbury Park, turning south on Main Street to reach Asbury Park Transportation Center. Most Weekday and Saturday buses then continue eastbound via Cookman Road to reach their east terminus at Kingsley Avenue and 4th Street. On weekdays, two AM peak buses alternately bypass segments of the route, providing more direct end-end service. In addition, two late-night southbound buses operate via the north side of Asbury Park.

RIDERSHIP PROFILE

The 832 route is a productive route, particularly when compared to most of the other Red Bank hub routes. In October 2014, the route accounted for a total 25,673 trips, the highest of the five Red Bank hub bus routes. On weekdays, there are an average 20.8 boardings per revenue hour, with no trip maintaining a level below 12.7 boardings per hour. Maximum loadings reflect this, with the average at around this level. Ridership is spread mostly evenly through the

day, though the highest ridership appears to be in the AM peak and during the mid-afternoon (2-5 PM), with ridership higher in both directions during these periods.

Ridership is level through most of the day, with some peaking behavior in both directions, though much more so in the northbound direction. The five most heavily used stops for the route are as follows:

- **Red Bank Rail Station**
(133 daily boardings, 105 daily alightings)

- **Monmouth Mall**
(126 daily boardings, 108 daily alightings)

- **Asbury Park Transportation Center**
(103 daily boardings, 93 daily alightings)

- **Seaview Square**
(38 daily boardings, 26 daily alightings)

- **Asbury Avenue/Langford St.**
(1 daily boarding, 55 daily alightings)

These five stops accounted for 47.6% of total daily boardings, and 44.3% of daily alightings.

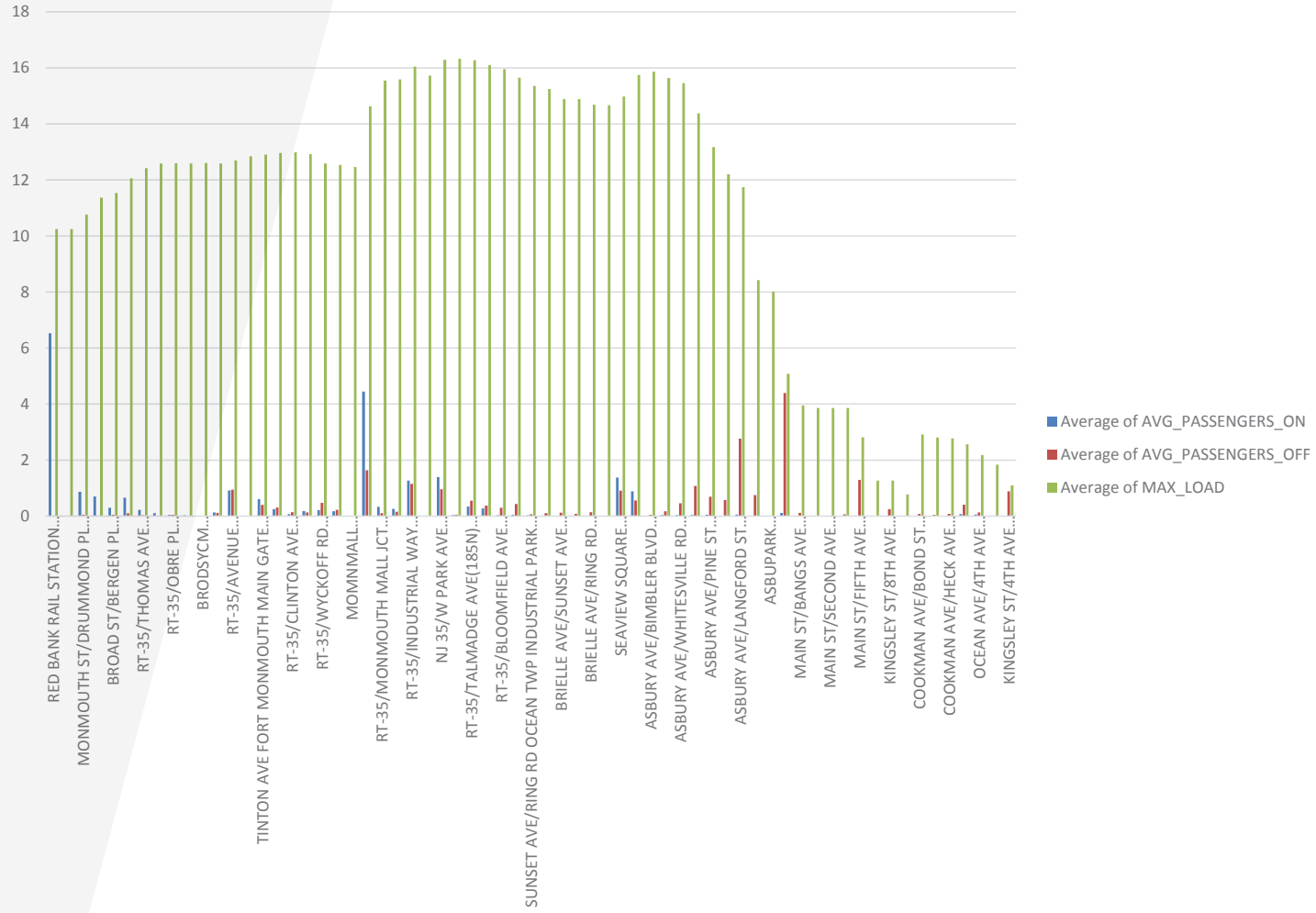
Bus Loads tend to remain level along route 832 runs in either direction, though it should be noted that loads rarely exceed 4-5 passengers between Asbury Park Transportation Center and Kingsley/4th Avenue. This segment of the route, however, does add shorefront coverage to the route and could have high seasonal traffic (our data is from September 2014). Detailed Ridership information can be found in Appendix V.

ROUTE ISSUES

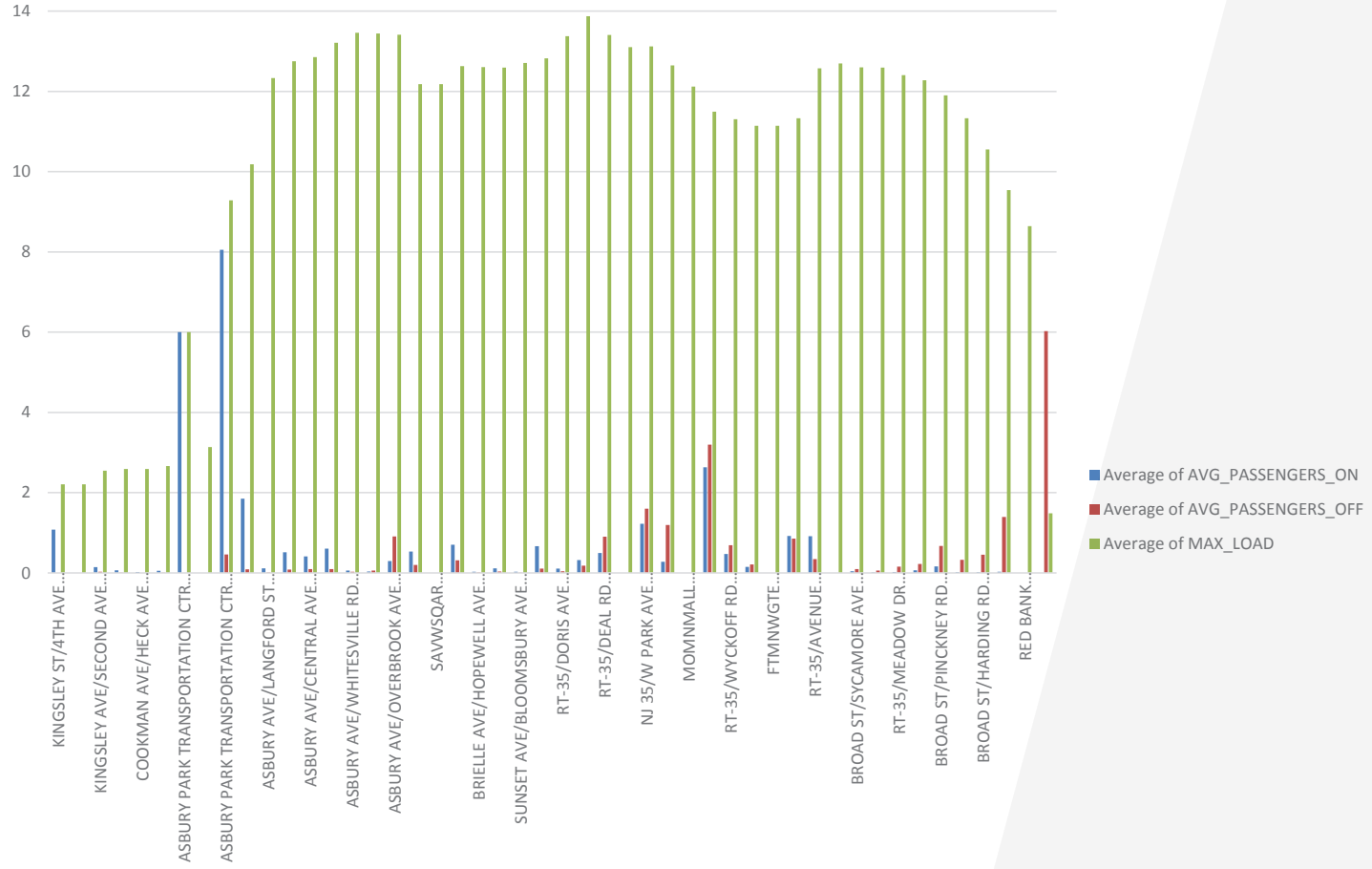
Stakeholders have emphasized that NJ Transit should focus on improving the convenience of service where possible. The various extensions and deviations have resulted in the route being operated with less than hourly service; run times for most weekday and Saturday trips are 61 minutes end-to-end, resulting in roughly 70 minute headways once recovery time is accounted for. In addition, ridership along the northern segment of the route, between Red Bank and Fort Monmouth, remains low, in part because the demand is split with the 831 route that shares the corridor.

