

Nantucket Regional Transit Authority

Regional Transit Plan

Final Report - June 2015

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the WAVE
Nantucket Regional Transit Authority

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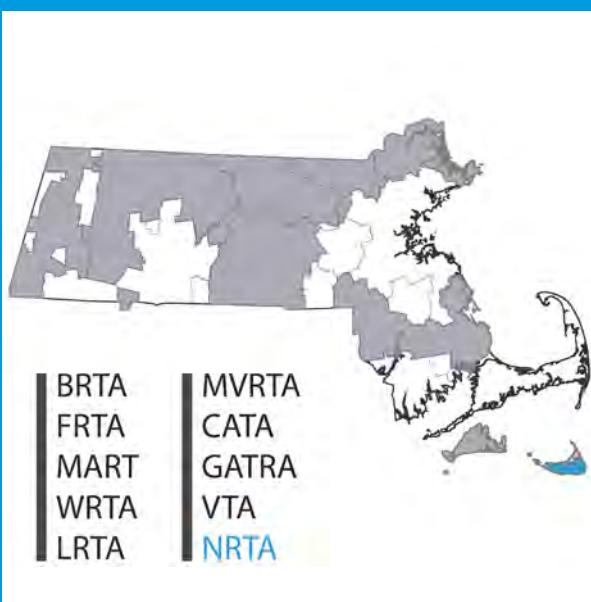
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Executive Summary

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Nantucket Regional Transit Authority

EXECUTIVE SUMMARY

Overview

The Nantucket Regional Transit Authority (NRTA) provides island wide seasonal fixed-route transit service (The Wave) and year round demand response van service in Nantucket. Beginning its operation in 1995, NRTA has grown from a fleet of 4 buses servicing 2 routes to a 10 route island wide system using 14. Figure 1 depicts Nantucket's service area and routes.

Figure 1. Nantucket Service Area



The Wave operates daily during the summer and shoulder seasons, roughly from mid-May to early October. These 9 routes provide service to the diverse community of year-round residents, second home owners, seasonal employees, and visitors and carries over 250,000 passengers during the summer peak season.

The State Legislature, in response to requirements of the Transportation Finance Bill passed in 2013, tasked each Regional Transit Authority (RTA) in the Commonwealth of Massachusetts to prepare a Regional Transit Plan. The purpose of this plan is to:

- examine NRTA's existing service

- identify local markets with potential ridership
- provide recommendations on ways to improve service operations.

The consultant firm of AECOM was selected to prepare this plan with assistance provided by NRTA, MassDOT, and local stakeholders.

Recommended Phase Approach

Phase 1 recommends extending service hours to meet the needs of riders during the peak season. In this phase some routes would operate as late as 2:00 AM, this would allow those working in the retail or service sector to use the NRTA after work. During Phase 2, new routes have been implemented to provide service to Cisco Beach and Tom Nevers during the peak season. Phase 3 seeks to implement service during the winter season on the higher performing routes, Mid Island Loop, Miacomet Loop, and Sconset via Old South Road Route. The addition of winter service will benefit the year-round residents of Nantucket. Recommendations presented in Phase 1 can be implemented immediately while recommendations in Phase 2 and 3 can only be implemented as resources become available.

Figure 2 depicts the NRTA service area with the proposed route network based on the recommendations in all three phases. Figure 3 depicts the NRTA service area and shows which routes should operate in the summer, winter, or shoulder seasons.

Figure 2. Proposed Route Network



NRTA Proposed Network

— Discontinued Segment

0 0.5 1 Miles

TMD
TRANSPORTATION MANAGEMENT & DESIGN, INC.

Map Updated: December 2014

AIRPORT/
FERRY CONN.

CISCO
BEACH

MADAKET

MAICOMET
LOOP

JETTIES
BEACH

MID ISLAND
LOOP

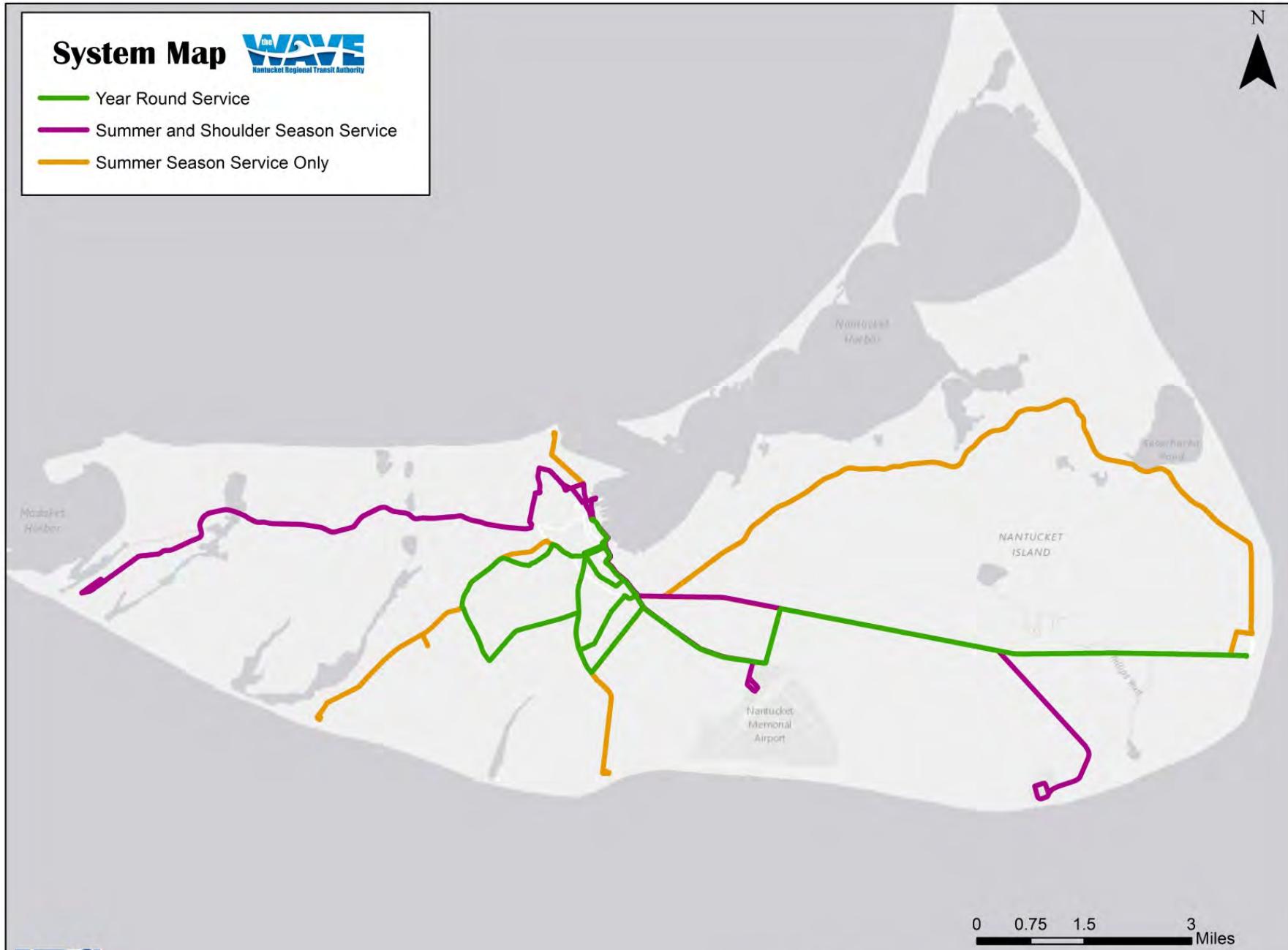
SCONSET
VIA OLD SOUTH

SCONSET
VIA POLPIS

SURFSIDE
BEACH

TOM NEVERS
VIA MILESTONE

Figure 3. Route Network by Operating Season



Benefits

Implementing the phased recommendations will provide benefits to NRTA and aid them in meeting their goals and objectives to provide a cost-efficient system while maintaining a high level of service to its riders. The phased service improvements will result in the following benefits:

1. Extending service hours, especially in the evening on high performing routes, will increase mobility in the region.
2. Implementing new routes will provide service to areas that demonstrate a high demand for transit service.
3. Implementing winter service will provide year-round transit to full-time residents of Nantucket and increase mobility in the region.

The following are NRTA objectives that have been met through the development and selection of the phased recommendations:

Goal #1: Provide Safe and Convenient Service

Objective 1.a: Increase transit frequency and service options in a way that is sensitive to the character of the Island.

Objective 1.b: Promote interconnectivity with other transportation modes, including boat, air, and bicycles

Objective 1.c: Improve transit access for transit-dependent populations

Goal #2: Minimize Auto Use on the Island

Objective 2.a: Increase transit frequency and service options in a way that is sensitive to the character of the Island

Goal #3: Better Align Service with Year-round Community Needs

Objective 3.b: Improve existing service and implement new service that meets the demands of present and potential users

Objective 3.c: Provide year-round fixed-route service

Objective 3.d: Work with the community to identify transit dependent populations

Goal #4: Meet Needs of Diverse Summer Population

Objective 4.b: Increase transit frequency and service options in a way that is sensitive to the character of the Island

Cost Estimation

With the implementation of each phased recommendation, additional operational and capital improvements will increase NRTA's annual cost. Figure 3 depicts the base operating costs for the existing system along with the additional costs associated with the service improvements in each phase.

NRTA's existing annual revenue operating hours are 18,443, these hours are expected to increase throughout each phase. During Phase 1 annual revenue hours will increase by 4,862; annual revenue hours will increase by 3,128 in Phase 2 and finally by 9,156 to an estimated 35,588 hours in Phase 3.

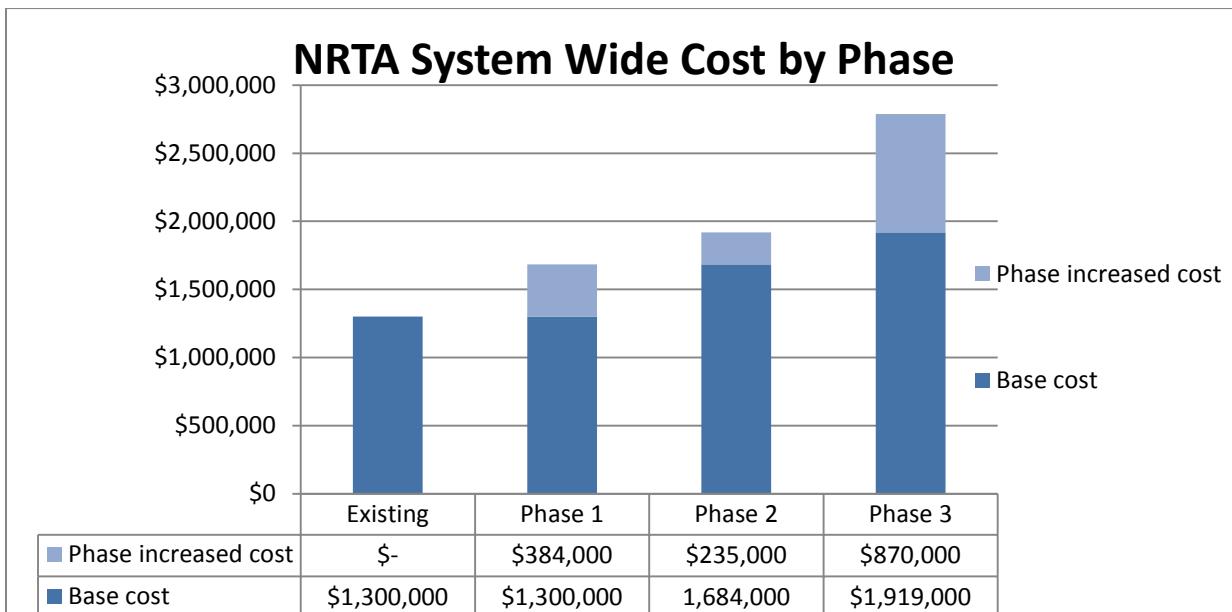


Figure 4. Cost by Phase

Capital Costs

Phase 1 service improvements have been designed using the constraint of NRTA's existing fleet of 18 buses, 14 of which are used during peak service. Additional vehicles will be required for the recommendations presented in Phases 2 and 3. To implement these phases in a timely manner, NRTA must begin the planning process now as vehicle procurement can take up to two years before the buses can be put into service. During peak service, Phase 2 and Phase 3 will both require 16 vehicles.

Framework

Recommendations were developed using a cumulative process that incorporated public outreach, a diverse steering committee, operational input from NRTA, and analysis of existing transit service and the local/regional market. Strategies to improve the system were developed based on NRTA's goals and objectives and the following guidelines:

1. **Simplify** – Routes should be designed along main corridors with minimal schedule deviations. For routes that are not linear, service should be provided in both directions.
2. **Service should match demand** – The denser (both in terms of employment and population) areas should have a higher level of service with either higher frequency routes or multiple lower frequency routes. Major corridors often warrant higher frequencies.
3. **Standardized frequency** – Frequencies should be standardized using clock-face schedules to create 15, 30, 60 and 120 minute headways.
4. **Priority to existing ridership** – Service should be increased in areas that warrant it over servicing new areas if limited resources are available.
5. **Efficiency** – Where possible routes should be designed to be the most efficient. Decisions to deviate off the main corridor and add time to the route are only warranted where key destinations like shopping centers are too far off the main road, there are a lack of pedestrian facilities or the benefit (due to demand) of servicing the deviation outweighs the additional time incurred to others on the route.
6. **Consistency** – Except where warranted by peak only routes or increased peak hour service, service should have consistent headways throughout the day using clock-face schedules.
7. **Regional network** – Regional connections should be improved to provide access outside of the MART service area through timed transfers with other systems such as FRTA, LRTA, or WRTA to areas identified as common destinations through the market analysis and public outreach process.

Task Summaries

The Transportation Finance Bill assigned the following nine tasks to be evaluated by each RTA:

Task 1. Comprehensive Assessment of Transit Services

In 2012 NRTA adopted a mission statement and identified four goals to help guide service improvements. These goals, as outlined below, have been considered in the development of this Regional Transit Plan.

- Goal 1: Provide Safe and Convenient Service
- Goal 2: Minimize Auto Use on the Island
- Goal 3: Better Align Service with Year-round Community Needs
- Goal 4: Meet Needs of Diverse Summer Population

Task 2. Examination of Ridership Trends

Ridership data collected by NRTA is based on the summer and shoulder operating seasons. Each year the NRTA service carries over 250,000 passengers, the largest share of these trips occurred in July and August with each month reporting over 90,000 passengers. During the peak summer season, average system ridership is 3,050 passengers per day; however this figure experiences a drastic decrease to 940 passengers per day during the shoulder season (September – October). Use of the NRTA service is growing each year, as is evidenced by the increasing ridership levels; between 2013 and 2011, ridership

increased by 6.2%. This growth is not isolated to specific routes; seven out of the nine NRTA routes experienced an increase in riders between 2011 and 2013.

Task 3. Performance Analysis of Service

Each route in the NRTA service area was evaluated based on several factors including ridership, passengers per revenue hours, and subsidy per passenger. Jetties Beach Route and Surfside Beach Route were the top two performing routes in the NRTA service followed by the Miacomet Loop, Mid Island Loop, Sconset vis Old South Road Route, and Madaket Route. These routes are top priorities for service investment and may benefit from increased service frequencies or service spans. Routes performing below average, such as the Sconset via Polpis Road Route, may require additional analysis to determine the cause of the problem or may be considered for discontinuation of service.

Task 4. Develop and Evaluate Service Alternatives

Service alternatives for the entire NRTA system were evaluated through a process that incorporated public outreach, a diverse steering committee, operational input from NRTA, and analyses of the existing transit service and local market. Alternatives were guided by the four goals identified by NRTA to improve service. Preliminary alternatives were presented to NRTA at a November workshop where they were further refined.

Task 5. Recommendations to Better Align Service

Recommendations for NRTA have been presented through a three phase approach. Phases establish the immediacy and prioritization of needs and are based on an incremental approach and by the availability of resources. Phase 1 recommends extending service hours to meet the needs of riders during the peak season. During Phase 2, new routes have been implemented to provide service to Cisco Beach and Tom Nevers. Phase 3 seeks to implement service during the winter season. Recommendations in Phase 1 can be implemented immediately while recommendations in Phase 2 and 3 can only be implemented as resources become available.

Task 6. Commonwealth's Environmental Policies

GreenDOT's implementation plan, developed in 2012, identifies themes, goals and indicators to guide transportation development to a more sustainable future. An evaluation of NRTA's services was conducted to determine their ongoing compliance with the policy. While there are over 300 short, medium, and long-term indicators, only 42% are applicable to NRTA. Of these applicable indicators, NRTA is already meeting 27% and working towards meeting additional medium-term indicators by 2015 and long-term indicators by 2020.

Task 7. Fare Rates and Collection Methods

In 2002, NRTA installed GFI Genfare Electronic Validating Fareboxes on all fixed route vehicles. These fareboxes accept coins and bills and can issue change cards, essentially a stored value card, which can be

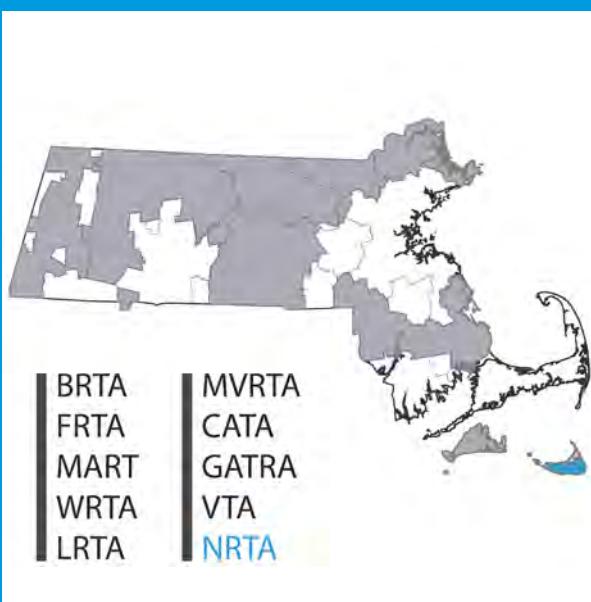
used towards payment for future fares. Short term passes, available in 1-day, 3-day, and 7-day denominations, can also be purchased from the farebox and season passes can be purchased in the NRTA Administrative Office. Adult fares range from \$1.00 to \$2.00 depending on the route while seniors, those with disabilities, and veterans and active military personnel are offered half-priced fares. Moving forward, NRTA should explore new technology, such as mobile payments or bPay/Magic Band/Uband, to replace outdated fare collection technology.

Task 8. Region's Job Creation Goals and Employment Needs

Nantucket's economy is dominated by seasonal employment; during the peak summer season jobs in the region double from a low of 5,000 in February to a high of roughly 11,500 in July. 70% of jobs in Nantucket are in the retail and service sector.

Task 9. Determination of Effectiveness of NRTA Service to Meet the Needs of the Region's Workforce

Demand levels were calculated separately for the summer season and off-season. The level of potential demand for the summer months is based on the housing unit density, presence of commercial/industrial land uses, proximity to hospitals, presence of public beaches, the enrollment at local colleges and universities, and the number of park-and-ride spaces. Potential demand for the off-season is based on population density, proximity to the schools and hospitals, presence of commercial/industrial land uses, and the number of park-and-ride spaces. The analysis revealed that NRTA provides fixed-route service to all but three areas that have a high level of demand during the peak summer season. The underserved regions, which include sections of Eel Point, Cisco Area, and Tom Nevers, have higher residential densities and numerous public beaches and would benefit from increased access to public transportation. Workers in the retail and service industry would benefit from extended service hours which typically terminate around 11:30 PM even though many establishments are open later.



Chapter 1

Project Overview

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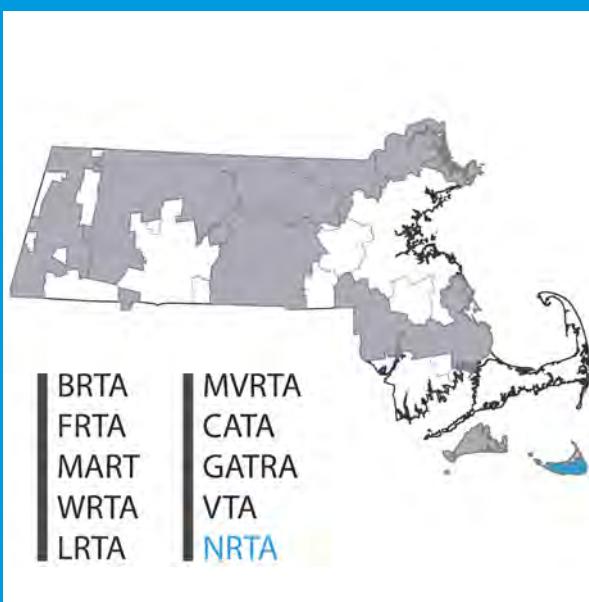
1. PROJECT OVERVIEW

The State Legislature has instructed all Regional Transit Authorities (RTAs) in the Commonwealth of Massachusetts to undertake the preparation of a Regional Transit Plan as a requirement of the Transportation Finance Bill passed in 2013. These Regional Transit Plans present an opportunity to improve local bus service operations, identify new markets of service opportunity, and meet the identified needs for public transit services in each respective RTA service area. Section 63 of the Bill notes nine discrete tasks that each Regional Transit Plan must address. These tasks are as follows:

- (1) Comprehensive assessment of transit services
- (2) Thorough examination of the ridership trends for each line and service provided by the regional transit authority
- (3) Performance analysis of existing services
- (4) Development and evaluation of alternative service scenarios
- (5) Development of a recommendation to better align service with local and regional demand
- (6) Commonwealth's environmental policies
- (7) Fare rates and collection methods
- (8) Region's job creation goals and employment needs
- (9) Determination of whether the regional transit authority's service is deployed in the most effective way possible to accommodate the transit needs of the region's workforce.

Each RTA is also required to hold public hearings on the draft plan relating to the development of its Regional Transit Plan in order to inform the public and gather their input.

The Nantucket Regional Transit Authority has prepared this Regional Transit Plan in accordance with the Transportation Finance Bill.



Chapter 2

Project Purpose

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Nantucket Regional Transit Authority

2. PROJECT PURPOSE

The Nantucket Regional Transit Authority (NRTA) provides island wide seasonal fixed-route transit service and year round demand response van service. The NRTA was established to alleviate downtown traffic congestion and to create parking opportunities in the downtown core district. The NRTA began providing seasonal fixed route service in 1995 operating four buses on two mid-island area routes. It soon became apparent that the NRTA would become an island-wide transportation system. The NRTA has expanded its services to provide island-wide transportation operating ten routes with 14 buses. In July 2001 the NRTA began providing year round door-to-door advanced reservation van service, Your Island Ride, to elders 60 years of age and older and persons with disabilities. Beginning in May 2014, the NRTA began a pilot program, funded privately from various stakeholders, the Fast Ferry Connector operated through mid-October. Direct bus service is provided from an overnight park and ride lot outside of the downtown area to both the Hy-Line and Steamship Authority ferries. During the high season this route is incorporated as part of the existing Airport Route. During the shoulder seasons bus service is provided between the park and ride lot and the ferries.

The NRTA was created by Massachusetts General Laws Chapter 161B in 1993, although operations did not begin until 1995. The NRTA is a body politic and corporate and political subdivision of the Commonwealth of Massachusetts. According to the statute, regional transit authorities cannot operate service directly, but instead must contract with private operators for the provision of service. The NRTA contracts with Valley Transportation Services of Massachusetts, Inc. to provide operating and management services for the NRTA's seasonal fixed route service and Your Island Ride van service

Funding sources for regional transit authorities include local, state and federal programs for operating assistance funds as well as capital funding available through the state and federal governments. Local funding is assessed to the Town of Nantucket, and increases are capped at 2.5% per year, unless new service is added. State funding is provided by the Commonwealth of Massachusetts Department of Transportation through state contract assistance. Federal money, through rural operating assistance Section 5311, is provided to the NRTA. Farebox revenue is money collected from passengers and pass sales. Other revenue includes advertising revenue and local business financial support for the Fast Ferry connector. The NRTA's operating budget covers three areas of expense; fixed route, demand response and administration.

2.1 Core Goals and Objectives

In April 2014, representatives from several Regional Transit Authorities (RTAs) were asked what they wanted their Regional Transit Plans to accomplish. Ideas were developed and ranked by these representatives to create a core list of goals and objectives for each RTA's Regional Transit Plan. The

most highly-rated concepts – and those to which each of the Regional Transit Plans will respond – are as follows:

- Better align service with needs
- Improve efficiency and cost-effectiveness of system
- Improve transit access for the public
- Increase ridership levels
- Increase transit frequency and service options
- Increase revenue
- Improve transit access for transit-dependent populations
- Support economic development

While goals outline priorities, objectives are measurable actions that are necessary to realize the goals. The above list can be broken down as follows:

Table 1. Core Goals and Objectives

Goals	Objectives
<ul style="list-style-type: none"> • Increase ridership levels • Better align service with needs • Support economic development • Increase revenue 	<ul style="list-style-type: none"> • Increase transit frequency and service options • Improve transit access for the public • Improve transit access for transit-dependent populations • Improve efficiency and cost-effectiveness of system

It should be noted that goals and objectives that were ranked favorably by individual RTAs but did not receive an overall high ranking will still be considered in the Regional Transit Plan for those authorities. Section 2.2 explains the goals and objectives that are specific to NRTA.

2.2 NRTA Goals and Objectives

In addition to responding to the core goals and objectives outlined in section 2.1, the Regional Transit Plan for NRTA is also based on concerns that are specific to this RTA. In 2012, NRTA adopted a mission statement and set of goals as part of the Massachusetts Department of Transportation (MassDOT) plan to increase transportation funding. The work was completed with assistance from a transit marketing consultant and was part of an overall rebranding effort.

Mission Statement:

Nantucket Regional Transit Authority has established a standard of excellence that is only equaled to its commitment to provide safe, efficient, and widely accessible transportation service to meet the needs of the year-round community and the diverse summer population it serves.

Goal 1: Provide Safe and Convenient Service

- Provide a safe and convenient alternative to driving for residents and visitors that is sensitive to the character of the Island and offers an array of interconnected modes to the public that provides/offers access to jobs and services

Objectives:

1. Increase transit frequency and service options in a way that is sensitive to the character of the Island
2. Promote interconnectivity with other transportation modes, including boat, air, and bicycles
3. Improve transit access for transit-dependent populations

Goal 2: Minimize Auto Use on the Island

- Minimize the use of automobiles on Nantucket and provide an attractive, accessible alternative transportation option that meets mobility needs while contributing to increased access to opportunities and a healthy environment for residents and visitors

Objectives:

1. Increase transit frequency and service options to make bus use an attractive transportation alternative
2. Provide rider-friendly and accessible marketing material
3. Continue to provide park and ride facilities as a convenience for riders
4. Continue the use of technology to make bus use more convenient

Goal 3: Better Align Service with Year-round Community Needs

- Ensure access to public transit that meets the demands of the year-round community and provides residents who do not have automobile access to jobs and services

Objectives:

1. Promote services through marketing efforts in order to increase awareness of options for transit-dependent populations
2. Improve existing service and implement new service that meets the demands of present and potential users
3. Provide year-round fixed-route service
4. Work with the community to identify transit dependent populations

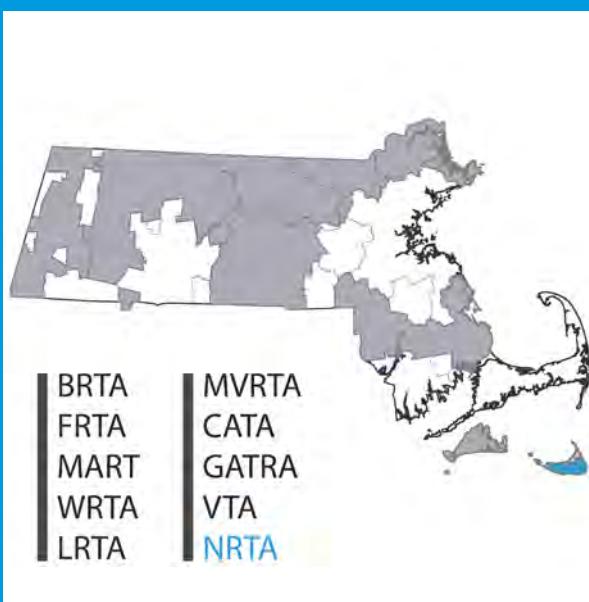
Goal 4: Meet Needs of Diverse Summer Population

- Expand and increase services and frequencies to meet the needs of the increased and diverse summer population

Objectives:

1. Educate tourists about the bus system before they arrive on the island
2. Increase transit frequency and service options to make bus use an attractive transportation alternative
3. Provide rider-friendly and accessible marketing material

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Chapter 3

Performance Analysis

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Nantucket Regional Transit Authority

3. NRTA PERFORMANCE ANALYSIS

3.1 Service Overview

The Nantucket Regional Transit Authority (NRTA) provides seasonal fixed route public transit service (The Wave) in Nantucket. The Wave operates from mid-May to early October operating ten routes utilizing 14 vehicles. There are a total of 18 revenue vehicles in the fleet. The route configurations meet the needs of the islands diverse seasonal community of year round residents, second home owners, seasonal employees, and both long term and short term visitors. Table 2 below provides an overview of routes operated by NRTA, including the type of service, a description, and when the route is in operation.

Table 2. NRTA Overview

Route	Service Type	Description	Days Operated
Mid Island Loop	Fixed Route	Services downtown and the mid island area	Daily – mid May through early October
Miacomet Loop	Fixed Route	Services downtown the mid island and outer mid island area	Daily – mid May through early October
Sconset via Old South Road Route	Fixed Route	Services downtown and the village of Sconset along a residential and commercial area	Daily – mid May through early October
Madaket Route	Fixed Route	Services downtown and the village of Madaket and points along the way	Daily – end of May to early September
Sconset via Milestone Road Route	Fixed Route	Services downtown and the village of Sconset and points along the way	Daily – end of June to early September
Airport Route¹	Fixed Route	Services downtown and Nantucket Memorial Airport and points along the way	Daily – end of June to Labor Day
Surfside Beach	Fixed Route	Services Surfside Beach	Daily – end of June to Labor Day

¹ Fast Ferry Connector – 2014 pilot program provided overnight parking at an out of town lot with bus service to the boats. A portion of the route this season was incorporated into the Airport Route. This increased service to ten routes utilizing 14 vehicles.

Jetties Beach	Fixed Route	Services Jetties Beach	Daily – end of June to Labor Day
Sconset via Polpis Road	Fixed Route	Services downtown and the village of Sconset and points along the way	Daily – end of June to Labor Day

3.2 Ridership

- System ridership is based on the summer operating season
- Over 250,000 passengers per season and over 90,000 per month in July and August
- Ridership has increased 6.2 percent from 2011 to 2013

The Wave carries over 250,000 passengers each season. 2013 ridership increased 3.6 percent from 2012 and 6.2 percent from 2011. Ridership projections for 2014 suggest that ridership will continue to increase slightly from 2013 and 2012 levels given the increase in seasonal population and service expansion.

The Wave averages about 45,000 passengers each month during the summer operating season with about 45 percent of total boardings in July and August, as seen in Figure 4. Average monthly ridership has remained relatively stable over the last three seasons. Ridership drops slightly during the early summer and late summer months when there is a reduction in seasonal population and parking availability is less restricted in the downtown area.

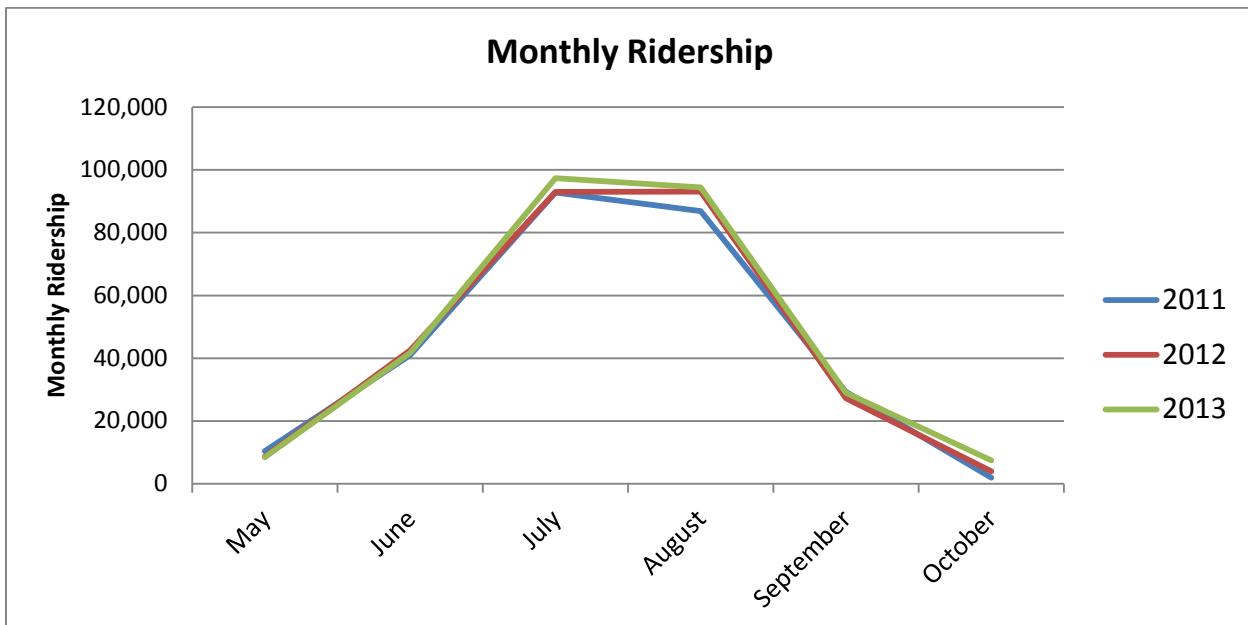


Figure 4. NRTA Monthly Ridership. Note: Lower frequency of service is provided outside the peak season.

3.21 Preseason Ridership (May-June)

Average daily system ridership for the period prior to the peak service season was 1,120 passengers. The Miacomet Loop has the highest ridership of the four routes that operate in the shoulder seasons with an average of 344 passengers per day. Ridership for routes operating prior to the peak season is shown in Figure 5.

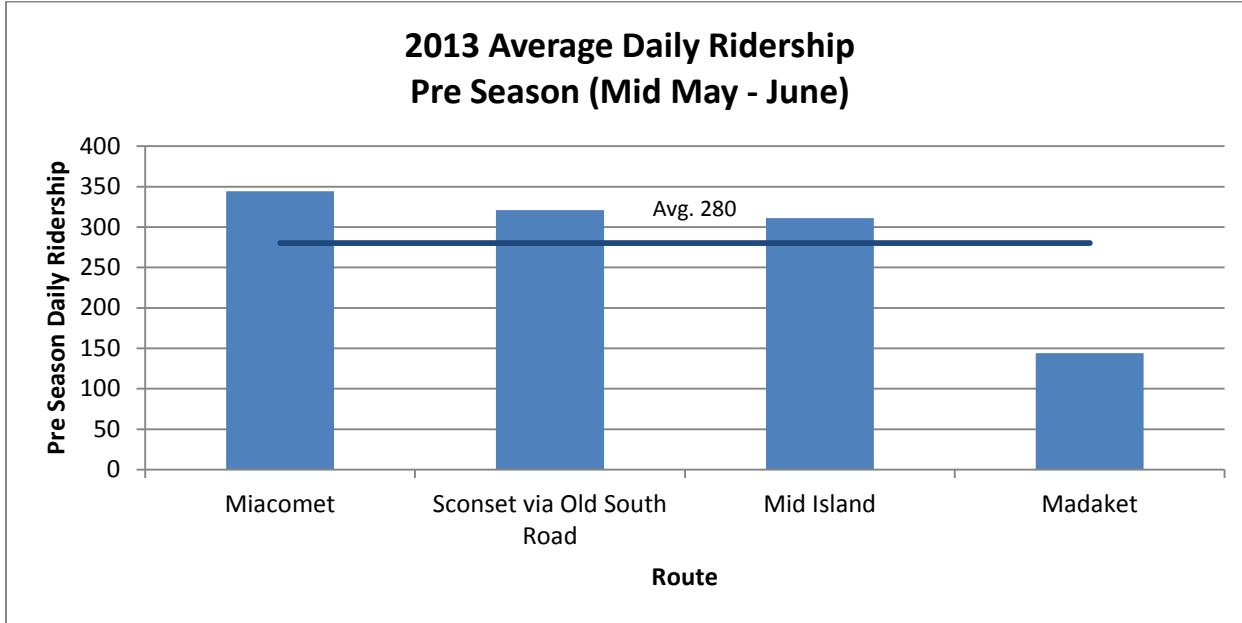


Figure 5. NRTA Average Daily Ridership for Routes Operating Prior to Peak Season

All four routes in operation during the pre-peak season experienced growth between 2011 and 2013. The Madaket Route and Miacomet Loop both experienced 12 percent growth in daily ridership over the two year period, while the Sconset via Old South Road and Mid Island Loop experienced a five percent growth. Figure 6 shows the change in ridership between 2011 and 2013 for routes in operation prior to the peak season.

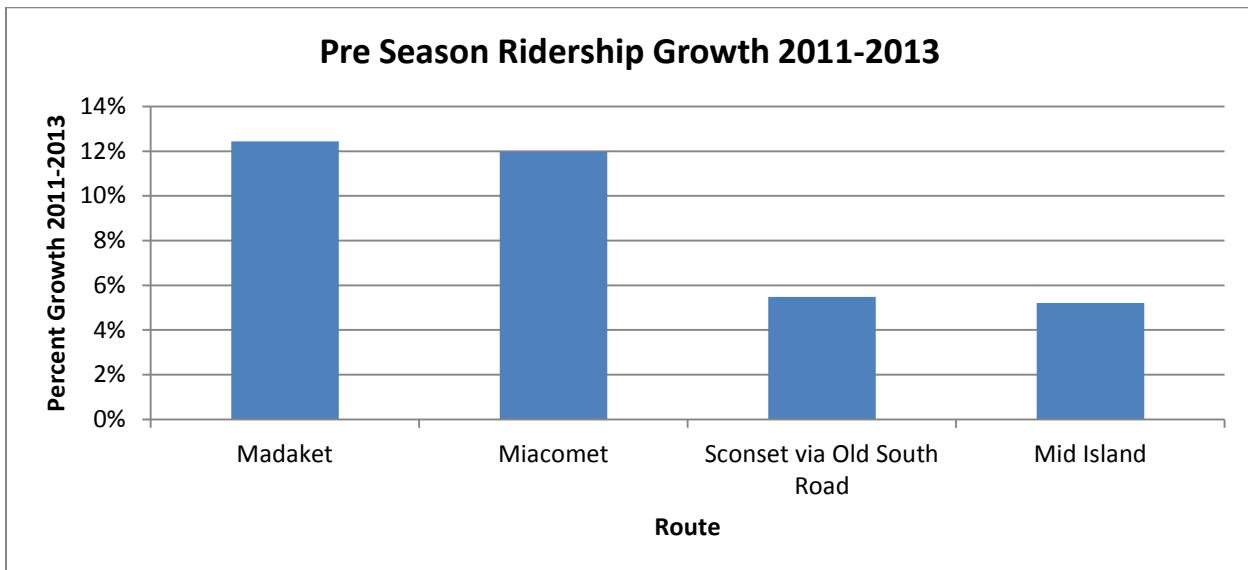


Figure 6. NRTA Pre Season Ridership Growth, 2011 to 2013

3.22 Peak Season Ridership (July – August)

During the peak season, average system ridership is 3,050 passengers per day, with an average of 339 passengers per bus route. Note that this average includes select data from late May and early September for services that run purely during the peak season. As with the pre-season service, the Miacomet route has the highest ridership out of all routes in the system. The top four routes all operate into the shoulders of the summer peak season, and account for 72 percent of system ridership. Ridership for routes operating during the peak season is shown in Figure 7.

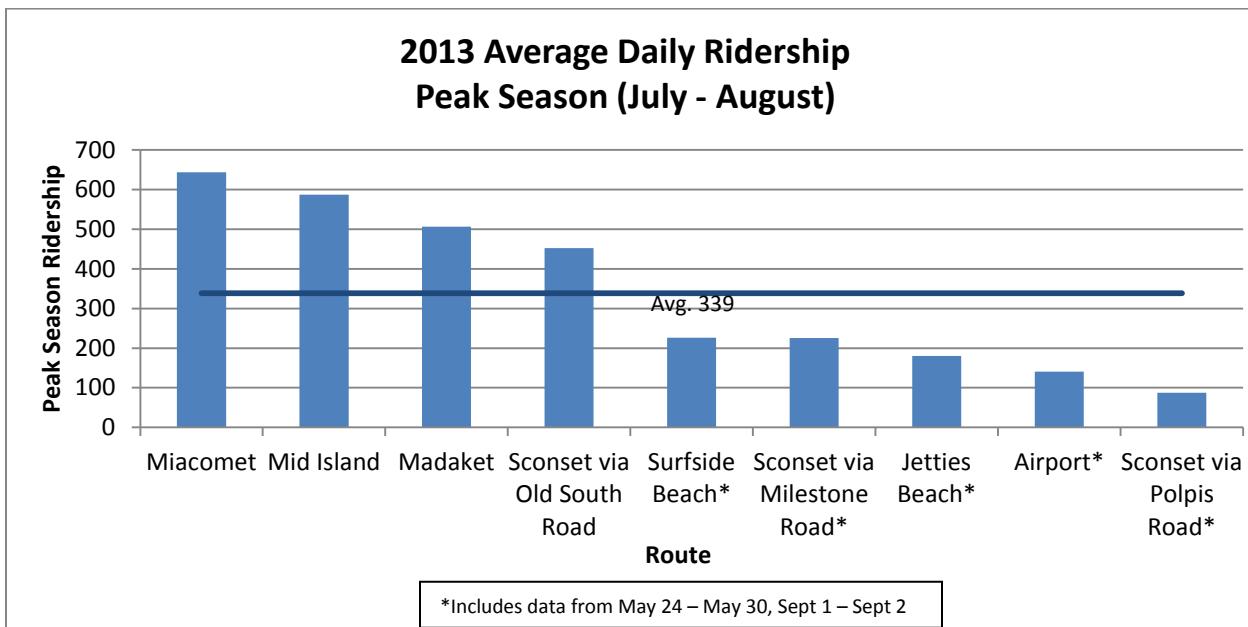


Figure 7. NRTA Average Daily Ridership for Routes Operating during Peak Season

Seven of the nine routes in operation experienced ridership growth between 2011 and 2013. The Mid Island Loop experienced the largest growth in daily ridership of 12 percent, while the Surfside Beach Route had the largest drop of 10 percent. This drop in ridership may be caused by weather or increased popularity of other beaches. Figure 8 shows the change in ridership between 2011 and 2013 for routes in operation during the peak season.

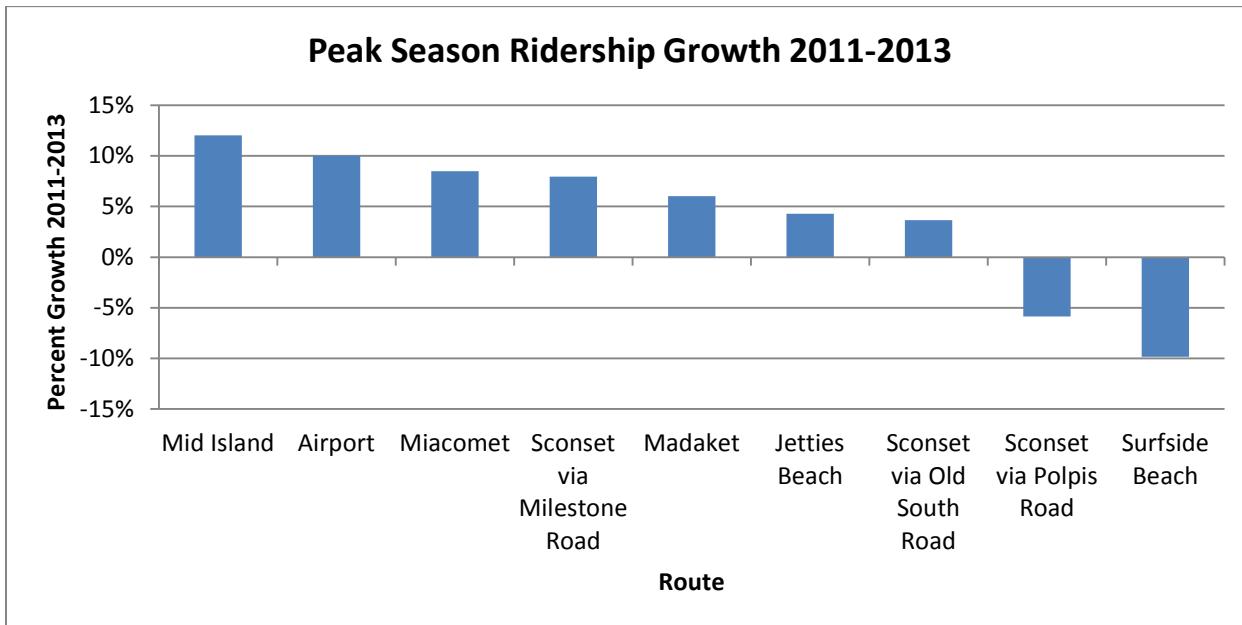


Figure 8. NRTA Peak Season Ridership Growth, 2011 to 2013

3.23 Post Season Ridership (September – October)

After the peak season, ridership drops considerably, with average daily ridership in the system down to 940 passengers per day. The Miacomet route has the strongest ridership at 265 passengers per day. Service ends in the middle of October as seasonal population decreases. Ridership for routes operating after the peak season is shown in Figure 9.

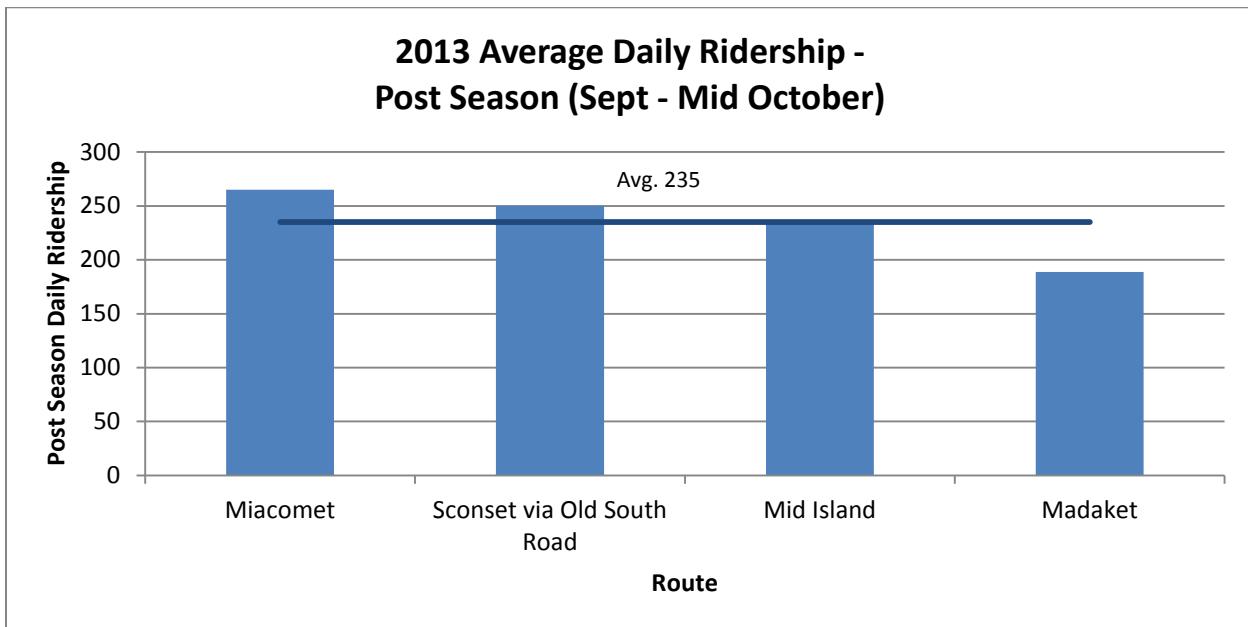


Figure 9. NRTA Average Daily Ridership for Routes Operating after Peak Season

Growth in post season daily ridership was more pronounced compared to earlier in the year. The Sconset via Old South Road Route had the largest ridership gain of 20 percent, while the Madaket route had a 14 percent drop in daily ridership. However, this drop should not be emphasized as the Madaket route ends one week after Labor Day and thus the lower daily ridership in 2013 may be an effect of a small sample and having additional “peak” days in 2011. Figure 10 shows the ridership change from 2011 to 2013 after the peak season.

