JUNE 2020

Transit Strategic Plan

FY 2021-2030

HAMPTON ROADS TRANSIT

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CHAPTER 1

System Overview and Strategic Vision

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Transit Strategic Plan Overview

Hampton Roads' ability to succeed depends significantly on having a well-performing transportation system, including public transportation. This Transit Strategic Plan (TSP) is a blueprint for implementing better transit, over a 10-year horizon, across the region's core area that is served by Hampton Roads Transit (HRT).

Citizens in every city deserve access to safe, reliable, and affordable transportation options. Implementing better transit will more effectively connect communities and businesses across the region, improving access to jobs, healthcare, retail and recreation, and education and workforce training opportunities. New connections, better reliability, and more convenient and faster commutes will be achieved as service improvements are made.

The Transit Strategic Plan is a "living document". It will be updated annually and undergo a major update every five years. This is important to support flexibility for HRT and its partners to make the best use of available resources and to continuously improve and adapt to changes in the mobility marketplace.

In addition to documenting phased improvements based on traditional funding sources and other constraints, Chapter 6 of the TSP documents the new Hampton Roads Regional Transit Program as required by legislation passed by the Virginia General Assembly in 2020. This Program in Chapter 6 outlines transformational improvements to be implemented in the HRT service area with the support of new dedicated regional transit funding that was also approved by the General Assembly in 2020. These improvements are not only consistent with the purposes and requirements outlined in the legislation that authorizes the Hampton Roads Regional Transit Program and Fund, the documented Program also aligns to the service planning principles and framework detailed in **Section 1.2.2** and **Section 1.2.3**.

This includes top regional priorities of providing more reliable inter-jurisdictional bus service, with priority on more service frequency during hours of the day that most commuters are traveling between work and home, in addition to new investments in technology and customer amenities that will significantly improve customer experiences and the effectiveness of regional transit operations.

A new day is dawning for public transportation in Hampton Roads as HRT is embarking on its third decade of operations serving the region. The next 10 years will surely be exciting and filled with new challenges and opportunities. As the agency's Mission and Vision make clear, HRT stands ready to serve as "*a progressive mobility agency that promotes prosperity across Hampton Roads through collaboration and teamwork"* and "*to connect Hampton Roads with transportation solutions that are reliable, safe, efficient, and sustainable."*

1. System Overview and Strategic Vision

1.1. System Overview

This chapter provides a high-level overview of Hampton Roads Transit and the agency's strategic priorities.

1.1.1. Services Provided and Areas Served

Hampton Roads Transit (HRT) serves a 432 square-mile area within the Hampton Roads region (**Figure 1-1**). HRT consists of six member cities: Chesapeake, Hampton, Newport News, Norfolk, Portsmouth, and Virginia Beach, which have a combined population of about 1.35 million.[1] The service area is divided by the James River. The service area south of the river consists of Chesapeake, Norfolk, Portsmouth, and Virginia Beach, commonly referred to as the *Southside*. HRT's service area north of the James River includes the cities of Hampton and Newport News which, together with neighboring communities, are often referred to as the *Peninsula* or *Northside.*

Hampton Roads is home to numerous federal facilities and United States military installations, including Naval Station Norfolk, Joint Expeditionary Base Little Creek – Fort Story, Naval Air Station Oceana, and Joint Base Langley-Eustis. These installations are a major generator of economic activity, with government spending accounting for 30

[1] American Community Survey estimates.

percent of gross domestic product in the Virginia Beach-Norfolk-Newport News Metropolitan Statistical Area in 2017.[2]

This section describes all fixed-route, demand response, ferry, and Transportation Demand Management (TDM) services, as well as the agency's fare system. Additional details about services provided and the areas served are included in **Appendix A.**

Existing Services

Hampton Roads Transit provides five primary services:

- Bus: local, limited-stop, regional express, and seasonal bus (trolley)
- Light rail
- Passenger ferry
- Demand response paratransit
- Transportation Demand Management.

Bus, Trolley, and Light Rail Service

HRT operates 53 local bus fixed-routes – 33 routes on the Southside (**Figure 1-2**) and 20 routes on the Peninsula (**Figure 1-3**). In addition, HRT operates Peninsula Commuter Service (PCS), a limited stop bus service that provides service to major employers on the Peninsula across five different routes. HRT also offers Metro Area Express (MAX) service, a regional express bus service with nine routes traveling across jurisdictions, connecting major employment destinations. HRT operates the distinctly branded Virginia Beach (VB) Wave bus "trolley" service, which is a seasonal service that includes three routes in the Virginia Beach resort area. The agency's fixed-guideway light rail system, "The Tide," operates in the City of Norfolk (**Figure 1-4**).

All HRT-operated bus, trolley, and light rail services are wheelchair accessible. The *HRT Bus Stop Location Policy* also includes ADA design requirements for passenger boarding areas and new bus stop sites.[3]

Demand Response Paratransit

HRT contracts with a private vendor to provide demand response paratransit service for persons with disabilities. This service is offered within three-quarters of a mile of any fixed-route bus service, light rail, or ferry, during HRT's regular operating hours. All users of HRT's paratransit service must be certified through an eligibility application process. Certified customers can schedule a ride by contacting HRT's Paratransit Call Center from 8:00 a.m.–5:00 p.m. or through an online portal. Rides must be reserved by 5:00 p.m. the day prior to requested service and can be made up to seven days in advance.

Passenger Ferry

HRT contracts to provide daily passenger ferry service on the Elizabeth River between Downtown Norfolk and Downtown Portsmouth, stopping at High Street, North Landing, and Waterside (**Figure 1-5**). Ferry service is also provided to the Harbor Park baseball stadium between April and September when the Norfolk Tides (minor league baseball team) play home games.

Transportation Demand Management

HRT facilitates commuters' access to vanpools, carpools, and telework options through TRAFFIX, Hampton Roads' Transportation Demand Management (TDM) program. Through TRAFFIX, commuters can utilize a van owned by a third-party leasing company. In FY 2019, 721 commuters used vanpooling through TRAFFIX. See **Section A.4.7** for details about TRAFFIX.

[2] Bureau of Economic Analysis 2017 GDP by Metropolitan Statistical Area & Industry
[3] HRT Bus Stop Location Policy (July 1, 2019).

Figure 1-1: HRT Service Area

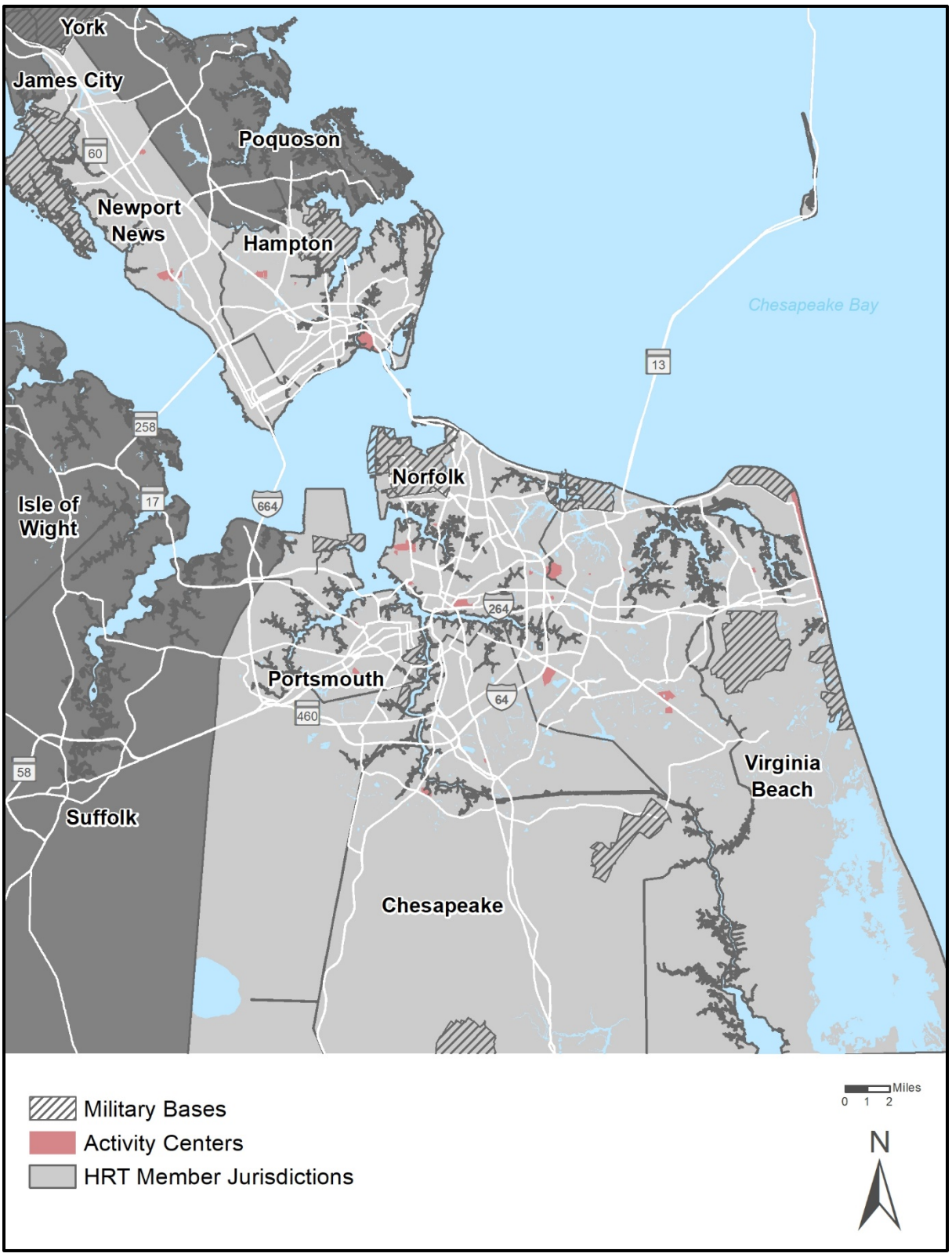


Figure 1-2: Existing Service – Southside

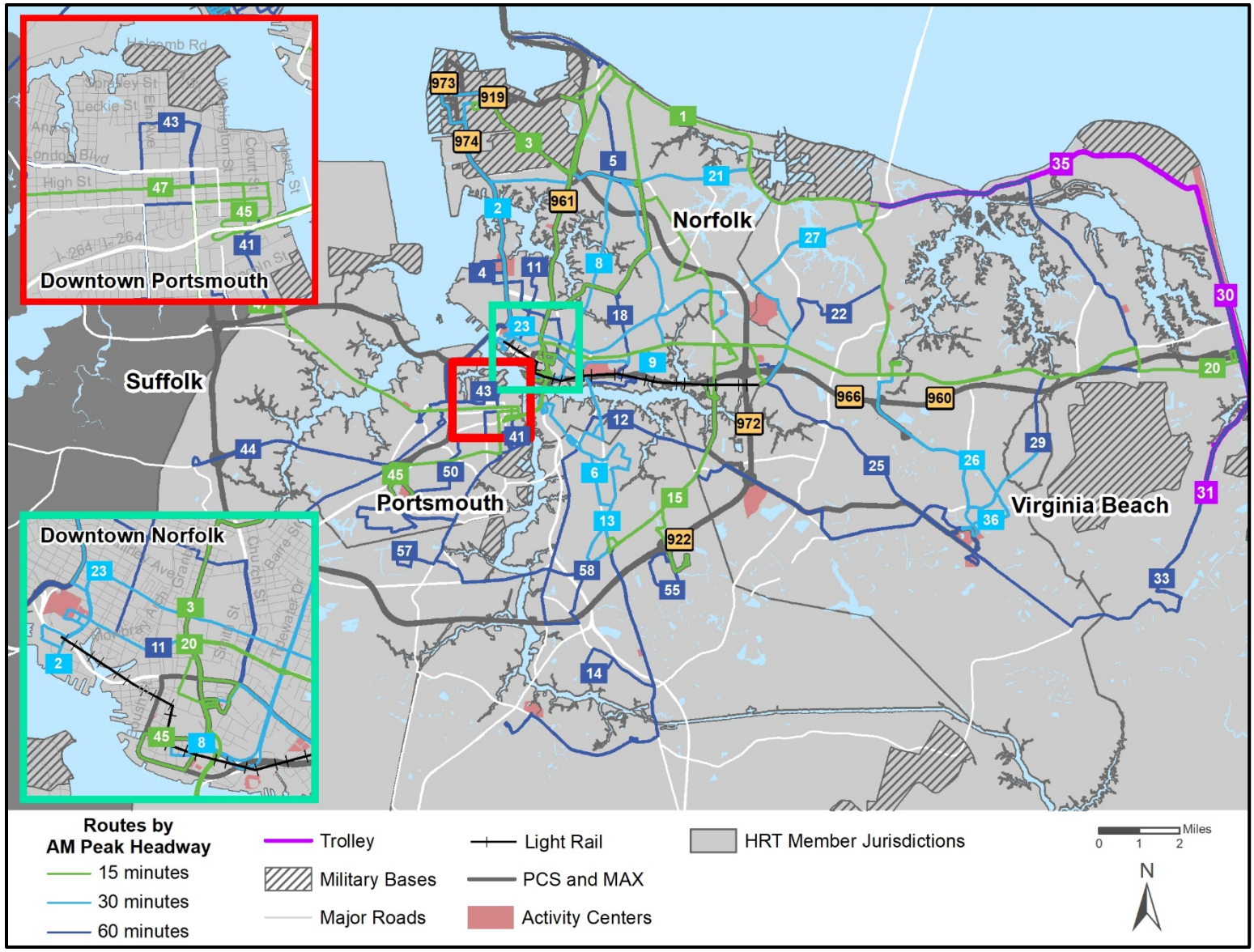


Figure 1-3: Existing Service – Peninsula

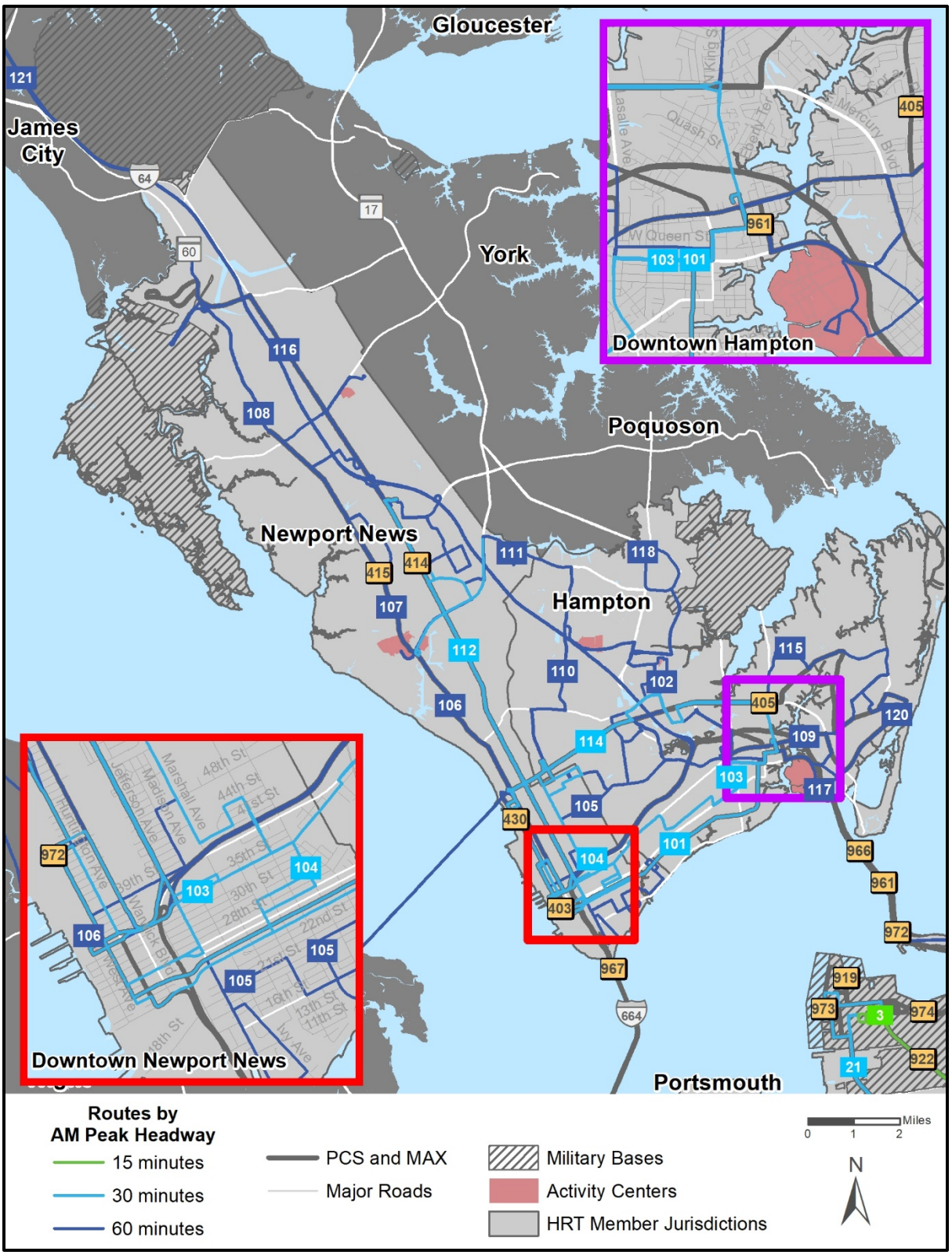


Figure 1-4: Existing Service – Light Rail

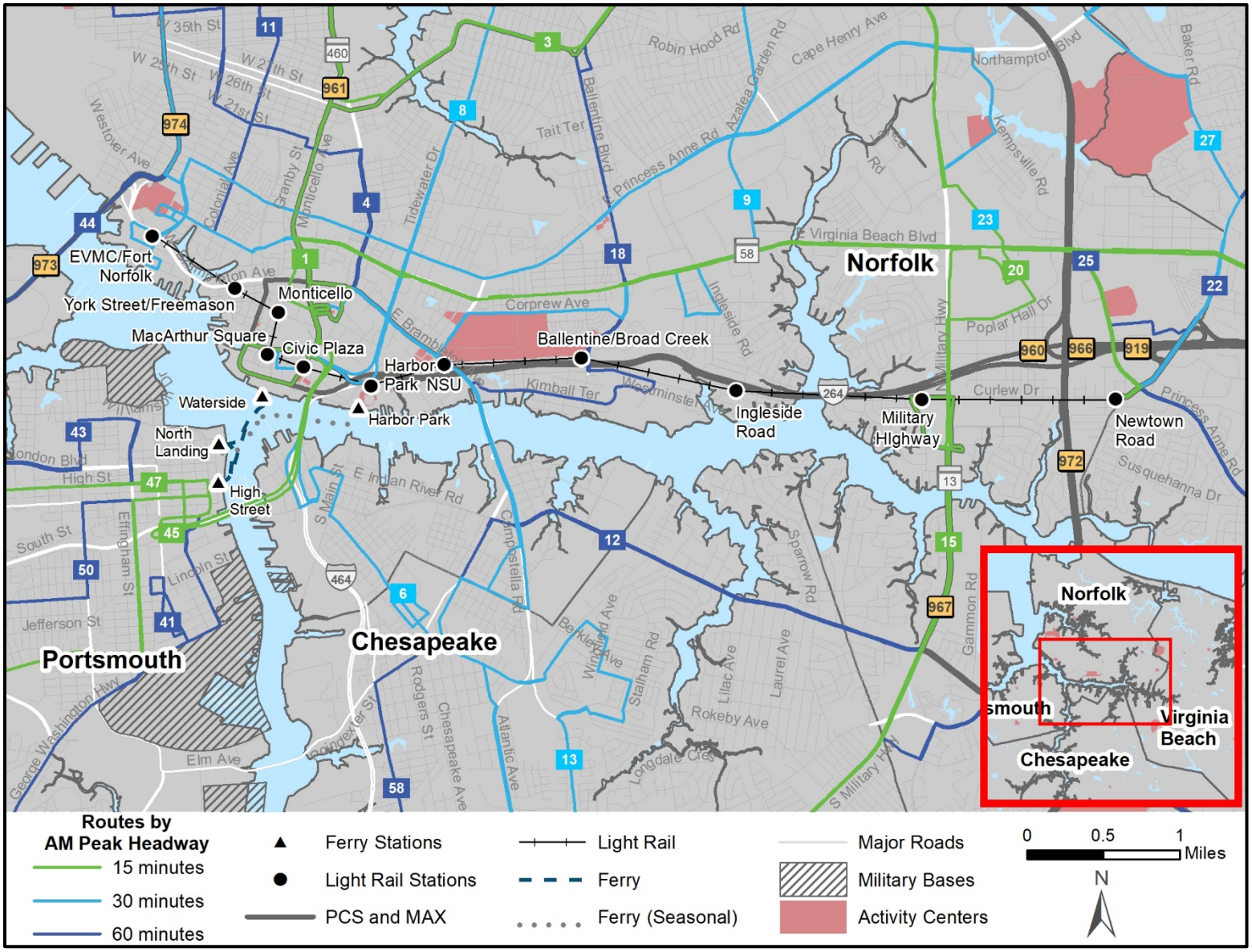
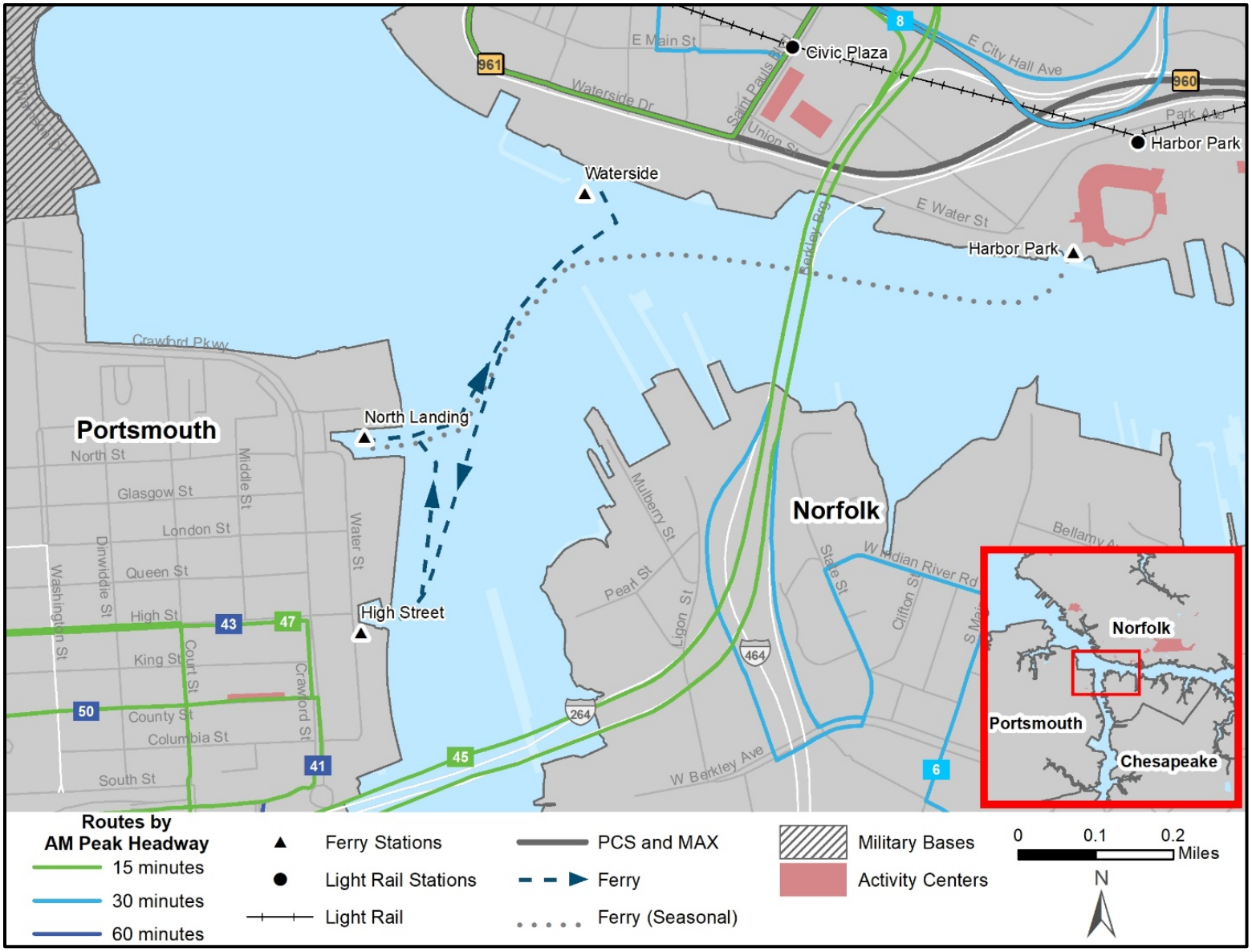


Figure 1-5: Existing Service – Ferry



Existing Fare Structure

Single trip fares and multi-day passes may be used to pay for HRT bus, light rail, and ferry service, as shown in **Table 1-1**. Tickets can be purchased on-board or via ticket vending machines, located at transfer centers and all Tide Light Rail stations. Several retail outlets also sell HRT fare cards, and bulk purchases can be made on the HRT website. Passengers age 18 and older pay the adult fare; senior citizens and persons with disabilities qualify for reduced fare. Children and youth (passengers under 18) can ride for free when accompanied by a fare paying adult or with a Student Freedom Pass. In October 2017, the base fare was raised to $2.00 from $1.75. See **Section A.5** for more details about fares.

Table 1-1: HRT Fares

Ticket/Pass Type	Adult	Discounted Fare
Local Bus, Light Rail, & Ferry		
Cash	$2.00	$1.00
1-Day Pass	$4.50	$2.25
1-Day Pass *(Bundle of 5)*	$21.00	$10.50
7-Day Pass	$22.00	n/a
30-Day Pass	$70.00	$40.00
VB Wave		
Cash	$2.00	$1.00
1-Day Pass	$4.50	$2.25
3-Day Pass	$8.00	$4.00
MAX		
Cash	$4.00	$2.00
1-Day Pass	$7.50	n/a
1-Day Pass (Bundle of 5)	$35.00	n/a
30-Day Pass	$125.00	n/a
Paratransit[4]		
Clients - Cash	$3.50	-
Personal Care Attendant[5]	-	-
Guests - Cash	$3.50	-

[4] Certified paratransit customers are also eligible for free fares on HRT fixed route services (bus, light rail, ferry).

[5] A personal care attendant (PCA) provides personal assistance to disabled passengers and rides on paratransit at no charge. There is no certification process for PCAs, but clients must notify the reservationist if a PCA will accompany them on their trip.

1.1.2. Current/Recent Initiatives

Table 1-2 summarizes HRT's ongoing and recent initiatives which impact the provision of transit services. Additional details can be found in the Appendix in **Section A.12**.

Table 1-2: Summary of Agency Initiatives

Initiative	Summary
Transit Transformation Project	A comprehensive review and planning effort to improve the design and performance of HRT services incorporating new regional standards.
FY 2018 – FY 2027 Transit Development Plan (TDP)	Included a comprehensive analysis of existing service, projected changes in demand for transit service, and made recommendations to improve existing bus routes.
Draft Environmental Impact Statement for High Capacity Transit Extension to Naval Station Norfolk (East Side)	Ongoing alternatives analysis and environmental documentation for various high-capacity transit modes to Naval Station Norfolk.
Peninsula Bus Rapid Transit Categorical Exclusion	Ongoing corridor alternatives analysis and environmental review for BRT service between Hampton and Newport News.
Light Rail Automatic Passenger Counts	Certification of APC units on all light rail vehicles. No installation needed, as APC units already in place.
Automated Bus Consortium	HRT participation in a national consortium of transit agencies to investigate the feasibility of implementing pilot automated full-size bus projects.
Electrification of the Fleet	HRT pilot program that will invest and learn from the deployment of electric bus vehicles and charging stations.
Mobile Ticketing	Introduction of HRT's first mobile-ticketing fare payment on Trolley routes with the goal of potential adoption of similar technology system-wide.
TAP Grant	Federal funding being used to retrofit bus stops which are not compliant with the Americans with Disabilities Act.
2021 Origin-Destination On-Board Survey	Planned on-board customer survey to understand the travel patterns of riders and demographic and attitudinal information.

1.2. Strategic Vision

HRT's strategic vision, goals, objectives, and performance measures reflect the agency's core values and build on past and current initiatives.

The *Transit Transformation Project* provided a fresh opportunity to examine HRT's strategic vision, mission, goals and objectives. This included garnering input from employees, customers, HRT's governing board, and stakeholders through surveys, focus groups, strategic retreats and other special meetings. With these efforts, HRT updated its vision, mission, goals and objectives, which are reflected in this section.

Vision and Mission Statements

HRT's vision and mission statements were updated as part of the *Transit Transformation Project* and internal strategic planning processes.

- **Vision:** A progressive mobility agency that promotes prosperity across Hampton Roads through collaboration and teamwork.
- **Mission:** To connect Hampton Roads with transportation solutions that are reliable, safe, efficient, and sustainable.

Core Values

HRT's core values have been updated based on input from employees during strategic retreats, surveys, and focus group meetings. As captioned below, the agency's previous seven core values and supporting statements were streamlined and focused to a total of four. Input from HRT's board emphasized having a commitment to excellence, which undergirds each of the core values that were identified and prioritized by employees.

These core values influence the agency's desired culture and guide day-to-day business activities for HRT to achieve its vision and mission. They are the guiding principles and behaviors that embody how HRT and its workforce are expected to operate:

- **Safety:** We strive for safety excellence in all areas of our business
- **Customer Service:** We're committed to professional, courteous and dependable service
- **Workforce Success:** We're committed to effective hiring, training, and ongoing success of every team member
- **Fiscal Responsibility:** We're dedicated to diligent stewardship that is accountable, transparent, and delivers the most value for our customers and funding partners.

1.2.1. Goals and Objectives

Agency goals and objectives were re-evaluated for the *Transit Transformation Project* and Transit Strategic Plan. As a result, HRT made updates to agency goals and objectives that were part of previous planning efforts. There are four goals, each with multiple objectives:

Provide a high-quality service that is easy to use and enhances people's lives.

- Provide reliable and desirable service, amenities, and information
- Serve people where and when they need to travel
- Offer a safe and secure transportation service for all customers
- Achieve and maintain a high rate of customer satisfaction.

Foster regional quality of life and economic vitality.

- Contribute to congestion mitigation and improved mobility
- Maximize access for residents, employees, and visitors to and between regional activity centers, job centers, and workforce development opportunities
- Contribute to regional air quality and pollution reduction goals
- Build community trust as a valuable partner in a thriving region.

Ensure financial stewardship and cost-effective operations.

- Provide cost-efficient transit service that leverages all available resources to offer the best value for the investment
- Perform asset management that achieves and maintains a state of good repair and sustainability and maximizes investment impacts
- Effectively align and manage resources and processes to maximize workplace productivity and achieve agency goals
- Demonstrate safe and sustainable business practices to ensure long-term viability.

Build a culture for innovation and workforce success to ensure HRT remains relevant to the dynamic needs of the region.

- Continue to change and innovate collaboratively with our partners and stakeholders to improve service to customers

- Support an empowered workforce to strengthen core competencies and generate efficiencies and innovation within Hampton Roads Transit
- Be an employer of choice within the region and in the industry
- Inspire and invest in our workforce and develop future leaders.

1.2.2. Service Provision Principles

HRT's vision, mission, and core values drive the agency's culture and purpose, which shape the service HRT provides to its customers. HRT also has goals and objectives to help guide the planning, provision, and sustainability of service.

As part of the *Transit Transformation Project* and development of the Transit Strategic Plan, the agency sought extensive public and stakeholder input on how it should aim to meet its goals while also acknowledging the inherent tradeoffs that come with having limited resources to invest. Over 1,200 current HRT customers were involved in the planning process through 21 "pop-up" events at transit hubs. Feedback on regional survey questions was received by 2,731 participants. The top six priorities identified through the survey are:

1. More reliable service (on-time arrivals and drop-offs)
2. Frequent service during rush hour (5-9 a.m. and 3-7 p.m., Monday-Friday)
3. Real-time bus arrival information
4. Safety and security
5. Mobile ticketing and fare payment options
6. More sheltered stops in my city.

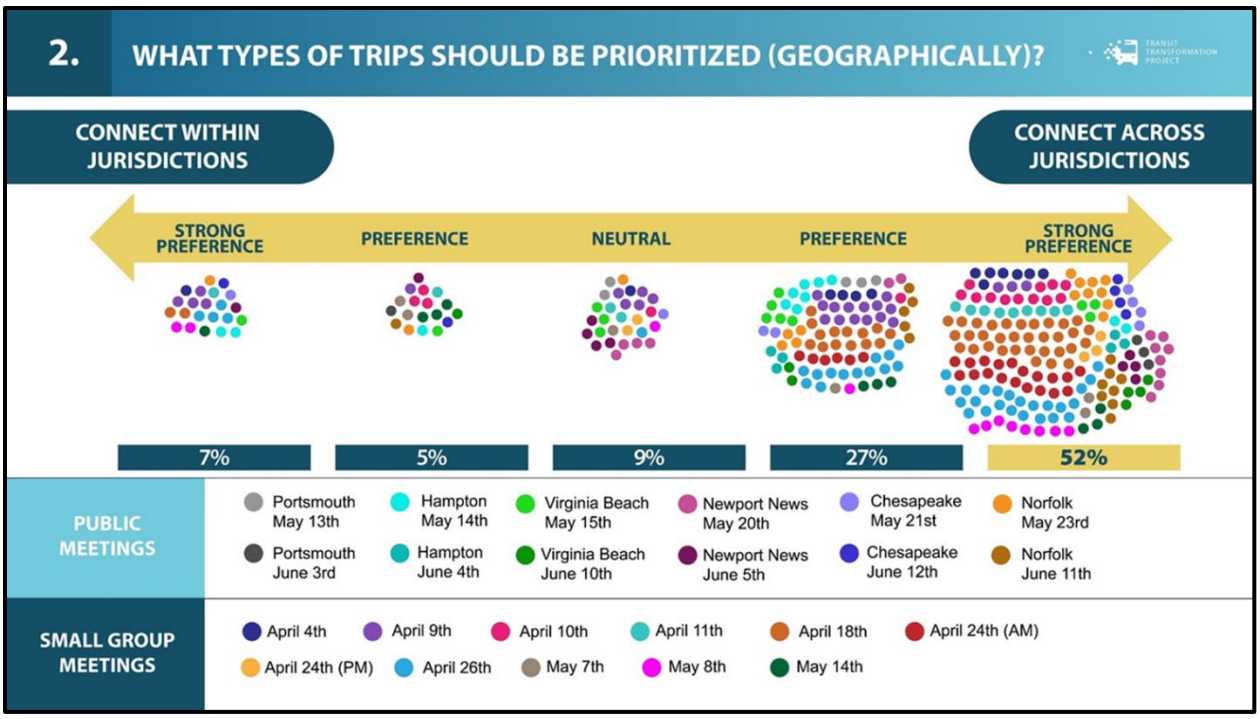
To explore priorities and preferences that should guide plans for improved transit in the HRT service area, HRT posed several trade-off questions during public meetings and stakeholder workshops that included representatives from healthcare, education, military and federal facilities, economic development, housing, human services, and other sectors.

Figure 1-6 shows the structure of questions asked as well as results from one of the questions. Each question had the same type of scale, with arrows pointing from a strong preference on one side, to neutral, to a strong preference on the other side. Participants placed one dot for each question to indicate what they would prioritize when choosing between different options. All five questions are shown in **Table 1-3**.

Table 1-3: Tradeoff Questions Asked

Question	Left Side of Arrow	Right Side of Arrow
Where should buses run, and with what frequency?	Bus service everywhere	High-frequency service
What types of trips should be prioritized (geographically)?	Connect within jurisdictions	Connection across jurisdictions
What types of trips should be prioritized (temporally)?	Peak period commute trips	Equal priority across day
Should buses receive priority treatment on roadways?	No preferential treatment for buses	Preferential treatment for buses
Should regional bus service standards be created and applied?	Jurisdictional-level bus service standards	Regional bus service standards

Figure 1-6: Example of Tradeoff Activity from Small Group Meetings



Here is a summary of results for the Trade-Off activities:

- Stakeholders showed clear preference for frequent bus service on major corridors over extensive geographic coverage of service (60% of participants preferred frequent service)
- A strong preference was indicated for inter-city connectivity, prioritizing regionally connected service more than connections within each jurisdiction
- Stakeholders prioritized more frequent peak-hour service on weekdays, while also indicating the importance of access to bus service on weekends and weekdays during off-peak hours
- There was a very strong preference for implementing dedicated bus lanes, signal priority, or some other methods to provide buses preferential treatment on roadways
- There was a very strong preference for applying regional bus service standards, including hours of service, frequency of passenger pick-ups, and coverage that is consistent across city boundaries (75% support).

Based on all the input received into the planning process, HRT adopted Guiding Principles to create the recommended service changes that are found in **Chapter 3**:

- Follow regional bus service standards
- Prioritize high-frequency services
- Balance resources between peak hour and all-day service
- Prioritize connections across jurisdictions
- Provide sufficient coverage to ensure access to transit
- Leverage a data-driven approach and factoring of funding and operational constraints to prioritize and phase implementation.

The following sections provide more detail on how these principles were applied in planning for an improved HRT bus network.

Follow Regional Bus Service Standards

Based on overwhelming support for this guiding principal, HRT is placing a new emphasis on regional standards, which are reflected in the service plan in **Chapter 3**, and detailed in **Section 1.2.3** and **Section 1.2.4**. Public and stakeholder feedback indicated a preference for regional service standards to be applied across all of HRT's bus service. This would support more consistency regionwide in terms of span of service and frequency by service type. Riders expressed frustration with the mismatch between different end-of-service times in different jurisdictions. Regional standards received overwhelming preference over jurisdiction-level service standards.

Prioritize High-Frequency Services

HRT will continue to balance providing high-frequency service where and when it is warranted with the need for geographic coverage in areas warranting transit service. When presented with the tradeoff, HRT customers and other stakeholders pointed to higher frequency services as a preference over higher geographic coverage.