Route 832

832 RIDERSHIP - INBOUND



832 RIDERSHIP - OUTBOUND



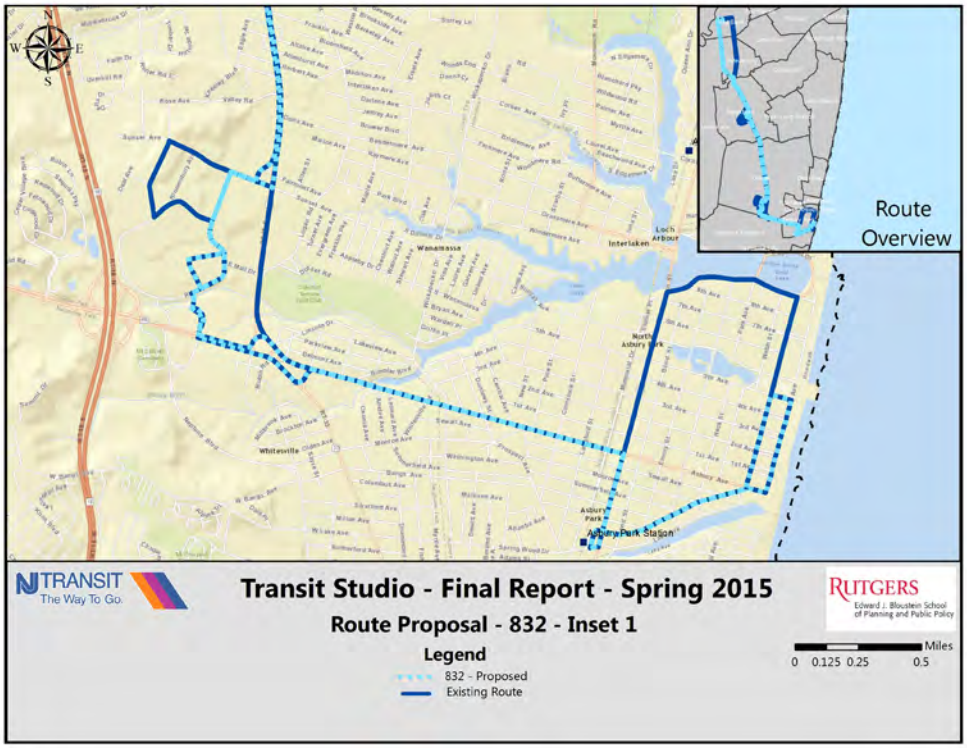
Route 832

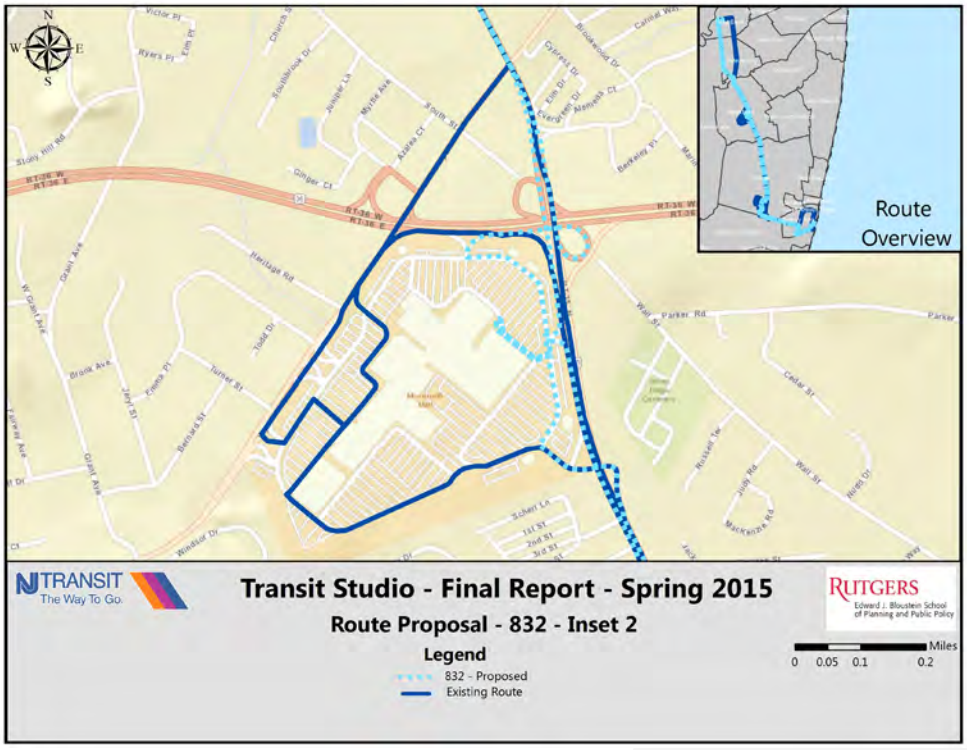
SHORT TERM RECOMMENDATIONS

One of the first steps in improving Route 832 is to restore hourly service. While the route is mostly direct, there are multiple slow segments with low ridership. The Brielle Avenue portion of the Route accounts for an average of 15 daily boardings and 16 daily alightings, with 13 boardings and 8 alightings at the Brielle Avenue/Ring Road stop. We estimate that bypassing Brielle Avenue would save approximately 3 minutes per trip on weekdays. The new routing, shown below, would not add more than 0.4 miles of walking to area destinations for any existing trips.

An additional savings comes from relocating the Monmouth Mall bus stop. The current route requires a lengthy deviation from Route 35 via Wyckoff Road. In place of this, we recommend using an existing turnaround near the northeast side of the mall. In addition to operational benefits, this stop is closer to most of the shops at Monmouth Mall, resulting in potential benefits for customer satisfaction and service visibility.

These two changes to the 832 Route would result in estimated time savings of 6 minutes per trip, which, besides enabling a return to real hourly service, would also save an estimated $95,000 per year in operating costs, with having negligible ridership and revenue impacts. Maps of the proposed short term changes can be found in Appendix III.


Route Overview
Transit Studio - Final Report - Spring 2015
Route Proposal - 832 - Inset 1
Legend
832 - Proposed
Existing Route
Miles
0 0.125 0.25 0.5


Route Overview
Transit Studio - Final Report - Spring 2015
Route Proposal - 832 - Inset 2
Legend
832 - Proposed
Existing Route
Miles
0 0.05 0.1 0.2

Route 832

MEDIUM TERM RECOMMENDATIONS

In the medium term, the untapped demand along the Shrewsbury Avenue corridor represents a significant opportunity for the 832 Route. Shrewsbury Avenue has similar characteristics to the area around NJ Route 35, however the lower traffic volumes and more pedestrian-friendly environment may be more conducive to ridership than the existing corridor along Route 35.

The rationale for this change is two-fold; first, the Route 35 segment between Red Bank and Monmouth Mall is generally unproductive, with the Avenue of the Commons stops accounting for over 75% of boardings and alighting on this portion of the route. Comparatively, Shrewsbury Avenue is currently poorly served by the 833 and 835, neither of which goes further south than Newman Springs Road. The addition of new service in this corridor would connect a number of significant employers to NJT service, while also adding service for a number of nearby residential developments.

This change would impact approximately 9.3% of current average daily boardings, and 11.35% of current average daily alightings; however only 3.1% of daily boardings and 8.1% of daily alightings would experience increases in walking distances greater than 0.5 miles, as most of these trips originate or terminate in downtown Red Bank or at the Route 35/Avenue of the Commons stops. Other trips would most likely shift to the 831 or use transfers for passengers going south of Monmouth Mall.

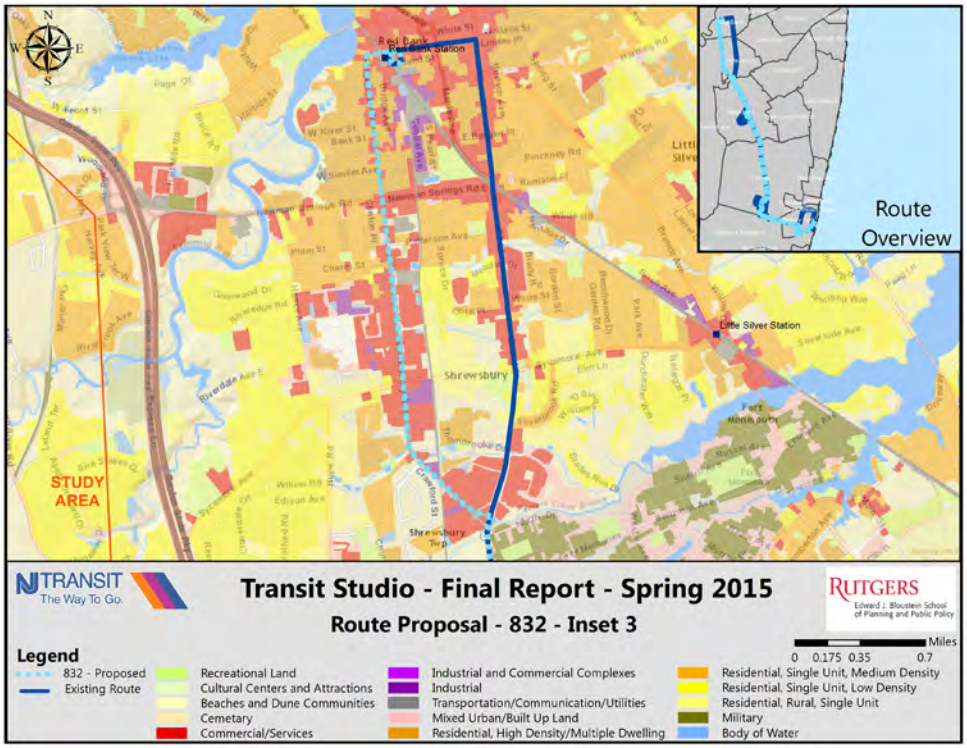
The benefits of the change, however, are significant, and include:

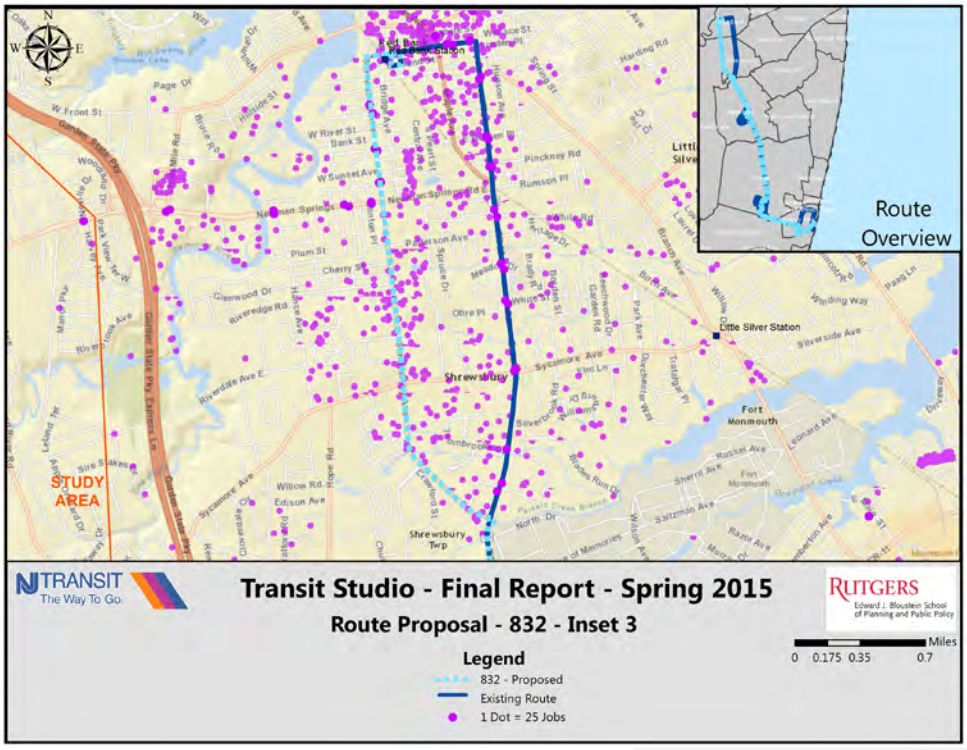
- New service along Shrewsbury Avenue, adding a new potential market for the 832.