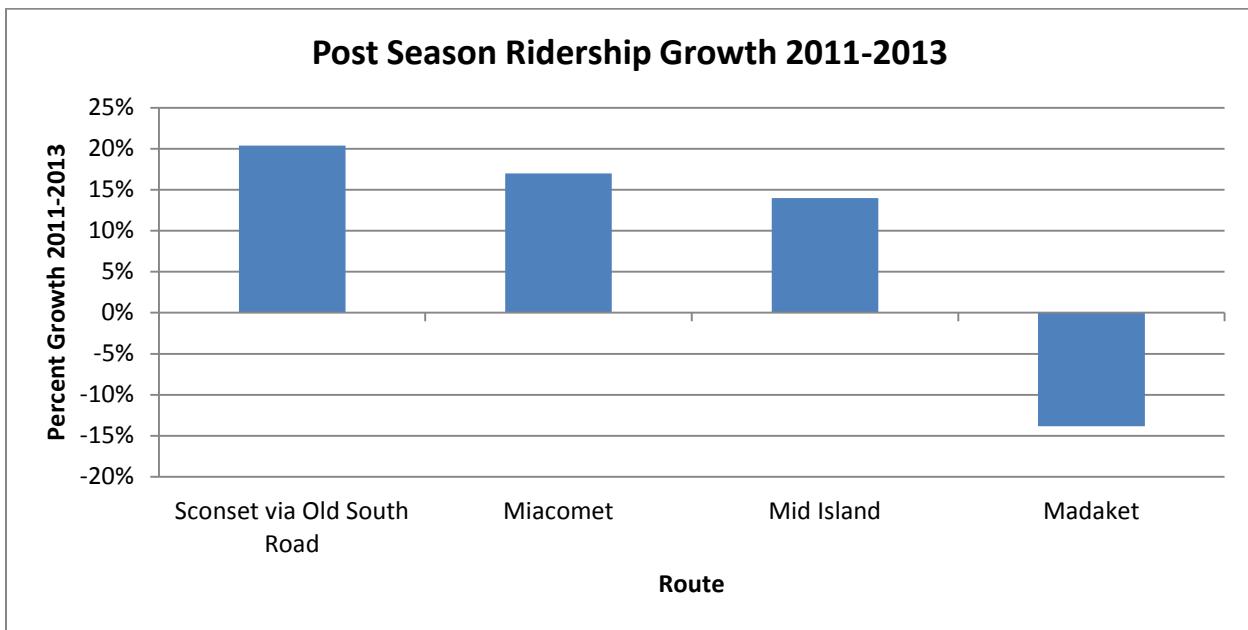


Figure 10. NRTA Post Season Ridership Growth, 2011 to 2013

3.3 Service Operations

3.31 Revenue Hours

- Over 16,000 annual and 5,177 peak monthly revenue hours
- 2.4 percent increase in revenue hours between 2012 and 2013
- Increase due to additional hours in the early and late summer months from 2012
- The Mid Island, Miacomet, and Sconset via Old South routes operate from 7AM to 11:30PM. The Sconset via Milestone route operates from 7:15AM to 7:15PM. The Fast Ferry Connector route operates from 7AM to 8PM. All other routes operate from 10AM to 6PM.

The Wave runs over 16,000 revenue hours each year with a peak season monthly average of 5,177 hours. Revenue hours increased overall by 2.4 percent between 2013 and 2012. To date in 2014, revenue hours have increased 1.9 percent over the same time period in 2013.

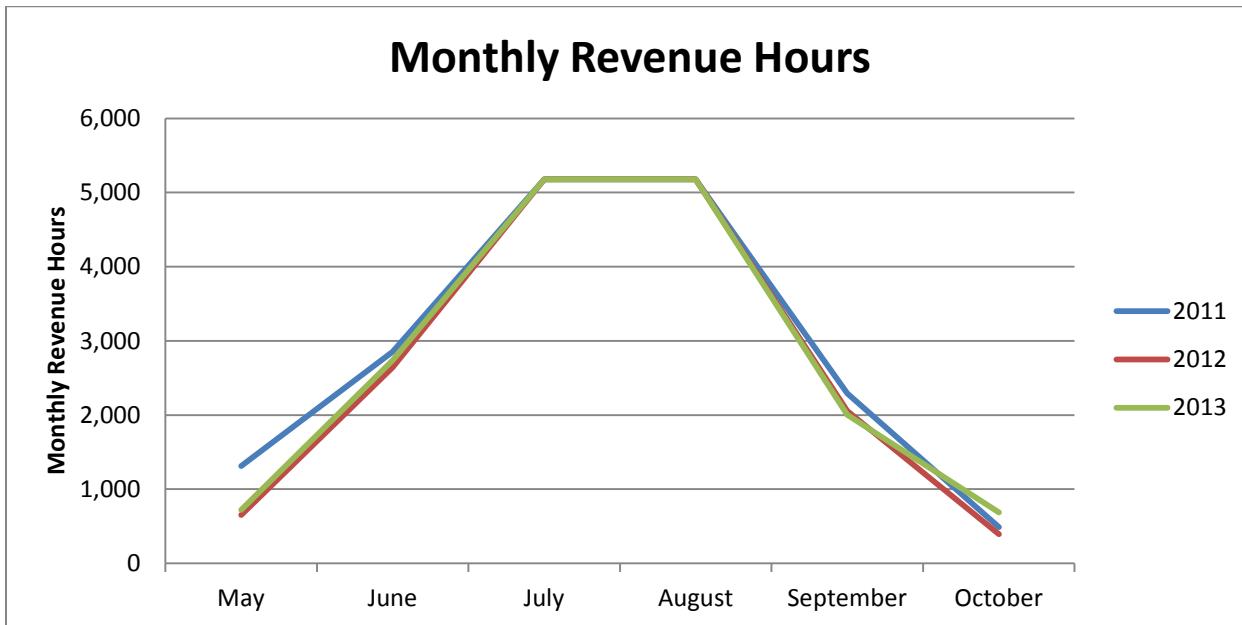


Figure 11. NRTA Monthly Revenue Hours

3.32 Revenue Miles

- Over 180,000 annual and 50,000 peak monthly revenue miles
- 2.8 percent decrease in revenue miles from 2011 to 2013, but 4.1 percent increase from 2012 to 2013

Revenue miles decreased 2.8 percent from 2012 to 2013 and increased 4.1 percent from 2012 to 2013. This increase is primarily in the early and late summer “shoulder” season and corresponds with the increase in revenue hours from 2012 to 2013.

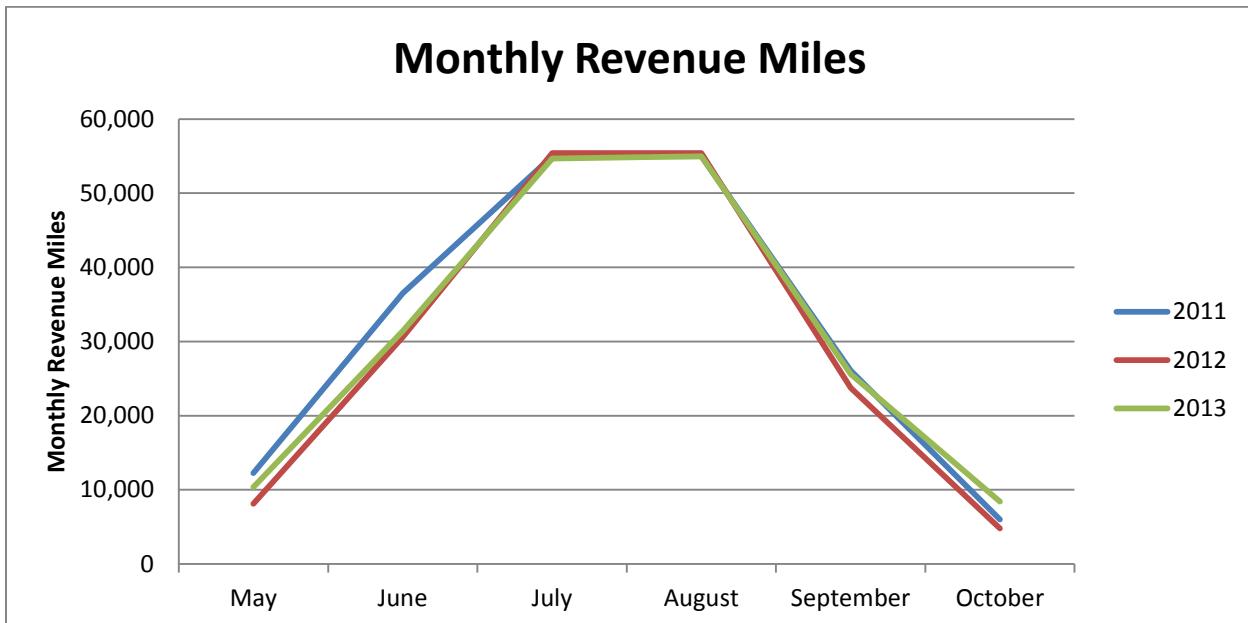


Figure 12. NRTA Monthly Revenue Miles

3.33 Operating Costs

- \$1.3 million operating cost annually, \$100,000 average monthly.
- The operating costs increase significantly in the summer months as service increases
- The hourly operating cost in 2013 was about \$75
- Are revenue hours or revenue miles the primary determinant of the operating cost

The Wave operations cost \$1.3 million annually with a monthly average of over \$100,000. As the service provided is mainly seasonal, operating costs are higher in the summer months and lower in the winter months. Operating costs during the peak months of July and August are approximately \$400,000. The Wave has an hourly operating cost of about \$75 per revenue hour. Although revenue hours are the primary determinant of the Wave’s operating costs, from 2012 to 2013 operating costs increased by seven percent while revenue hours increased by only 2.4 percent.

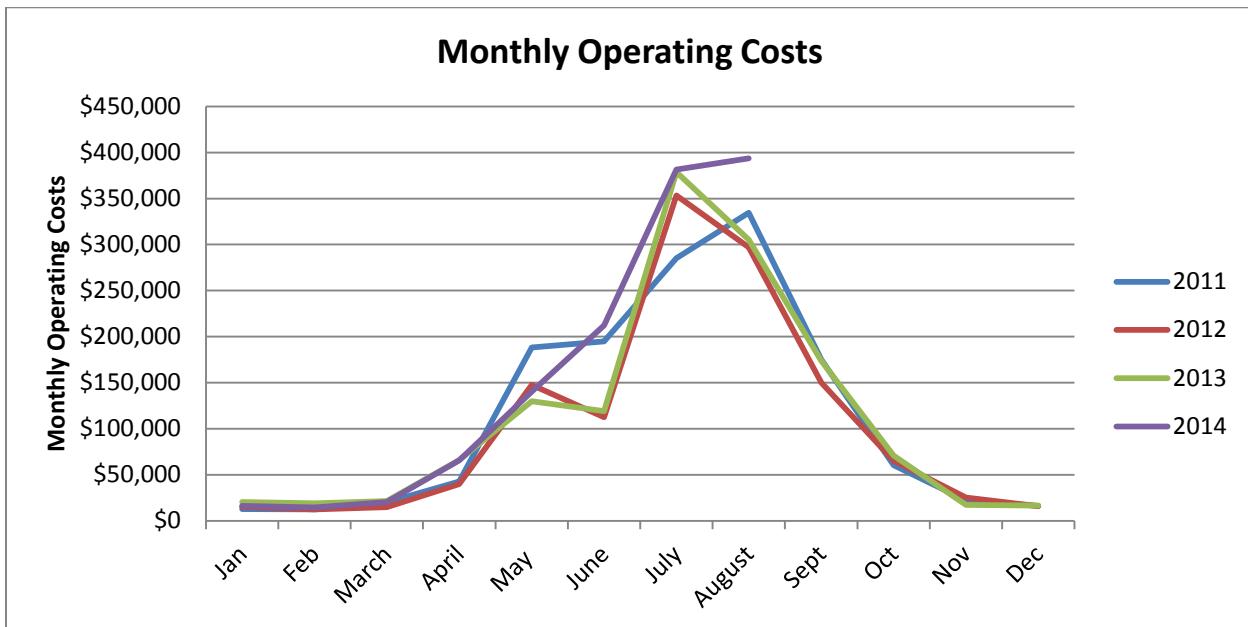


Figure 13. NRTA Monthly Operating Costs

3.4 Service Productivity

3.41 System Productivity

- 16.87 riders per revenue hour in 2013
- Productivity has increased annually since 2011

Productivity measures the ridership generated per unit of service (revenue hours or revenue miles) and provides an understanding of the effectiveness of a route or transit network.

Since revenue hours increased 2.4 percent from 2012 to 2013, The Wave has experienced a slight increase in service productivity on a revenue hour basis. Productivity was 16.67 passengers per revenue hour in 2012 and 16.87 in 2013. However, during the peak months of July and August productivity increased from 16.58 in 2011 to 17.97 in 2012 and 18.52 in 2013. Figure 14 below shows the steady increase in service productivity.

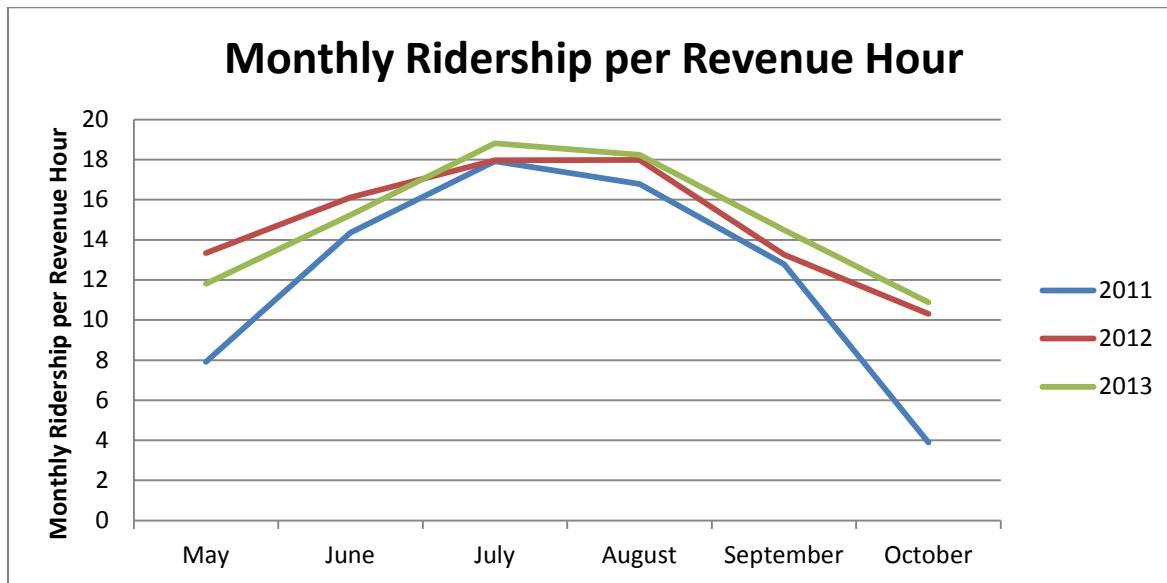


Figure 14. NRTA monthly Ridership per Revenue Hour

3.42 Route Productivity

The Wave routes do not exhibit a wide range of performance. However, the routes with the highest performance are the Beach routes. The Surfside Beach route has the highest passengers per revenue hour with 28.4, while the Jetties² and Surfside Beach routes had the highest passengers per revenue mile with 5.66 and 2.72 respectively. The route with the lowest performance in both measures is Sconset via Polpis Road route with 11.8 passengers per revenue hour and 0.78 passengers per revenue mile.

The system has an average productivity of 22.3 riders per hour. Two of the three top performing routes (Miacomet and Mid Island) are also the top routes by ridership. The Surfside Beach route is the top performing route but is not in the top three in ridership. Figure 16 shows the change in productivity from 2011 to 2013 for routes in operation all three years. Five routes experienced growth in productivity, with the Madaket Route experiencing the biggest decrease in productivity.

² Ridership per revenue mile is high on this route because each loop is only 1.8 miles long , while ridership per revenue hour is comparable to the rest of the system because it takes 30 minutes to complete one loop/trip in order to maintain a clock face schedule.

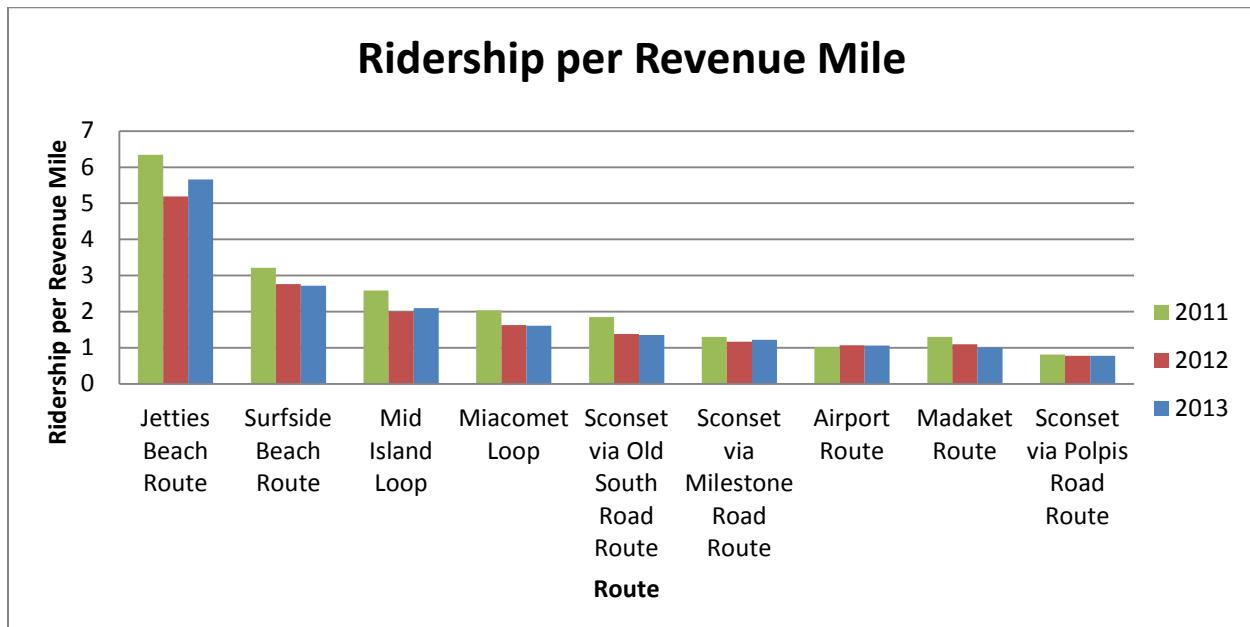


Figure 15. NRTA Ridership per Revenue Mile Productivity

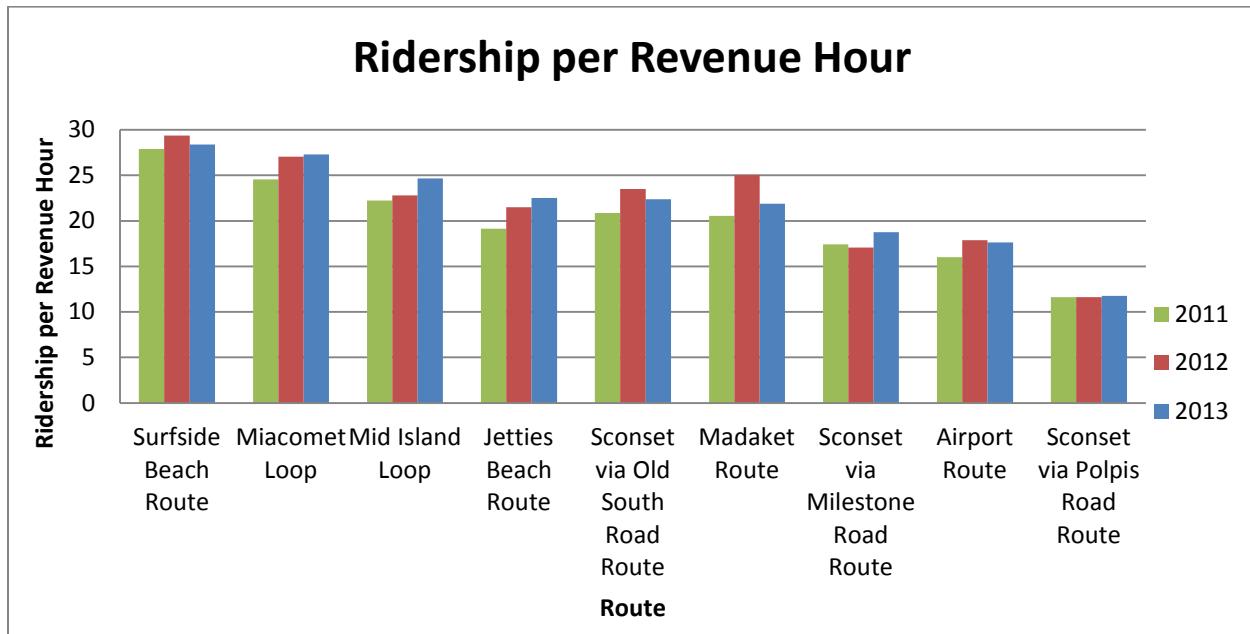


Figure 16. NRTA Ridership per Revenue Hour Productivity

3.5 Financial Performance

3.51 Farebox Recovery Ratio

- The farebox recovery ratio has generally been between 25-30% between 2011 and 2013
- The ratio has increased slightly each year from 2011 to 2013
- The change is primarily due to an increase in farebox and season pass revenue each year

The farebox recovery ratio measures the portion of operating costs covered by passenger fares. Higher ratios indicate higher cost-effectiveness and require fewer subsidies to operate service. Farebox recovery has increased modestly over the past three seasons. The average farebox recovery ratio was 26.1 percent in 2011, 29.4 percent in 2012, and 30.2 percent in 2013. This is most likely due to increasing farebox and seasonal pass revenue being greater than increased operational costs.

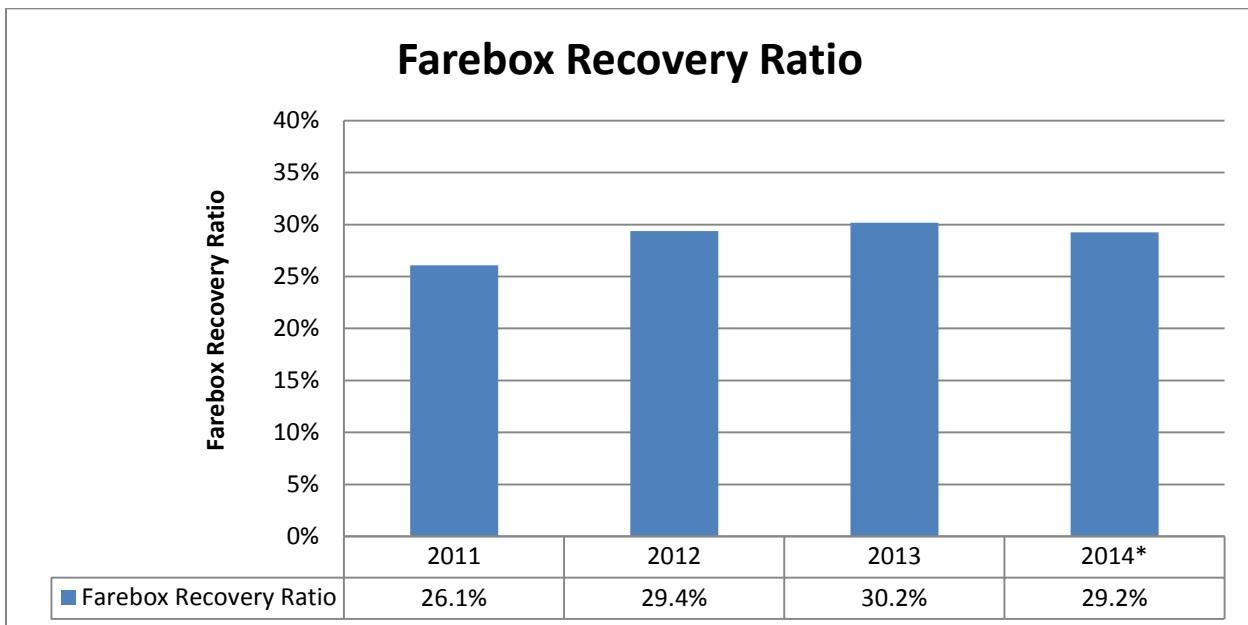


Figure 17. NRTA Fare Box Recovery Ratio

* - Partial Year (January 1 to August 31, 2014)

3.52 System Subsidy per Passenger

- The subsidy per passenger in 2013 was \$3.35
- The subsidy per passenger has generally been between \$3 and \$4 each year
- The subsidy increased slightly in 2013 from 2012, but decreased from 2011 by \$0.43

Subsidy per passenger measures how much it costs to operate a route on a “per passenger” basis. It is calculated by subtracting passenger revenue from operating cost and dividing by the total number of passengers.

Subsidy per passenger has stayed relatively the same over the past three fiscal years. The average subsidy per passenger was \$3.78 in 2011, \$3.28 in 2012, and \$3.35 in 2013.

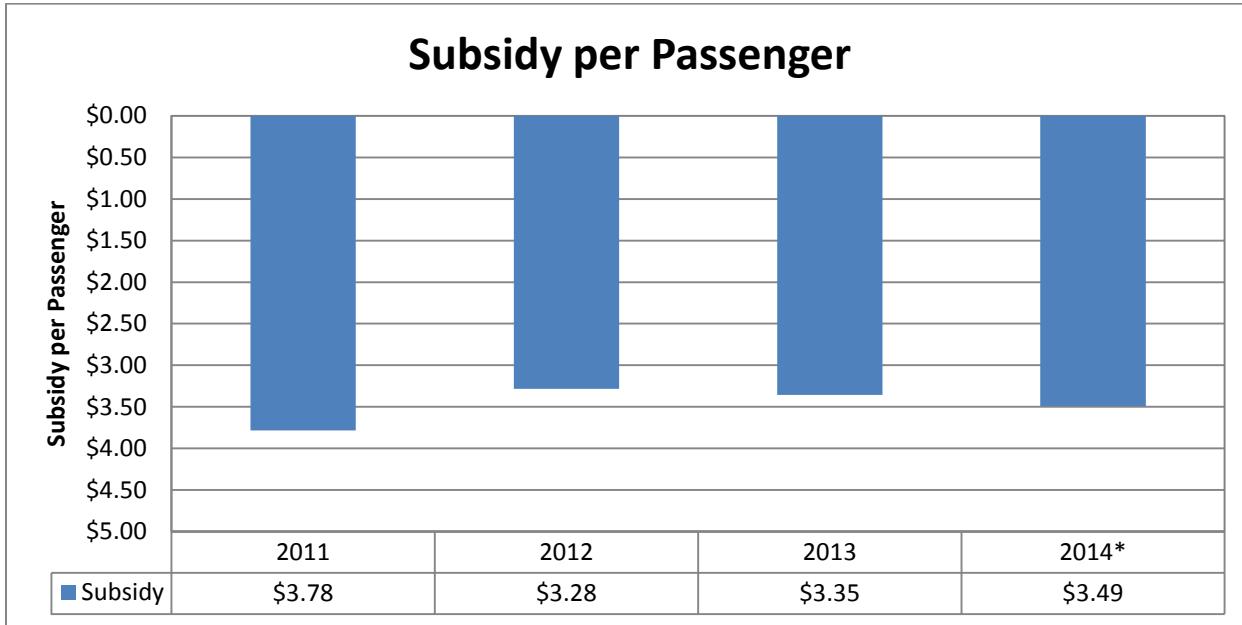


Figure 18. NRTA System Subsidy per Passenger

* - Partial Year (January 1 to August 31, 2014)

3.53 Route Subsidy per Passenger

- The Beach routes operate with the lowest subsidy, which is under \$1
- The Sconset via Polpis Road route operates at almost twice the average subsidy

Average subsidy per passenger is \$3.35. Of local fixed-route service, the Sconset via Polpis Road route stands out with the highest subsidy of \$7.51 per passenger. The Jetties and Surfside Beach routes operate with the lowest subsidy, with \$0.29 and \$0.79 per passenger respectively.

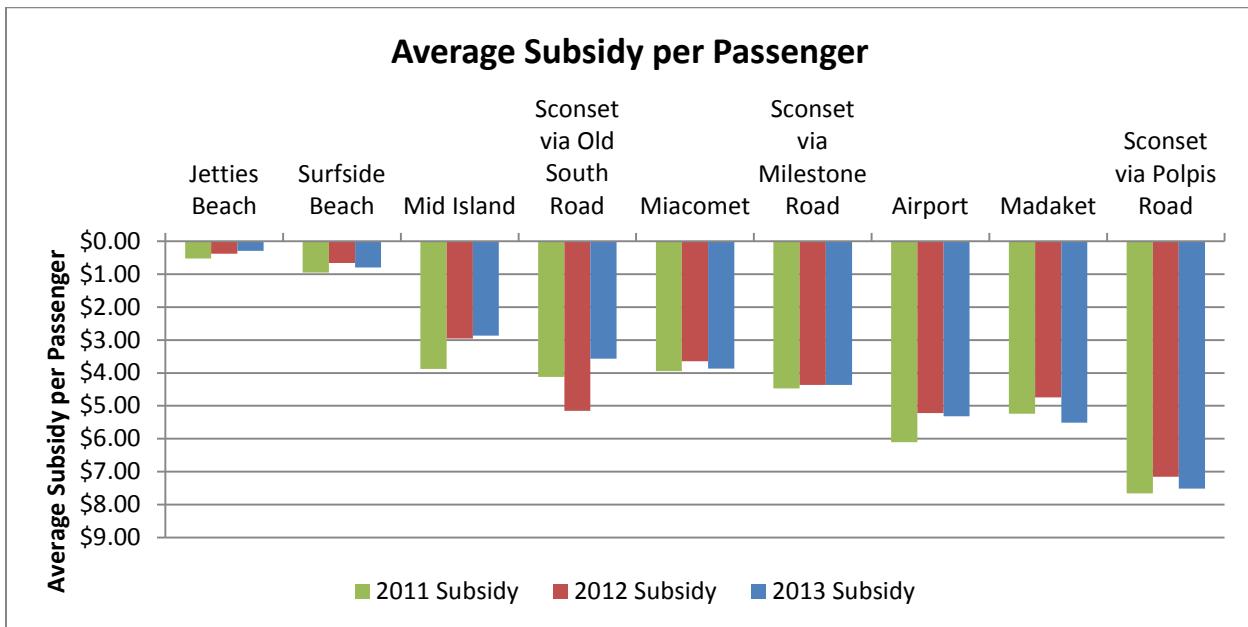


Figure 19. NRTA Subsidy per Passenger

3.6 Service Frequency

Frequency refers to how often a bus serves a particular route. Service frequencies affect how passengers use the system and the flexibility they can have when making travel plans. The Wave routes have a wide range of frequency from 15 minutes to 80 minutes. A table of the route frequencies is provided below.

Table 3. Frequency of Service

Route	In Season	Shoulder Season
Mid Island Loop	15 min	30 min
Miacomet Loop	20 min	30 min
Sconset via Old South Road Route	60 min	60 min
Sconset via Milestone Road Route	60 min	
Airport Route	20 min	
Jetties Beach Route	30 min	
Surfside Beach Route	40 min	
Sconset via Polpis Road Route	1 hr 20 min	
Madaket Route	30 min	60 min

3.7 Ranking of Route Performance

- The Jetties and Surfside Beach routes are performing well based on subsidy and productivity
- The Sconset via Polpis Road and Airport routes are performing poorly based on subsidy and productivity but currently serve to help with demand and capacity issues.
- Route rankings are generally unchanged following various performance analysis
- There is a strong relationship of route rankings to ridership, frequency of service, or subsidy per passenger

In order to evaluate investment priorities, the routes were given a score based on how their performance compared with system averages. Routes were scored based on ridership, passengers per revenue hour, and subsidy per passenger. For each route, each performance indicator was evaluated as a percentage of the system average. For example, if the system average was 100 passengers and a given route has 200 passengers, it would score 200% for that category. The composite score was calculated by taking the averages of the percentages for each category. The routes were then divided into four tiers based on their composite score: Highest performers (150% or greater), above average performers (149%-100%), below average performers (99%-50%), poor performers (49% or lower).

Table 4. NRTA Seasonal Route Performance Ranking

Rank	Route Description	Score
1	Jetties Beach Route	508%
2	Surfside Beach Route	244%
3	Miacomet Loop	131%
4	Mid Island Loop	130%
5	Sconset via Old South Road Route	130%
6	Madaket Route	101%
7	Sconset via Milestone Road Route	80%
8	Airport Route	51%
9	Sconset via Polpis Road Route	45%

Table 5. NRTA Shoulder Season Route Performance Ranking

Rank	Route Description	Score
1	Mid Island Loop	119%
2	Miacomet Loop	115%
3	Sconset via Old South Road Route	114%
4	Madaket Route	47%

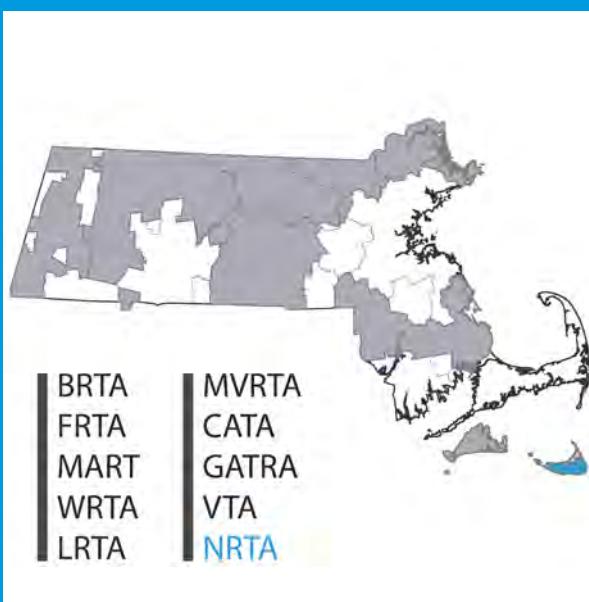
Investment strategies for routes will vary based on their performance tier. The six routes with the highest performances are top priorities for service investment and may benefit from increased service frequencies or service spans. The other routes that perform above average are candidates for further service investment as resources become available.

For routes that perform below average require further analysis to determine the cause of low performance. A more in depth analysis could look at inefficiencies in route alignments as well as service frequencies and spans. Routes with exceptionally low performance may be candidates for discontinuation of service.

3.8 Summary of Key Findings

- Despite relatively consistent service revenue hours and miles, service performance has slightly increased since 2011.
- The Jetties and Surfside Beach routes are consistently the top two routes across all performance indicators.
- Routes with higher frequencies have higher productivities.
- Overall, total ridership increased 6.2 percent from 2011 to 2013.
- Ridership increase is not an isolated event – seven of nine routes gained riders between 2011 and 2013.
- The Miacomet and Mid Island Loops have the highest ridership and account for over 40 percent of the system's ridership.
- The peak season has ridership three times that of the shoulder of the peak season.

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Chapter 4

Determining Demand

AECOM / URS

Burke & Company




Nantucket Regional Transit Authority

4. DETERMINING DEMAND

Some of the key aspects of operating a transit system include knowing where your market lies, how it is evolving, and who your riders are, in order to evaluate your system and identify possible ways to strengthen the system. Demographics, land use, and socioeconomics, which highly impact ridership, are constantly changing. It is ever more important to understand what the transit demand is in order to best align service to meet the needs of the riders. This section is divided into two parts. The first examines the regional job creation goals and employment needs to understand the economic context of the region and to identify potential growth areas as most transit trips are taken for work purposes. The second section seeks to determine how the current service aligns with the demand.

4.1 Regional Job Creation Goals and Employment Needs

The first step in painting a picture of economic growth in the region to determine what the job creation goals and employment needs are and the role transit plays in accommodating these needs. To determine the region's job creation goals and employment needs, first the Commonwealth of Massachusetts Executive Office for Housing and Economic Development (EOHED) Strategic Plan was reviewed to examine the overarching goals for the state. Next the Nantucket Regional Transportation Plan and Master Plan were reviewed to determine the economic context, how and where the region is expected to grow, and identify major employers/industries. This information was supplemented by site visits and interviews with NRTA Staff and town planner.

4.1.1 EOHED Strategic Plan

The Commonwealth of Massachusetts Executive Office for Housing and Economic Development (EOHED) plays a crucial role in supporting the growth of the economy, vibrant communities and competition for consumers and businesses. EOHED, led by the Secretary of Housing and Economic Development, is focused on steering Massachusetts towards smart growth, which recognizes the interactions between land use, energy and transportation. To achieve this, the EOHED has outlined a three year strategic plan that focuses on the following four goals:

1. Accelerated job creation
2. Stabilized housing
3. Enhanced consumer awareness
4. Improved regulatory solutions

As the economy transitions from health care, higher education, technology, financial services and tourism to one that includes life sciences, clean energy and the creative economy more jobs will be added. Accelerating job creation in conjunction with compact land use, development patterns that promote sustainability, and an increase in the number of affordable housing units will change the landscape and how/where people travel. To serve the needs of the new emerging clusters of

employment and housing, the transportation system as a whole must change and adapt to meet these needs. The new environments, which will be comprised of small and mid-sized business of all sectors, must be served by public transit in order to meet the demands of the new workforce. While the public transit system must adapt to the changing economy it should be noted that no two regions of the state are the same and the job creation goals and employment needs and thus transportation needs will differ.

4.12 Nantucket Economic Development

The Nantucket economy is dominated by seasonal employment. Nearly 70% of jobs on the island are in the retail and service sectors. During the summer months, the number of jobs more than doubles from a low of 5,000 in February to a high of approximately 11,500 in July³ to support the tourism economy. Many of the service and retail jobs are clustered around the downtown and mid-island areas, even though commercial land only makes up slightly more than 1% of the island. In 2013 the unemployment rate for Nantucket was 6.7%, which was slightly lower than the state average of 7%. Unlike the state average, however, the unemployment rate on Nantucket fluctuates drastically with the seasonal economy. The summer months see rates as low as 2.7%, but during the off-season it jumps to 14% because many businesses shut down during the winter. In addition to local employees, there is also a large cohort of seasonal workers. Many of these are international workers requiring visas, and the process can be cumbersome depending on the country of origin. Despite this, these individuals are generally preferred over American college students as they can work the shoulder seasons before and after the summer peak.

The second largest industry is construction. While over 60% of the land on Nantucket is conserved and the remaining land is almost completely built-out based on the current infrastructure, zoning, and policy, it is not anticipated that this sector of the economy will slow down. In addition to the potential for new development along Old South Road, there is a high demand for construction workers due to the second home nature of the island. Some of the workers are not residents of the island and commute daily on the high-speed ferries or airlines from the mainland. It is estimated that during the peak of the construction season in the spring more than 100 contractors and construction workers take the ferry to the island each day. Most take the 6:30AM ferry from Hyannis and then return to the Mainland on the 4:35PM ferry. Many of these workers leave a construction vehicle on the island and due to relaxed parking policies in the off-season can leave the vehicles parked within the downtown core district. This behavior has caused concern among local business owners who worry about the lack of parking turnover and the impact on their business. With the lack of a parking facility downtown, however, the contractors have no other option for leaving their vehicles in a location that is accessible to the ferry. Business owners and the Board of Selectman have suggested that vehicles should be parked at a park and ride location approximately 1.5 miles from the wharf and the workers should be shuttled by NRTA

³ Source: Massachusetts Executive Office of Labor and Workforce Development; Labor Market Information, Labor Force and Unemployment Data for 2013

to and from the ferry. Beginning in May 2014, the NRTA began a pilot program, funded privately from various stakeholders called the Fast Ferry Connector which operated through mid-October. Direct bus service was provided from an overnight park and ride lot outside of the downtown area to both the Hy-Line and Steamship Authority ferries. During the high season this route is incorporated as part of the existing Airport Route and the schedule was adjusted to meet all boats. During the shoulder seasons bus service is provided between the park and ride lot and the ferries.

While the transit system supports the regional economy, residents are often reliant on personal vehicles because the service does not operate year-round. The system is designed to serve the commercial downtown, outlying residential areas, and recreational beaches. In the summertime it is heavily used by tourists, seasonal workers, second home owners, and year round residents; many of whom do not have access to a vehicle on the island or choose not to drive due to traffic congestion and a lack of downtown parking opportunities. Service ceases around 11:30PM, which can be problematic to those working in the restaurant industry, as many of the establishments are open well past this time. Expanding the service would greatly benefit this population.

Environmental and historic preservation are important to Nantucket. The entire island is designated as a historic district, and all new construction must be approved by a historic district commission and designed in a manner that represents the historical nature of the community. The need to preserve the environmental and historical qualities of the island has led Nantucket to challenge the community in minimizing the use of cars on the island. Many of the year-round retail jobs are located in the downtown and mid-island areas, and these areas also have the highest levels of population. Many of the residents (more than 35%) walk, bike, carpool, or take transit (when available) to work. The transit system aids in reducing car congestion during the summer months, and has encouraged tourists to visit without a vehicle.

4.2 Transit Market Analysis

NRTA offers seasonal service to accommodate the busy tourist season in the summer months. By analyzing and examining such factors as land use, park-and-rides, public beach locations, population density and housing density, an understanding of the overall market and demand for transit in the region can be gained for both the summer season and off-season. To determine if service is currently deployed in the most effective way to accommodate the transit needs of the island, each route is mapped and overlaid on these key demand factors in Nantucket.

4.2.1 Transit-Dependent Populations

Transit dependent populations are typically those exhibiting socioeconomic and demographic characteristics that make them more likely to use public transit than others and often dictate how a transit system is designed. Traditionally these characteristics include level of income, access to a vehicle, and age. In addition, population and employment densities can also provide an indication to the

feasibility of offering service. On Nantucket, however, these definitions do not hold. Rather, the transit-dependent populations are the tourists who visit the island without a vehicle and the influx of seasonal workers in addition to the year round residents. The island also experiences traffic congestion year round and due to a lack of parking in the downtown, many people rely on the bus system. Therefore, the systems design goals should be to minimize automobile use on the island, alleviate congestion and parking concerns and to transport tourists, seasonal workers, second home owners and year round residents to common destinations.

Land Use

Commercial land use can be used as a measure of employment density and points of interest. Commercial property makes up approximately 1% of the island's area and is largely concentrated in the downtown and mid-island areas. As shown in Figure 20, the vast majority of commercial properties are served by NRTA.

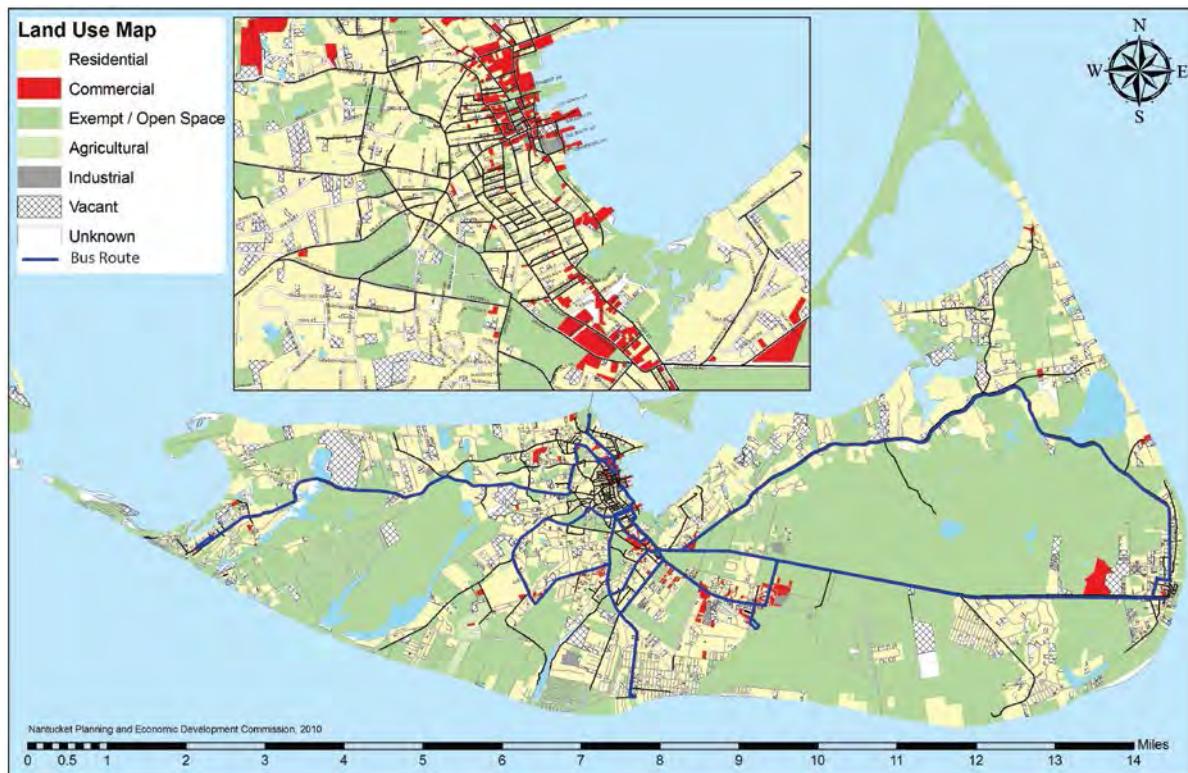


Figure 20. Land Use

Parking is very limited in the downtown, and there are not enough parking spaces during the summer season. Most of the existing parking is primarily on street with time restrictions and strict enforcement restrictions in the summer months (Figure 21). Parking is enforced from 8AM-7PM.

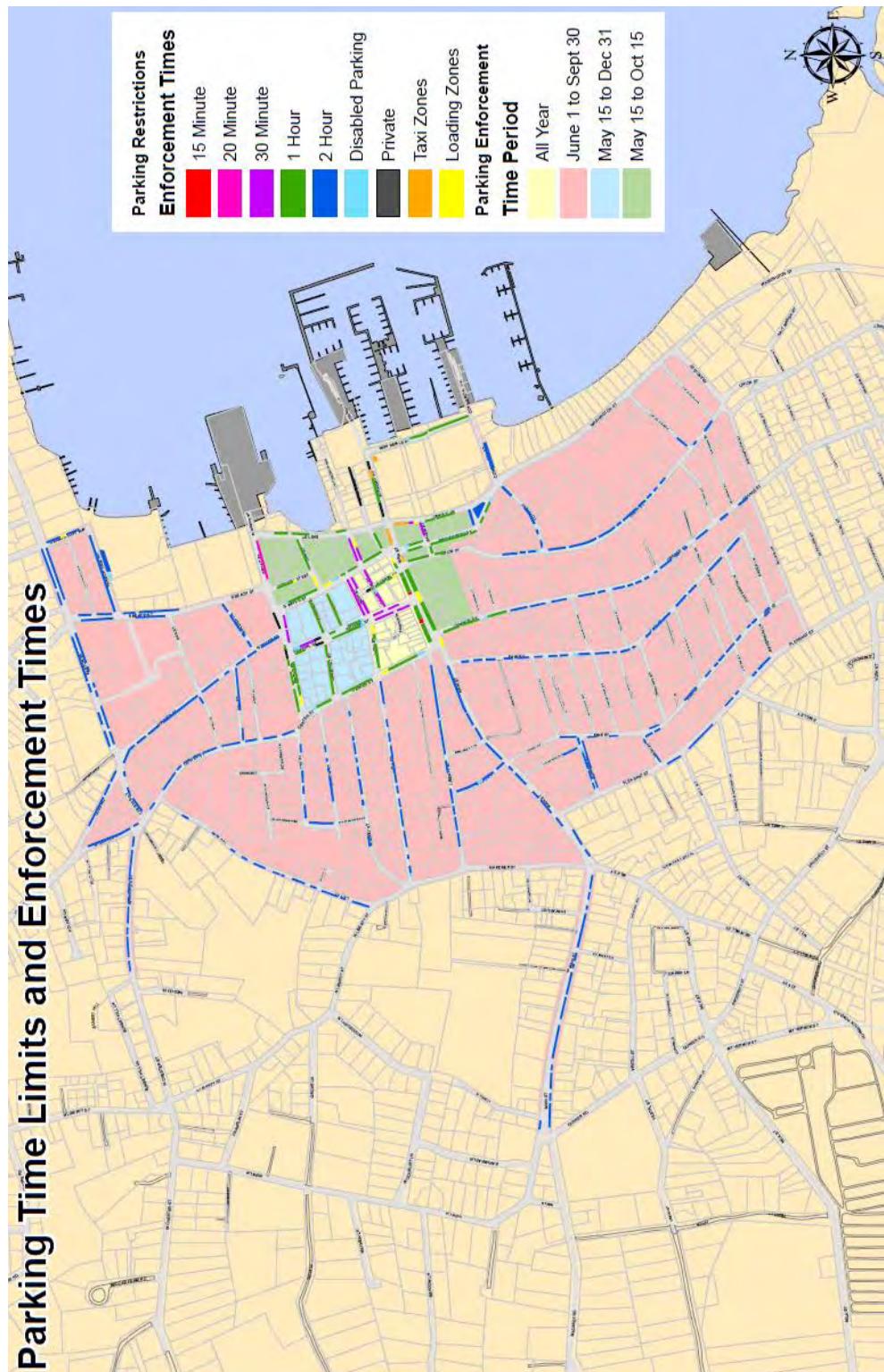


Figure 21. Nantucket Parking Enforcement

Park-and-Ride Locations

There are five park-and-ride locations on Nantucket. These facilities are used to discourage parking downtown and offer a convenience to bus users. Combined, these lots offer approximately 330 spaces. Every park-and-ride lot is served by an NRTA route (Figure 22).

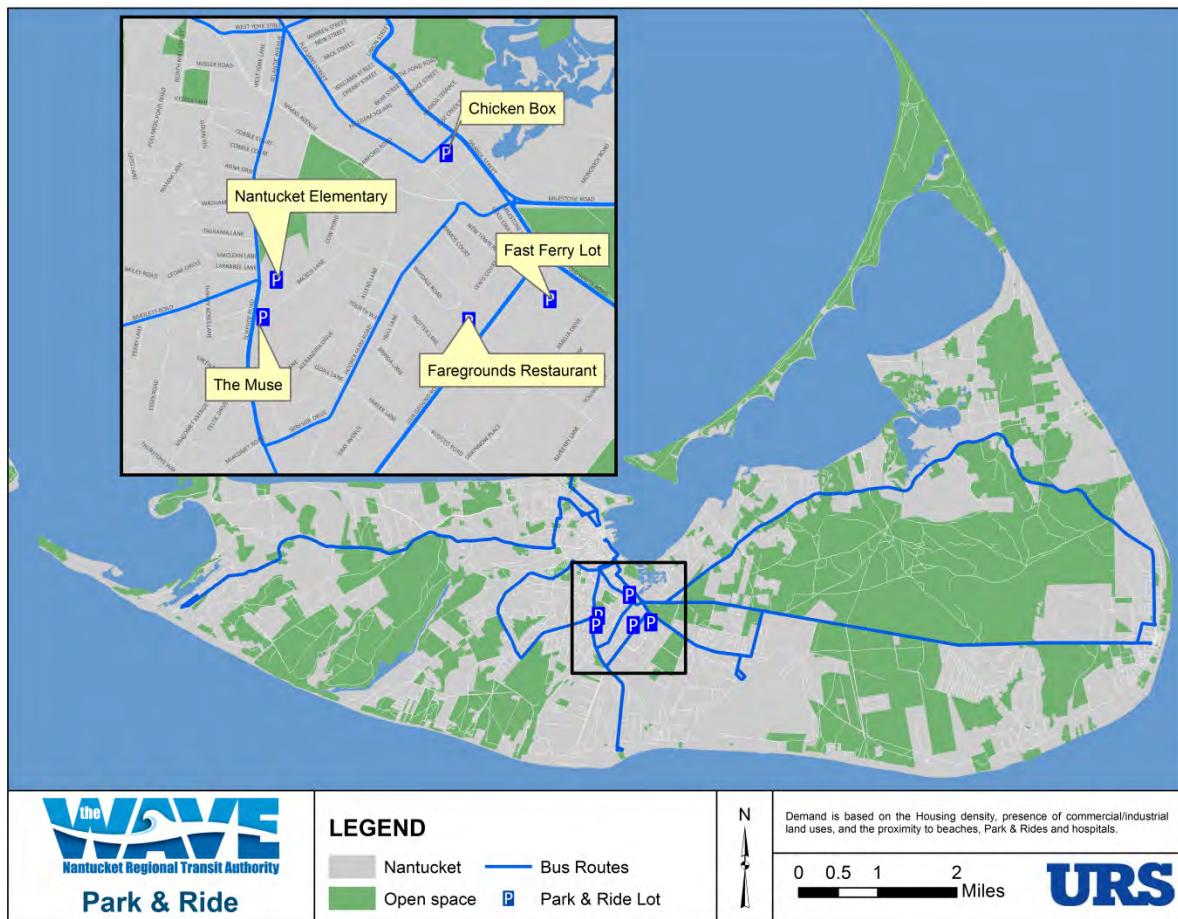


Figure 22. Park-and-Ride Locations

Beaches

Beaches are Nantucket's premier tourist destinations. There are 2.2 miles of public beaches on the island that are life guarded and are accessible by public way. NRTA offers service to the most popular Public Beaches, including Surfside Beach, Sconset Beach, Madaket Beach, and Jetties Beach (Figure 23). In addition to servicing the beach, the areas along the route are also served, particularly the residential areas.