One of the preliminary scenarios that was presented as part of the *Transit Transformation Project* consolidated regional bus service around high-frequency routes, resulting in a network with low geographic coverage. This scenario proved an important test for the region, as many people liked the idea of the high-frequency routes but, at the same time, did not see it being feasible or desirable to lose as much geographic coverage as was required to provide the resources for the conceptual high-frequency network. To balance the desire for prioritizing high-frequency services while still providing coverage to connect riders to the high-frequency routes, HRT is recommending an increase in the availability of high-frequency services and the testing of innovative on-demand transit zones to fill geographic coverage gaps.

Many people said they preferred bus-only lanes on selected corridors to help speed up buses and make them more reliable and thus more attractive to use. Since HRT is not the owner or maintainer of the roadways, that is not included as a planning principle; however, the sentiment relates to the desire to provide increased high-frequency services.

Balance Resources Between Peak Hour and All-Day Service

HRT strives to provide service where and when it is needed. Many riders need service during traditional peak hours while others need service throughout the day. Overall, public and stakeholder feedback pointed to a preference for prioritizing service during peak hours over all-day service, but the more frequent a rider is, the more they prioritized all-day service. This points to a need to strike a balance between serving peak period customers with frequent enough service to attract them to ride while still leaving enough resources to provide service throughout the day for people who rely on transit for their trips.

Prioritize Connections Across Jurisdictions

Commuters' travel patterns are very often inter-jurisdictional in nature, and HRT strives to provide services that connect customers with where they need to go in the most efficient manner possible. Overwhelming feedback from stakeholders and the public favored prioritizing service across jurisdictions rather than within jurisdictions.

Provide Sufficient Coverage to Ensure Access to Transit

Feedback from the public and stakeholders demonstrates a commitment to providing easy and safe pedestrian access to bus stops across the region. When faced with the tradeoff of having "fewer stops and faster trips" rather than having "more stops and shorter walks," most stakeholders and regular riders preferred "shorter walks." This was especially important to people when considering the needs of the elderly population throughout the region. Less frequent riders of HRT were more interested in faster trips with fewer stops. It is important to strike a balance between these two tradeoffs.

Leverage a data-driven approach and factoring of funding and operational constraints to prioritize and phase implementation

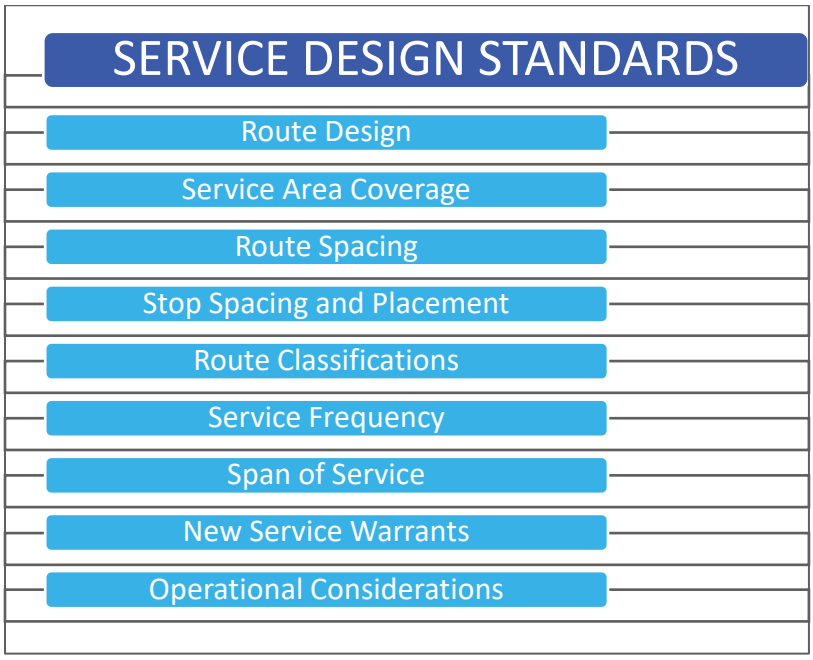
Hampton Roads is a diverse region with unique local needs and priorities for investing in public transportation improvements. The services outlined in **Chapter 3** are based on guiding input from city leaders and staff about local priorities and planning for the best use of limited financial resources to achieve the greatest returns on investment in terms of ridership and serving customer needs.

1.2.3. Service Design Standards

Service design standards define policy level standards that are followed in designing transit service. These standards allow for informed decision making and ensure consistency in how transit is planned across the system in similar operating environments.

Given budget and equipment constraints, it is imperative that HRT has specific standards and guidelines in place to ensure the highest possible quality of service is provided and delivered efficiently and effectively. **Figure 1-7** provides an overview of the service design standards. The following design standards were synthesized from HRT's "Service Standards and Performance" policy document (PD – 112), approved June 21, 2019.

Figure 1-7: Service Design Standards



Route Design

The alignment of each route is a key factor in its ability to successfully serve customers' mobility needs. "Route design" refers to route directness, connections to key origins and destinations, and how routes interface with other services that comprise the overall network. Route classifications are based upon transit need and define the level of service per route. Key route design principles include:

- HRT routes should be designed to serve origins and destinations via direct pathways, minimizing out-of-direction movements. This provides a faster trip to serve commuters better, attract more riders, and enhance fare revenues while minimizing the cost to provide service
- Bus routes should serve major mixed-use corridors throughout the service area, avoiding smaller neighborhood streets
- High-frequency HRT routes should be designed to serve major corridors, offer more direct service, and provide transfer connections either on-street or at major transfer hubs in the urban core.

Deviations

Deviations off the basic alignment of a fixed route should be minimized whenever possible. However, routes may deviate off their primary alignment to serve major activity centers or provide coverage to areas with limited access. The additional time necessary for the deviation should not exceed five minutes, or ten percent of the one-way travel time of the existing route without deviation. Deviations must result in an increase in overall route productivity after one year or the deviation should be eliminated.

Mid-route deviations that cause a route to significantly deviate from the most direct route between major travel generators, should be avoided. In some instances, a deviation is warranted because of potential ridership gains. In evaluating a proposed deviation, it should be determined that the total additional travel time for all through passengers should not exceed 10 minutes for each boarding and alighting along the deviation. This is expressed in the following formula:

(Pt * T)/Pd ≤ 10 minutes, where:

- **Pt** = Number of through passengers
- **T** = Additional vehicle travel time
- **Pd** = Number of boardings and alightings on the deviation.

Service Area Coverage

The coverage aspect of service design standards defines how transit services should be provided in the different commuter markets of the HRT service area. This includes defining levels of density that should be served by fixed-route bus and levels that may not support such service, as well as defining the maximum allowable walking distance to transit services given the type of service that is being proposed or provided currently.

Transit routes in the urban core should be ideally no closer than one half-mile from each other to balance good access with service cost effectiveness. This provides customers with one-quarter mile walk access (roughly a five-minute walk) to more frequent service than would be possible with closer spaced routes. Placing routes closer should only occur where regular half-mile spacing is not feasible and/or where market densities support productive service more closely spaced.

Outside of the urban core, route spacing should follow the demand corridors where densities meet minimum requirements for productive service. Areas with fewer than 4,000 residents or jobs per square mile could support productive fixed-route transit service but may be better served by demand-responsive transit zones where fixed-route service would not serve the area well for various reasons. Areas with fewer than 2,000 residents or jobs per square mile within the HRT service area do not have the necessary density to support productive fixed-route transit service and should only receive fixed-route service if a major trip generator is present. Demand-responsive transit zones can provide service in areas where the density of population and jobs warrants transit service, but are low enough that regular fixed route service would be less effective; actual zone design will depend upon the street network and travel patterns within the zone, points of interest and concentrations of residents and commercial activity, as well as availability and placement of connections to fixed-route transit.

Stop Spacing and Placement

When establishing new bus stops or replacing existing bus stops, HRT coordinates with local jurisdictions to locate and identify mutually acceptable locations. Local jurisdictions make the final decisions about bus stop placement or relocation, as bus stops typically have significant interface with public right-of-way and vehicular traffic.

HRT considers many elements when locating a bus stop:[6]

- Stops should be placed based on population density and/or major passenger generators (i.e., major employment centers, regional shopping centers, hospitals, etc.)
- Distance between bus stops should be a minimum of 1,056 feet (one-fifth mile) and a maximum of 1,320 feet (one-quarter mile) apart or three to four blocks apart
- Presence of sidewalks, marked crosswalks, and curb ramps
- Protected crossings at signalized intersections
- Connection to nearby pedestrian circulation system
- Access for elderly and people with disabilities
- Convenient passenger transfers to other routes

[6] HRT Bus Stop Location Policy, June 21, 2019.

- Effect on adjacent property owners.

Other general elements to consider include traffic and rider safety, bus operations, and bus stop placement. HRT's "Bus Stop Location" policy, approved June 21, 2019, provides additional details on these elements.

Route Classification

The classification of HRT routes establishes the roles routes serve in the transit network and their market functions. Classifying routes allows a balanced approach to the development of service standards where each route's performance is assessed against routes serving similar functions.

Table 1-4 shows the five classifications of bus service in the HRT system, as developed during the *Transit Transformation Project*. A brief description of each classification is provided, followed by guidelines for criteria for classifying routes (additional details for each respective criterion is described below the table). When establishing new service, the proposed route geography can be evaluated using these three criteria which will influence how the route is classified. Service classification is an important element of the service design standards, as it relates to the recommended span and frequency for routes.

Table 1-4: Route Classification

Route Classification	Description	Criteria		
		Interjurisdictional	Population / Job Density	Route Directness
Regional Backbone	The backbone of bus transit throughout the region, traveling on the highest-demand corridors connecting the most people to the most jobs.	Most will cross jurisdictional boundaries.	Greater than 6,500 people + jobs per square mile, averaged across whole route	1.6 or better
Local Priority	Operate along arterials serving a specific community area with connections to the regional backbone network.	Can operate within a jurisdiction or cross jurisdictional boundaries.	Between 5,000-6,500 people + jobs per square mile, averaged across whole route	1.8 or better
Coverage	Communities with lower transit demand than the above two categories, but with still enough demand to warrant fixed-route service, will be connected to Local Priority and Regional Backbone routes via Coverage routes.	Mostly within one jurisdiction but can cross jurisdictional boundaries.	Between 4,000-5,000 people + jobs per square mile, averaged across whole route	2.0 or better
Limited/ Express	Bus service with limited stops connecting surrounding communities with downtown areas and other major employment sites or regional destinations, often via interstates. Some routes will operate during peak-hour commuter service only. Typically accessed via park-and-ride lots at the residential end.	Can operate within a jurisdiction or cross jurisdictional boundaries.	Route serves major trip generators and/or collection points	N/A
On-Demand	On-Demand transit service will operate in specified zones, connecting lower-density areas to local destinations and transfer opportunities to fixed-route service.	Can operate within a jurisdiction or cross jurisdictional boundaries.	Densities warrant transit service but are low enough that regular fixed route service would be less effective	N/A

Criteria and Rationale for Route Classification

Interjurisdictional

A route is interjurisdictional if it serves more than one city that HRT serves. Routes which make up the regional backbone of transit service tend to be interjurisdictional because they provide key connections across the region. Local Priority routes may or may not be interjurisdictional depending upon the demand for transit. Coverage

routes are often located within one jurisdiction because they connect specific lower-demand areas to higher-frequency services within the same jurisdiction.

Overarching guidance: Connections should be made to address demand between origins and destinations regardless of jurisdictional boundaries.

Population/Job Density

Transit services must be located where there is demand for transit. This demand can be measured by the densities of population and jobs. A transit route which serves areas with many desired origins and destinations will produce more ridership compared to a route serving fewer dense origins and destinations. American Community Survey (ACS) data[7] and LEHD 2015 data[8] were used to calculate the density of population and jobs within a quarter-mile of the route.

Overarching guidance: All fixed-route service should be designed to serve as many people and destinations as possible, with higher thresholds set for route classifications that offer higher frequency service.

Directness

Benefits of direct routes include that they are simpler for customers to understand and they are more efficient, saving travel time and operating costs compared to circuitous routes. A directness calculation is used to evaluate how far a route strays from a straight path. The directness calculation involves finding the ratio of the length of the actual route against the length between the two endpoints – the more direct a route is, the closer its directness ratio will be to one. For example: 1) a route that travels on a very straight arterial road, without making any deviations off the main path, would have a directness score very close to one because its total length traveled between two endpoints will only be slightly longer than the straight-line distance between the two endpoints, while, 2) a route that travels between the same two endpoints as the first example route but deviates heavily into neighborhoods to collect riders may travel twice the mileage as the first example route, and its directness score would therefore be closer to two.

Overarching guidance: All bus routes should be as direct as possible, with higher thresholds set for route classifications that offer higher frequency service.

Service Frequency

The frequency impacts how long customers must wait for bus service, with journeys requiring customers to transfer resulting in more than one wait. Higher frequencies result in shorter customer wait times but increase costs by requiring more buses and operators. Thus, providing more frequency requires balancing route and network productivity, i.e., ridership against the cost.

Frequency warrants are subject to cost effectiveness and should be adjusted based on productivity and passenger load as defined in **Section 1.2.4**. **Table 1-5** illustrates the headway warrants (time between trips) by route classification. Routes should be designed and scheduled to meet the standards, but available budget may prevent routes from fully meeting them. Routes can also exceed the standards based on demand for higher frequency.

[7] American Community Survey (ACS) 2016 5-year estimates.
[8] Longitudinal Employer-Household Dynamics (LEHD) 2015.

Table 1-5: Service Headway by Route Classification

Time Period			Regional Backbone	Local Priority	Coverage	Limited/Express	On-Demand
Weekday	Peak	6:00 a.m. – 9:00 a.m. 3:00 p.m. – 6:00 p.m.	15 min	30 min	60 min	Demand base	n/a
	Midday	9:00 a.m. – 3:00 p.m.	30 min	30 min	60 min	Demand base	n/a
	Evening	6:00 PM – 9:00 p.m.	30 min	60 min	60 min	Demand base	n/a
Weekend	Base	8:00 a.m. – 6:00 p.m.	30 min	30 min	60 min	Demand base	n/a
	Non-base	6:00 a.m. – 8:00 a.m. 6:00 p.m.– 9:00 p.m.	30 min	60 min	60 min	Demand base	n/a

Span of Service

The span of service defines the start and finish of service each day for both specific routes and the network. A longer span of service allows a route to capture more riders throughout the day for a wider variety of trip purposes, but also increases overall costs. It is important that the route spans be coordinated to provide an overall appropriate network to meet time-of-day market needs. **Table 1-6** illustrates the span of service standards by route classification. Routes should be designed and scheduled to meet the standards, but available budget may prevent routes from fully meeting them. Routes can also exceed the standards based on demand for longer span.

Table 1-6: Span of Service by Route Classification

	Regional Backbone	Local Priority	Coverage	Limited/Express	On-Demand
Weekday	5:00 a.m. – 1:00 a.m.	5:00 a.m. – 11:00 p.m.	5:00 a.m. – 7:00 p.m.	Demand Based	5:00 a.m. – 7:00 p.m.
Weekend	6:00 a.m. – 12:00 a.m.	7:00 a.m. – 11:00 p.m.	8:00 a.m. – 7:00 p.m.	Demand Based	8:00 a.m. – 8:00 p.m.

New Service Warrants

HRT has an adopted policy on how to assess the potential of new services requested by the cities. The purpose of this policy is to plan transit services that will be successful in not only generating additional fare revenue to fund the service, but also in meeting the community's needs. Five metrics assess the potential for transit service: residential density, employment density, income, home-based work trips to major destinations, and auto availability. Full details of the policy on new service warrants can be found in HRT's "New Services Request Policy" policy document (PD – 105), approved June 21, 2019.

Operational Considerations

Vehicle Assignment

Passenger vehicles are assigned to routes/blocks of service based on several factors including required vehicle passenger capacity, community or street operating restrictions, operating performance requirements, and special equipment needs. Some routes have special operating restrictions including tight turns or community vehicle size limitations that require smaller vehicle assignments. Higher performing vehicle types may be assigned to blocks of service with more schedule adherence problems. Additionally, certain segments of service may be designated to have buses with special equipment, e.g., branded or wrapped vehicles equipment. After the special vehicle block needs have been addressed, the remaining vehicles are rotated through random assignment to any route/block of service on which the vehicle can travel.

Layover Guidelines

A minimum of ten percent of the round-trip running time is scheduled for layover, while high ridership routes require fifteen percent. All routes will have a minimum of five minutes layover per round trip.

1.2.4. Performance Standards

Service Performance Standards

HRT updated the agency's Service Performance Standards for route-level evaluation in 2019.[9] The standards are measured by six Key Performance Indicators (KPI) that fall into three distinct groups: service effectiveness, cost efficiency, and service quality. Each route classification has a minimum benchmark used to evaluate the effectiveness of service. Some benchmark standards for future On-Demand routes have not yet been established and, as noted in the tables, will be developed when On-Demand service is closer to implementation. **Table 1-7** summarizes the KPI's and their applicable grouping.

Service performance standards are necessary to ensure that all services are fulfilling their roles in the transit network and contributing to the overall financial sustainability of HRT. Performance is measured regularly in order to identify changes in performance over time and to allow prompt changes to be implemented if necessary. Performance standards help ensure that HRT services meet the needs of passengers, while maintaining cost-efficiency for the agency.

Table 1-7: Performance Standard Groups and Key Performance Indicators

Performance Standard Measure	Key Performance Indicator
Service Effectiveness	Passengers per Revenue Hour
	Passengers per One-way Trip
Cost Efficiency	Farebox Recovery
	Subsidy per Passenger Boarding
Service Quality	On-time Performance
	Maximum Load Standards

Passengers per Revenue Hour

The Passengers per Revenue Hour KPI (**Table 1-8**) measures the productivity of a given route based on ridership (unlinked boardings) generated for each hour of service operated. This measure does not apply to Limited/Express routes.

Table 1-8: Passengers per Revenue Hour Performance Standard

Key Performance Indicator	Route Classification	Benchmark
Passengers per Revenue Hour	Regional Backbone	50% of the service classification average on weekdays and weekends.
	Local Priority	
	Coverage	
	Limited/Express	N/A
	On-Demand	TBD

Passengers per One-way Trip

Limited/Express services (PCS and MAX) should not be evaluated on a passenger per hour basis, as there is generally less passenger turnover on these types of routes, leading to fewer passenger boardings overall. Instead, Limited/Express service is evaluated on a passengers per one-way trip basis (**Table 1-9**). This indicator measures the average passenger boardings per one-way trip. It is useful in evaluating express or "point-to-point" services where passengers board at the start of the trip and alight at the end of the trip, with little activity in between.

[9] "Service Standards and Performance" policy document (PD – 112), approved June 21, 2019.

Using this indicator provides a way to gauge how full the bus is during its journey. A typical HRT MAX vehicle has 40 seats, and effective service should generate enough passengers to fill a majority of those seats.

Table 1-9: Passengers per One-way Trip Performance Standard

Key Performance Indicator	Route Classification	Benchmark
Passengers per One-way Trip	Regional Backbone	N/A
	Local Priority	
	Coverage	
	Limited/Express	Minimum passengers boardings per one-way trip is 20 on weekdays and 15 on weekends.
	On-Demand	N/A

Farebox Recovery

The Farebox Recovery ratio (**Table 1-10**) compares a route's operating revenue to its operating costs. The difference between the cost to operate the service and the farebox revenue on the service results in the subsidy that HRT's funding partners must cover.

Table 1-10: Farebox Recovery Performance Standard

Key Performance Indicator	Route Classification	Benchmark
Farebox Recovery	Regional Backbone	50% of the service classification average on weekdays and weekends.
	Local Priority	
	Coverage	
	Limited/Express	
	On-Demand	TBD

Subsidy per Passenger Boarding

A second way of measuring cost efficiency involves evaluating the operating cost per unlinked passenger boarding, less the average passenger fare (**Table 1-11**). This metric is the level of public subsidy necessary to support each passenger trip.

Table 1-11: Subsidy per Passenger Boarding Performance Standard

Key Performance Indicator	Route Classification	Benchmark
Subsidy per Passenger Boarding	Regional Backbone	Twice the service classification average on weekdays and weekends.
	Local Priority	
	Coverage	
	Limited/Express	
	On-Demand	TBD

On-time Performance

An on-time performance standard defines a minimum threshold of daily trips by route and for the system that operate on-time (**Table 1-12**). On-time performance reflects both the quality and reliability of service, which can

affect whether or not people choose to use transit or continue to use transit. HRT defines "on time" as one minute early to five minutes late at each time-point. This KPI establishes a minimum goal of at least 85 percent of time-points served within this time threshold relative to schedule, at both the route-level and for the system as a whole. Making sure that routes meet this standard results in a positive customer experience while at the same time recognizing that there are operating issues beyond the agency's control.

Table 1-12: On-time Performance Standard

Key Performance Indicator	Route Classification	Benchmark
On-time Performance	Regional Backbone	85% on-time performance at all time-points.
	Local Priority	
	Coverage	
	Limited/Express	
	On-Demand	85% on-time performance of pick-ups and drop-offs.

Maximum Load Standards

Passenger load refers to how many people are on the bus at any given moment compared to its seated capacity (**Table 1-13**). High passenger loads result in overcrowded conditions and unsatisfied customers. Service quality issues with crowding are dependent on the amount of time that customers must stand on the bus. If crowding is a relatively brief phenomenon, it does not justify the expense of adding additional service. On the other hand, if passengers are required to consistently stand while on the bus, more service may be needed to alleviate the crowding. For Limited/Express and On-Demand routes, a benchmark of 100 percent of seated capacity is used, as these vehicles are designed for seated passengers only (with the exception of Limited/Express routes that operate on arterial roads rather than limited-access highways, as noted in the table).

Table 1-13: Maximum Load Performance Standard

Key Performance Indicator	Route Classification	Benchmark
Maximum Load	Regional Backbone	125% of seated capacity for two or more miles.
	Local Priority	
	Coverage	
	Limited/Express	100% of seated capacity for two or more miles (125% if operated along arterial rather than limited-access roadways).
	On-Demand	100% of seated capacity.

Corrective Action Guidelines

Based on a route's performance relative to the KPI's, HRT places each route into one of three categories:

- Low-performing service
- Average-performing service
- High-performing service.

The metrics for determining in which categories the routes fall and remedial actions for each of the three categories of routes are listed in **Table 1-14**. This evaluation process is only performed for the KPI's related to service effectiveness and cost efficiency. This evaluation methodology allows HRT to quickly identify under-performing service and take necessary steps to improve the service. It also ensures that HRT continues to invest in high-performing service.

Table 1-14: Performance Categories for Service Effectiveness and Cost Efficiency KPIs, and Possible Corrective Actions

Category	Metric	Possible Analysis and Corrective Action
Low-performing service	50% of system average and below.	Segment Level and Operational Analyses to identify potential route issues, which could result in: ■ Targeted Marketing. ■ Rider Outreach. ■ Change in Service Levels. ■ Discontinuation.
Average-performing service	Between 51% and 149% of system average.	■ Periodic Trip-by-Trip Segment Analysis to identify potential route issues.
High-performing service	150% of system average or better.	■ Increase service levels. ■ Upgrade transit operating environment. ■ Introduce additional service types.

Systemwide Performance Standards

In addition to the route-specific performance standards, the agency has identified system-wide performance measures, shown in **Table 1-15**. These performance measures are intentionally aligned with the goals and objectives outlined in **Section 1.2.1**. These measures, where applicable, are held to the same design standards and performance targets as identified in HRT's "Service Standards and Performance" policy document (PD – 112), approved June 21, 2019.

Table 1-15: Agency Objectives and Relevant Performance Measures

Objective	Performance Measure
Provide reliable and desirable service, amenities, and information.	On-time Performance
	Missed trips
	Mean distance between failures
	Percentage of bus stops that meet defined amenity standards – shelters, benches, trash cans
	Accuracy and utilization of real time tracking (once launched)
	Utilization rate of mobile ticketing (where available)
Serve people where and when they need to travel.	Number of trips by ADA eligible riders on fixed route transit
	Percentage of routes that are high, medium, low frequency
	Percentage of routes that run past 6pm/8pm (time TBD)
	Percentage of routes that run peak only, 7 days a week, and weekend only
	Ridership by mode and route, trip and jurisdictions
	Average travel time between key destinations and comparison to auto travel
	Comparison of paratransit travel times with fixed route bus
Offer a safe and secure transportation service for all customers.	Number of injuries and rate per total unlinked passenger trips, by mode
	Number of reportable events and rate per total unlinked passenger trips, by mode
	Total number of all accidents and incidents (preventable and non-preventable) per 100,000 miles, by mode
Achieve and maintain a high rate of customer satisfaction.	Number of valid complaints per 100,000 miles system-wide; and by route; by type of complaint, including operator behavior, late bus, etc. (complaints categorized and handled through the customer service center)
	Number of customer service calls for trip planning purposes
	VMT reduced (TPO model)

Objective	Performance Measure
Contribute to congestion mitigation and improved mobility.	Roadway LOS (TPO model) as compared with population and jobs levels in the region
	Number of trips that connect activity centers or attractions
	Percent of population within a 1/4 mile of a stop served by high frequency service, medium, and any service at all
	Percent of jobs served by high frequency service, medium service, and any service at all
	Percent of activity centers served by high frequency service, medium service, and any service at all
	Passengers per revenue hour
Contribute to regional air quality and pollution reduction goals.	VOC and NOX, CO, PM10, PM2.5 reduced as a result of HRT services (data collected and reported by HRTPO)
Build community trust as a valuable partner in a thriving region.	Number of social media postings and impressions generated by staff
	Number of partnerships with business and community organizations
	Level of market reach through media and advertising
Provide cost-efficient transit service that leverages all available resources to offer the best value for the investment	Overhead burden as percent of operating costs
	Average fare per rider / Average fare per GoPass rider
	Average cost per rider
Perform asset management that achieves and maintains a state of good repair and sustainability and maximizes investment impacts.	Mean distance between failures
	Average maintenance cost per vehicle
	Average cost of maintaining facilities and transit centers (per square foot basis)
	Average Energy Use by facility
	Attainment of HRT Transit Asset Management Plan action items
Effectively align and manage resources and processes to maximize workplace productivity and achieve agency goals.	Difference between agency-wide budget to actual (end-of-year)
	Differences between budgets and actual expenses by department
Demonstrate safe and sustainable business practices to ensure long-term viability.	Percent of capital and operating budgets funded by different sources
	Percent of auxiliary revenue target achieved
	Farebox recovery ratio
Continue to change and innovate collaboratively with our partners and stakeholders to improve service to customers.	Number of partnerships with business and community organizations
	Number of outreach events participated
Support an empowered workforce to strengthen core competencies and generate efficiencies and innovation within Hampton Roads Transit.	Number of cross-departmental work teams
	Number of initiatives completed by work teams
	Number of policies and procedures created or enhanced to improve job design, job satisfaction, and job performance
Be an employer of choice in the region and in the industry.	Job acceptance to offer ratio
	Total number of employee referrals by year
	Average tenure by employee type (operator, mechanic, ops supervision, administrative)
	Total number of applications received year over year
	Number of workplace injuries

Objective	Performance Measure
Inspire and invest in our workforce and develop future leaders.	Number of professional development training sessions held
	Number of online university courses taken

CHAPTER 2

System Performance and Operations Analysis

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2. System Performance and Operations Analysis

2.1 System and Service Data

Covering the cities of Chesapeake, Hampton, Newport News, Norfolk, Portsmouth, and Virginia Beach, HRT has a service area of approximately 432 square miles and a population of approximately 1.14 million people, with an overall population density of approximately 2,667 people per square mile.[1] A detailed analysis of current and future regional population density is included in **Section 2.2.1**.

HRT's fixed-route bus service includes 53 local routes, nine Metro Area Express (MAX) regional express routes, five Peninsula Commuter Service (PCS) routes, and three seasonal routes in Virginia Beach (VB Wave and Bayfront Shuttle). HRT also operates a light rail, The Tide, in Norfolk and a ferry across the Elizabeth River to connect Downtown Portsmouth and Downtown Norfolk. HRT's demand response program is a shared ride paratransit service serving the cities of Chesapeake, Hampton, Newport News, Norfolk, Portsmouth, and Virginia Beach to and from locations within three-quarter miles of existing fixed-route bus, light rail, and ferry service during HRT's regular operating hours.

HRT has a total of 393 revenue vehicles. The total number of vehicles as of May 2019 by mode is shown in **Table 2-1**.

Table 2-1: HRT Revenue Fleet and Peak Vehicle Need, May 2019

Mode	Fleet Size	Peak Vehicle Need
Bus	272	235
Light Rail	9	6
Ferry	3	2
Paratransit	109	103
Total	**393**	**346**

2.1.1 Fixed-Route Bus Service

The following section summarizes information on fixed-route services, including level of service, operating costs, number of vehicles in peak service, ridership, revenue hours, total hours, revenue miles, and directional route mileage from FY 2019.

HRT operates fixed-route service seven days a week. Weekday service runs between 3:40 a.m. and 2:00 a.m. The time that service operates varies between the six member jurisdictions, as each city determines how early/late the service runs. Local routes operate on 15- to 60-minute headways during morning and afternoon peak periods. Southside routes include those that operate in Chesapeake, Norfolk, Portsmouth, and Virginia Beach; Peninsula routes operate in Hampton and Newport News.

Table 2-2 and **Table 2-3** summarize span of service and headways by service day and time periods for individual HRT fixed route bus routes. HRT time periods are defined as:

- **Early:** before 6:00 a.m.
- **AM Peak:** 6:00 a.m.–9:00 a.m.
- **Base:** 9:00 a.m.–3:00 p.m.
- **PM Peak:** 3:00 p.m.–6:00 p.m.
- **Evening:** 6:00 p.m.–11:00 p.m.
- **Late Night:** after 11:00 p.m.

[1] NTD, 2017. HRT Agency Profile. Accessed at https://www.transit.dot.gov/sites/fta.dot.gov/files/transit_agency_profile_doc/2017/30083.pdf.

Table 2-2: Weekday Level of Service, July 2019

Route	Span (* denotes Friday service ends later)	Headway (minutes)						Number of One-Way Daily Trips
		Early	AM Peak	Base	PM Peak	Evening	Late Night	
Southside Services								
1	4:44 a.m.–1:30 a.m.	30	15	30	15	40	60	93
2	4:51 a.m.–11:42 p.m.*	30	30	30	30	49	60	63
3	4:51 a.m.–1:27 a.m.	30	15	30	15	49	60	88
4	6:00 a.m.–10:51 p.m.	—	60	60	60	60	—	34
5	6:12 a.m.–6:14 p.m.	—	60	60	60	60	—	24
6	5:30 a.m.–12:50 a.m.	30	30	60	30	60	60	52
8	5:18 a.m.–12:15 a.m.*	30	30	30	30	42	60	65
9	5:48 a.m.–12:11 a.m.	30	30	30	30	43	60	62
11	6:07 a.m.–6:30 p.m.	—	60	60	60	60	—	25
12	5:48 a.m.–9:35 p.m.	60	60	60	60	60	—	31
13	4:48 a.m.–12:43 a.m.	60	30	60	30	60	60	54
14	6:17 a.m.–7:13 p.m.	—	60	60	60	60	—	26
15	4:48 a.m.–1:16 a.m.	30	15	30	15	30	60	96
18	5:42 a.m.–10:38 p.m.	60	60	60	60	60	—	34
20	4:52 a.m.–1:15 a.m.	30	15	30	15	60	60	91
21	5:11 a.m.–1:17 a.m.	30	30	30	30	60	60	69
22	6:03 a.m.–6:56 p.m.	—	60	60	60	60	—	26
23	5:06 a.m.–12:56 a.m.*	30	30	30	30	48	60	66
25	6:02 a.m.–11:45 p.m.*	—	60	60	60	60	60	37
26	6:29 a.m.–6:45 p.m.	—	30	30	30	30	—	48
27	5:48 a.m.–11:54 p.m.*	30	30	60	30	60	60	47
29	6:48 a.m.–10:16 p.m.	—	60	60	60	60	—	31
33	6:16 a.m.–10:58 p.m.	—	60	60	60	60	—	33
36	5:48 a.m.–10:41 p.m.	30	30	60	30	60	—	45
41	5:56 a.m.–6:53 p.m.	60	60	60	60	60	—	26
43	6:36 a.m.–6:23 p.m.	—	60	60	60	60	—	24
44	6:05 a.m.–10:02 p.m.	—	60	60	60	60	—	31
45	4:39 a.m.–11:54 p.m.	30	15	30	15	30	60	90
47	5:49 a.m.–10:30 p.m.	30	15	30	15	30	—	77
50	6:03 a.m.–6:55 p.m.	—	60	60	60	60	—	26
55	6:30 a.m.–7:56 p.m.	—	60	60	60	60	—	27
57	6:19 a.m.–7:20 p.m.	—	60	60	60	60	—	25
58	5:48 a.m.–7:10 p.m.	60	60	60	60	60	—	27

Route	Span (* denotes Friday service ends later)	Headway (minutes)						Number of One-Way Daily Trips
		Early	AM Peak	Base	PM Peak	Evening	Late Night	
Peninsula Services								
64	4:40 a.m.–7:52 a.m.; 2:10 p.m.–5:27 p.m.	1 Trip	1 Trip	1 Trip	1 Trip	—	—	7
101	5:15 a.m.–12:10 a.m.	30	35	35	35	60	60	60
102	6:19 a.m.–8:10 p.m.	—	60	60	60	60	—	28
103	5:15 a.m.–11:52 p.m.	30	30	30	30	30	45	67
104	5:45 a.m. – 10:41 p.m.	30	30	30	30	30	—	62
105	6:12 a.m.–12:13 a.m.	—	60	60	60	60	60	36
106	5:09 a.m.–12:42 a.m.	20	60	60	60	60	60	40
107	5:59 a.m.–12:07 a.m.	60	60	60	60	60	60	34
108	5:55 a.m.–11:31 p.m.	60	60	60	60	60	60	35
109	6:51 a.m.–10:05 p.m.	—	60	60	60	60	—	30
110	6:00 a.m.–10:50 p.m.	—	60	60	60	60	60	33
111	6:54 a.m.–10:48 p.m.	—	60	60	60	60	—	32
112	5:15 a.m.–12:35 a.m.	30	30	30	30	30	60	68
114	6:20 a.m.–11:38 p.m.	—	30	30	30	60	60	60
115	5:45 a.m.–12:11 a.m.	60	60	60	60	60	60	37
116	5:45 a.m.–12:08 a.m.	60	60	60	60	60	60	38
117	6:15 a.m.–7:38 p.m.	—	60	60	60	60	—	28
118	6:15 a.m.–10:13 p.m.	—	60	60	60	60	—	32
120	7:10 a.m.–8:48 p.m.	—	60	60	60	60		28
121	5:30 a.m.–7:00 a.m.; 3:40 p.m.–5:50 p.m.	2 Trips	—	—	2 Trips	—	—	4
VB Wave and Bayfront Shuttle Services								
30	8:00 a.m.–2:00 a.m.	—	15	15	15	15	15	218
31	9:30 a.m.–11:10 p.m.	—	20	20	20	20	20	82
35	8:00 a.m.–12:50 a.m.	—	30	30	30	30	30	44
Peninsula Commuter Services								
403	5:28 a.m.–6:18 a.m.	1 Trip	—	—	—	—	—	1
405	5:50 a.m.–6:31 a.m.; 3:40 a.m.–4:38 p.m.	1 Trip	—	—	1 Trip	—	—	2
414	5:20 a.m.–7:49 a.m.; 4:04 p.m.–6:33 p.m.	2 Trips	—	—	3 Trips	—	—	5
415	3:45 p.m.–4:27 p.m.	—	—	—	1 Trip	—	—	1
430	5:35 a.m.–6:30 a.m.; 3:45 p.m.–4:29 p.m.	2 Trips	—	—	1 Trip	—	—	3

Route	Span (* denotes Friday service ends later)	Headway (minutes)						Number of One-Way Daily Trips
		Early	AM Peak	Base	PM Peak	Evening	Late Night	
Metro Area Express (MAX) Services								
919	5:10 a.m.–7:26 a.m.; 2:54 p.m.–5:03 p.m.	3 Trips	—	—	4 Trips	—	—	7
922	5:00 a.m.–7:13 a.m.; 2:55 p.m.–4:40 p.m.	4 Trips	—	—	3 Trips	—	—	7
960	5:35 a.m.–8:27 p.m.	60	60	60	60	60	—	30
961	4:55 a.m.–11:12 p.m.	30	30	52	30	60	60	42
966	5:20 a.m.–6:31 a.m.; 3:40 p.m.–5:03 p.m.	2 Trips	—	—	2 Trips	—	—	2
967	4:25 a.m.–7:14 a.m.; 3:00 p.m.–6:24 p.m.	6 Trips	—	—	6 Trips	—	—	12
972	5:15 a.m.–6:17 a.m.; 3:40 p.m.–4:58 p.m.	1 Trip	—	—	1 Trip	—	—	1
973	5:00 a.m.–6:50 a.m.; 3:30 p.m.–5:23 p.m.	2 Trips	—	—	2 Trips	—	—	4
974	5:00 a.m.–6:59 a.m.; 3:40 p.m.–5:39 p.m.	2 Trips	—	—	2 Trips	—	—	4

Table 2-3: Weekend Level of Service, July 2019

Route	Saturday			Sunday		
	Span	Headway	Number of One-Way Daily Trips	Span	Headway	Number of One-Way Daily Trips
Southside Services						
1	4:40 a.m.–1:31 a.m.	30	68	5:37 a.m.– 1:30 a.m.	60	38
2	5:11 a.m.–1:04 a.m.	60	40	5:28 a.m.– 12:10 a.m.	60	37
3	5:21 a.m.–1:27 a.m.	30	64	5:59 a.m.– 12:31 a.m.	60	36
4	7:00 a.m.–10:51 p.m.	60	28	8:00 a.m.– 10:49 p.m.	67	26
5	7:17 a.m.–6:12 p.m.	60	22	—	—	—
6	5:42 a.m.–12:42 a.m.	60	39	5:54 a.m.– 6:38 p.m.	60	26
8	5:43 a.m.–12:45 a.m.	30	65	6:40 a.m.– 8:58 p.m.	60	28
9	5:32 a.m.–12:12 a.m.	60	37	—	—	—
11	6:07 a.m.–6:27 p.m.	60	25	8:42 a.m.– 5:38 p.m.	60	18
12	5:48 a.m.–9:35 p.m.	60	31	—	—	—
13	5:26 a.m.–12:43 a.m.	60	38	5:52 a.m.– 10:36 p.m.	60	34
14	6:17 a.m.–7:12 p.m.	60	26	—	—	—
15	5:18 a.m.–12:45 a.m.	30	66	6:46 a.m.– 12:45 a.m.	60	36
18	6:16 a.m.–10:18 p.m.	60	32	—	—	—
20	5:22 a.m.–1:14 a.m.	30	65	6:23 a.m.– 1:13 a.m.	60	36

Route	Saturday			Sunday		
	Span	Headway	Number of One-Way Daily Trips	Span	Headway	Number of One-Way Daily Trips
21	5:12 a.m.–1:22 a.m.	30	68	6:43 a.m.– 1:21 a.m.	60	36
22	6:03 a.m.–6:50 p.m.	60	25	—	—	—
23	5:02 a.m.–1:22 a.m.	30	67	6:23 a.m.–9:25 p.m.	60	30
25	6:03 a.m.–12:45 a.m.	60	37	—	—	—
26	7:32 a.m.–6:46 p.m.	30	45	—	—	—
27	5:48 a.m.–1:03 a.m.	60	38	—	—	—
29	6:48 a.m.–10:22 p.m.	60	31	—	—	—
33	6:26 a.m.–10:53 p.m.	60	33	6:02 a.m.–6:58 p.m.	45	35
36	6:10 a.m.–10:43 p.m.	60	32	—	—	—
41	6:03 a.m.–6:55 p.m.	60	26	—	—	—
43	6:50 a.m.–6:01 p.m.	60	23	—	—	—
44	6:05 a.m.–10:01 p.m.	60	31	—	—	—
45	5:10 a.m.–12:51 a.m.	30	68	6:06 a.m.–10:51 p.m.	60	32
47	6:03 a.m.–10:30 p.m.	30	58	6:33 a.m.–7:30 p.m.	60	26
50	7:03 a.m.–6:29 p.m.	60	23	7:00 a.m.–6:20 p.m.	60	23
55	7:48 a.m.–8:12 p.m.	60	25	—	—	—
57	6:18 a.m.–7:20 p.m.	60	25	—	—	—
58	5:48 a.m.–7:10 p.m.	60	27	—	—	—
Peninsula Services						
101	5:15 a.m.–12:10 a.m.	35	57	5:45 a.m.–7:38 p.m.	60	29
102	7:19 a.m.–7:10 p.m.	60	24	8:20 a.m.–7:08 p.m.	60	22
103	5:15 a.m.–11:52 p.m.	30	67	7:30 a.m.–8:07 p.m.	45	26
104	5:45 a.m.–10:41 p.m.	30	61	5:45 a.m.–7:43 p.m.	60	28
105	6:15 a.m.–12:13 a.m.	60	35	8:15 a.m.–8:13 p.m.	60	22
106	5:09 a.m.–12:42 a.m.	60	39	5:59 a.m.–8:19 p.m.	60	26
107	5:59 a.m.–12:07 a.m.	60	34	7:15 a.m.–8:27 p.m.	60	25
108	5:55 a.m.–11:31 p.m.	60	35	6:35 a.m.–7:02 p.m.	60	24
109	7:45 a.m.–9:10 p.m.	60	27	6:45 a.m.–7:10 p.m.	60	25
110	7:00 a.m.–10:50 p.m.	60	31	8:00 a.m.–7:48 p.m.	60	22
111	7:00 a.m.–10:39 p.m.	60	30	7:50 a.m.–7:31 p.m.	60	22
112	5:15 a.m.–12:35 a.m.	30	66	6:15 a.m.–8:01 p.m.	60	27
114	6:45 a.m.–11:32 p.m.	30	57	6:45 a.m.–7:30 p.m.	60	26
115	6:15 a.m.–10:08 p.m.	60	32	8:15 a.m.–7:41 p.m.	60	23
116	7:00 a.m.–11:47 p.m.	60	32	7:33 a.m.–7:09 p.m.	60	24
117	8:15 a.m.–7:38 p.m.	60	24	8:15 a.m.–6:38 p.m.	60	22
118	6:15 a.m.–10:13 p.m.	60	32	8:15 a.m.–7:13 p.m.	60	21
120	8:10 a.m.–8:48 p.m.	60	26	8:10 a.m.–6:48 p.m.	60	22

Route	Saturday			Sunday		
	Span	Headway	Number of One-Way Daily Trips	Span	Headway	Number of One-Way Daily Trips
VB Wave and Bayfront Shuttle Services						
30	8:00 a.m.–2:00 a.m.	15	218	8:00 a.m.–2:00 a.m.	15	218
31	9:30 a.m.–11:10 p.m.	20	82	9:30 a.m.–11:10 p.m.	20	82
35	8:00 a.m.–12:50 a.m.	30	44	8:00 a.m.–12:50 a.m.	30	44
Metro Area Express (MAX) Services						
960	6:30 a.m.–8:19 p.m.	60	28	7:50 a.m.–8:53 p.m.	60	27
961	4:58 a.m.–10:57 p.m.	30	48	7:00 a.m.–8:58 p.m.	60	28

Operating Statistics

HRT's fixed-route services operate out of three garages; the two year-round operating facilities are in Norfolk and in Hampton, with another small seasonal (summer) facility in Virginia Beach. The agency has a 235 fixed-route peak vehicle need during the summer season and a 222 fixed-route peak vehicle need all other times. Annually, the HRT fixed-route services operate over 10.5 million revenue miles and approximately 830,000 revenue hours. The majority of this service is operated in the Southside. **Table 2-4** summarizes key operational statistics for HRT's fixed route buses for FY 2019.