- Transition the route to a more pedestrian-friendly corridor.

- Potential time-savings due to less time spent on slow, narrow streets in downtown Red Bank

While further analysis is needed to determine the potential ridership potential along Shrewsbury Avenue, demographics and density patterns in the area indicate that the corridor is potentially a better transit market than Route 35, in part due to the higher concentration of retail businesses near Shrewsbury Avenue, particularly between Patterson Avenue and Sycamore Avenue. The lower traffic levels on Shrewsbury Avenue, along with fewer signalized intersections, are likely to actually improve running times by 3-4 minutes per trip, with 1-2 minutes of these savings going into improved on-time performance. Maps of the proposed medium term changes can be found in Appendix III.


Route Overview
STUDY AREA
Red Bank
Red Bank Station
Shrewsbury
Little Silver Station
Fort Monmouth
Shrewsbury Twp
NJTRANSIT
The Way To Go.
Transit Studio - Final Report - Spring 2015
Route Proposal - 832 - Inset 3
RUTGERS
Edward J. Bloustein School of Planning and Public Policy
Miles
0 0.175 0.35 0.7
Legend
832 - Proposed
Existing Route
Recreational Land
Cultural Centers and Attractions
Beaches and Dune Communities
Cemetary
Commercial/Services
Industrial and Commercial Complexes
Industrial
Transportation/Communication/Utilities
Mixed Urban/Built Up Land
Residential, High Density/Multiple Dwelling
Residential, Single Unit, Medium Density
Residential, Single Unit, Low Density
Residential, Rural, Single Unit
Military
Body of Water


Route Overview
STUDY AREA
Red Bank
Red Bank Station
Shrewsbury
Little Silver Station
Fort Monmouth
Shrewsbury Twp
NJTRANSIT
The Way To Go.
Transit Studio - Final Report - Spring 2015
Route Proposal - 832 - Inset 3
RUTGERS
Edward J. Bloustein School of Planning and Public Policy
Miles
0 0.175 0.35 0.7
Legend
832 - Proposed
Existing Route
1 Dot = 25 Jobs

Route 834

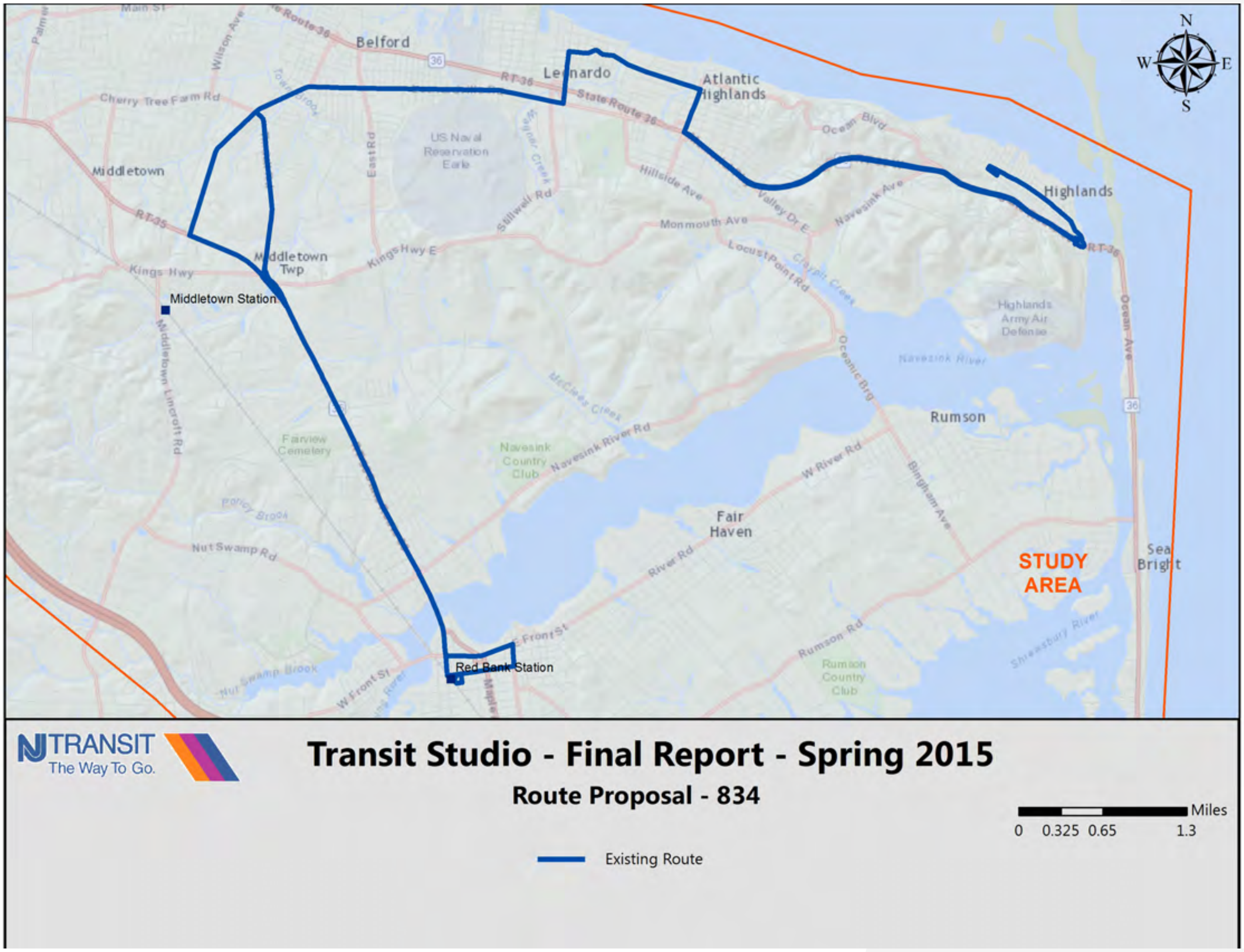
336 DAILY BOARDINGS

29 DAILY TRIPS

27 WEEKEND TRIPS
SAT + SUN, IF APPLICABLE

28 DAILY SERVICE HOURS

27 WEEKEND SERVICE HOURS
SAT + SUN, IF APPLICABLE


Belford
Leonardo
Atlantic Highlands
Highlands
Middletown
Middletown Twp
Middletown Station
Red Bank Station
Rumson
Fair Haven
Sea Bright
STUDY AREA
US Naval Reservation Earle
Navesink Country Club
Rumson Country Club
Fairview Cemetery
Highlands Army Air Defense
Navesink River
Cherry Tree Farm Rd
State Route 36
Ocean Blvd
Hillside Ave
Valley Dr E
Navesink Ave
Monmouth Ave
Locust Point Rd
Oceanic Brg
Kings Hwy
Kings Hwy E
Stillwell Rd
Middletown Lincroft Rd
Nut Swamp Rd
Navesink River Rd
W River Rd
River Rd
Rumson Rd
Bingham Ave
Ocean Ave
W Front St
Front St
Transit Studio - Final Report - Spring 2015
Route Proposal - 834
Existing Route
Miles
0 0.325 0.65 1.3

Route 834

SHORT TERM RECOMMENDATION

- Divert from Campbell's Junction to the Highlands to serve Campbell's Junction to Keyport

IMPACTS

- 3-5% Ridership Increase
- Operating Cost: Increases by $137,618.13 or 16.6%

ROUTE DESCRIPTION

Route 834 currently operates between the Red Bank rail station, Campbell's Junction, and the Highlands on weekdays and Saturdays. Service is operated with hourly headways from 6:00 AM until 8:00 PM on weekdays and Saturdays. The route is operated under contract by Veolia Transportation.

This route begins at Bay Avenue and Waterwitch Avenue in Highlands and ends at the Red Bank rail station.The route has a scheduled 49 minute runtime.

The 834 route is the successor of the former Boro Bus Company's Route 4, which traveled much of the same route as the current 834. The former Route 4 had a slightly larger span of service, operating from 6:00 AM until 9:00 PM, however with a 2 hour headway in the evening.

RIDERSHIP PROFILE

Ridership on the 834 is also light, however, like many local bus routes in the study area, it links communities and neighborhoods that would otherwise be devoid of local bus service. This route connects services at the Red Bank rail station bus hub to Campbell's Junction and Route 817 with the municipalities of Atlantic Highlands and Highlands. With this routing, many residential and employment centers are served, providing critical transit service to those without alternatives.

The 834's five most heavily used stops were as follows:

- **Campbell's Junction; Middletown**
  (26 daily boardings, 43 daily alightings)
- **Red Bank rail station**
  (80 daily boardings, 44 daily alightings)
- **Campbell's Junction; Middletown**
  (40 daily boardings, 43 daily alightings)
- **Route 35 at Woodland Drive; Middletown**
  (8 daily boardings, 20 daily alightings)
- **Route 35 at Nevesink River Road; Red Bank**
  (2 daily boardings, 51 daily alightings)
- **Bay Avenue at Waterwitch Avenue; Highlands**
  (18 daily boardings, 4 daily alightings)

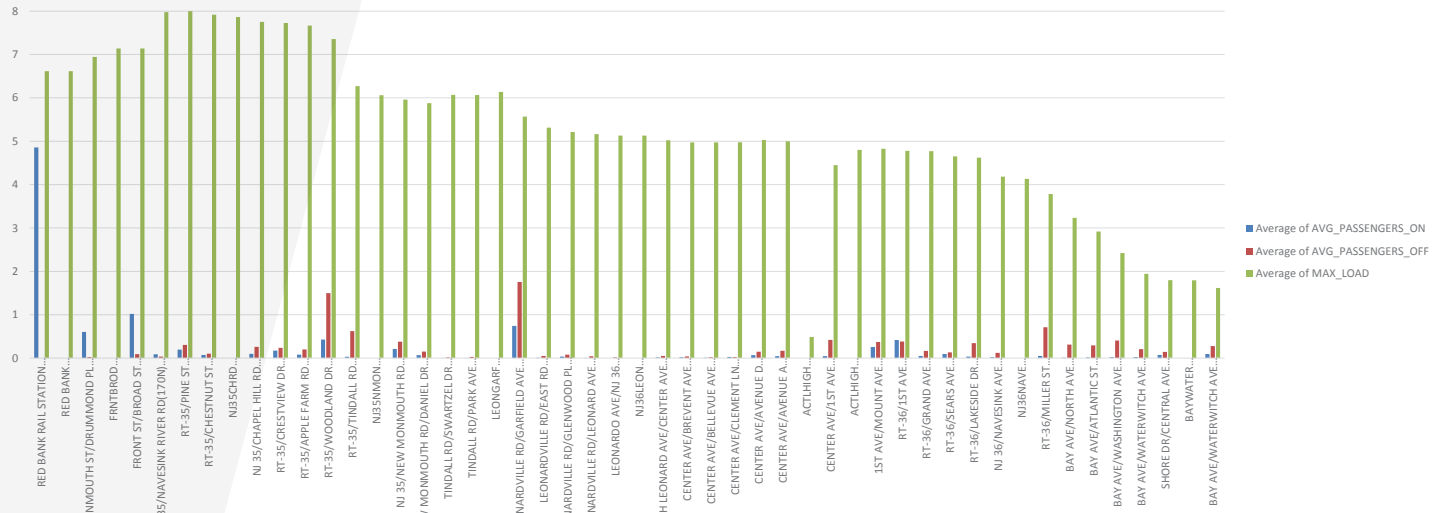
Other stops in Red Bank, Atlantic Highlands, and Highlands contribute significant boardings and alightings to the 834 route. Passenger traffic is fairly consistent in both directions throughout the day, with slightly higher passenger counts for morning and afternoon peak periods. In general, higher passenger numbers are seen on northbound trips than southbound trips and runs at the beginning and end of each day see less riders.