Figure 23. Beaches

Housing Density

The average housing density across the island is 1.3 units per acre. This number, however, is skewed by the fact that 60% of the island's area is non-buildable, protected land. When considering only buildable land, the housing density is 2.8 units per acre. The largest concentrations of housing density are in the downtown area and in Sconset. Both of these areas, as well as other pockets of housing density, are generally well-served by NRTA (Figure 24).

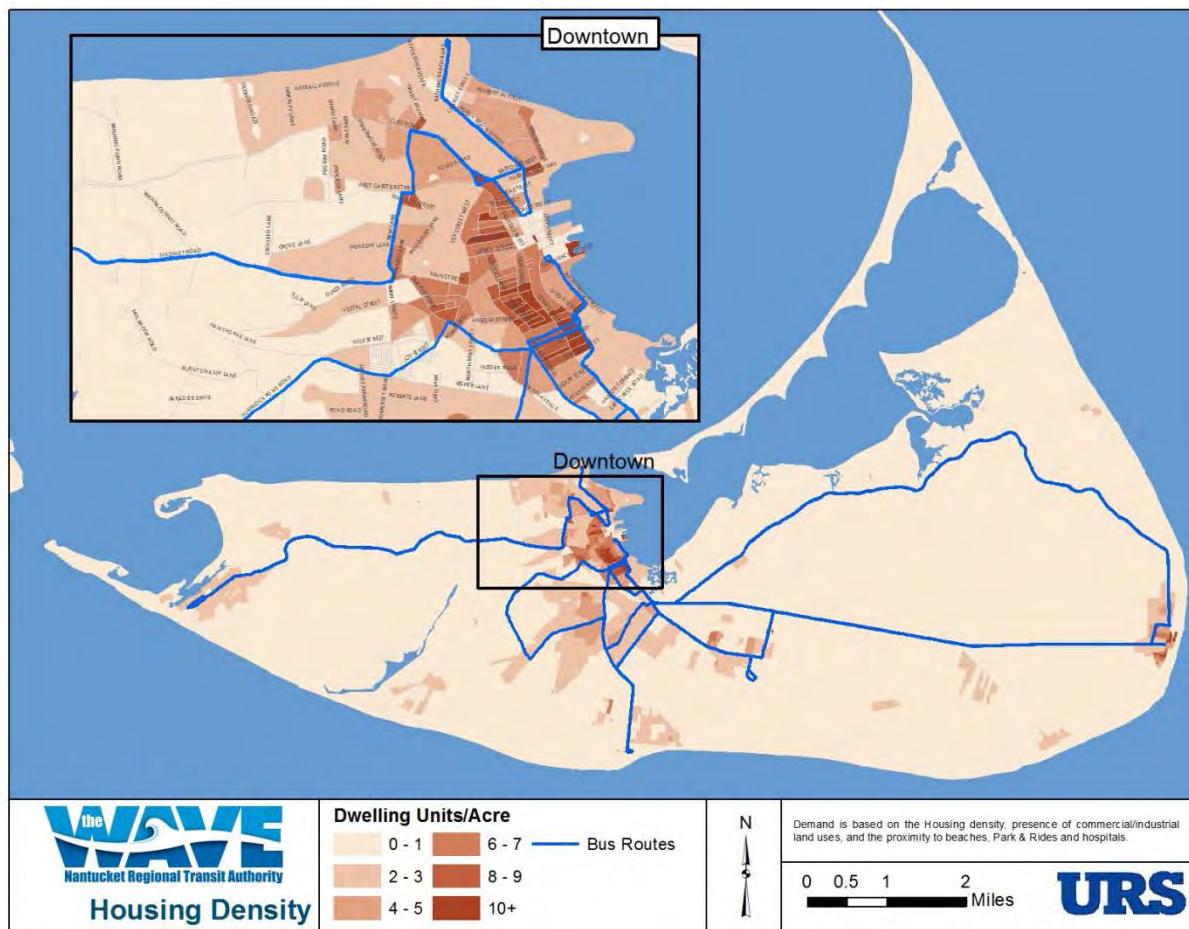


Figure 24. Housing Density

Population Density

The average population density across the island is 208 people per square mile. This number, once again, is skewed by the fact that 60% of the island's area is non-buildable, protected land. The largest concentrations of population are in the downtown, mid-island area, Madaket, Tom Nevers and Sconset areas. With the exception of Tom Nevers, many of these areas are generally well-served by NRTA shoulder season routes (Figure 25) which indicates that there is a demand for year round service on many of the shoulder routes.

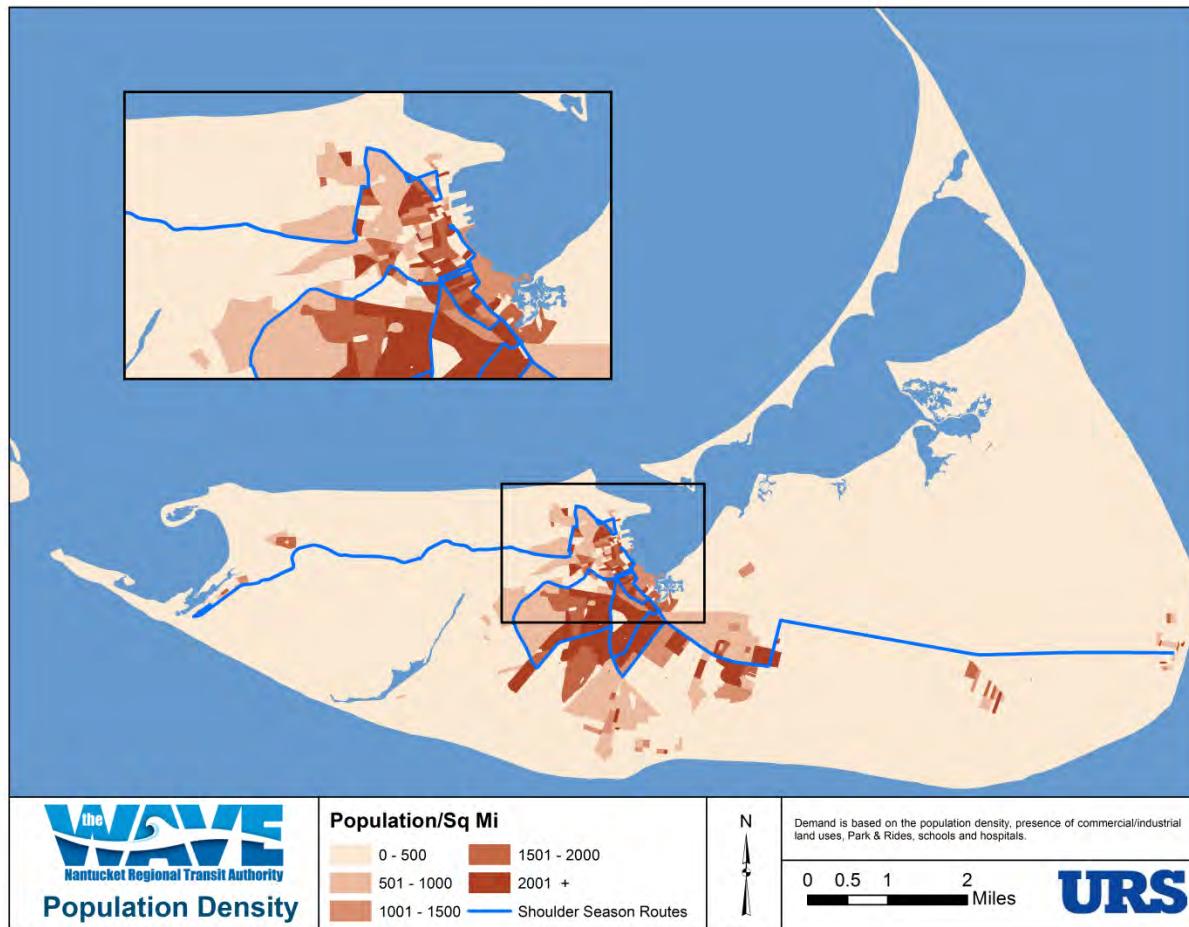


Figure 25. Population Density

4.22 Methodology

Demand was calculated separately for the summer season and off-season, resulting in two slightly different methodologies. The level of potential demand for the summer months is based on the housing unit density, presence of commercial/industrial land uses, proximity to hospitals, presence of public beaches, the enrollment at local colleges and universities, and the number of park-and-ride spaces. Potential demand for the off-season is based on population density, proximity to the schools and

hospitals, presence of commercial/industrial land uses, and the number of park-and-ride spaces. The data was derived from the 2008-2012 ACS 5-Year Estimate, MassGIS, and the Nantucket Planning and Land Use Department (Table 1).

Table 6. Transit Demand Data Variables and Sources

Variable	Source	Use
Area	Cartographic boundary files, US census	Season, Off-Season
Household Units	Nantucket Assessors data	Season
Hospitals	MassGIS from the DPH – OEMS	Season, Off-Season
College and Universities	MassGIS from National Center for Education Statistics	Season, Off-Season
Land Use	Nantucket Planning and Land Use	Season, Off-Season
Park and Ride Locations	MassDOT and land use plan	Season, Off-Season
Beaches	MassGIS from the MDPH, CEH, and ETP	Season
Schools	MassGIS from Mass - DOE	Off-Season
Population	ACS 5 Year table 2008-2012 SF 3 Table B00001	Off-Season

The summer season transit system is designed to predominantly serve the tourists, seasonal workers, year round residents and second home owners during the summer months. Therefore many traditional variables used for calculating transit demand were not included for the summer season demand. Household unit density was used in place of population density and zero-vehicle households. Many of the homes on the island are second homes and are therefore not accurately reflected in the Census as households. This would cause any data related to zero-vehicle households to be skewed. Similarly, the population on the island changes drastically between the summer and off-season months. The 2010 Census reported that Nantucket's population was 10,172, but in the summer months this number can swell to upwards of 50,000. For this reason, population density was not included. Because NRTA only operates during the summer months, the presence of primary and secondary schools was not included. Colleges and universities were included, but since the island has no such permanent institutions, the variable equaled zero in all instances. Median household income was not included because this factor does not dictate ridership on Nantucket. The system is used by people of all levels of income because not only does it cater to tourists, but the limited parking in the downtown also deters residents and seasonal home owners from driving. According to the NRTA, there is very little demand for ADA complementary trips to the fixed-route service; they average only two trips annually. For this reason, the percent of households with at least one person with a disability was not included. There are no official MassDOT park-and-ride facilities on Nantucket, but local commuter lots have been accounted for in determining demand.

For the off-season many of the same variables used in calculating the seasonal demand were used. Population density was substituted for household unit density because during the off-season months

many of the units are unoccupied due to the second home market. Population density more accurately reflects the year round residents. Schools were added because school is in session during this period. Beaches were removed because there is very little tourism demand during the off-season.

To compile the data, all GIS shape file layers and tables were loaded into ArcGIS and joined on the appropriate variables. Data was transformed to the census block if needed and clipped to the NRTA service area. A model was then run in ArcGIS to calculate the housing unit density, population density, and area of commercial/industrial developments within each block. This data – along with the beaches, schools, hospitals, park-and-ride locations, and college and universities – was then extracted into Excel for each block within the NRTA service area. Using the Jenks natural breaks optimization method⁴, housing unit density and population density was arranged into five classes. Both have a positive correlation with transit demand thus higher values were in higher classes. Blocks that fell into class 1 were given a score of 1, class 2 = 2, etc. up to class five.

The scores were then weighted based on highly recognized research done by Brian D. Taylor on the determinants of transit ridership⁵ and research conducted by the Center for Urban Transportation Research⁶. The study uses a two stage regression model to look at over fifteen census variables (along with 20 others related to highway statistics, fuel costs, politics, and transit operating characteristics) in 265 urbanized areas to determine which characteristics impact the level of transit use the most. Land use was used to represent commercial and industrial areas that are potential places of work and activity that have a large draw for transit riders. Beaches were scored using a dummy variable to represent whether a public beach intersected with a block. A complete set of variables and the method for calculating the value can be seen in Table 7.

Table 7. Transit Demand Variables and Formulas

Variable	Value Calculation	Use
Housing Unit Density	Classification score * 1.52	Season
Population Density	Classification Score * 0.76	Off-Season
Hospitals	Count	Season, Off-Season
Schools	Count	Off-Season
College and Universities	Number of Students/1,000	Season, Off-Season
Land Use	Percent of area that was commercial or industrial * 5	Season, Off-Season
Park-and-Ride Locations	Number of spaces/100	Season, Off-Season
Beaches	Yes = 1, no = 0	Season

⁴ The Jenks method is a way of arranging data into different classes by minimizing the average deviation from the mean and maximizing each class's deviation from the means of other groups. It is based on standard deviation.

⁵ Taylor, B.D. et al, Nature and/or nurture? Analyzing the determinants of transit ridership across US urbanized areas, Transport. Res. Part A (2008), doi:10.1016/j.tra.2008.06.007

⁶ Polzin, E. S. et al. PUBLIC TRANSIT IN AMERICA: FINDINGS FROM THE 1995 NATIONWIDE PERSONAL TRANSPORTATION SURVEY, Center for Urban Transportation Research (1998) report No. NUT14-USF-4

The scores for each variable were then summed for each block to get an overall score for transit demand for season and off-season. This data was then put into GIS and displayed to show demand for the entire region. Features such as schools, hospitals, park-and-ride lots, known major employers, key destinations, and important features were overlaid on the map to provide a frame of reference and to act as supporting material.

4.23 Transit Demand

Summer Season

The NRTA provides fixed-route service to all but three regions that were determined to have a higher level of demand during the summer seasons based on the methodology discussed above (Figure 26). These regions include sections of Eel Point, Cisco Area, and Tom Nevers. This section includes a further analysis of these regions as well as an analysis of the demand currently within $\frac{1}{4}$ -mile of each route. While some of these areas may exhibit higher demand bus service may not be possible due to road configuration and infrastructure.

As discussed in the methodology, each census block was scored for each of the following attributes: housing density, presence of a hospital, park-and-ride locations and capacity, commercial land use public beaches and college/university enrollment.⁷ These six scores were then combined to create an overall score for each census block with high scores indicating higher potential demand⁸ (

Table 8).

Table 8. Demand Scoring

Score – Class Values	Level of Potential Transit Demand
0-1.52	1 Low
1.52-3.00	2
3.00-4.81	3
4.81-5.59	4
5.59-7.00	5
7.00 +	6 High

⁷ There are no colleges or universities on the island, this value was 0 for all census blocks

⁸ The class values are based on standard deviation and the Jenks Method

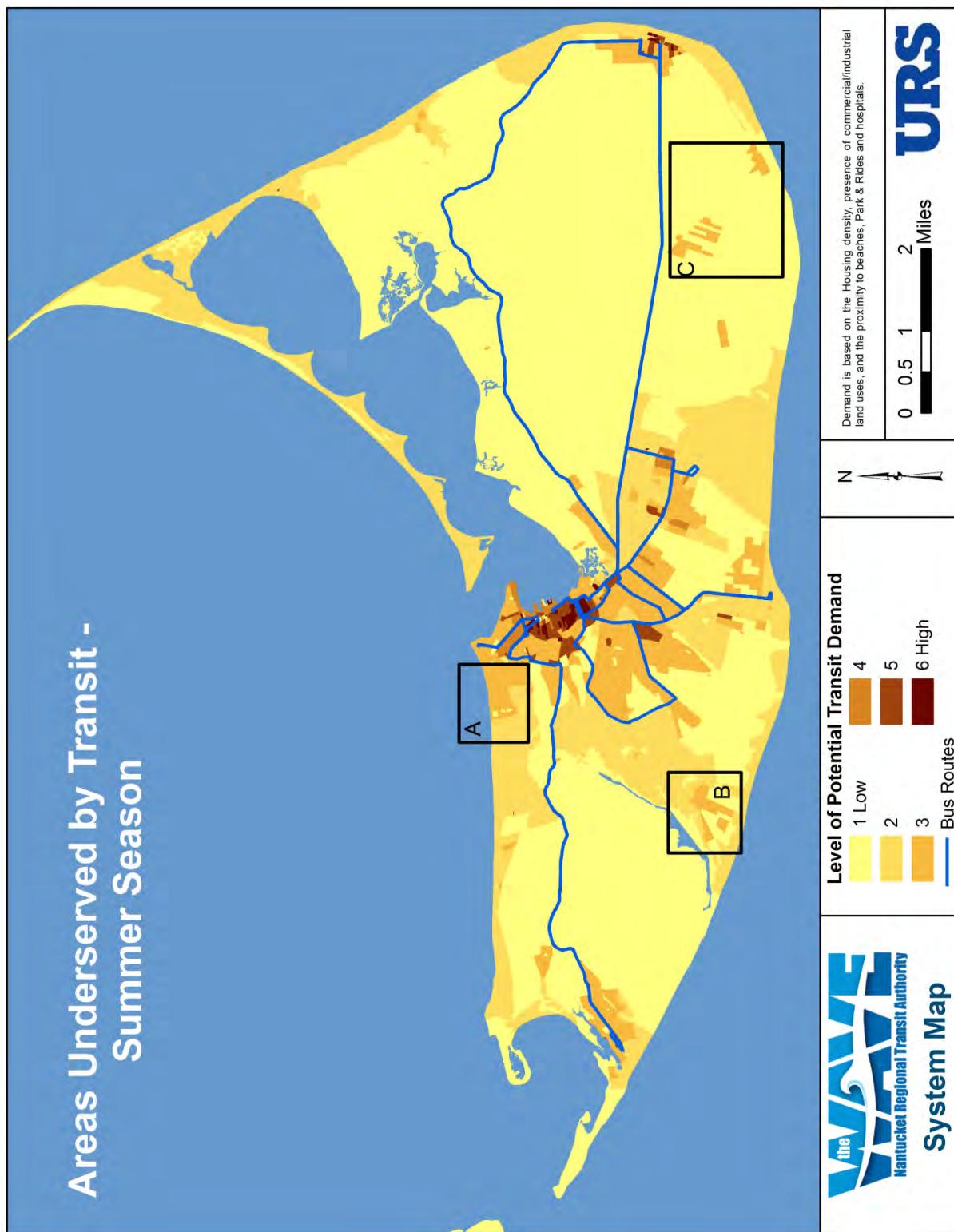


Figure 26. Summer Season Demand

Region A (Figure 27) in Eel Point/Jetties has a medium level of demonstrated transit demand because of the presence of public beaches and higher housing densities. Service to Jetties Beach is provided via the Jetties Beach route, but this only services the northeast section of the beach. There is service along Cliff Road to the intersection of North Liberty St. via the Madaket Route, but there is no service beyond those routes to Kimball Avenue and Hinckley Lane, which have housing unit densities of 1-1.5 units per acre. Service along these roads or nearby Cliff Road and Westmoor Lane would be difficult, as they are narrow and would not be able to be maneuvered with a bus. In addition, Westmoor Lane is a private road and Kimball Avenue and Hinckley Lane are unpaved.

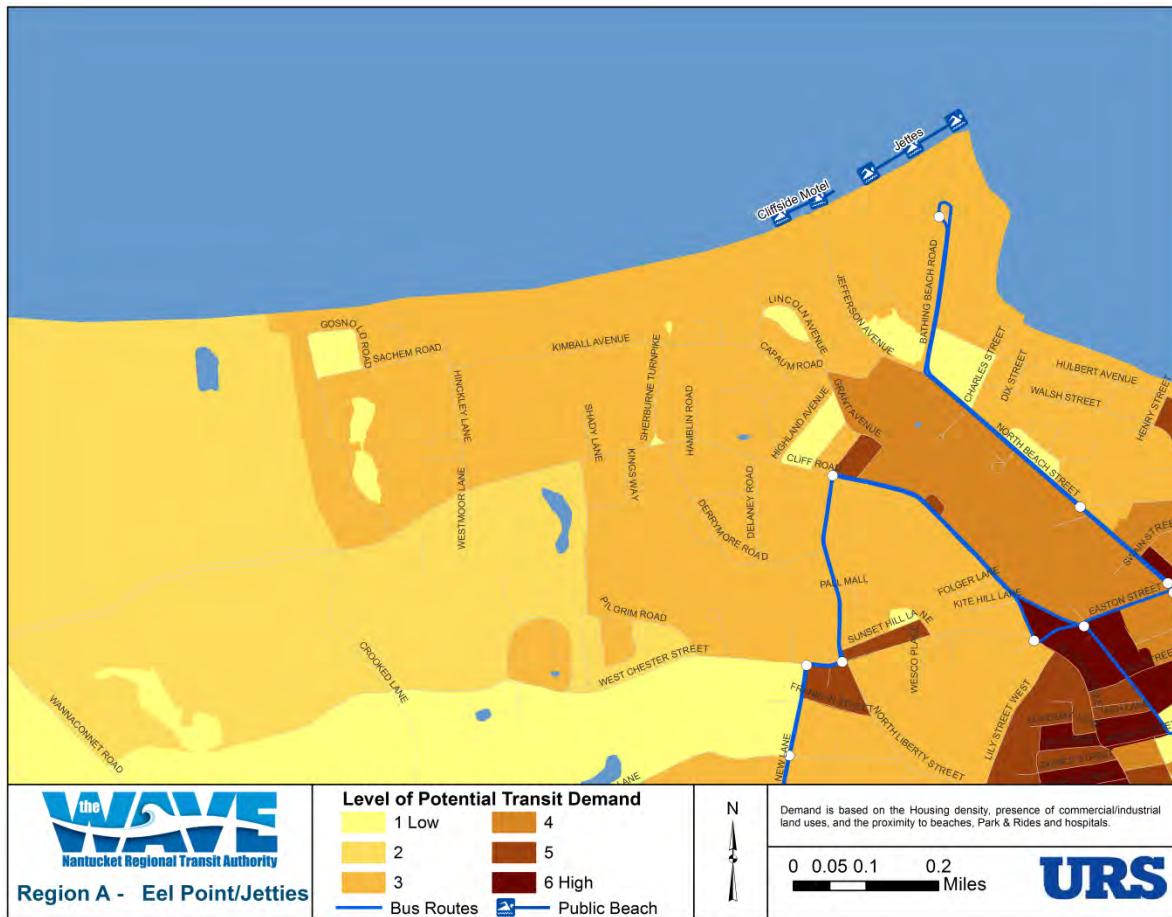


Figure 27. Region A: Eel Point/Jetties

Region B (Figure 28) in Cisco Area has a medium level of demonstrated transit demand because of the presence of approximately one-mile of public beaches (Miacomet and Sewerbeds), residential densities along Hummock Pond Road, and commercial development. Cisco Beach and the higher residential densities along Hummock Pond Road are approximately 1.2–2 miles from the closest NRTA route (Miacomet route). The commercial development in this area is the Cisco Brewery and Bartlett's Farm on Bartlett Farm Road (approximately 0.5 miles from the Miacomet route), which is a large point of interest. This area may be difficult to service because while Hummock Pond Road is paved, there are very few opportunities for large vehicles to turn around, and many of the adjoining roads are private, not paved and/or not conducive to bus travel.

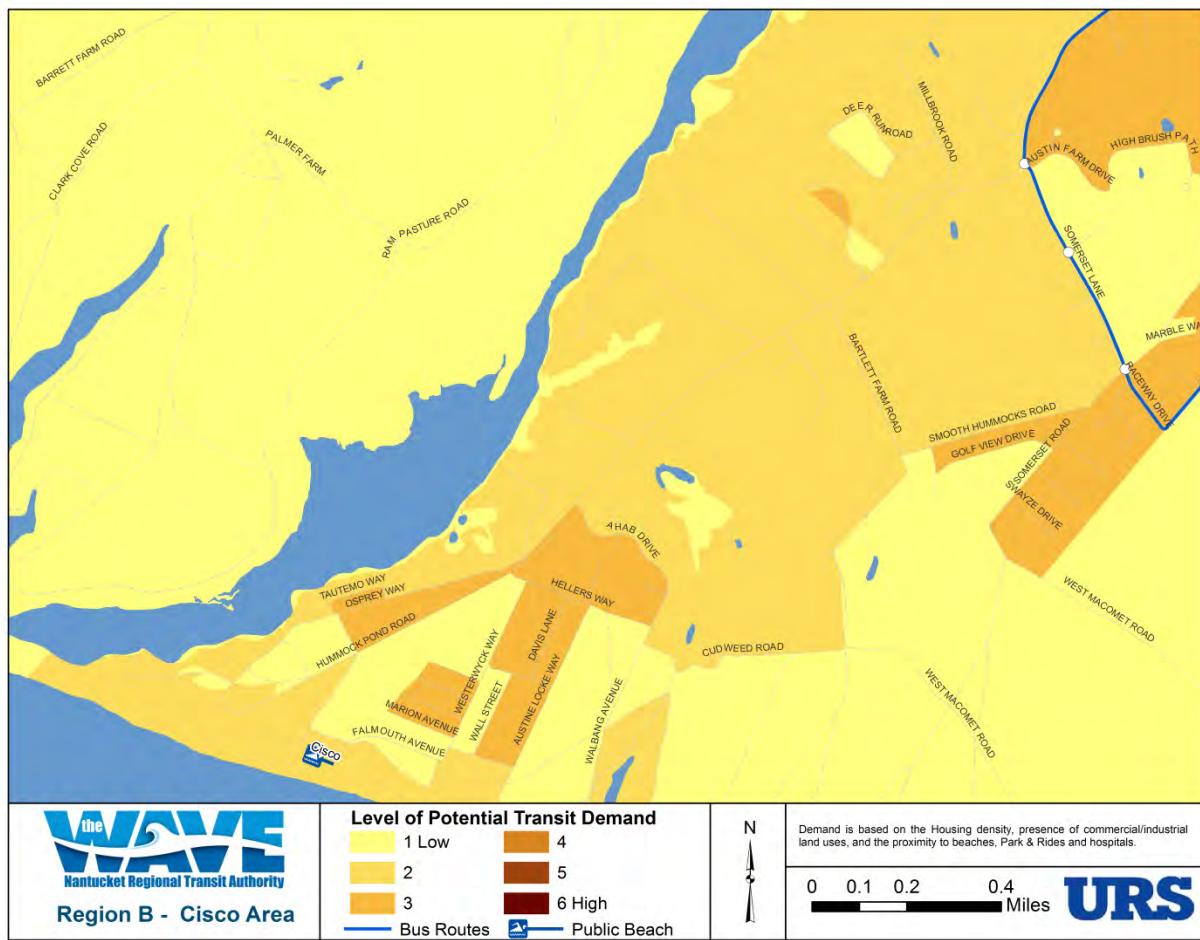


Figure 28. Region B: Cisco Area

Region C (Figure 29) in Tom Nevers has demonstrated transit demand along Tom Nevers Road because of the presence of public beaches and density. Dwelling density in this area is higher than in the other underserved areas, with a rate of 1.1 to 1.23 dwelling units per acre. Tom Nevers Road is paved, and there is the opportunity to use Tom Nevers Field as a turnaround point. The closest NRTA route is the Sconset route (both Milestone and Old South variations) along Milestone Road. Points of interest along Tom Nevers Road can be anywhere from 0 to 1.85 miles from the Sconset route.

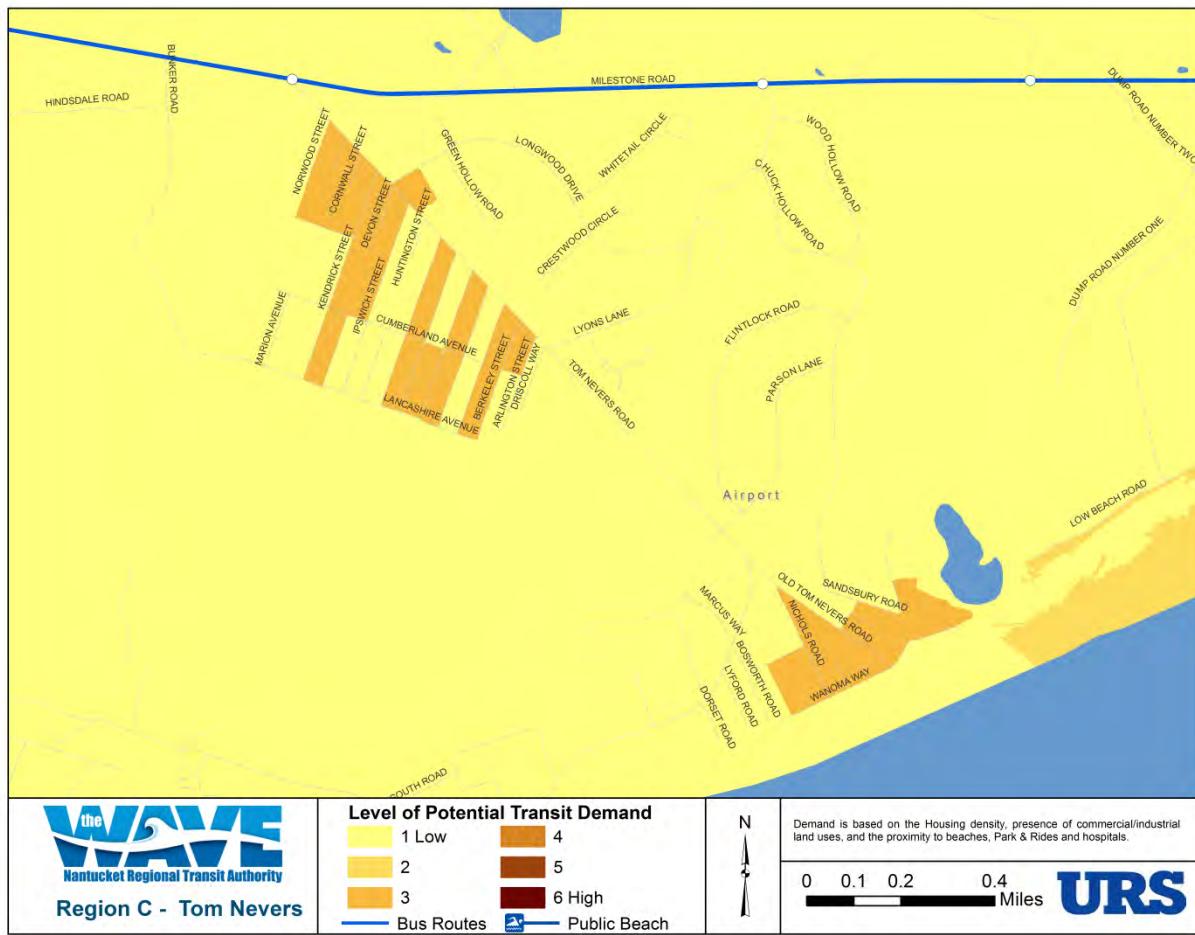


Figure 29. Region C: Tom Nevers

Off-Season

The NRTA does not provide fixed-route service from the day after Columbus Day through mid-May, but a demand for transit service still exists. Regions that were determined to have a demand during the off-season include Madaket, Downtown, Mid-Island, Tom Nevers, and Sconset (Figure 30). Four of these five regions are serviced by the four routes that run during the shoulder seasons in late spring and early fall.

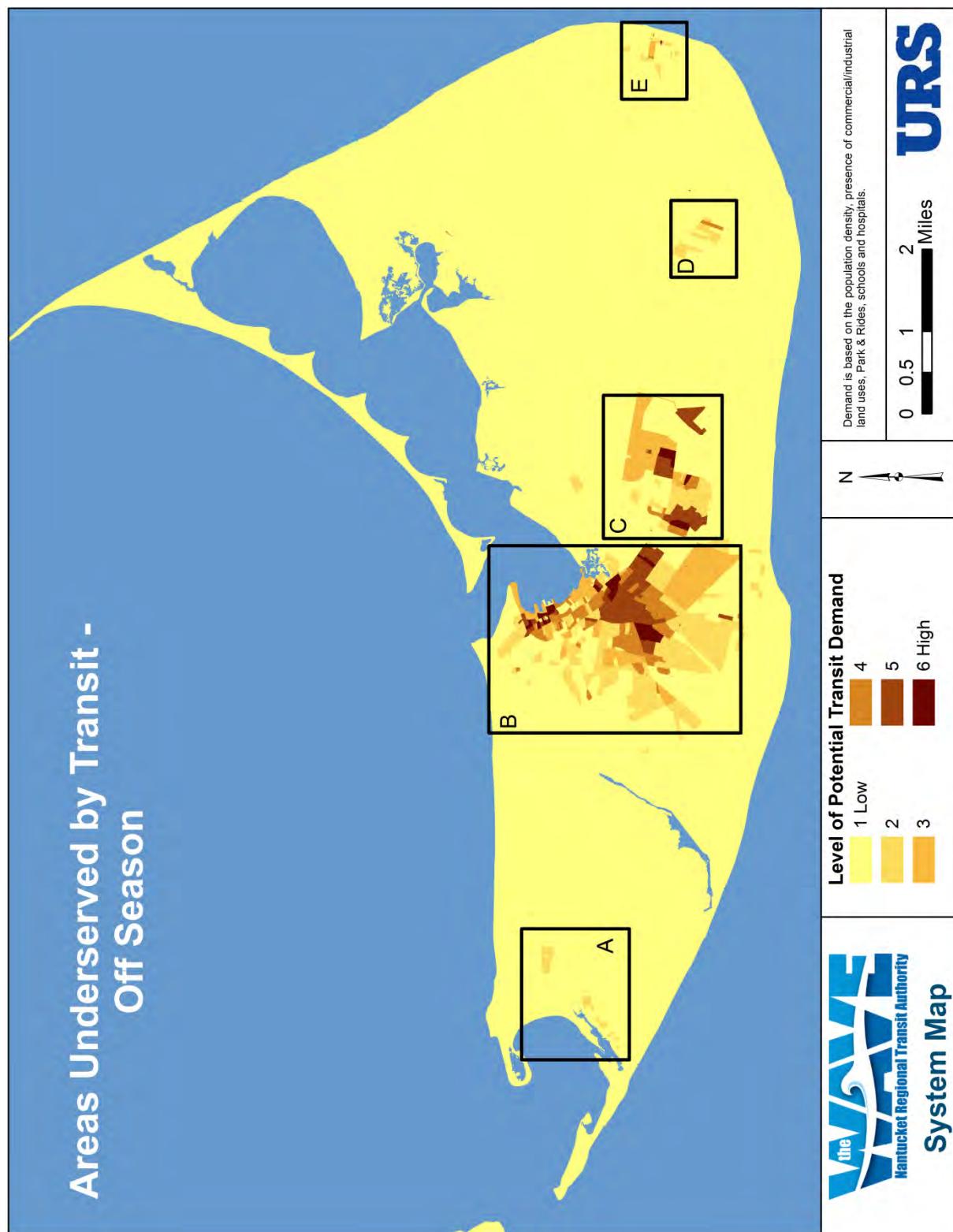


Figure 30. Off-Season Demand

Region A (Figure 31) in Madaket has demand in the off-season because of the higher population densities. Population densities in this area average between 500-1,500 people per square mile along Madaket Road and adjacent streets but many of these homes are seasonal. This area is serviced by the Madaket route during the shoulder and summer seasons.

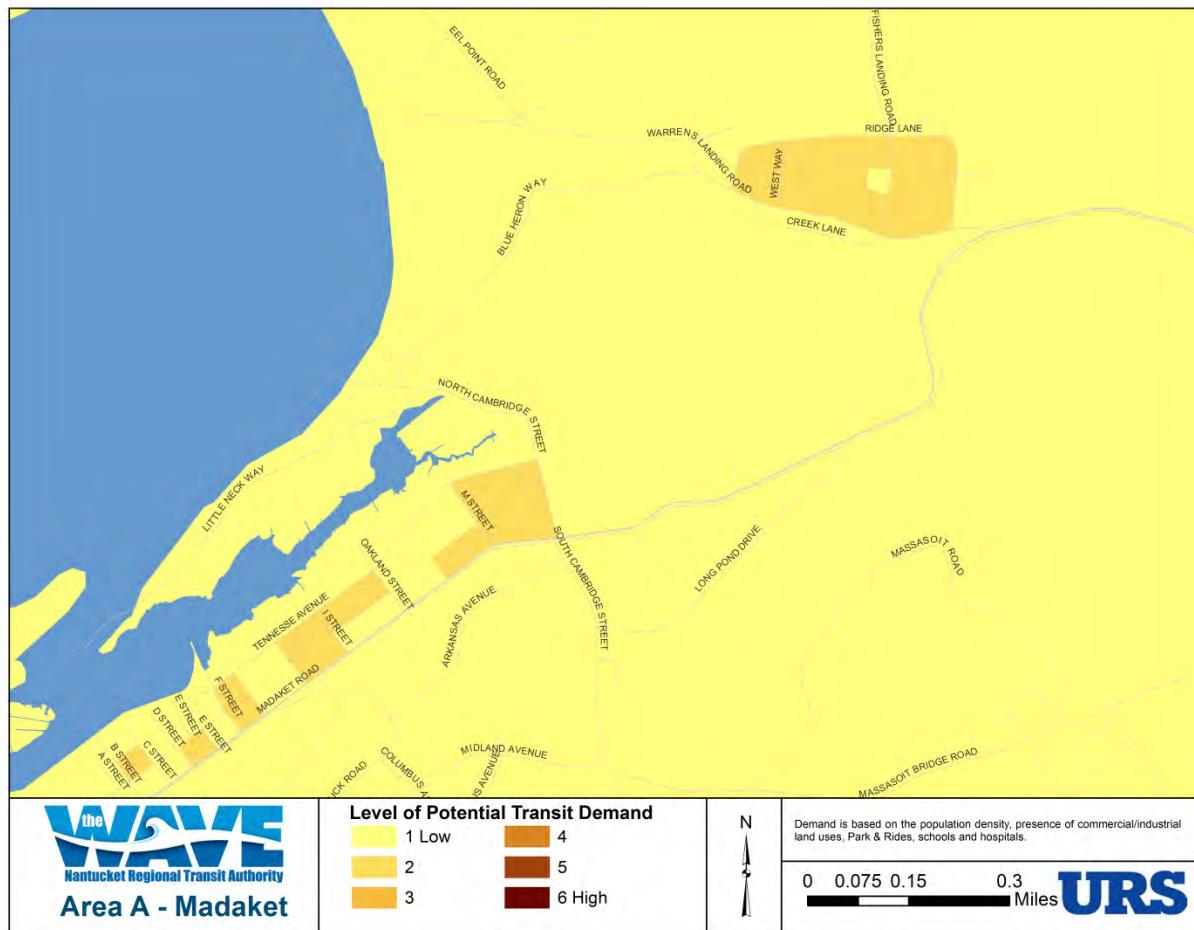


Figure 31. Area A: Off-Season - Madaket

Area B (Figure 31) in Downtown has a demand in the off-season because of the higher population densities, commercial activity, multiple park-and-ride locations, and schools. Most of the commercial development is location in downtown, which generates a lot of traffic. While parking regulations are relaxed during the off-season there is still limited space available. During the summer season, all routes converge in the downtown at either Greenhound, Washington Street or Broad Street in front of the Whaling Museum.

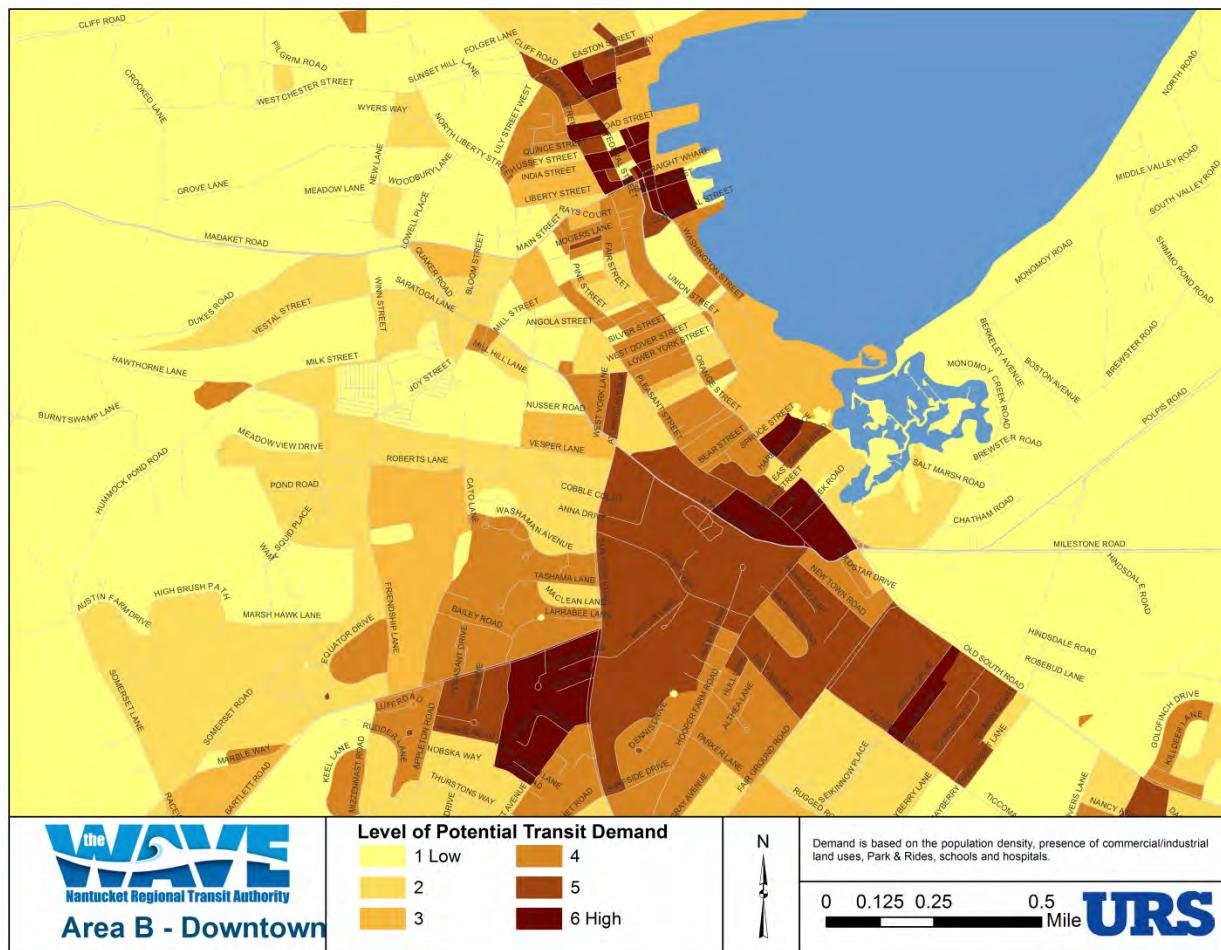


Figure 32. Area B: Off-Season - Downtown

Area C (Figure 33) in the Mid-Island area has a demand in the off-season because of higher population densities and commercial development. Population densities are as high as 4,500 people per square mile (PPSM) along the Goldfinch Drive development, but the average is approximately 600 PPSM, which is significantly higher than the rest of the island (208 PPSM). During the shoulder and summer seasons, this area is serviced by the Airport/Fast Ferry route and Sconset routes.

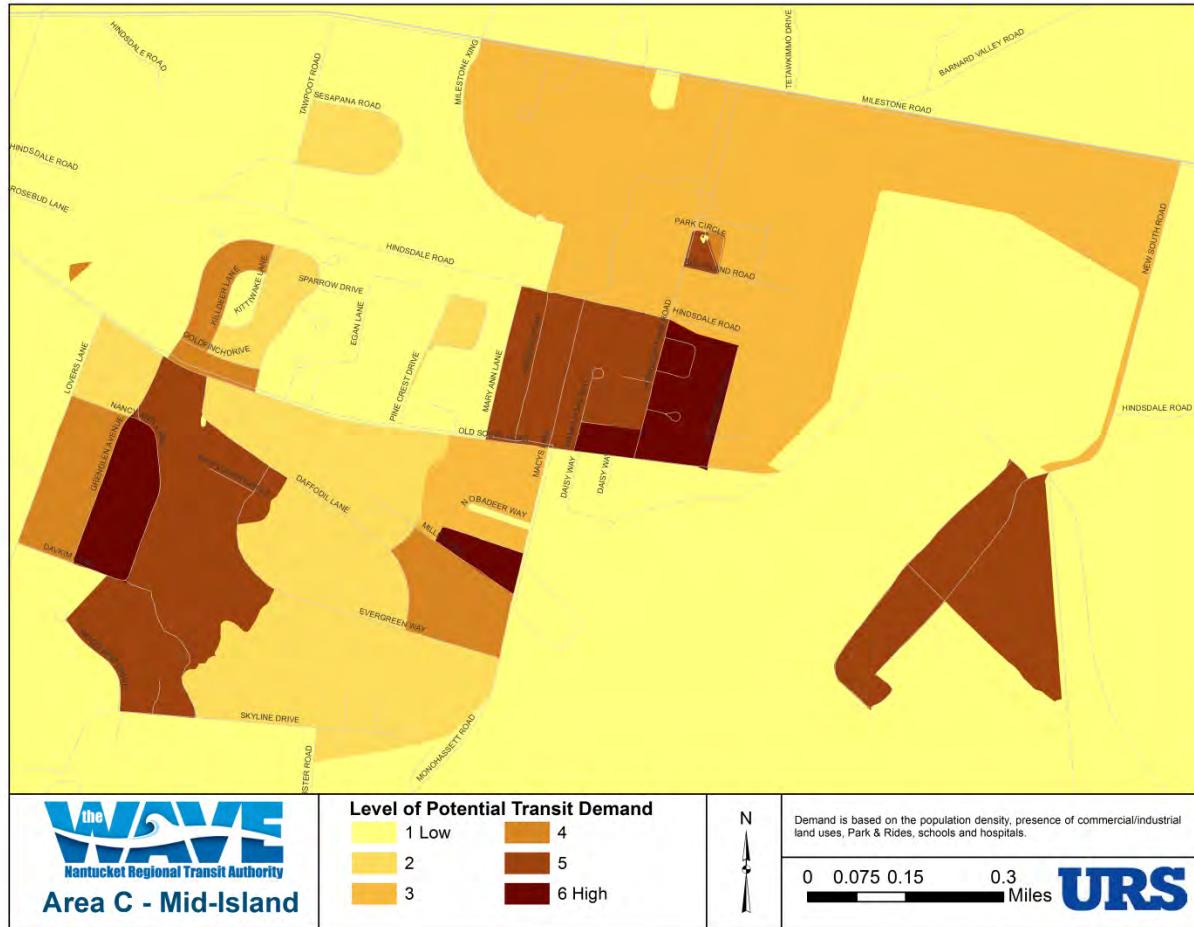


Figure 33. Area C: Off-Season - Mid-Island

Area D (Figure 34) in Tom Nevers has demand in the off-season because of higher population densities. Population densities average around 1,100 PPSM but many of these homes are seasonal. This is significantly higher than the rest of the island (208 PPSM).