Table 2-4: Operating Statistics by Service

Service	Peak Vehicle Need[2]	Annual Revenue Miles[3]	Annual Revenue Hours[4]
Southside Services	139	5,367,270	462,788
Peninsula Services	52	2,692,806	213,797
VB Wave and Bayfront Shuttle Services (seasonal)	13	193,694	23,786
Peninsula Commuter Services	1	49,939	2,558
Metro Area Express (MAX) Services	30	902,532	40,481
Total	**235**	**9,206,241**	**743,410**

Overall, Route 20 has the highest daily weekday peak vehicle need at 19 vehicles and operates the most revenue miles and hours compared to any other route in the system. In general, PCS and MAX Services operate longer one-way trips compared to the local fixed-route services. **Table 2-5** shows route-level peak vehicle need, average one-way trip route mileage, and annual revenue hours and miles for HRT's fixed-route bus services.

Table 2-5: Operating Statistics by Route

Route	Peak Vehicle Need[5]	Route Length: Average One-Way Trip (miles)	Annual Revenue Miles[6]	Annual Revenue Hours[7]
Southside Services				
1	10	23.6	419,828	35,700
2	4	10.2	207,102	19,445
3	7	17.2	389,491	27,628

[2] As of May 2019.
[3] FY 2019 data, except VB Wave and Bayfront Shuttle Services, which represent estimated FY 2018 data.
[4] FY 2019 data.
[5] As of May 2019.
[6] FY 2019 data, except VB Wave and Bayfront Shuttle Services, which represent estimated FY 2018 data.
[7] FY 2019 data.

Route	Peak Vehicle Need[5]	Route Length: Average One-Way Trip (miles)	Annual Revenue Miles[6]	Annual Revenue Hours[7]
4	1	4.9	57,783	5,964
5	1	6.8	48,919	3,625
6	3	10.0	122,403	11,941
8	4	8.2	171,450	16,530
9	6	9.5	164,840	16,745
11	1	3.7	32,158	4,289
12	2	14.4	135,044	9,291
13	3	9.8	118,650	12,322
14	3	15.6	119,062	7,714
15	9	15.4	375,656	31,729
18	3	5.7	57,220	5,301
20	19	23.6	598,880	54,594
21	5	13.0	247,413	26,389
22	2	12.8	95,298	7,727
23	5	11.9	285,187	27,133
25	2	12.4	127,286	11,177
26	2	5.3	64,800	5,669
27	2	7.7	101,759	6,663
29	3	14.2	135,604	8,563
33	5	18.2	188,268	14,427
36	4	8.1	100,071	8,478
41	2	11.9	93,511	7,802
43	1	3.9	28,068	3,610
44	3	15.0	128,671	9,678
45	8	11.2	284,839	26,852
47	11	9.0	174,136	15,626
50	1	6.0	48,472	4,281
55	1	6.7	53,364	4,034
57	5	15.9	120,406	7,633
58	1	8.6	71,631	4,228
Peninsula Services				
64	4	34.8	35,997	1,616
101	3	9.1	152,035	11,077
102	1	7.5	59,459	4,735
103	3	10.1	189,764	16,820
104	3	8.1	161,640	14,426
105	2	12.7	147,750	11,774
106	3	20.1	273,040	19,828
107	4	18.6	220,148	17,250
108	4	8.8	105,214	11,056
109	1	4.4	45,852	4,207
110	4	12.9	140,642	10,998
111	4	13.6	145,344	10,694

Route	Peak Vehicle Need[5]	Route Length: Average One-Way Trip (miles)	Annual Revenue Miles[6]	Annual Revenue Hours[7]
112	4	14.0	294,090	21,821
114	4	10.1	194,289	19,190
115	1	8.0	98,333	6,115
116	3	16.7	183,455	14,735
117	0	3.1	24,786	2,382
118	2	12.6	137,960	10,770
120	1	4.9	47,309	3,359
121	1	37.0	35,699	945
VB Wave and Bayfront Shuttle Services				
30	7	3.0	78,535	12,883
31	2	4.9	32,691	3,007
35	4	16.2	82,468	7,896
Peninsula Commuter Services				
403	0	15.7	3,944	211
405	0	16.1	7,705	480
414	1	20.2	25,336	1,192
415	0	12.7	3,159	188
430	0	14.2	9,795	487
Metro Area Express (MAX) Services				
919	4	20.9	38,228	1,494
922	3	23.8	43,831	1,733
960	2	20.8	218,399	10,312
961	8	29.7	48,421	20,400
966	2	33.2	32,073	1,068
967	6	39.4	110,889	3,663
972	1	39.2	18,662	512
973	2	18.7	18,491	598
974	2	24.8	24,518	701
Total	**235**	-	**10,466,184**	**743,410**

Operating Costs

An analysis of operating expenses and revenues can elicit an understanding of how cost-efficient HRT services are operating. In FY 2019, fixed-route service operating expenses totaled over $68 million, with farebox revenue generating just over $12 million, covering approximately 18 percent of the operational costs. **Figure 2-1** through **Figure 2-4** show operating expenses and revenues by route for FY 2019 for fixed-route bus services.[8]

[8] Missing revenue and expenses for PCS routes.

Figure 2-1: Operating Expenses and Revenues by Route for Southside Routes, FY 2019

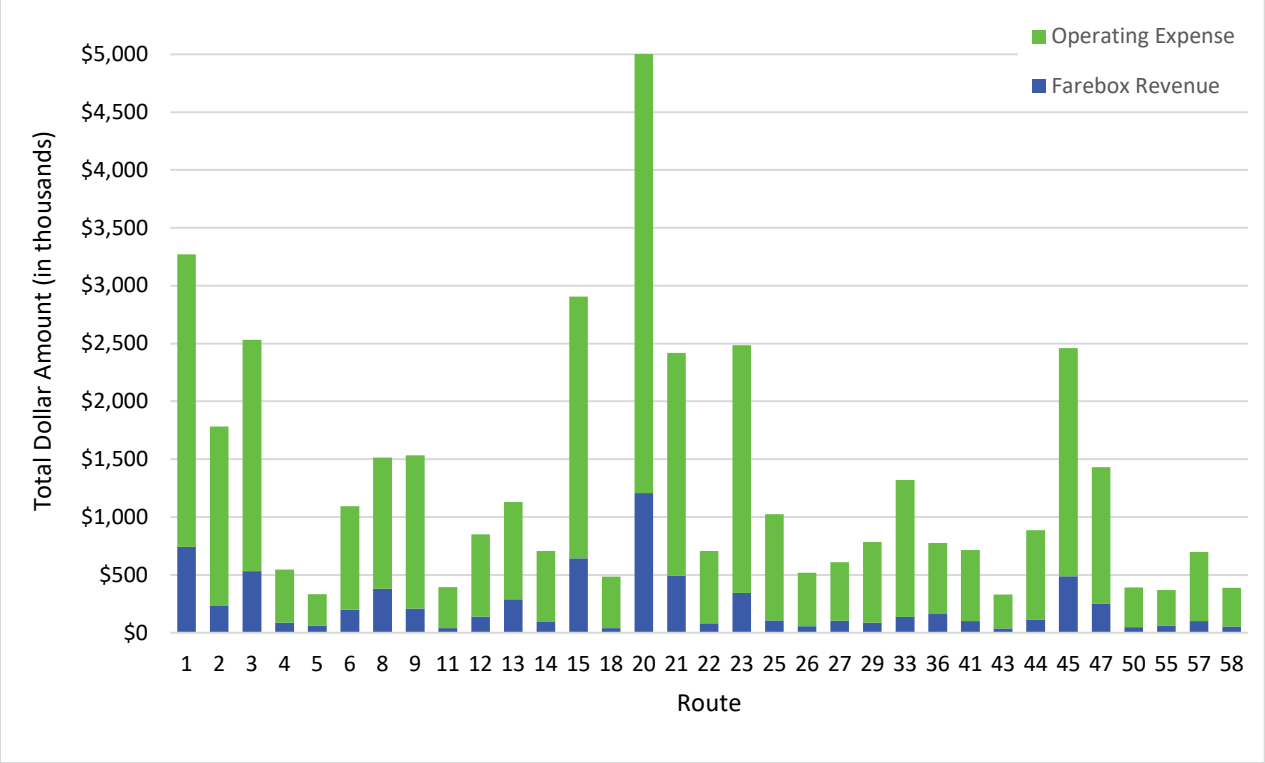


Figure 2-2: Operating Expenses and Revenues by Route for Peninsula Routes, FY 2019

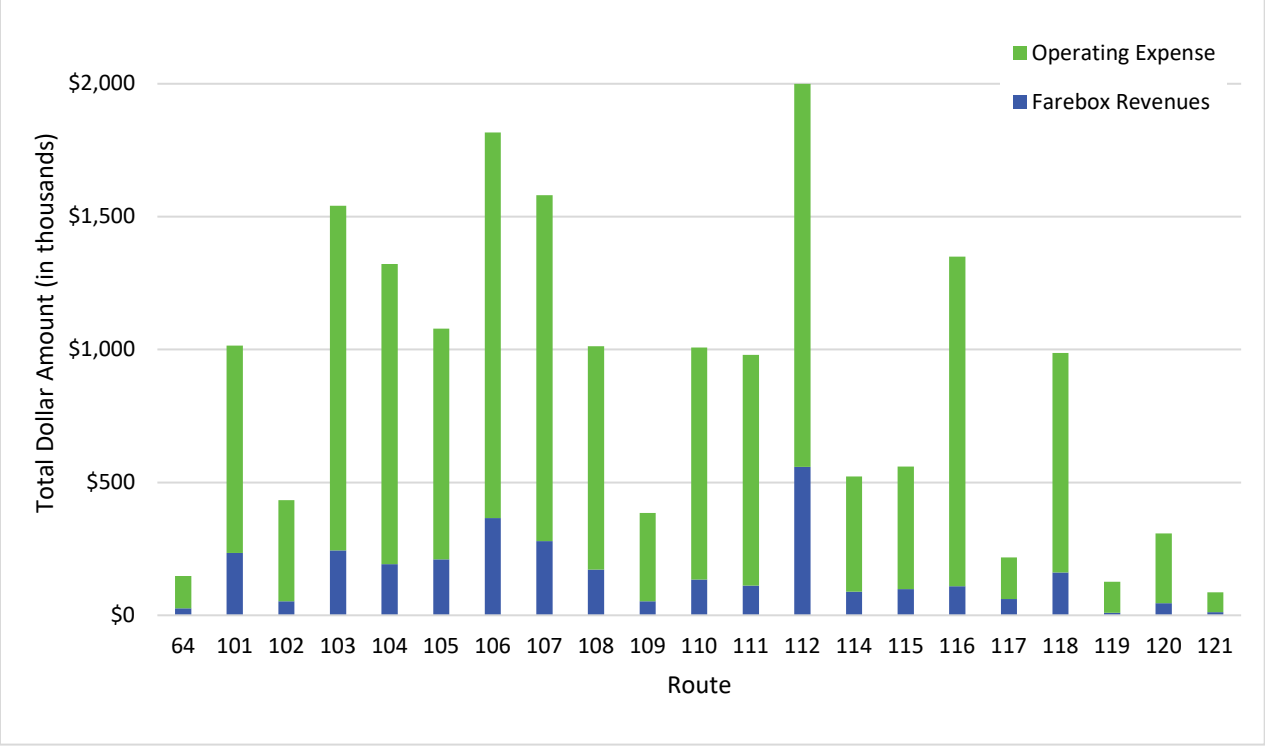


Figure 2-3: Operating Expenses and Revenues for VB Wave and Bayfront Shuttle Service, FY 2019

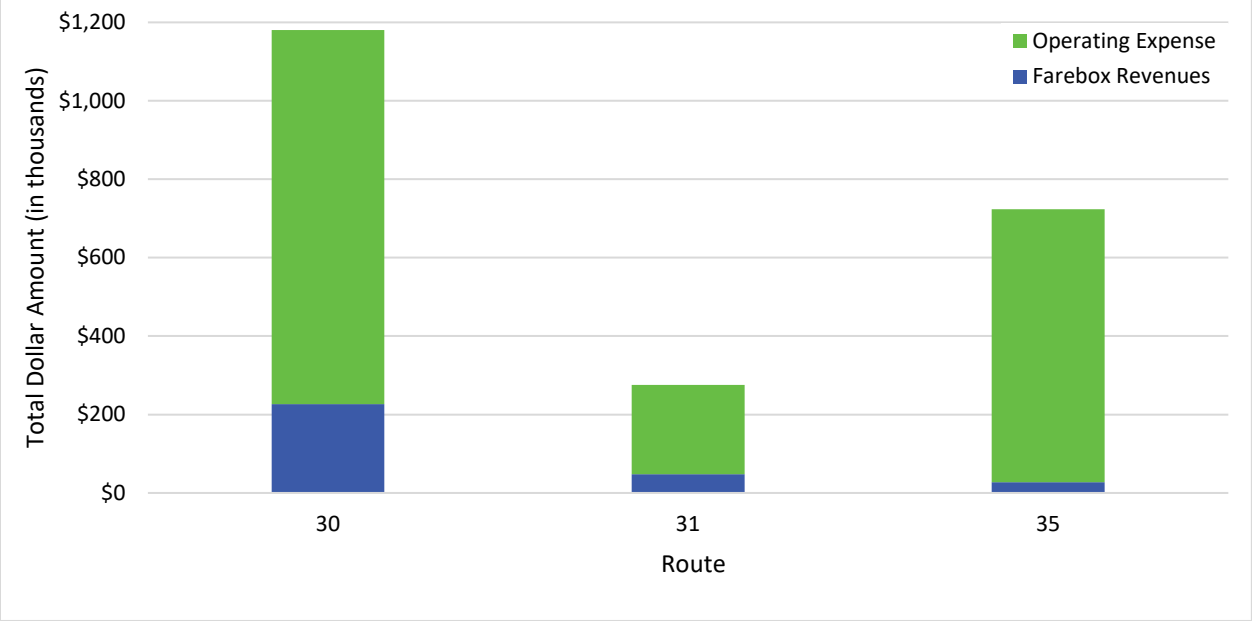
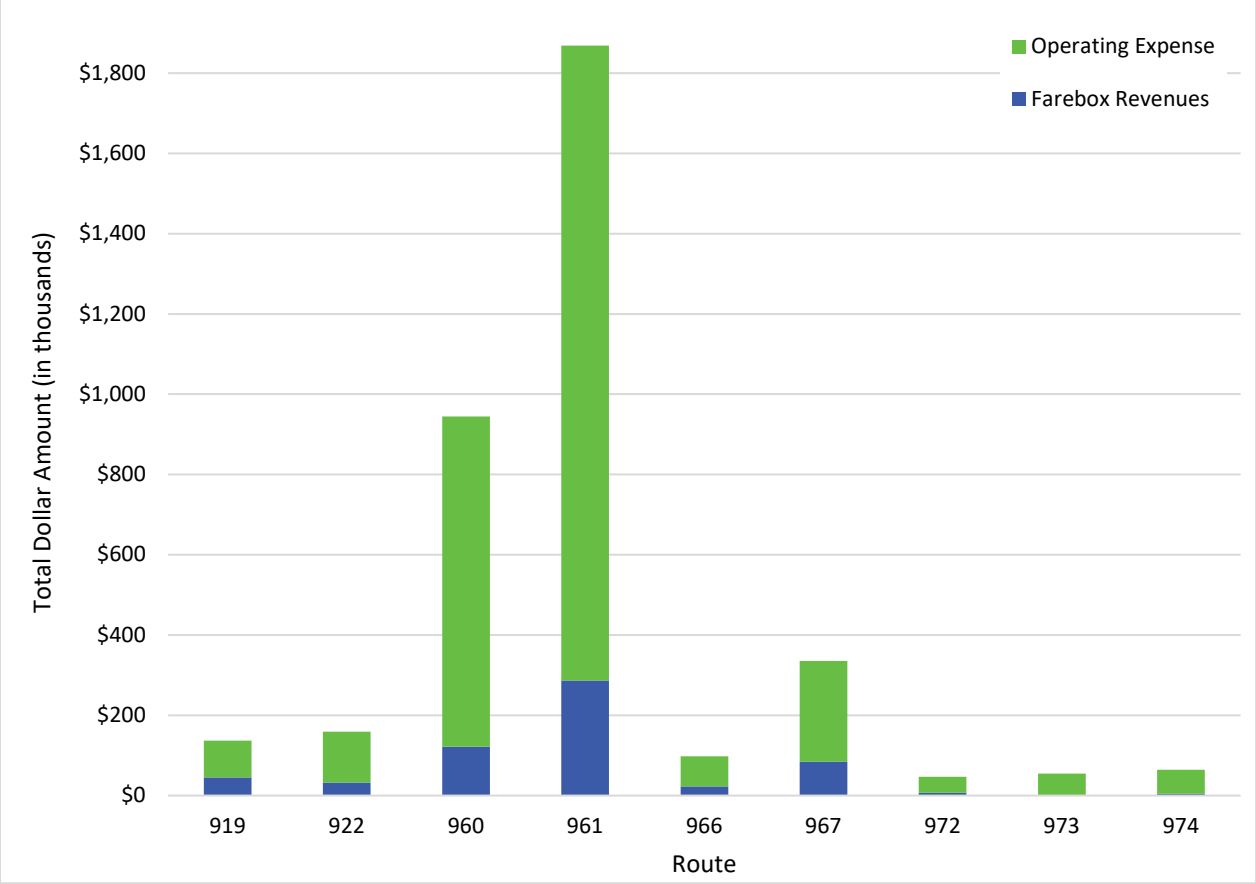


Figure 2-4: Operating Expense and Revenue for MAX Routes, FY 2019



Annual Ridership

In FY 2019, HRT's Southside, Peninsula, PCS, MAX, and VB Wave routes served a combined total of over 11 million riders. By service, the FY 2019 ridership was:

- **Southside:** 7,100,293
- **Peninsula:** 3,224,922
- **PCS:** 85,054
- **MAX:** 389,558
- **VB Wave:** 277,070

Route 20 (Downtown Norfolk/Virginia Beach Oceanfront) had the highest overall ridership in FY 2019, with more than 1 million riders, representing 9.3 percent of all HRT fixed-route bus ridership. Route 20 is followed by Route 1 (Downtown Norfolk/Pembroke East) in ridership and Route 15 (Evelyn Butts to Robert Hall/Greenbrier Mall), which – combined – account for over 20 percent of all HRT fixed-route bus ridership. Ridership and rank for each route is shown in **Table 2-6**.

Table 2-6: Annual Ridership by Route, FY 2019

Route	Annual Ridership	System Rank
Southside Services		
1	697,288	2
2	214,975	17
3	500,937	4
4	85,562	39
5	62,204	44
6	188,974	21
8	367,093	8
9	193,928	20
11	41,898	54
12	118,540	28
13	265,055	12
14	88,026	38
15	588,446	3
18	37,520	56
20	1,029,178	1
21	470,520	6
22	73,399	42
23	324,459	10
25	97,330	33
26	48,913	50
27	93,781	35
29	75,153	40
33	107,895	30
36	137,069	26
41	94,363	34
43	39,065	55
44	105,727	31
45	454,224	7
47	235,240	15
50	47,046	53
55	50,556	49
57	91,603	36
58	51,985	48
64	22,341	60
Peninsula Services		
101	233,440	16
102	55,134	47
103	243,204	14
104	181,691	22
105	199,351	19
106	314,878	11
107	254,451	13
108	139,414	25
109	56,172	46
110	134,706	27
111	108,883	29
112	497,207	5
114	336,096	9
115	98,516	32
116	90,448	37
117	61,122	45
118	152,853	24
119	8,944	67
120	47,308	52
121	11,104	65

Route	Annual Ridership	System Rank
VB Wave and Bayfront Shuttle Services		
30	205,588	18
31	47,846	51
35	23,636	58
Peninsula Commuter Services		
403	10,950	66
405	14,957	63
414	22,574	59
415	8,124	68
430	28,449	57

Route	Annual Ridership	System Rank
MAX Services		
919	20,275	62
922	14,551	64
960	69,252	43
961	180,153	23
966	22,206	61
967	73,692	41
972	6,566	69
973	814	71
974	2,049	70

2.1.2 Paratransit Service

HRT's paratransit service operates during the same hours and days as the regularly scheduled fixed-route service. HRT paratransit serves areas within three-quarters of a mile of any fixed route. HRT contracts out both the call center, which takes all the trip requests and creates the daily scheduling, and the daily operations. The service transports passengers using accessible lift vans and sedans that are a combination of owned and leased vehicles.

Operating Statistics

Paratransit services provide approximately 25 percent of the revenue hours and miles across all of HRT's modes. **Table 2-7** details the peak vehicle need and revenue miles for HRT's paratransit services.

Table 2-7: Operational Statistics for Paratransit Services, FY 2019

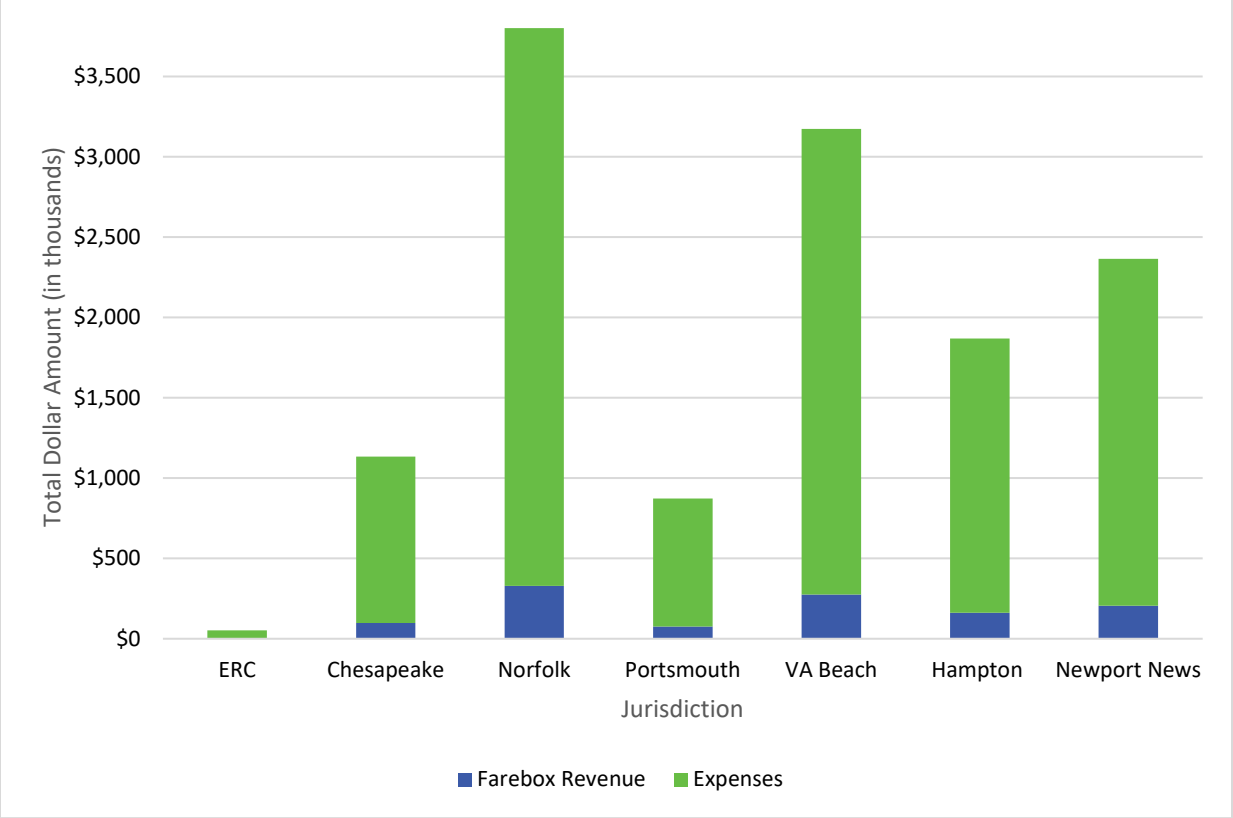
Peak Vehicle Need[9]	Revenue Miles	Total Hours
103	3,719,272	266,860

Operating Costs

In FY 2019, demand response operating expenses totaled $13,281,517. Operating expenses and revenues for demand response service for each jurisdiction are shown in **Figure 2-5**.

[9] As of May 2019

Figure 2-5: Operating Expense and Revenue for Demand Response Service, FY 2019[10]



Annual ridership

In FY 2019, HRT carried 373,376 passengers on its paratransit service. Of the jurisdictions, Norfolk had the highest paratransit ridership, followed by Virginia Beach and Newport News. Annual ridership for paratransit service broken down by jurisdiction is shown in **Table 2-8**.

Table 2-8: Annual Demand Response Ridership, FY 2019

Jurisdiction	Ridership	System Rank
Chesapeake	32,109	5
Hampton	52,504	4
Newport News	66,479	3
Norfolk	107,711	1
Portsmouth	24,652	6
Virginia Beach	89,358	2

2.1.3 Ferry Service

HRT contracts with Norfolk-by-Boat to provide service on three 100-passenger ferries on the Elizabeth River between Norfolk and Portsmouth. Ferries operate seven days a week year-round, but offer higher frequency during the summer months, as shown in **Table 2-9** and **Table 2-10**. HRT also runs ferry service to Harbor Park when the Norfolk Tides play a home game; ferries run every 30 minutes for one hour before the game begins and run until the game ends.

[10] ERC farebox revenue totaled $4,446 and expenses totaled $51,386 in FY 2019

Table 2-9: Elizabeth River Ferry Summer (Memorial Day–Labor Day) Schedule

Day	Span	Headway (minutes)	Number of Daily Trips
Monday - Thursday	5:30 a.m.–11:45 p.m.	30	37
Friday	5:30 a.m.–4:00 p.m.; 10:00 p.m.–11:45 p.m.	30	48
	4:00 p.m.–10:00 p.m.	15	
Saturday	10:00 a.m.–2:00 p.m.; 8:00 p.m.–11:45 p.m.	30	38
	2:00 p.m.–8:00 p.m.	15	
Sunday	10:00 a.m.–12:00 p.m.; 6:00 p.m.–11:45 p.m.	30	38
	12:00 p.m.–6:00 p.m.	15	

Table 2-10: Elizabeth River Ferry Winter (Labor Day–Memorial Day) Schedule

Day	Span	Headway (minutes)	Number of Daily Trips
Monday - Thursday	5:30 a.m.–9:45 p.m.	30	33
Friday	5:30 a.m.–11:45 p.m.	30	37
Saturday	10:00 a.m.–11:45 p.m.	30	28
Sunday	10:00 a.m.–9:45 p.m.	30	24

Operating Statistics

Ferry services account for less than one percent of the revenue hours and miles across all of HRT's modes. The Elizabeth River Ferry has three stops, High Street, North Landing, and Waterside, that result in a route 1.5 miles long. Ferry service is also provided to the Harbor Park baseball stadium between April and September when the Norfolk Tides play home games. **Table 2-11** shows key operational statistics for HRT's ferry services for FY 2019.

Table 2-11: Operating Statistics for Ferry Service, FY 2019

Peak Vehicle Need[11]	Route Length (miles)	Revenue Miles	Total Hours
2	1.5	18,734	6,516

Operating Costs

In FY 2019, total ferry budgeted expenses equaled $1,287,731.[12]

Annual Ridership

In FY 2019 ridership on the Elizabeth River Ferry totaled 301,321. On average, the ferry service carried approximately 730 passengers on weekdays, 1,330 on Saturdays, and 770 on Sundays.

[11] As of May 2019

[12] Hampton Roads, VA Fiscal Year 2019 Budget: https://gohrt.com/wp-content/uploads/2019/05/FY2019-Budget-Book.pdf

2.1.4 Light Rail Service

HRT operates a 7.4-mile light rail transit system called The Tide from the Eastern Virginia Medical Center complex to the Norfolk/Virginia Beach Border at Newtown Road. The Tide is the first light rail transit system in Virginia and operates seven days a week. **Table 2-12** shows The Tide's schedule.

Table 2-12: The Tide Light Rail Schedule

Span	Headway (minutes)	Number of Daily Trips
Weekday		
6:00 a.m.–6:30 a.m.	15	5
6:30 a.m.–9:00 a.m.	10	15
9:00 a.m.–3:30 p.m.	15	27
3:30 p.m.–7:00 p.m.	10	22
7:00 p.m.–10:00 p.m.	15	14
10:00 p.m.–11:00 p.m.	30	4
10:00 p.m.–12:00 a.m.[13]	30	6
Saturday Schedule		
6:00 a.m.–9:00 a.m.	30	8
9:00 a.m.–9:30 p.m.	15	3
9:30 p.m.–12:00 a.m.	30	57
Sunday Schedule		
10:55 a.m.–9:00 p.m.	15	46

Operating Statistics

Light rail services account for approximately three percent of the revenue hours and miles across all of HRT's modes. **Table 2-13** details the peak vehicle needs, and revenue hours and miles for HRT's light rail services.

Table 2-13: Light Rail Operating Statistics, FY 2019

Peak Vehicle Need[14]	Route Length: Average One-Way Trip (miles)	Revenue Miles	Total Hours
6	7.4	385,467	29, 475

Operating Costs

In FY 2019, total light rail budgeted expenses equaled $10,821,629.[15]

Annual Ridership

Annual ridership on light rail totaled 1,397,192 trips in FY 2019.

2.1.5 Route Design and Schedule Standards

Service design standards are critical planning tools to ensure an objective approach to service provision and modification. HRT's service design standards are fully detailed in **Section 1.2.3: Service Design Standards** and include standards related to route design as well as schedule and performance standards.

[13] Service until 12:00 a.m. is only on Fridays.
[14] As of May 2019
[15] Transportation District Commission of Hampton Roads, Hampton Roads, Virginia, Fiscal Year 2019 Budget. https://gohrt.com/wp-content/uploads/2019/05/FY2019-Budget-Book.pdf

Route Design

The alignment of each route is a key factor in its ability to successfully serve customers' mobility needs. "Route design" refers to route directness, connections to key origins and destinations, and how routes interface with other services that comprise the overall network. Key route design principles include:

- HRT routes should be designed to serve origins and destinations via direct pathways, minimizing out-of-direction movements. This provides a faster trip to attract more customers and fare revenue while minimizing the cost to provide service.
- Bus routes should serve major mixed-use corridors throughout the service area, avoiding smaller neighborhood streets.
- High-frequency HRT routes should be designed to serve major corridors, offer more direct service, and provide transfer connections either on-street or at major transfer hubs in the urban core.
- Deviations off the basic alignment of a fixed route should be minimized whenever possible; however, under HRT's standards, routes may deviate off their primary alignment to serve major activity centers or provide coverage to areas with limited access. The time necessary for the deviation should not exceed five minutes, or ten percent of the one-way travel time of the existing route without deviation, and deviations must result in an increase in overall route productivity.

Schedule Standards

HRT's weekday service generally runs between 5:00 a.m. and 1:00 a.m., but some routes end as late as 2:00 a.m. and start as early at 4:44 a.m. Each time period and route type have different service span standards. Weekend service generally runs between 6:00 a.m. and 12:00 a.m. **Table 2-14** shows the standards for headways by service classification and time period.[16]

Table 2-14: Service Headway by Route Classification

Time Period		Regional Backbone	Local	Coverage	Limited / Express	On-Demand
Weekday peak	6:00 a.m.–9:00 a.m. 3:00 p.m.–6:00 p.m.	15 min	30 min	60 min	Demand base	n/a
Weekday midday	9:00 a.m.–3:00 p.m.	30 min	30 min	60 min	Demand base	n/a
Weekday evening	6:00 p.m.–9:00 p.m.	30 min	60 min	60 min	Demand base	n/a
Weekend peak	8:00 a.m.–6:00 p.m.	30 min	30 min	60 min	Demand base	n/a
Weekend off-peak	6:00 a.m.–8:00 a.m. 6:00 p.m.–9:00 p.m.	30 min	60 min	60 min	Demand base	n/a

2.1.6 Survey Results

HRT conducted an on-board passenger survey across all modes between August 2016 and February 2017, with the next on-board passenger survey slated for FY 2021. In addition to the origin and destinations of their trip, survey respondents provided demographic information, the type of fare used, and their means of access to the HRT system. The results of the survey are summarized in the following subsections.

Demographics

HRT customers reported the following demographic characteristics:

- Nearly 75 percent identify as a minority, including Black/African American, Hispanic/Latino, Asian, American Indian/Alaskan Native, and Native Hawaiian/Pacific Islander. The remainder identify as White/Non-Hispanic.
- Forty-seven percent live in a household with a total income less than $25,000 per year, and 80 percent live in a household with an income below $50,000 per year.

[16] Weekday early morning (before 6:00 a.m.) and late-night services (after 9:00 p.m.) do not have defined service standards.

- Fifty-eight percent identify as female.
- Approximately 75 percent are employed either full-time or part-time.
- Five percent reported having a disability.
- Seventy-six percent live in zero- or one-car households.
- Fifty-eight percent are 34 years old or younger, three percent were under the age of 18, and three percent were 65 or older.