ROUTE ISSUES

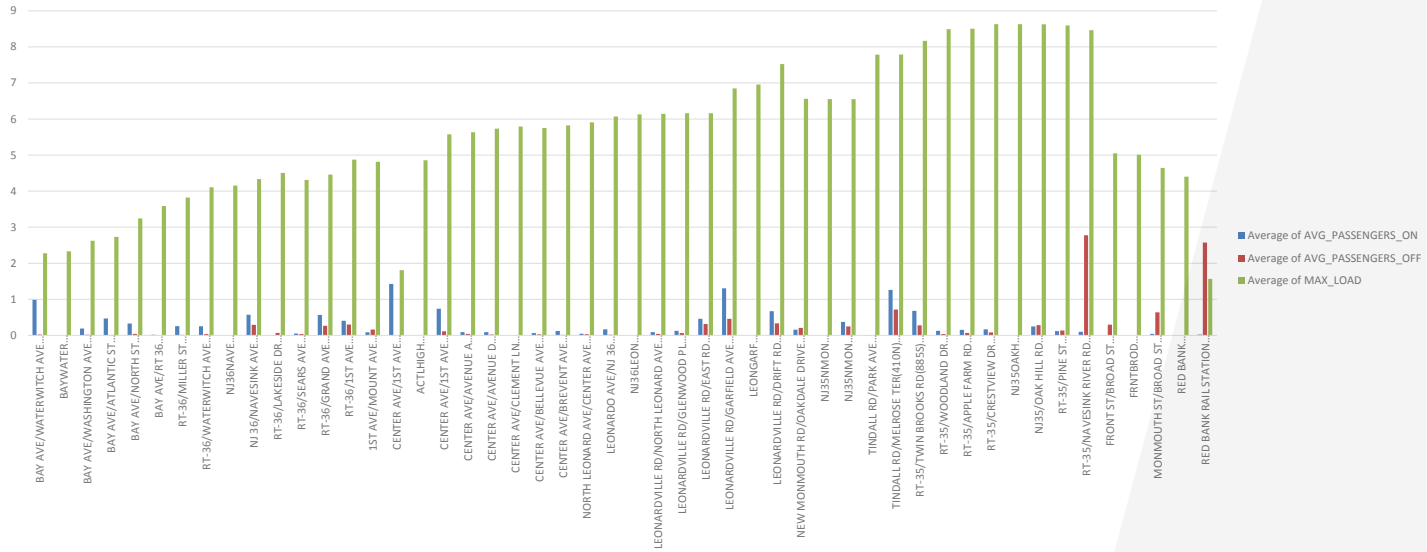
Due to the geography and road network of Route 834's service area, the route travels a peculiar trajectory from Red Bank to the Highlands. In order for the 834 to connect Red Bank and Campbell's Junction, buses currently have an indirect travel pattern. Therefore, route 834's current routing could contribute to some of the low number of riders this route carries. Also, considering the high number of boarding and alightings at Campbell's Junction on route 817 and route 834, there are a significant number of passengers transferring between these services. This could be reduced by altering the travel patterns of these routes and serve passengers in a more direct manner.

Route 834

834 RIDERSHIP - INBOUND



834 RIDERSHIP - OUTBOUND



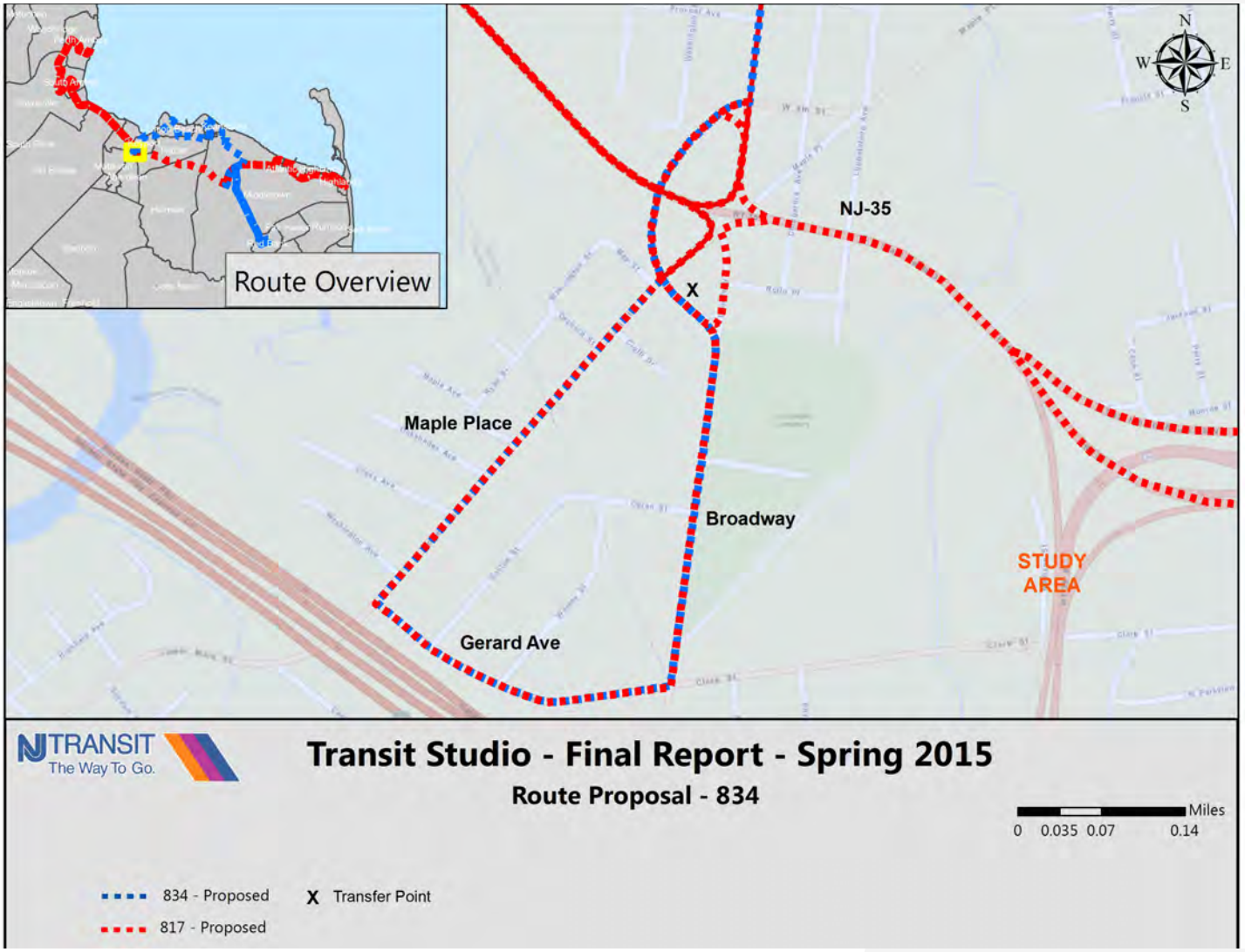
Route 834

RECOMMENDATION

In conjunction with the proposed route 817 changes, a diversion of the route 834 alignment is proposed. The new proposed routing of 834 would replicate the current 834 from Red Bank to Campbell's Junction. The segment from Campbell's Junction to the Highlands would be eliminated and be served by an extension of route 817 (see above Route 817 section). Rather, the 834 would travel from Campbell's Junction to the municipalities of Keansburg, Union Beach, and Keyport before meeting route 817 near the intersection of NJ Highways 35 and 36 in Keyport. This would accomplish goals for both the 834 and 817 routes – reduce required transfers at Campbell's Junction, serve the retail centers along the Route 35 corridor (to be served by the 817), and serve this additional Route 35 corridor without adding additional bus routes.

By diverting the 834 to this new alignment travel times would be increased 14 minutes from its current runtime of 49 minutes to 63 minutes. However, with the current hour headway, additional buses would be required to operate this new route at an hourly frequency. Keeping cost considerations and the routes lower ridership in perspective, it is recommended that headways be slightly increased to one hour and ten minutes in order to allow ample travel and recovery time for each 834 run.

These changes to the 834 route would result in an estimated $137,618 or 16.6% per year increase in operating costs. By realigning route 834 while still serving the communities it will no longer serve with Route 817, this proposed change works cooperatively with the proposed 817 changes in order to grow local bus ridership in this North Jersey Coast Region, increase passenger convenience, and maximize NJ Transit's limited resources.