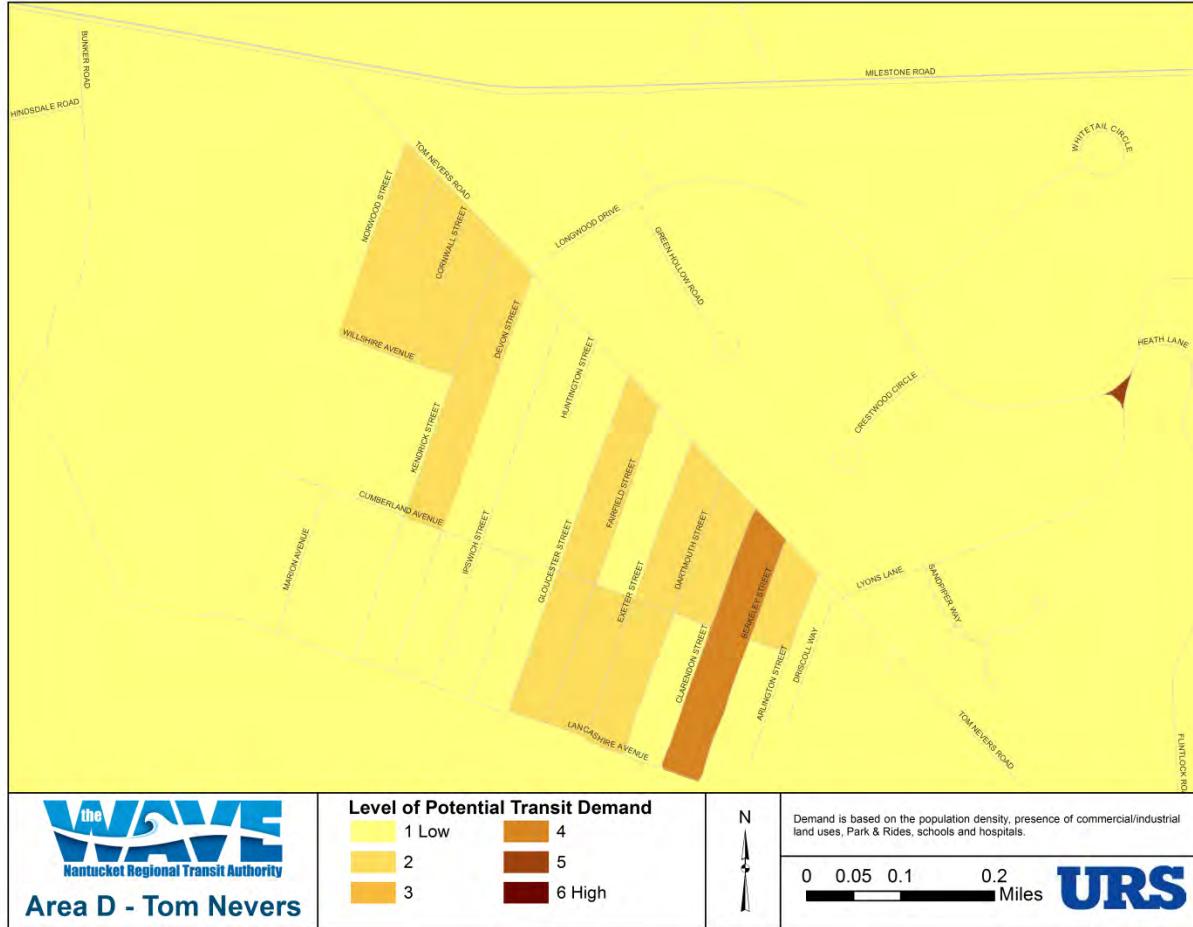


Figure 34. Area D: Off-Season - Tom Nevers

Area E (Figure 35) in Sconset has a demand in the off-season because of higher population densities. This area has a relatively small year-round population (approximately 100 people), but development is dense. Population densities are approximately 500 PPSM. This is significantly higher than the rest of the island (208 PPSM). During the shoulder and summer seasons, this area is serviced by the Sconset routes.

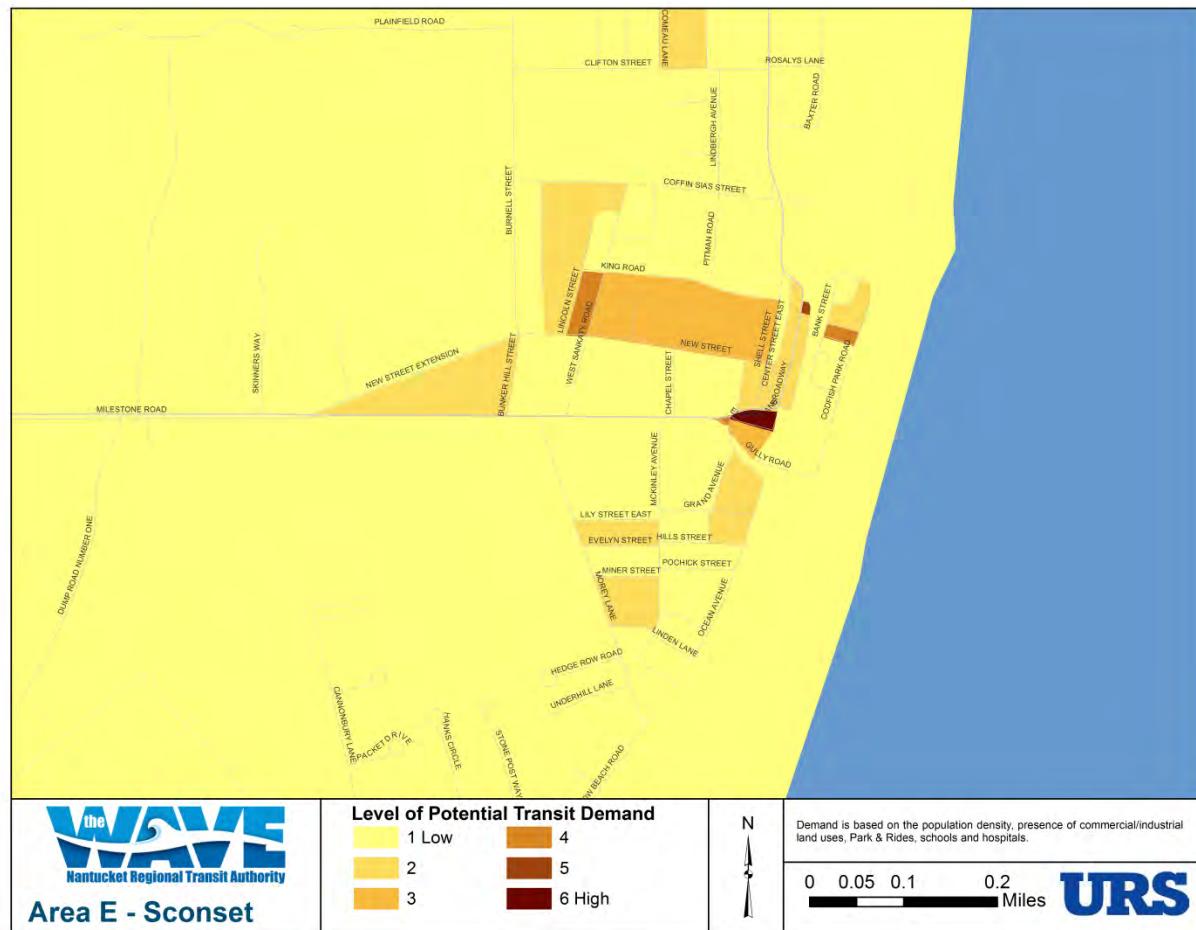
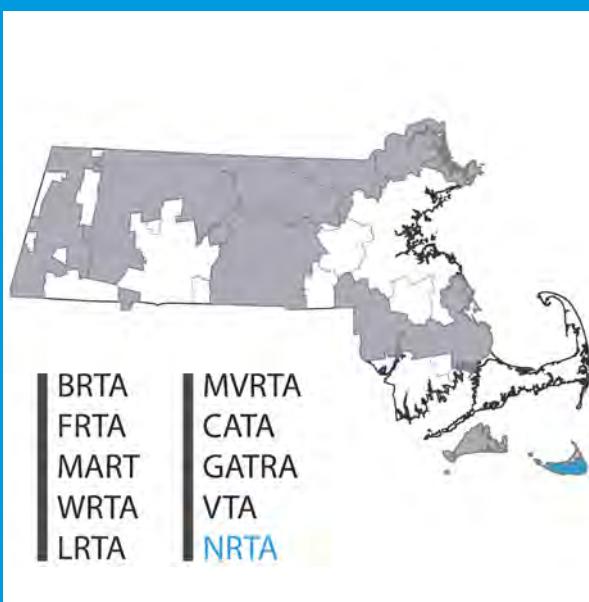


Figure. 35 Area E: Off-Season – Sconset

While there are areas in the NRTA service zone that are possible candidates for service modifications, overall NRTA's service is deployed to accommodate the transit needs of the region's workforce and tourists during the summer months but could be altered to better meet the demand and improve access during the off-season. Operating later night service during the summer months on many of the routes would allow for more of the hospitality industry to use transit. NRTA has demonstrated success at connecting people to employment, and tourists to destinations during the summer months but more can be done such as operating year round service. To understand what the system can achieve, we must first understand what the current demand is. Appendix A has maps of each route depicting the regional demand within $\frac{1}{4}$ mile of each route. Recommendations in the following chapters will be designed to strengthen job access and develop even better connections.

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Chapter 5

Fare Analysis

AECOM / URS

Burke & Company




Nantucket Regional Transit Authority

5. FARE RATES AND COLLECTION METHODS

5.1 Collection Methods

The Nantucket Regional Transit Authority (NRTA) purchased and installed GFI Genfare Electronic Validating Fareboxes in 2002. Fareboxes are installed on all fixed route vehicles. Passengers are able to purchase short term passes and can be issued change cards from the farebox. Change cards act as a stored value card and can be used towards fares only.

Farebox

The farebox is capable of electronically validating and verifying all coins and bills inserted for payment. All coins and bills are automatically identified by denomination, without operator action. All invalid coins and bills are automatically rejected and returned to the passenger. The farebox assists operators with verification of the fare deposited by showing the Operator Control Unit (OCU) the value of coins and bills inserted. All accepted coins and bills are deposited into a single cashbox, securely compartmentalized to separate the coins and bills. Short term passes are also sold directly from the farebox. The farebox is capable of recognizing invalid short term and season passes and has a pass back feature that prevents the same pass from being used for boarding within ten minutes of the first use.

5.2 Fare and Pass Structure

NRTA offers a wide range of fares and passes which can be found in Table 9. Cash base adult fares are established for each route. Half fares are offered to seniors 65 years of age and older, individuals with disabilities, veterans and active military personnel. Free fares are offered to children 6 years of age and younger when accompanied by an adult. The NRTA offers short term passes, 1-day, 3-day, and 7-day sold from the farebox. Passengers insert money into the farebox, the operator selects the type of pass on the operator control unit and the pass is generated from the farebox; when the pass is generated it is validated for use. Short term passes are valid for calendar days only, beginning at the time the pass is purchased. Season passes are sold at the NRTA Administrative Office. To validate the pass for use the passenger must insert the pass into the farebox. Once the pass has been validated the card can be swiped to record the use.

Table 9. Fares and Passes

Cash Fares	
Adult - Mid Island Loop, Miacomet Loop, Jetties Beach Route	\$1.00
Adult – Sconset Routes, Madaket Route, Surfside Beach Route and Airport Route	\$2.00
Seniors 65 & Older	Half Fare
Individuals with Disability	Half Fare
Veterans and Active Military Personnel	Half Fare
6 & under	Free
Short Term Passes	
1-day	\$7
3-day	\$12
7-day	\$20
Season Passes	
Season	\$90
Commuter (business purchased)	\$80
Student	\$50/\$80
Disabled	\$50
Veteran and Active Military Personnel	\$50
31-day	\$50

5.3 National Best Practices

This chapter provides an overview of different fare policies and fare media that are used throughout the United States. While the fare policies and practice of NRTA reflect local needs and practices, the comparison with national standards can provide helpful insight and guidance regarding ways to improve available fare media and policies. . The fare policy and standards section describes various policies and fare pass types employed by transit agencies and represent standard fare practices on a national level. A wealth of information regarding best practices in fare policy, technology, and fare media is presented by the Transit Cooperative Research Program (TCRP) and forms the basis of this section. Information is also supplemented by research on specific fare practices of transit agencies throughout the country.

An overall summary of TCRP Report 94, the update on Fare Policies, Structures, and Technologies shows that⁹:

- Overall fare levels are increasing, specifically the base cash fares
- Agencies are moving towards a more simplified fare structure
- Many agencies are moving away from a policy of free or reduced cost transfers and replacing the transfer policy with a day pass that can be purchased onboard vehicles
- Pre-paid and multi-trip fare media is growing
- Many agencies have either implemented or are exploring Smart Card technologies
- Regional fare integration, where multiple operators within a metropolitan region, are moving towards a common fare policy and media improving the customer experience

5.31 Fare Technology and Media

Fare technology and media represent the primary hardware and software for collecting passenger fares onboard transit vehicles. Transit agencies throughout the country use a variety of different fare technology and media (how the fare is paid). The technology and media have evolved greatly over the years. Current fare technology runs the range from non-registering fareboxes which are literally just containers that house the fare revenue deposited by passengers all the way up to SmartCard technologies that allow passengers to pay their fare with a quick pass of a credit card size fare instrument. Technology is evolving in such a way that some agencies have been experimenting with paying fares using SmartPhone applications. Some systems, primarily rail and Bus Rapid Transit systems, have off-board fare collection technology with a proof of payment system. Below is a description of different fare technology and media.

Non-registering fareboxes are the simplest fare technology. These fareboxes are little more than containers where passengers are able to deposit fares. These fareboxes can only accept cash fares or, if the system utilizes them, fare payment coupons. Flash passes, coupons, and punch cards are used for prepaid fare media. These fareboxes do not have the ability to track ridership payment characteristics. Many operators who use these fareboxes will have a separate passenger counter device that the operator manual “clicks” for each fare type. Very few systems use non-registering fareboxes nowadays.

Registering fareboxes allow for fares to be paid and data to be collected regarding fare types. These fareboxes can collect the number of passengers boarding a bus by each fare type for each trip operated. Registering fareboxes can be designed to accept different types of fare media including flash or punch passes or even magnetically coded fare cards. With magnetically coded fare cards, the fare type can be read automatically by the farebox. For punch and flash passes, operators can manually enter information regarding fare type paid. These are currently the most common types of fareboxes.

⁹ Transit Cooperative Research Program Report 94: Fare Policies, Structures, and Technologies pages 2 through 5

The newest fare technology used by transit agencies are known as a SmartCard system. The SmartCard fare instrument is the size of a credit card and can be loaded with any kind of pass or stored value passes. SmartCard readers are needed on fareboxes in order to process fares. Similar to the magnetically coded fare media, many different fare types are available and are automatically counted by the farebox itself. By installing SmartCard readers at each door of a transit vehicle, multiple door boarding can be facilitated. Another advantage of SmartCards is that they can be used by multiple systems. The Massachusetts Bay Transportation Authority (MBTA) CharlieCard, which is also accepted by ten of the fifteen Regional Transit Authorities¹⁰, is an example of a SmartCard. There is a high cost to transit agencies when implementing SmartCards as they require new or modified fareboxes, and the fare media itself is rather expensive.

SmartCard technologies are constantly evolving such as with contactless technology where a user no longer swipes a farecard but simply taps the card on a reader and enters and mobile ticketing where ones pays their fare from their smartphone. An example of a contactless card is the Washington METRO SmarTrip card. Transit agencies are also starting to experiment with fare payment through cellular telephone. With this, the cellular telephone operates as a SmartCard and has the ability to store multiple pass options and fare types. This works by riders downloading an application onto their cell phone, payment is processed through the app and a transit pass is produced on the person's phone¹¹. This mobile ticketing system is currently used by TriMet in Portland, OR, the first agency in the US to pilot this for fixed route. The user simply selects their rider and mode type to purchase a ticket, then when they want to use it they select the ticket which generates a QR code that the fare inspector can scan. The technology was developed by GlobeSherpa, a Portland based software company. Similar technology, developed by Bytemark, was deployed in 2014 at Capital Metro in Austin, TX. Locally the MBTA uses technology developed by Masabi for mobile payments on their commuter rail and ferry systems.

In the future, other technologies such as the Magic Band which Disney uses as admission to the park, connects to your credit card for easy payment and unlocks your hotel room, may be possible for travel on transit. The band contains a short range RFID chip similar to the read-only RFID¹² chip found in contactless SmartCard technology. The Disney Magic Band is similar to the UBand made by IDenticard. The UBand uses MIFARE¹³ technology to provide contactless access and payment and is currently being

¹⁰ CharlieCard is accepted for fare payment by the following operators: Massachusetts Bay Transportation Authority, Berkshire Regional Transit Authority, Brockton Area Transit Authority, Cape Ann Transportation Authority, Cape Cod Regional Transit Authority, Lowell Regional Transit Authority, Merrimack Valley Regional Transit Authority, MetroWest Regional Transit Authority, Montachusett Regional Transit Authority, Southeastern Regional Transit Authority, and Worcester Regional Transit Authority

¹¹ <http://trimet.org/mobiletickets/>

¹² Radio-frequency identification cards (RFID) is a wireless chip which uses electromagnetic fields to transfer data,

¹³ MIFARE is the name of the technology (chip) that is created by NXP. It complies with international standard ISO/IEC 14443 for data security and transmission protocols for communication with contactless integrated circuit cards , proximity cards and identification cards.

used by Mohawk College in Ontario. In the United Kingdom, Barclaycard launched the bPay band a similar wrist band which users can link any VISA or MasterCard debit or credit card to and can be used at any establishment that accepts contactless payments (300,000 locations). Amongst the many things the band can be used to pay for is the fare (bus or rail) on Transport for London¹⁴.



Figure 36. SmartCard Technologies. Left WMATA Smartrip contact-less; Center TRI MET mobile ticketing; Right Disney's Magic Band

Fare media has evolved drastically over the last 100 years for transit from entirely cash based system to the new innovative contact technology merging today. The first fare media was the token followed by the ticket. These allowed transit agencies to offer discounts over the cash fare. Tickets were used until magnetic stripe cards were introduced, this allowed for the development of passes. Tap cards were developed next with RFID technology and had the capability of operating as a stored value card and as a daily, weekly monthly, etc pass. The newest technology is contactless “open” fare payments which are directly linked to debit or credit cards and can be in plastic card form, on a mobile device and now a wrist band. Regardless of the type of technology used reducing cash transfers benefits the transit system all around. The overhead cost to process cash as opposed to cards can be as much as double due to the security measures and personal needs to empty vaults and count money. Improved farebox technologies not only can improve operating costs but can speed up the boarding time of passengers thus reducing the overall travel time.

In Helsinki, an innovative fare strategy is being implemented through a new market approach viewing Mobility as a Service (MaaS). The principle of the MaaS approach focuses on door-to-door service and mobility as a whole package, instead of each mode individually. Through this method, users are able to plan their trip through one portal and payment system. Different packages provide riders with unique options to meet their transit needs. For example, an urban commuter package, available for purchase at a set price point, may include free public transport in the rider’s home city, up to 60 miles in taxi services, 300 miles for rental cars, and 1,000 miles in domestic public transport. Packages are flexible and can be adjusted to meet the needs of different service areas. Incorporating all transport modes into

¹⁴ The agency who oversees the London rail and bus network.

one, user-friendly interface will provide seamless service to the rider and encourage the use of public transportation over personal vehicles.

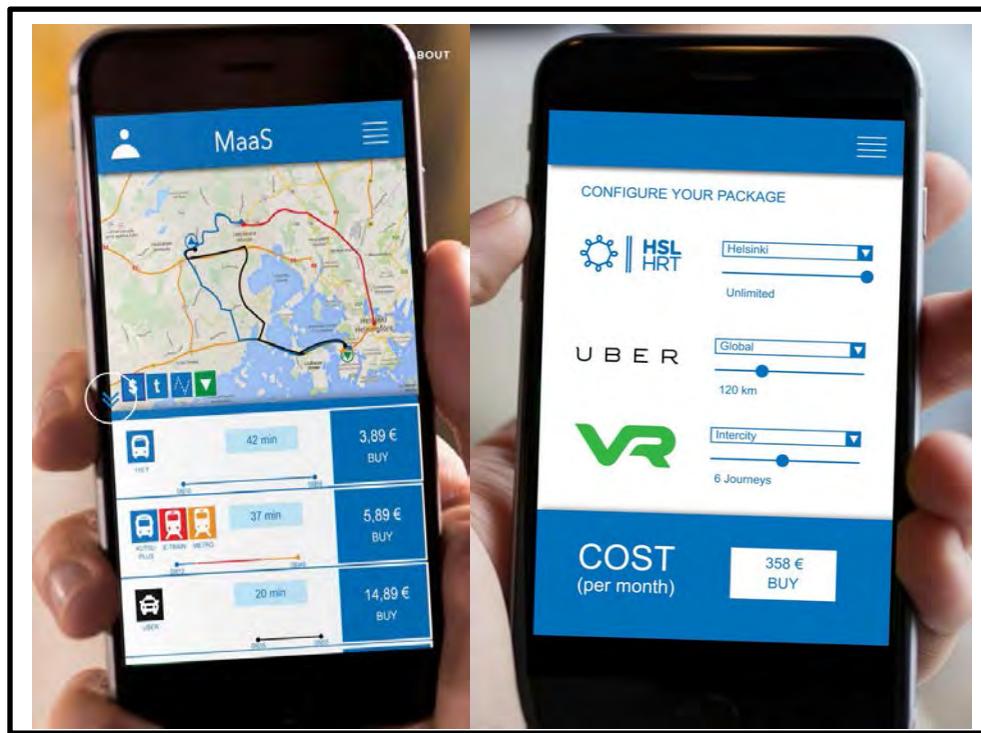


Figure 37. Helsinki Mobility as a Service App

Some systems have implemented off-board fare collection/proof of payment fare payment. Off board fare collection requires fare equipment located at stops and stations and allows for faster boardings. Passengers pay their fare off-board and are issued a receipt or their farecard is validated for the trip. Fare inspectors randomly check to see if passengers have paid their fares by scanning farecards or looking at the receipts. Those who have not paid fares are issued a citation.

5.32 Fare Policy and Standard Practices

A review of fare policies around the country provides a myriad of different fare types and fare media. Fare media types include unlimited ride passes and multi-ride/stored value transit fares. A description of cash fares and transfer policies are included in this section. Fare policies and standard practices vary amongst various transit agencies and are suited to meet individual local conditions.

Fare Policies

Cash fares are accepted by almost all transit agencies. Most transit agencies accept only exact fare and will not make change. A small number of agencies will make change for passengers on some or all services. Some agencies have limitation with their fare collection equipment that only allows the farebox to accept coins, while most operators are able to accept both bills and coins.

Unlimited ride passes allow users to take as many rides as needed over a set period of time. These passes are a pre-paid fare media and come in many increments. Most agencies have either a 30-day, 31-day or “monthly” pass. For a shorter duration, agencies may have a week pass or even a two-week pass. The shortest duration pass is a one-day pass and agencies that sell a one-day typically do not have free or discounted transfers. Unlimited ride passes provide a discount over cash fares, with the discount related to the number of times the pass is used as it represents a single payment over a time period. The issue with unlimited ride passes is that it typically requires a large upfront payment by customers to take advantage of the discount, which may be difficult for lower income users.

Multi-ride passes or stored value cards allow for passengers to buy a set number of transit trips ahead of time usually at a discount. These pass/stored value cards allow for the pre-paid purchase of discounted fares. Similar to the unlimited ride passes; these fares require a large upfront payment, although not as large as the unlimited ride passes, in order to take advantage of discounts. Multi-ride passes/Stored value cards can come in a variety of different types of media and formats including ticket books, tokens, punch cards, or as stored values on a fare card or SmartCard.

Some agencies have instituted free fares. Free fares primarily exist in places where the primary generator in the area is a major university. In these areas, funding sources for transit services come from the university. In other locations, college students are provided a free transit pass that is funded by student service fees, parking revenues at the college, general fund revenue, or a combination of these sources. An example of a system that has a free fare policy is Chapel Hill Transit in North Carolina, which serves the University of North Carolina¹⁵.

Transfer policies are a very important consideration and part of any fare policy and fare media. Transit passengers have varied origin and destination locations so it is impossible to serve all passengers without requiring passengers to transfer. Many systems are designed around bringing passengers to a central location where they can connect to another bus to reach their destination. Other systems have transfers occur at points where two or more routes intersect. Regardless of transfer location, transfer policies have an impact on ridership. The existing transfer policies include allowing transfers to occur for free, transfers to occur at a low cost, or requiring passengers to pay full fare when transferring. Some systems have different policies based on fare media used, for example a free transfer if using a SmartCard while cash passengers have to pay full fare when transferring.

Standard practices

Fare policies typically respond to local needs. In some locales the fare policy and changes to fare policies are well codified. In other locations, fare policies change only in response to an identified issue; otherwise fare policies may not change at all for a long time. Fare policies need to be responsive

¹⁵<http://www.townofchapelhill.org/town-hall/departments-services/business-management/fee-schedules/transit-policies-fee-schedules>

to local needs. The fare policy has to be cognizant of the need to provide an adequate local share of operating costs. That being said the fare policy has to also strike a balance between being equitable to all users, encourage pre-paid fares, encourage ridership, and the need to raise local revenue.

Federal rules and guidelines need to be taken into account in fare policy discussions. Environmental justice concerns also need to be taken into account as part of fare policy and fare policy changes as it relates to Title VI of the Civil Rights Act of 1964. Legal proceedings have forced modifications to fare policies and fare policy changes due to environmental justice concerns¹⁶. Environmental justice concerns are addressed by ensuring that fare policy changes are equitable for all services an agency operates. Fare policies also need to be consistent with rules and guidelines with the American's with Disabilities Act.

As stated previously, very few agencies have a policy regarding fare changes. Primarily, agencies adjust fare levels based on a specific need, usually the need for additional directly generated revenue. This could be in response to cuts in funding from other sources, changes in cost structure, or overall cost increases. On a philosophical level many agencies prefer to increase fares along with improvements in service so that passengers are receiving "better service" as part of higher fares.

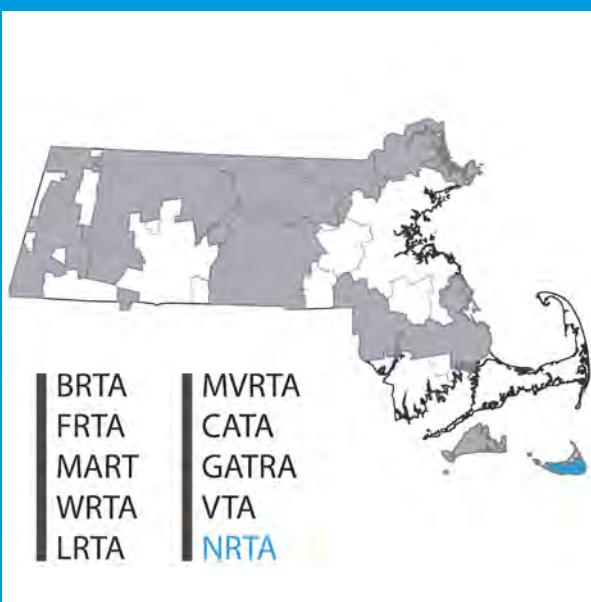
The key elements of a fare policy include a base cash fare, multi-ride fare media, unlimited ride passes, and a transfer policy. Ten out of fifteen RTA's in Massachusetts use the CharlieCard SmartCard for fare payment which does have the ability to store unlimited ride passes. Beyond this fare policy, transit agencies have been partnering with colleges and universities to fund UPass programs which provide free trips for students and guaranteed revenues for the transit agency.

5.4 Conclusion

Moving forward, the best plan of action involves each of the RTA's joining together to research and develop innovative fare policies and media for the next generation. Through collaboration, the RTA's have the chance to implement fare strategies that can function collectively across Massachusetts and be a model for innovation. As the Sheidt & Bachmann fareboxes and CharlieCard technology, that many of the RTAs have, becomes outdated and must be replaced this present an opportunity for the RTAs to explore alternative technology such as the MaaS project in Helsinki, mobile payments, or the bPay/Magic Band/Uband. A system-wide approach, as opposed to individual fare strategies for each RTA, will foster a cohesive transit system and provide riders an easier opportunity to travel between the RTA's.

¹⁶ Transit Cooperative Research Program Report 94: Fare Policies, Structures, and Technologies page 5

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Chapter 6

Environmental

AECOM / URS

Burke & Company




Nantucket Regional Transit Authority

6. ENVIRONMENTAL

In 2010, MassDOT launched their sustainability and environmental responsibility initiative to “green” the state transportation system, called GreenDOT. All branches of the Commonwealth’s transportation system (transit, air, highway and planning) are subject to the policies contained within the GreenDOT initiative. The policy is driven by three primary objectives: (1) reduce greenhouse gas emissions, (2) promote healthy transportation options, and (3) support smart growth and development. In order to meet these objectives and to become a national leader in sustainability and transportation, MassDOT created an implementation plan in 2012 that outlines 7 themes (Air, Energy, Land, Materials, Planning Policy & Design, Waste, Water) and 16 sustainability goals. As part of the GreenDOT policy, each indicator was given a priority for implementation. Indicators for immediate implementation are those that were to be implemented by 2013, medium-term by 2015 and long-range policy targets for 2020.

While the concept of improving sustainability and environmental responsibility would prove beneficial for Massachusetts, coordination and input from the 15 RTAs across the state has not yet occurred. In addition, while the GreenDOT policy outlines 331 indicators applicable to the rail and transit division, not all of these are relevant to the fifteen RTAs across the state¹⁷. Those that are not relevant are often the responsibility of the MBTA, Bay State Roads, metropolitan planning organizations, and/or MassDOT but not the RTA. Many of the policies extend beyond the responsibility and reach of any of the RTAs and the timeline for achieving the indicators are not realistic or necessarily right sized for the RTA’s. Many of the RTA’s (either individually or collectively) will require more time to implement these environmental initiatives. A logical step is for each RTA to coordinate and confirm with MassDOT which initiatives are the most appropriate and achievable actions that can be taken and how best to achieve them.

In addition to GreenDOT, Massachusetts recently passed regulation *310 CMR 60.05: Global Warming Solutions Act Requirements for the Transportation Sector and the Massachusetts Department of Transportation*. The purpose of the act is to assist the state in achieving their goals of reduced greenhouse gas emissions (GHG). There are various parts to the regulation that require interagency coordination between MassDOT, Metropolitan Planning Organizations (MPOs), Regional Transit Authoritys (RTAs), the Department of Environmental Protection and the Executive Office of Energy and Environmental Affairs. The RTAs are specifically given 4 tasks:

- Conduct comprehensive service reviews (CSRs),
- Identify service enhancements to increase passenger ridership
- Identify vehicle technology and operational improvements that can reduce GHG emissions
- Work within the MPO process to prioritize and fund GHG reduction projects and investments

¹⁷ Mass GreenDOT policy <http://www.massdot.state.ma.us/GreenDOT.aspx>

The RTAs along with MassDOT and the MPOs will be required to calculate GHG impacts on all RTP projects, consider GHG impacts when prioritizing and selecting projects, and report GHG impacts of all projects. Spreadsheet calculation tools have been developed for calculating GHG emissions and air quality analysis on bus replacements, new bus services, complete street programs and park and ride lots. The Department of Environmental Protection requires that the GHG impacts be measured for all projects and reported annually.

This section of the NRTA plan examines how the policy's themes and goals are being applied to regional transit authorities and which ones in particular NRTA is currently meeting. There are a total of 331 indicators identified in the GreenDOT policy for the rail and transit division of MassDOT, of which only 138 or 42% are applicable to the NRTA. Of the 138 applicable indicators, 67 are short term indicators which are recommended to be in place by 2013, 51 are medium term indicators to be implemented by 2015 and the remaining 20 indicators should be implemented by 2020. NRTA has met 22 (33%) of the short term, has met or is working towards meeting 20 (39%) of the medium-term and 2 (10%) of the long-range indicators (Figure 39). Overall, the NRTA is meeting 37 (27%) of the 138 applicable indicators (Figure 1), even though 15% are not required to be met until the end of 2015 or 2020 according to GreenDOT.

The NRTA is working continuously to achieve the indicators and has accomplished many of them ahead of schedule. Due to geographic isolation and the lack of year round service it has been difficult for NRTA to achieve many of the indicators. Some of the applicable indicators are joint responsibilities of the NRTA, MassDOT, the planning commission or the municipality and they must work collaboratively to achieve success. Additionally, of the 133 indicators that do not apply, some reasons may be because they are specific to the MBTA, specific to rail, require that there has been or will be new construction, they are for MassDOT owned facilities, they are for environmentally sensitive land areas, and/or there may be other constraints beyond the NRTAs control.

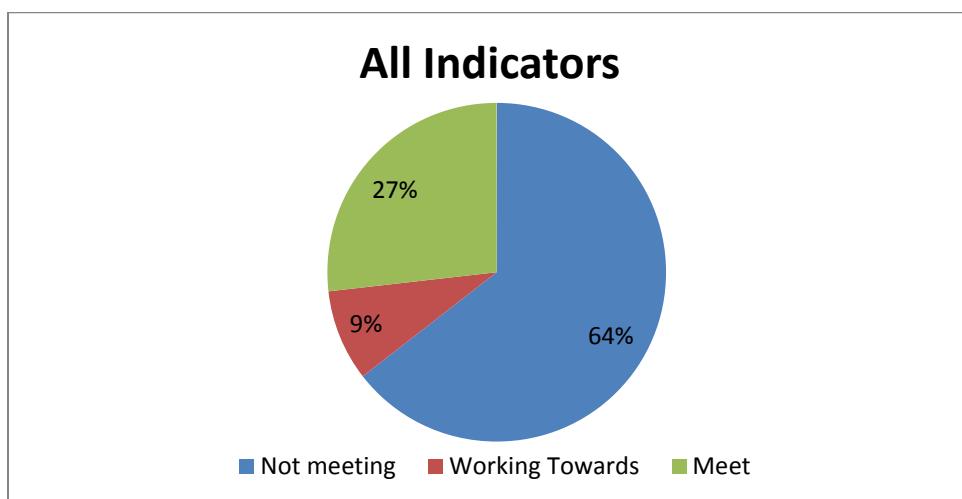


Figure 38. All indicators Level of Attainment

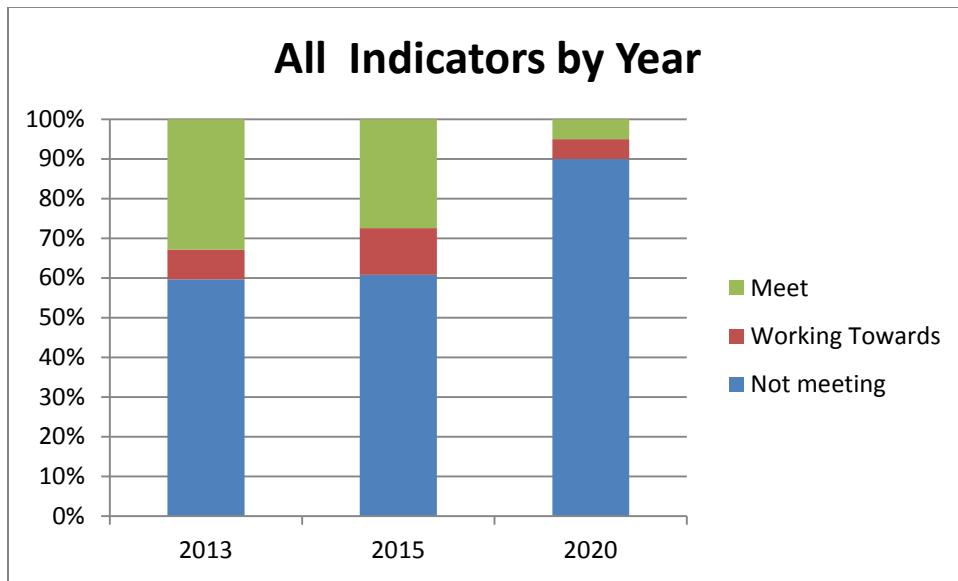


Figure 39. All Indicators Attainment by Year

6.1 GreenDOT Policy

The seven themes of GreenDOT that aim to reduce carbon footprints and improve sustainability include air, energy, land, materials, planning (policy and design), waste and water. Each theme has at least two goals and several objectives and indicators for meeting the goal. The indicators are measurable tasks that describe sustainable practices. Table 10 outlines the goals, objectives and indicators for each theme. For each indicator NRTA was asked if they currently are achieving it, are working towards achieving the indicator, do not meet the indicator and are not currently working towards or if it is not applicable to them.

Table 10. GreenDOT Goals, Objectives and Indicators

Theme	Goals	Objectives	Indicators	Applicable Indicators
Air	2	11	49	19
Energy	2	7	39	21
Land	2	9	45	3
Materials	3	14	63	25
Planning, Policy & Design	3	12	56	32
Waste	2	9	33	23
Water	2	9	46	15
Total	16	71	331	138

The theme with the largest percentage of indicators met is Policy, Planning and Design.

6.21 Air

Air goals include improving the state air quality and reducing greenhouse emissions. To improve statewide air quality NRTA complies with stricter idling policies that require vehicles be turned off when reaching layover points downtown. Many of the other air quality indicators are not applicable because there is no commuter rail and alternative fuels are not available on the island.

There are 49 indicators for air but only 19 (39%) are applicable to NRTA. NRTA is meeting 6 (32%), working towards 1 (5%) and not meeting 12 (63%) of the applicable air indicators as seen in Figure 40. Figure 41 outlines the air indicators by implementation time and level of achievement. There are 30 indicators in the air theme which are not applicable to NRTA. For the applicable indicators 7 are short term indicators, 8 are medium-term, and 4 long-range. Of those that are applicable to NRTA they have met 4 (57%) of the immediate implementation (2013) indicators, and are working towards or meeting 3 (38%) of the medium-term (2015) indicators and 0 (0%) of the long-range indicators.

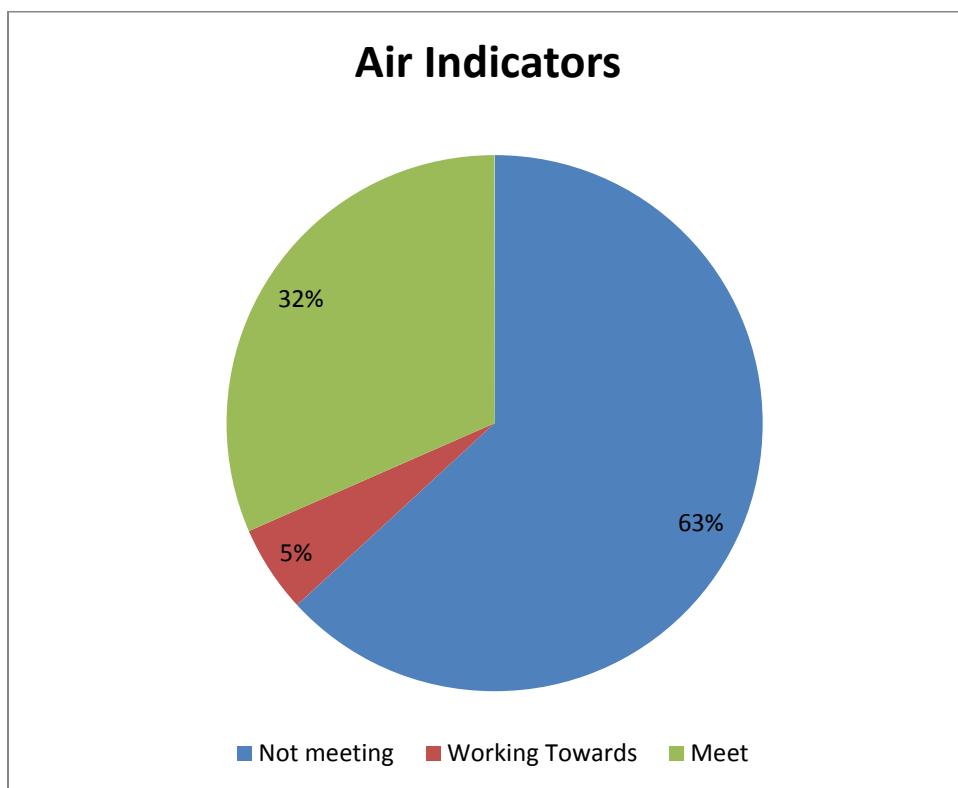


Figure 40. Air Indicators Level of Attainment

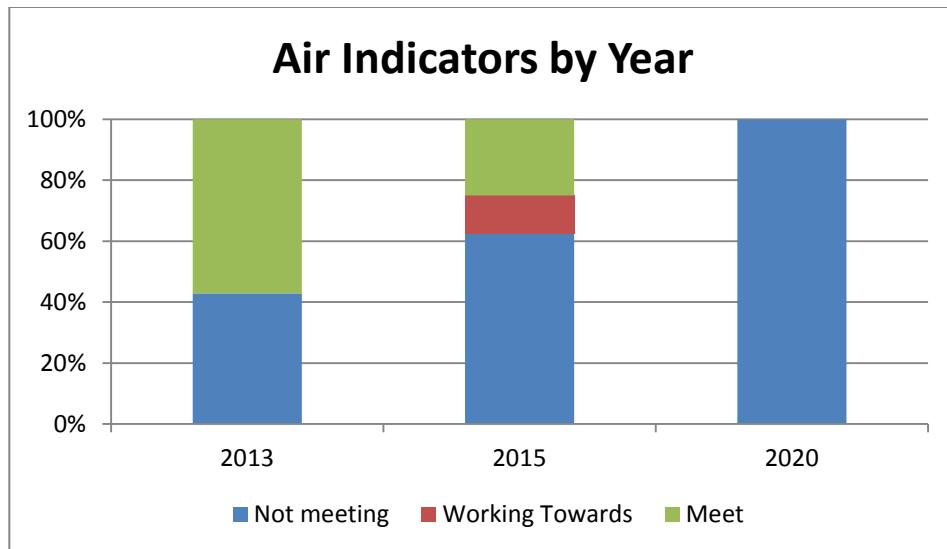


Figure 41. Air Indicators Attainment by Year

Table 11. Air Goal Achievement

Goal 1: Improve Statewide Air Quality	
Objective: Reduce emissions from maintenance & construction equipment	
Indicator	Contribution
Retrofit + use of hybrid engine system for each vehicle class piloted	Not Applicable - no maint or construction equip
Diesel retrofit program for on and off-road vehicles expanded	No - 13 of 18 vehicles are 2010 or newer, older vehicles are scheduled to be replaced
Hours of non-revenue vehicle operation reduced by 5% through operations streamlining	Not Applicable - very few non-revenue hours
Electric and/or full exhaust cycle motors have replaced 2-stroke equipment	Not Applicable - no maint and construction vehicles
All new heavy equipment purchased run hybrid, CNG, or other high efficiency engines	Not Applicable - no heavy equipment
Objective: Decrease total engine idling	
Indicator	Contribution
On-board electrification of maintenance equipment for each vehicle type piloted	No - no on board electrification
MassDOT compliance with anti-idling laws ensured	Yes - Comply with Federal anti-idling reg, local requires vehicles to be turned off when reaching downtown bus stops under contribution local policy
On + off-road anti-idling policies included in all construction, maintenance + service contracts	No
Anti-idling policies, more restrictive than state law developed to eliminate unnecessary idling	Yes
Anti-idling technology in transit vehicle + maintenance truck operations utilized	No
90% of MassDOT over-road maintenance vehicles run hybrid engines or have on-board electrification	Not Applicable - no over road maintenance vehicles

Objective: Decrease volatile organic compound discharge from facilities	
Indicator	Contribution
Spray painting restricted to permitted booths + emissions controls installed at spray shops	Not Applicable - no spray painting shops
All maintenance yard gasoline fueling pumps retrofitted with vapor recovery systems	Yes - one fueling - 500 gallon above ground tank
Technologies for diesel + jet fuel vapor recovery explored + implemented where feasible	No
Air emission control training provided to all maintenance employees	No
Objective: Increase fuel efficiency of operating transit fleet	
Indicator	Contribution
100% of transit bus fleet replaced or retrofitted with hybrid systems or best in class fuel efficiency vehicles	Yes - 2 hybrids, ultra-low sulphur diesel fuel
Statewide diesel transit + school bus retrofit program optimized + balanced with efficient vehicle purchases	No
20 new high efficiency commuter rail diesel locomotive in service	Not Applicable - Do not operate Commuter rail
40 new high efficiency commuter rail locomotives purchased	Not Applicable - Do not operate Commuter rail
Objective: Increase efficiency of transportation systems operations	
Indicator	Contribution
Bus route efficiency measures implemented by all transit operators	Working towards - Conducting Regional Transit Plan
Planned bridges and ROWs designed to increase options for double tracked lines + allow double-stack cars	Not Applicable - Do not operate rail
Six rail corridors upgraded to increase speed including separated grade crossings or other improvements	Not Applicable - Do not operate rail
Dwell time of commuter rail trains at stations decreased	Not Applicable - Do not operate Commuter rail
Program initiated to increase the number of high level commuter rail platforms	Not Applicable - Do not operate Commuter rail
Electronic tolling facility of road and parking facilities launched	Not Applicable - no owned parking facilities, small park and ride lots that are businesses parking areas that allow us to use spaces

Goal 2: Reduce Greenhouse Gas Emissions	
Objective: Increase vehicle electrification facilities	
Indicator	Contribution
At least 30 electric vehicle (EV) chargers installed along state highway system + transit parking areas	No
All major park and ride, + transit parking lots (>50 vehicles) have charging stations	Not Applicable - no owned parking facilities
Feasibility analysis of expanding the use of battery + fuel cell powered buses completed	No
Optimal Statewide EV plug-in station network planned + implemented	Not Applicable - State Initiative
The feasibility of electric commuter rail locomotives studied within the Commuter Rail Master Plan	Not Applicable - Do not operate Commuter rail

Objective: Increase use of alternative + renewable fuels	
Indicator	Contribution
Bio-fuel (such as B10-B20 biodiesel) tested in oil heated buildings	Not Applicable - bio diesel not available
20% biodiesel (B20) blend purchased for oil heated buildings	No
Recycled vegetable oil / non-food stock impairing fuel purchased for biodiesel blends	Not Applicable - bio diesel not available
Volume purchasing of alternative fuels established across facilities + divisions	Not Applicable - alternative fuels not available, one facility one division
B10 + B20 biodiesel pilot begun in all diesel vehicle types	Not Applicable - bio diesel not available
B10 to B20 biodiesel utilized in all diesel vehicles, depending on availability, vehicle type + season	Not Applicable - bio diesel not available
Objective: Increase fuel efficiency of light duty vehicles	
Indicator	Contribution
Vehicle fleet inventoried + prioritized for replacement and retrofit based on emissions reduction	Yes - not really based on emissions reduction
A portion of light duty fleet in urban areas integrated with car-share programs	Not Applicable - no zip car available
Light duty fleet downsized with carpooling, interdepartmental vehicle use, + car-sharing	Not Applicable - transit agency - drivers do car pool from rental house to work, and car pool to get on and off shift
All light duty vehicles replaced or retrofitted with hybrid, electric, CNG or best in class technology	No
50% of DOT light vehicle fleet replaced or retrofitted with zero or partially zero emission vehicles	Not Applicable - no DOT registered vehicles
Objective: Increase fuel efficiency of maintenance + construction equipment	
Indicator	Contribution
Performance measures added to maintenance + construction contracts for green fleets	Not Applicable - no maintenance or construction contracts
15% of maintenance fleet replaced with best in class emission ratings	Not Applicable - no maintenance fleet
Objective: Increase telecommuting + meetings by web conference	
Indicator	Contribution
Teleconference technology capabilities installed at all offices	Yes - use computer for webinars
Take home vehicle fleet for office employees eliminated	Not Applicable - no vehicles for employees
Telecommuting + flex time options expanded for employees	Not Applicable - not necessary
Peak hour single occupancy vehicle trips by employees reduced by 20%	Not Applicable - employees do not travel, traffic etc. not an issue on Nantucket
Objective: Track progress toward statewide GHG reduction + other sustainability goals	
Indicator	Contribution
All resource use + purchases reported for performance monitoring	Not Applicable - only one location
MassDOT's GHG emissions target of 40% reduction from a 2002 baseline is met	No - no heating system at bus garage

6.22 Energy

Energy goals are focused on consuming less energy and increasing the percentage of energy which comes from renewable sources. To improve energy efficiency NRTA has purchased Hybrid Vehicles, installed one solar powered lighted bus shelter and retrofitted lighting with energy efficient blubs. NRTA has two Hybrid Electric vehicles in their fleet (Figure 42). All of the indicators that NRTA is meeting or working towards are in Goal 1 to consume less energy. It is hard to meet many of the other indicators when there is not year round service. Many of the other energy goals are not applicable because the bus facility is not heated since there is no service in the winter.



Figure 42. Hybrid Electric Diesel Vehicle

There are 39 indicators for energy but only 21 (53%) are applicable to NRTA. NRTA is meeting 3 (14%), working towards 1 (5%) and not meeting 17 (81%) of the applicable energy indicators as seen in Figure 43. Figure 44 outlines the energy indicators by implementation time and level of achievement. There are 18 indicators in the energy theme which are not applicable to NRTA. For the applicable indicators 7 are short term indicators, 7 are medium-term, and 7 long-range. Of those that are applicable to NRTA they have met 1 (14%) of the immediate implementation (2013) indicators, and are working towards or meeting 2 (29%) of the medium-term (2015) indicators and 1 (14%) of the long-range indicators.