Fare Type

According to the on-board survey, a majority of riders use a 1-Day GoPass for their trip (53 percent), followed by a one-trip fare paid with cash (15 percent). **Table 2-15** shows the full fare breakdown of survey respondents.

Table 2-15: Percent Responses by Fare Type

Fare Type	Percentage of People
1-Day GoPass	53%
One-trip fare (cash)	15%
30-Day GoPass	9%
7-Day GoPass	8%
GoPass 365	6%
Other[17]	9%

Few respondents reported that they received a discount on their fare: three percent received a senior discount, two percent received a discount for persons with disabilities, and one percent received a youth discount.

Access Mode

Riders overwhelmingly access transit by walking, as shown in **Table 2-16**. Fewer than eight percent reported being dropped off, biking, driving to transit, or using other means of access.

Table 2-16: Percent Responses by Access Mode

Access Mode	Percentage of People
Walk	92%
Was dropped off by someone	3%
Bike	2%
Drove alone and parked	1%
Drove or rode with others and parked	1%
Other[18]	<1%

Most passengers (63 percent) reported making no transfers to complete their trip. Twenty-nine percent reported making one transfer and eight percent reported making two or more transfers.

Trip Origins and Destinations

Travel to home or work accounts for the majority of trips on HRT services. Other major destination types include shopping and school. Similar patterns can be seen among trip origin types. A full breakdown of trip destinations is shown in **Table 2-17**.

[17] "Other" includes: VB Wave 1 Day, GoSemester, Student Freedom Pass, VB Wave 3 Day, 1-Day MAX Pass, Try Transit 1-Day, 30-Day MAX Pass, e-Tide Ticket, 2-Ride GoPass, Try Transit 30 day.
[18] "Other" modes include: Wheelchair or scooter, Skateboard, Transportation Network Company (Uber, Lyft, etc.), Taxi, and school/shuttle bus. Fewer than 0.3 percent of survey respondents used any of these modes.

Table 2-17: Percent Responses by Destination Type

Destination Type	Percentage of People
Home	32%
Work	29%
Shopping	9%
School[19]	5%
Recreation[20]	5%
Eating or Dining Out	4%
Medical Appointment or Doctor's Visit	2%
Other[21]	15%

2.1.7 Support for Transit

As discussed in detail in **Section A.4.3: Transit Design Agreements with Localities**, the cities of Newport News, Norfolk, and Virginia Beach have included transit-supportive land use policies or strategies in their most recent comprehensive plans. While these policies do not represent current transit design agreements with HRT, they do reflect a regional desire to link land use and transportation, including transit access. HRT and the other service providers in the region, Suffolk Transit and Williamsburg Area Transit Authority (WATA), have begun identifying strategies for interagency coordination and collaboration, as described in **Section 2.5: Analysis of Opportunities to Collaborate with Other Transit Providers**. This move toward collaboration and coordination across agencies demonstrates the municipal level support for well-connected transit service in the region.

In addition to municipal level support for transit in the region, HRT has established practices for gauging and tracking public support for transit. As described in **Section A.11: Public Outreach/Engagement/Involvement,** HRT's "Public Hearings and Meetings" policy details the formal process of scheduling public hearings and meetings relative to major service and fare changes. All other changes in HRT service are subject to "meaningful public engagement methods as appropriate to the nature of the proposed change," as is documented in the agency's Title VI Program Public Participation Plan.

From November 2018 – February 2019 HRT conducted a survey to gather community feedback on how to best prioritize improvements to the HRT bus system as part of the Transit Transformation Project. This survey highlighted, from the user perspective, the system's most pressing needs. Nearly 2,500 people participated in the survey, with about 40% of participants self-identifying as HRT bus users. Of potential improvements to the system, surveyed users weighed more reliable and frequent service as well as real-time bus arrival information most heavily.

[19] "School" includes: K-12 and college or university destinations (for students only).
[20] "Recreation" includes: recreation/sightseeing and sporting events.
[21] "Other" destinations include: social visits (friends/relatives), personal business (bank, post office), other business related, pick-up/drop-off someone (daycare, school).

2.2 Evaluation of Transit Market Demand and Underserved Areas

2.2.1 Transit Demand and Underserved Area Evaluation

The following market analysis maps the current density and population of Hampton Roads to determine the demand for different types of transit services throughout HRT's service area. The market analysis is broken into multiple sub-analyses:

- Transit-Oriented Populations Origin Index
- Commuter Origin Index
- Employment Destination Index
- Activity Destination Index
- Population / Employment Trends
- Regional Travel Flows

Transit Propensity Indices

To determine whether a location is suitable for transit service, this transit strategic plan uses a series of indices that reveal locations with significant clusters of potential transit-oriented users, commuters, jobs, or other non-work activity destinations that could be well-served by transit. Each index is based on a set of demographic, employment, and geographic characteristics which are weighted to reflect the effect of these characteristics on transit demand. Together with other data on the origins and destinations of trips throughout the region, and input from stakeholders, these indices provide a foundation for planning transit service throughout the HRT service area. The transit propensity indices for the Hampton Roads Transit TSP are summarized in **Table 2-18**.

The transit propensity indices that follow are constructed from demographic and employment statistics that are positively correlated with transit ridership. For instance, a location with a high number of zero-car households will be more likely to have potential transit users than a location with more multi-car households, with all other characteristics being equal. For each index, these demographic and employment statistics are weighted based on their relative effect on transit ridership within the Hampton Roads region derived from Hampton Roads Transit's 2016 *Regional Origin and Destination Study*.

The transit-oriented population and commuter indices draw from the US Census' 2017 American Community Survey (ACS) five-year estimates, which provide the most recent and reliable source of demographic data for small geographic areas (Census block groups). Employment and non-work travel indices are based on the US Census' 2015 Longitudinal Employer-Household Dynamics (LEHD) survey, which provides the most recent estimates of the number and type of jobs in an area (Census block groups).

Table 2-18: Summary of Transit Propensity Indices

	Transit Propensity Index	Demographic and Employment Statistics Used	Locations with Highest Propensity
Trip Producers	**Transit-Oriented Population**	Population, race/ethnicity, households, age, income, car ownership, disability status	Downtown Norfolk, Downtown Hampton, areas south and east of I-664 in Newport News, and areas immediately north of I-64 in Norfolk.
	Commuter	Labor force, employed persons, commuters	Downtown Norfolk, the Virginia Beach Oceanfront, and residential neighborhoods throughout Virginia Beach.
Trip Attractors	**Workplace**	Employees	Military facilities, Chesapeake Municipal Center, Lynnhaven Mall, and the downtowns of Norfolk, Newport News, and Hampton.
	Non-Work	Jobs in restaurant and retail, recreation, healthcare and social assistance, education, and government	Downtowns of Hampton, Norfolk, Portsmouth, the Chesapeake Municipal Center, and areas adjacent to the intersection of I-64 and I-264.

Transit-Oriented Population Index

The Transit-Oriented Population Index identifies areas with higher numbers and concentrations of potential transit-oriented customers, to highlight areas throughout the service area that need or demand transit. The index is constructed from various demographic statistics in five categories: population (including race and ethnicity), age, income, vehicle ownership, and disability status. After each block group is scored in these categories, these scores are weighted and combined to create an overall transit-oriented population index, **Table 2-19** details the weights used for each category.

Table 2-19: Transit-Oriented Population Index

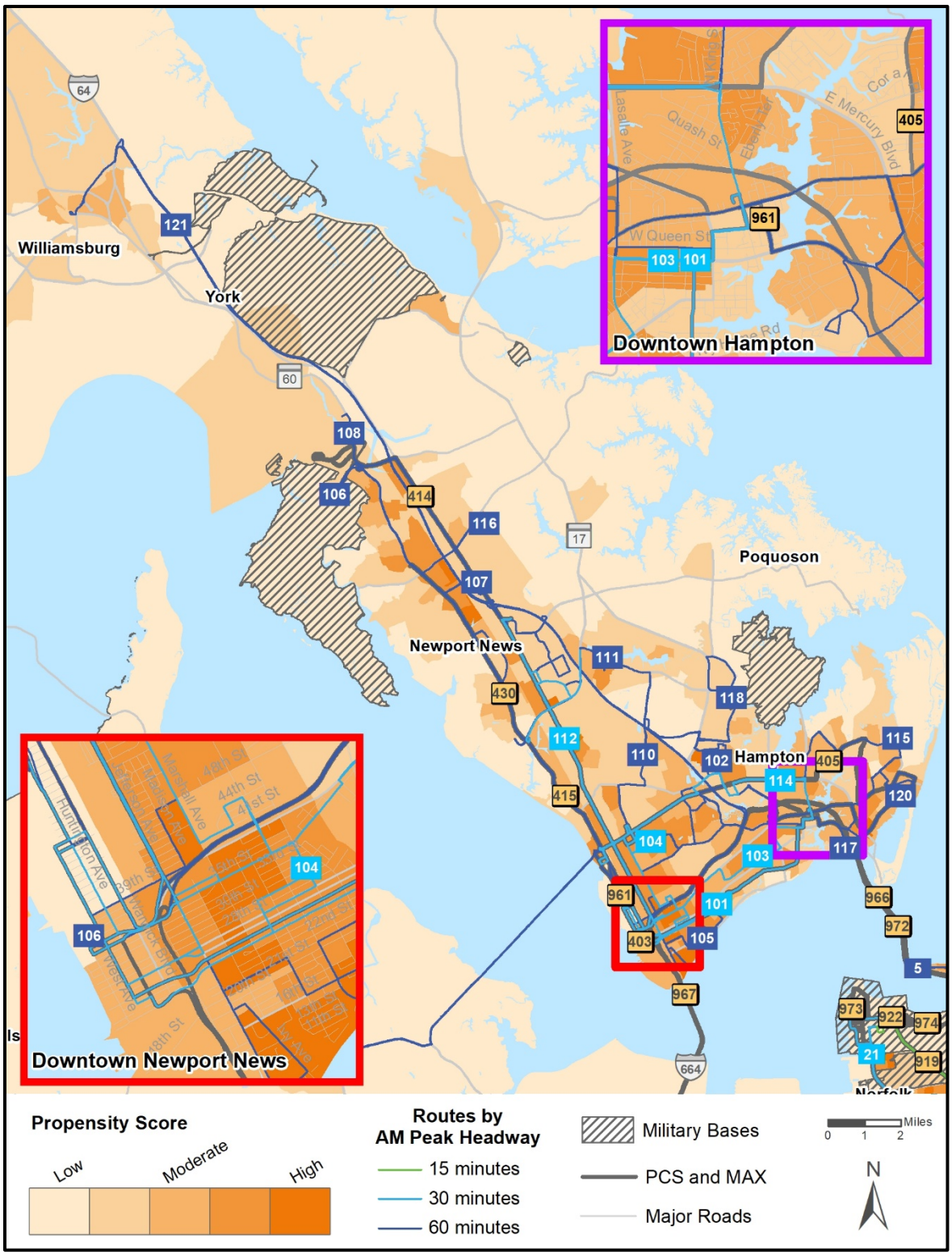
Category	Weight
Population (General / Minority)	30
Age (Youth / Senior)	10
Income (Low)	20
Vehicle Ownership (Zero / One Car)	30
Disability Status (Yes)	10

Across the entire Hampton Roads region, the areas with the most highly transit-oriented populations include neighborhoods in and adjacent to Downtown Norfolk such as Brambleton and Ghent, portions of Downtown and Midtown Portsmouth, Downtown Newport News, Downtown Hampton, and areas south and east of I-664 in Newport News. Other areas of significant transit-oriented populations are scattered throughout the metropolitan area, typically where relatively dense apartment complexes can be found. **Figure 2-6** and **Figure 2-7** show the Transit-Oriented Population Index for the Peninsula and Southside, respectively. Areas with moderate-to-high concentrations typically show significant concentrations of population, zero- and one-car households, low-income individuals, or some combination thereof.

On the Peninsula, moderate-to-high levels of transit-oriented populations can also be found in neighborhoods in and around Downtown Hampton, along the I-64 corridor in Newport News, and along Mercury Boulevard in both Newport News and Hampton. Many of these areas are either in close proximity to a major activity center, transportation corridor, or are relatively dense.

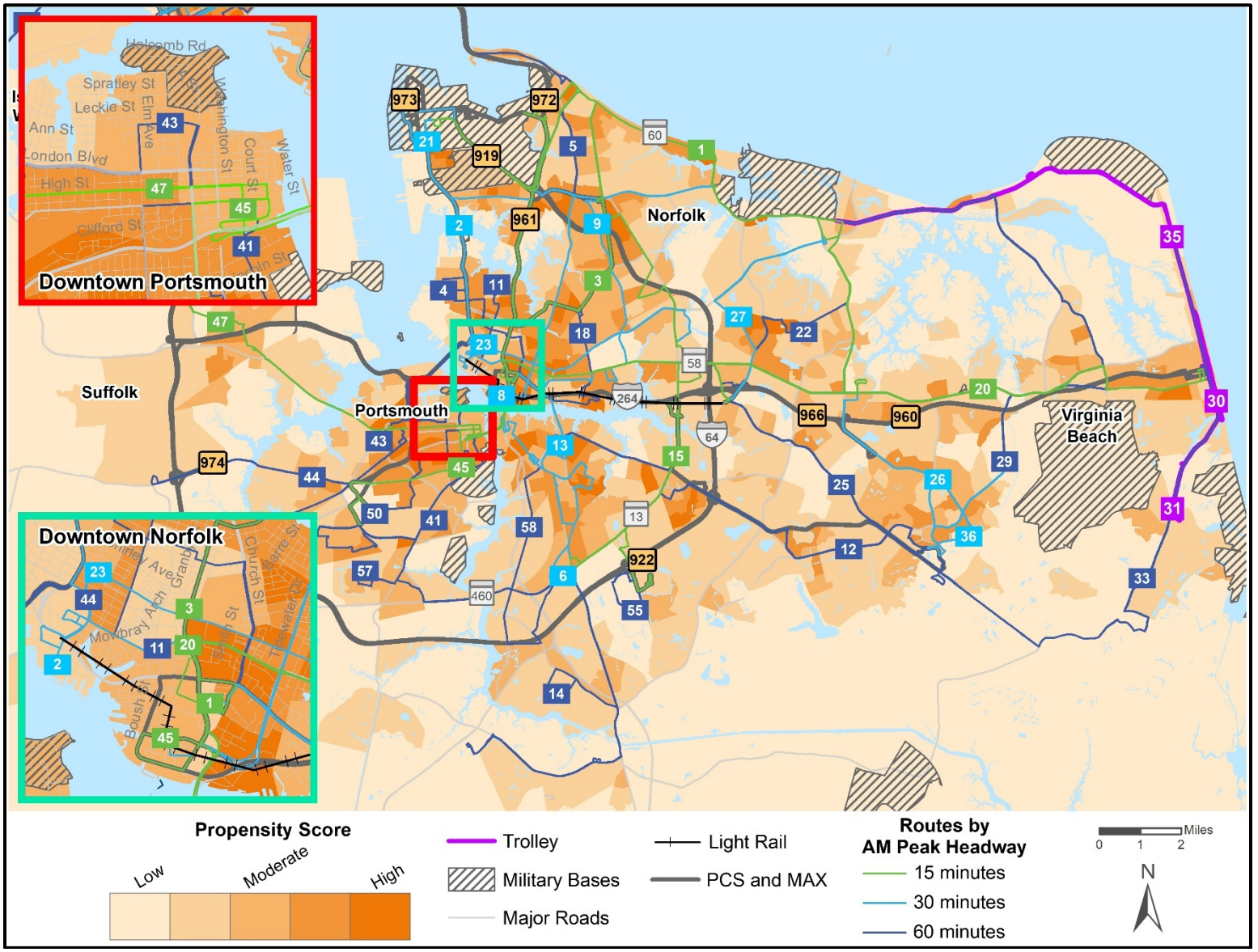
In the southern portion of HRT's service area, moderate-to-high concentrations of transit-oriented populations can also be found near historic downtowns and near major activity centers, such as higher education institutions like Virginia Wesleyan University and the Virginia Beach Convention Center. These locations include Downtown Portsmouth, Downtown Norfolk, along the Chesapeake-Norfolk border north of I-64 to the Elizabeth River, neighborhoods adjacent to Virginia Beach Boulevard such as Newtown and North Virginia Beach, and neighborhoods around Lynnhaven Parkway north of Princess Anne Boulevard.

Figure 2-6: Peninsula – Transit-Oriented Population Index



Source: HRT Routes Fall 2018

Figure 2-7: Southside – Transit-Oriented Population Index



Source: HRT Routes Fall 2018

Commuter Index

The Commuter Index identifies areas with high numbers and concentrations of traditional peak-hour commuters in order to determine how well existing transit service meets commuter demand and to identify potential new markets. The index is constructed from demographic statistics in two categories: labor force and commute mode. Statistics in these categories are designed to correlate with peak-hour trip flows. After each block group is scored in these categories, these scores are weighted and combined to assess an area's overall Commuter Index score. **Table 2-20** details the weights by category.

Table 2-20: Commuter Index

Category	Weight
Labor Force	90
Commute Mode (Transit)	10

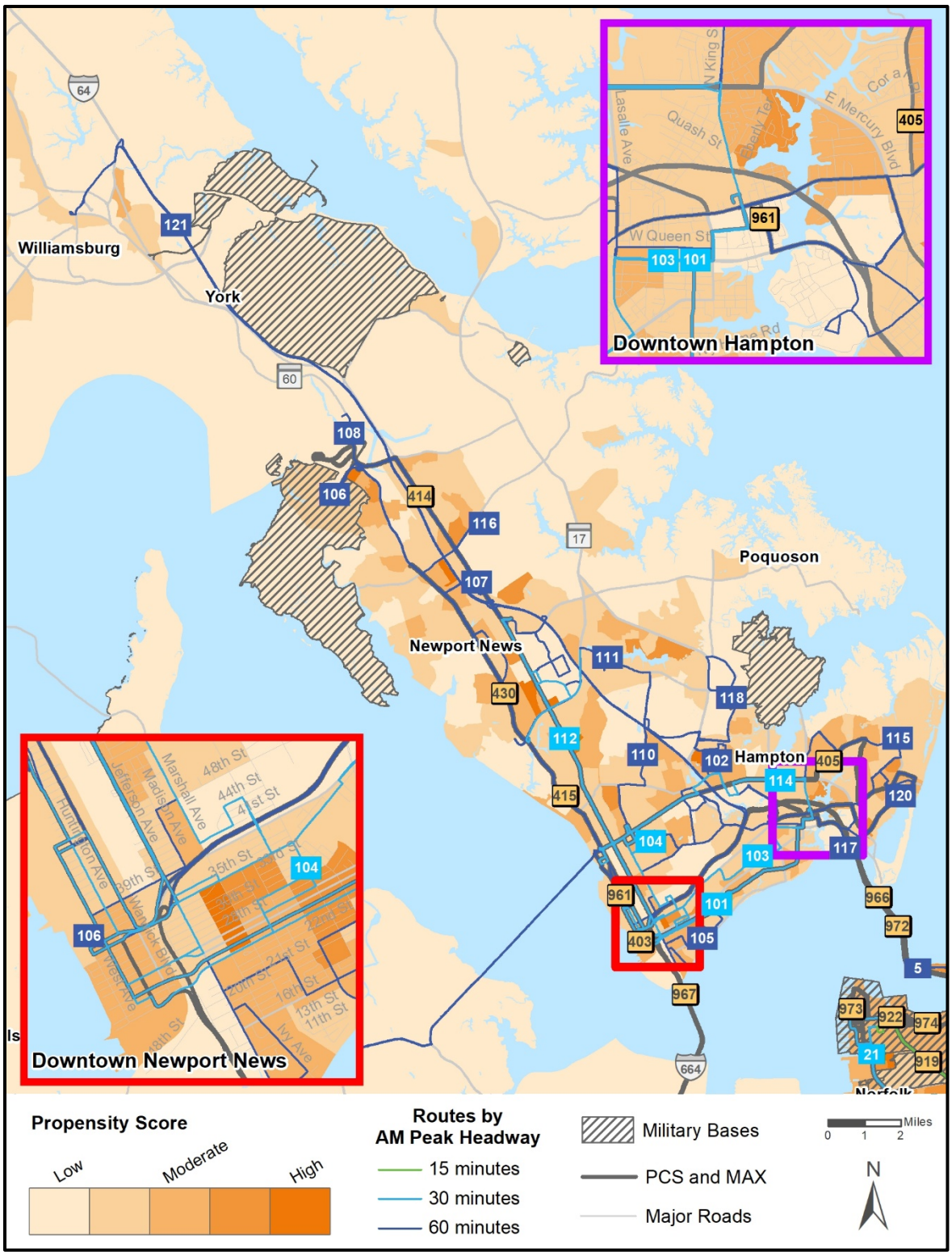
Figure 2-8 and **Figure 2-9** show the Commuter Index for the Peninsula and Southside, respectively. By design, areas with moderate to high Commuter Index scores are those areas with high numbers and densities of persons employed or in the labor force.

Across the entire HRT service area, the areas with the highest Commuter index scores include dense residential neighborhoods adjacent to Downtown Norfolk, the Virginia Beach Oceanfront, and several neighborhoods throughout Virginia Beach.

On the Peninsula, moderate levels of commuters are found along I-64 north of Mercury Boulevard and Warwick Boulevard (US-60) in Newport News. By comparison, the southernmost portions of Newport News and Downtown Hampton show relatively low commuter index values.

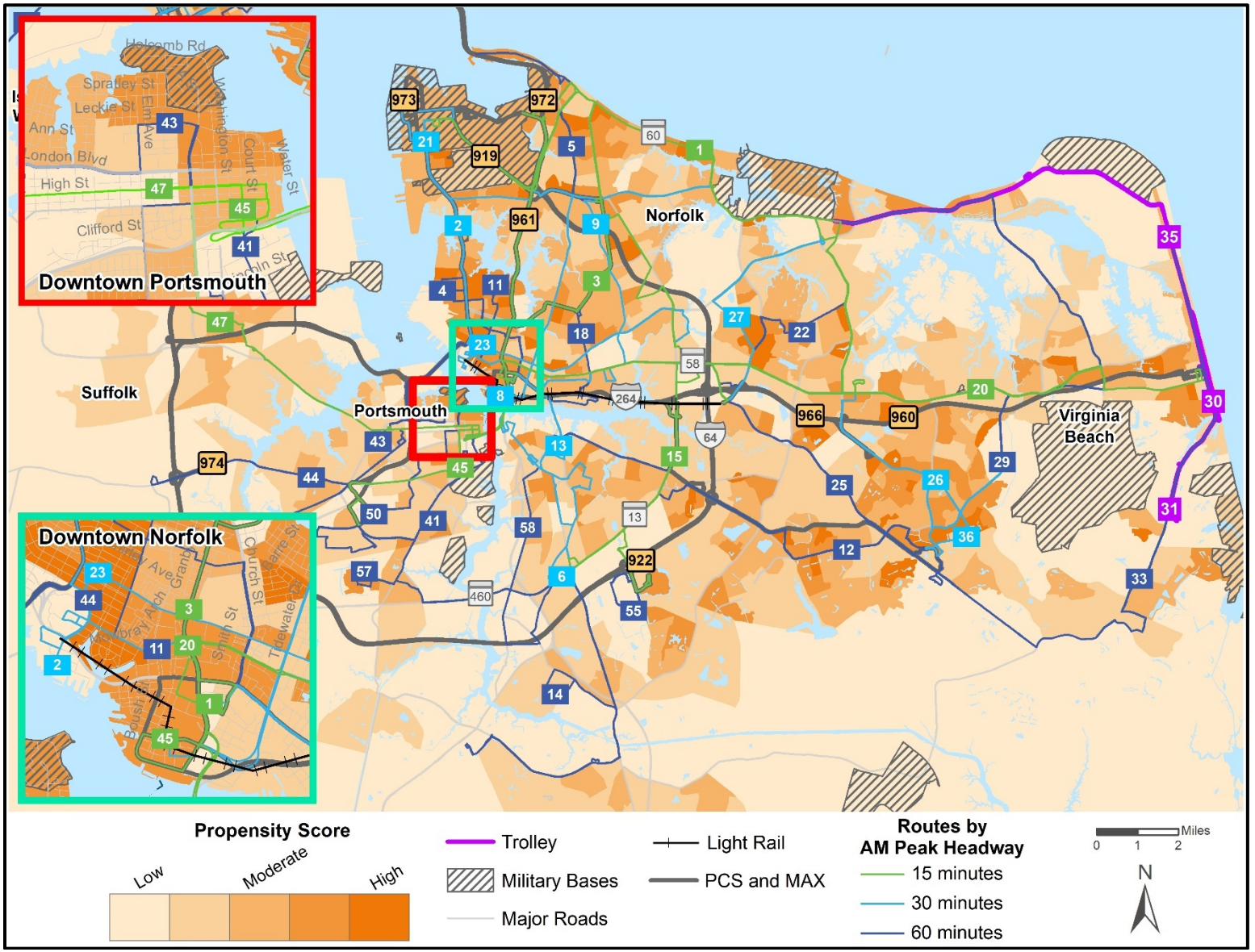
In the southern portion of HRT's service area, moderate-to-high concentrations of commuters are prevalent in places proximate to freeways and major arterials, primarily outside the region's urban core. In Chesapeake, medium concentrations are seen north of Military Highway, as well as around Greenbrier Mall and nearby neighborhoods. In Virginia Beach, these concentrations are highest along I-264 at the Virginia Beach Oceanfront, south of I-264 along Lynnhaven Parkway, and north of Virginia Beach Boulevard along Newtown Road.

Figure 2-8: Peninsula – Commuter Index



Source: HRT Routes Fall 2018

Figure 2-9: Southside – Commuter Index



Source: HRT Routes Fall 2018

Workplace Index

The Workplace Index is constructed from the total number of jobs and employment density in an area (**Table 2-21**). Areas with high numbers and densities of jobs are also likely to be locations where traditional peak-hour commuters would travel to for work and are considered major trip attractors. This index relies on Longitudinal Employer-Household Dynamic (LEHD) data on the location of both public and private sector jobs where the job is the primary job held by an individual. However, for block groups with military bases, LEHD figures significantly underestimate the jobs present at the facility. As a result, employment figures from Department of Defense websites and economic development reports are used in lieu of LEHD data for select military base block groups.

Table 2-21: Workplace Index

Category	Weight
Employment (All Jobs)	100

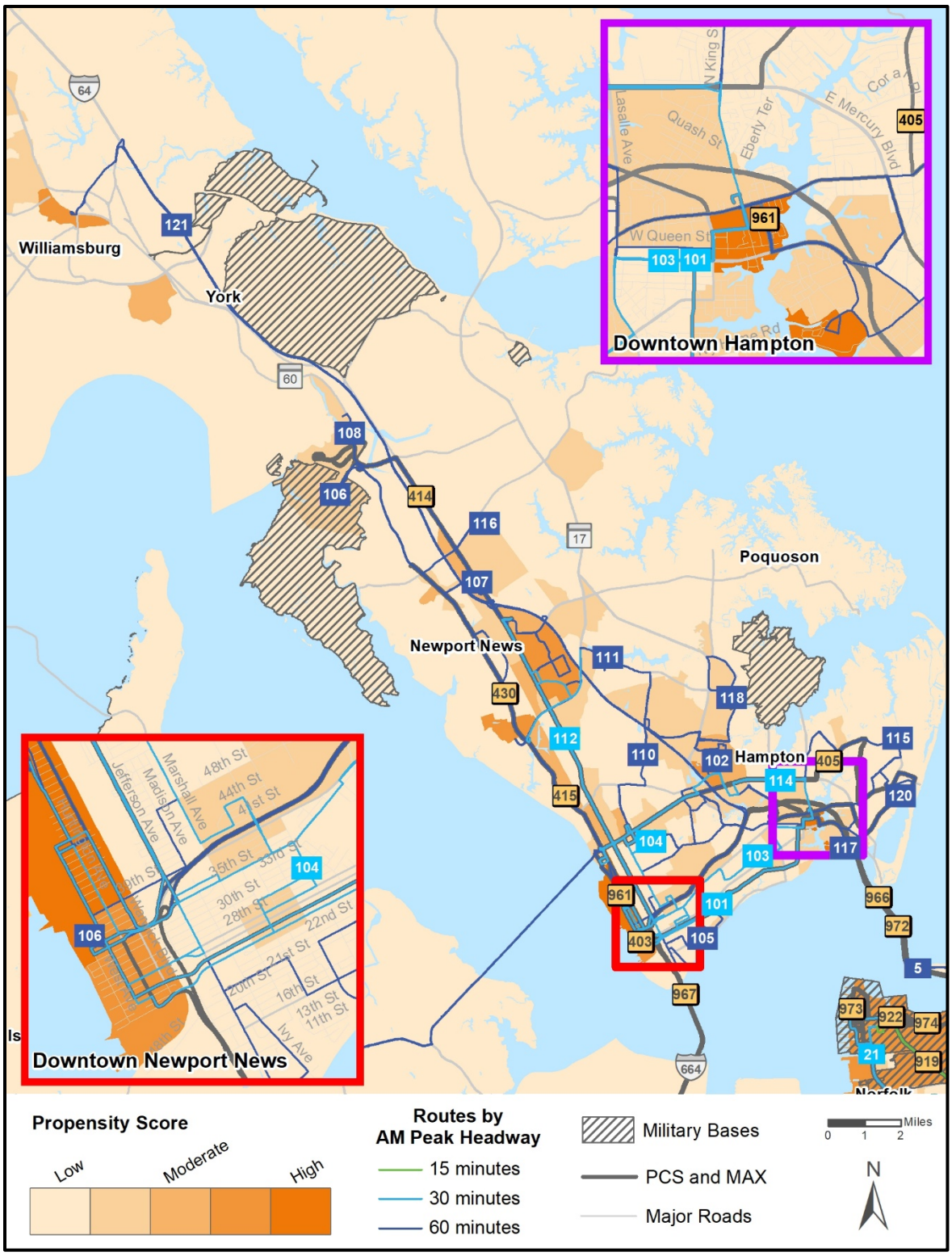
Figure 2-10 and **Figure 2-11** show the Workplace Index for the Peninsula and Southside, respectively. Because employment centers are more strongly concentrated than residential areas, fewer areas in the region receive moderate to high Workplace Index scores. By design, those areas with high levels and densities of jobs receive the highest score.

Across the entire HRT service area, the areas with the highest Workplace index scores include military facilities like Naval Station Norfolk, Naval Support Activity Norfolk, Naval Amphibious Base Little Creek, Norfolk Naval Shipyard, Naval Air Station Oceana, and Newport News Shipbuilding. Non-military locations with high Workplace Index scores include the Chesapeake Municipal Center, Lynnhaven Mall, and the downtowns of Norfolk, Portsmouth, Hampton, and Newport News.

On the Peninsula, moderate-to-high levels of employment are also found near I-64 at Oyster Point Road, in the area where the City Center at Oyster Point, the Marketplace at Tech Center, and Cannon, Inc. are located. Christopher Newport University and Riverside Regional Medical Center form another concentration of employment in that area. In Hampton, the downtown area is another substantial concentration of jobs, as are the VA Medical Center and the Peninsula Town Center.

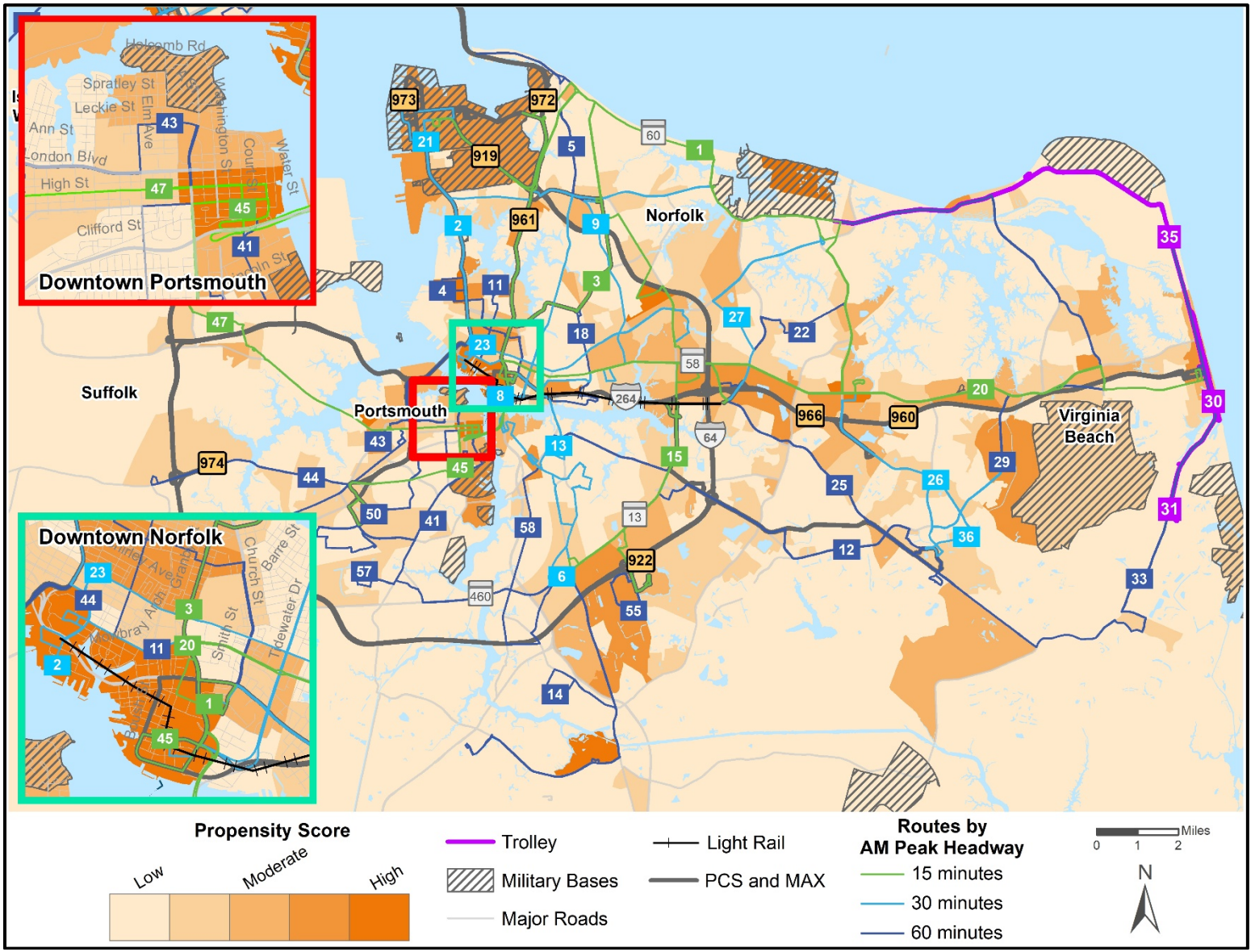
In the southern portion of HRT's service area, additional concentrations of employment are found clustered around other major activity centers. In Chesapeake, the Greenbrier area forms a significant concentration. In Virginia Beach, the area along I-264 from Military Circle Mall to Virginia Beach Town Center and the Lynnhaven Mall area are other strong concentrations. The Princess Anne area also received a high score due to a number of athletic complexes and recreational facilities. Though the Virginia Beach Oceanfront is less significant as an employment center, this is likely a consequence of available employment data not reflecting seasonal peaks of employment in the area. In Norfolk, additional concentrations of employment are seen at Old Dominion University and in industrial areas near Princess Anne Road towards the city's eastern edge. Portsmouth's concentrations of employment fall near High Street where the Maryview Medical Center and a Walmart Super Center can be found.

Figure 2-10: Peninsula – Workplace Index



Source: HRT Routes Fall 2018

Figure 2-11: Southside – Workplace Index



Source: HRT Routes Fall 2018

Non-Work Index

The Non-Work Index shows potential destinations for non-work travel based on the concentration of certain job types in an area. For instance, areas with high numbers and densities of retail and restaurant jobs likely indicate places where transit customers might travel for shopping or dining related trips. Scores across Retail & Restaurant, Recreation, Health Care & Social Assistance, Education, and Government are combined to create an overall Non-Work Index (**Table 2-22**). This index relies on LEHD data on the location of both public and private sector jobs where the job is the primary job held by an individual.