Route Overview
N
W
E
S
NJ-35
X
Maple Place
Broadway
STUDY AREA
Gerard Ave
NJTRANSIT
The Way To Go.
Transit Studio - Final Report - Spring 2015
Route Proposal - 834
Miles
0 0.035 0.07 0.14
834 - Proposed
817 - Proposed
X Transfer Point

Route 835

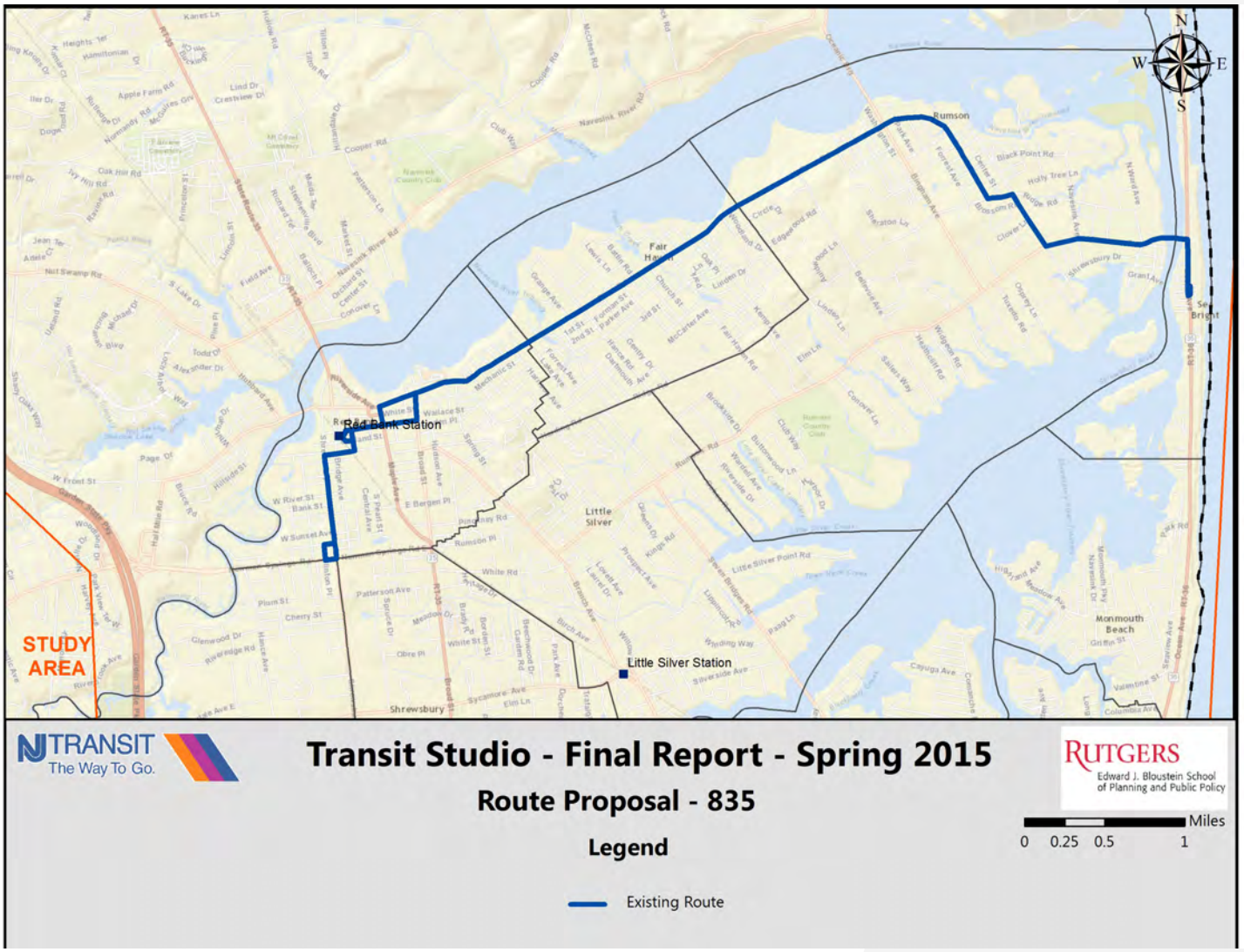
151 DAILY BOARDINGS

28 DAILY TRIPS

24 WEEKEND TRIPS
SAT + SUN, IF APPLICABLE

14 DAILY SERVICE HOURS

12 WEEKEND SERVICE HOURS
SAT + SUN, IF APPLICABLE


N
W
E
S
Rumson
Fair Haven
Red Bank Station
Little Silver
Little Silver Station
Monmouth Beach
Shrewsbury
STUDY AREA
NJTRANSIT
The Way To Go.
Transit Studio - Final Report - Spring 2015
Route Proposal - 835
Legend
Existing Route
RUTGERS
Edward J. Bloustein School of Planning and Public Policy
Miles
0 0.25 0.5 1

Route 835

MED. TERM RECOMMENDATION

- Extension west to Brookdale Community College
- Conversion to community shuttle service using 24-seat buses

IMPACTS

- Potential for new ridership
- Operating Cost: Increase by $137,680 per year (34.3%)
- Capital Cost: $250,000 (acquisition of two shuttle-type buses)

ROUTE DESCRIPTION

NJ Transit's Route 835 is one of the five Red Bank hub routes. Historically, the route originated as a Boro Buses route, originally running from their depot near Newman Springs Road through Red Bank to Sea Bright. Since NJT takeover, the route has been modified to instead terminate at Newman Springs Road and Clinton Street. Other than this change, the route remains largely the same today as it has over the past 30 years. The 835 route is currently operated under contract by Transdev.

Service runs from 5 AM to 7 PM on weekdays, with two early trips at irregular headways in the early morning. Saturday service is similar, but without the early morning trips, resulting in service from 7 AM to 7 PM. Due to the short length of the route, hourly headways are maintained using a single, 42-seat bus. Outside of minor scheduling revisions and its name, the 835 route has not changed, other than its management, in three decades.

The route runs from the west side of Red Bank to Church Street before looping back using East Ocean Avenue.

RIDERSHIP PROFILE

Ridership on the 835 Route is very low. A total of 3,887 trips were made on the route in October 2014, the lowest of the five Red Bank hub routes and, by a wide margin, the lowest ridership of any route within the studied area. The route averages 11.4 boardings per hour of revenue service, with only three runs exceeding 10 total boardings. Saturday service is only slightly less-used, with 10.4 average boardings per revenue hour of service.

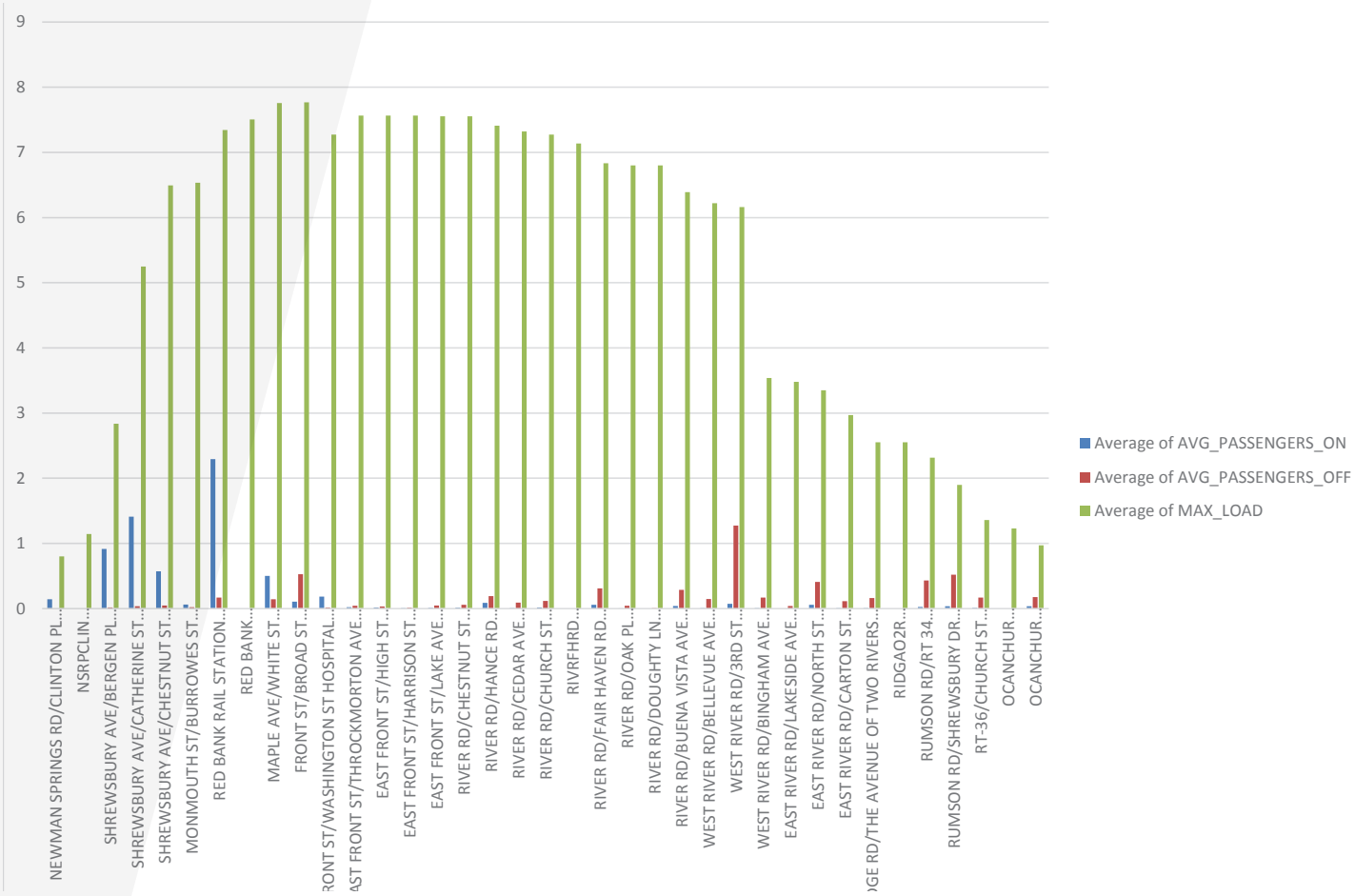
Only 151 trips per weekday are made on the 835 Route, with much of it to and from the downtown areas in Red Bank, Fair Haven, and Rumson. Stops in Sea Bright account for only 13 daily boardings and 7 alightings per day.