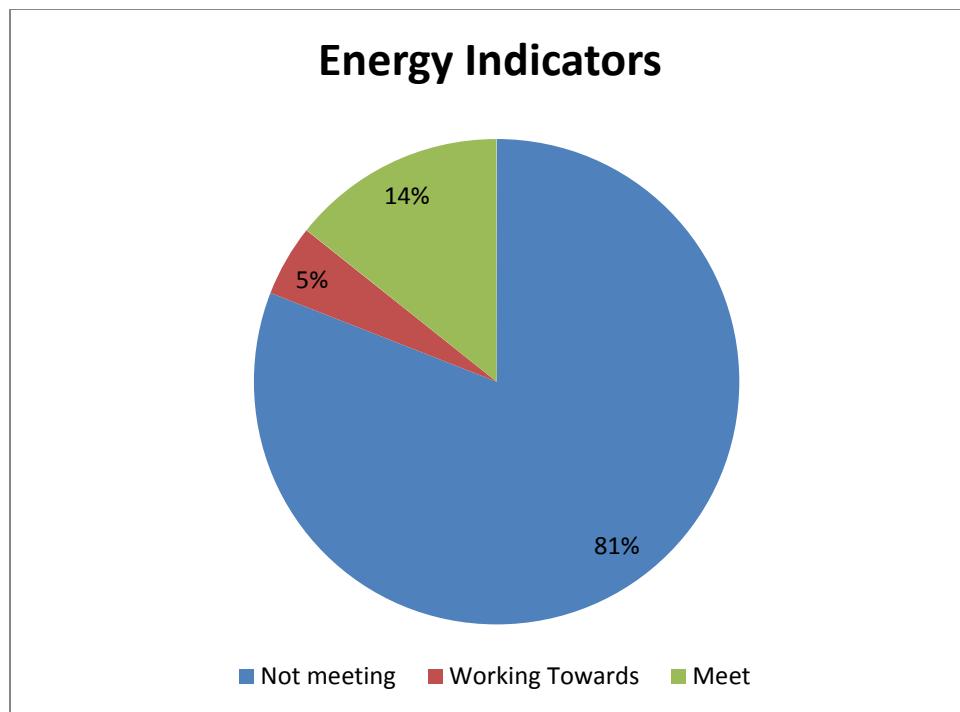


Figure 43. Energy Indicators Level of Attainment

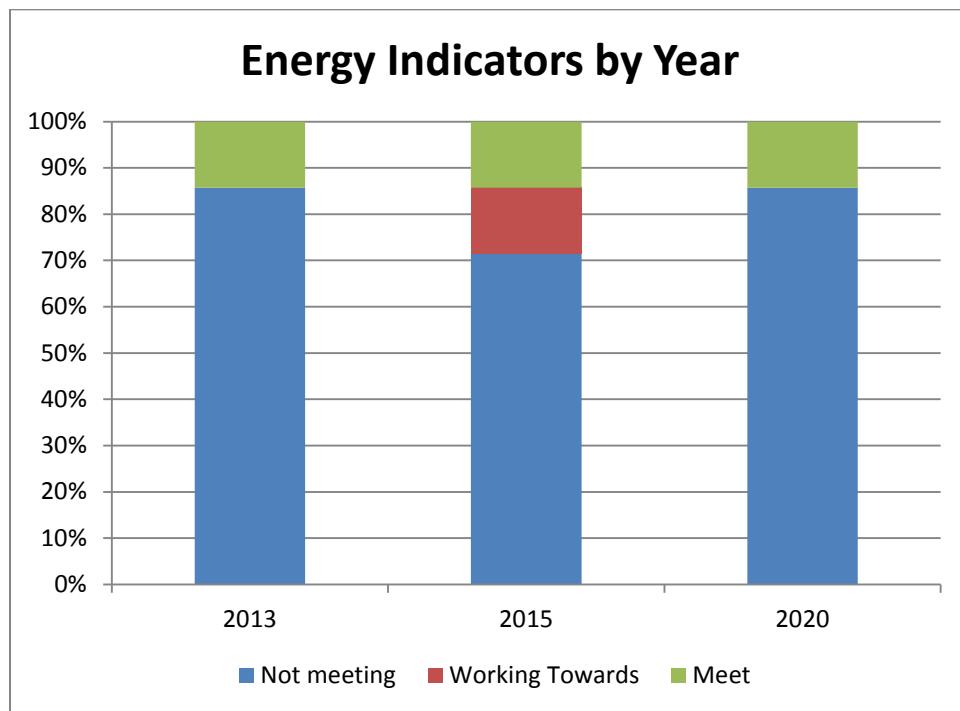


Figure 44. Energy Indicators Attainment by Year

Table 12. Energy Goal Achievement

Goal 1: Consume Less Energy	
Objective: Reduce building electricity use	
Indicator	Contribution
Electrical + HVAC use of all buildings + facilities audited	No
Office electrical equipment shutdown program implemented	No
Employee education and incentive programs established to encourage energy use reduction	No
All buildings not updated in 10 years renovated / overhauled / consolidated	No - Only one maint. garage - designed for storage
Motion sensor/occupancy lighting installed in all buildings	No
Electricity purchased by the MBTA reduced by 20% per passenger mile	Not Applicable - Not the MBTA
Objective: Reduce electricity use by outdoor lighting	
Indicator	Contribution
Use of incandescent bulbs eliminated	Working towards - some
Outdoor lighting assets + technology inventoried	Yes - Only outside lights are at bus garage
50% of all outdoor lighting (ROW, parking lots, tunnels, runways, airfields) retrofitted	Yes - Only outside lights are at bus garage
100% of all outdoor lighting retrofitted	Yes
Electricity consumption for lighting reduced by 50% through retrofits and operations	No
All traffic signals replaced with LED bulbs	Not Applicable - no traffic signals
Objective: Reduce fuel use for heating buildings + water	
Indicator	Contribution
Audit of all heating systems + water fixtures conducted + opportunities for retrofit identified	No
Temperatures of all adjustable boilers/heaters reduced	Not Applicable - no boilers or heaters
All inefficient / electric water heaters replaced with high efficiency tanks or tankless systems	No - one water heater
Geothermal + cogeneration heating systems studied for all new buildings	Not Applicable - no oil heating system
Envelopes of all buildings are evaluated and prioritized for insulation upgrades	Not Applicable - no oil heating system, no new buildings planned
Total heating fuel + costs for MassDOT-owned buildings reduced by 20%	Not Applicable - only operate in summer bus garage is not insulated, storage facility in winter
Total heating fuel + costs for MassDOT-owned buildings reduced by 35%	No
Insulation of all heated / air conditioned buildings assessed and replaced as needed	No
All MassDOT-owned HVAC systems +/or windows retrofitted or replaced	Not Applicable - bus garage is not heated and does have air conditioning
Shade tree planting around MassDOT buildings increased to improve building energy performance	Not Applicable - no MassDOT owned
50% of all inefficient / electric water heaters replaced with high efficiency tanks or tankless systems	Not Applicable - no MassDOT buildings

Objective: Reduce electricity consumption by subways + trolleys	
Indicator	Contribution
Evaluation of on-board and/or wayside energy recapture conducted for all subway lines	Not Applicable - Do not operate rail
Electrical systems of all subway lines evaluated and retrofitted where cost effective	Not Applicable - Do not operate rail
All outdated transit vehicles replaced with high efficiency cars	Not Applicable - Do not operate rail
New subway car purchases contain regenerative braking technology	Not Applicable - Do not operate rail
RFR issued for wayside station regeneration installation	Not Applicable - Do not operate rail

Goal 2: Increase Reliance on Renewable Energy	
Objective: Participate in MassDOT Energy Initiative	
Indicator	Contribution
Create a MassDOT energy management plan	Not Applicable - MassDOT responsibility
All energy consumption (electricity / heating / fleet fuel) tracked + centrally reported	No
Feasibility study completed for additional wind power generation sites on MassDOT properties	No
Objective: MassDOT GreenDOT Implementation Plan Increase energy produced at MassDOT facilities	
Indicator	Contribution
Comprehensive feasibility assessment and renewable energy generation plan completed	No
4 RFR's issued by MassDOT for additional renewable generation sites	Not Applicable - MassDOT responsibility
10 new renewable energy projects installed at MassDOT facilities	Not Applicable - not in a MassDOT building
At least 5% of electricity demand generated by MassDOT renewable projects	No
Objective: Purchase more renewable energy	
Indicator	Contribution
Bulk purchasing of green electricity portfolio with other state agencies initiated	Not Applicable - not MassDOT
12% of electricity needs met through production or green energy purchases	No
25% of electricity needs met through production or green energy purchases	No

6.23 Land

Land goals are aimed at using sustainable vegetation maintenance practices and protecting significant habitat areas and natural landscapes. Almost all of the indicators are not applicable because there are no significant habitats on any of the NRTA leased property and there is very little-no vegetation which must be maintained.

There are 45 indicators for land but only 3 (7%) of land indicators are applicable to NRTA but none are being met (Figure 45). Figure 46 outlines the land indicators by implementation time and level of achievement. There are no medium term indicators that are applicable to NRTA. For the applicable indicators there are 2 short term indicators, no medium-term, and 1 long-range indicator all of which have not yet been met.

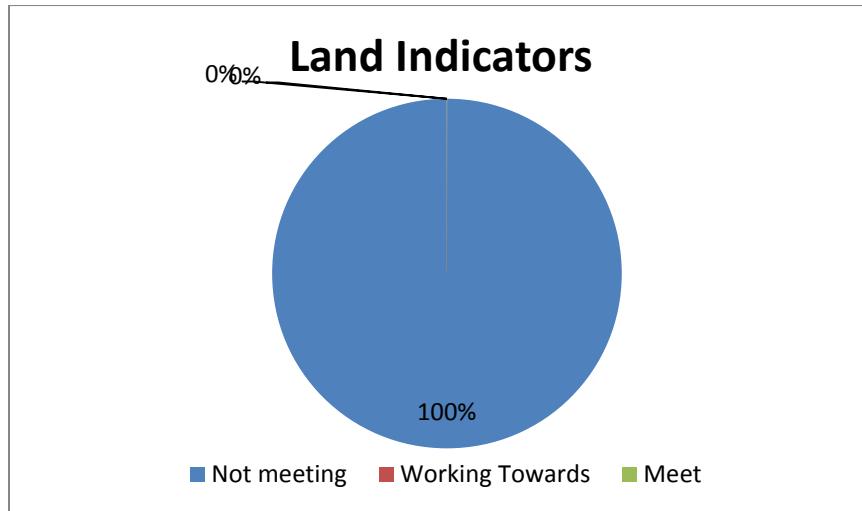


Figure 45. Land Indicators Level of Attainment

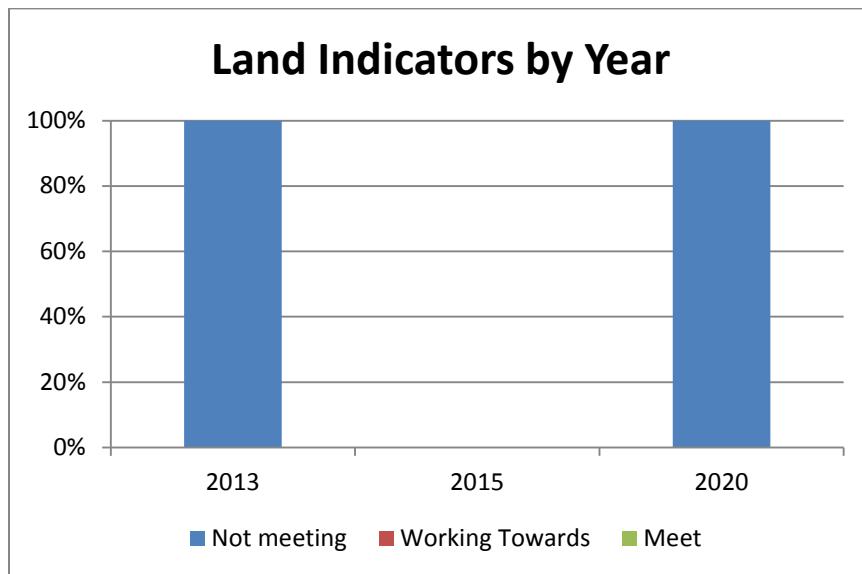


Figure 46. Land Indicators Attainment by Year

Table 13. Land Goal Achievement

Goal 1: Minimize Energy + Chemical Use in Maintenance	
Objective: Increase acreage of land planted with native / low maintenance vegetation	
Indicator	Contribution
New facilities planted with sustainable, minimally managed native landscape	Not Applicable - no new facilities
Lawn installations around five facilities replaced with natural (low maintenance) vegetation	Not Applicable - no lawn installations
Native plant restoration or managed fallow habitat restoration increased 25% along ROWs	Not Applicable
Available land surrounding all rural depots and offices planted with native vegetation	No - lease land from Airport for bus garage, only NRTA "property"
Objective: Decrease area + frequency of land mowed	
Indicator	Contribution
Inventory of grassed area conducted	No - there is grass around the bus garage that we mow
Turf grass replaced with broad spectrum blend of grasses including warm season + slow growing for low maintenance	Not Applicable - no turf grass
Mowing frequency reduced by 25%	Not Applicable - have nothing that needs mowing
Mower blades raised in turtle habitat + areas contiguous with natural areas as standard operating procedure	Not Applicable - no turtle habitat or natural areas
Mowing + brush cutting jobs are scheduled around animal nesting season to the maximum extent possible	Not Applicable - no animal nesting at bus garage
Objective: Implement an integrated vegetation management approach for ROWs + facilities	
Indicator	Contribution
Landscape areas inventoried by habitat area + maintenance regime	No
Adopted Vegetation Management Plans focus on integrated management approach	Not Applicable
Soil augmentation utilize organic landscape techniques + minimize nutrient loads to water supplies	Not Applicable - don't have lands no landscaping
Compost materials used as the preferred soil amendment in all maintenance + construction projects	Not Applicable - no maintenance or construction projects
Objective: Require intelligent use herbicides + pesticides in construction + maintenance	
Indicator	Contribution
Mechanical weed control utilized to minimize traditional herbicide use	Not Applicable - do not weed control
Herbicides used only in conjunction with integrated + sustainable roadside/railway vegetation management plans	Not Applicable - do not have land do not apply herbicides
Increase number of employees trained for herbicide application to allow more selective application	Not Applicable - no employees, not herbicide applications
Integrated pest management (IPM) implemented for all maintenance projects + construction sites	Not Applicable - no maintenance or construction sites
Ongoing training for employees + technical assistance for municipalities on organic/IPM practices established	Not Applicable

Objective: Protect, preserve + enhance woodland + urban tree coverage	
Indicator	Contribution
2 to 1 tree replacement policy implemented where woodland preservation desired	Not Applicable - no woodland preservation
Mature, healthy tree preservation is maximized in maintenance and project design where feasible	Not Applicable - no land
Trees and naturalized landscaping emphasized in revised Project Development + Design Guide	Not Applicable - no project in development
Sustainable roadside woodland management plan established for construction and maintenance	Not Applicable - no construction or maintenance projects
Urban street tree coverage enhanced during improvement projects	Not Applicable - no projects to plant trees
Coordinated tree planting policy established to encourage locally supported urban forestry practices	Not Applicable
100,000 trees planted along roadways as part of MassDOT's Complete Streets practices	Not Applicable - MassDOT responsibility

Goal 2: Enhance Ecological Performance of MassDOT Impacted Land	
Objective: Increase habitat preservation + enhancements	
Indicator	Contribution
Proactively coordinate project development with MA Department of Fish + Game	Not Applicable - no project
Restored + maintained areas increased for non-urban construction projects	Not Applicable - no construction projects
25 nest boxes installed at appropriate locations	Not Applicable - no projects no land
Surplus land with high natural resource value evaluated for transfer to appropriate state agencies	Not Applicable - no surplus land
Grassland and/or Woodland Management Plans in place for all appropriate facilities	Not Applicable - no grasslands or woods near facility
Wildlife + endangered species training program provided for applicable employees	Not Applicable - no wildlife or endangered species at facility
Ten rare species habitat management/ enhancement projects initiated within right-of-way	Not Applicable - no rare species habitat
Objective: Increase wildlife accommodation along ROWs + facilities	
Indicator	Contribution
Wildlife hazard mitigation plan(s) implemented for all facilities	Not Applicable - no wildlife at facility
Reptile + amphibian + fish passage structures incorporated into maintenance activities	Not Applicable - no reptile, amphibian, fish passage structures
Project forms revised to include wildlife accommodations measures early in design review	Not Applicable - no design being done
Wildlife fencing along ROWs/properties within all critical habitat areas evaluated + installed	Not Applicable - No critical habitats

Objective: Decrease quantity of invasive + noxious species	
Indicator	Contribution
Planting of all listed noxious or invasive species prohibited	Not Applicable - no facility plans
All stockpiled materials screened for noxious or invasive species	Not Applicable - no facility plans
Transportation of cut wood materials limited to avoid beetle + other pest transportation	Not Applicable - no facility plans
Aggressive species early detection + rapid response program in place	Not Applicable - no aggressive species
Invasive species control on sites are managed with minimal adverse impact on other species	Not Applicable - no invasive species
Active invasive species management programs in place within priority habitat areas	Not Applicable - no priority habitat areas
All maintenance crews trained on invasive species detection	Not Applicable - no invasive species
Objective: Decrease outdoor light pollution	
Indicator	Contribution
New lighting designed to conserve energy + avoid light pollution	Not Applicable - no parking facilities owned by NRTA
Light shields installed in coordination with roadway + parking lot lighting fixture retrofits	Not Applicable - no parking facilities owned by NRTA

6.24 Materials

Material goals include using environmentally friendly products; using innovative materials and construction techniques that leave smaller environmental footprints; and having green facilities. NRTA is working towards using more environmentally friendly products and increasing recycling at all facilities. Environmentally friendly products such as chain of custody (CoC) certified paper which ensures that products are made from trees that are from a certified, well-managed forest and certified paper manufacturer and corn-made disposal water cups are used. As part of the process materials are certified with the Forest Stewardship Council (FSC TM) and Rainforest Alliance Certified (RAC TM). The CoC certified label proves that the forestry practices produce products that are environmentally responsible, socially beneficial and economically viable. The NRTA's printer vendor uses inks that contain a high percentage of plant-based ingredients and have low VOC's (Volatile Organic Compounds), uses chemical-free processing and recycles all printing plates (Figure 47).



Figure 47. Environmentally Friendly Riders Guide

There are 63 indicators for materials but only 25 (40%) are applicable to NRTA. NRTA is meeting 6 (24%), working towards 4 (16%) and not meeting 15 (60%) of the applicable material indicators as seen in Figure 48. Figure 49 outlines the material indicators by implementation time and level of achievement. There are 38 indicators in the materials theme which are not applicable to NRTA. For the applicable indicators 13 are short term indicators, 10 are medium-term, and 2 long-range. Of those that are applicable to NRTA they have met 3 (23%) of the immediate implementation (2013) indicators, and are working towards or meeting 3 (30%) of the medium-term (2015) indicators and 1 (50%) of the long-range indicators.

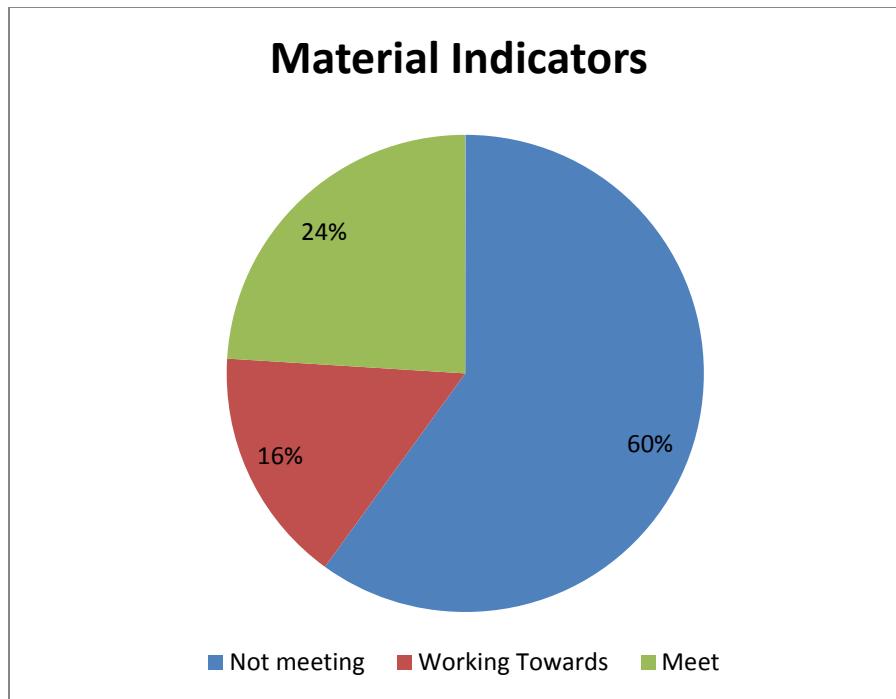


Figure 48. Materials Indicators Level of Attainment

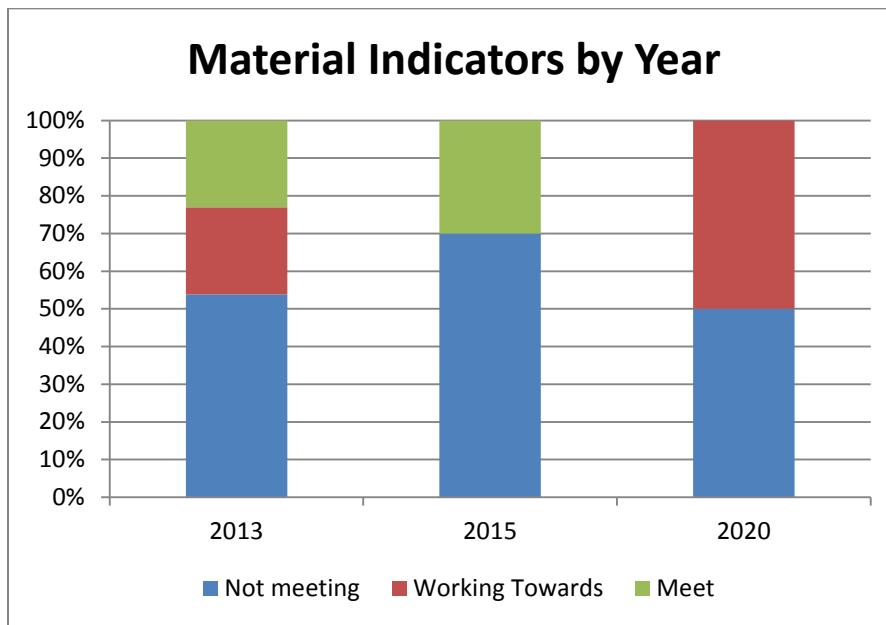


Figure 49. Material Indicators Attainment by Year

Table 14. Material Goal Achievement

Goal 1: Purchase Environmentally Preferred Products	
Objective: Implement an environmentally preferred materials purchasing program	
Indicator	Contribution
Environmentally preferred materials purchasing programs implemented in collaboration with OSD	No
Low or no volatile organic compound furniture + flooring purchased	No
100% recycled content paper products purchased	Yes
Reclaimed + recycled materials utilized for landscaping + earthwork	Not Applicable - no landscaping or earthwork is done
Only refrigerators with low Global Warming Potential (GWP) refrigerants and insulation purchased	Not Applicable - no refrigerators
Sustainable Forestry Certified wood for permanent or temporary construction utilized	Not Applicable - no construction
Standards for recycled content of traffic control/safety devices developed	Not Applicable - no traffic control devices
Sustainability practices integrated into all construction and service contract evaluation criteria	Not Applicable - no construction projects
Objective: Purchase energy efficient equipment	
Indicator	Contribution
Only Energy Star or Electronic Product Environmental Assessment Tool certified electronic products purchased	Working towards - will look at purchase when items are being replaced or purchases
Total electronic appliances within office locations reduced	Not Applicable - no electronic appliances
Energy efficient criteria utilized for shop equipment + machinery purchases	Working towards - where applicable
Objective: Use environmentally friendly cleaning products + procedures	
Indicator	Contribution
Maintenance products + procedures utilized that pose least harm to humans + the environment	Working towards - where applicable
Protocols for disposal of all cleaning product waste established	Yes - I guess - the bus garage office and bathroom is cleaned occasionally with typical household cleaning products
Environmentally friendly cleaning products purchased when available	Yes
Environmental friendly cleaning products required to be used within vendor service contracts	Not Applicable - DO not have vendor cleaning service contracts

Objective: Reduce hazardous chemical use in operations + maintenance	
Indicator	Contribution
Hazardous materials substitution program developed	No
Hazardous materials spill prevention control and countermeasures plan created	Working towards - have process but a plan has not been created
Lead free wheels purchased and steel weighted wheels phased in to replace older wheels	No
Natural or organic fertilizers, pesticides, + landscaping materials purchased	Not Applicable - do not do
Low or no volatile organic compound paints applied on indoor facilities	No - no painting
Purchasing lists + disposal protocols for engine service + maintenance standardized	Yes
Technology implemented reducing the quantity of salt applied to roadways proportional to weather conditions	Not Applicable - do not salt, do not operate in winter

Objective: Increase opportunities for local vendors or locally sourced products sold at facilities	
Indicator	Contribution
Vendor solicitation for MassDOT facilities written to encourage local ownership / sourced products	Not Applicable - No MassDOT owned facilities
Lease language for MassDOT facilities written to encourage locally sourced products	Not Applicable - No MassDOT owned facilities
Local vendors + locally sourced products sold at MassDOT facilities doubled	Not Applicable - No MassDOT owned facilities

Goal 2: Improve Life-Cycle Impacts of Investments	
Objective: Reduce energy inputs into paving operations	
Indicator	Contribution
Warm asphalt mix chosen as the standard state specification and hot mix asphalt eliminated	Yes - Town does
Two pilots of cold in-place paving completed	No
Standard specifications + guidelines for expansion of cold in-place paving established	No
Two pilots of full depth reclamation advertised	No
Standard specifications + guidelines for expansion of full depth reclamation projects established	Not Applicable - no projects
Research to increase the recycled content, reduce energy inputs, and improve vehicle efficiency of paving completed	Not Applicable - MassDOT responsibility

Objective: Increase total volume of materials sourced within 200 miles of construction site	
Indicator	Contribution
Total weight/volume/cost of material purchased locally (within 200 miles) measured in all projects	Not Applicable - no projects
Product source information added to bidding requirements	Not Applicable - no projects no bids
Cost share of locally sourced materials increased 20% on state funded projects	Not Applicable - no projects of this type

Objective: Increase % of recycled materials in paving + concrete installations	
Indicator	Contribution
20% of recycled paving material content used in road resurfacing projects	Not Applicable - no paving or road resurfacing
25% recycled paving material content used in road reconstruction projects	Not Applicable - no road reconstruction projects
The highest recycled content paving and base material available utilized for shared-use paths	Not Applicable - no shared paths no projects
Use of recycled rubberized asphalt + rubberized asphalt sealer increased	Not Applicable - no paving projects
Minimum 25% fly ash, slag concrete, or silica flume utilized	Not Applicable - no projects
Innovative sustainable concrete construction techniques encouraged in contracts	Not Applicable - no construction projects
20% recycled course aggregate concrete used in all suitable applications	Not Applicable - no construction projects
Objective: Increase albedo factor in hardscapes, rooftops + paving	
Indicator	Contribution
Solar Reflectivity Index minimum of 78 instituted for all roofing projects	Not Applicable - no roofing projects
Two innovative roofing (green, vegetation or blue water) projects piloted	Not Applicable - no roofing projects
All new roofing installations utilize high measured albedo factor materials	Not Applicable - no new roofing
Albedo factor increased in paving surfaces + hardscape materials	Not Applicable - no projects
Urban roadways + parking lots designed to maximize shade coverage of asphalt + concrete surfaces	Not Applicable - no parking lots designed
Solar Reflectivity Index of at least 30 required for paving projects	Not Applicable - no paving projects
Objective: Design for deconstruction + reuse	
Indicator	Contribution
Road rehabilitation standards developed for reuse of existing installations	Not Applicable - no road rehabilitation projects
Expertise in designing for deconstruction specified in all RFRs for design contracts	Not Applicable - no RFR's for designs
Procurement criteria include incentives to contractor bids utilizing higher recycled content materials	No
Lifecycle analysis in design, project alternative + material selection included	No
Readily reusable + renewable materials encouraged in design specifications	No

Goal 3: Build Green Facilities for MassDOT	
Objective: Design all new facilities to green building standards	
Indicator	Contribution
New facilities funded or built by MassDOT over 20,000 sq. ft. designed to MA LEED Plus	Not Applicable - nothing new built since 1996
New facilities funded by MassDOT designed to LEED Gold or Net Zero Energy Building standard	Not Applicable - no facilities funded by MassDOT
Objective: Retrofit existing facilities to meet environmental design criteria	
Indicator	Contribution
All window AC units removed from office buildings or replaced with Energy Star units	No
Three building retrofits to LEED Existing Buildings Operations + Maintenance (EBO+M) initiated	Not Applicable - employees are not provided with subsidized parking benefits
Air circulation/filtration of MassDOT owned indoor facilities improved	Not Applicable - Not MassDOT employees
Wildlife fencing along ROWs/properties within all critical habitat areas evaluated + installed	Not Applicable - Not a MassDOT facility
Objective: Relocate offices + encourage healthy transportation options	
Indicator	Contribution
Offices in town or city centers relocated to be served by transit, walking + bicycling	No
Provide transit pass exchange for employees with subsidized parking benefits	Not Applicable - employees are not provided with subsidized parking benefits
Free parking + take home vehicles for MassDOT urban office employees eliminated	Not Applicable - Not MassDOT employees
Objective: Consolidate office + maintenance facilities where feasible	
Indicator	Contribution
MassDOT office + maintenance facility consolidation opportunity study completed	Not Applicable - Not a MassDOT facility
One office consolidation site piloted	No
Three pilot consolidation and/or cross utilization maintenance sites piloted	No

6.25 Planning, Policy & Design

Planning, policy and design goals are aimed at developing a multi-modal system designed to promote healthy transportation and livable communities. Through projects such as the Ferry Connector NRTA is helping to achieve a multi-modal transportation system which promotes non-automobile alternatives and increases the mode shift away from cars. Other elements such as providing bike racks on all buses (Figure 50) and connecting fixed routes to the Island's bike paths has further promoted a multi-modal system and livable communities. Each year NRTA transports over 5,000 bikes on its buses.



Figure 50. Bike Racks are Available on all Buses

There are 56 indicators for planning, policy and design but only 32 (57%) are applicable to NRTA. NRTA is meeting 13 (41%), working towards 6 (19%) and not meeting 13 (40%) of the applicable indicators as seen in Figure 51. Figure 52 outlines the planning, policy and design indicators by implementation time and level of achievement. There are 24 indicators in the theme which are not applicable to NRTA. For the applicable indicators 16 are short term indicators, 15 are medium-term, and 1 long-range. Of those that are applicable to NRTA they have met 7 (44%) of the immediate implementation (2013) indicators, and are working towards or meeting 10 (67%) of the medium-term (2015) indicators and 0 (0%) of the long-range indicators.

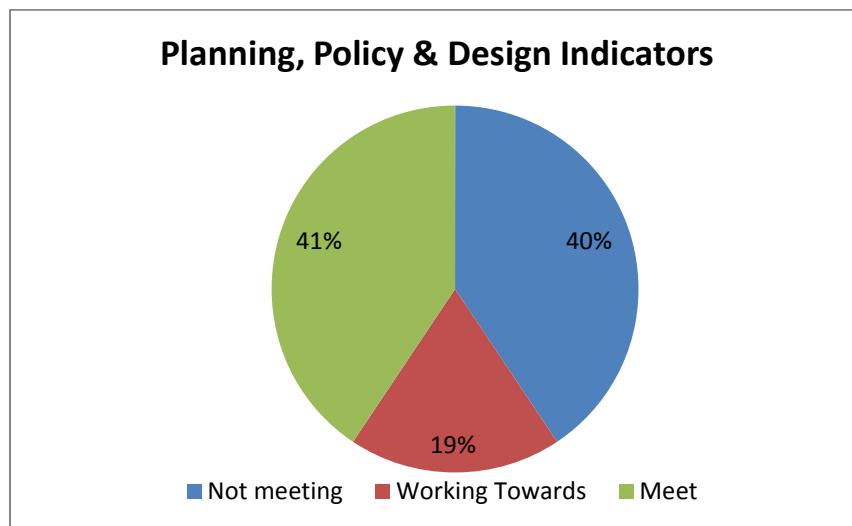


Figure 51. Planning Indicators Level of Attainment

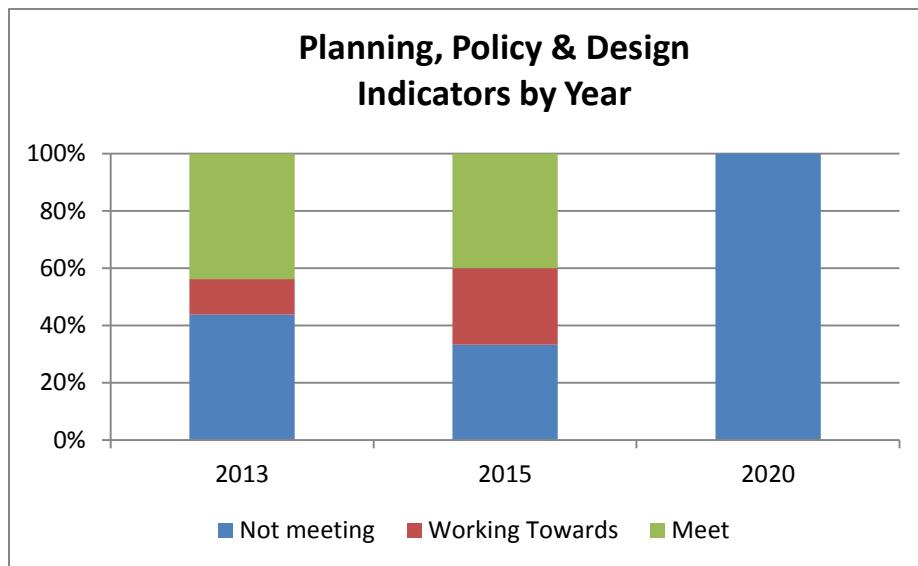


Figure 52. Planning Indicators Attainment by Year

Table 15. Planning, Policy & Design Goal Achievement

Goal 1: Design a Multi-Modal Transportation System	
Objective: Increase delivery of Complete Streets projects	
Indicator	Contribution
Bicycle + pedestrian facilities featured + prioritized in designs, rather than simply accommodated	Yes
Project forms + databases revised to track Complete Streets + sustainability measures	Yes
Update of Project Development + Design Guide underway to reflect evolution of Complete Streets	Not Applicable - State has design guides not the regions
Surfaces and facilities of at-grade rail crossings improved for pedestrian + bicycle travel	Not Applicable - No at grade crossings
All 'driveway' approaches to MassDOT airports, rail stations + MassDOT provide bicycle + pedestrian access	Yes
Objective: Increase bicycle parking + access to transit	
Indicator	Contribution
Transit stations with significant customer car parking (>50 spaces) have covered +/or secure bicycle parking	Not Applicable - No transit stations with parking
All MBTA + RTA buses equipped with bicycle racks	Yes
Study + pilot programs completed evaluating options for eliminating peak hour restrictions of bikes on transit	Not Applicable - Do not have peak hour restrictions, no study needed
Bike stations at North, South, and Back Bay stations established with showers + locker facilities	Not Applicable - Do not operate these stations
High capacity bicycle coaches operated on all commuter rail lines + peak-hour access restrictions lifted	Not Applicable - Do not operate Commuter rail
Bicycle access to heavy rail lines expanded to all hours except two 1-hour peak periods	Not Applicable - Do not operate rail

Objective: Improve traffic controls to reduce vehicle emissions, + to support walking + biking	
Indicator	Contribution
Inventory of traffic signals + grade crossing signal conducted	Not Applicable - No signals or at grade crossings on properties
All signals evaluated and adjusted for optimal operations for all users	Not Applicable - No traffic signals
Objective: Improve transit system performance statewide	
Indicator	Contribution
Bus stop consolidation on key routes assessed	No
All RTA's have conducted comprehensive service analysis to improve system connectivity + efficiency	Yes
Opportunities for express bus lanes + regional bus services analyzed	No
Transit operation efficiency improved while maintaining/increasing ridership	Working towards - always looking at way to improve efficiency
Transit Signal Priority for all new traffic signals implemented	Not Applicable - No traffic signals on Nantucket
Payment + boarding system for MBTA light rail + vehicles + buses improved	No
Green Line extension + South Coast Rail service completed	Not Applicable - Do not operate rail

Goal 2: Promote Healthy Transportation + Livable Communities	
Objective: Encourage walking, biking, + transit as active transportation	
Indicator	Contribution
MassDOT Bay State Bike Week facilitated + promoted annually in partnership with MassBike	No - Police Department does walk to school day
All office locations have visible bicycle parking locations for visitors near entrances	Yes - Near by
Selection of public meeting venues prioritizes locations with transit, pedestrian + bicycle access	No
Information on transit, bicycle + pedestrian travel provided on public meeting announcements	No
MassDOT sidewalks + bicycle facilities are cleared of snow + ice simultaneously with vehicle lanes	Not Applicable - No winter service
Navigational signage to transit stations expanded along local roads and highways	Not Applicable - No transit stations
Employees + contractors required to use transit, walk, bike or carpool to meetings whenever location + service schedules allow	Yes
40% of elementary + middle schools reached through Safe Routes to Schools program	No

Objective: Promote eco-driving + programs to reduce reliance on single occupancy vehicles	
Indicator	Contribution
Eco-driving promoted through digital display boards + customer facilities	No
Expand commuter options programs	
Objective: Indicator	Contribution
Commuter options programs through digital displays promoted statewide	No
Parking spots at major transit stations with parking reserved for car sharing	Not Applicable - no transit stations
Covered +/or secure bicycle parking installed at major park + ride facilities	Not Applicable - Do not operate park and ride facilities
Secure indoor bicycle parking + shower facilities provided at all major MassDOT employment centers	No
Objective: Utilize surplus land, parking lots + air rights for transit-oriented developments	
Indicator	Contribution
All properties, including air-rights, studied for development feasibility	No
Large parking lots at transit stations analyzed for TOD redevelopment in the Commuter Rail Master Plan	Not Applicable - Do not connect to commuter rail
Four new RFP's issued for land development	Not Applicable - No land to developed
At least two mixed use developments on MBTA properties initiated	Not Applicable - Not the MBTA

Goal 3: Triple Bicycling, Transit + Walking Mode Share	
Objective: Connect land use planning with transportation planning + investments	
Indicator	Contribution
Transit authorities participate in all MassDOT and MPO corridor studies	No - work through regional planning commission
RTA's participate in MassDOT MEPA review and mitigation formation	No
Land use + transportation planning strategies to support mode shift incorporated into 2016 RTPs	Yes
GreenDOT Implementation Plan activities incorporated into MPO's Unified Planning Work Programs	Yes
Project evaluation criteria that prioritize mode shift, GreenDOT + GHG reduction adopted by MPOs	Yes
Complete Commuter Rail Master Plan to evaluate options to expand capacity + increase ridership along each line	Not Applicable - Do not operate commuter rail
Priority Development Areas (PDAs) + Priority Protection Areas (PPAs) approved by HED established in all MPOs	Yes
Strategic regional visions for 'zero' SOV growth + GHG reduction adopted by MPOs	Yes
State-of-the-practice metric for measuring bicycle and pedestrian quality of roadways utilized in corridor planning + design	Working towards

Objective: Stabilize travel demand growth on roadways from single occupancy vehicles	
Indicator	Contribution
All rail stations are accessed by Complete Streets	Not Applicable - Do not connect to commuter rail
Objective: Collect data regarding factors influencing mode choices + utilize better planning tools	
Indicator	Contribution
Person Miles Travelled (PMT) for all modes measured and/or estimated annually at state and regional levels	Yes
Public health impacts of major transportation projects considered in project selection criteria	Not Applicable - no major transportation projects
New methods for collecting travel data for bicycles and pedestrians piloted	Working towards
Scenario planning methods utilized by MassDOT and MPOs instead of traditional growth trend forecasts	Working towards
Traffic model assumptions for road design revised to assume limited traffic growth rather than historic VMT growth trends	Working towards
MassDOT conducts travel demand forecasts with an activity based model	Not Applicable - This is a MassDOT responsibility, not RTA
Objective: Increase training opportunities on GreenDOT and Mode Shift	
Indicator	Contribution
Coordinated information gateway for shuttles and inter-city bus travel implemented	Not Applicable - no intercity bus travel
Programs for healthy transportation education and travel training for young + elderly travelers developed statewide	Working towards - Training sessions will be attended
Bay State Roads technical assistance offers materials on sustainability, mode shift, Complete Streets, and parking policies	Not Applicable - Not Bay State Roads

6.26 Waste

Waste goals aim to reduce the exposure to hazardous waste and minimize the disposal of waste. NRTA is minimizing waste by recycling paper, and other products – plastic, tin, aluminum and glass at the bus garage, educating employees on recycling, and implementing litter control programs such as trash bins on all vehicles, and trash and recycling bins inside and outside the Greenhound station. To reduce the exposure to hazardous materials NRTA is in compliance with a hazardous waste management plan.

There are 33 indicators for waste but only 23 (70%) are applicable to NRTA. NRTA is meeting 8 (35%), working towards 0 (0%) and not meeting 15 (65%) of the applicable waste indicators as seen in Figure 53. Figure 54 outlines the waste indicators by implementation time and level of achievement. There are 10 indicators in the waste theme which are not applicable to NRTA. For the applicable indicators 14 are short term indicators, and 7 are long-range. Of those that are applicable to NRTA they have met 6 (43%) of the immediate implementation (2013) indicators, and are working towards or meeting 2 (29%) of the long-range indicators.

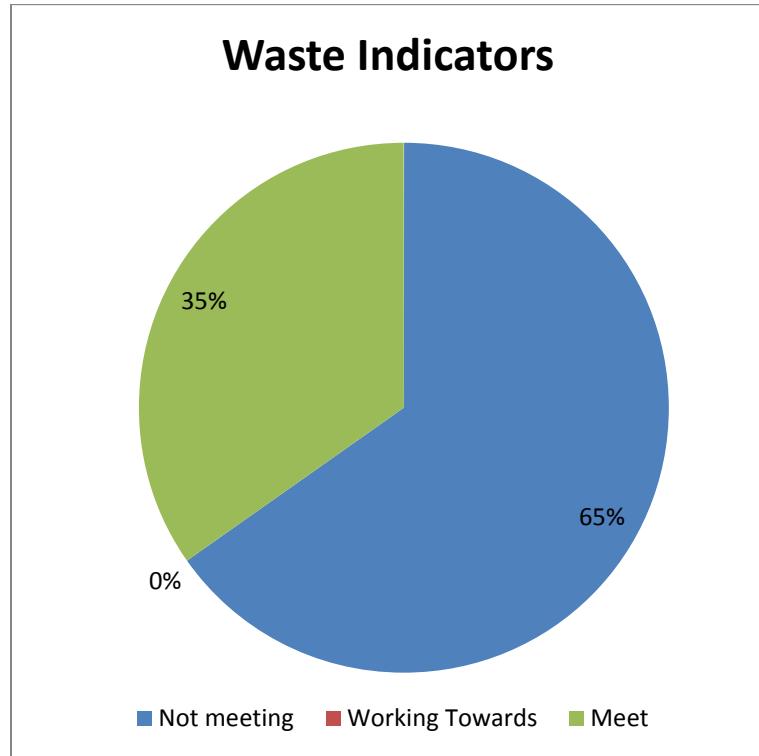


Figure 53. Waste Indicators Level of Attainment

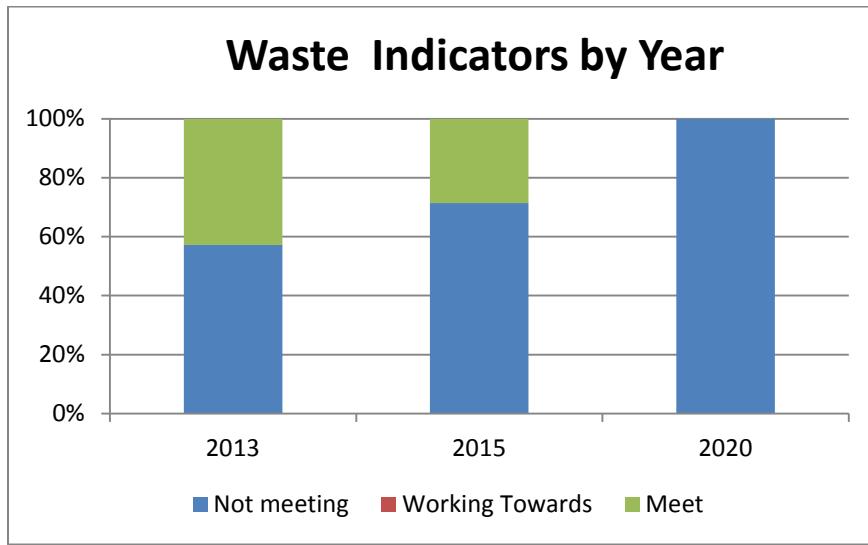


Figure 54. Waste Indicators Attainment by Year

Table 16. Waste Goal Achievement

Goal 1: Achieve Zero Solid Waste Disposal	
Objective: Increase the diversion rate of office waste	
Indicator	Contribution
Zero waste plan developed for MassDOT	No
Full "single stream" recycling provided at all buildings	No
All electronics, cartridges, batteries, + accessories recycled	Yes
Employee education program on recycling + waste reduction underway	Yes - not a written policy
15% reduction in solid waste from offices achieved	No
Office building composting or biomass heating piloted at two facilities	No
Waste reduction / recycling program emphasized in all janitorial service contracts	Not Applicable - no janitorial service contracts
30% reduction in solid waste disposal achieved	No
Objective: Eliminate litter accumulation in ROWs + stations	
Indicator	Contribution
Litter control programs initiated in all corridors	Yes
Litter prevention information provided at all rest areas + stations	Not Applicable - no rest areas or stations
Objective: Provide "full-stream" recycling opportunities at all customer facilities	
Indicator	Contribution
Container + paper recycling installed at all rest area, airports, transit stations + RMV branches	Yes - one transit station
Mobile electronics + license plate recycling drop off provided at key locations	No
Objective: Decrease amount of waste generation during construction + maintenance	
Indicator	Contribution
Waste management plans developed for all construction projects	Not Applicable - no construction projects
At least 65% of construction debris is reused or recycled	Not Applicable - no construction debris
At least 80% of construction debris is reused or recycled	Not Applicable - no construction debris
At least 90% of landscaping waste material is reused or composted	Not Applicable - no landscaping waste
Objective: Decrease paper use	
Indicator	Contribution
Paperless office procedures and equipment piloted in all offices	No
Paper use is cut in half	No
A paper-free office program adopted + implemented	No
Other paper products consumption (paper towels, napkins, etc.) reduced in all facilities	No

Goal 2: Reduce all Exposure to Hazardous Waste	
Objective: Implement Environmental Management System	
Indicator	Contribution
EMS systems adopted + implemented for all divisions	No
All waste is managed in compliance with a hazardous waste management plan	Yes
Metrics of recycling + disposals reported from all sites	No
EMS data from all Divisions compiled annually into a central performance management system	No
Best management practices for salt and sand storage in place at all depot facilities	Not Applicable - do not store salt and sand
Objective: Comply with waste ban + eliminate on-site storage	
Indicator	Contribution
100% compliance with state waste bans met at office + maintenance facilities	No
Long-term storage of hazardous waste minimized	Yes
Objective: Increase recycling rate of hazardous materials	
Objective: Indicator	Contribution
Refrigerants with high global warming potential from HVAC + refrigerators recycled	Yes
80% of all hazardous waste generated is recycled where possible	Yes
100% of hazardous waste with recycling potential is diverted	No
Objective: Evaluate + remediate brownfield sites	
Indicator	Contribution
An assessment of all brownfield properties is completed	Not Applicable - No brownfield sites
Remediation / redevelopment of at least four properties underway	Not Applicable - No unused properties
Remediation / redevelopment at all known brownfield sites initiated	Not Applicable - No brownfield sites

6.27 Water

Water goals look to use less water and improve water systems. Many of these are not applicable because there has been no new construction or there is no open water flow on any of the properties. Where possible water has been conserved, such as with recycling water to wash the vehicles.

There are 46 indicators for water but only 15 (33%) are applicable to NRTA. NRTA is meeting 1 (7%), working towards 0 (0%) and not meeting 14 (93%) of the applicable water indicators as seen in Figure 55. Figure 56Figure 44 outlines the water indicators by implementation time and level of achievement. There are 31 indicators in the water theme which are not applicable to NRTA. For the applicable indicators 8 are short term indicators, 4 are medium-term, and 3 long-range. Of those that are

applicable to NRTA they have met 1 (13%) of the immediate implementation (2013) indicators, and are working towards or meeting 0 (0%) of the medium-term (2015) indicators and 0 (0%) of the long-range indicators.