Table 2-22: Non-Work Index

Category	Weight
Retail / Restaurant	20
Recreation	10
Healthcare / Social Assistance	35
Education	25
Government	10

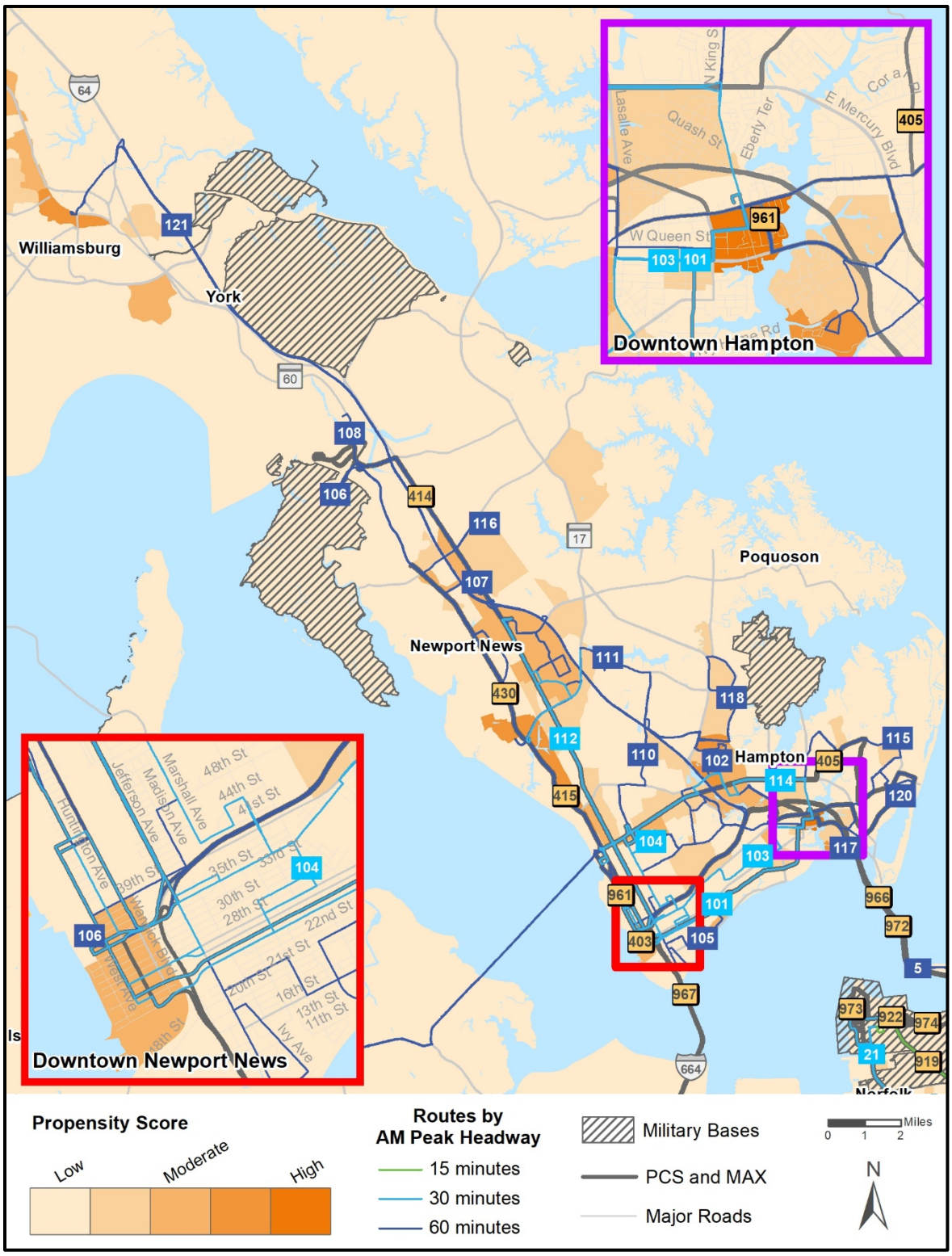
Areas with the highest scores in this index have not only significant numbers of jobs in the employment categories used to construct this index, but also high levels of employment overall. In part, this reflects the significant role that education, military and other government institutions play in the region's economy, all of which are more heavily weighted in the Non-Work Index. Because employment centers are more concentrated than residential areas, far fewer areas show medium to high scores in this index than in the Transit-Oriented Population or Commuter Indices. Because the Non-Work Index is based on employment data, the distribution of scores across block groups is similar to the Workplace Index.

Across the entire HRT service area, the areas with the highest Non-Work Index scores are the downtowns of Hampton, Norfolk, Portsmouth, the Chesapeake Municipal Center, and the areas adjacent to the intersection of I-64 and I-264. In each of these areas, a dense and diverse mix of education, government, health care, retail and recreation jobs indicate strong attractors for trips of various non-work purposes. **Figure 2-12** and **Figure 2-13** show the Non-Work Index for the Peninsula and Southside, respectively.

On the Peninsula, moderate concentrations of non-work destinations are also found near educational institutions, such as Thomas Nelson Community College and Hampton University in Hampton, Christopher Newport University in Newport News, and the College of William & Mary in Williamsburg. Retail destinations in the area, such as those along Mercury Road in Hampton and Jefferson Avenue in Newport News, are other attractors of non-work trips.

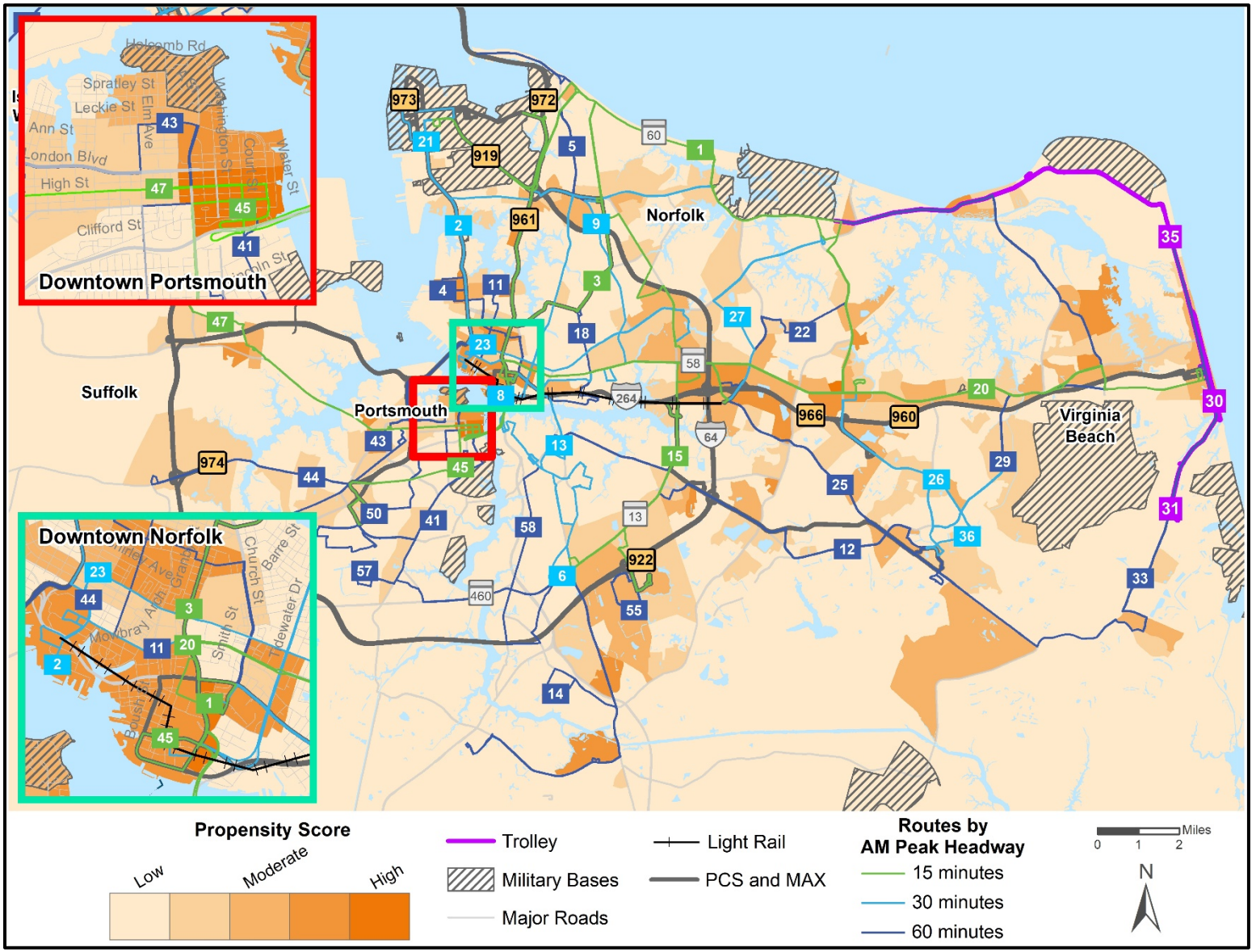
In the southern portion of HRT's service area, the highest Non-Work Index scores are similarly found in areas with strong concentrations in one or more categories. In Norfolk, high index scores are seen for educational institutions like Norfolk State University and Old Dominion University, and medical facilities such as Norfolk General Hospital and Bon Secours DePaul Medical Center. In Portsmouth, commercial and medical facilities along High Street and Airline Boulevard are other notable concentrations of non-work trip destinations. In Chesapeake, the Greenbrier area is notable for non-work trip attractors, as it was in the Workplace Index. In Virginia Beach, the I-264 corridor from Norfolk to the Oceanfront shows consistent levels of non-work trip attraction. Like the Workplace Index, the Princess Anne area of Virginia Beach is notable here for its mix of government, recreation and retail institutions.

Figure 2-12: Peninsula – Non-Work Index



Source: HRT Routes Fall 2018

Figure 2-13: Southside – Non-Work Index



Source: HRT Routes Fall 2018

Population / Employment Trends

As an area's population density or employment density grows, it typically becomes more supportive of transit. For this analysis, population and employment density were calculated based on data from the Hampton Roads Transportation Planning Organization (HRTPO). To calculate percentage changes, HRTPO's 2045 forecasts were compared to 2015 data, the most current year for which data is available.

Population Density

Several areas showed expected 2045 population densities above 15,000 persons per square mile, a density suitable for high-quality transit service. These areas included neighborhoods around Downtown Norfolk, Downtown Portsmouth, and Virginia Beach Town Center. Areas with the lowest population densities include industrial areas along waterfronts, military facilities, and the southernmost rural areas of the City of Virginia Beach, the City of Chesapeake, and portions of York County (currently outside of HRT's service area).

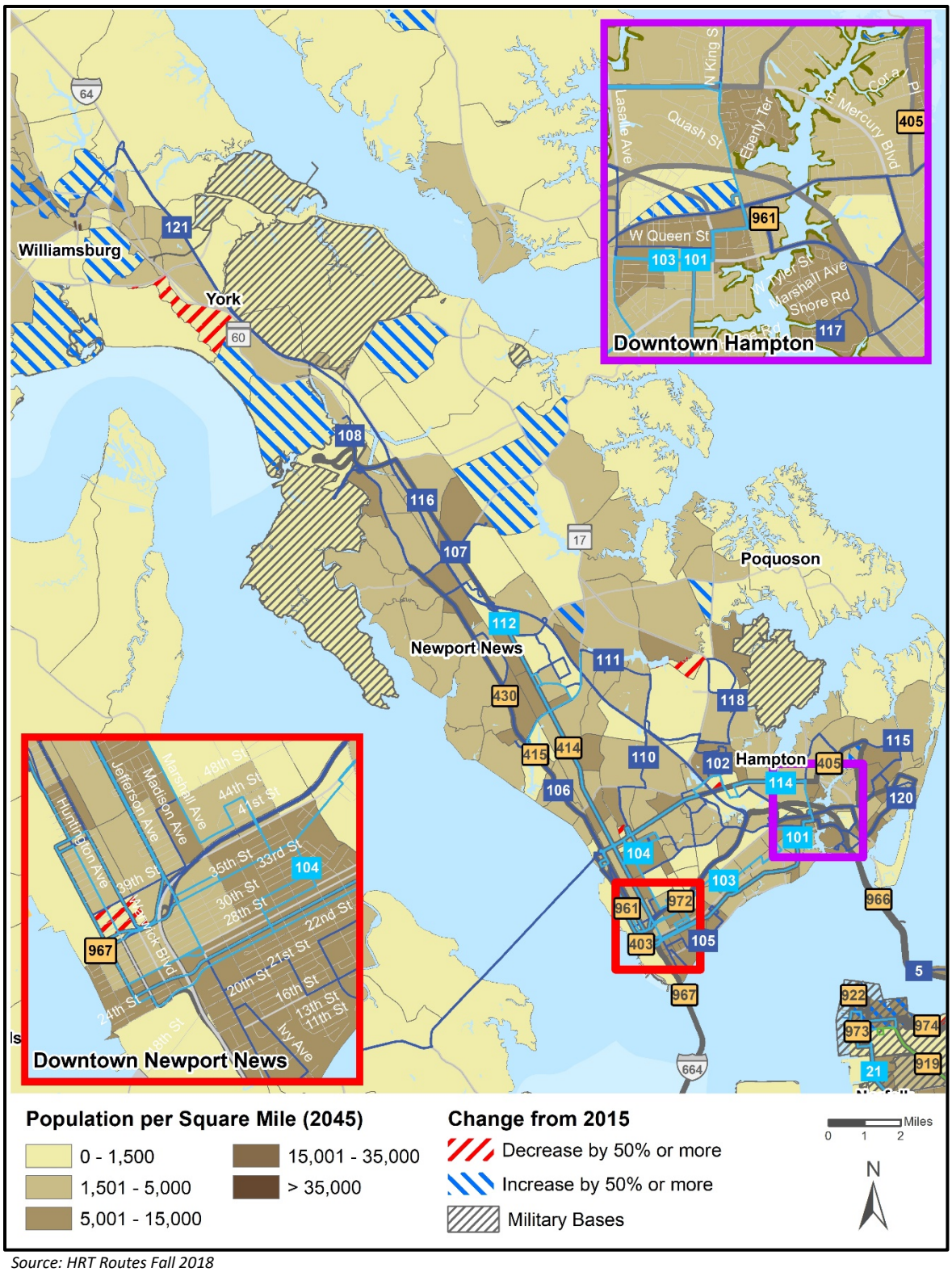
By 2045, the fringes of Portsmouth, and the cities of Chesapeake and Virginia Beach, are expected to grow in population most quickly, albeit from low existing population. Areas in the northern part of the Peninsula, and areas around Downtown Norfolk, Downtown Portsmouth, and the Virginia Beach Town Center are expected to densify much further as well. **Figure 2-14** and **Figure 2-15** show population densities throughout the Hampton Roads region, along with notable changes in densities from 2015 estimates.

Employment Density

Areas with higher employment attract more trips to work by commuters, and higher densities improve the ability of transit to serve those areas. Locations with expected high population densities in 2045 include Downtown Norfolk, Downtown Newport News, and areas along the I-264 corridor from Norfolk to the Virginia Beach Oceanfront. Notably, while military employment is significant in the region, HRTPO excludes many military bases from its 2015 estimates of employment.

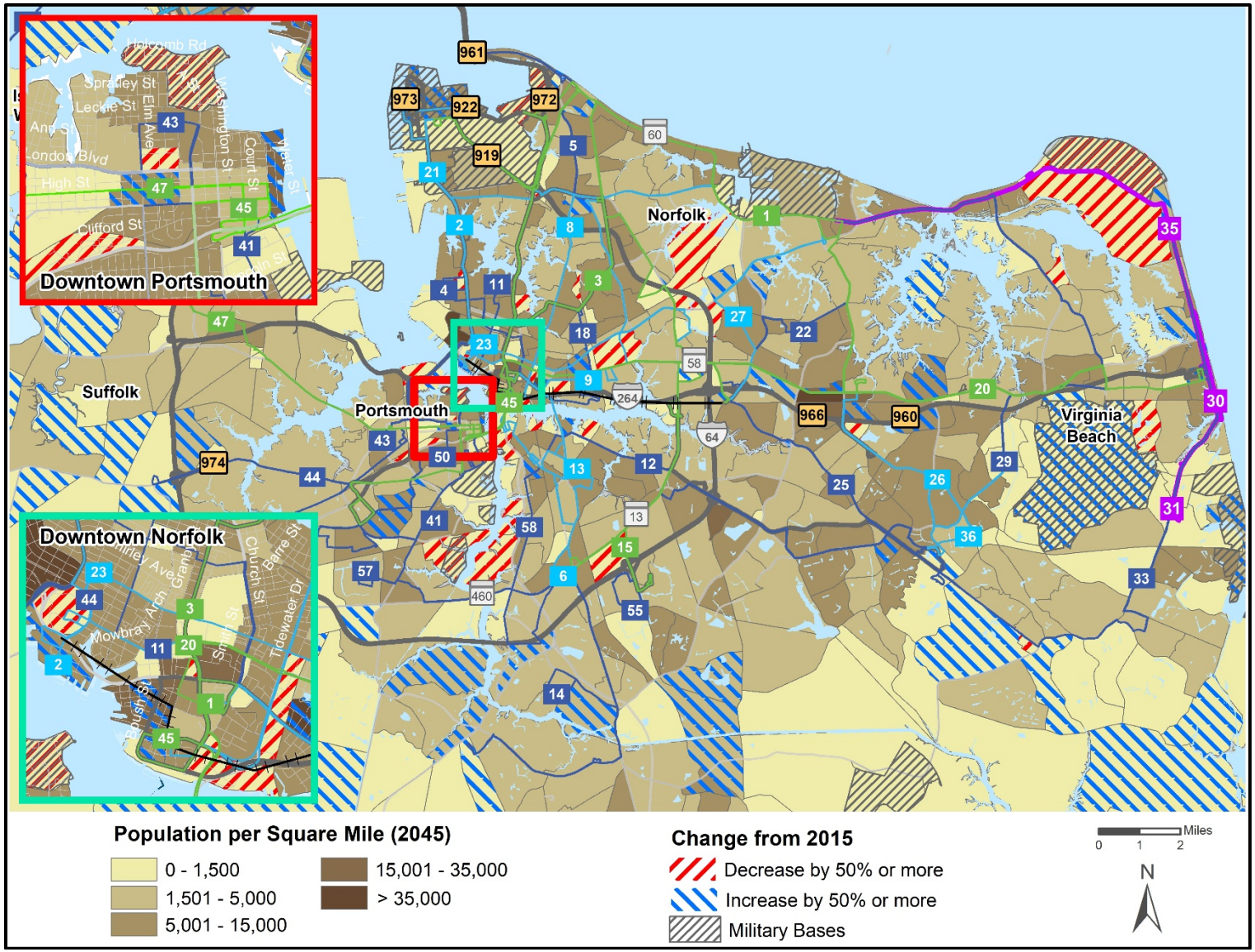
Employment growth through 2045 will be scattered but strongest on the southside of the region, particularly in portions of Norfolk, Portsmouth, and in Chesapeake in the Greenbrier area. Areas along the I-264 corridor from Norfolk to the Virginia Beach Oceanfront are also expected to grow in employment. On the Peninsula, employment in Downtown Hampton is projected to grow as well. Conversely, portions of Virginia Beach along the VA-165 corridor are expected to lose jobs. **Figure 2-16** and **Figure 2-17** show 2045 employment densities throughout the Hampton Roads Transit Service area, along with notable changes in densities from 2015 estimates.

Figure 2-14: Peninsula – Population Density (2045)



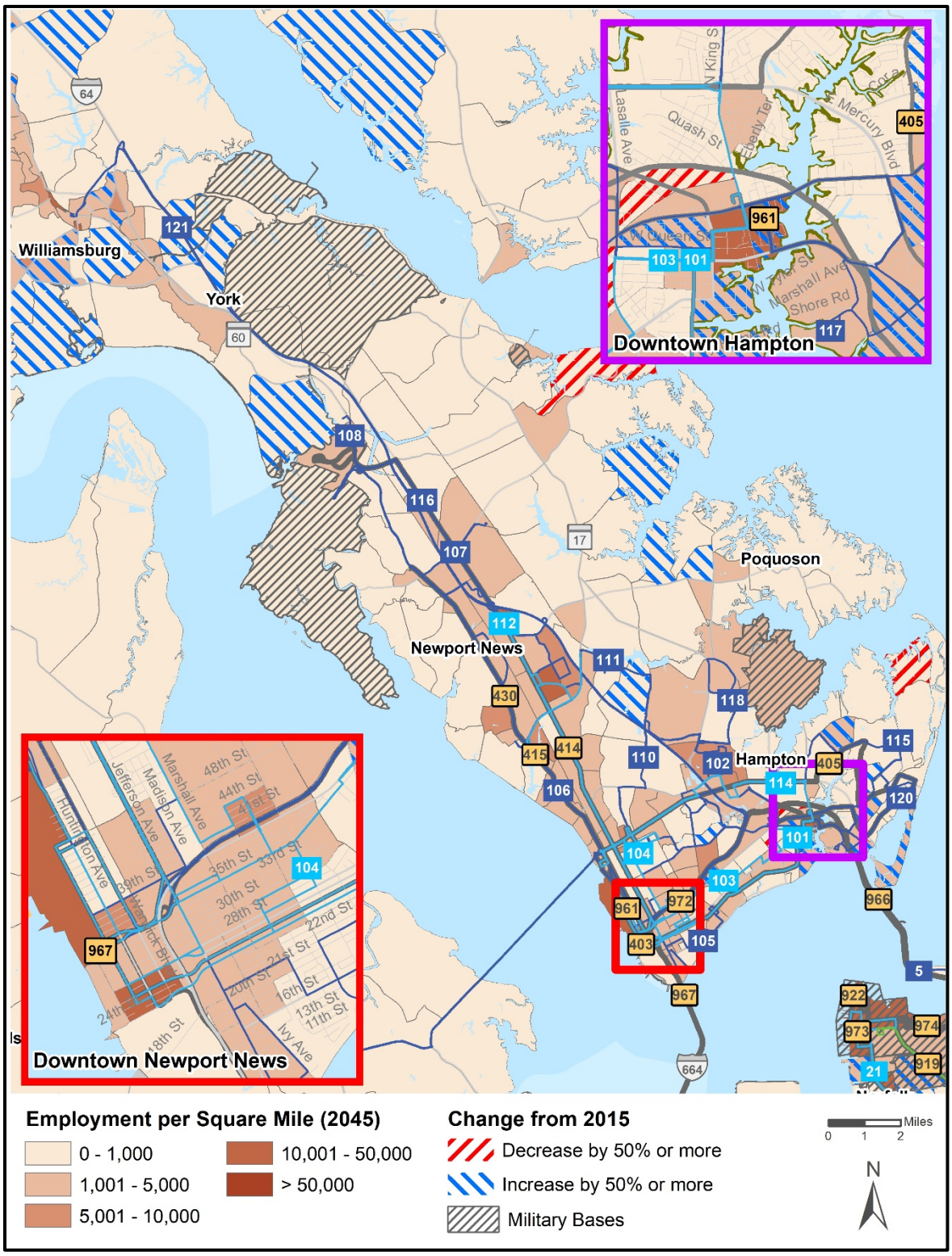
Source: HRT Routes Fall 2018

Figure 2-15: Southside – Population Density (2045)



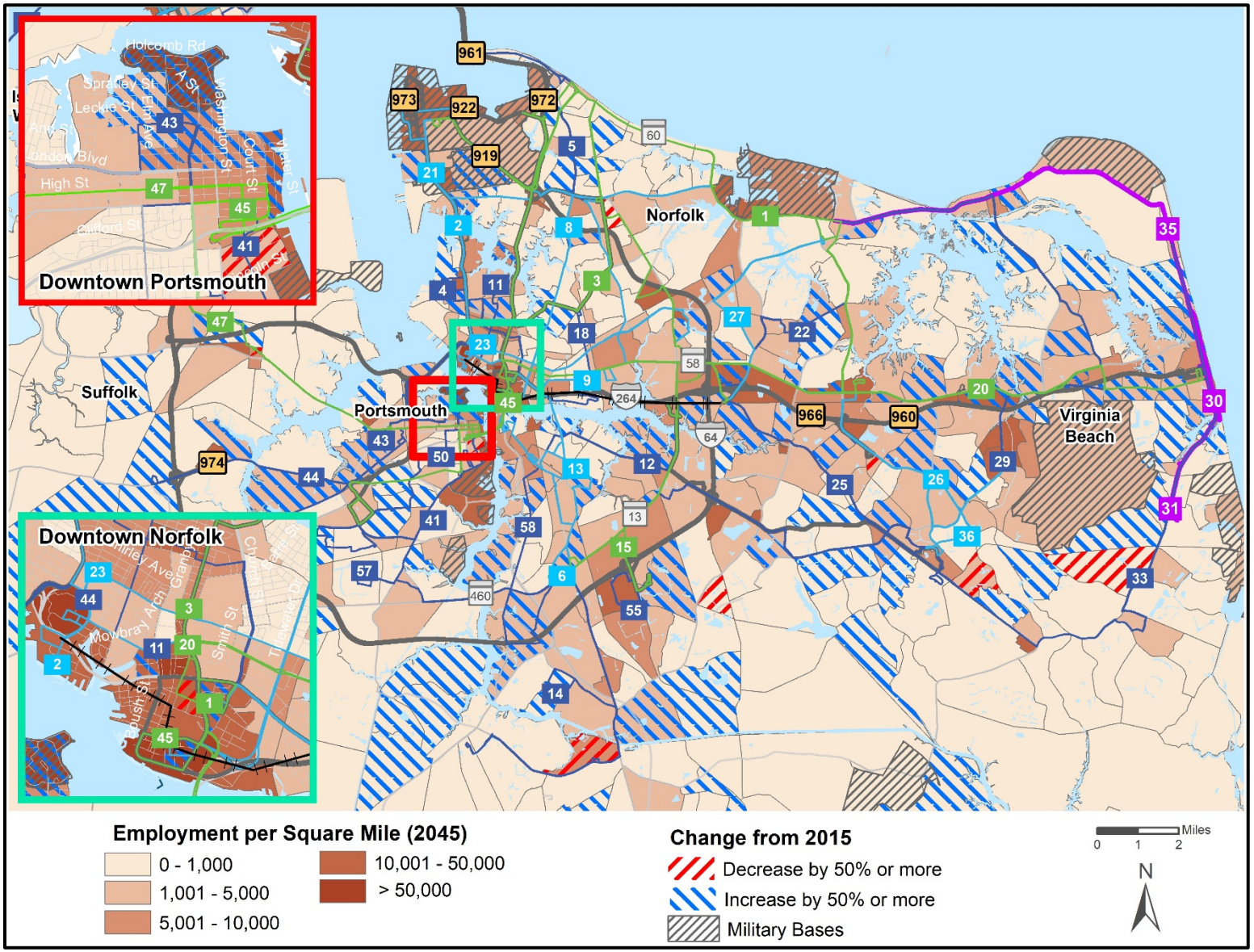
Source: HRT Routes Fall 2018

Figure 2-16: Peninsula – Employment Density (2045)



Source: HRT Routes Fall 2018

Figure 2-17: Southside – Employment Density (2045)



Source: HRT Routes Fall 2018

Travel Flow Analysis

Travel patterns within the HRT service area were determined using the Hampton Roads Transportation Planning Organization (HRTPO) Regional Travel Demand Forecasting Model. The model provides an estimate of unlinked passenger trips between traffic analysis zones (TAZs) for 2009 and 2040. For this analysis, the trips are then aggregated to larger travel districts to better understand general regional travel trends. The model forecasts travel across the cities of Chesapeake, Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Suffolk, Virginia Beach, and Williamsburg and the counties of Gloucester, Isle of Wight, James City, and York. While the focus of the analysis is solely on the HRT service area, the full extent of the model was analyzed to understand the regionwide travel patterns and best create transit options.

For the purpose of this study, three types of trips were analyzed: home based work, home based other, and non-home based during two different time periods: peak and off-peak. **Table 2-23** provides a detailed description of each type of trip and time period.

Table 2-23: Travel Demand Model Classifications

Classification	Description
Home Based Work (HBW)	A direct trip between a person's home and workplace in either direction.
Home Based Other (HBO)	A direct trip between a person's home and any non-work location in either direction.
Non-Home Based (NHB)	A trip that does not begin or end at the home. Typically representing the middle part of trip chains; for example: going out to lunch at work or traveling to a second store location while shopping.
Peak	A trip during the morning or afternoon peak periods (6:00 a.m.–9:00 a.m. and 3:00 p.m.–6:00 p.m.)
Off-peak	A trip during the early morning, midday, evening, or late-night periods (9:00 a.m.–3:00 p.m. and 6:00 p.m.–6:00 a.m.)

The following analysis investigated two different types of travel patterns:

- **All-Day Travel:** combines trips from all time periods and purpose to give a full picture of travel throughout the region.
- **Peak Period Travel:** exclusively examines the peak hour home based work trips to understand commuting patterns.

All-Day Travel

Regionwide, the highest density of all-day travel trips originates within Downtown Norfolk and along the I-264 corridor between Norfolk and Virginia Beach. The model shows the highest concentration of trip origins in Downtown Norfolk (96 trips per acre), an area that is made up of high and medium-density housing, retail, and office buildings. The surrounding areas, including northern Norfolk and western Virginia Beach, also showed a high concentration of trips originating from within.

On the Peninsula, trips tend to originate from the low to medium density communities located off I-64 and Jefferson Avenue. Additionally, Downtown Newport News and the community directly west have high densities of trip origins. **Table 2-24** identifies the districts with the highest concentrations of all-day trip origins and **Figure 2-18** shows the density of trip origins throughout the region.

Relative to the trip origins, the trip destinations are more heavily concentrated in Downtown Norfolk, which has a trip density of 521 per acre; the next highest area—Ghent, which is adjacent to Downtown Norfolk—had less than a quarter of that density of trip destinations. Downtown Norfolk is a medium- to high-density mixed-use area that attracts a lot of visitors due to the various attractions including the MacArthur Center, Scope Arena, and Harbor Park Stadium, and government services such as the Norfolk City Hall, Department of Motor Vehicles, and Norfolk Circuit Court. Ghent is a mix of medium density residential and commercial development. The downtown areas of Portsmouth and Virginia Beach have a similar combination of attractions and services as Downtown Norfolk that

form smaller destination hubs, receiving between 40 and 50 trips per acre. On the Peninsula, the Deer Park / Palmer area, which includes the Patrick Henry Mall and Oyster Point in Newport News, had the highest number of trip destinations at 62 trips per acre. This area includes multiple shopping centers and retail destinations which drive all-day travel. The other high-density areas on the Peninsula include the Newport News / Williamsburg International Airport, Downtown Newport News, and the shopping centers in Mercury Central. **Table 2-25** identifies the districts with the highest concentrations of all-day trip destinations and **Figure 2-19** illustrates the density of trip destinations throughout the region.

Table 2-24: Travel Districts with a High Density of All-Day Trip Origins

Area	District Name	Number of Trip Origins	Density (Trips/Acre)
Southside	Downtown Norfolk	30,483	96
	Ghent	84,326	62
	Ocean View Ave	98,224	52
	Lafayette-Winona	47,772	48
	Kensington, Highland Park, Colonial Place	82,394	44
Peninsula	Windsor Great Park, Richneck	105,493	38
	Downtown Newport News	85,785	37
	Denbigh	142,349	32
	Northampton	123,854	31
	Deerfield, Kiln Creek, Bayberry	52,747	31

Table 2-25: Travel Districts with a High Density of All-Day Trip Destinations

	District Name	Activity Centers	Number of Trip Destinations	Density (Trips /Acre)
Southside	Downtown Norfolk	Downtown Norfolk, MacArthur Center, Norfolk Circuit Court, Norfolk City Hall, Tidewater Community College - Norfolk	165,634	521
	Ghent	Downtown Norfolk, Norfolk General Hospital, Children's Health System (CHKD), Eastern Virginia Medical School, US Army Corps of Engineers - Norfolk	167,974	124
	Tanners Creek, Partra	Southern Shopping Center, Norview Community Center, Naval Station Norfolk	89,824	53
	Kings Grant	Virginia Beach Town Center, Loehmann's Plaza	289,735	52
	Brambleton	Norfolk State University, Harbor Park Stadium, Hampton Roads Transit (HRT) - Southside Facility, Amtrak Station	81,483	50
Peninsula	Deer Park / Palmer	City Center at Oyster Point, Patrick Henry Mall, Oyster Point Square, Canon, Inc., Tech Center	188,668	62
	Mercury Central	Coliseum Square Center, Coliseum Crossing Shopping Center, Sentara CarePlex Hospital, Peninsula Town Center, Langley Air Force Base	133,207	53
	Newport News Shipbuilding	Huntington Ingalls Industries, Inc. (Newport News Shipbuilding)	38,594	39
	Downtown Newport News	Downtown Newport News	89,017	38
	Newport News / Williamsburg International Airport	Mary Immaculate Hospital, Jefferson Commons	58,269	33

Figure 2-18: Density of All-Day Trip Origins

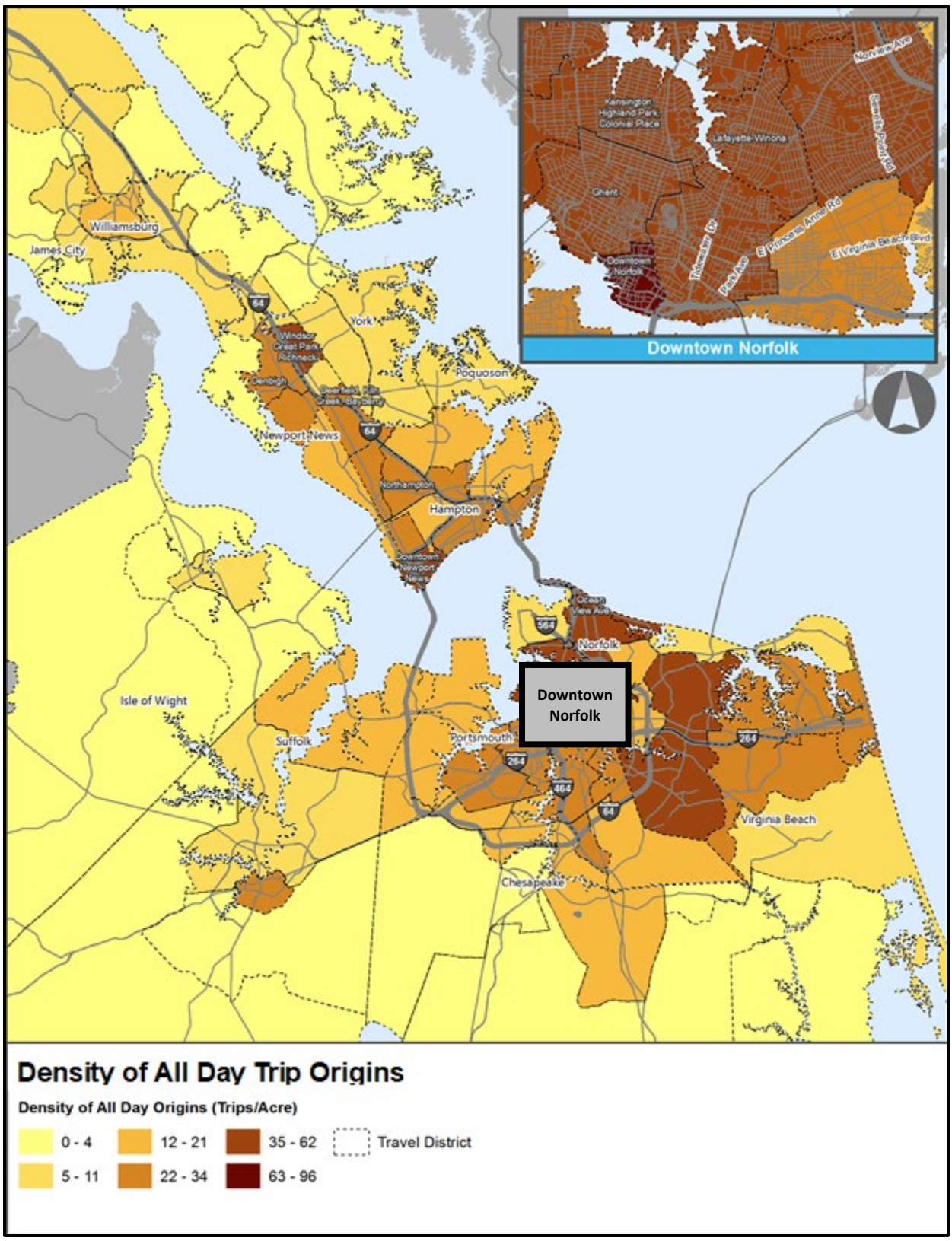
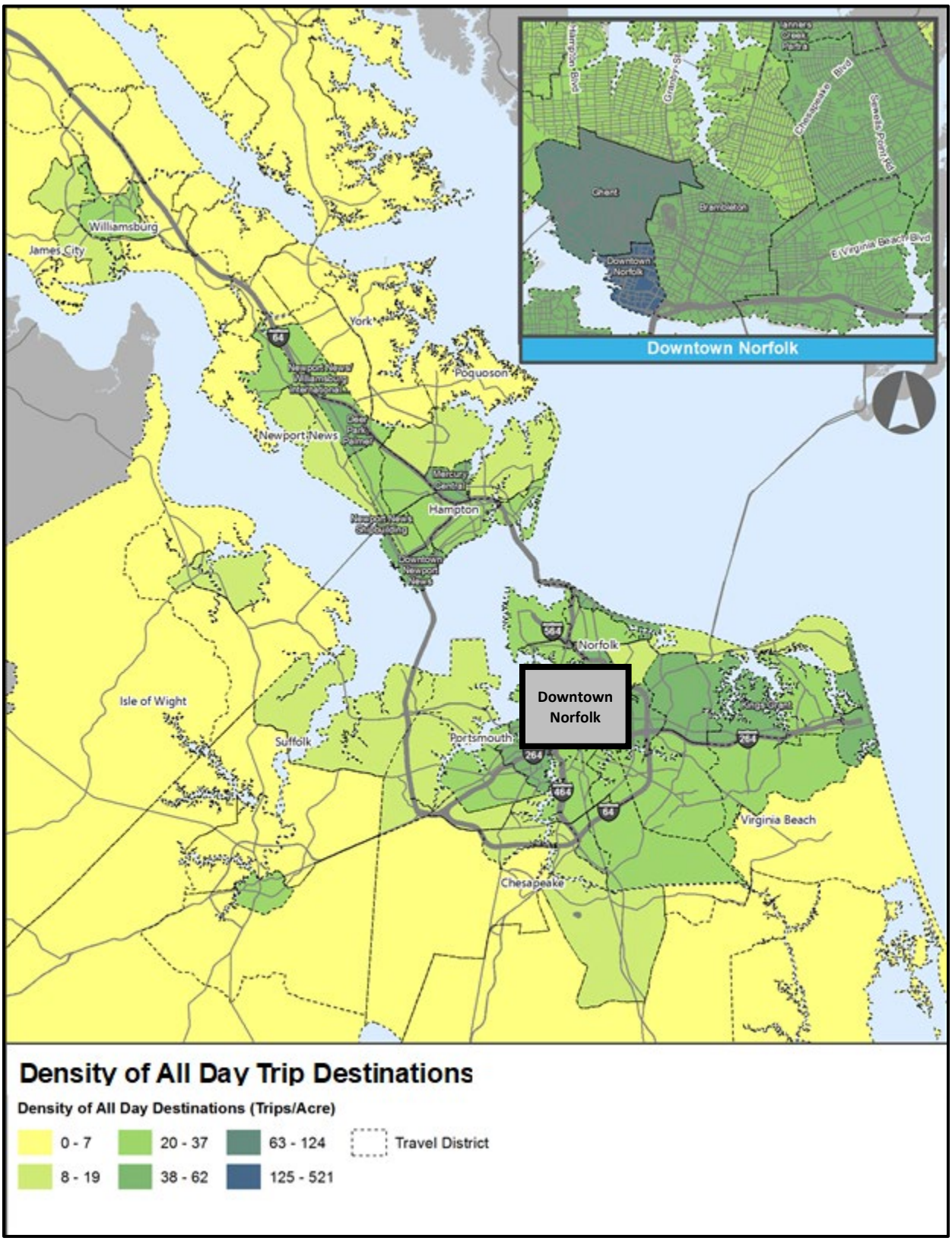


Figure 2-19: Density of All-Day Trip Destinations



Within the HRT service area, the majority of all-day trips are short distance, either traveling internally within the district or connecting to an adjacent district. The districts with the highest internal and external travel flows can be found in **Table 2-26** and **Table 2-27**, respectively. The high concentrations of internal all-day travel flows tend to be in large suburban districts that contain a town center or large shopping center, such as Virginia Beach Town Center, the City Center at Oyster Point, and the Lynnhaven / Naval Base area.