ROUTE ISSUES

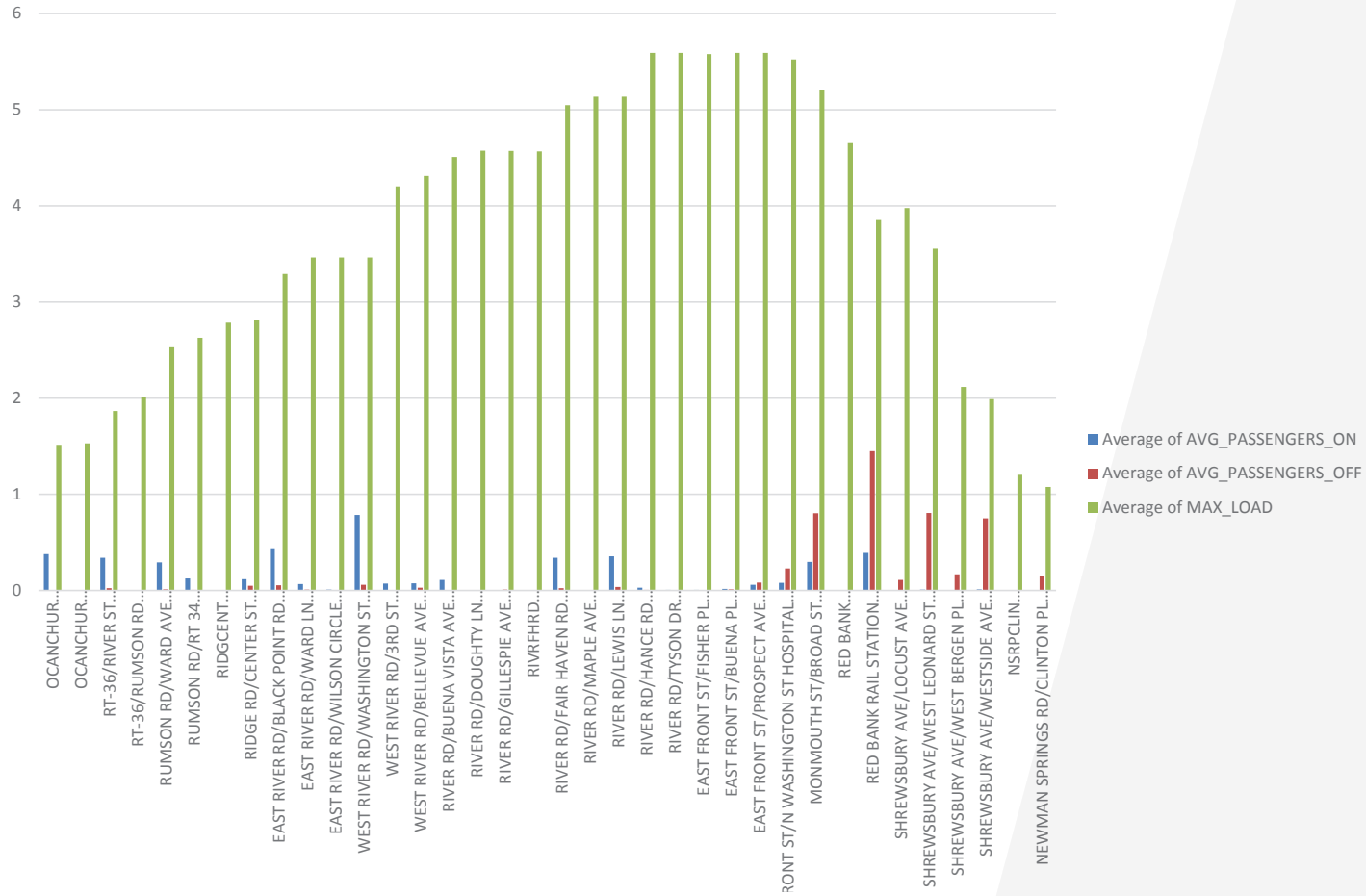
Despite its very low ridership, the 835 Route has broad community support and stronger seasonal demand due to its connectivity to the Sea Bright waterfront area, and provides valuable service to Riverview Hospital in Red Bank. Moreover, of all studied routes, the 835 is the only one for which New Jersey Transit received no customer service issues/complaints during the studied period for complaints (January 1, 2014-January 21, 2015), reflecting wider community support than other area routes. That said, the route is currently quite weak in terms of operational factors such as farebox recovery; the ridership metrics tell a very clear story of a route that simply does not have a significant demand base.

Route 835

835 RIDERSHIP - INBOUND



835 RIDERSHIP - OUTBOUND



Route 835

MEDIUM TERM RECOMMENDATIONS

Despite low ridership, the 835 Route has broad community support and stronger seasonal demand due to its connection to the Sea Bright waterfront area, and provides valuable service to Riverview Hospital in Red Bank. However, lowering operating costs is essential to maintaining this service. Using community shuttle equipment instead of the current 42-seat buses would significantly lower operating costs, would provide operational cost savings of as much as $85,000 per year.

However, the more significant concern for the 835 Route is its limited coverage area. We recommend expanding the route in order to add to its overall service demand. Extending the route west to Brookdale Community College was chosen as the preferred option, because the Brookdale Community College stop sees strong ridership on existing 833 service, but lacks service for much of the day, owing to the 833's limitations as a longer route serving Freehold. Brookdale Community College is the most heavily used stop on the 833 route, accounting for an average of 91 daily boardings and 77 daily alightings, over 20% of the route's total of each. Approximately 75% of these trips are to points east of Brookdale Community College. Despite these strong numbers, it is likely that only part of the demand from Brookdale Community College is only partly served by existing service. There are only nine daily trips in each direction on the 833 route, with service currently every 70 minutes, and less frequently during peak hours as the 833 bus runs slower during these times.

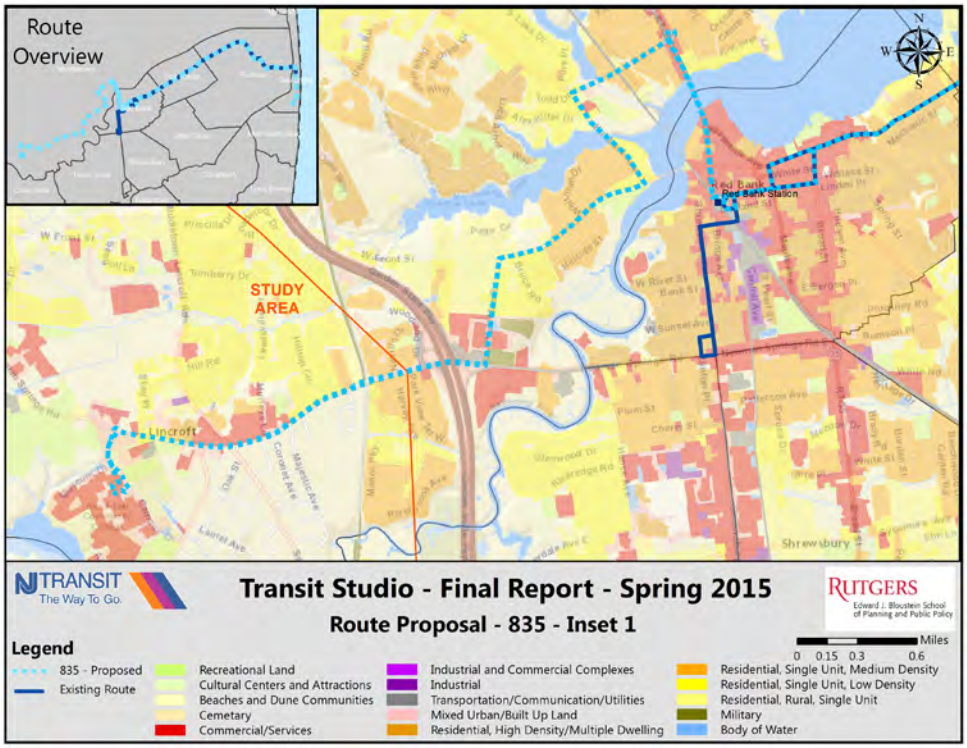
The studio class proposes a completely new routing to Brookdale College. Starting from Red Bank Rail Station and going west to Brookdale, buses would run west on Monmouth Street, turn right onto Bridge Avenue and cross the bridge to enter Middletown. Buses then turn right onto Navesink River Road, then turn left at Hubbard Avenue, turn right at Front Street, following Front Street for several blocks before turning left onto Half Mile Road, then right at Newman Springs Road, then would follow the same route as existing 833 buses from that intersection to Brookdale Community College. The new extended service would run on Mondays through Fridays, with no changes to existing Saturday service.

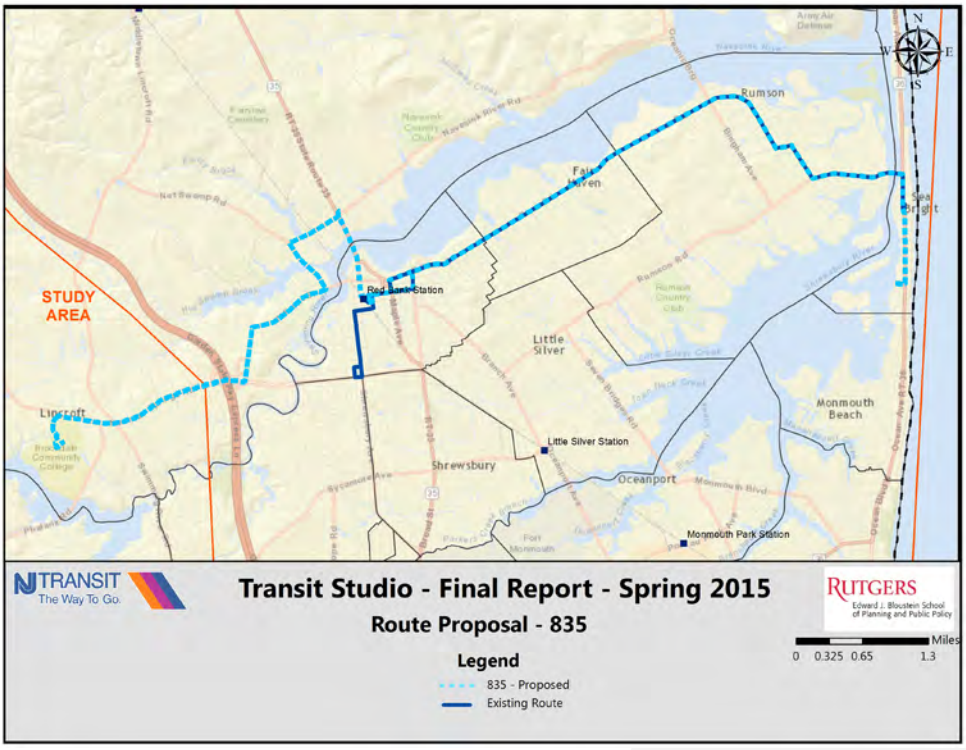
This routing was selected with the three primary goals (in addition to proving service to Brookdale Community College):

•Provide new service to favorable areas in the southwest areas of Middletown, particularly near Front Street corridor.

•Enable total run lengths of 48-54 minutes; a more direct routing via Shrewsbury Avenue and Newman Springs Road was considered, but was problematic as it led to running times of approximately 42 minutes from Brookdale to Sea Bright, which would result in excessive idle time with hourly service using two buses.

In combination with the conversion of the 835 route to community shuttle equipment, the extended routing increases annual operating costs to 34% above existing levels (a $137,680 increase), in part because of the significant cost savings of smaller equipment offsetting the increase in service hours. The additions to the route, however, almost double the route's catchment area and provide significantly improved service to Brookdale Community College, which may more than offset the increases in operating costs. Maps outlining the proposed extension of the 835 are available in Appendix III.