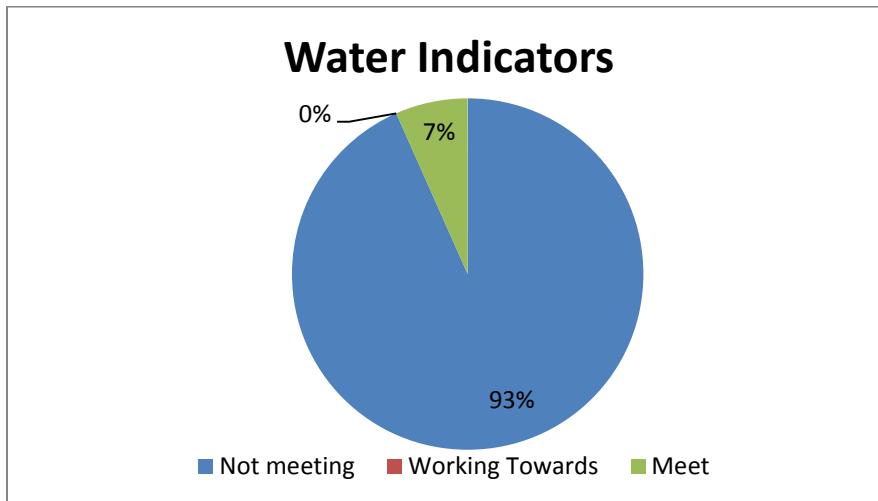


Figure 55. Water Indicators Level of Attainment

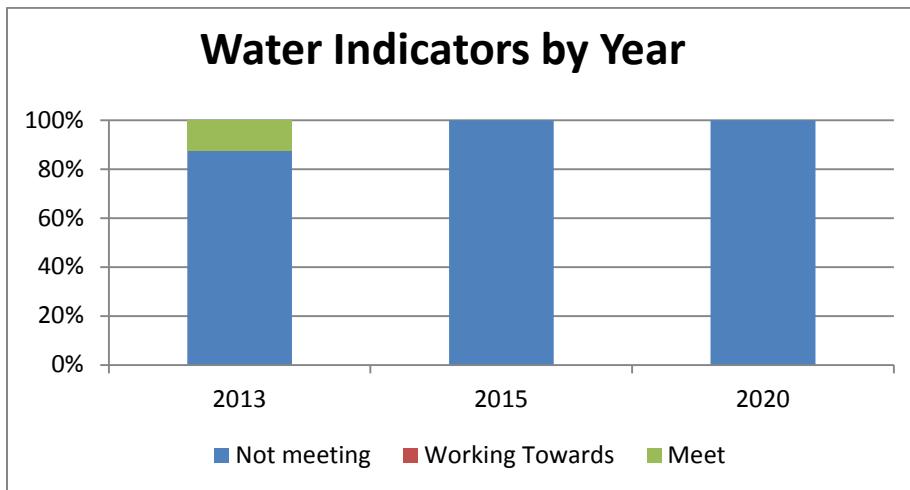


Figure 56. Water Indicators Attainment by Year

Table 17. Water Goal Achievement

Goal 1: Use Less Water	
Objective: Decrease potable water use in buildings	
Indicator	Contribution
The efficiency of all water fixtures in buildings evaluated	No
Fixtures retrofitted to gain a 10% reduction in water use	No
Plumbing system retrofitted to gain 20% reduction in water use	No

Objective: Decrease water use for irrigation	
Indicator	Contribution
Water conservation integrated into vegetation management plans	Not Applicable - no vegetation
Potable water use for irrigation reduced by 25%	Not Applicable - Do not irrigate
Objective: Increase utilization of recycled water + rainwater	
Indicator	Contribution
Water conservation practices at bus, vehicle, or airplane washing facilities required	Yes
All new vehicle/bus/rail vehicle washing facilities designed and built with recycled water technologies	Not Applicable - No new facility
All existing vehicle washing facilities evaluated for recycled or recaptured rain water alternatives	No
Study of rooftop rainwater use for toilets / HVAC of largest office facilities completed	No
Rain barrels or other means to reuse rainwater + disconnect drain spouts from sewage systems installed	No
Objective: Install innovative dual plumbing water systems in facilities	
Indicator	Contribution
Water use innovations required in all new building proposals	No
Three new pilot structures or building retrofits utilizing dual plumbing completed	No

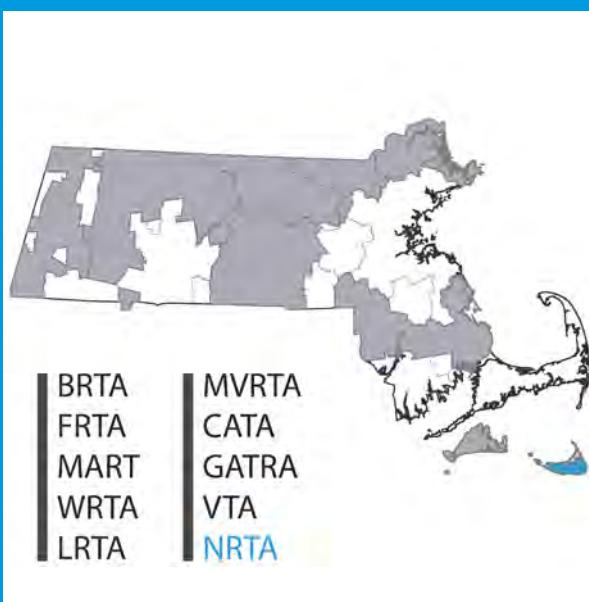
Goal 2: Improve Ecological Function of Water Systems	
Objective: Minimize impacts + enhance wetlands + impaired waters	
Indicator	Contribution
Preservation + enhancement of wetlands is adopted in design instead of replacement	Not Applicable - no water systems
Environmental benefits of impact mitigation through watershed planning improved	Not Applicable - no water systems
Natural buffers between wetland resources + transportation infrastructure increased whenever possible	Not Applicable - no water systems
Alternative deicer agents utilized in areas with wetlands, cold water fisheries, and water supplies	Not Applicable - no water systems
Five wetland restoration projects not considered mitigation completed	Not Applicable - no wetland restoration projects

Objective: Adapt facilities for climate change resilience	
Indicator	Contribution
Climate change adaptation strategies initiated between local and federal parties	No
Revised extreme precipitation data utilized for rainfall, flood flow + stormwater calculations	No
Climate Adaptation Plan applicable to all MassDOT facilities adopted	No
Statewide climate change vulnerability assessment for MassDOT facilities completed	Not Applicable - Not a MassDOT facility
Critical roadway or rail segments targeted for culvert replacement + rearming for scour protection	Not Applicable - No rail or roadway on property
Fish passage structures which meet state crossing standards included in maintenance activities	Not Applicable - No open water
All reconstruction projects crossing tidal habitats include measures to eliminate tidal flow restrictions	Not Applicable - Not near tidal waters
Objective: Minimize impacts of ROWs + bridges on fluvial processes	
Objective: Indicator	Contribution
New roadways + bridges designed to maximize natural fluvial processes including tidal flushing	Not Applicable - No new roads or bridges
At minimum 12 bridge replacement projects improving water flow under construction or completed	Not Applicable - No open water flow
All railroad bed reconstruction projects retrofitted with enhanced stream crossing standards	Not Applicable - Do not operate rail
The standards within MA Stream Crossing Handbook utilized in all project development processes	Not Applicable - No stream crossings on property
A minimum of five culverts redesigned + rebuilt for improved fish migration	Not Applicable - No culverts on property
All projects crossing tidal habitats evaluated for restriction of tidal flow	Not Applicable - Not near tidal waters
Objective: Reduce stormwater volumes + increase permeable surface areas	
Indicator	Contribution
Environmentally sensitive site design in new construction projects utilized	Not Applicable - no construction
Post peak discharge rates held to less than pre-project discharge rates to the maximum extent possible	Not Applicable - no construction
All projects designed to remove solids + pollutants to the maximum extent possible	Not Applicable - no construction
All projects designed to include measures to increase infiltration + reduce stormwater volumes	Not Applicable - no construction
Permeable paving or other infiltration installations included in parking lot resurfacing projects	Not Applicable - no construction
Design charrette conducted for creating "green roof" bus shelters for the MBTA and/or major RTA	No
Green roof installed on at least one large bus or rail maintenance garage	No

Objective: Decrease non-point source pollutant discharges	
Indicator	Contribution
All structural best management practices inspected annually + cleaned as necessary	No
Illicit discharges from MassDOT structures eliminated upon detection	Not Applicable - No MassDOT structure
Long-term pollution prevention programs implemented at all maintenance sites	No
Environmentally sensitive design / Low Impact Design (LID) utilized in all construction projects	Not Applicable - no construction
New best management practices installed at all facilities identified by Impaired Waters Program	No
Phytotechnology as part of stormwater evaluation + constructed stormwater controls utilized	Not Applicable - no construction
Assessment protocol developed to evaluate water quality functions of roadside vegetation	Not Applicable
Stormwater 'Low Impact Design' integrated into revised Project Development + Design Guide	Not Applicable - MassDOT responsibility
Commuter ferries follow best practices for fuel handling, bilge water, sanitary waste + trash disposal	Not Applicable - Do not operate ferries

6.2 Conclusion

With over 300 indicators, as identified in the GreenDOT policy only 42% are applicable to NRTA, overall NRTA is meeting 27% of these. They are working hard to achieve the indicators but due to geographic isolation and the lack of year round service it has been difficult. Some of the indicators which are applicable are joint responsibilities of MRTA and either MassDOT, the planning commission or the town and they must work collaboratively to achieve success. Additionally many of the indicators just do not apply because they are specific to the MBTA; rail; require there has been or will be new construction; they are for MassDOT owned facilities, or they are for environmentally sensitive land areas.



Chapter 7

Recommendations

AECOM / URS

Burke & Company




Nantucket Regional Transit Authority

7. RECOMMENDATIONS

7.1 Introduction

Recommendations were developed using a cumulative process that incorporated public outreach, a diverse steering committee, operational input from NRTA, and analysis of existing transit service and the local/regional market. Strategies to improve the system were developed based on the goals and objectives outlined at the beginning of the plan. The recommendations are intended to better align service with local and regional demand using a three phase process that will serve to strengthen the system and attract more riders. A phased approach was used in order to establish the immediacy and prioritization of needs and was based on an incremental approach and available resources.

- Phase 1 – implement immediately
- Phase 2 - implement as resources and funding are available
- Phase 3 - implement as resources and funding are available

To be able to evaluate whether or not transit services are meeting system goals and objectives, an effective monitoring program should first be in place. A service monitoring program is important both in terms of gauging whether the goals of the community are being accomplished with the service and that the service is both effective and efficient. Without specific measures, success is difficult to measure from year to year. Service monitoring should be part of the daily operation based on specific data collection procedures. Data collection is essential to evaluating the service performance and to determining if changes should be made in the service delivery. To assist in developing a service monitoring program, recommended service guidelines and performance measures have been developed.

7.2 Strategies for Service Recommendation

For transportation planning purposes, a goal is defined as a purpose or need that should be attained to address a transportation issue. An objective is a specific, measurable method or activity that is designed to achieve the identified goal. The goals and objectives were developed at the onset of the planning process with NRTA and have guided the development of the plan throughout.

Goal #1: Provide Safe and Convenient Service

Objective 1.a: Increase transit frequency and service options in a way that is sensitive to the character of the Island

Objective 1.b: Promote interconnectivity with other transportation modes, including boat, air, and bicycles

Objective 1.c: Improve transit access for transit-dependent populations

Goal #2: Minimize Auto Use on the Island

Objective 2.a: Increase transit frequency and service options in a way that is sensitive to the character of the Island

Objective 2.b: Provide rider-friendly and accessible marketing material

Objective 2.c: Continue to provide park and ride facilities as a convenience for riders

Objective 2.d: Continue the use of technology to make bus use more convenient

Goal #3: Better Align Service with Year-round Community Needs

Objective 3.a: Promote services through marketing efforts in order to increase awareness of options for transit-dependent populations

Objective 3.b: Improve existing service and implement new service that meets the demands of present and potential users

Objective 3.c: Provide year-round fixed-route service

Objective 3.d: Work with the community to identify transit dependent populations

Goal #4: Meet Needs of Diverse Summer Population

Objective 4.a: Educate tourists about the bus system before they arrive on the island

Objective 4.b: Increase transit frequency and service options in a way that is sensitive to the character of the Island

Objective 4.c: Provide rider-friendly and accessible marketing material

Aside from the goals and objectives several other strategies/guiding principles were used in designing recommendations:

8. **Simplify** – Routes should be designed along main corridors with minimal schedule deviations. For routes that are not linear, service should be provided in both directions.
9. **Service should match demand** – The denser (both in terms of employment and population) areas should have a higher level of service with either higher frequency routes or multiple lower frequency routes. Major corridors often warrant higher frequencies.
10. **Standardized frequency** – Frequencies should be standardized using clock-face schedules to create 30, 60 and 120 minute headways.
11. **Priority to existing ridership** – Service should be increased in areas that warrant it over servicing new areas if limited resources are available.
12. **Connections** – No route should be designed in isolation. If possible it should connect to at least one hub. Where connections to hubs are not possible the route should connect with at least one other route to facilitate transfers.

13. **Efficiency** – Where possible routes should be designed to be the most efficient.
Decisions to deviate off the main corridor and add time to the route are only warranted where key destinations like shopping centers are too far off the main road, there are a lack of pedestrian facilities or the benefit (due to demand) of servicing the deviation outweighs the additional time incurred to others on the route.
14. **Consistency** – Except where warranted by peak only routes or increased peak hour service, service should have consistent headways throughout the day using clock-face schedules.

7.3 Recommendations Overview

Recommendations are categorized by route and phase. A three phase process was used in order prioritize recommendations. Priority was based on demand, route performance, public feedback and resource availability. In Phase 1 service hours have been expanded to meet the demands of the region. In Phase 2 new routes have been implemented. In Phase 3 winter season service has been implemented. The timeframe for each phase is based on available capital and operating resources. In general Phase 1 can be implemented immediately in year 1, but Phase 2 and Phase 3 can only be implemented as resources become available.

Phase 1:

- Extend service hours during the peak season

Phase 2:

- Implement the new Cisco Beach and Tom Nevers routes.

Phase 3

- Year round service

A summary of the overall recommendations is in Table 18 and Table 19 breaks down the recommendations by phase. Figure 57 - Figure 59 are maps depicting system wide alignment changes for the summer, shoulder and winter seasons. For detailed individual route recommendation profiles see section 7.7.

Table 18. Service Recommendations

NRTA Proposed Service Recommendations				Peak (July/Aug)						Shoulder (May/June & Sept/Oct)						Winter (Nov-April)	
Route	Strengths	Weaknesses	Proposed Alignment Changes	Ridership	Productivity	Existing		Proposed		Ridership	Productivity	Existing		Proposed		Proposed	
						Frequency	Span	Frequency	Span			Frequency	Span	Frequency	Span	Frequency	Span
Mid Island Loop	Serves key destinations	One way loop	None	587	24.7	15	7:00 AM - 11:30 PM	15/30	7:00 AM - 2:00 AM	272		30	7:00 AM - 11:30 PM	30	7:00 AM - 11:30 PM	30	7:00 AM - 9:00 PM
Miacomet Loop	High ridership, covers many destinations	One way loop	None	644	27.3	20	7:00 AM - 11:30 PM	20/30	7:00 AM - 2:00 AM	303		30	7:00 AM - 11:30 PM	30	7:00 AM - 11:30 PM	30	7:00 AM - 9:00 PM
Sconset via Old South Road Route	Extended route for season, connects Sconset and Nantucket		None	453	22.4	60	7:15 AM - 11:15 PM	60	7:15 AM - 2:00 AM	284		60	7:15 AM - 11:15 PM	60	7:15 AM - 11:15 PM	60	7:00 AM - 9:00 PM
Madaket Route	Follows road geography	Circuitous routing into Nantucket	None	506	21.9	30	7:00 AM - 11:30 PM	30/60	7:00 AM - 2:00 AM	151		60	7:00 AM - 11:30 PM	60	7:00 AM - 11:30 PM		
Sconset via Milestone Road Route		Duplicates Old South Route	None	225	18.8	60	7:15 AM - 7:15 PM	60	7:15 AM - 7:15 PM								
Airport / Ferry Connector Route		Direct service	Currently "interlined" with Fast Ferry connector	141	17.6	20	7:00 AM - 8:00 PM	20	7:00 AM - 8:00 PM					20	7:00 AM - 8:00 PM		
Surfside Beach	Highest productivity Route		None	227	29.4	40	10:00 AM - 6:00 PM	30	10:00 AM - 6:00 PM								
Jetties Beach		Shuttle service		180	22.5	30	10:00 AM - 6:00 PM	30	10:00 AM - 11:00 PM								
Sconset via Polpis Road	Covers many communities in NE Nantucket	Low Ridership, 80 min headway	None	87	11.8	80	10:00 AM - 6:00 PM	80	10:20 AM - 6:20 PM								
Cisco Beach			New Route serving Cisco Beach					60	9:30 AM - 6:30 PM								
Tom Nevers via Milestone Road			New Route serving Tom Nevers from Nantucket via Milestone Road					60	7:00 AM - 11:30 PM					60	7:00 AM - 11:30 PM		

Table 19. Recommendations by Phase

Bus Route	Alignment	Schedule	Phase 1	Phase 2	Phase 3
Mid Island Loop	No change	-Service span 7 AM to 2 AM peak season - Winter season service 30 minute frequency 7 AM to 9 PM	-Extend service span		-Winter season service
Miacomet Loop	No change	-Service span 7 AM to 2 AM peak season -Winter season service 30 minute frequency 7 AM to 9 PM	-Extend service span		-Winter season service
Sconset via Old South Road Route	No change	-Service span 7:15 AM to 2 AM peak season -Winter season service 60 minute frequency 7:15 AM to 8:15 PM	-Extend service span		-Winter season service
Madaket Route	No change	-Service span 7 AM to 2 AM peak season	-Extend service span		
Sconset via Milestone Road Route	No change	No change			
Fast Ferry Connector	Route discontinued, replaced with Airport/ Ferry Connector Route	No service	-Discontinue route		
Airport Connector Route	Route discontinued, replaced with Airport/ Ferry Connector Route	No service	-Discontinue route		
Airport / Ferry Connector Route	Combine Airport and Fast Ferry into one route	-Peak season service 20 minute frequency 7 AM to 8 PM -Shoulder season service 30 minute frequency 7 AM to 8 PM	-Implement peak season route -Implement shoulder season service		
Surfside Beach Route	No change	No change			
Jetties Beach Route	No change	-Service span 10 AM to 11 PM peak season	-Extend service span		
Sconset via Polpis Road Route	No change	-Adjust timing of route by starting 20 minutes later.		-Adjust timing	
Cisco Beach Route	New Route serving Cisco Beach	-Peak season service 60 minute frequency 9:30 AM to 10:30 PM		-Implement service	
Tom Nevers via Milestone Road Route	New Route serving Tom Nevers from Nantucket via Milestone Road	-Peak and shoulder season service 60 minute frequency 7 AM to 11:30 PM		-Implement service	

Island Map - In Season

Figure 57. In Season

New Service

Existing Service

0 0.75 1.5 3 Miles



N



Island Map - Off Season Winter

N



- Miacomet Loop
 - Mid Island loop
 - Sconset via Airport Route
- 0 0.75 1.5 3 Miles

Figure 58. Off Season



Island Map - Shoulder Season

- New Shoulder Season Service
 - Existing Service Shoulder Season
- 0 0.75 1.5 3 Miles



Figure 59. Shoulder Season

N
▲



7.4 Cost Estimation

7.41 Operating Costs

Operating costs are based on the average cost per hour of \$75 to implement a new service, \$90 for evening service and \$95 for winter service. The differences in cost for evening service accounts for FTA regulations on the number of hours operators are allowed to work, the increased need for vehicle swapping due to fueling constraints and maintenance staff on-call. The higher cost for winter service is due to the need to heat the facility as it is currently unheated. The cost can be adjusted by implementing some but all not recommendations therefore the final costs may differ slightly from what is proposed. Figure 60 charts the total operational cost for the existing system and the additional costs associated with the service improvements in each phase. For a breakdown of the cost/savings for each route and phase see the recommendation profiles in section 7.7.

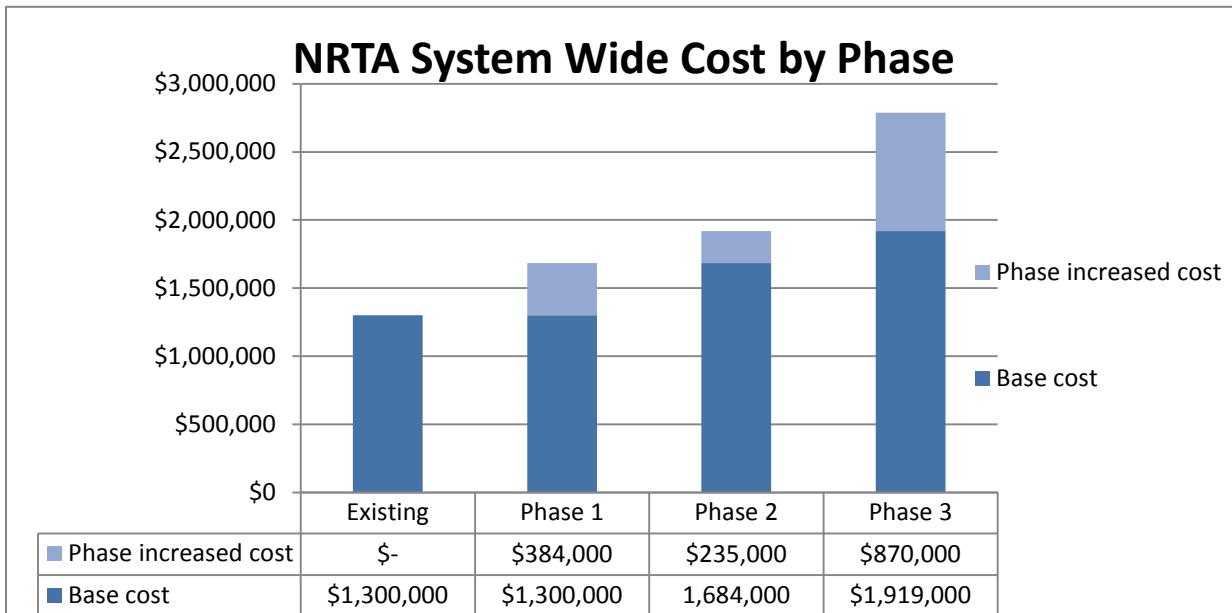
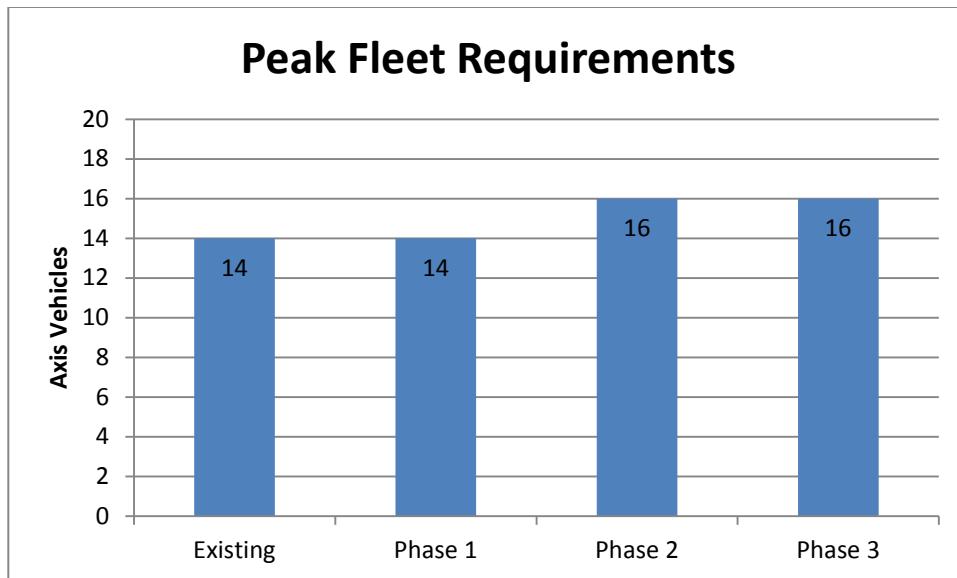


Figure 60. Cost by Phase

7.42 Capital Costs

Capital costs include vehicle and infrastructure costs. In Phase 1 the primary constraint was based on the number of vehicles required in summer service and the availability of bus bays at Greenhound, along Washington Street or Broad Street at the Whaling Museum. NRTA currently has a fleet of 18 buses to provide fixed route service. In peak service there are currently 14 vehicles in use, Phase 1 was designed with this constraint (Figure 61). Phase 2 will require additional vehicles and the procurement process can take up to two years from the time the process begins until the vehicles are delivered and put into

service. NRTA must begin to plan now for future expansion of the fleet. In addition to vehicle procurement for Phase 2 a turnaround area at Cisco Beach and Tom Nevers Park would need to be paved in order to gain vehicle access. This can range anywhere from \$75,000 to \$100,000 per area based on conditions. In Phase 3 with the institution of winter service, this may require a modification of the current facility, as the current one does not have heat in the maintenance area.



[Figure 61. Fleet Requirements by Phase](#)

7.5 Recommended Service Guidelines

In order to establish service guidelines in the pursuit of establishing a monitoring program in the future, service must first be monitored and data collected. Routes should be defined by the function they service in order to accurately measure the health of a route. Three types of routes are recommended for NRTA: (1) Summer routes, (2) Shoulder routes, (3) Year round routes. Each route type will have in turn different performance measures to monitor existing service and evaluate new service. Table 20 provides an overview of the suggested route type and pairing for existing and recommended NRTA routes.

Summer Only Routes – These are routes that run only in the summer and meet the needs of Nantucket's diverse populations and include year round residents, employees, island visitors, and seasonal residents. They typically begin in an urban center, and stop at all locations along the way.

Shoulder Routes- All shoulder routes operate in the summer and during the shoulder season. They serve commercial areas, areas with high concentrations of seasonal homeowners and seasonal work residences.

Year Round Routes – Year round routes operate all throughout the year and the headway may vary with the season. These routes are focused in the mid-island area where year round residents live.

Table 20. NRTA Route Types

Route Type	Routes
Summer Only	Sconset via Milestone, Surfside Beach, Jetties Beach, Sconset via Polpis, Cisco Beach
Shoulder	Airport/Ferry Connector, Madaket, Tom Nevers via Milestone
Year Round	Mid Island Loop, Miacomet Loop, Sconset via Old South

Categories of data to be collected and used in the monitoring program include the following, which are discussed in detail below:

- Ridership
- On-time performance
- Financial
- Service levels – span and frequency

Passenger boarding data should be collected continually on a time-specific basis. There is a trade-off between data collection efforts and the value of information. It is just as easy to collect too much data as it is to collect insufficient data. Passenger boardings should be recorded daily by route, fare category, and by trip; this information can often be generated through farebox reports. One goal all transit agencies should strive to reach is the implementation of Automatic Passenger Counters (APCs). APCs include capabilities such as recording each passenger by fare category as they board. This function should be programmed into the software as it is implemented. However, even without the benefit of APCs, passenger data can still be collected and recorded by drivers for numerous variables.

With any transit system, it is important to monitor on-time performance. An on-time performance goal should be established (e.g. an attainable on-time goal of 95 percent may be considered). Minor adjustments to routes may be needed to ensure that schedule and headway adherence can be maintained. NRTA has automatic vehicle location (AVL) software available to track on-time performance. The same software (TransLoc) also provides real-time tracking for the public to view online, via text messaging and on Smartphones and Tablets with an App. Financial data is required to evaluate performance measures such as the operating cost per hour of service and the cost per passenger-trip. Financial monitoring should continue as part of the performance monitoring program. Important data to collect and report includes operating revenue by source, farebox revenue by fare category, maintenance costs, gas and oil expenditures, and employee-related costs (including salary and benefits).

It is also important to establish minimum levels of service for each route type. These include service span and frequency. Table 21 below outlines suggested minimum service spans for each route type. Service can begin earlier or end later if demand warrants. Adjustments to the times can also be made based on the hours of centers served and the passengers needs but should be within the financial capacity of NRTA.

Table 21. Minimum Service Spans

Season	Summer Only Routes	Shoulder Routes	Year Round Routes
Summer	7:00 AM – 6:00 PM	7:00 AM – 11:00 PM	7:00 AM – 2:00 AM
Shoulder	---	7:00 AM – 8:00 PM	7:00 AM – 11:00 PM
Winter	---	---	7:00 AM – 9:00 PM

Frequency often has a direct correlation with ridership; higher levels are more attractive to riders but cost more to operate; therefore it is critical to establish frequencies that are high enough to attract riders but not so high that the subsidy is greater than the need. Higher frequency routes require more vehicles and drivers. Clock-face schedules should be used except for under unique circumstances. These circumstances can include trips that are: designed to meet work shifts or school bell times; that include clock-face schedules that would require excessive recovery time (inefficient service); or that disallow interlining with other routes or miss key transfers. The frequencies in Table 22 represent minimums based on the service spans in Table 21 but can have variations throughout the day such as added service during the peak hours or reduced service at night.

Table 22. Minimum Frequencies

Season	Summer Only Routes	Shoulder Routes	Year Round Routes
Summer	60 min	30 min	20 minutes
Shoulder	---	60 min	30 minutes
Winter	---	---	60 minutes

7.51 New Service Warrants

NRTA often receives requests for new service; new service warrants will help NRTA evaluate proposals and determine service levels. Section 7.63 outlines how to monitor and measure new services. The development of the new services should follow the new service warrants and after 2 years be able to meet or exceed the performance measures outlined in Section 7.63.

When analyzing new service requests and proposals the following should be considered:

- **Area coverage** – When service is proposed the new route should be evaluated for its ability to connect to other routes, meet service thresholds, and operate cost effectively. Routes that

extend the service area may have a demand but the increased miles/hours may cause the subsidy to be greater than those recommended in the performance measures.

- **Transit dependent populations** – The presence of transit dependent populations should be considered when evaluating new service proposals. If there is a high but remote transit dependent population, alternative service types such as Dial-A-Ride or flex routes might be warranted.
- **Special markets** – New service is often proposed for special markets such as a new shopping center, island gateways, or employment centers. These markets often produce demand but the cost to service them can be high and ridership potential undetermined. NRTA should work with these destinations to secure some dedicated funding which can help bring down the cost of the route.

7.6 Performance Measures

Performance measures serve as a guide to evaluate the success of a transit service. Performance measures include the types of data to be collected and give the tools necessary to identify transit system opportunities and deficiencies. Performance measures should:

- Be easily measurable
- Have a clear and intuitive meaning so that it is understandable to those who will use it and to non-transportation professionals
- Be acceptable and useful to transportation professionals
- Be comparable across time and between geographical areas
- Have a strong functional relationship to actual system operations so that once changes occur in service operations, changes to the system can readily be determined
- Provide the most cost-effective means of data collection
- Where appropriate, be based on statistically sound measurement techniques
- Be consistent with measures identified for other systems

Recommended performance measures to monitor existing and future routes could include:

- **Passengers/Hour:** Number of total monthly and annual passengers divided by the corresponding revenue-hours.
- **Subsidy/Passenger:** Total expenses minus fare revenue divided by ridership.
- **Farebox Recovery:** The percentage of operating costs covered by fares collected, calculated by the fares collected divided by the cost to operate the route.
- **Cost/Revenue-Hour:** An excellent indicator of efficiency is cost per revenue-hour of service. Costs per hour should be analyzed by route and compared to overall system averages.
- **Late Trips:** The percentage of fixed-route trips which operate late or are missed should be recorded and reported. The recommended standard for late trips is any trip that is more than five minutes behind schedule.

- **Service/Road Calls:** the number of service/road calls divided by the number of revenue miles. This measure is typically measured for the entire system and not individual routes. This monitors routine maintenance and vehicle performance.
- **Accidents/100,000 miles:** Measure of driver safety. There must be a standard practice for defining what an accident is.

7.61 Service Benchmarks

The aforementioned performance measures can be used to create benchmarks for service operation. The benchmarks will help NRTA track progress and set goals for the performance of the route. These benchmarks should be seen as short-term goals that should be re-evaluated at set intervals—at least every five years—to ensure that the expectations for the route are consistently evolving. If a specific benchmark has been greatly exceeded during the first two years of operation, the criteria should be changed to provide a progressive target for the service. The following benchmarks were determined by the base type of service, national best standards and the current performance.

Passengers per Hour

Passengers per hour measures ridership as a function of the amount of service provided and will vary based on the type of route. Table 23 outlines the threshold for route/service types which can be used to monitor the route. As system-wide service improves these values should be adjusted to reflect the change and reevaluated every 3 - 5 years. They are based on current performance and best practices. If routes are performing at 75% or more below the benchmark then the route may need to be evaluated to determine remedies to improve performance.

Table 23. Passenger per Hour

Route Type	Passengers per Hour
Summer Only	20
Shoulder	15
Year Round	10

Subsidy per Passenger

Subsidy per passenger measures the cost of providing service, taking into account fare revenue collected. As with passengers per hour, as system-wide service improves these values should be adjusted to reflect improvements and should be reevaluated every 3 - 5 years. NRTA should strive to have a subsidy per passenger less than \$5 on all routes. If subsidies are more than 50% higher than the benchmark and the route does not have a dedicated source of funding, then the route may need to be evaluated to determine remedies to improve performance.

Cost per Revenue Hour

Cost per revenue hour by route should be related to the average of the system so that it can change as service is added or subtracted or funding sources change. Table 24 provides a guideline for monitoring this benchmark.

Table 24. Cost per Hour Performance Standard Criteria

Performance	Percentage of Average	Action
Very Low	0%-50%	Immediate action
Low	51%- 75%	Subject to review
Average	75%-150%	No action needed
High	150%+	Evaluate for service improvements

For those routes performing under 50% immediate actions are listed in section 7.62. Routes falling within the 50%-75% range are routes that are candidates for monitoring service. Routes falling within the 75%-150% range are routes that are performing well and require no action. 150%+ routes indicate high performing routes which may benefit from increased service.

Farebox Recovery

Farebox recovery ratios are typically higher for transit systems such as NRTA with high levels of tourism and limited capacity for sprawl. NRTA should strive to meet or exceed the average farebox recovery ratio of **20%** on all routes.

Late Trips

Late trips measure on-time performance and help evaluate a vehicle's adherence to a schedule. A trip is considered on-time if it departs a timepoint no more than five minutes late; no trips should leave early. The recommended best practice for on-time performance nationwide is **95%**; NRTA should strive to meet this benchmark.

Service/Road Calls

Vehicle breakdowns are inevitable. This measure tracks the distance traveled between mechanical breakdowns. Although frequent occurrences can create disruptions in a transit system, it is important to track the frequency and type of mechanical failures of each vehicle in addition to monitoring a fleet's age. Monitoring of vehicle breakdowns is one method of reducing system disruptions and may allow an agency to improve monitoring of vehicle replacement schedules and preventative maintenance practices. Data collection efforts should include date, time of day, type of failure, age of vehicle, vehicle number, vehicle mileage, and how the situation was rectified. Monitoring of these items will allow NRTA to recognize patterns in repeated types of mechanical breakdowns; breakdowns related to vehicle type, age or mileage; and assist with preventative maintenance programs. Wheelchair lift failures should also be monitored. NRTA should strive for **20,000 miles** between road calls.

Accidents per 100,000 Miles

The FTA suggests that at a minimum transit providers strive towards the goal of six accidents or less per 100,000 miles. NRTA should seek to exceed that minimum with no more than **three (3) accidents per 100,000 miles**. The measure can be calculated by dividing the number miles by the number of accidents in a given time period. Values lower than 33,333 indicate that the indicator is not being met.

7.62 Action for Low Performing Routes

If routes are not meeting at least two out of the three main indicators (passenger per hour, subsidy per passenger, farebox recovery) or fall below the minimum suggested values (20% farebox recovery, \$5 subsidy per passenger, 75% of the passenger per hour by service type or “very low” performance score for cost per hour), they should be evaluated for possible modification. The following actions may help improve route performance:

Change service level – Some low performing routes may not warrant increased service frequency; yet routes with very few trips may not attract riders. High frequency routes that are low performing should be evaluated for service changes. Low frequency routes can be evaluated for trip additions to determine if the low performance is related to minimal service. This analysis should be done in conjunction with outreach to determine if extra trips would garner higher ridership.

Segment identification – A segment level analysis of a route might highlight a portion of the route that causes the overall poor performance. This segment can be modified to help improve the overall route.

Marketing – Marketing can help raise the public awareness of a route. Ridership can be poor because the public lacks knowledge of the service. A marketing/educational campaign can help improve performance statistics.

Public outreach – On-board surveys or rider interviews can help gain information about how the route can be improved.

Span identification – Evaluating the performance at different time periods throughout the day may help identify time periods or trips that garner very little ridership. For example the last trip of the day may have very low productivity and bring down the performance of the entire route.

Subsidy reduction – If the subsidy per passenger is high one way to reduce it is to explore cost sharing partnerships with external funding sources. Examples include schools/colleges, large housing complexes, shopping centers, and places of employment. Another method is to work with local employment centers to coordinate the sale of passes with employee incentives.

Discontinuation – Discontinuation is the last option for dealing with a low-performing route and should only be implemented once other measures have been tried but the route is still under performing. A whole route or segment can be discontinued. Routes should not be discontinued until other remedial actions have been tried and the service has been monitored for at least sixth months and there is still no improvement on the route.

7.63 New Service Performance Evaluation

Once a new route or service has been implemented, it should be monitored for an initial period to evaluate its performance. At the onset the route may not meet the benchmarks set forth for existing routes, but as the service becomes more popular it may. New services should be implemented for a period of at least one year in order to garner ridership and monitor monthly fluctuations. While minor changes such as timing can be made to the route within the initial period, large changes should be avoided. On-time data should be checked randomly to ensure that performance remains acceptable; a new service that has low on-time performance will have a difficult time attracting ridership. Approximately halfway through the initial period (6 months) a passenger survey of the route should be conducted to understand the effectiveness of the route. The route should continue to be monitored as a ‘new route’ beyond one year if ridership has had continual growth. Once ridership has plateaued the route can be evaluated against the aforementioned benchmarks with the other routes.

7.7 Recommendation Profiles

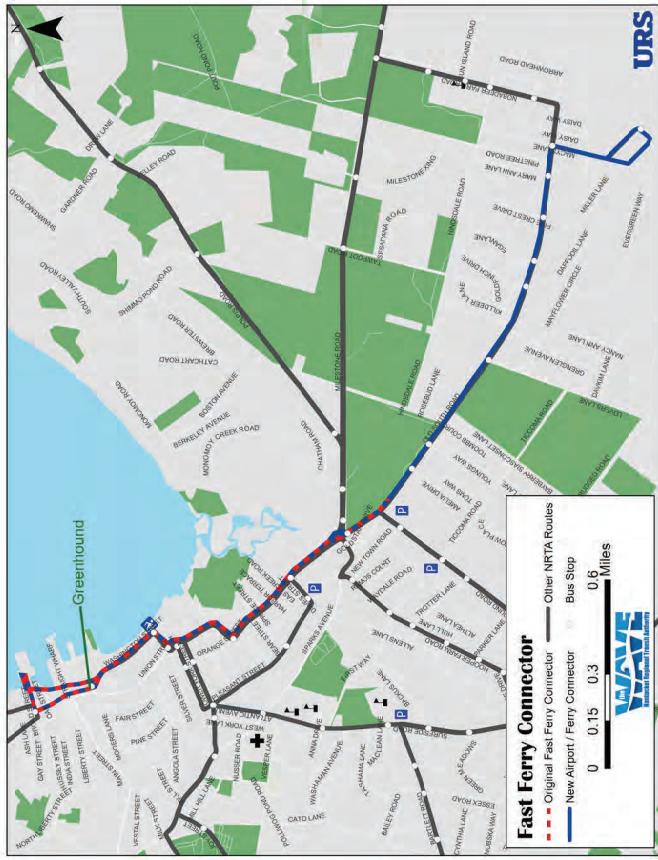
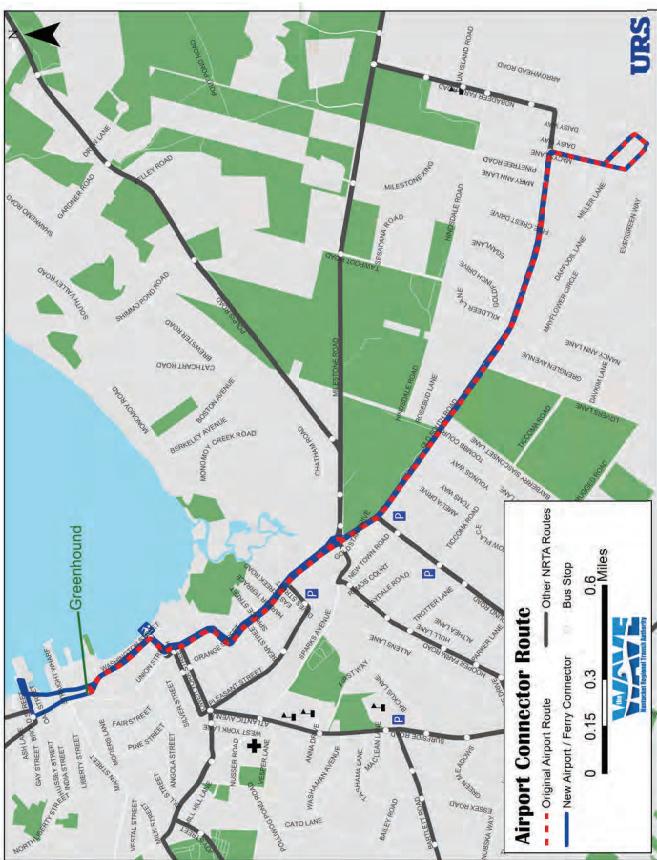
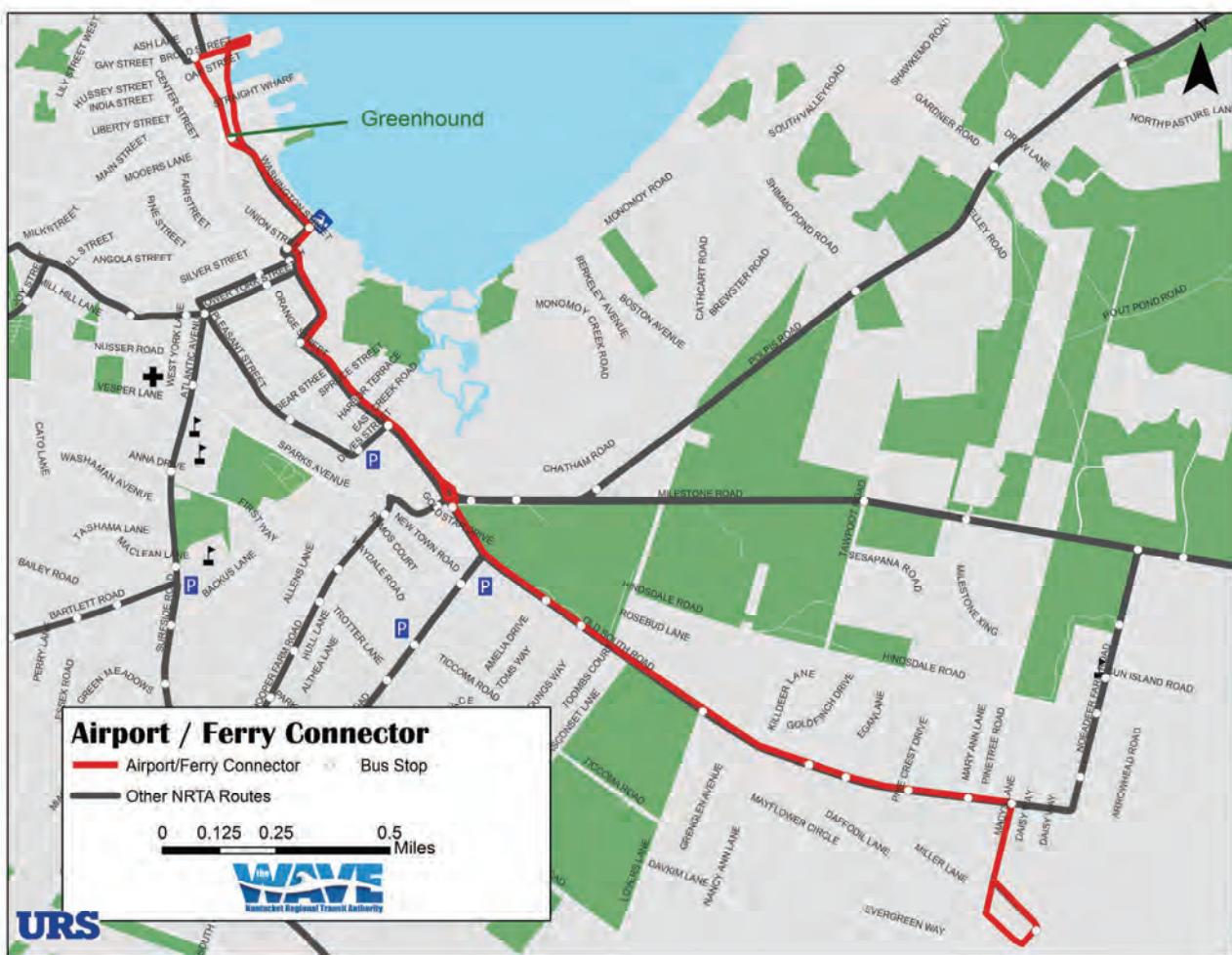
The following route profiles depict the proposed recommendation changes.



Airport/Ferry Connector

REGIONAL TRANSIT PLAN

Nantucket Regional Transit Authority



Current Route Performance

Productivity	Airport	System Average
Daily Shoulder Ridership	141	258
Daily Peak Season Ridership	N/A	339
Daily Off Season Ridership	N/A	N/A
Service Productivity (pax/hours)	17.6	16.87
Service Productivity (pax/miles)	1.84	1.5
On-time performance	98%	98%

Financials	Airport	System Average
Farebox Recovery	26.7%	30.2%
Subsidy per passenger	\$2.72	\$3.35

Route Type: Fixed Route

Route Ranking Peak Season: 8/9

Route Ranking Shoulder Season: N/A /4

Proposed Service Changes

Current (airport)	Proposed
Seasons Operated	Peak
Route Length	6.4 miles
Route Run—Time	60 Min
Peak Season Headway	20 Min
Off-Peak Season Headway	N/A
Shoulder Season Headway	N/A
Off Season Headway	N/A
Hours of Operations Season	10:00 AM –6:00 PM
Hours of Operation Shoulder	N/A
Hours of Operation Off Season	N/A

Route Changes:

This route combines the previous Fast Ferry Connector and Airport route into one new route.

Environmental Justice Policy:

Unknown.

Phase 1:

- Extend summer season service span
- Add shoulder season service

Phase 2:

- No changes

Phase 3:

- No changes

Financial	Phase 1	Phase 2	Phase 3
Annual Change in Revenue Hours	+3,588	0	0
Annual Change in Revenue Miles	+17,156	0	0
Estimate Change in Cost	+\$269,000	\$0	\$0
Additional vehicle requirements:	0	0	0
Capital Requirement: Other	None		

Other Notes:

Previously marketed as two separate routes, this new route will be marketed as one all day route. This would extend service hours to the airport and additional AM and PM service to Old South Road where high demand exists. Operating the route during the shoulder season would provide service to the airport and more along Old South Road.

ADA Impact:

High—additional evening service and shoulder season service.



Current Route Performance

Productivity	Cisco	System Average
Daily Shoulder Ridership	N/A	258
Daily Peak Season Ridership	N/A	339
Daily Off Season Ridership	N/A	N/A
Service Productivity (pax/hours)	N/A	16.87
Service Productivity (pax/miles)	N/A	1.5
On-time performance	N/A	98%

Financials	Cisco	System Average
Farebox Recovery	N/A	30.2%
Subsidy per passenger	N/A	\$3.35

Route Type: Fixed Route

Route Ranking Peak Season: **New route**

Route Ranking Shoulder Season: **New route**

Proposed Service Changes

	Current (airport)	Proposed
Seasons Operated	N/A	Peak
Route Length	N/A	9.0 miles
Route Run—Time	N/A	60 Min
Peak Season Headway	N/A	60 Min
Off-Peak Season Headway	N/A	N/A
Shoulder Season Headway	N/A	N/A
Off Season Headway	N/A	N/A
Hours of Operations Season	N/A	9:30 AM - 6:30 PM
Hours of Operation Shoulder	N/A	N/A
Hours of Operation Off Season	N/A	N/A

Route Changes:

This is a new route. It would travel between Washington Street and Cisco Beach along York/Dover Street, Prospect St., Mile Street Extension, and Hummock Pond Rd.

Environmental Justice Policy:

Unknown.

Phase 1:

-No change

Phase 2:

-Implement route

Phase 3:

- No changes

Financial

	Phase 1	Phase 2	Phase 3
Annual Change in Revenue Hours	0	+720	0
Annual Change in Revenue Miles	0	+6,146	0
Estimate Change in Cost	\$0	\$52,650	\$0
Additional vehicle requirements:	0	1	0
Capital Requirement: Other	Paving of turn around area		

Other Notes:

This route would service Bartlett Farm Road and Cisco Beach but requires that a turn around at Cisco Beach be paved.

ADA Impact:

High—New route, unserved area.



Current Route Performance

Productivity	Jetties	System Average
Daily Shoulder Ridership	180	258
Daily Peak Season Ridership	N/A	339
Daily Off Season Ridership	N/A	N/A
Service Productivity (pax/hours)	22.5	16.87
Service Productivity (pax/miles)	4.12	1.5
On-time performance	98.9%	98%

Financials	Jetties	System Average
Farebox Recovery	57.5%	30.2%
Subsidy per passenger	\$0.71	\$3.35

Route Type: Fixed Route

Route Ranking Peak Season: 1/9

Route Ranking Shoulder Season: N/A /4

Proposed Service Changes

	Current	Proposed
Seasons Operated	Peak	Peak
Route Length	1.94 miles	1.94 miles
Route Run—Time	30 Min	30 Min
Peak Season Headway	30 Min	30 Min
Off-Peak Season Headway	N/A	N/A
Shoulder Season Headway	N/A	N/A
Off Season Headway	N/A	N/A
Hours of Operations Season	10:00 AM –6:00 PM	7:00 AM –11:00 PM
Hours of Operation Shoulder	N/A	N/A
Hours of Operation Off Season	N/A	N/A

Route Changes:

Service has been expanded in the evening to accommodate evening events and the hospitality industry in the region.

Environmental Justice Policy:

Unknown.

Phase 1:

-Extend summer season service span

Phase 2:

-No changes

Phase 3:

- No changes

Financial	Phase 1	Phase 2	Phase 3
Annual Change in Revenue Hours	+385	0	0
Annual Change in Revenue Miles	+1,513	0	0
Estimate Change in Cost	+\$35,000	\$0	\$0
Additional vehicle requirements:	0	0	0
Capital Requirement: Other	None		

Other Notes:

This route will run later in the evening.

ADA Impact:

Low—additional evening service.



Current Route Performance

Productivity	Madaket	System Average
Daily Shoulder Ridership	506	258
Daily Peak Season Ridership	151	339
Daily Off Season Ridership	N/A	N/A
Service Productivity (pax/hours)	21.9	16.87
Service Productivity (pax/miles)	0.94	1.5
On-time performance	99%	98%

Financials	Madaket	System Average
Farebox Recovery	23.3%	30.2%
Subsidy per passenger	\$5.57	\$3.35

Route Type: Fixed Route

Route Ranking Peak Season: 6/9

Route Ranking Shoulder Season: 4/4

Proposed Service Changes

	Current	Proposed
Seasons Operated	Shoulder, Peak	Shoulder, Peak
Route Length	12.5 miles	12.5 miles
Route Run—Time	60 Min	60 Min
Peak Season Headway	30 Min	30 Min
Off-Peak Season Headway	N/A	60 Min
Shoulder Season Headway	60 Min	60 Min
Off Season Headway	N/A	N/A
Hours of Operations Season	7:00 AM - 11:30 PM	7:00 AM - 2:00 AM
Hours of Operation Shoulder	7:00 AM - 11:30 PM	7:00 AM - 11:30 PM
Hours of Operation Off Season	N/A	N/A

Route Changes:

There have been no changes to the alignment of the route but service has been extended later in the evening.

Environmental Justice Policy:

Unknown.

Phase 1:

--Extend summer season service span

Phase 2:

-No changes

Phase 3:

- No changes

Financial	Phase 1	Phase 2	Phase 3
Annual Change in Revenue Hours	+193	0	0
Annual Change in Revenue Miles	+2,439	0	0
Estimate Change in Cost	+\$17,000	\$0	\$0
Additional vehicle requirements:	0	0	0
Capital Requirement: Other	None		

Other Notes:

Late night service after 11:30 PM will be reduced from 30 minute headways to 60 minute headways.

Later night service will better accommodate the hospitality industry.

ADA Impact:

Low—additional evening service.