Across the HRT service area and member jurisdictions, people primarily circulate within small groups of districts according to the all-day travel flows. These travel patterns create communities where there are large volumes of flows between adjacent districts and little to no travel to districts outside the group. This is mostly caused by the bodies of water that divide the area but can also occur due to poor roadway connectivity or based on placement of trip generators. People appear to be willing to travel the farthest to reach Downtown Norfolk, with travel flows from as far as southern Virginia Beach. **Figure 2-20** illustrates the pattern of trips between districts. The all-day travel flows can be grouped into the following areas:

- **Hampton and Newport News** – This area is comprised of a continuous web of connected districts that cover the Peninsula. This pattern breaks between Newport News and James City where the Yorktown Naval Weapons Station is located. The Peninsula has lower volumes of travel when compared to the districts on the Southside due to its lower population and employment.
- **Portsmouth, Northern Chesapeake, and Northern Suffolk** – This area is defined by the Nansemond, James, and Elizabeth Rivers. Within the area there are a number of large retail locations including Chesapeake Square Mall, Victory Crossing Shopping Center, and Downtown Portsmouth, which draw people between the different districts.
- **Southern Norfolk and Virginia Beach** – This area consists of a continuous web of highly trafficked districts that cover Virginia Beach and Norfolk south of the Lafayette River. This group is the largest and most active area within the study area. The most active parts of this area tend to be outside I-64 along I-264.
- **Northern Norfolk** – This area makes up the northwest corner of Norfolk and consists of districts that border Little Creek Road. These districts have relatively low trip volume overall when compared to neighboring districts on the Southside. Although districts in this group do have some travel to districts outside this group, people predominantly travel to areas along Little Creek Road.
- **Southern Chesapeake** – This area is located outside of I-64 in southern Chesapeake. These districts are mostly made up of low-density suburban housing with some rural housing in the southern parts of the area. Travel in this community is centered on Greenbrier Mall and the adjacent shopping centers. The area functions as a hub for the area and contains many retail establishment and services.

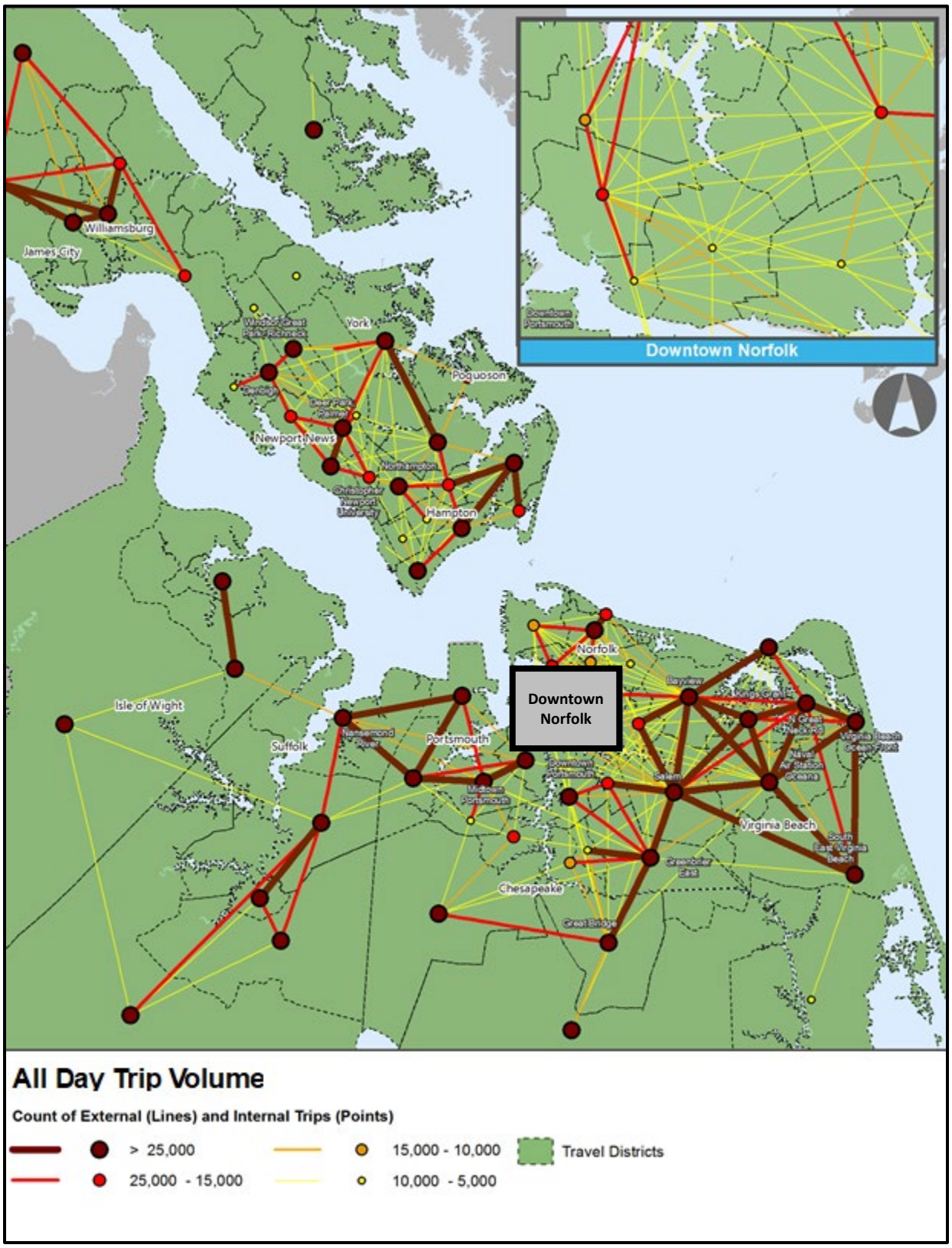
Table 2-26: Highest Internal All-Day Travel Flows within a District

Travel District	Internal Trip Count
Peninsula	
Denbigh	49,546
Christopher Newport University	36,791
Northampton	35,744
Deer Park / Palmer	33,684
Windsor Great Park / Richneck	33,347
Southside	
Salem	206,766
Lynnhaven / Naval Air Station Oceana	183,772
Bayview	180,497
Great Bridge	147,801
Nansemond River	144,980

Table 2-27: Highest External All-Day Travel Flows Between Districts

Origin	Destination	Total Trips
Salem	Lynnhaven/ Naval Air Station Oceana	129,582
Bayview	Kings Grant	79,666
Salem	Bayview	76,698
South East Virginia Beach	Lynnhaven/ Naval Air Station Oceana	74,741
Lynnhaven / Naval Air Station Oceana	Kings Grant	71,334
Midtown Portsmouth	Downtown Portsmouth	70,594
Salem	Greenbrier East	62,051
N Great Neck Rd	Virginia Beach Ocean Front	51,693
Lynnhaven / Naval Air Station Oceana	Bayview	49,732
Great Bridge	Greenbrier East	44,682

Figure 2-20: All-Day Travel Flow Volume Between Districts



Peak Period Travel

Peak period travel examines home based work trips during the peak commuting hours (6:00 a.m.–9:00 a.m. and 3:00 p.m.–6:00 p.m.) to understand commuting patterns.

On the Southside, the density of peak trip origins is centered around Downtown Norfolk, with the highest density area occurring in Downtown Norfolk south of Brambleton Ave. In that area of Downtown Norfolk, there were found to be eight trips per acre during the peak periods. Outside of Downtown Norfolk, the highest volumes of peak period trips occur in large suburban districts outside I-64 in western Virginia Beach. Of these districts the highest trip origin volume is from Salem which had 49,976 trips in the peak period (three trips per acre). The highest density of peak period trip destinations can be found in Downtown Norfolk–an area that also holds the highest density of employment in the region. Districts with large employment centers, including Downtown Portsmouth and Naval Station Norfolk, also saw high density and volume of trips in the peak period.

On the Peninsula, the highest density and volume of trips comes from a collection of districts toward the middle of the Peninsula, including Denbigh, Northampton, and Windsor Great Park/Richneck. The highest density of trip destinations was to the Newport News Shipbuilding district.

Table 2-28 details the districts with the highest density of peak period trip origins and **Figure 2-21** illustrates the density of peak period trip origins throughout the region. The highest density areas of trip destinations on the Peninsula and on the Southside are detailed in **Table 2-29** and **Figure 2-22** illustrates the density of peak trip destinations throughout the region.

Table 2-28: Travel Districts with the Highest Density of Peak Period Trip Origins

Area	District Name	Number of Trip Origins	Density (Trips/Acre)
Southside	Downtown Norfolk	2,408	8
	Ghent	6,078	5
	Ocean View Ave	6,956	4
	Salem	49,976	3
	Lafayette-Winona	3,245	3
Peninsula	Windsor Great Park, Richneck	7,354	3
	Northampton	9,106	2
	Downtown Newport News	5,316	2
	Denbigh	10,084	2
	Deerfield, Kiln Creek, Bayberry	3,805	2

Table 2-29: Travel Districts with a High Density of Peak Period Trip Destinations

Area	District Name	Activity Centers	Number of Trip Destinations	Density (Trips / Acre)
Southside	Downtown Norfolk	Downtown Norfolk, MacArthur Center, Norfolk Circuit Court, Norfolk City Hall, Bank of America, Tidewater Community College - Norfolk	31,460	99
	Ghent	Norfolk General Hospital, Children's Health System (CHKD), Eastern Virginia Medical School, US Army Corps of Engineers	22,658	17
	Downtown Portsmouth	Downtown Portsmouth, Portsmouth Naval Medical Center, Bon Secours Maryview Medical Center, Naval Medical Center Portsmouth, Norfolk Naval Shipyard	33,309	8
	Naval Station Norfolk	Naval Station Norfolk, Naval Support Activity Norfolk	37,109	7
	Military Circle	Lake Taylor Hospital, Sentara Leigh Hospital, Military Circle Mall, Janaf Shopping Center, PRA Group, Inc., Virginia Wesleyan College	20,108	5
Peninsula	Newport News Shipbuilding	Huntington Ingalls Industries, Inc. (Newport News Shipbuilding), Downtown Newport News	10,241	10
	Deer Park / Palmer	City Center at Oyster Point, Patrick Henry Mall, Oyster Point Square, Canon, Inc., Marketplace at Tech Center	18,454	6
	Mercury Central	Coliseum Square Center, Coliseum Crossing Shopping Center, Sentara CarePlex Hospital, Peninsula Town Center, Langley Air Force Base	10,140	4
	Newport News / Williamsburg International Airport	Mary Immaculate Hospital, Jefferson Commons	4,902	3
	Downtown Newport News	Downtown Newport News	5,783	3

Figure 2-21: Density of Peak Period Trip Origins

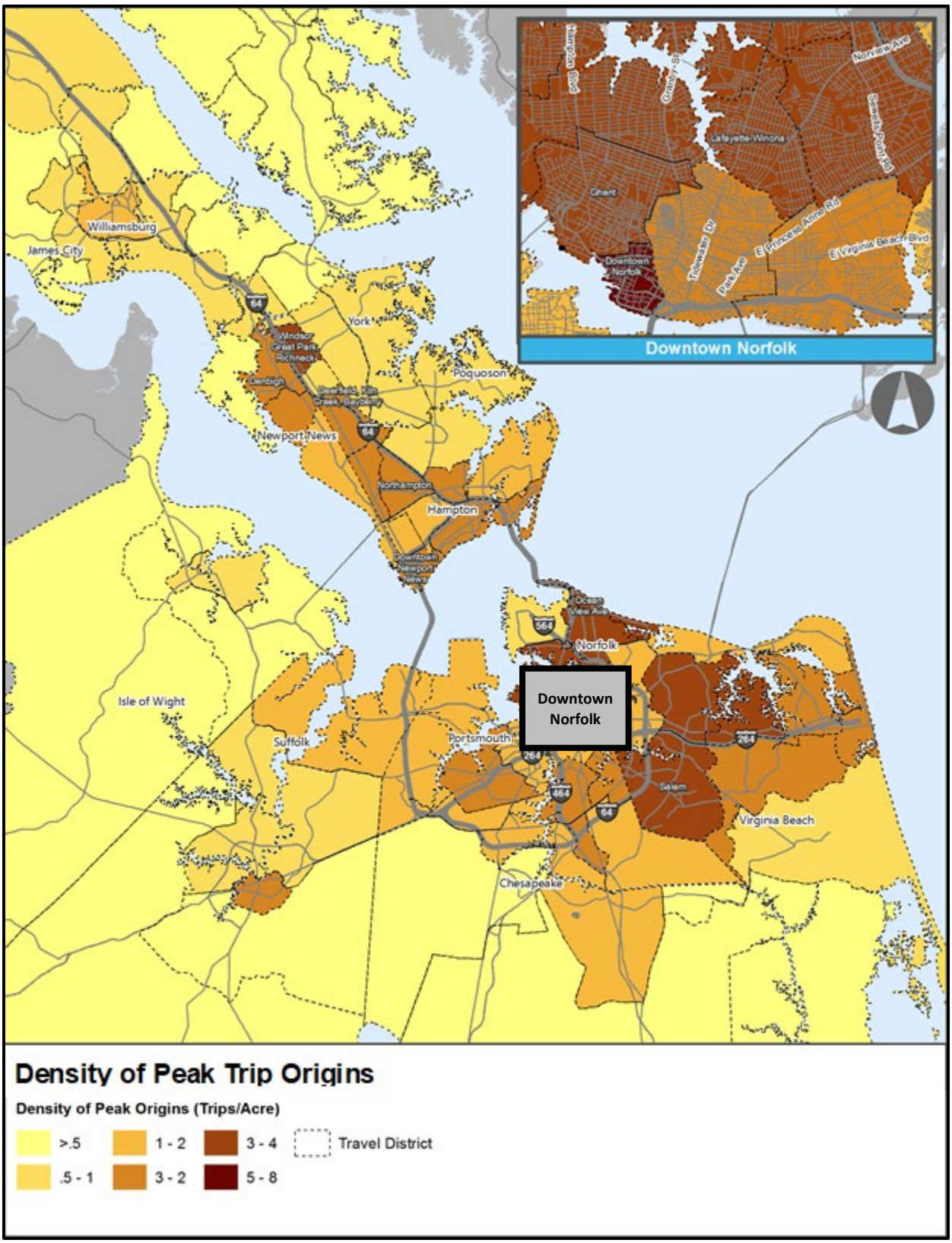
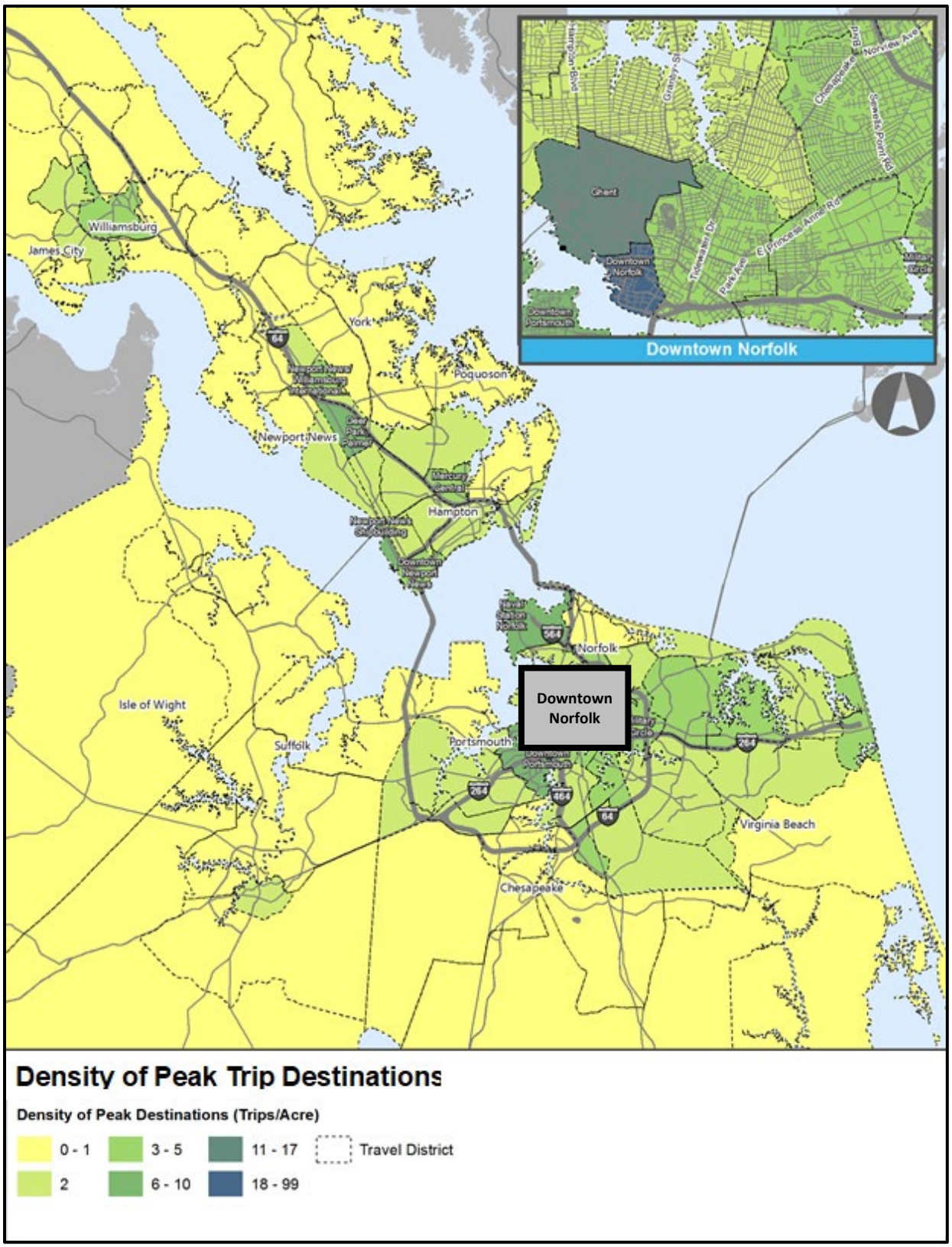


Figure 2-22: Density of Peak Period Trip Destinations



The analysis of peak travel patterns shows that people travel greater distances for work trips during the peak than for non-work trips. Internal district trips make up a much smaller portion of the overall travel during the peaks than all-day; **Table 2-30** and **Table 2-31** show the highest internal and external district travel flows during the peak periods. The highest internal travel flow is 7,580 peak hour trips in the Lynnhaven Mall / Naval Air Station Oceana district. This district contains a large military employer and a large residential area where many of those employees likely live. The highest external flow between districts is 7,255 peak hour trips primarily from the residential area in Salem to Lynnhaven Mall / Naval Air Station Oceana.

Figure 2-23 shows peak period travel patterns within the region. Employment centers are central destinations that draw workers from the surrounding areas. The largest employment centers have notable travel patterns associated with them:

- **Naval Station Norfolk -** This district is located in the northwestern section of Norfolk and attracts employees from every county within the study area. It houses the largest employer in the region, Naval Station Norfolk. The majority of the workforce is spread around along the I-64/264 corridor and the southern portion of I-64.
- **Lynnhaven / Naval Air Station Oceana -** This district is located in central Virginia Beach. Most of the employment within this area comes from the Naval Air Station Oceana, but the district also contains other employment centers such as Lynnhaven Mall and Tidewater Community College. The majority of employees within this district appear to travel from the adjacent districts along the I-264 corridor.
- **Downtown Norfolk -** The downtown houses various public and private employers. People who work in this district primarily commute from Norfolk or northwest Virginia Beach. The remainder commute across the river from Portsmouth and northern Chesapeake.
- **Deer Park / Palmer -** This district contains a collection of employers in the technology sector as well as the Canon Factory Service Center. Employees of this district live in the neighboring areas but a large number appear to commute from southern York.

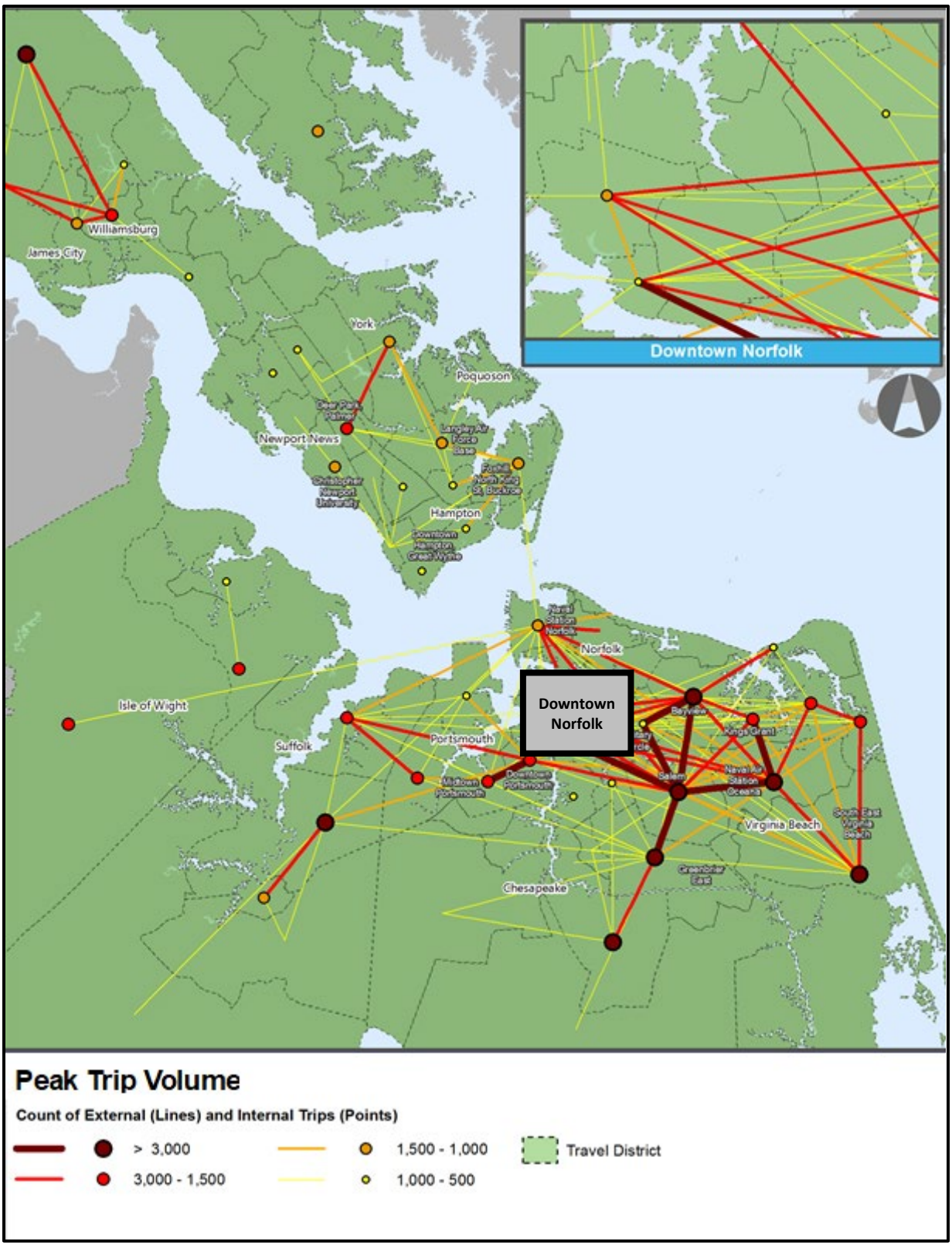
Table 2-30: Highest Internal Peak Period Travel Flows within a District

Travel District	Internal Trip Count
Peninsula	
Deer Park / Palmer	1,692
Foxhill / North King St / Buckroe	1,236
Langley Air Force Base	1,108
Christopher Newport University	1,067
South West Hampton	841
Southside	
Lynnhaven / Naval Air Station Oceana	7,580
Bayview	6,871
Salem	5,663
Greenbrier East	4,839
South East Virginia Beach	4,021

Table 2-31: Highest External Peak Period Travel Flows within a District

Origin	Destination	Total Trips
Salem	Naval Air Station Oceana	7,255
Salem	Bayview	5,848
South East Virginia Beach	Naval Air Station Oceana	5,779
Bayview	Kings Grant	5,234
Naval Air Station Oceana	Kings Grant	5,197
Midtown Portsmouth	Downtown Portsmouth	5,059
Salem	Greenbrier East	4,720
Naval Air Station Oceana	Bayview	4,411
Salem	Downtown Norfolk	4,340
Bayview	Military Circle	3,880

Figure 2-23: Volume of Peak Period Travel Between Districts



2.2.2 Transit Demand and Underserved Area Opportunities for Improvement

After determining the market for different types of transit services—in terms of transit propensity for different trip types and general travel flows—a gap analysis was conducted to compare the existing transit service to transit demand to find areas that could benefit from new or increased service.

Two types of service gaps were identified:

- **Level of Service:** where more service could be implemented.
- **Coverage:** where services could be expanded.

This gap analysis sheds light both on how well existing transit services meet current demand, as well as how planned transit services could reach new markets.

Level of Service Analysis

Based on the five transit propensity indices—Transit-Oriented Population, Commuter, Workplace, and Non-Work—and their underlying data, several additional transit propensity indices were developed to aid in identifying the types of transit service potentially suitable for locations within the HRT service area.

All-Day Service Index

The All-Day Service Index identifies locations suitable for all-day transit service by combining the results of the Transit-Oriented Population and Non-Work Indices. At both peak and off-peak hours, locations with significant transit-oriented populations are presumed to require connections to and from jobs or non-work-related trip destinations. This results in a propensity index that identifies major origins or destinations for transit trips that would occur throughout the day.

Areas with high All-Day Service Index scores largely reflect those with high Transit-Oriented Populations, or downtowns, government centers, and medical and educational campuses. On the Peninsula, areas with a higher need for all-day service include neighborhoods along Warwick Boulevard, such as Denbigh and Jenkins, and along Mercury Boulevard, in particular within the Newmarket neighborhood and around the Peninsula Town Center. Downtown Newport News and Downtown Hampton also have higher all-day service needs. On the Southside, the need for all-day service is most prevalent in Downtown Norfolk and Portsmouth, but also along major corridors such as Granby Street and Chesapeake Boulevard in Norfolk, Virginia Beach Boulevard between Norfolk and Virginia Beach, Indian River Road in Virginia Beach, and Portsmouth Boulevard in Portsmouth.

These higher propensity areas for all-day service are opportunities for expanding service during off-peak hours such as midday or later into the evening. **Figure 2-24** and **Figure 2-25** show the All-Day Service Index for the Peninsula and Southside, respectively.

Peak Service Index

The Peak Service Index identifies locations suitable for peak-period service by combining results from the Commuter and Workplace Indices. Locations with significant numbers and densities of commuters are presumed to require connections to and from locations with significant numbers and densities of jobs, especially at peak hours. This results in a propensity index that identifies major origins and destinations for transit trips that would occur during peak hours.

On the Peninsula, areas with a higher propensity or need for peak hour services include along Denbigh Boulevard and J Clyde Morris Boulevard, within the Peninsula Town Center, at the Newport News Shipbuilding, and in Downtown Hampton. On the Southside, major employment centers such as Naval Station Norfolk, the Joint Expeditionary Base – Fort Story, Chesapeake Municipal Center, and the Naval Medical Center Portsmouth have larger needs for peak service, as well as in areas with high volumes of job opportunities such as Downtown Norfolk and along the I-264 corridor to Virginia Beach, and areas with significant concentrations of commuters, such as more suburban portions of Chesapeake, Newport News, and Virginia Beach.

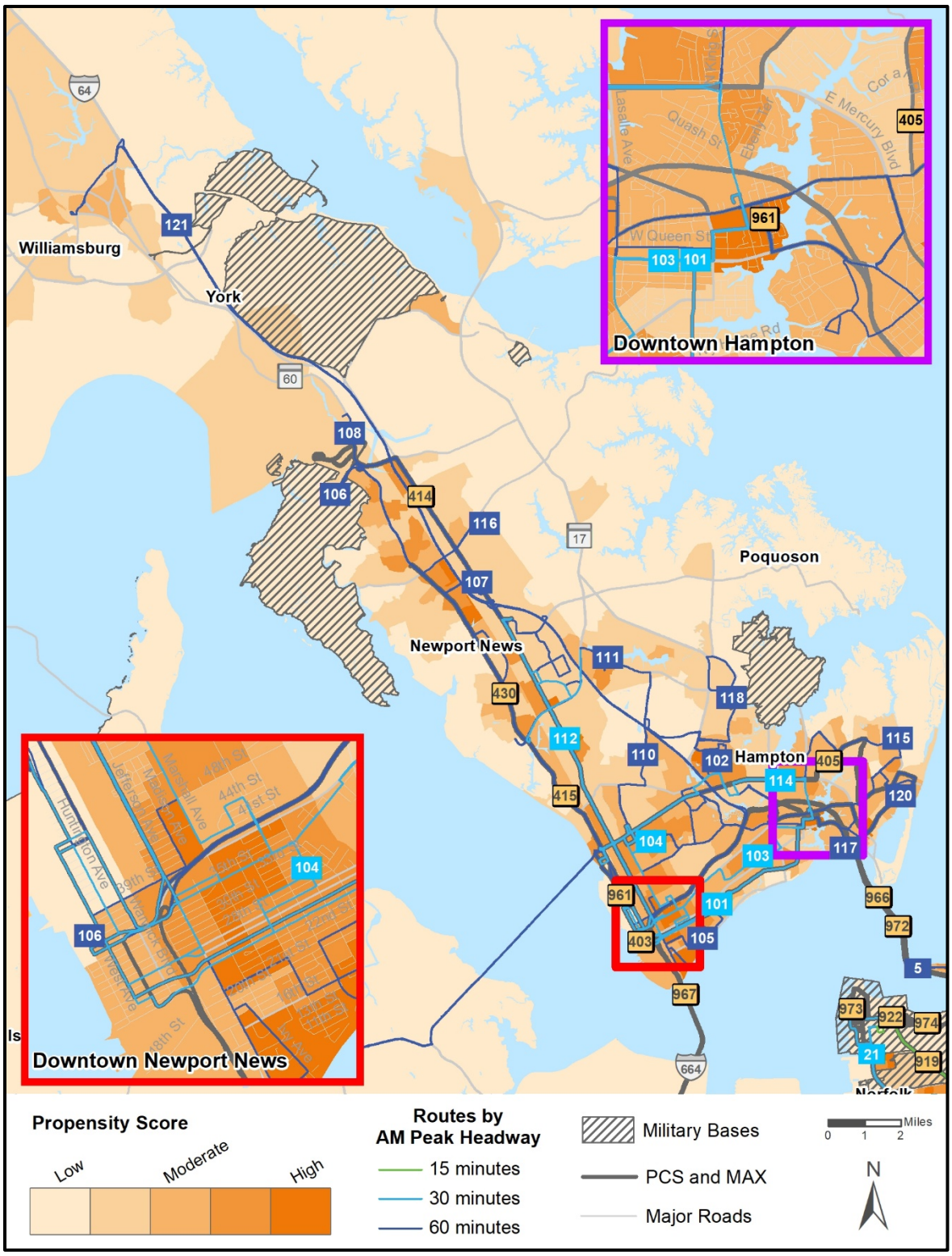
These areas identified as having a high propensity for peak service would benefit from an increased frequency during peak hours to service both higher commuter populations and connecting with larger concentrations of job opportunities. **Figure 2-26** and **Figure 2-27** show the Peak Service Index for the Peninsula and Southside, respectively.

Multimodal Service Index

The Multimodal Service Index identifies origins and destinations that could support high-quality, all-day transit service by combining results from the Transit-Oriented Population, Commuter, Workplace, and Non-Work propensity indices. Locations with significant populations and densities of both transit-oriented populations and commuters are presumed to require connections to and from locations with jobs and non-work destinations. This results in a propensity index that identifies major origins or destinations for high-quality, all-day transit service.

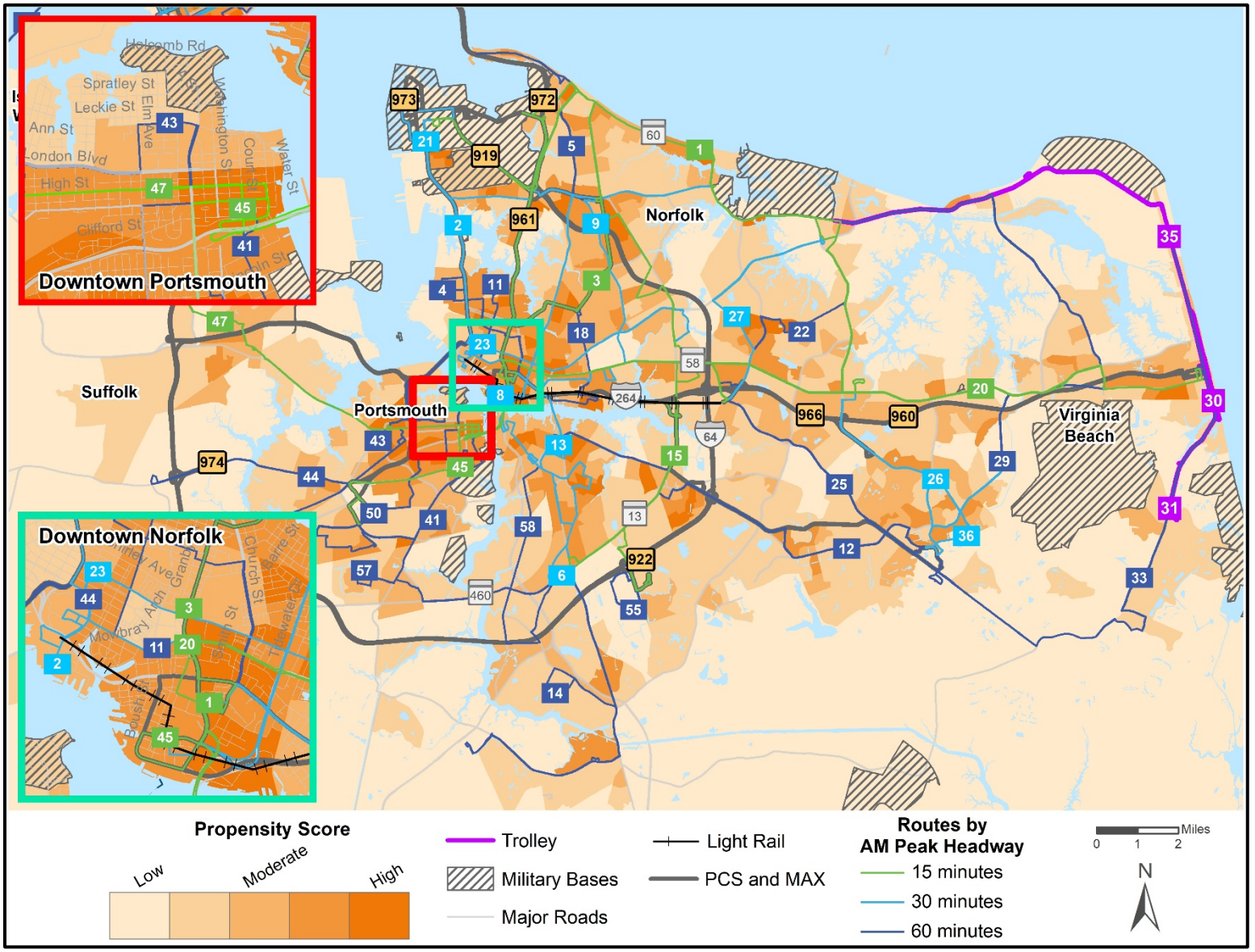
Clusters of areas with moderate-to-high Multimodal Service Index Scores can be seen along the I-264 corridor in Virginia Beach, in the downtown cores of Newport News, Hampton, Norfolk, and Portsmouth, and in clusters along the I-64 corridor between Chesapeake and Naval Station Norfolk. **Figure 2-28** and **Figure 2-29** show the Multimodal Service Index for the Peninsula and Southside, respectively.