Route Overview
STUDY AREA
Red Bank Station
Lincroft
Shrewsbury
Transit Studio - Final Report - Spring 2015
Route Proposal - 835 - Inset 1
Legend
835 - Proposed
Existing Route
Recreational Land
Cultural Centers and Attractions
Beaches and Dune Communities
Cemetary
Commercial/Services
Industrial and Commercial Complexes
Industrial
Transportation/Communication/Utilities
Mixed Urban/Built Up Land
Residential, High Density/Multiple Dwelling
Residential, Single Unit, Medium Density
Residential, Single Unit, Low Density
Residential, Rural, Single Unit
Military
Body of Water
Miles
0 0.15 0.3 0.6


STUDY AREA
Rumson
Red Bank Station
Little Silver
Lincroft
Little Silver Station
Shrewsbury
Oceanport
Monmouth Beach
Monmouth Park Station
Transit Studio - Final Report - Spring 2015
Route Proposal - 835
Legend
835 - Proposed
Existing Route
Miles
0 0.325 0.65 1.3

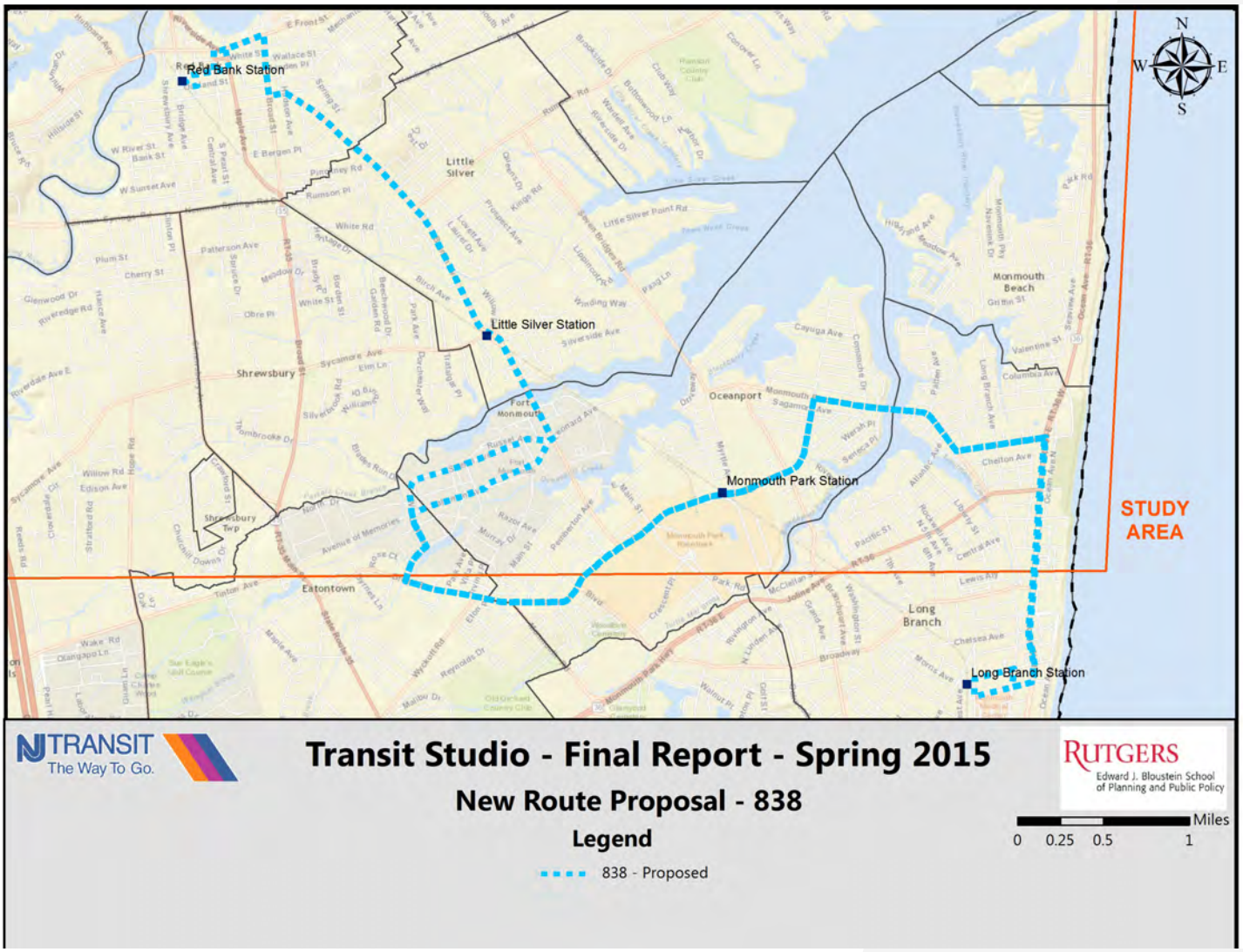
Route 838 - Proposed

28 DAILY TRIPS

24 WEEKEND TRIPS
SAT + SUN, IF APPLICABLE

26 DAILY SERVICE HOURS

24 WEEKEND SERVICE HOURS
SAT + SUN, IF APPLICABLE


Red Bank Station
Little Silver
Little Silver Station
Shrewsbury
Fort Monmouth
Oceanport
Monmouth Park Station
Monmouth Beach
Eatontown
Long Branch
Long Branch Station
STUDY AREA
N
S
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W
NJTRANSIT
The Way To Go.
Transit Studio - Final Report - Spring 2015
New Route Proposal - 838
Legend
838 - Proposed
RUTGERS
Edward J. Bloustein School of Planning and Public Policy
Miles
0 0.25 0.5 1

Route 838 - Proposed

LONG TERM RECOMMENDATION

- Implement new Route from Red Bank to Long Branch via Little Silver, Fort Monmouth, Oceanport, Ocean Avenue

IMPACTS

- Potential for new ridership
- Operating Cost: $584,840 per year
- Capital Cost: $260,000 (acquisition of two shuttle-type buses)

RATIONALE

The 838 Route fills a long-term need for a full service bus route between Red Bank, Little Silver, Fort Monmouth, and Long Branch. The Fort Monmouth redevelopment project is expected to have a significant impact on the Bayshore region, and will be a significant long-term element in the region's overall economic vitality. Fort Monmouth will add over 2,000 households, 300,000 square feet of retail, and over two million square feet of offices into the area. Because the level of commercial development and job growth is expected to exceed the local working population, the studio group expects that travel demand in the area will increase significantly.

In addition to the Fort Monmouth development's projected impacts on regional demand, there is already an existing demand for improved connectivity between Red Bank, Little Silver, Oceanport, and Long Branch. Moreover, this need has been identified by other studies; the 2010 Coastal Monmouth Plan cited the importance of " improved bus service or development of a bus shuttle to connect to the train stations in Red Bank and Long Branch and to existing ferry service in the Bayshore Region and to future ferry service in Long Branch " underscoring that Red Bank and Long Branch require additional transit connections. In addition, several of our stakeholders specifically discussed the need for additional transit services in the following areas:

- Little Silver
- Fort Monmouth (once developed)
- Oceanport Township
- Ocean Avenue (Route 36)

ROUTE DESCRIPTION

The 838 Route is optimized for local trips to and from the downtowns along the route, running mostly along county routes and local roads while omitting smaller, residential streets. Starting from Red Bank, the route runs east on Monmouth Street, turns left at Maple Avenue, continues north for two blocks, turns right at Front Street, and turns right at Broad Street. The route follows Broad Street for 1/3 mile before turning east at Harding Road and bearsright onto Branch Avenue. This route through Red Bank provides a high level of coverage through much of the downtown and provides better connections to local jobs, albeit at a 1-2 minute penalty in running time compared to a more direct route. Buses continue south via Branch Avenue to the Little Silver Train Station, and, at least initially, will not utilize the Little Silver parking lot. Unfortunately, this means northbound passengers transferring from rail need to cross Branch Avenue to reach service. The route continues southbound onto Oceanport Avenue.

Because Fort Monmouth's internal street network will be altered as the project takes shape, the planned route is subject to later revision; the route does take into account the planned conversion of several east-west roads in the base being converted for one-way operations. A visual depiction of this routing is provided on the following page.

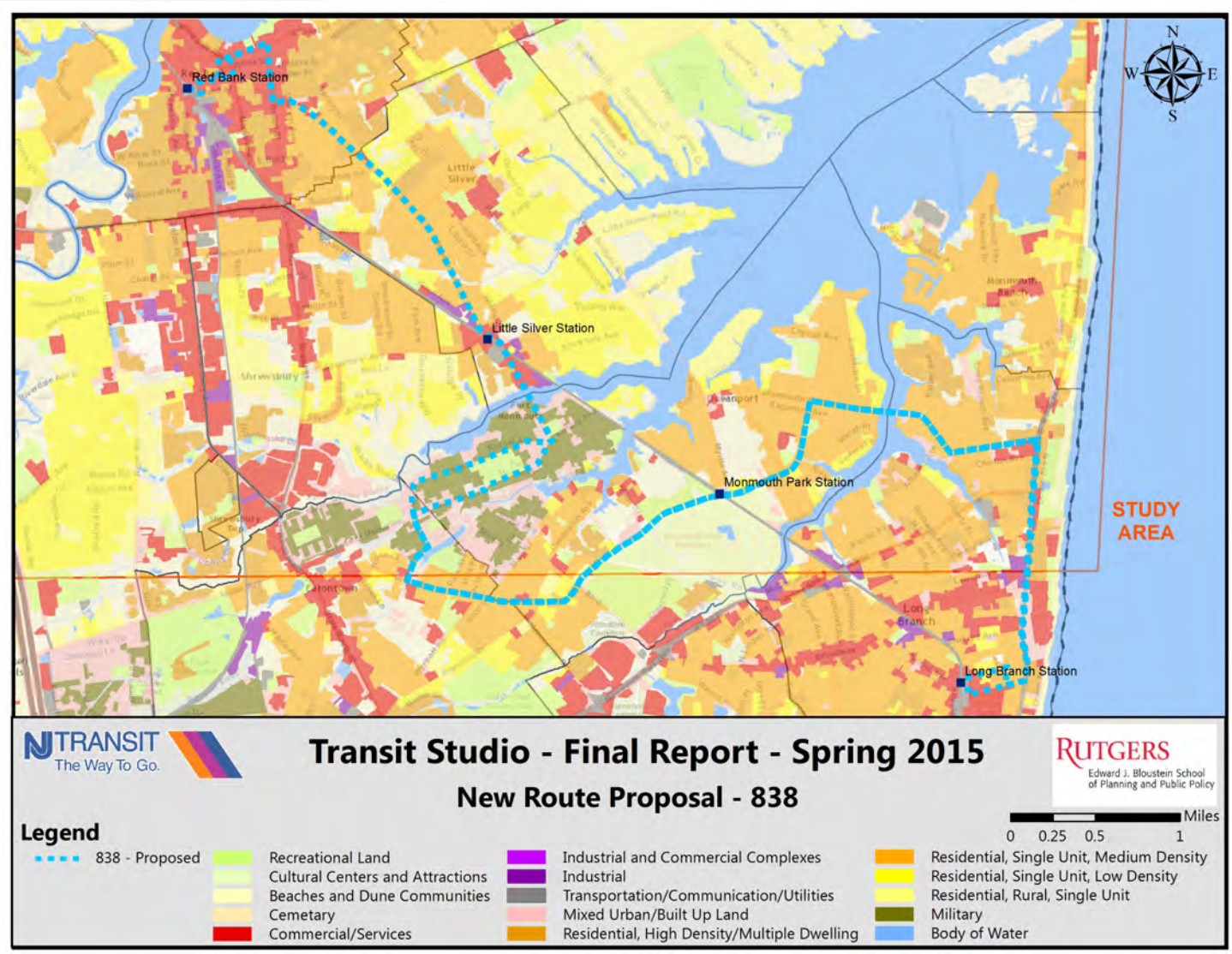
Exiting Fort Monmouth, the route will follow Eatontown Boulevard eastbound, then continue onto Port Au Peck Avenue for 1.9 miles, passing the Monmouth Park rail station along the way (Monmouth Park is expected to provide high seasonal demand for the 838 Route). The route then turns right onto Monmouth Boulevard and continues onto Florence Avenue, turns left at Avenal Boulevard, and then right on to Ocean Boulevard. From here, the route enters downtown Long Branch via a similar route to the existing 831 route, using Pavilion Avenue westbound and Morris Avenue eastbound, to access Long Branch rail station..