Current Route Performance

Productivity	Miacomet	System Average
Daily Shoulder Ridership	303	258
Daily Peak Season Ridership	644	339
Daily Off Season Ridership	N/A	N/A
Service Productivity (pax/hours)	27.3	16.87
Service Productivity (pax/miles)	1.27	1.5
On-time performance	97%	98%

Financials	Miacomet	System Average
Farebox Recovery	11.4%	30.2%
Subsidy per passenger	\$4.76	\$3.35

Route Type: Fixed Route

Route Ranking Peak Season: 3/9

Route Ranking Shoulder Season: 3/4

Proposed Service Changes

	Current	Proposed
Seasons Operated	Shoulder, Peak	All
Route Length	7 miles	7 miles
Route Run—Time	40 Min	40 Min
Peak Season Headway	20 Min	20 Min
Off-Peak Season Headway	N/A	30 Min
Shoulder Season Headway	30 Min	30 Min
Off Season Headway	N/A	30 Min
Hours of Operations Season	7:00 AM - 11:30 PM	7:00 AM - 2:00 AM
Hours of Operation Shoulder	7:00 AM - 11:30 PM	7:00 AM - 11:30 PM
Hours of Operation Off Season	N/A	7:00 AM - 9:00 PM

Route Changes:

There have been no changes to the alignment of the route but service has been extended later in the evening and winter or off season service should be implemented.

Environmental Justice Policy:

Unknown.

Phase 1:

-Extend summer season service span

Phase 2:

-No changes

Phase 3:

- Implement off (Winter) season service

Financial	Phase 1	Phase 2	Phase 3
Annual Change in Revenue Hours	+260	0	+3,052
Annual Change in Revenue Miles	+2,730	0	+41,507
Estimate Change in Cost	+\$23,000	\$0	\$290,000
Additional vehicle requirements:	0	0	0
Capital Requirement: Other	None		

Other Notes:

Late night service after 11:30 PM will reduce from 20 minute headways to 30 minute headways.

Later night service will better accommodate the hospitality industry.

This route is a candidate for winter season service because it in the shoulder season it performs above average.

ADA Impact:

High—additional evening service and Off season service.



Current Route Performance

Productivity	Mid Island	System Average
Daily Shoulder Ridership	272	258
Daily Peak Season Ridership	587	339
Daily Off Season Ridership	N/A	N/A
Service Productivity (pax/hours)	24.7	16.87
Service Productivity (pax/miles)	1.60	1.5
On-time performance	99%	98%

Financials	Mid-Island	System Average
Farebox Recovery	14.5%	30.2%
Subsidy per passenger	\$3.67	\$3.35

Route Type: Fixed Route

Route Ranking Peak Season: 4/9

Route Ranking Shoulder Season: 1/4

Proposed Service Changes

	Current	Proposed
Seasons Operated	Shoulder, Peak	All
Route Length	4.1 miles	4.1 miles
Route Run—Time	30 Min	30 Min
Peak Season Headway	15 Min	15 Min
Off-Peak Season Headway	N/A	30 Min
Shoulder Season Headway	30 Min	30 Min
Off Season Headway	N/A	30 Min
Hours of Operations Season	7:00 AM - 11:30 PM	7:00 AM - 2:00 AM
Hours of Operation Shoulder	7:00 AM - 11:30 PM	7:00 AM - 11:30 PM
Hours of Operation Off Season	N/A	7:00 AM - 9:00 PM

Route Changes:

There have been no changes to the alignment of the route but service has been extended later in the evening and winter or off season service should be implemented.

Environmental Justice Policy:

Unknown.

Phase 1:

-Extend summer season service span

Phase 2:

-No changes

Phase 3:

- Implement off (Winter) season service

Financial	Phase 1	Phase 2	Phase 3
Annual Change in Revenue Hours	+221	0	+3,052
Annual Change in Revenue Miles	+1,583	0	+24,770
Estimate Change in Cost	+\$20,000	\$0	+\$290,000
Additional vehicle requirements:	0	0	0
Capital Requirement: Other	None		

Other Notes:

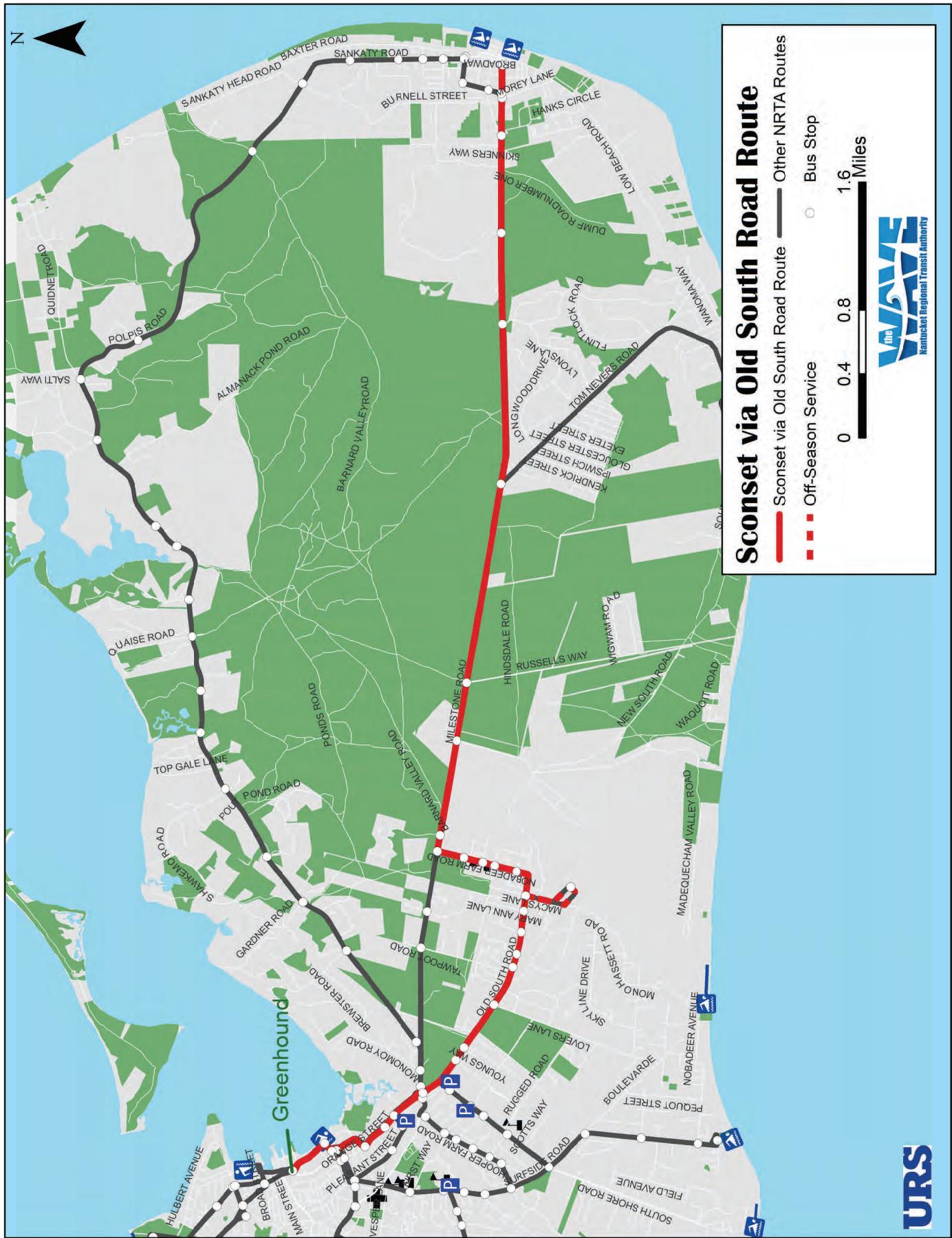
Late night service after 11:30 PM will be reduced from 15 minute headways to 30 minute headways.

Later night service will better accommodate the hospitality industry.

This route is a candidate for winter season service because it is in the shoulder season and it performs above average.

ADA Impact:

High—additional evening service and Off season service.





Sconset

via Old South Road Route

Current

Productivity	Sconset OS	System Average
Daily Shoulder Ridership	284	258
Daily Peak Season Ridership	453	339
Daily Off Season Ridership	N/A	N/A
Service Productivity (pax/hours)	22.4	16.87
Service Productivity (pax/miles)	1.02	1.5
On-time performance	98%	98%

REGIONAL TRANSIT PLAN

Nantucket Regional Transit Authority

Financials	Sconset OS	System Average
Farebox Recovery	18.2%	30.2%
Subsidy per passenger	\$5.50	\$3.35

Route Type: Fixed Route

Route Ranking Peak Season: 5/9

Route Ranking Shoulder Season: 3/4

Proposed Service Changes

	Current	Proposed
Seasons Operated	Shoulder, Peak	All
Route Length	17.1 miles	17.1 miles
Route Run—Time	60 Min	60 Min
Peak Season Headway	60 Min	60 Min
Off-Peak Season Headway	N/A	60 Min
Shoulder Season Headway	60 Min	60 Min
Off Season Headway	N/A	60 Min
Hours of Operations Season	7:15 AM - 11:15 PM	7:15 AM - 2:00 AM
Hours of Operation Shoulder	7:15 AM - 11:15 PM	7:15 AM - 11:15 PM
Hours of Operation Off Season	N/A	7:00 AM - 9:00 PM

Route Changes:

In the winter off season service, this route will service the airport during open hours. It will service it both inbound and out-bound.

Environmental Justice Policy:

Unknown.

Phase 1:

-Extend summer season service span

Phase 2:

-No changes

Phase 3:

- Implement off (Winter) season service
- Service the airport

Financial	Phase 1	Phase 2	Phase 3
Annual Change in Revenue Hours	+214	0	+3,052
Annual Change in Revenue Miles	+3,677	0	+52,314
Estimate Change in Cost	+\$19,000	\$0	+\$290,000
Additional vehicle requirements:	0	0	0
Capital Requirement: Other	None		

Other Notes:

Later night service will better accommodate the hospitality industry.

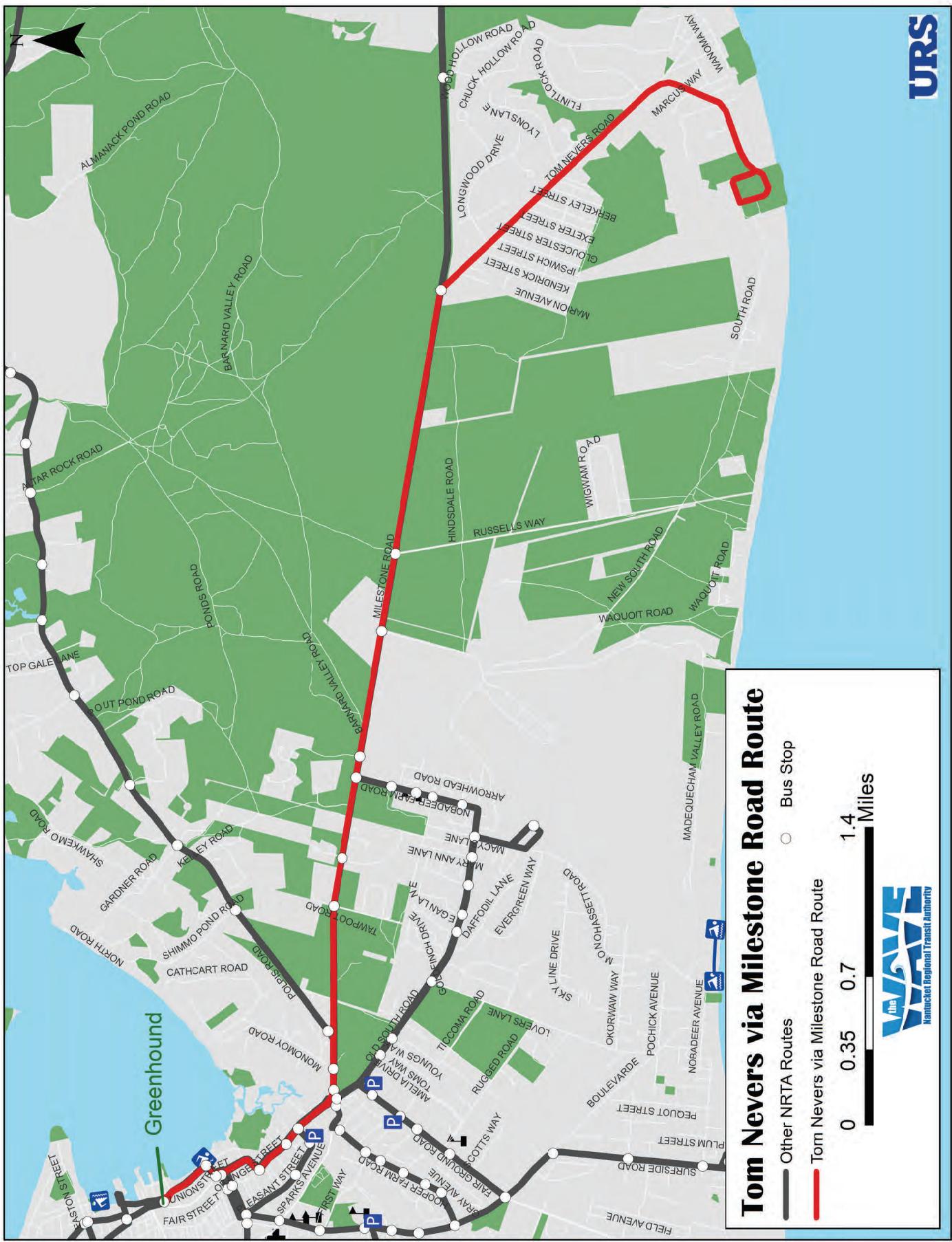
This route is a candidate for winter season service because it is in the shoulder season and performs above average.

ADA Impact:

High—additional evening service and Off season service.



URS



Current Route Performance

Productivity	Cisco	System Average
Daily Shoulder Ridership	N/A	258
Daily Peak Season Ridership	N/A	339
Daily Off Season Ridership	N/A	N/A
Service Productivity (pax/hours)	N/A	16.87
Service Productivity (pax/miles)	N/A	1.5
On-time performance	N/A	98%

Financials	Cisco	System Average
Farebox Recovery	N/A	30.2%
Subsidy per passenger	N/A	\$3.35

Route Type: Fixed Route

Route Ranking Peak Season: **New route**

Route Ranking Shoulder Season: **New route**

Proposed Service Changes

	Current (airport)	Proposed
Seasons Operated	N/A	Peak, Shoulder
Route Length	N/A	16.5 miles
Route Run—Time	N/A	60 Min
Peak Season Headway	N/A	60 Min
Off-Peak Season Headway	N/A	N/A
Shoulder Season Headway	N/A	N/A
Off Season Headway	N/A	N/A
Hours of Operations Season	N/A	7:00 AM - 11:30 PM
Hours of Operation Shoulder	N/A	7:00 AM - 11:30 PM
Hours of Operation Off Season	N/A	N/A

Route Changes:

This is a new route. It would travel between Washington Street and Tom Nevers Road along Orange St., Milestone Rd., and Tom Nevers Road.

Environmental Justice Policy:

Unknown.

Phase 1:

-No change

Phase 2:

-Implement route

Phase 3:

- No changes

Financial

	Phase 1	Phase 2	Phase 3
Annual Change in Revenue Hours	0	+720	0
Annual Change in Revenue Miles	0	+6,146	0
Estimate Change in Cost	\$0	\$52,650	\$0
Additional vehicle requirements:	0	1	0
Capital Requirement: Other	Paving of turn around		

Other Notes:

This route would service Tom Nevers area. At Greenhound it would require that a new bus stop along Washington St. be established. It would also require a turn around at Tom Nevers Park be paved.

ADA Impact:

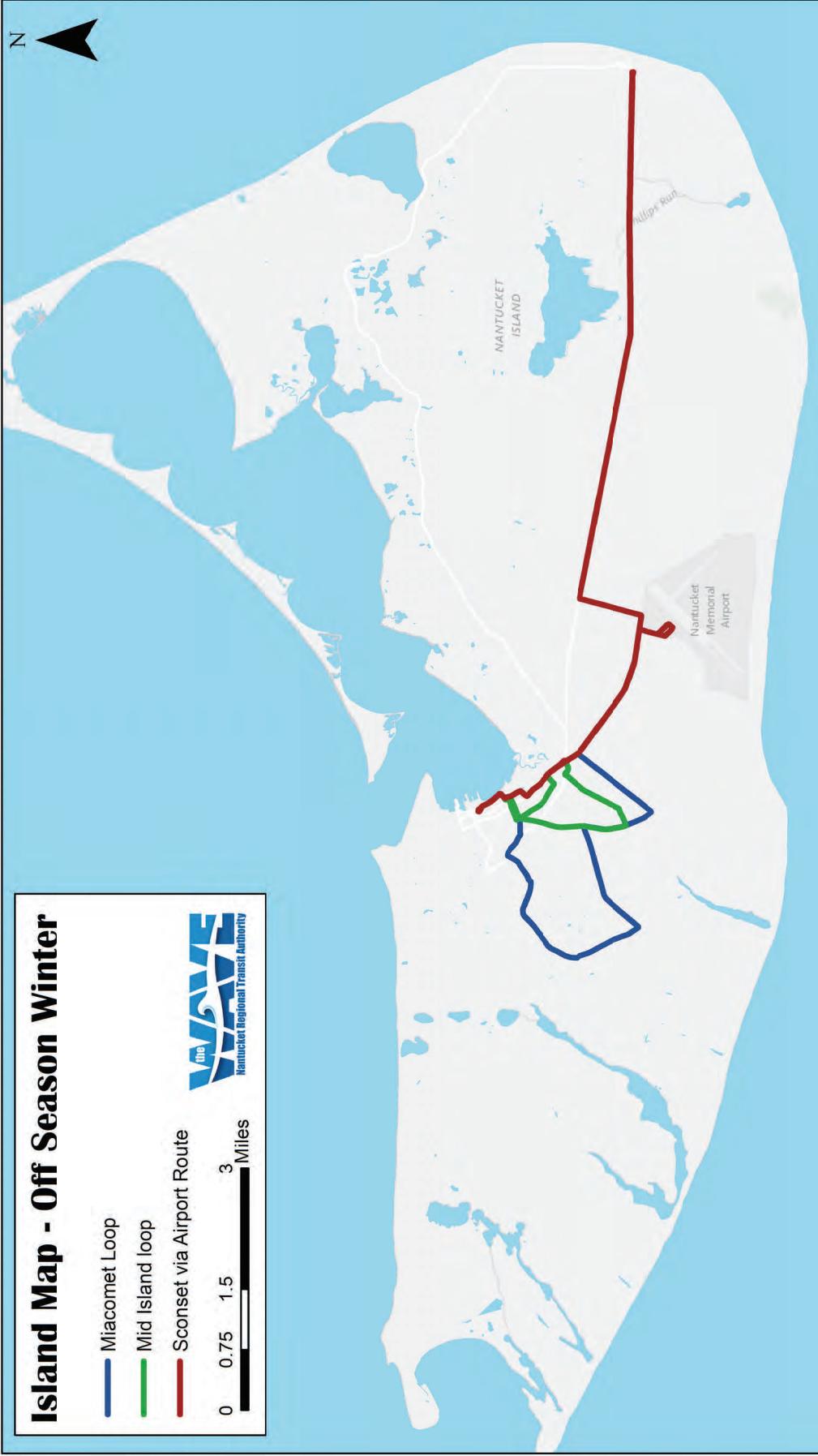
High—New route, unserved area.



N

Island Map - Off Season Winter

- Miacoomet Loop
 - Mid Island loop
 - Sconset via Airport Route
- 0 0.75 1.5 3 Miles

**URS**

Proposed Service

	Service Span	Frequency	Route Length	Days Operated
Miacomet Loop	7:00 AM—9:00 PM	30 Min	6.8 miles	Mon—Sun
Sconset via Airport Route	7:00 AM—9:00 PM	60 Min	19.1 miles	Mon—Sun
Mid Island Loop	7:00 AM—9:00 PM	30 Min	4.1 miles	Mon—Sun

Financial	Service days	Revenue miles	Revenue Hours	Cost
Miacomet Loop	218	+3,052	+24,770	\$290,000
Sconset via Airport Route	218	+3,052	+41,507	\$290,000
Mid Island Loop	218	+3,052	+58,293	\$290,000

Route Changes:

There is a high demand for year round service. Comments received were from document chapter review by the public, the steering committee, and from previous public outreach. It is the number one request.

It is recommended that winter service operate all days except for Thanksgiving and Christmas.

Other Notes:

Winter service will require substantial investments. The garage facility will need to be heated. NRTA will need to contract with the operating company to have maintenance and operations staff year round. Operators are currently part-time and many are international on visas. Year round operators will be required.

Environmental Justice Policy:

Unknown.

Phase 1:

-No service

Phase 2:

-No service

Phase 3:

- Implement service

Winter Service Totals

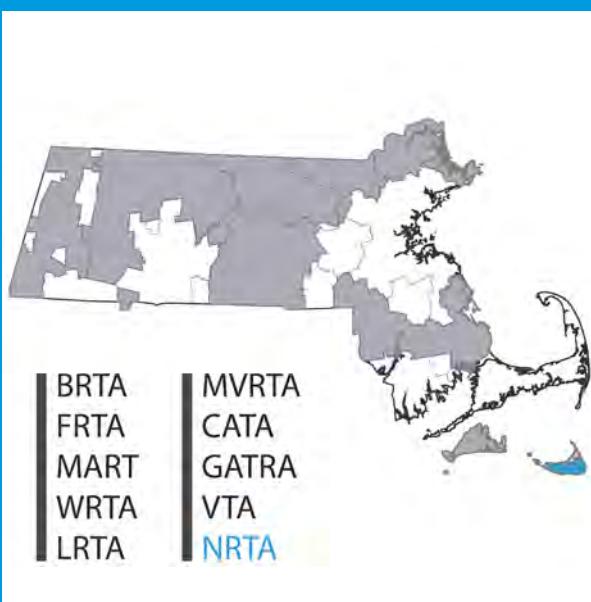
Revenue miles = 9,156

Revenue hours = 124,570

Total cost = \$870,000

ADA Impact:

High—New service days



Chapter 8

Conclusion

AECOM / URS

Burke & Company




Nantucket Regional Transit Authority

8. CONCLUSION

Recommendations were developed using a cumulative process that incorporated public outreach, a diverse steering committee, operational input from NRTA, an analysis of existing transit service and the Nantucket/regional market. Strategies to improve the system were developed based on the goals and objectives outlined in Chapter 2.

The proposed recommendations will help improve mobility in Nantucket and improve service. The three phase approach allows NRTA to plan for future service and seek the necessary funding and equipment that would be needed. Phase 1 would require a 29.5% increase in funding, while Phases 2 would require a 14.0% (in addition to the 29.5% from Phase 1) and 3 would require significantly more funding (Table 25). In Phase 1 service hours have been expanded to meet the demands of the island. In Phase 2 new routes have been implemented. In Phase 3 winter season service has been implemented. These improvements would help NRTA achieve their goals of providing safe and convenient service, minimizing auto use on the island, better aligning service with the year-round community needs, and meeting the needs of a diverse summer population.

Table 25. Phase Requirements for Proposed Recommendations

Phase	Additional funding needed	New cost of service	Percent increase from previous
Phase 1	\$384,000	\$1,684,000	29.5%
Phase 2	\$235,000	\$1,919,000	14.0%
Phase 3	\$870,000	\$2,789,000	45.3%
Total	\$1,489,000	N/A	114.5%

Service guidelines have been established to monitor service in the future with performance measures to evaluate a route's health. Recommended performance measures to monitor existing and future routes include:

- **Passengers/Hour:** Number of total monthly and annual passengers divided by the corresponding revenue-hours.
- **Subsidy/Passenger:** Total expenses minus fare revenue divided by ridership.
- **Farebox Recovery:** The percentage of operating costs covered by fares collected, calculated by the fares collected divided by the cost to operate the route.
- **Cost/Revenue-Hour:** An excellent indicator of efficiency is cost per revenue-hour of service. Costs per hour should be analyzed by route and compared to overall system averages.
- **Late Trips:** The percentage of fixed-route trips which operate late or are missed should be recorded and reported. The recommended standard for late trips is any trip that is more than five minutes behind schedule.

- **Service/Road Calls:** the number of service/road calls divided by the number of revenue miles. This measure is typically measured for the entire system and not individual routes. This monitors routine maintenance and vehicle performance.
- **Accidents/100,000 miles:** Measure of driver safety. There must be a standard practice for defining what an accident is.

The performance measures can be used to create benchmarks for service operation. The benchmarks will help NRTA track progress and set goals for the performance of the route. They will also assist NRTA in measuring the impact of the proposed recommendations on service. The recommendations include establishing clockface frequencies on all routes, extending service hours, improving frequencies, servicing new areas and modifying alignments (Table 26).

Table 26. Summary of Original Proposed Recommendations

Recommendation	Phase	Routes Impacted
Extend peak season service to 2 AM	Phase 1	Mid Island Loop, Miacomet Loop, Sconset via Old South Road Route, Madaket Route
Extend service hours 7 AM -8 PM	Phase 1	Ferry Connector
Extend service hours 10 AM -11 PM	Phase 1	Jetties Beach Route
Adjust route timing	Phase 2	Sconset via Polpis Road Route
Implement new route	Phase 2	Cisco Beach Route, Tom Nevers via Milestone Road Route
Implement winter season service	Phase 3	Mid Island Loop, Miacomet Loop, Sconset via Old South Road Route

Note the following has changed during the progress of this report, these updates are reflected in Table 27:

- The Ferry connector is running until 10 pm this season, however it is not incorporated into the airport route the whole season.
- Winter season service has been moved to Phase 1, funding was just approved from DOT planning to do a feasibility and operations study for year round service.
- Extending service to 2 AM has been moved to Phase 2. It would require additional drivers and shifts which would not be possible to obtain in time for Phase 1.
- Adjusting the route timing on Sconset via Polpis Road route may occur in Phase 2 or 3, it is dependent on whether additional parking can be removed from Washington St. for bus bays.
- Extending hours on the Jetties Beach route has been moved to Phase 3 as it has become a lower priority.

Table 27. Updated Recommendation Phases

Recommendation	Original Phase	Updated Phase	Routes Impacted
Extend peak season service to 2 AM	Phase 1	Phase 2	Mid Island Loop, Miacomet Loop, Sconset via Old South Road Route, Madaket Route
Extend service hours 7 AM -8 PM	Phase 1	Phase 1	Ferry Connector
Extend service hours 10 AM -11 PM	Phase 1	Phase3	Jetties Beach Route
Adjust route timing	Phase 2	Phase 3	Sconset via Polpis Road Route
Implement new route	Phase 2	Phase 2	Cisco Beach Route, Tom Nevers via Milestone Road Route
Implement winter season service	Phase 3	Phase 1	Mid Island Loop, Miacomet Loop, Sconset via Old South Road Route

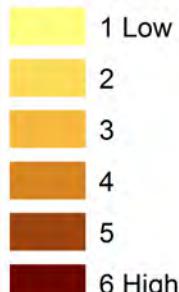
Appendix A

Market Demand Maps

Airport Route



Level of Potential Transit Demand



- Bus Stop
- Airport Route
- Other NRTA Bus Routes
- - - 1/4 Mile Buffer
- Public Beach
- School
- Hospital
- P Park & Ride Lot

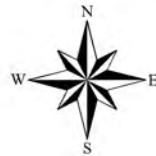
0 0.125 0.25 0.5 Miles

Demand is based on the Housing density, presence of commercial/industrial land uses, and the proximity to beaches, Park & Rides and hospitals.

URS



Jetties Beach Route

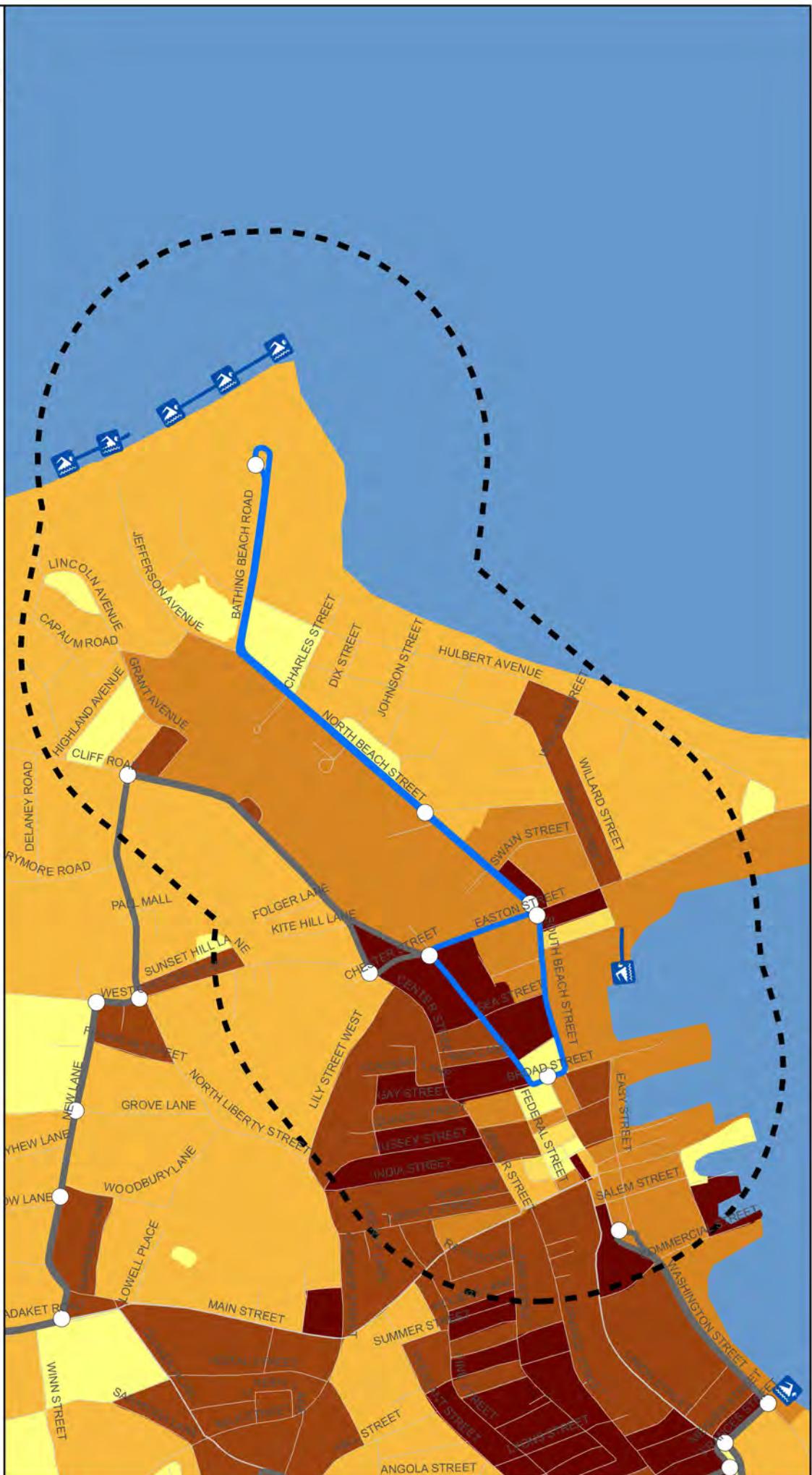


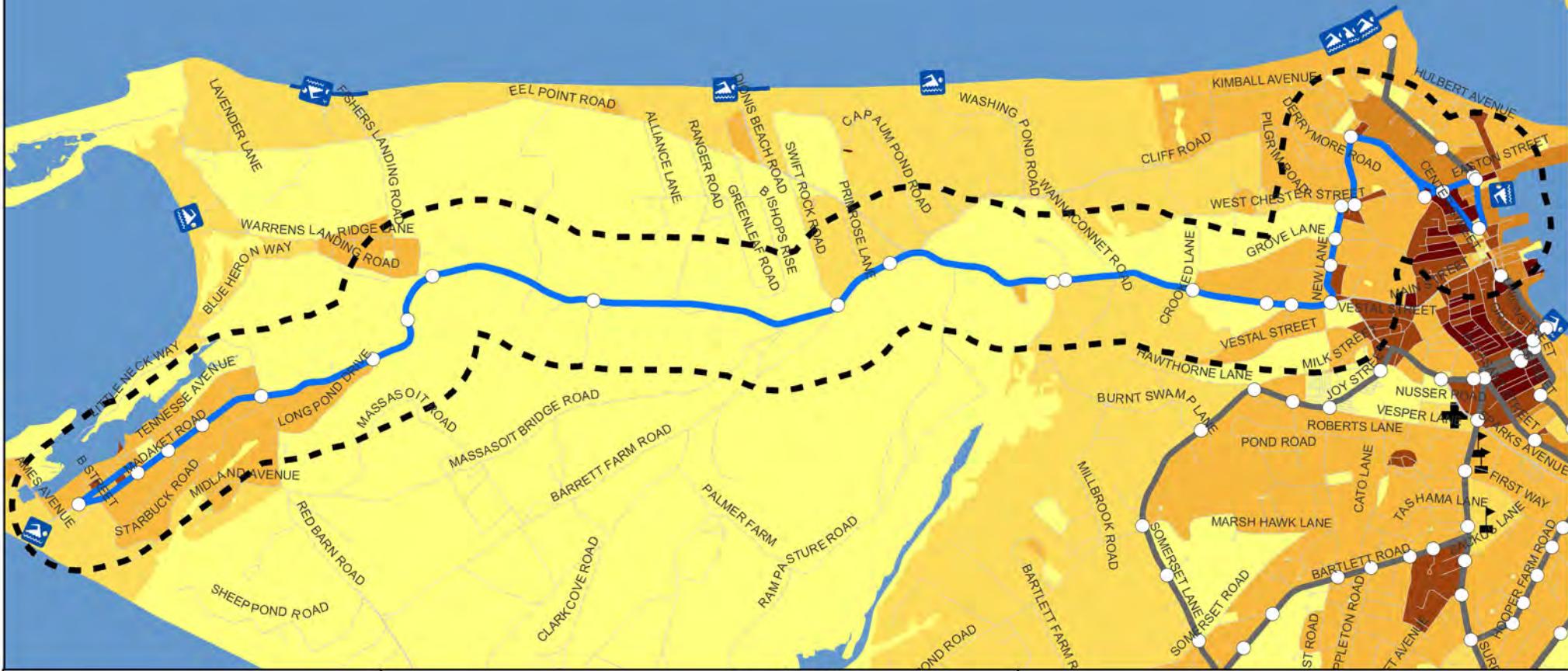
Level of Potential Transit Demand



0 0.05 0.1 0.2 Miles

Demand is based on the Housing density, presence of commercial/industrial land uses, and the proximity to beaches, Park & Rides and hospitals.





Madaket Route

Legend

Level of Potential Transit Demand



- Bus Stop
- Madaket Route
- - - Other NRTA Bus Routes
- - - 1/4 Mile buffer
- Public Beach
- School
- Hospital
- P Park & Ride Lot

Demand is based on the Housing density, presence of commercial/industrial land uses, and the proximity to beaches, Park & Rides and hospitals.



0 0.25 0.5 1 Miles

URS

Miacomet Loop



Level of Potential Transit Demand

1 Low

2

3

4

5

6 High

○ Bus Stop

— Miacomet Route

— Other NRTA Bus Routes

- - - 1/4 Mile buffer

— Public Beach

+ Hospital

P Park & Ride Lot

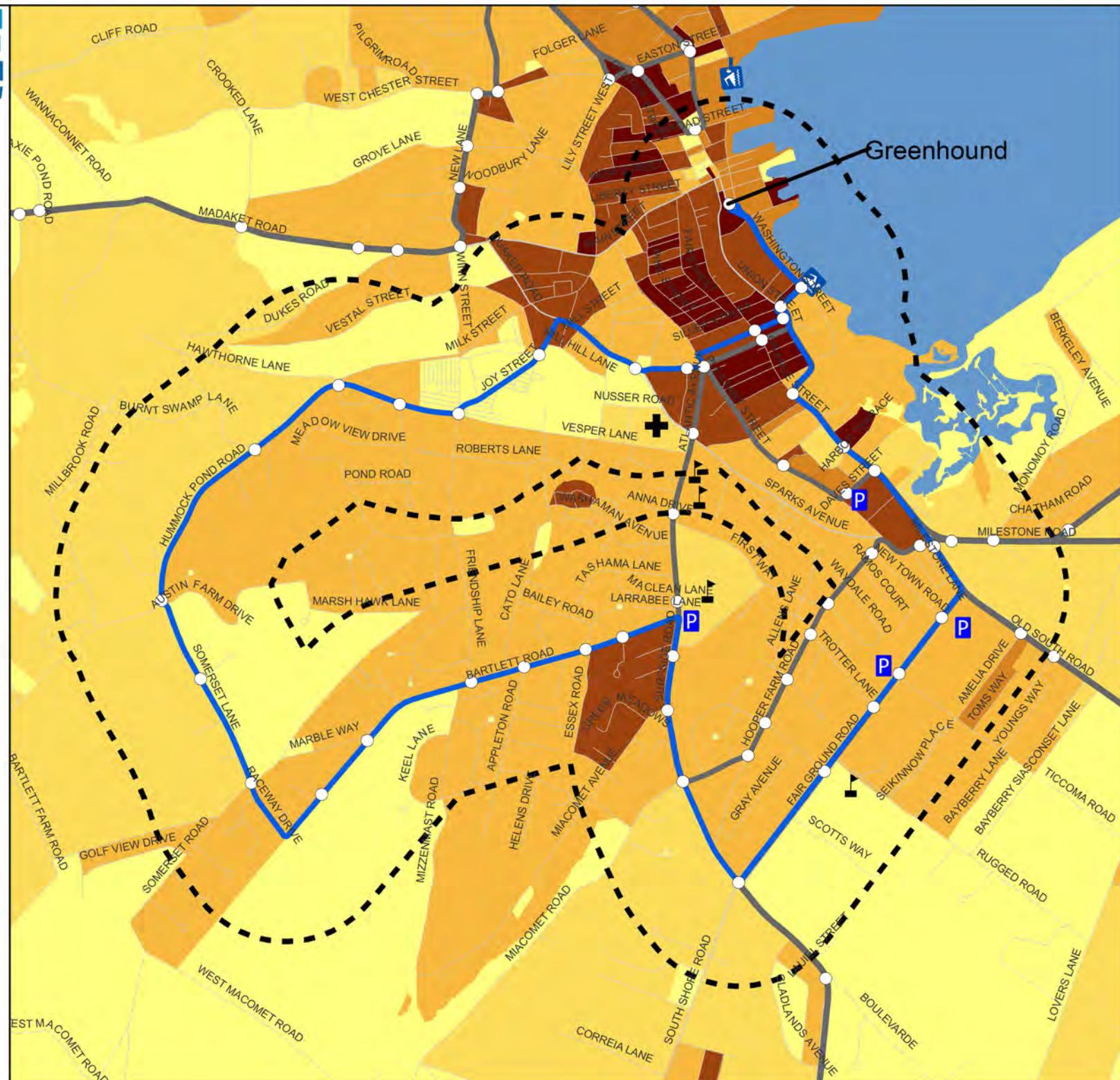
► School

0 0.125 0.25 0.5

Miles

Demand is based on the Housing density, presence of commercial/industrial land uses, and the proximity to beaches, Park & Rides and hospitals.

URS



Mid Island Loop

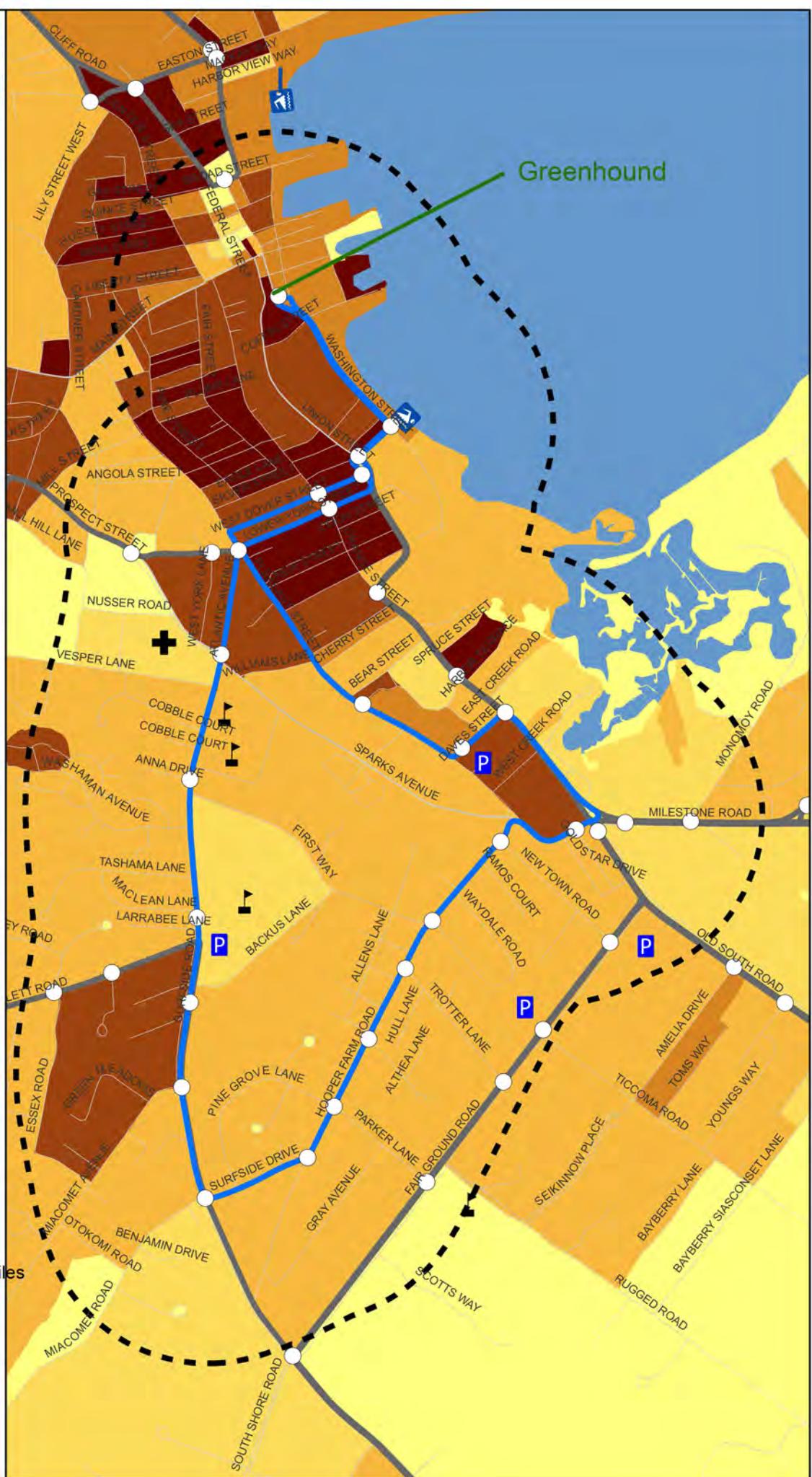


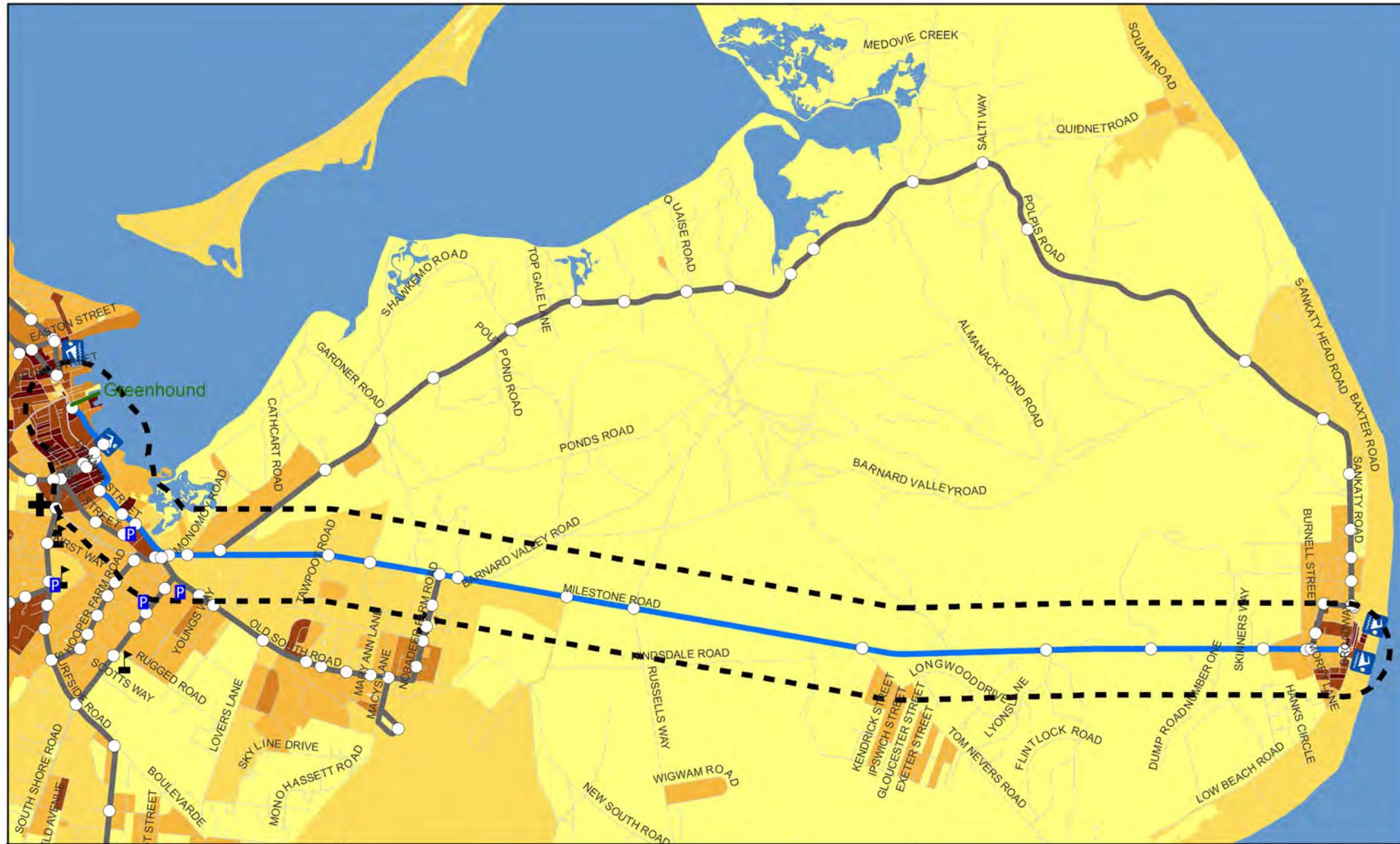
Level of Potential Transit Demand

- 1 Low
- 2
- 3
- 4
- 5
- 6 High
- Bus Stop
- Mid Island Route
- Other NRTA Bus Routes
- - - 1/4 Mile Buffer
- Public Beach
- ✚ Hospital
- ▶ School
- P Park & Ride Lot

0 0.1 0.2 0.4 Miles

Demand is based on the Housing density, presence of commercial/industrial land uses, and the proximity to beaches, Park & Rides and hospitals.





Sconset/Milestone Road Route

Legend

Level of Potential Transit Demand

1 Low	4
2	5
3	6 High

○ Bus Stop

— Sconset-Milestone Rd Route

— Other NRTA Bus Routes

- - - 1/4 Mile Buffer

— Public Beach

+ Hospital

■ School

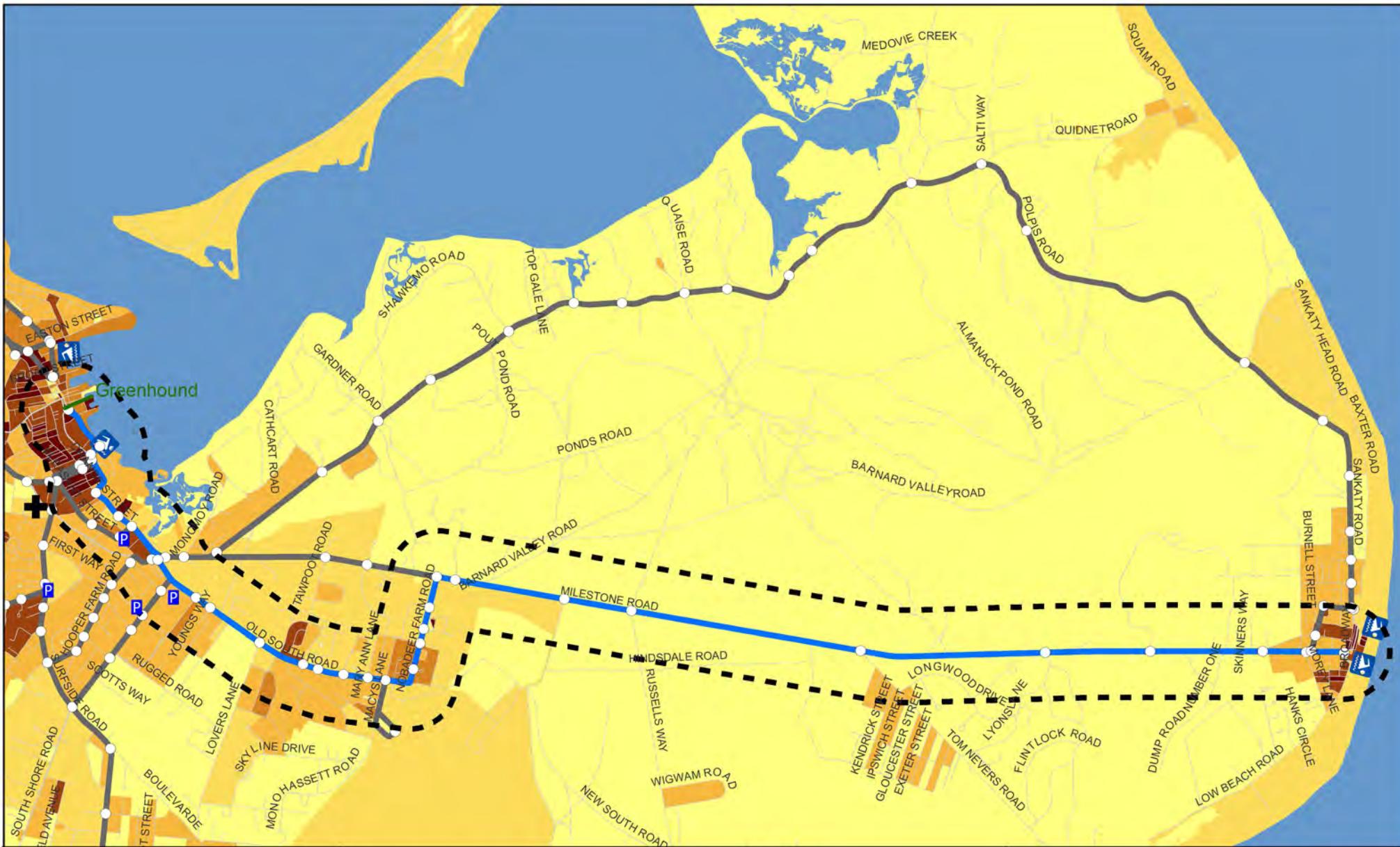
P Park & Ride Lot

Demand is based on the Housing density, presence of commercial/industrial land uses, and the proximity to beaches, Park & Rides and hospitals.