Figure 2-24: Peninsula – All-Day Service Index



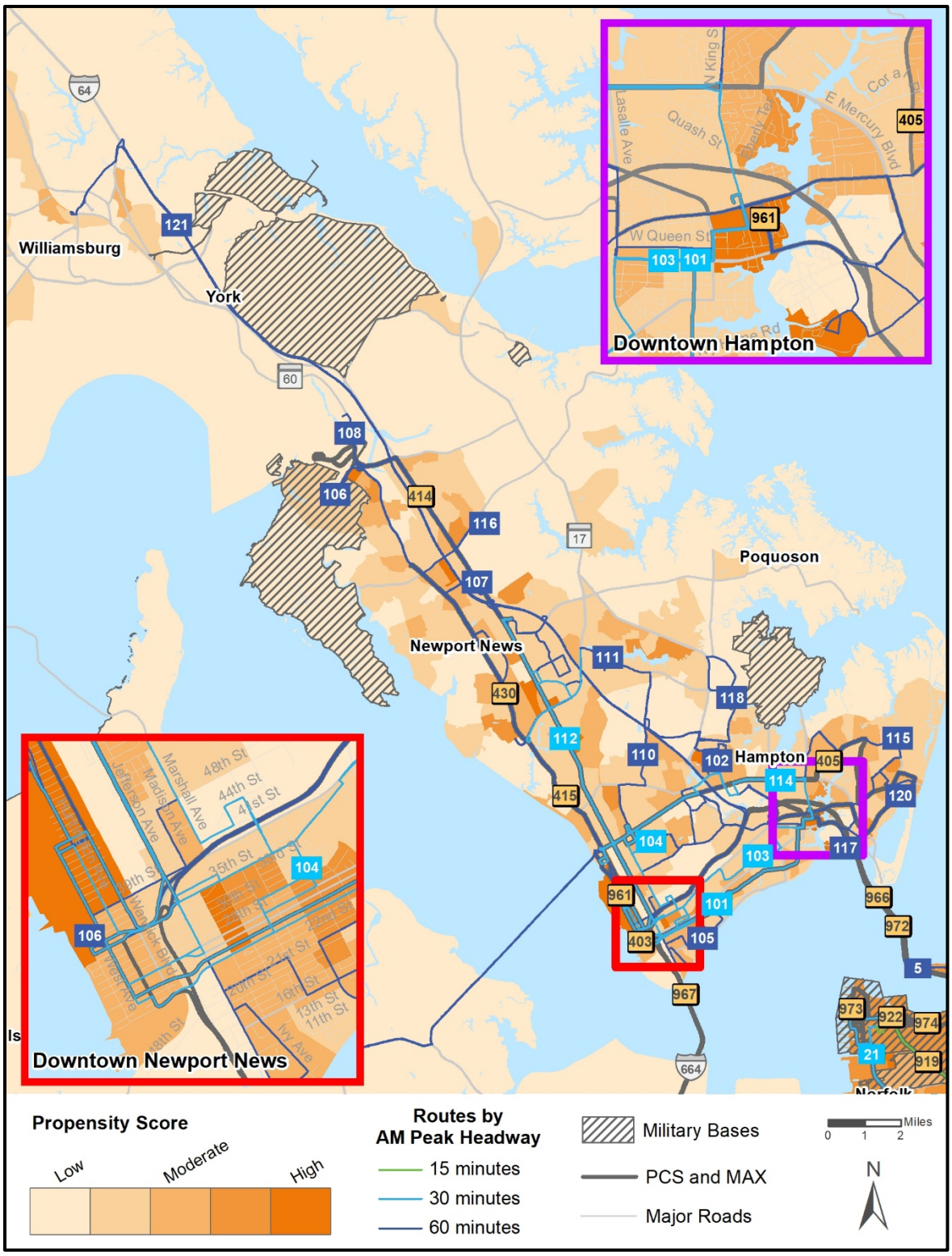
Source: HRT Routes Fall 2018

Figure 2-25: Southside – All-Day Service Index



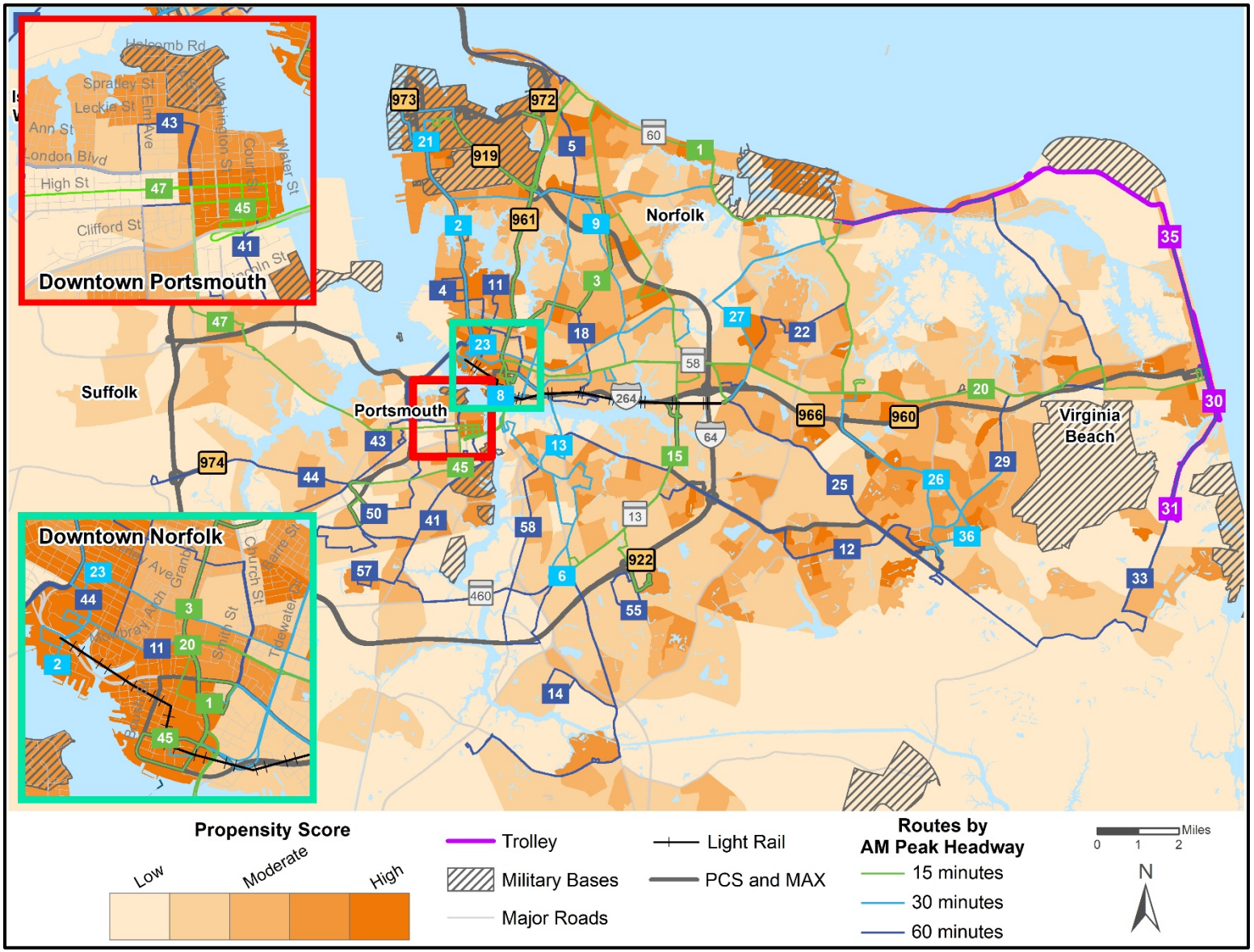
Source: HRT Routes Fall 2018

Figure 2-26: Peninsula – Peak Service Index



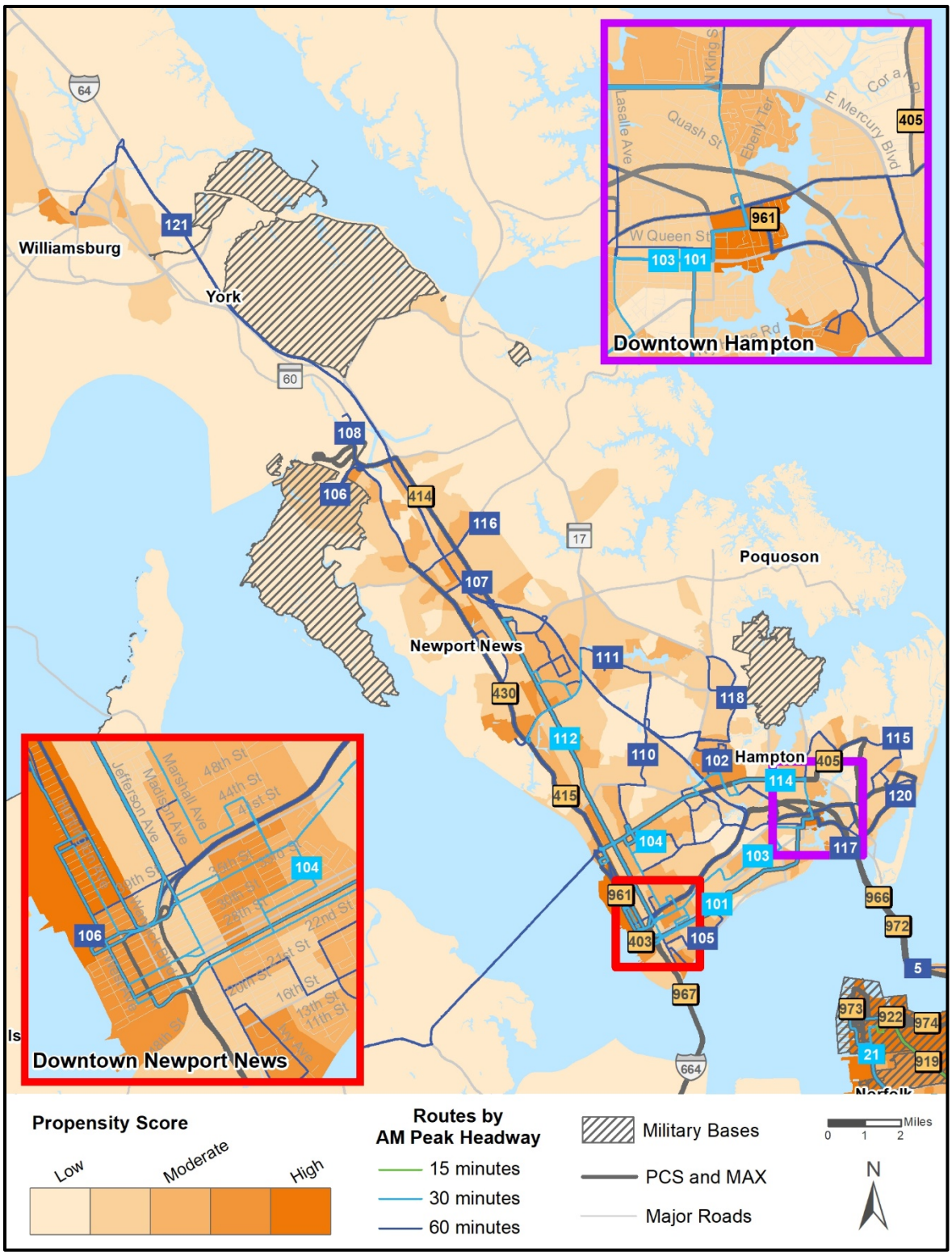
Source: HRT Routes Fall 2018

Figure 2-27: Southside – Peak Service Index



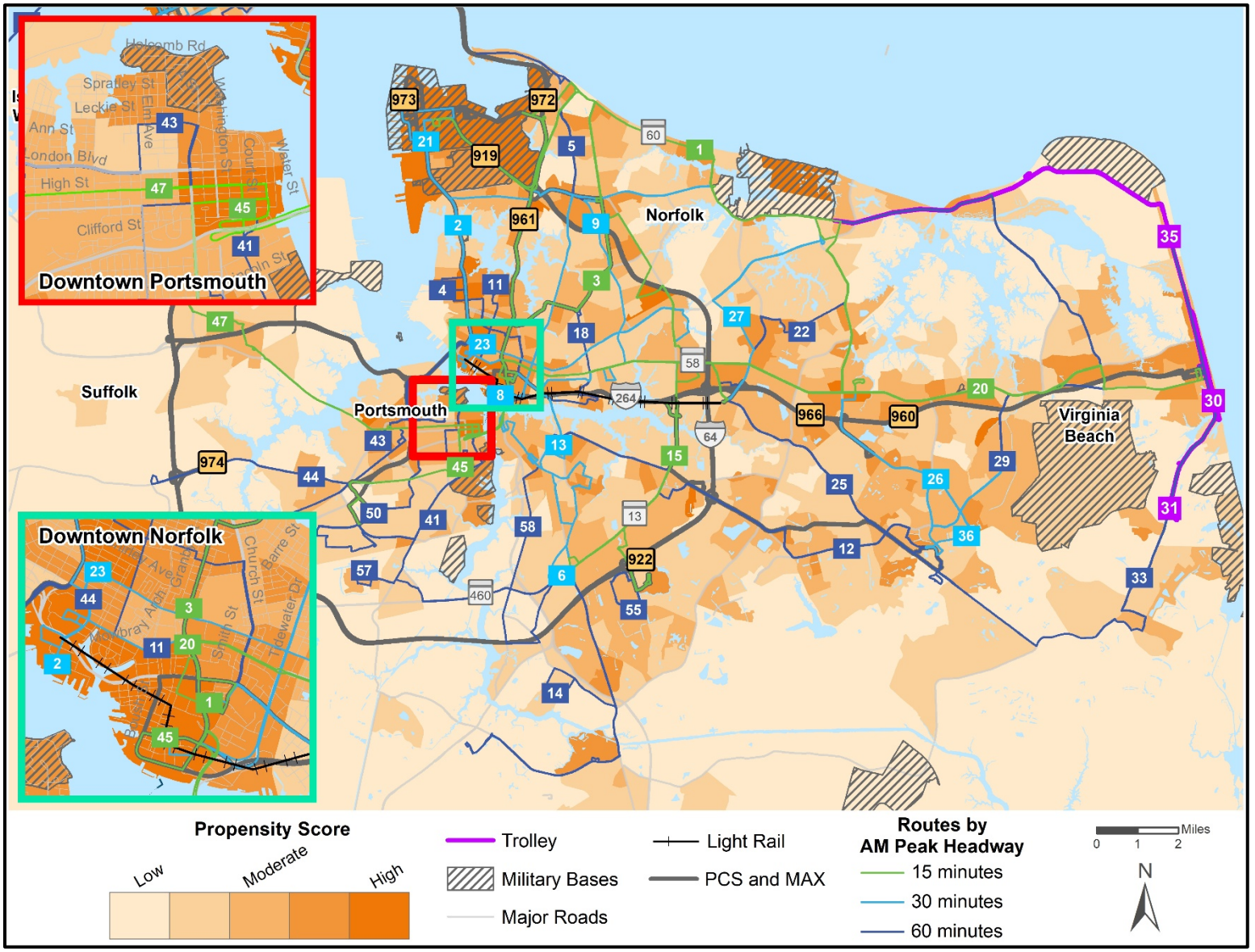
Source: HRT Routes Fall 2018

Figure 2-28: Peninsula – Multimodal Service Index



Source: HRT Routes Fall 2018

Figure 2-29: Southside – Multimodal Service Index



Source: HRT Routes Fall 2018

Coverage / Connection Gap Analysis

HRT provides coverage over much of the areas within the six member jurisdictions identified as needing transit service with local, express, and commuter bus service, along with The Tide light rail, despite a challenging geographic area that is both very large and heavily segmented by the many rivers and limited by the bridges and tunnels that connect the areas.

Looking ahead, as the population and employment of the region changes and the region strives to retain and attract talent for a thriving economy, it becomes necessary to evaluate the existing transit network to ensure there are no gaps in service where current and future demands will not be met. This analysis compares the current transit supply per period to the future travel demands as forecasted through the HRTPO Regional Travel Demand Forecasting Model.

The following analysis uses the travel flows analyzed as the measure of future travel demands. The travel flows were compared against the propensity indices to approximate the demand for transit between districts. All-day trip volumes were adjusted based on the Transit-Oriented Population and Non-Work propensity of their origin and destination districts, while peak trip volumes were adjusted using Commuter and Workplace propensity.

The transit supply, in terms of the number of weekday trips per period, was calculated from HRT's GTFS feed from fall 2016[22] which contains the schedule, route, and bus stop information for all HRT services. The level of service measure was applied to any areas within a quarter mile of a bus stop.

These measures of transit supply and travel demand were used to identify three types of gaps in transit service.

- **Low Level of Service:** Evaluates if an existing direct connection provides a sufficient number of trips for the travel flow between districts by comparing the number of trips that directly connect travel districts to volume of trips between them.
- **Lacks Direct Connection:** Evaluates person trips within the existing service area that require difficult transfers. In this case, the number of transfer opportunities between routes is used as a measure of difficulty.
- **New Service Area:** Evaluates the total volume of person trips between districts for connections where one or more of the districts does not have access to transit.

All-Day Coverage Gaps

All-day service gaps, or lack of service between popular origin-destination pairs, exist in several locations throughout the service area.

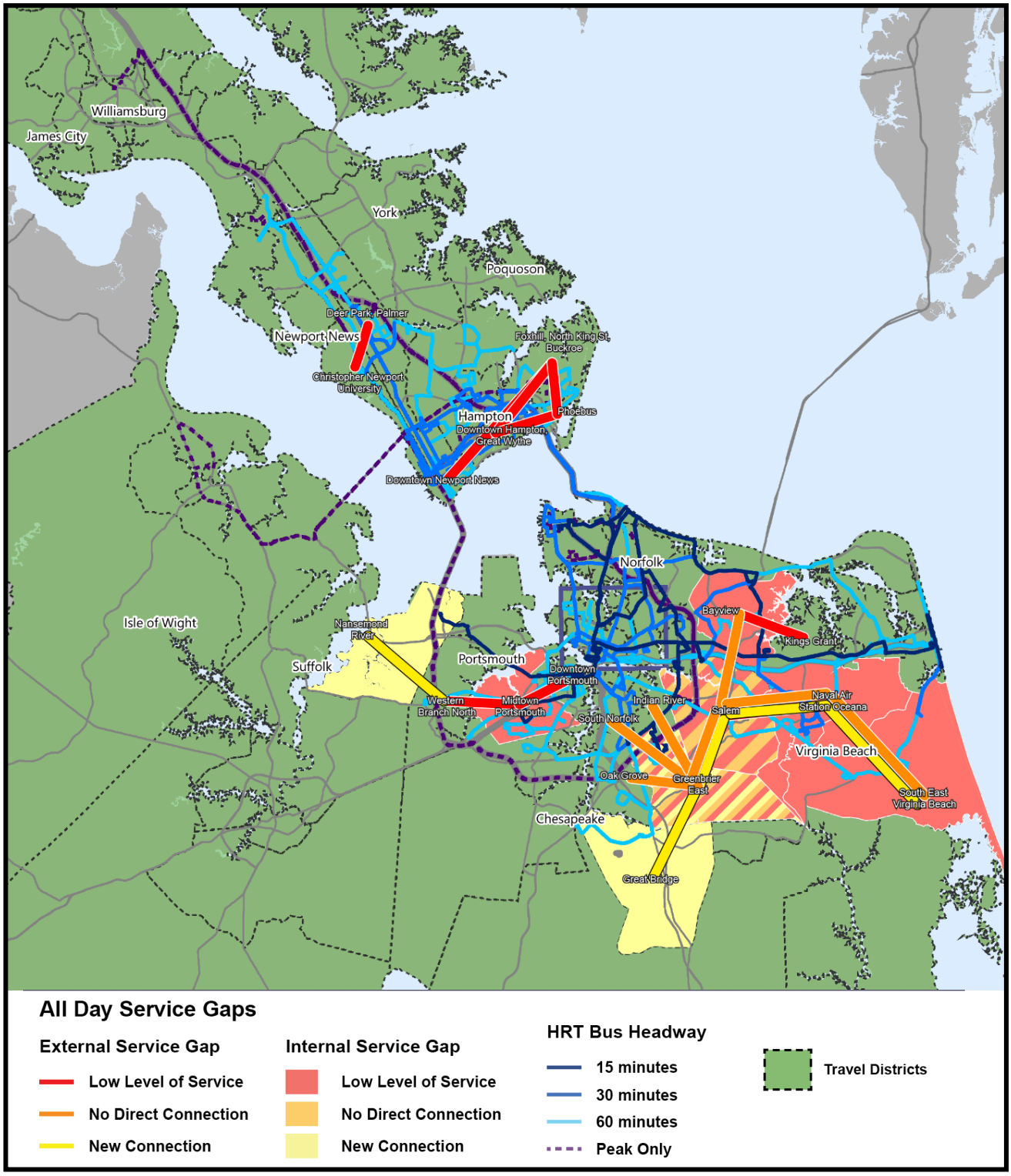
Low levels of all-day service were identified in three general areas: Hampton, Portsmouth, and throughout Virginia Beach. In Hampton, gaps were identified between all three districts on the eastern portion of the city (Downtown Hampton / Greater Wythe, Phoebus, and Foxhill / North King St / Buckroe), suggesting there is a greater need for transit trips that circulate throughout the area. Virginia Beach showed a chain of districts along I-264 that need increased levels of service to Salem. Additionally, there was an isolated gap in Newport News between Christopher Newport University and the Deer Park area.

Gaps in direct connections and new service areas were both identified in one general area, between northeast Chesapeake and central Virginia Beach. Routes extend to this area radially from Downtown Norfolk which currently necessitates multiple transfers in order to cross the region. Additionally, this area has limited coverage within its neighborhoods and presents the largest new market available within the HRT service area and member cities jurisdictions.

The all-day coverage and connection gaps identified through this analysis could be addressed with increased levels of service on routes connecting the various regions, or new services that could include fixed-route or alternative types of services. **Figure 2-30** illustrates the service gaps that were identified though this analysis.

[22] Analysis from the HRT FY 2018 – FY 2027 Transit Development Plan

Figure 2-30: All-Day Service Gaps

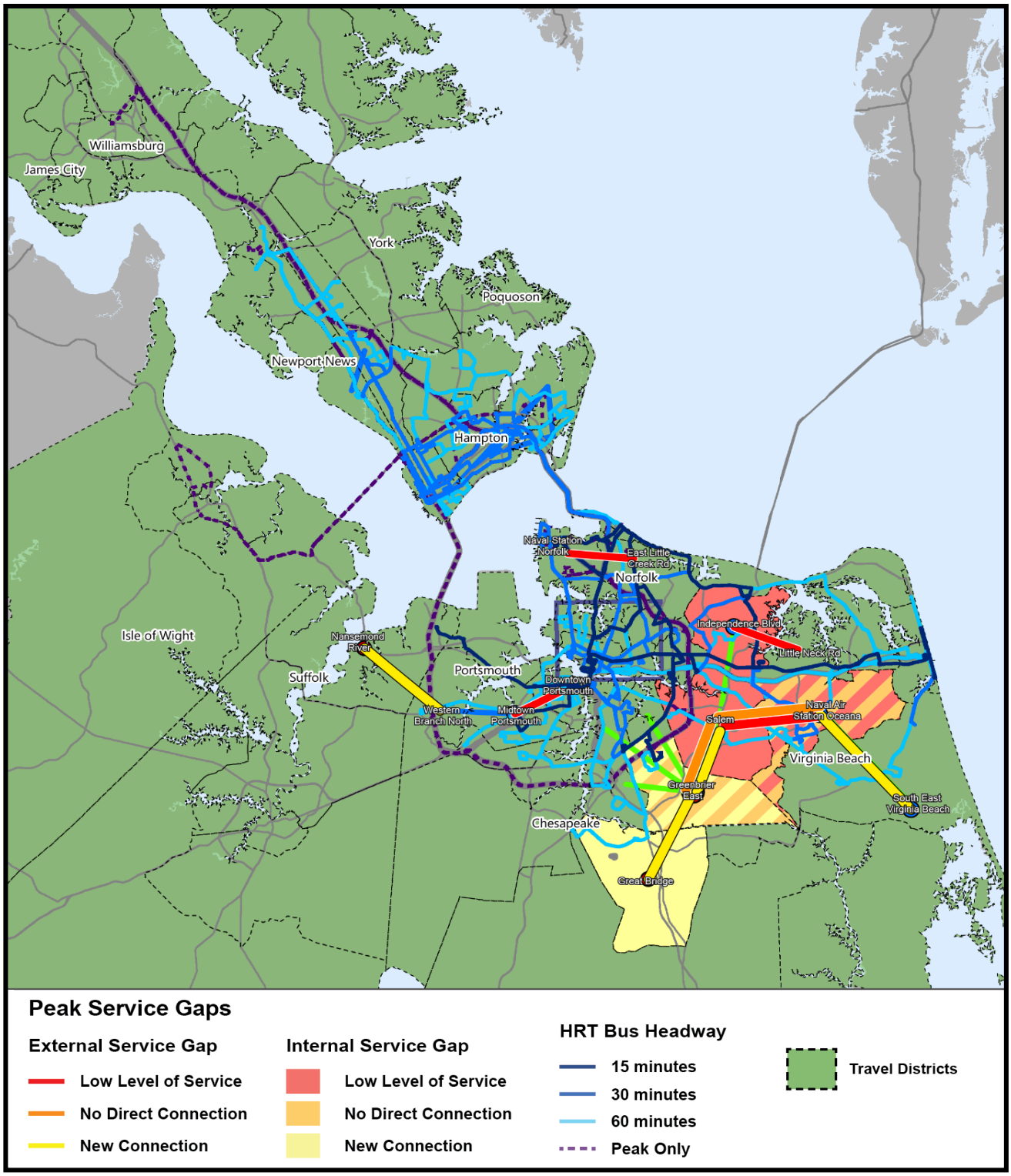


Peak Coverage Gaps

Most of the peak period service gaps that were identified were also identified as all-day service gaps, including those in Virginia Beach and Portsmouth. In addition, there is a gap in peak period level of service in Norfolk on East Little Creek Road between JEB Little Creek and Naval Station Norfolk. Service between these districts is currently provided by Route 21.

The coverage and connection peak gaps identified through this analysis could be addressed with increased peak levels of service on routes connecting the various regions, or new services that could include fixed-route or alternative types of services. **Figure 2-31** illustrates the service gaps that were identified though this analysis.

Figure 2-31: Peak Service Gaps



2.3 Performance Evaluation

2.3.1 Performance Evaluation

Fixed-Route Service Effectiveness

Service effectiveness, which is expressed by showing the number of passengers per revenue hour and passengers per revenue mile, reflects the return that HRT receives on its investment. Each HRT route requires an investment of resources which is quantified by revenue hours and revenue miles. The relative success of each investment is measured by the ridership that each route generates.

Ridership

Passengers per Revenue Hour

Passengers per revenue hour is a comparison of the total passengers carried on a route to the total number of revenue (or service) hours operated by the route. It is used to determine the productivity of a route's average revenue hour. Passengers per revenue hour by route is illustrated in **Figure 2-32.**

Route 120 (Downtown Hampton/Mallory/Buckroe) was the most productive route in FY 2019, with 34 passengers per revenue hour; Route 430 (Denbigh Fringe) and Route 117 (Hampton University/V.A. Hospital are also productive, with 25 or more passengers per revenue hour.

The average number of passengers per revenue hour across the entire system is 14.8. The average number of passengers per revenue hour for Southside routes is 15.3; for Peninsula routes, 15.1; for PCS/MAX routes, 10.4; and for VB Wave and Bayfront Shuttle routes, 11.6 passengers per revenue hour.

Passengers per Revenue Mile

Passengers per revenue mile is a comparison of the total passengers carried on a route to the total number of revenue (or service) miles operated by the route. It is used to determine the productivity of a route's average revenue mile. Route level passengers per revenue mile for FY 2019 is shown in **Figure 2-33**.

When measured by passengers per revenue mile, Route 430 (Denbigh Fringe) is the most productive, carrying six passengers per revenue mile, followed by Route 30 (Oceanfront Shuttle), which carries three passengers per revenue mile, and Route 405 (NNTC/Buckroe) which carries 2.5 passengers per revenue mile.

The system wide average number of passengers per revenue mile is 1.0. The Southside and Peninsula routes' average number of passengers per revenue mile are slightly higher than the system wide average, at 1.2 and 1.1 passengers per revenue mile, respectively. The PCS and MAX routes perform lower on average, at 0.4 passengers per revenue mile, while VB Wave and Bayfront Shuttle routes are above average at 1.4 passengers per mile.

Passengers per One-Way Trip

Passengers per trip is a comparison of the total passengers carried on a route to the total number of trips on the route. This is used to determine the productivity of a route on a per trip basis. **Figure 2-34** shows passengers per one-way trip by route for FY 2019.[23]

For FY 2019, Route 20 (Downtown Norfolk / Virginia Beach Oceanfront) averaged 56 passengers per one-way trip, the highest in the HRT fixed-route bus system. Other high performers are Route 966 (Silverleaf Park and Ride / Newport News Transit Center), Route 403 (Buckroe Shopping Center), and Route 430 (Denbigh Fringe), which all average more than 36 passengers per trip. The least productive routes were Route 973 (Portsmouth / Naval Station Norfolk), Route 974 (Chesapeake / Naval Station Norfolk), and Route 26 (TCC Virginia Beach / Lynnhaven Mall) with one, two, and three passengers per trip, respectively.

Overall, HRT routes carry 13.5 passengers per one-way trip. The average number of passengers per trip for Southside Routes is 14.5; for VB Wave routes, 6.1; for Peninsula routes, 12.5; and for PCS/MAX routes, 16.1 passengers per trip.

[23] VB Wave routes (Route 30, Route 31, and Route 35) are excluded from this analysis.

Figure 2-32: Passengers per Revenue Hour, FY 2019

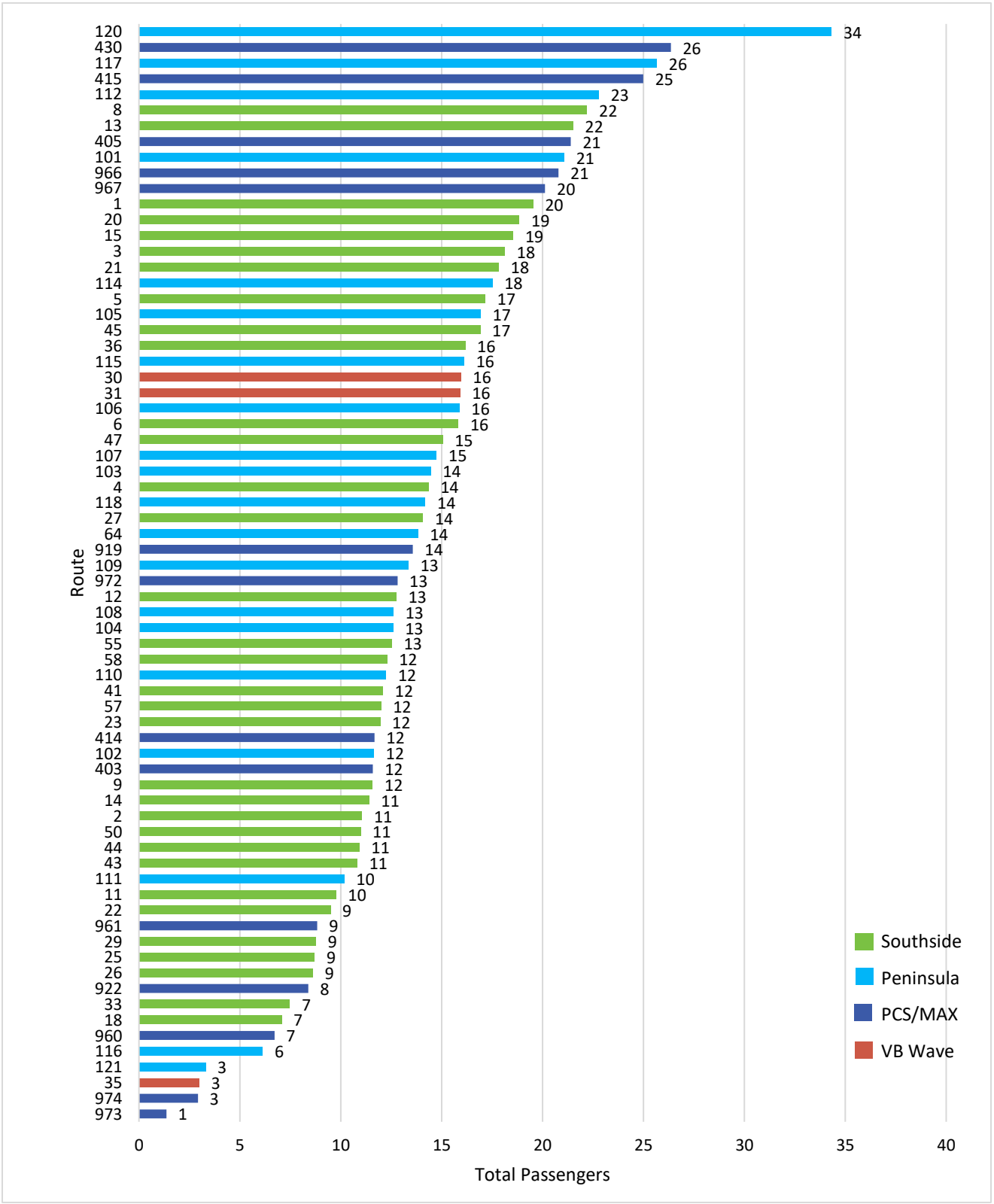


Figure 2-33: Passengers per Revenue Mile, FY 2019

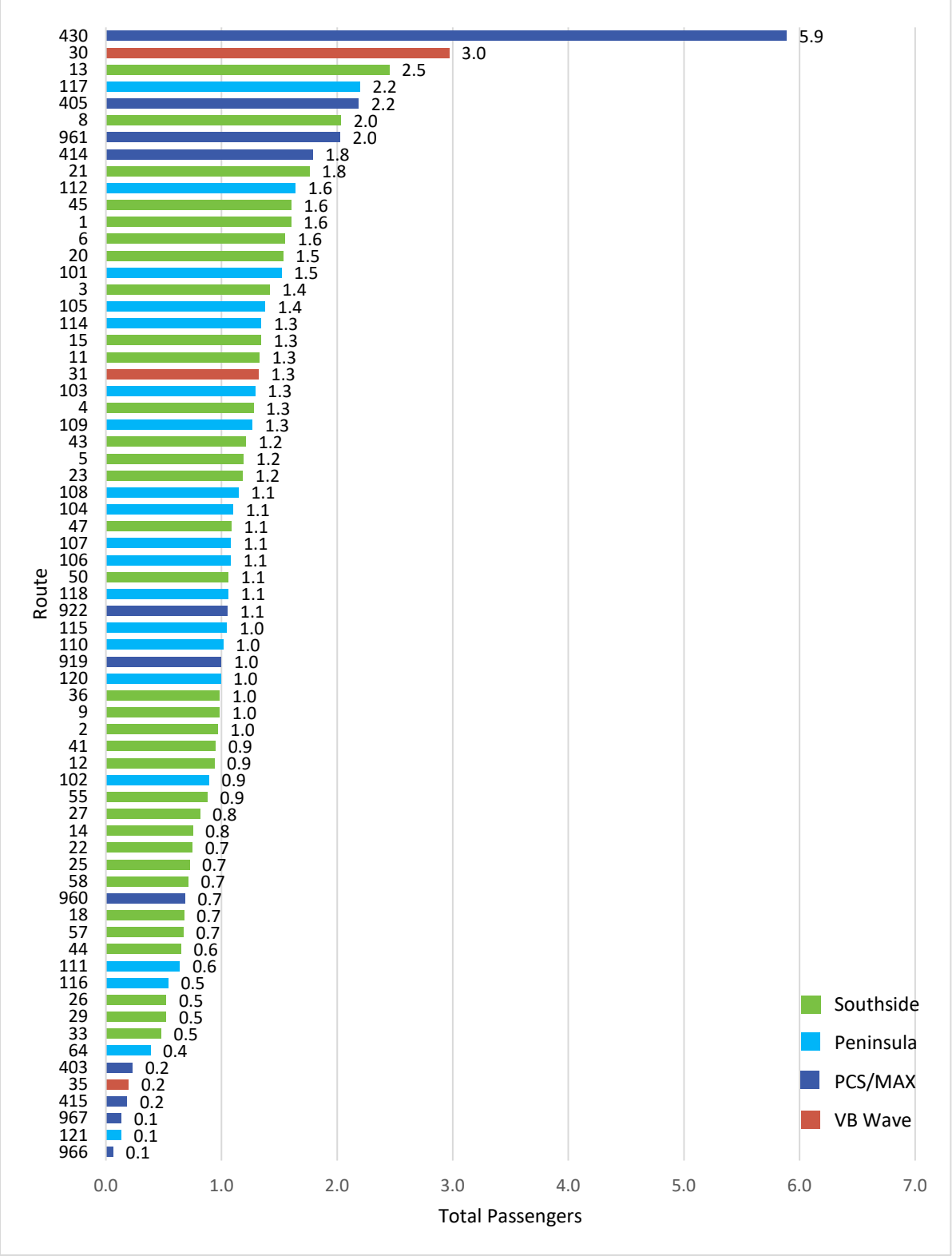
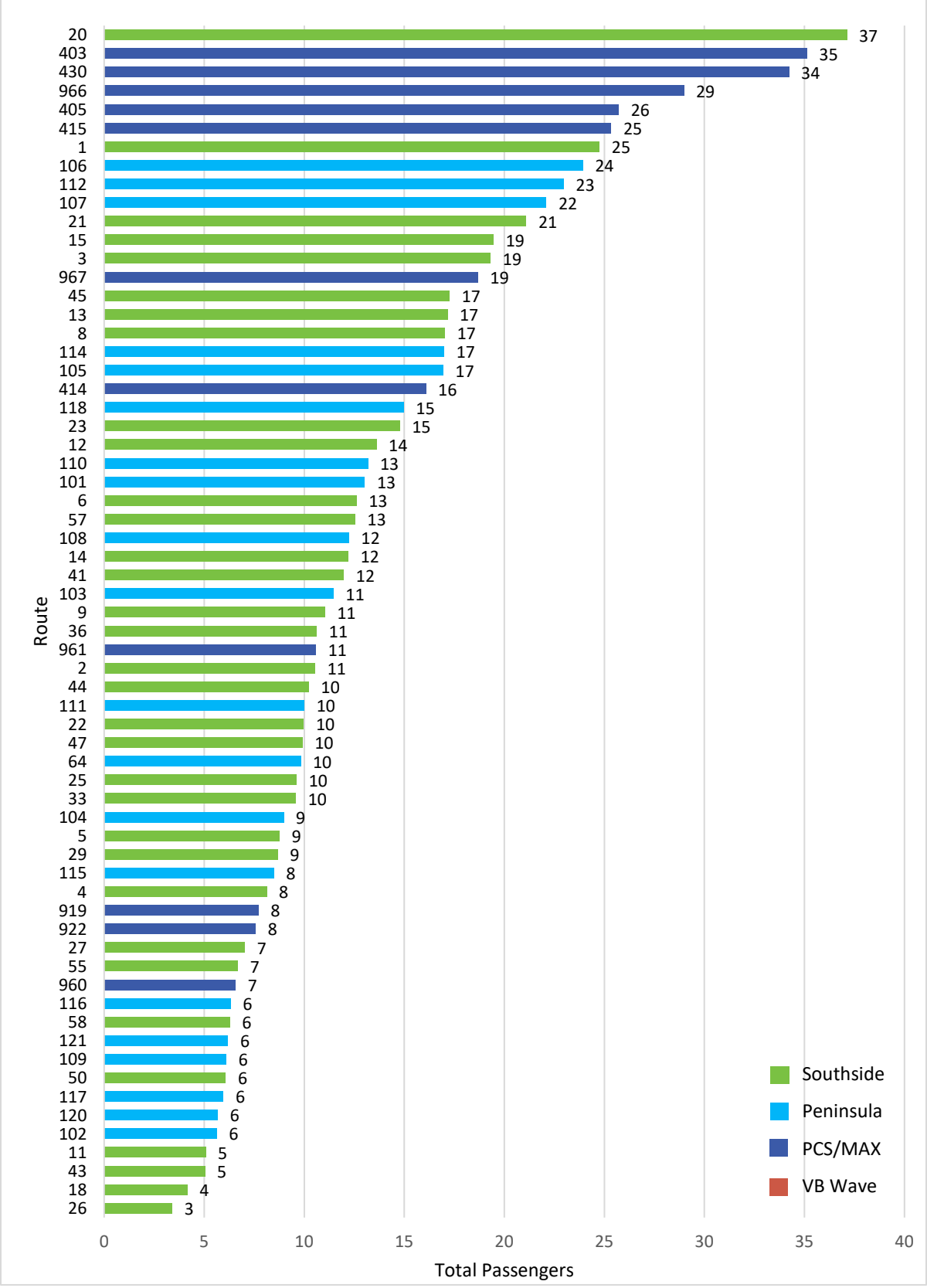


Figure 2-34: Passengers per One-Way Trip, FY 2019



Cost Efficiency

Farebox Recovery

Farebox recovery measures the percentage of operating costs covered through rider fares; the farebox recovery ratio is a comparison of the total cost to operate a route to the total fare collected by the route. **Figure 2-35** shows the farebox recovery ratio by route for FY 2019.