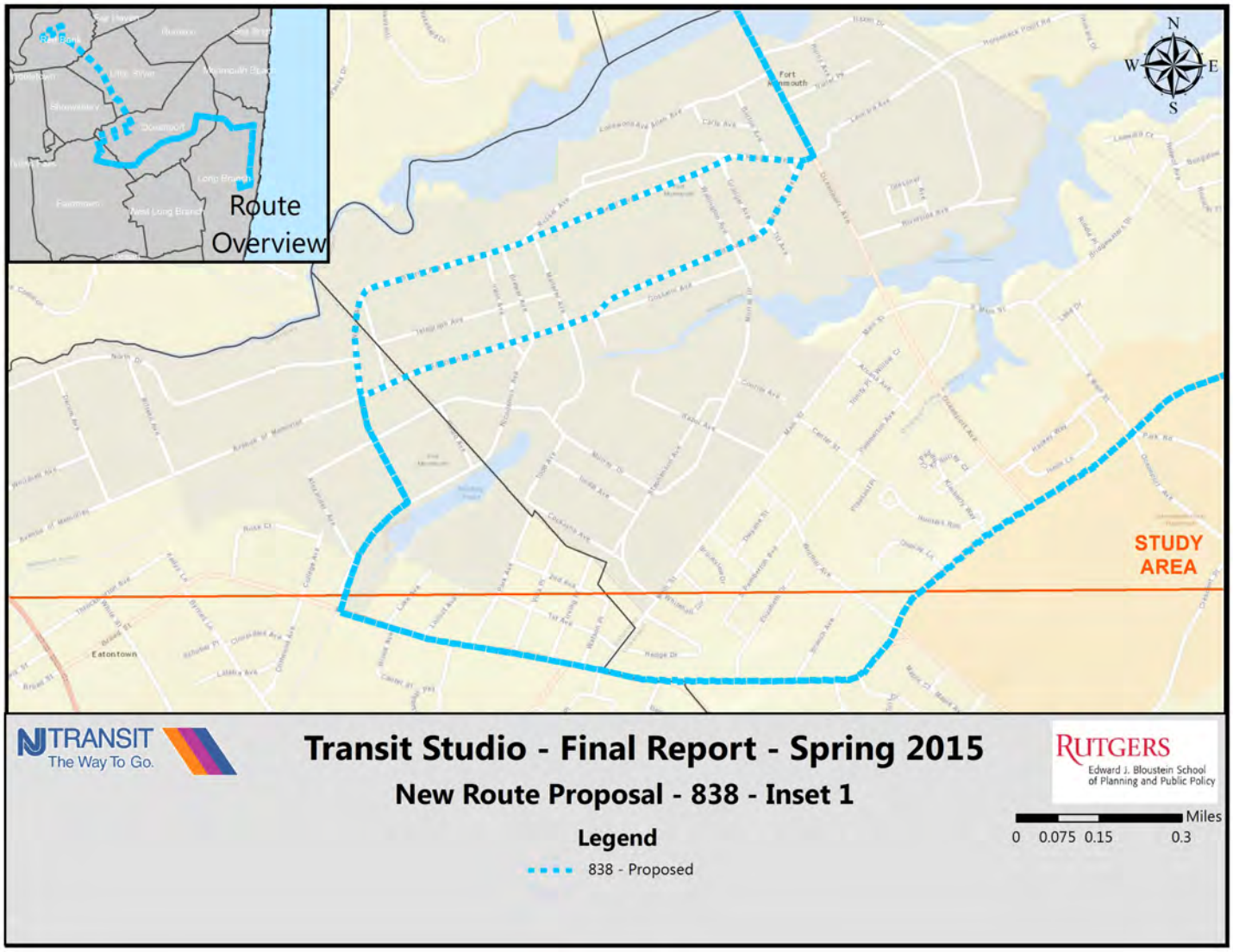
A key advantage of the particular route chosen is that it can support local shuttles between Fort Monmouth and Little Silver station; the shuttles and the 838 are designed to provide alternating and complementary service to Fort Monmouth, resulting in a more frequent service that is attractive to a wide range of riders.

PHASING

Earlier versions of the 838 in which the Fort Monmouth redevelopment was not central to the route were studied, but the final version of the route is intrinsically tied to the development. As such, the route should not move forward until Fort Monmouth redevelopment is underway and significant development exists at the Fort Monmouth site. Service is expected to have moderate demand on weekdays, although demand is expected to be significantly higher during summer months when local tourism traffic tends to be higher.

Route 838 - Proposed




Route Overview
STUDY AREA
Eatontown
N
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NJTRANSIT
The Way To Go.
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Legend
838 - Proposed
RUTGERS
Edward J. Bloustein School of Planning and Public Policy
Miles
0 0.075 0.15 0.3

Route 838 - Proposed

SERVICE OUTLINE

Operations on the 838 should be similar in frequency and scope to the nearby 830-series routes. Buses will run from 5:30 AM to 7 PM. Departure times at each end are timed in order to be offset from the 831 route, the other Red Bank to Long Branch bus route, by 30 minutes, such that there are buses every 30 minutes between the two endpoints. Weekday service will be provided at hourly frequencies in each direction, requiring a commitment of two buses.

As a cost-savings measure, and in order to maximize community support for the route, we recommend 24-seat community shuttle equipment for the route. While this does have negative impacts on the equipment lifetime, the lower per-hour operating costs of this equipment more than outweigh the more frequent equipment acquisition costs.

SERVICE OUTLINE

	Weekdays	Saturdays
Hourly Operating Cost	$75	$75
Service Hours per Day	25.76	23.76
Days Per Year	255	52
Cost Per Day	$2,080	$1,782.50
Cost Per Year	$531,040	$92,620

Total Cost Per Year $623,730

Proposed Facility Improvements

07

Proposed Facility Improvements

LONG TERM RECOMMENDATION

- Add additional indoor waiting space, real-time bus information displays, and small vendor space.

IMPACTS

- Improved Customer Experience
- Improved Customer Visibility
- Capital Cost: $1 - 3 Million

BACKGROUND

The Red Bank Rail station serves as a regional transportation hub. Five different local bus routes, accounting for 138 weekday bus trips, run through the station, in addition to frequent North Jersey Coast Line rail service. On average, 403 people board NJT buses at Red Bank Rail Station per weekday, with 284 alightings, underscoring its centrality to the area. 1,187 passengers board trains from Red Bank on an average weekday.

Originally built in 1876 by the New York and Long Branch Railroad, Red Bank's station house was designed for the needs of a small 1800's town. Added to the National Register of Historic Places in 1976 and renovated meticulously in 2014 to its 1876 standards, the station's capacity as a modern transit facility is in part limited by choice; NJ Transit renovations were guided by a principle of historical preservation, rather than capacity growth.

The small indoor waiting area of the station house does not provide a sufficient space for the current passenger loads; the interior waiting area has space for small bathroom facilities, and a ticket office (staffed from 6 AM to 1:30 PM on weekdays). There is no vendor space, and all of the station's Ticket Vending Machines are located at the platforms. No real-time bus information displays are available, however real-time train displays are available at the platforms, near the Ticket Vending Machines.

RECOMMENDATIONS

Red Bank Rail Station lacks key facilities that many similar NJ Transit stations have. As a long-term project, the studio group recommends the construction of a waiting area annex in the existing open plaza adjacent to and north of the station house, with the following amenities:

•Seating for 30-40 passengers, to accommodate peak needs.

•Real-time bus and train status displays in multiple, convenient locations

•Public Address System for train and bus status announcements

•Space for a small food vendor/newsstand

•Bathroom facilities

•2-3 Ticket Vending Machines

The new waiting area would support, rather than replace, the existing station house. Waiting space would still be available at the 1876 Station House, in addition to the staffed ticket office; however, the new waiting area would support existing and future bus service, in addition to potentially expanded rail service

BENEFITS

An improved waiting area at Red Bank will improve the travel experience and increase interest in using connecting bus service. One key limitation of the current station is the lack of publicly-available information about connecting services at the station. This hampers Red Bank's viability as a real intermodal transportation center. Improving amenities, particularly in terms of information, will yield significant benefits for all services at Red Bank.

CONCLUSION

CONTENT

08

Conclusion

The studio group notes that all of the above recommendations function as a starting point for a greater discussion about service planning in the Bayshore region. Some of the recommendations are more innovative than others; however, all recommendations are rooted in information gathered from data analysis, stakeholder input, and personal experience riding the local and commuter bus routes.

The Bayshore region is a complex area with complex needs, and hosts a diverse group of transit users. A large share of New Jersey residents commute to dense urban areas such as New York City and Philadelphia, while other residents use local bus service to travel to school, colleges, medical offices, shopping malls, industrial zones, and other local economic centers and institutions. Meeting the needs of all of these users requires a wide range of services. NJ Transit has done an admirable job thus far of serving its customers. However, there is always room for improvement, including changes to existing services and implementation of new ones.

Many of the recommendations in this report require only small actions with little capital investment, such as rerouting small portions of local bus routes. On the other hand, other recommendations require significant capital investment, partnering with new organizations, and changing the structure of certain routes, or even the creation of new routes. However, the studio firmly believes that all of these changes are important to meet new changes and challenges in Monmouth and Middlesex counties.

Finally, the studio group would like to highlight the fact that local bus service serves as a driver of economic development, and also as an important part of the social service framework. It is especially important to remember that many riders of local bus routes tend to have some of the lowest incomes among all mode users. Individuals without access to cars, especially in a suburban area like the Bayshore region, deserve special consideration in the bus planning process. Those people for whom bus service is not a choice, but a necessity, are the most sensitive and vulnerable to any shortcomings in the existing transit network. The studio group would like to emphasize our special concern for these individuals.

In conclusion, the studio members would like to thank the readers of this report for their time and attention, and hope that these recommendations provide helpful guidance in NJ Transit's future bus planning.

Acknowledgments

08

The studio would like to acknowledge the contribution and assistance of many individuals to this report. In particular, for participation in our Stakeholder Engagement Session in February 2015, the studio thanks individuals representing organizations including:

Borough of Atlantic Highlands
Borough of Carteret
Borough of Keyport
Borough of Sea Bright
Brookdale Community College
City of South Amboy
Fort Monmouth Economic Revitalization Authority
Keep Middlesex Moving TMA
Meadowlink TMA
Middlesex County Aging and Disabled Services
Middlesex County College
Middlesex County Department of Economic and Business Development
Middlesex County Planning Department
Monmouth County Department of Human Services
NJTPA
Sayreville Economic Redevelopment Agency
T and M Associates
Township of Hazlet
Township of Middletown
Township of Old Bridge
Township of Woodbridge
Woodbridge Center Mall

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Professor Paul Larrousse
Professor Steve Fittante

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