0 0.375 0.75 1.5 Miles

URS



Sconset/Old South Road Route

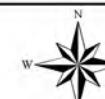
Legend

Level of Potential Transit Demand



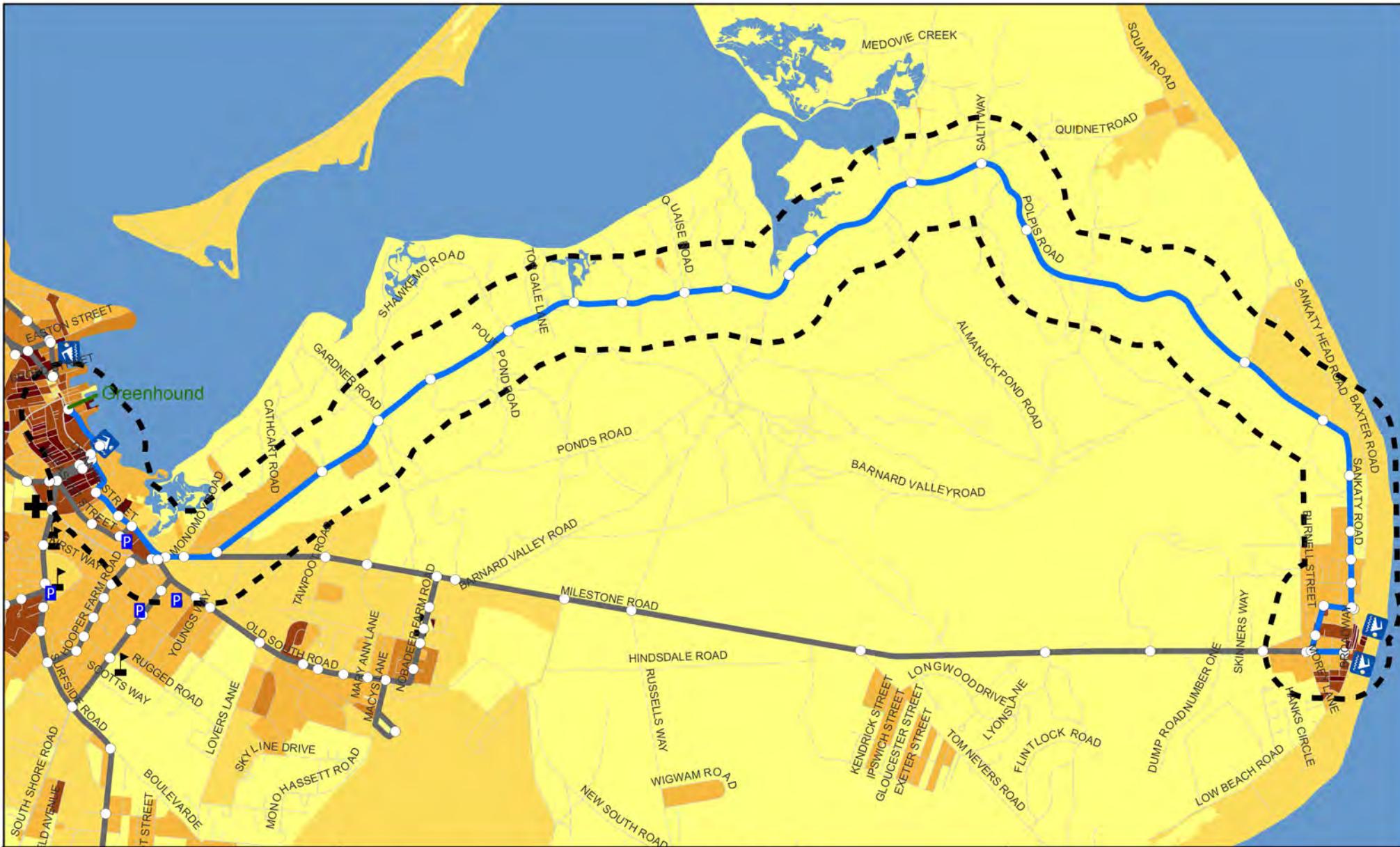
- Bus Stop
- Public Beach
- Sconset/Old South Rd Route
- Other NRTA Bus Routes
- - - 1/4 Mile Buffer
- P Park & Ride Lot
- +
- H Hospital
- School

Demand is based on the Housing density, presence of commercial/industrial land uses, and the proximity to beaches, Park & Rides and hospitals.



0 0.225 0.45 0.9 Miles

URS



Sconset/Polpis Road Route

Legend

Level of Potential Transit Demand

1 Low	4
2	5
3	6 High

- Bus Stop
- Sconset-Polpis Rd Route
- Other NRTA Bus Routes
- 1/4 Mile buffer
- Public Beach
- ✚ Hospital
- Park & Ride Lot
- ▲ School

Demand is based on the Housing density, presence of commercial/industrial land uses, and the proximity to beaches, Park & Rides and hospitals.



0 0.225 0.45 0.9 Miles

URS

Surfside Beach Route



Level of Potential Transit Demand

NRTA



○ Bus Stop

— SurfSide Beach Route

— Other NRTA Bus Routes

- - - 1/4 Mile Buffer

— Public Beach

■ School

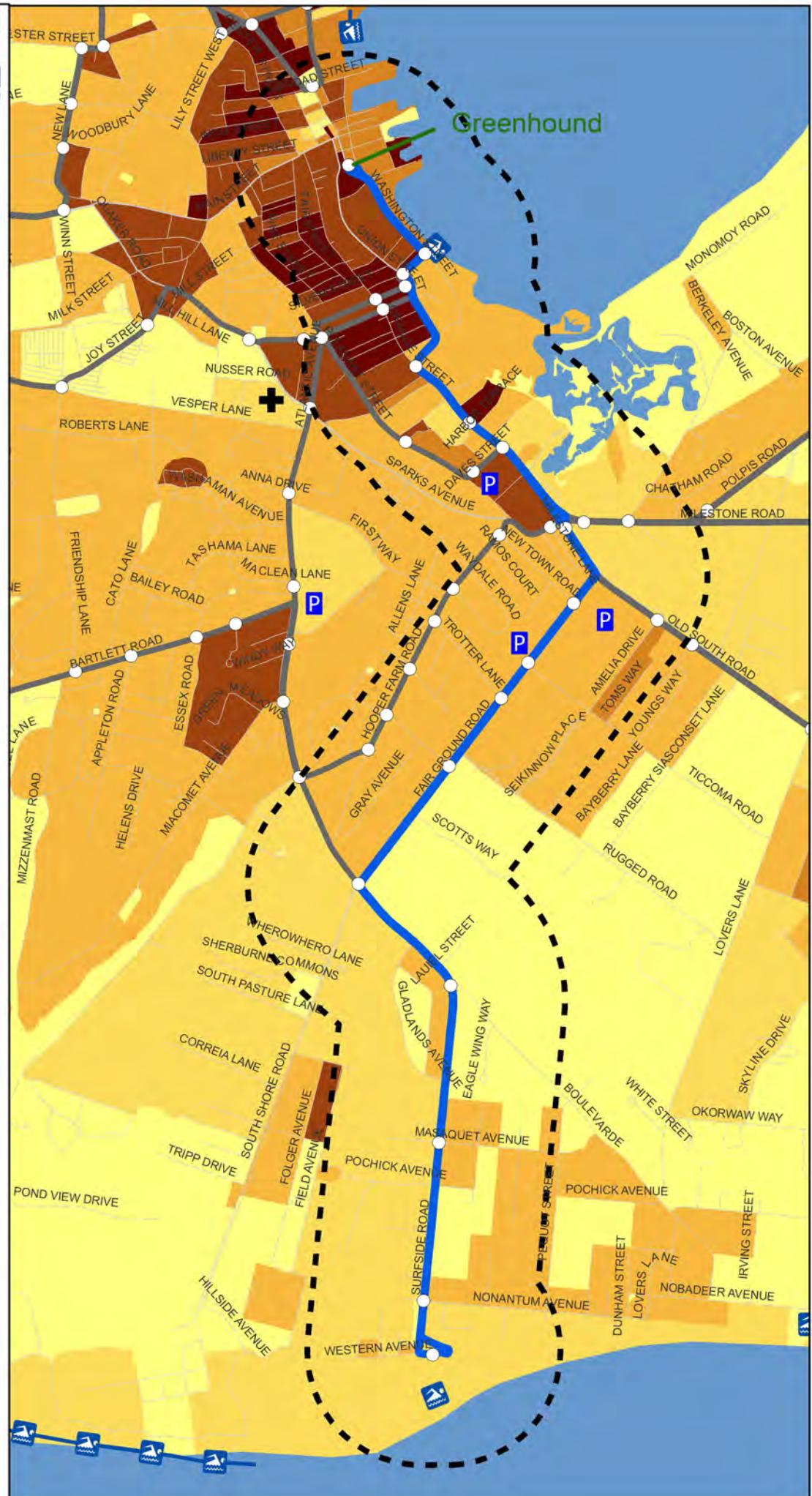
✚ Hospital

P Park & Ride Lot

0 0.125 0.25 0.5 Miles

Demand is based on the Housing density, presence of commercial/industrial land uses, and the proximity to beaches, Park & Rides and hospitals.

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Appendix B

Recommendation Memo

Client: Nantucket Regional Transit Authority
Project Name: Comprehensive Service Assessment
Issue Date: January 27, 2015
To: Paula Leary and NRTA
From: Stephen Gazillo, *URS Corporation*

NRTA Comprehensive Service Assessment – Recommendations

The following outlines the recommendations and alternatives to improve service for NRTA based on the comments received from the November 2014 workshop. Opportunities were identified to encourage non-automobile transportation, provide connectivity, meet the demands of the workforce, and expand service. A table can be found at the end of this chapter which outlines all recommendations by route; additional information and maps have been provided for select routes.

Recommendation Changes, January 2015

Recommendations fall into three general categories: expansion of service hours, schedule timing adjustments and the addition of new service. Through researching the economy of the region it was found that during the summer months there is a large hospitality sector with an influx of seasonal workers. Many of these establishments are open past 11:30 pm when current service ends. Later night service would allow both workers and patrons the opportunity to utilize transit. This may improve parking spot turnover in the downtown as the spots are not occupied by employees of the establishments who cannot use NRTA because the last trip operates before their shift is complete. This need has been reiterated in public comments from 2012 MassDOT Public Hearings, public comments received by the NRTA and from the study advisory committee. Late night service was recommended on routes that served heavily populated areas that currently operate past 6:00 pm and have productivities greater than 20 passengers an hour. Frequency recommendations for service from 11:30 pm to 2:00 am are state in the individual route recommendations.

Service additions grew out of the market analysis research which determined where demand was not being met. Two separate market analysis were conducted for the season and off season. New routes during the season were recommended if there was a demand but no service within $\frac{1}{4}$ mile of a current route. These routes were also based on the practicality of maneuvering a large vehicle in the demand area. A central hub by the ferry terminals was explored but due to the traffic and street network it was determined that the associated costs needed for capital equipment purchases and operating funds did not outweigh the benefits of a multimodal central hub at this time. It was determined that the ferry docks were within the standard transit $\frac{1}{4}$ mile walking distance of the current hubs (Greenhound and the Whaling Museum). Service hours and frequencies were based on the type of service currently being provided. Off-season recommendations were based on the presence of demand and routes which operate in the shoulder season. All service additions were taken into consideration in conjunction with public comments from the 2012 MassDOT Public Hearing and comments received by the NRTA.

Mid Island Loop

Service has been expanded to 2:00 am on this route in order to accommodate the hospitality industry workers. After 11:30 pm we recommend that the frequency of service change from every 15 minutes to every 30 minutes. This route is a candidate for off-peak service, for more information, please see “Off Season Service” below.

Sconset via Old South Road Route

Service has been expanded to 2:00 am on this route in order to accommodate the hospitality industry workers. This route is a candidate for off-peak service, for more information, please see “Off Season Service” below.

Madaket Route

Service has been expanded to 2:00 am on this route in order to accommodate the hospitality industry during peak season. After 11:30 pm we recommend that the frequency of service change from every 30 minutes to every 60 minutes.

Sconset via Milestone Road Route

There are no recommendations for this route.

Ferry Connector Route

We recommend discontinuing marketing this route as a separate route from the Airport Route and to promote the two as one new route using the current alignment on the current midday Airport Route during peak season.

Ferry /Airport Connector Route

We recommend discontinuing marketing these routes as two separate routes and to operate and market them as one all day route. This would expand service to the airport from 10 AM – 6 PM to 7 AM to 8 PM during the peak season. This would add service along Old South Road, a region with higher population densities, in the morning and evening. During the shoulder seasons service would run every 20 minutes. This would add service to the airport during the shoulder seasons which currently does not exist. To do this and maintain a 60 minute frequency would require 3 vehicles.



Miacomet Loop

Service has been expanded to 2:00 am on this route in order to accommodate the hospitality industry workers. After 11:30 pm we recommend that the frequency of service change from every 20 minutes to every 30 minutes. This route is a candidate for off-peak service, for more information, please see "Off Season Service" below.

Surfside Beach Route

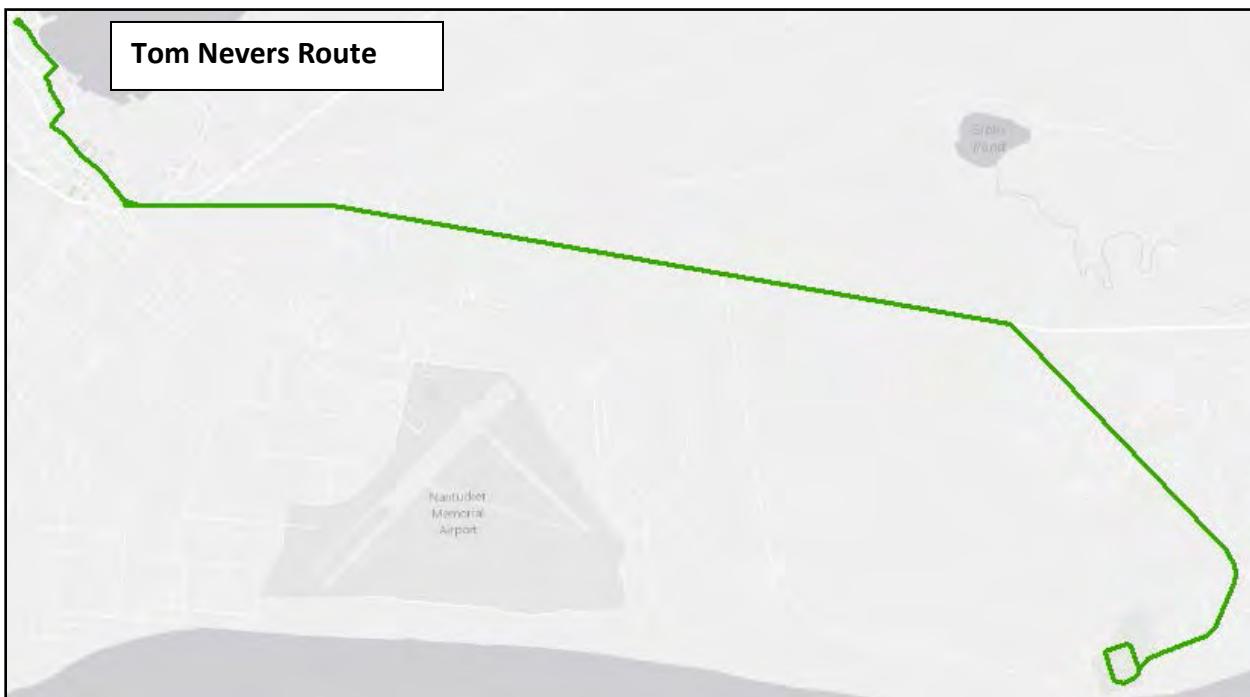
There are no recommendations for this route.

Jetties Beach Route

This route has been extended to 11:00 pm to accommodate evening events.

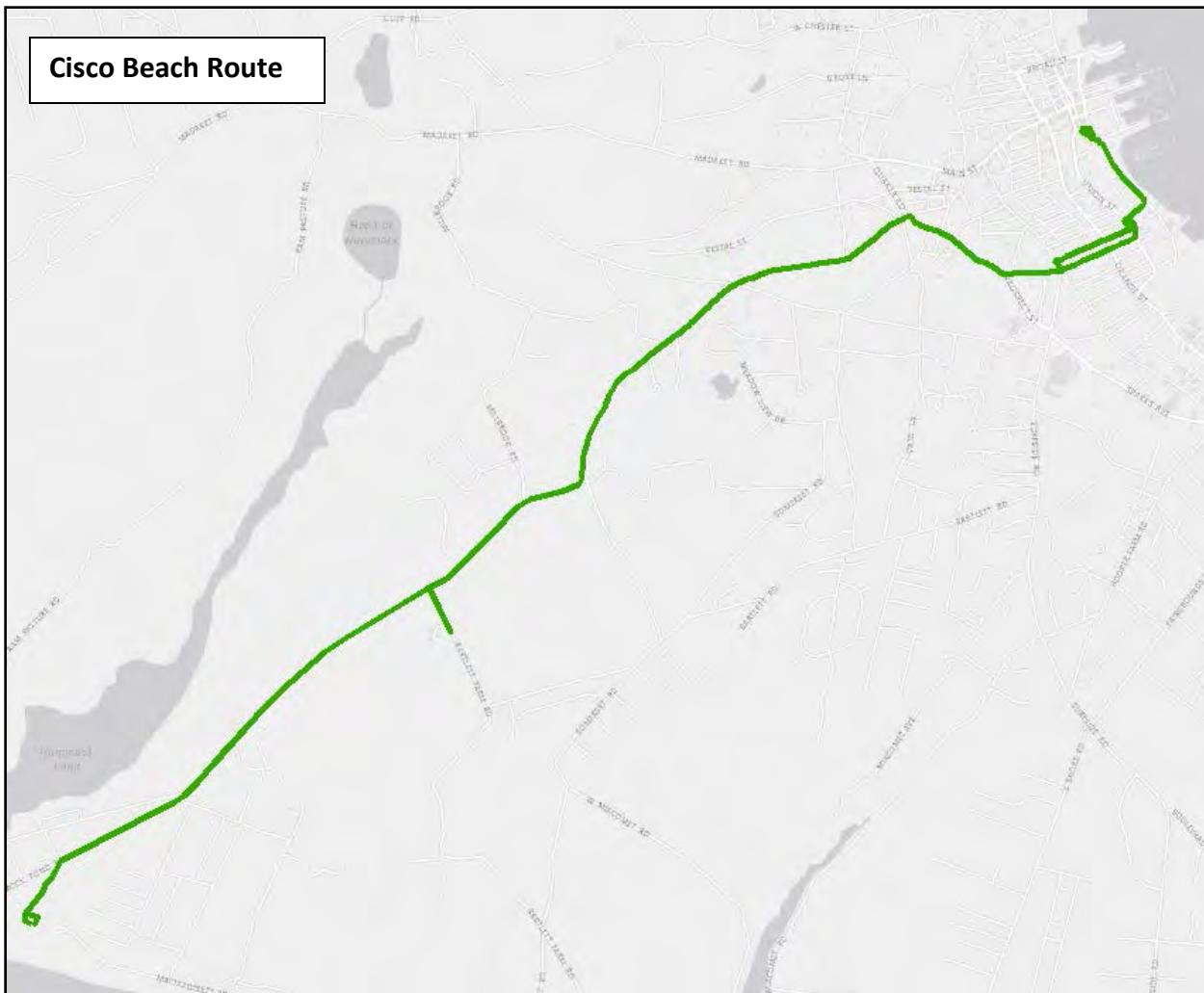
Tom Nevers by Milestone Road Route

This is a new route which would run in the peak and shoulder seasons from 7:00 am to 11:30 pm with 60 minute headways. This route would travel between Washington Street and Tom Nevers Road along Orange Street, Milestone Road and Tom Nevers Road. It would require one additional vehicle, a newly established downtown bus stop and construction of a turn-around area at the end of Tom Nevers Road. It could potentially share a downtown bus stop with the Cisco Beach Route by operating on opposite schedules.



Cisco Beach Route

This is a new route which would run in the peak season from 9:30 am to 6:30 pm with 60 minute headways. It would travel between Washington Street and Cisco Beach along York/Dover Street, Prospect Street, Mile Street Extension and Hummock Pond Rd. It would require one additional vehicle, a newly established downtown bus stop and construction of a turn-around area at the end of Hummock Pond Road. It could share a downtown bus stop with the Tom Nevers Route by operating on opposite schedules.



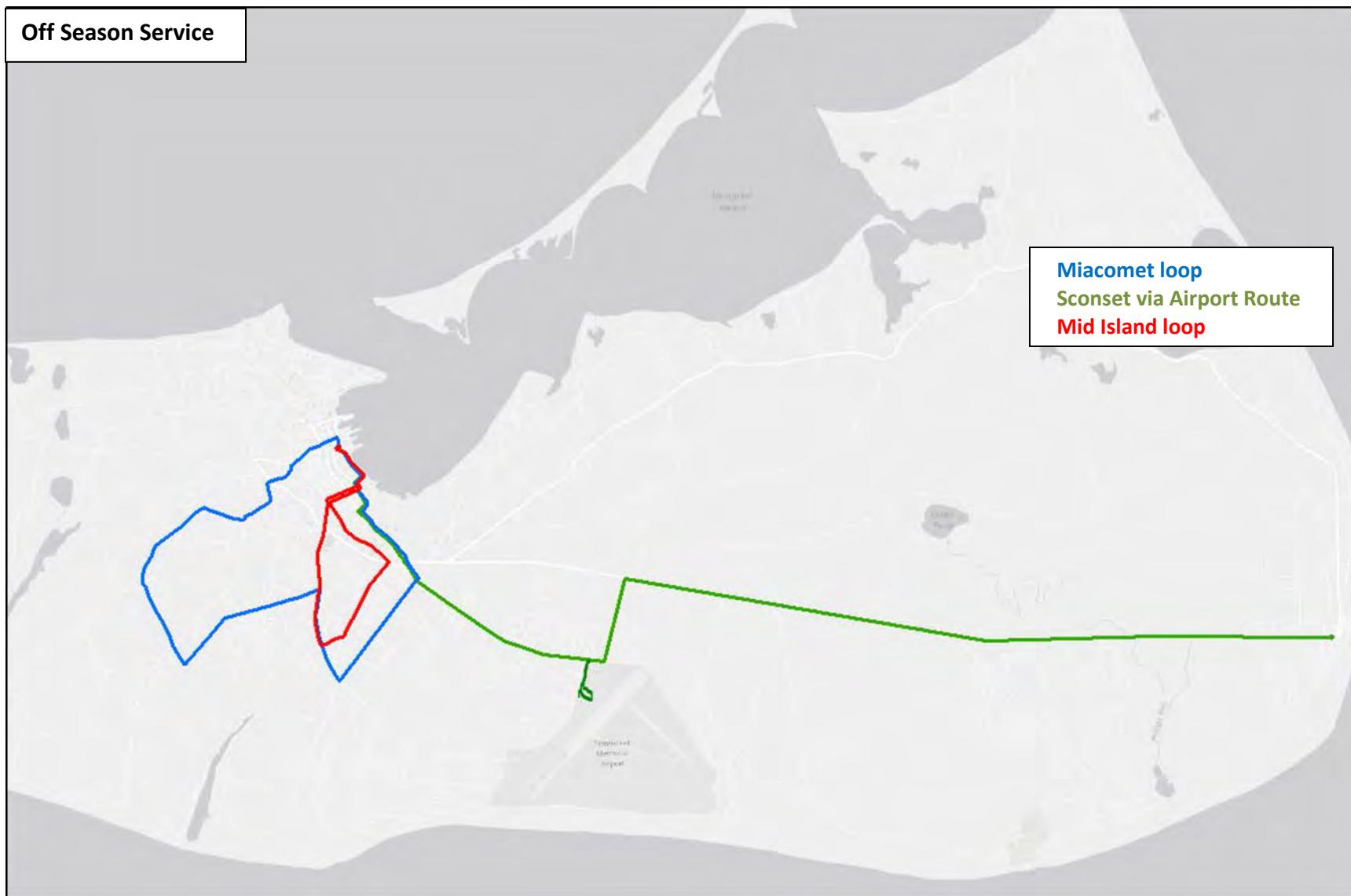
Sconset via Polpis Road Route

The service hours and schedule on this route have been adjusted by 20 minutes in order to share a bay on Washington Street at Greenhound and free up a space for the new Cisco and Tom Never route to share. The first bus will depart Greenhound at 10:20am and the last will depart Sconset at 5:40 pm

Off Season Service

A Mid Island/Miacomet combination loop was explored but was determined infeasible with a 30 minute frequency without losing service to the schools. The following three routes are recommended for off season service. Miacomet and Mid Island would follow their current alignments. Sconset via Old South would service the airport both inbound and outbound between 10 AM and 6 PM.

Route	Service span	Frequency
Miacomet loop	7 AM – 9 PM	30 Min
Sconset via Airport Route	7 AM – 9 PM	60 Min
Mid Island loop	7 AM – 9 PM	30 Min



Page intentionally left blank

MEMORANDUM

Bus Route	Alignment	Schedule	Phase 1	Phase 2	Phase 3
Mid Island Loop	No change	-Service span 7 AM to 2 AM peak season - Winter season service 30 minute frequency 7 AM to 9 PM	-Extend service span		-Winter season service
Miacomet Loop	No change	-Service span 7 AM to 2 AM peak season -Winter season service 30 minute frequency 7 AM to 9 PM	-Extend service span		-Winter season service
Sconset via Old South Road Route	No change	-Service span 7:15 AM to 2 AM peak season -Winter season service 60 minute frequency 7:15 AM to 8:15 PM	-Extend service span		-Winter season service
Madaket Route	No change	-Service span 7 AM to 2 AM peak season	-Extend service span		
Sconset via Milestone Road Route	No change	No change			
Fast Ferry Connector	Route discontinued, replaced with Airport/ Ferry Connector Route	No service	-Discontinue route		
Airport Connector Route	Route discontinued, replaced with Airport/ Ferry Connector Route	No service	-Discontinue route		
Airport / Ferry Connector Route	Combine Airport and Fast Ferry into one route	-Peak season service 20 minute frequency 7 AM to 8 PM -Shoulder season service 30 minute frequency 7 AM to 8 PM	-Implement peak season route -Implement shoulder season service		
Surfside Beach Route	No change	No change			
Jetties Beach Route	No change	-Service span 10 AM to 11 PM peak season	-Extend service span		
Sconset via Polpis Road Route	No change	-Adjust timing of route by starting 20 minutes later.		-Adjust timing	
Cisco Beach Route	New Route serving Cisco Beach	-Peak season service 60 minute frequency 9:30 AM to 10:30 PM		-Implement service	
Tom Nevers via Milestone Road Route	New Route serving Tom Nevers from Nantucket via Milestone Road	-Peak and shoulder season service 60 minute frequency 7 AM to 11:30 PM		-Implement service	

Appendix C

Public Outreach

PUBLIC OUTREACH

One of the primary goals of the Regional Transit Plan (RTP) was to identify alternatives and recommendations that would result in improvements to the system for existing riders and potentially attract new riders. The NRTA formed a Study Advisory Committee (SAC) that represented key stakeholder groups within the community, as required by the legislation, and provided review and comment on chapters of the document as they were produced. In developing the RTP, public comments received from previous public outreach efforts within the last two years were utilized. The public input received from these efforts helped form the goals of the RTP.

STUDY ADVISORY COMMITTEE

As dictated by the Transportation Finance Bill, NRTA has formed and supported the development of a SAC to guide the development of this plan. The NRTA reached out to representatives that included local employers and business members, the regional planning agency, labor organizations, and transit riders. A complete list of committee members organizations/group represented on the SAC can be found in Table 1.

Table 1. Study Advisory Committee Members

Organization
Nantucket Regional Planning Agency, Transportation Planner
Nantucket Island Chamber of Commerce, Executive Director
Local Employer, Executive Director
Advocate of Public Transit, reMain Nantucket
Transit Rider

As chapters became available the SAC reviewed and provided comments on the documents. Members of the SAC did not feel it was necessary to meet as they reviewed the chapters. The SAC met after the public comment period for the various chapters. The times, dates and locations of these meetings can be found in Table 2.

Table 2. Study Advisory Committee Meetings

Date	Location
03/5/15	NRTA Administrative Office
6/22/2015	reMain Nantucket Office

PUBLIC INVOLVEMENT

For the public outreach effort, the NRTA partnered with the Nantucket Regional Planning Agency as its Regional Transportation Plan was being updated and attended meetings of various councils and commission for input to both the Regional Transportation Plan and the NRTA's Regional Transit Plan.

The Regional Transportation Plan update examined all modes of transportation, including transit. The Regional Transit Plan focused solely on fixed route services. The Regional Transportation Plan update included comments received from organization and consumer surveys conducted, specific to Nantucket, in the summer of 2014 by the Cape and Islands Regional Coordinating Council. The meetings attended can be found in Table 3 .

Table 3. Public Involvement Attended Meetings

Public Involvement Attended Meetings
January 7, 2015 and February 4, 2015 Nantucket Council on Aging
January 13, 2015 Commission on Disability
January 13, 2015 Visitor Services Advisory Committee
January 15, 2015, NP&EDC
January 22, 2015 Council for Human Services
February 19, 2015 Nantucket Healthy Community Collaborative – via email (meeting cancelled due to weather)

In addition, the NRTA solicited comments from the general public for the public review period through public notices in the local newspaper, announcement at the televised NRTA Advisory Board meeting, notification and postings on the NRTA's website. The Chapters were made available on the NRTA's website and it's Administrative Office. In addition to the above, public notice and documents were sent to various groups and associations as shown in Table 4.

Table 4. Public Notice and Document Distribution

Public Notice and Document Distribution List
Nantucket Visitor Services Advisory Committee
Chamber of Commerce Member e-Bulletin Blast
Nantucket Downtown Business Association
Nantucket Council on Aging
Commission on Disability
Council for Human Services
Nantucket Healthy Community Collaborative

The NRTA Advisory Board held a public hearing on June 24, 2015 at 5:45 p.m. in the community room of the Public Safety Facility. The NRTA Administrator unveiled its Regional Plan through a power point presentation. Comments were then taken from the public and board members. The NRTA Advisory Board voted unanimously to accept the Nantucket Regional Transit Authority's Regional Transit Plan.

Paula Leary

From: Leslie Malcolm [lmalcolm@nantucketatheneum.org]
Sent: Monday, January 26, 2015 3:19 PM
To: Paula Leary
Subject: Transit Plan comments

Follow Up Flag: Follow up
Flag Status: Flagged

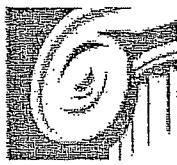
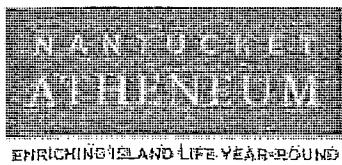
Hi Paula,

I was pleased to be able to read through the Regional Transit Plan that you made available on your website. I was even more pleased to read Goal 3 under section 2.2 "NRTA Goals and Objectives." As a public library we are always looking outward with the objective of not only making our services available to as many members of the community as possible, but also identifying needs within the community and strategizing ways to help. During this process I've come to realize that many members of our Spanish speaking population do not own cars thus making them one of the "transit dependent populations" that you are looking for. It makes it difficult when designing programs for this group and we hear time and time again "We'd love to come, but we don't have a car." Combine this issue with the conversations I regularly have with staff at NES about their push to teach students English and develop solid reading skills and I think a case can be made for a genuine and urgent need for year-round NRTA service to the downtown area.

I hope it happens soon! In the meantime, thank you Paula for all that you do. The NRTA line is so helpful to so many and I'm thrilled at the prospect of the service expanding. Bringing these populations into the library is also a wonderful way to help them feel more at home in this community and provide them with support. I'm glad that NRTA is working towards that inclusiveness too!

Best regards,

Leslie



Leslie Malcolm | Head of the Weezie Library for Children
1 India Street, PO Box 808, Nantucket MA 02554 | (508) 228-1110 x104 | Fax (508) 228-1973 | lmalcolm@nantucketatheneum.org
CONFIDENTIALITY NOTICE: This communication is confidential, may be privileged and is meant only for the intended recipient.
If you are not the intended recipient, please notify the sender ASAP and delete this message from your system.

Please consider the environment before printing this e-mail.

Paula Leary

From: Mike Burns
Sent: Tuesday, February 03, 2015 12:39 PM
To: Paula Leary
Subject: RE: Council on Aging

OK.

I just heard some concerning story from a stop and shop employee without a car who takes cabs to/from work and really wanted the year round service. Not too logical to pay \$20 round trip for cab rides while making \$10/hr for a part time shift, but that's their option.

T. Michael Burns, AICP
Transportation Planner
Nantucket Planning Office
2 Fairgrounds Road
Nantucket, MA 02554
Phone: 508-325-7587x7011
Direct: 508-228-7238
FAX: 508-228-7298

From: Paula Leary
Sent: Tuesday, February 03, 2015 12:11 PM
To: Mike Burns
Subject: RE: Council on Aging

No not yet – they were supposed to have one more meeting before it was decided but then the change of gov happened and the storms so I'm sure this isn't high on the list.

From: Mike Burns
Sent: Tuesday, February 03, 2015 11:42 AM
To: Paula Leary
Subject: RE: Council on Aging

Anything recently regarding the year round service study?

T. Michael Burns, AICP
Transportation Planner
Nantucket Planning Office
2 Fairgrounds Road
Nantucket, MA 02554
Phone: 508-325-7587x7011
Direct: 508-228-7238
FAX: 508-228-7298

From: Paula Leary
Sent: Tuesday, February 03, 2015 11:26 AM
To: Mike Burns
Subject: Council on Aging

We said we'd go to their meeting again tomorrow right?

Paula Leary

From: Sheri Hunt [Sheri.Hunt@escci.org]
Sent: Wednesday, February 04, 2015 2:41 PM
To: Paula Leary
Cc: Mike Burns
Subject: transportation meeting

Many thanks to both of you for taking the time to meet with me and afford me the opportunity to comment.

My comments are below and hope that this assist's you, both with your mission and continued work in the community.

Paula

- 1) For the NRTA Senior Bus service it would be helpful if the bus was able to run until 5 pm. Often PCP appointments are not scheduled until later in the day. The Food pantry does not open until 4 pm.
- 2) With the addition of many Mass. General physicians seeing patients at Nantucket Cottage hospital there are frequently weekend appointment's, perhaps adding a Saturday bus would be helpful. And we have received many calls for disabled and elders coming onto the island for events needed handicapped transportation on the weekends.
- 3) It would be beneficial for the Fixed Route Service to have a year round service, mid island would seem to be the area that could most benefit from that service. Many who provide services to seniors rely on the bus service and when the season is over they are without transportation which can affect the delivery of service to the seniors. Many seniors who do not qualify for the door to door would also use the fixed route if available on a year round basis.
- 4) The ability to continue the Fast Ferry Connector could also benefit the community on a year round basis, for those traveling off the island for more than one day.

Mike

- 1) The lack of a continuation of sidewalks on the right side of upper Orange Street is a concern. When walking it ends at the rotary where you then need to cross a main road to walk on the left side bike path and then cross the main road again to reach Fairgrounds Road. Many continue to walk on the right shoulder which endangers them and the drivers on the road.
- 2) The rotary at Hooper Farm is difficult because of the Sparks avenue entrance, needs to be addressed as the traffic continues to enter from that side with no stop or yield making it very difficult for others to enter the rotary. Is there proper visible signage there?
- 3) There are no sidewalks on many streets, greatly endangering walkers even in good weather.
- 4) With the greatly increased population leading to more automobiles the need for speed bumps in many mid island areas should be invested in. There are increased children and pets and the increased speed puts them in danger.
- 5) Maintaining appropriate signage and freshly painted crosswalks would assist in ease of crossing many streets. I have personally observed the failure of traffic to stop for elders attempting to cross Orange Street from the Elder Apartment Building.
- 6) Ensuring that side roads without sidewalks do not have boats, cars etc. along the shoulders forcing walkers and animals into the road. Is there current law to address these types of issues that the NPD could enforce more regularly? Public Education??
- 7) Many side roads do not have appropriate Street Lights which also endangers walkers and animals as well as drivers who have reduced vision due to lack of lighting.

- 8) With the recent winter storms and the tragedy that has occurred the importance of snow removal also becomes foremost in many residents minds. What are the laws regarding snow removal on the bike paths?
- 9) Bike Paths that end with nowhere but to continue into the road, they need to have better connectivity.

Thanks again.

Sheri

Sheri A. Hunt

Director of Services for Nantucket Office

Care Manager

Nantucket Office of Elder Services

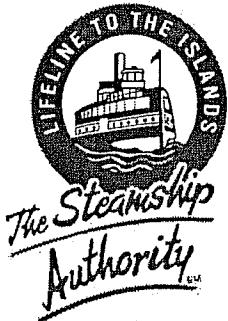
144 Orange Street

Nantucket, MA 02554

P=(508) 228-4647

F=(508)325-0499

Sheri.hunt@escci.org



Woods Hole, Martha's Vineyard and Nantucket Steamship Authority

AUTHORITY MEMBERS

MARC N. HANOVER
Martha's Vineyard Member, Chairman
JOHN A. TIERNEY
New Bedford Member, Secretary
ROBERT F. RANNEY
Nantucket Member
ROBERT L. O'BRIEN
Barnstable Member

WAYNE C. LAMSON
General Manager
ROBERT B. DAVIS
Treasurer/Comptroller
STEVEN M. SAYERS
General Counsel

February 27, 2015

Ms. Paula Leary, NRTA Administrator
Nantucket Regional Transit Authority
3 East Chestnut Street
Nantucket, MA 02554

Dear Ms. Leary:

Thank you for the opportunity to provide public comment on NRTA's Regional Transit Plan dated December 2014. We appreciate NRTA's recent efforts in conducting a comprehensive assessment of its current level of fixed-route service and for going through the process of examining the possibilities for new service markets that can best accommodate the transit-dependent population on Nantucket including residents, workers and visitors.

The Steamship Authority (SSA) is a public instrumentality that was created by the Commonwealth of Massachusetts to fulfill an essential governmental function of providing adequate transportation of persons and necessities of life for the islands of Nantucket and Martha's Vineyard. The SSA is the largest transportation provider serving the island. In 2014, the SSA carried over 600,000 passengers and over 110,000 vehicles on its vessels to and from Nantucket. During the summer months, the SSA operates 5 round trips per day with its high speed passenger-only ferry, a combined 6 round trips per day with its traditional passenger/vehicle ferries and 3 round trips per day with a freight vessel that also carries cars and passengers.

In the Plan, it is stated that that NRTA's transit system is designed to predominantly serve tourists, seasonal workers, year round residents and second home owners during the summer months and yet there has never been any fixed route connection with our ferry terminal. By contrast, NRTA provides fixed route service to the Nantucket Memorial Airport every 20 minutes on its so-called Airport route.

The comparable monthly passenger totals for the SSA and the Airport during the months of May through October in 2014 are provided below. Since the Airport's reported passenger totals are based on the number of passenger enplanements only, the SSA's monthly passenger totals have been adjusted to represent only the number of passengers carried from Nantucket.

Number of Passengers Carried from Nantucket – 2014

	SSA Nt to Hy	Nantucket Airport Passenger Enplanements
May	29,031	14,230
June	38,400	19,841
July	54,911	32,285
August	59,604	35,503
September	31,971	19,247
October	24,826	11,561
Total	238,743	132,667

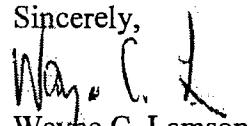
Based on the above totals, the SSA carried over a 100,000 more passengers from Nantucket last season than all of the island and regional airlines combined.

If traffic congestion around the SSA's terminal and the downtown area is the reason for not providing this much needed intermodal connection, I submit that some of this traffic could be reduced if a fixed route service was provided to serve those ferry passengers being dropped-off or picked-up.

The Martha's Vineyard Transit Authority provides year-round fixed route service to and from our terminal in Vineyard Haven and seasonal service to and from our terminal in Oak Bluffs. If year-round service is not viable on Nantucket, NRTA should seriously consider at least a seasonal route to serve our ferry passengers.

The SSA provided partial financial support for the Ferry Connector Park 'n Ride Shuttle Service that was offered by NRTA last year on a trial basis. In my opinion, the continuation of this service will be unsustainable if an alternative long term funding source cannot be identified and secured.

Thank you again for allowing us to submit these written comments on NRTA's Regional Transit Plan. We look forward to working with you to achieve our mutual goals and objectives of serving the transportation needs of Nantucket residents, workers and visitors.

Sincerely,

Wayne C. Lamson
General Manager

Cc: Robert F. Ranney, Nantucket Authority Member
Nathaniel E. Lowell, Nantucket Port Council Member

Paula Leary

From: Joe Aguiar [joeaguiar21@gmail.com]
Sent: Tuesday, June 16, 2015 9:00 PM
To: Paula Leary
Subject: Re: NRTA Regional Transit Plan - Public Review and Comment Chapters 5-8

I have personally reviewed the documents you provided and commend you on the completeness of your work

Joe

Sent from my iPad

On Jun 16, 2015, at 10:04 AM, Paula Leary <nrtawave.com> wrote:

Hi Joe – the NRTA has released Chapters 5 thru 8 of its Regional Transit Plan for public review and comment. The public review and comment period ends on June 23rd and a public hearing before the NRTA Advisory Board will be held on June 24th at 5:45 pm at the police station if anyone is interested in attending.

I have attached Chapters 5 thru 8, if you could please forward to the members of the Council on Human Services. Any and all comments are welcome. Written comments can be addressed to me, Paula Leary, NRTA Administrator, 3 East Chestnut Street Nantucket, MA 02554 or nrtawave.com

I've also attached the public review and comment notice and public hearing notice. All is available on the NRTA's website at www.nrtawave.com

If you or anyone has any questions please feel free to contact me.

Thank you

Paula Leary
NRTA Administrator
3 East Chestnut Street
Nantucket, MA 02554
(508) 325-0788 (fax)
nrtawave.com
www.nrtawave.com

<NRTA RTP Chapter 5 Fare Rates and Collection Methods.pdf>

<NRTA RTP Chapter 6 Environmental.pdf>

<NRTA RTP Chapter 7 Recommendations.pdf>

<NRTA RTP Chapter 8 Conclusion.pdf>

<Publiccommentandreviewpublicnotice62015.doc>

<6242015publichearingfinalrtp.doc>

June 18, 2015

NRTA

COMMENTS WITH RESPECT TO YOUR ANNUAL PLAN

- 1) I find it difficult to assemble when sent by electronic mail
- 2) can I buy a paper copy?

I see nothing in the way of an overall traffic plan, no capes on
Steamship Ferry Landing and any provision for the implementation of
a scaled Excise tax.

I think it is an accepted fact that the Island Traffic System is overloaded.

Thanx

William Kuntz, III

Paula Leary

From: Bill Trampesch [wtrampesch@nha.org]
Sent: Friday, June 19, 2015 2:12 PM
To: Paula Leary; Michael May; Mike Burns; Rachel Hobart
Subject: RE: NRTA RTP SAC mtg

Thanks again for sending this information, Paula. I like what I see and have no significant comments that would improve it. Nice job. Sorry to miss the meeting. Best., B

Bill Trampesch
Gosnell Executive Director
Nantucket Historical Association

From: Paula Leary [<mailto:nrtaw@nantucket-ma.gov>]
Sent: Tuesday, June 16, 2015 4:32 PM
To: Michael May; Mike Burns; Rachel Hobart; Bill Trampesch
Subject: NRTA RTP SAC mtg

Hi All – sorry for the delay in getting back to everyone about meeting. I hope 11:00, June 22nd still works for everyone to meet. I don't expect it to take long.

I am attaching Chapters 5 thru 8 that is currently out for public review and comment until the 23rd. The public hearing is scheduled for the 24th at 5:45 p.m. at the police station.

All chapters are on the NRTA's website if you wish to review them.

Rachel – would your office be available for us to meet at? The conference room at my office is now a file room.

Bill – I know you won't be able to join but if you have any comments please feel free to pass along.

Thanks

Paula

Paula Leary

From: Christy Evans [cmjxx@aol.com]
Sent: Sunday, June 21, 2015 1:44 PM
To: Paula Leary
Subject: Yes!! Love NRTA to Cisco

Given the lack of parking at Cisco beach, please add Cisco to a stop on your loops! It is greatly appreciated & needed.

Christy Evans

Sent from my iPhone

Paula Leary

From: Carol Langer [carollanger@comcast.net]
Sent: Sunday, June 21, 2015 1:10 PM
To: Paula Leary
Subject: NRTA Service to Cisco

To whom it may concern,

I am writing to express my support for NRTA service to Cisco. The beach is one of the most popular on the island, and the businesses along the route, including Bartlett's Farm, Cisco Brewery and 167 Seafood, draw many customers to the area. The popularity of the new bike path is a testament to the fact that people want and need transportation alternatives to the neighborhood. Likewise, the residents of the area would gladly leave their cars at home and take the Wave into town for lunch or shopping if it was available. Yes, please institute this service as soon as possible!

Sincerely,

Carol B. Langer
7 Heller Way
Nantucket, MA 02554
508-825-9941
781-608-4680 - cell

Paula Leary

From: Dan Sparks [sparks41@gmail.com]
Sent: Sunday, June 21, 2015 7:18 PM
To: Paula Leary
Subject: Proposed Cisco Bus Route Addition

I am an owner of a house in Cisco – 8 Mattapoisett Avenue. I want to express my support for the proposed service. I think it would be great for many reasons, especially because it would reduce the need for so many people to drive to the popular beach. It would also be very helpful to Cisco residents and visitors, and would reduce the amount of cars in town that come from people staying in Cisco.

Thanks,

Dan Sparks

Daniel L. Sparks
sparks41@gmail.com
(917) 680-4822

Paula Leary

From: jimburruss@aol.com
Sent: Sunday, June 21, 2015 11:49 PM
To: Paula Leary
Subject: NRTA Service to Cisco

I strongly support NRTA service to Cisco.

PLEASE! PLEASE! PLEASE!

Jim Burruss
5 Ishmael Road/10 Heller Way
Mobile #: 857-998-0616

Paula Leary

From: Steve Jennings [smjennings61@gmail.com]
Sent: Monday, June 22, 2015 2:51 AM
To: Paula Leary
Subject: Bus service to Cisco

Dear NRTA
We live at 1 Saccacha Avenue in Cisco and we are very supportive of extending bus service to the area.
Thank you,
Steve Jennings and Monica O'Neil

Sent from my iPad

Paula Leary

From: Bob Volpe [rpvolpe@aol.com]
Sent: Tuesday, June 23, 2015 2:13 PM
To: Paula Leary

Great idea to extend the bus service out to the Cisco area! We can all help to alleviate the heavy downtown traffic condition by leaving our cars home - please pass this resolution.

Sincerely, Bob and Fran Volpe

Sent from AOL Mobile Mail

Comments from MindMixer:

To be considered: Who is the ridership & their schedules?

AUTHOR Patricia S DETAILS Employees vs. visitors - I often hear that once an hour bus route at commuting hours getting into downtown a few minutes after the hour doesn't work for employees - do buses need to be more frequent at commuting hours and would that get more workers using the bus system? Who is the NRTA catering to?

Unique island road system - main routes vs. communities off them

AUTHOR Patricia S DETAILS Are routes able to accommodate enough communities off the current main routes? Example: stop at end of Tom Nevers community may not be of help to most in that community because it is such a long distance just to get to the bus stop with no parking, bike racks, etc. at the stop. How do you accommodate these types of communities?

Chapter 4 is very comprehensive-love to see more work on hours..

AUTHOR Patricia S DETAILS currently bus routes have very limited hours. Chapter mentions briefly the restaurant trade and the fact that buses cannot accommodate those workers because they close down before they are finished working but also many shops stay open later, theatre groups, and those enjoying those venues- chapter opens many questions - no answers!

Chapter 5 - I think the current card system is very user friendly

AUTHOR Patricia S DETAILS our chamber uses the seasonal cards for employees and it has been very helpful each summer. I find it easy to use and efficient. I think with seasonal visitors and short term visitors, the pricing on these cards seems very expedient and a good offering

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Appendix D

Public Hearing Comments

Nantucket Regional Transit Authority

3 East Chestnut Street, Nantucket, MA 02554

Phone: 508-325-9571 • Fax: 508-325-0788 • TTY: 508-325-7516

www.nrtawave.com • nrta@nantucket-ma.gov

NANTUCKET REGIONAL TRANSIT PLAN PUBLIC HEARING JUNE 24, 2015 5:45 P.M.

Comments from the Public

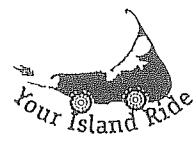
Carol Langer – supports service to Cisco Area

Comments from the Board

Tobias Glidden – Since the RTP supports year round service and a feasibility study is being done and the community supports year round service would the state pay for the service?

Rick Atherton – Relating to the goal to Minimize Car Use on the Island, is there a way to measure or determine the impact the NRTA is having on the number of cars on the island?

Bob DeCosta – Year Round Service should be a goal in the next year, GreenDOT does not address noise pollution – need to look at quieter buses, service to Cisco is supported by the residents in that area but if there is bus service that area will get very busier, busier than it is now.



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Prepared by:
URS Corporation AES
500 Enterprise Drive, Suite 3B
Rocky Hill, CT 06067

URS



the WAVE
Nantucket Regional Transit Authority