For FY 2019, Route 430 (Denbigh Fringe) had a farebox recovery ratio of 69.5 percent, the highest in the HRT fixed-route bus system. Other high performers were Route 403 (Buckroe Shopping Center) and Route 415 (NNTC / Denbigh), which both had a farebox recovery ratios above 50 percent. The routes with the lowest farebox recovery ratios were Route 973 (Portsmouth / Naval Station Norfolk), Route 35 (Bayfront Shuttle), and Route 974 (Chesapeake / Naval Station Norfolk), which had farebox recovery ratios of 3.1 percent, 3.8 percent, and 7.4 percent respectively.

Overall, HRT routes have a farebox recovery ratio of 17.9 percent. The farebox recovery ratio for Southside routes is slightly above average at 18.3 percent and the farebox recovery ratio for Peninsula routes is slightly below average at 17.7 percent. For VB Wave trolley and Bayfront Shuttle routes, the farebox recovery ratio is below average at 13.9 percent, and for PCS and MAX routes, it is slightly below average at 17.7 percent.

Net Cost per Passenger

The net cost per passenger is measured as the subsidy per passenger boarding. Subsidy per passenger boarding is a comparison of the total operating subsidy, or cost not covered by fare revenue, of a particular route to the total number of passenger trips operated by the route. In general, it represents the cost of a passenger trip supplemented by additional funding sources. **Figure 2-36** shows subsidy per passenger for each route for FY 2019.

For FY 2019, Route 430 (Denbigh Fringe) had a subsidy per passenger of $0.45, the lowest in the system. Other routes with low subsidies included Route 403 (Buckroe Shopping Center), Route 415 (NNTC / Denbigh), Route 405 (NNTC / Buckroe), Route 117 (Hampton University / V.A. Hospital), and Route 112 (Downtown Newport News / Patrick Henry Mall), all of which had subsides per passenger below $3.00. Route 973 (Portsmouth / Naval Station Norfolk) had the highest subsidy per passenger at $65.23, followed by Route 35 (Bayfront Shuttle) at $29.44, and Route 974 (Chesapeake / Naval Station Norfolk) at $29.00.

Overall, HRT routes have a subsidy per passenger of $5.05. The subsidy per passenger for Southside and Peninsula routes have an average subsidy per passenger below the systemwide average at $4.90 and $4.98 respectively. VB Wave and Bayfront Shuttle and PCS/MAX routes have an average subsidy per passenger above the systemwide average at $6.78 and $6.88 respectively. HRT's systemwide average operating cost per passenger is $6.27.

Figure 2-35: Farebox Recovery Ratio, FY 2019

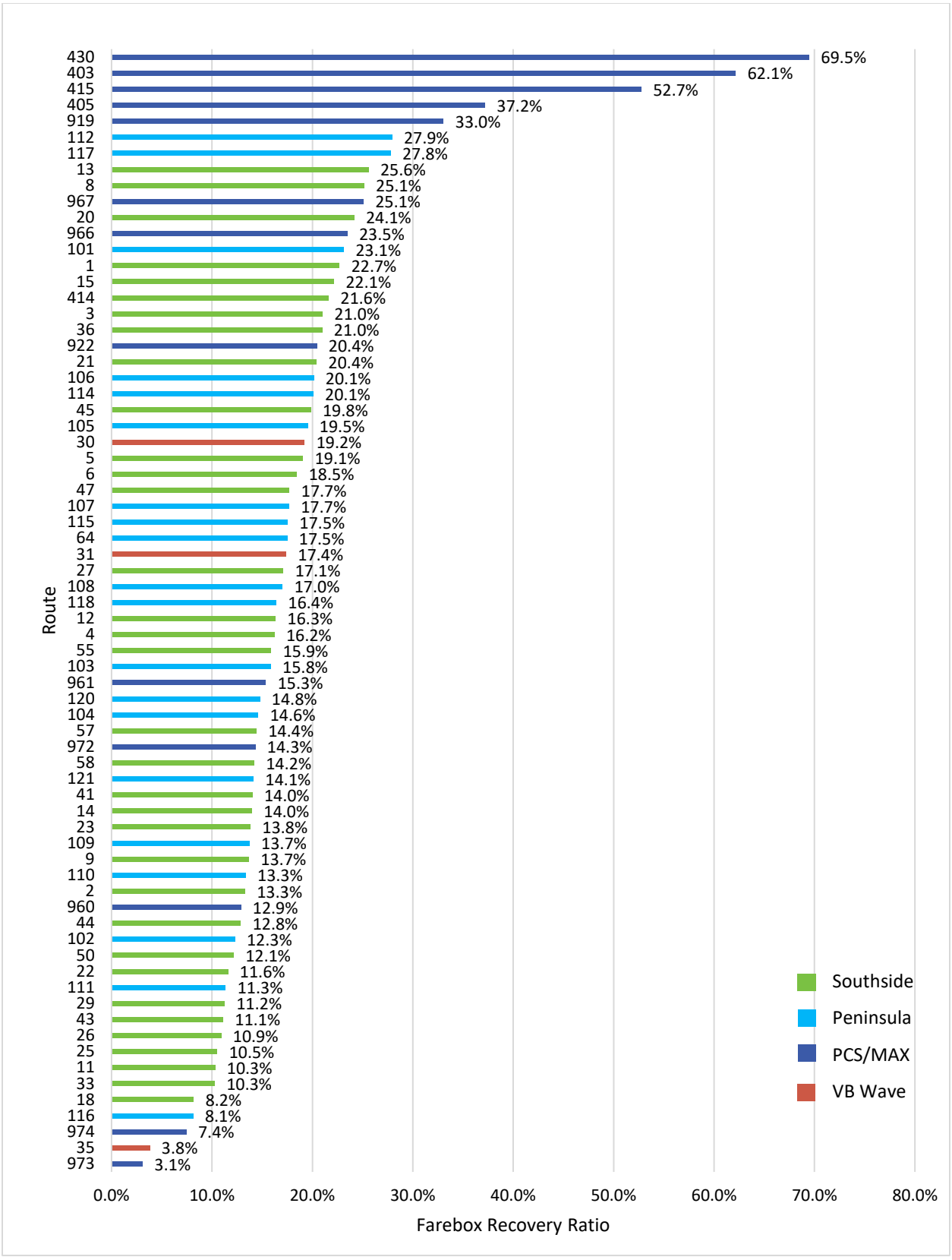
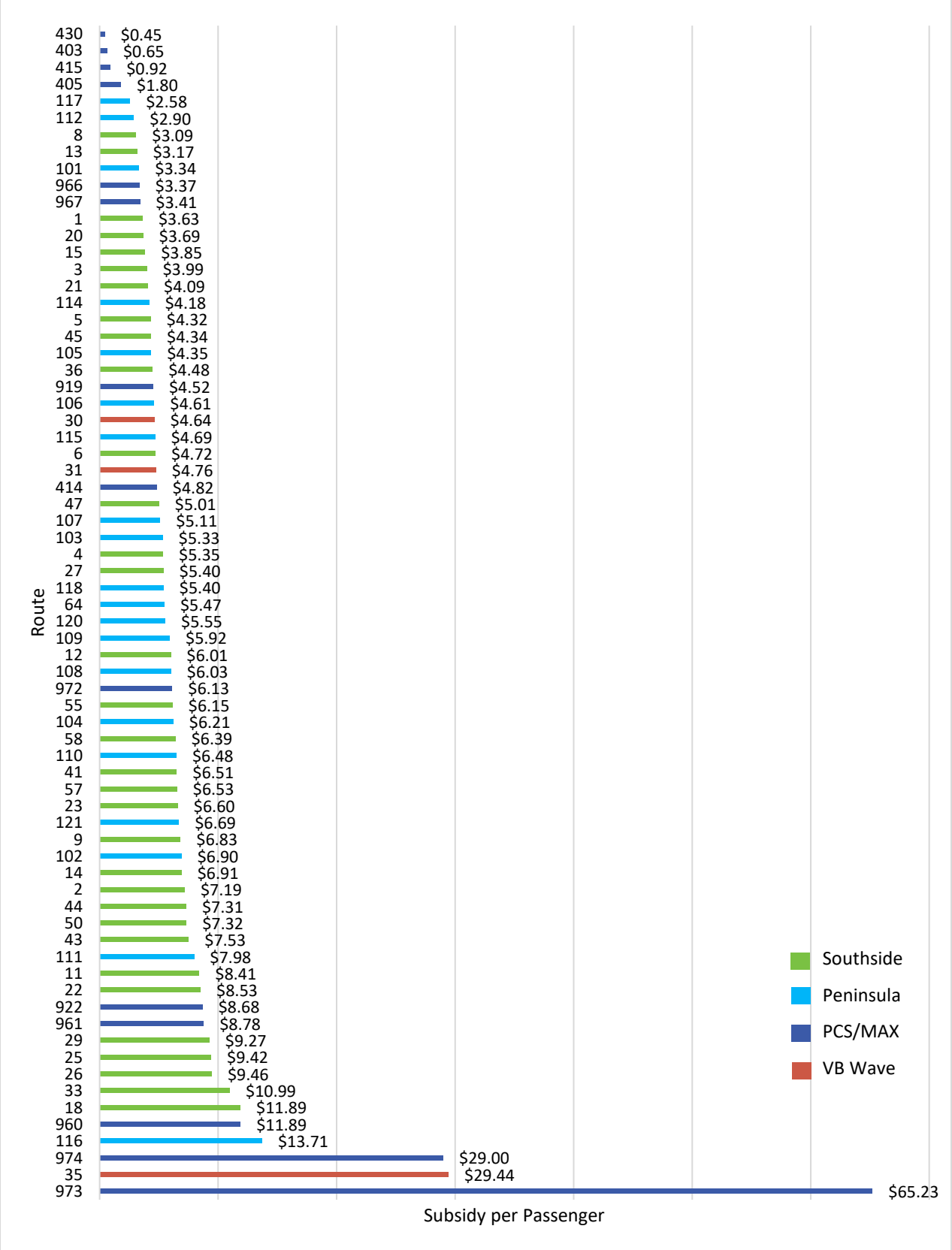


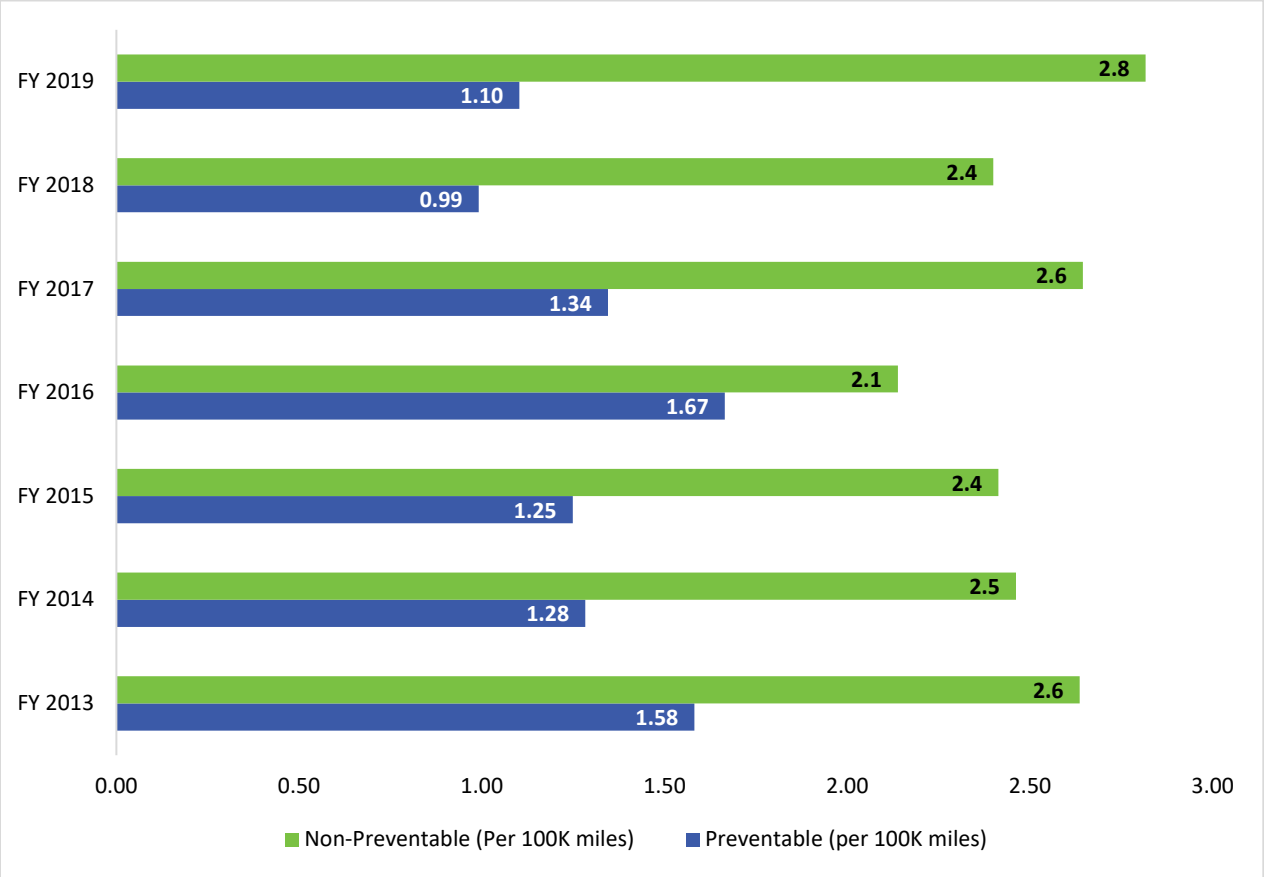
Figure 2-36: Subsidy per Passenger, FY 2019



Safety

Safety is measured as the number of preventable and non-preventable bus accidents by fiscal year. In FY 2019 there were a total of 119 total preventable accidents and 304 non-preventable accidents, a small increase compared to FY 2018, but an overall drop in preventable accidents compared to the seven-year period between FY 2013 and FY 2019. Normalizing by vehicle mileage, there were 1.10 preventable and 2.8 non-preventable accidents per 100,000 miles in FY 2019, as shown in **Figure 2-37**. When normalized by mileage, the number of preventable and non-preventable accidents has remained relatively steady across the time period.

Figure 2-37: Preventable and Non-Preventable Accidents, FY 2013-FY 2019



System Accessibility

System accessibility measures how accessible a transit system is to residents and jobs. Area within walking distance was measured as the area within half of a mile of routes with 15-minute frequencies and a quarter of a mile within all other routes. Population and jobs within the region were estimated based on the American Community Survey 2015 five-year estimates and Longitudinal Employer-Household Dynamics, 2015. HRT's existing system is accessible to about 64 percent of residents and to 58 percent of jobs in the region, as shown in **Table 2-32**.

Table 2-32: System Accessibility to Population and Jobs

Measure	Area within Walking Distance	Hampton Roads Total	Percentage Covered
Resident Access	734,665	1,140,000	64%
Access to Jobs	417,590	710,769	58%

Trend Analysis

This trend analysis reports on and assesses HRT's bus and demand response transit services during the period spanning FY 2012 through FY 2017. Such an evaluation allows for an assessment of transit services over time, and sheds light on how development and changing demographics have impacted transit performance and system growth. The following section reports on the following characteristics for each of these services:

- **Service area characteristics:**
  - Square miles
  - Population
  - Population density
- **Operational metrics:**
  - Vehicles operated in maximum service
  - Vehicle revenue miles
  - Vehicle revenue hours
- **Ridership metrics:**
  - Total ridership
  - Passengers per revenue mile
  - Passengers per revenue hour
- **Revenue and cost metrics:**
  - Total operating expenses
  - Operating expenses per passenger trip
- **Service efficiency:**
  - Fare revenue
  - Farebox recovery ratio
  - Subsidy per passenger

Service Area Characteristics

A review of service area characteristics allows an agency to assess how the scale of its operations and constituency size have evolved along with the service provided.

The square mileage of HRT's service area decreased by approximately 17 percent from FY 2012 to FY 2017. In January 2012, the City of Suffolk, Virginia withdrew from the Transportation District Commission of Hampton Roads, thereby reducing HRT's service area size. Although some HRT routes currently operate in the City of Suffolk, most bus service in this city is now provided by Suffolk Transit.

In addition, HRT's service area population decreased by 21 percent over this period. According to the U.S. Census Five-Year American Community Survey, from 2012 through 2015, the populations of the Virginia Beach-Norfolk-Newport News, VA-NC Metropolitan Statistical Area and Virginia Beach Urban Area each increased over this timeframe. Therefore, HRT's reduction in service area population can likely also be at least in part attributed to the loss of service in the City of Suffolk.

Lastly, the population density of HRT's service area dropped by five percent over the five-year period, from 2,795 persons per square mile to 2,667 persons per square mile. **Table 2-33** summarizes how the characteristics of HRT's service area have changed over the last five fiscal years.

Table 2-33: Service Area Characteristics

Fiscal Year	Square Miles	Population	Population Density
2012	515	1,439,666	2,795
2013	515	1,439,666	2,795
2014	421	1,134,343	2,694
2015	431	1,143,932	2,654
2016	431	1,143,932	2,654
2017	428	1,141,651	2,667
% Change	**-17%**	**-21%**	**-5%**

Operational Statistics

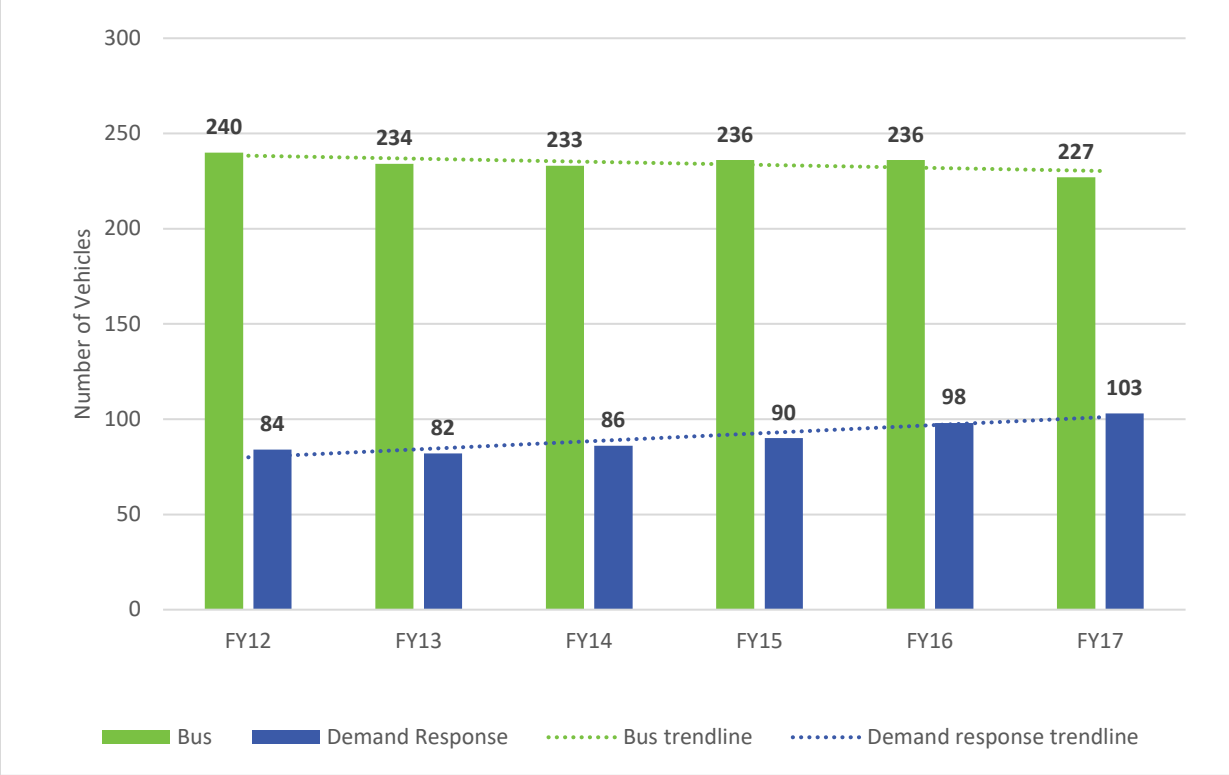
A review of operational statistics describes the level of service HRT has provided over the six years from FY 2012 to FY 2017. The following section analyzes the vehicles operated in maximum service, revenue hour and revenue mile trends within the HRT system.

Vehicles Operated in Maximum Service

Between FY 2012 and FY 2017, the number of fixed-route vehicles in maximum service remained relatively constant, dropping overall by just five percent (from 240 to 227).

In contrast, HRT increased its paratransit fleet operating in maximum service from 84 to 103 vehicles, a 23 percent increase, greatly improving its ability to serve the region's elderly and disabled populations during peak periods. During FY 2013 and FY 2014, as the demand for paratransit grew, the costs of operating paratransit grew slower than inflation. In FY 2014, HRT capitalized on this trend by replacing its entire paratransit fleet. **Figure 2-38** details the number of vehicles operated in maximum service over the period from FY 2012 through FY 2017.

Figure 2-38: Vehicles Operated in Maximum Service



Vehicle Revenue Miles

Fixed-Route

A vehicle is considered in revenue service when operating on a route and serving passengers, and in non-revenue service when traveling to or from a garage without passengers. Fixed-route revenue miles dropped from FY 2012 to FY 2013, but rose steadily thereafter, resulting in a two percent overall increase from FY 2012 to FY 2017.

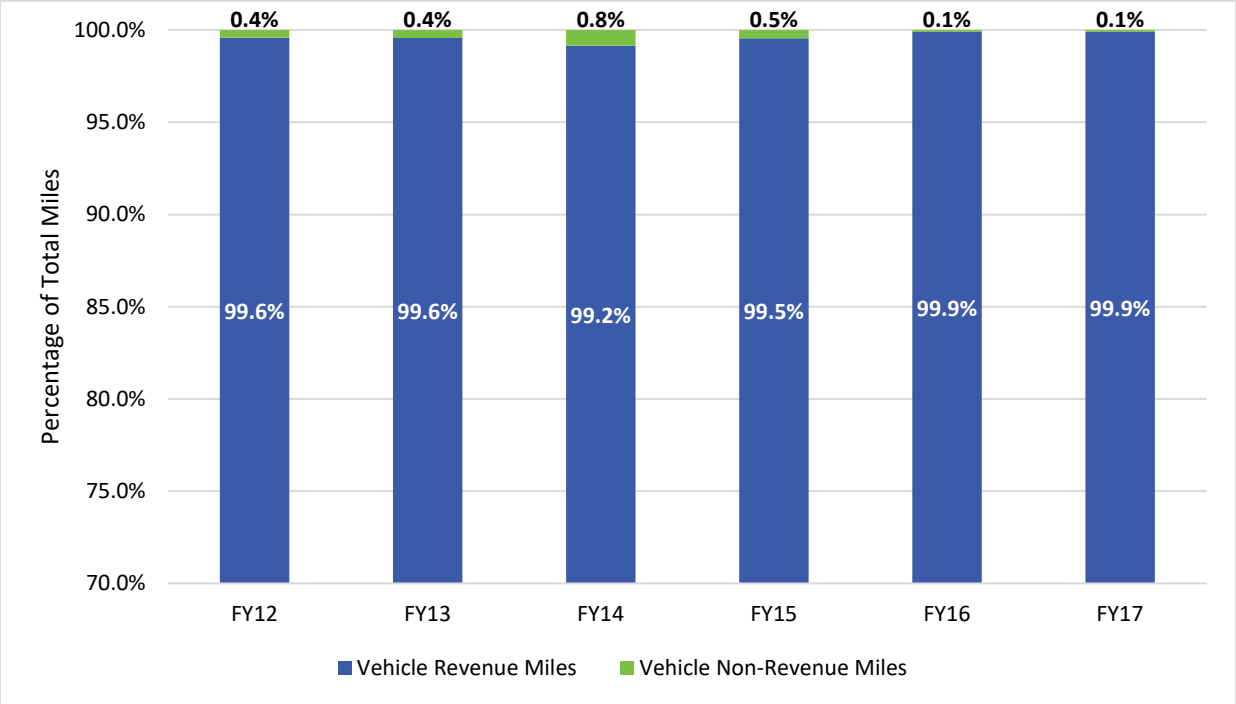
Table 2-34 summarizes the total revenue versus non-revenue miles on HRT fixed-routes during the six-year period.

Table 2-34: Fixed Route: Revenue / Non-Revenue Miles[24]

Fiscal Year	Revenue Miles	Non-Revenue Miles
2012	10,466,059	43,858
2013	9,932,136	43,593
2014	9,794,751	83,543
2015	10,218,494	46,630
2016	10,657,297	11,089
2017	10,624,169	11,051
% Change	**2%**	**-75%**

The percentage of fixed-route vehicle revenue versus that of non-revenue miles, shown in **Figure 2-39**, reveals that although non-revenue miles fluctuated during the five-year period, HRT's percentage of vehicle revenue miles never fell below 99 percent and barely deviated from 99.6 percent, the value reported in FY 2016.

Figure 2-39: Fixed-Route: Percentage of Vehicle Revenue and Non-Revenue Miles



[24] Non-revenue miles increased by 92 percent in FY 2014, a direct result of a new scheduling process within Trapeze.

Demand Response

Along with the overall size of its fleet and the demand for paratransit, HRT drastically increased demand response service from FY 2012 to FY 2017; revenue miles surged by a total of 69 percent. As revenue service grew, so did non-revenue miles, by a total of 12 percent.

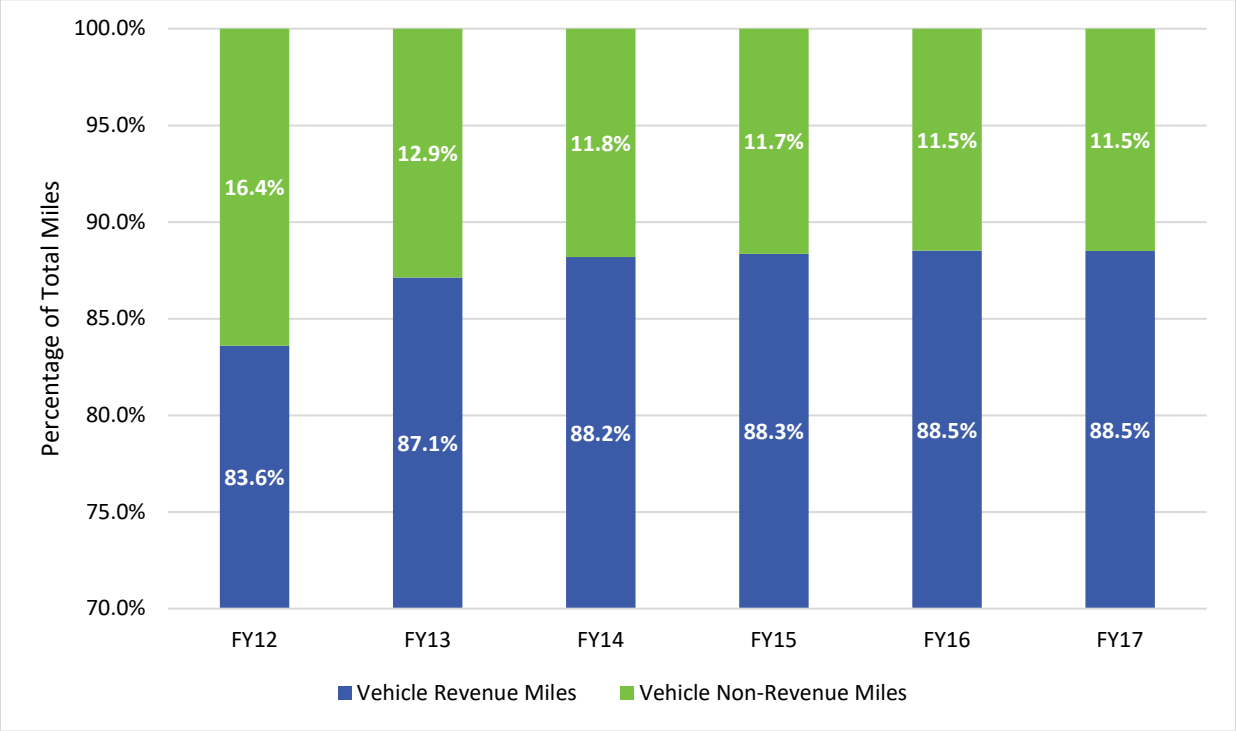
Table 2-35 summarizes the total revenue versus non-revenue miles in HRT demand response vehicles over the five-year period.

Table 2-35: Demand Response: Revenue / Non-Revenue Miles

Fiscal Year	Revenue Miles	Non-Revenue Miles
2012	2,251,183	441,368
2013	3,054,073	451,408
2014	3,259,377	436,238
2015	3,370,172	444,553
2016	3,788,225	491,308
2017	3,804,596	494,151
% Change	**69%**	**12%**

Figure 2-40 shows the percentage of demand response revenue versus non-revenue miles over the six-year period. While paratransit vehicles spent just 83.6 percent of their mileage in revenue service in FY 2012, by FY 2017, this figure had reached 88.5 percent.

Figure 2-40: Demand Response: Percentage of Vehicle Revenue and Non-Revenue Miles



Vehicle Revenue Hours

Fixed-Route

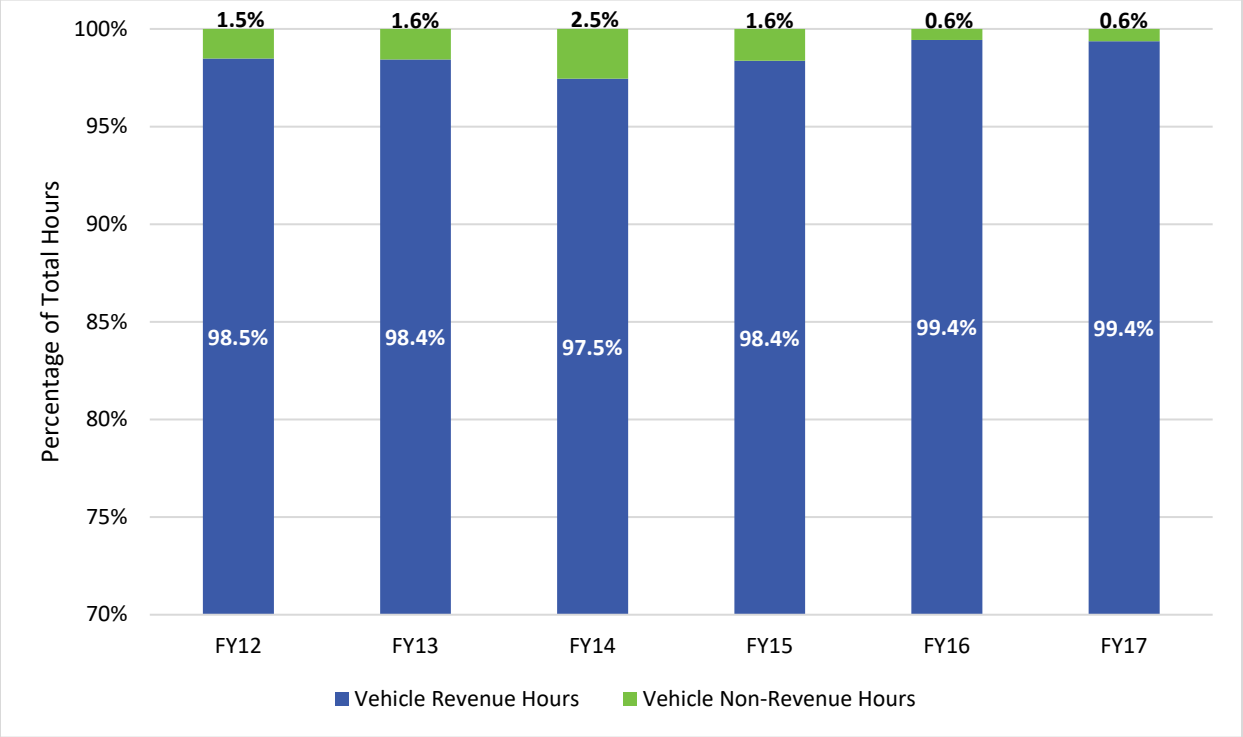
A complement to vehicle revenue miles, an analysis of revenue hours reveals–in terms of total time rather than distance–how efficient an agency is with its vehicles as it aims to spend as much time in service as possible. Over the six-year period, while HRT increased its revenue hours by five percent, non-revenue hours dropped by 57 percent. **Table 2-36** shows revenue versus non-revenue hours on HRT fixed-route services from FY 2012 to FY 2017.

Table 2-36: Fixed Route: Revenue / Non-Revenue Hours

Fiscal Year	Revenue Hours	Non-Revenue Hours
2012	788,917	12,092
2013	781,983	12,386
2014	778,904	20,316
2015	786,442	13,087
2016	823,606	4,710
2017	827,021	5,260
% Change	**5%**	**-57%**

Figure 2-41 shows the percentage of vehicle revenue versus non-revenue hours on buses. Although the percentage of revenue hours dropped slightly from FY 2012 to FY 2014, this percentage would rise once more until reaching a peak in FY 2017. Over the six-year period, HRT has used its vehicles more efficiently.

Figure 2-41: Fixed Route Percentage of Vehicle Revenue and Non-Revenue Hours



Demand Response

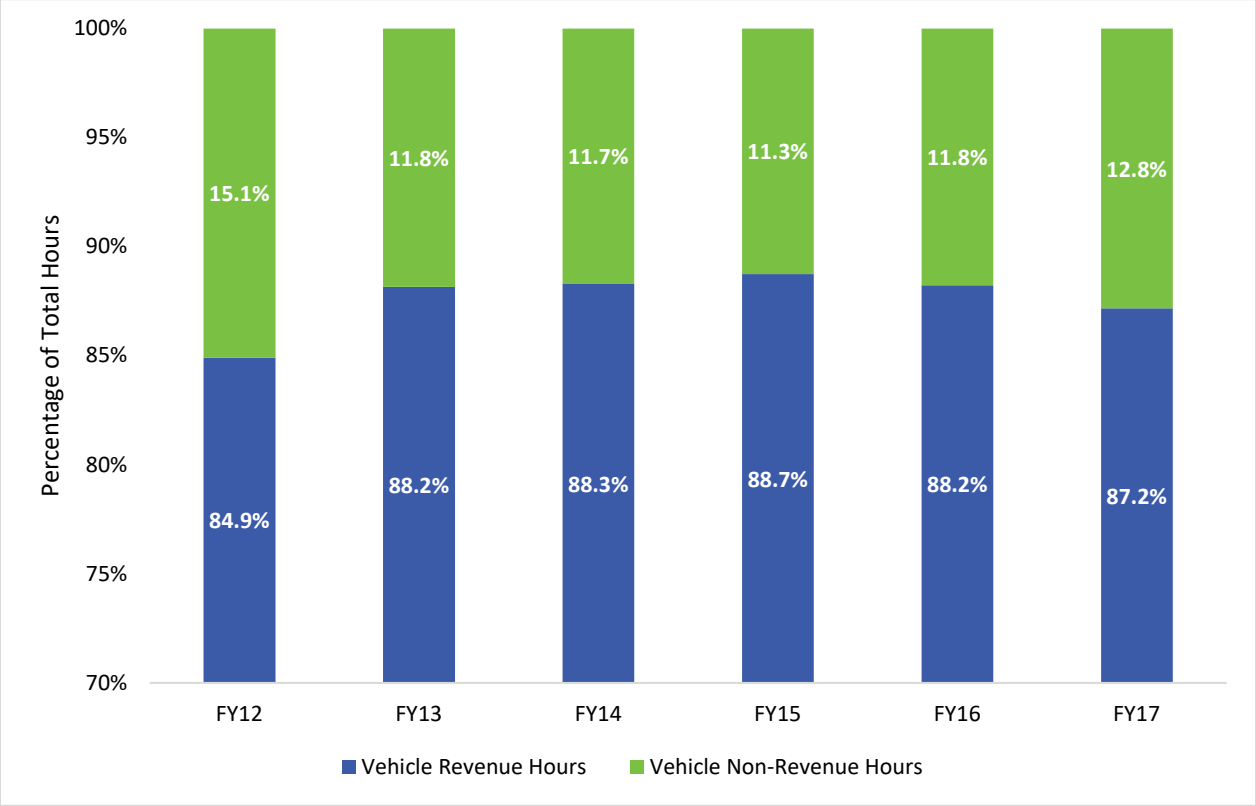
As the demand response service has grown, both revenue and non-revenue demand response hours have increased, respectively by 60 and 32 percent. **Table 2-37** summarizes revenue and non-revenue hours for paratransit service over the six-year period.

Table 2-37: Demand Response: Revenue / Non-Revenue Hours

Fiscal Year	Revenue Hours	Non-Revenue Hours
2012	150,171	26,672
2013	195,576	26,286
2014	201,726	26,761
2015	213,638	27,095
2016	237,016	31,593
2017	239,679	35,282
% Change	**60%**	**32%**

Despite dipping slightly from FY 2013 to FY 2014 and from FY 2015 to FY 2016, the percentage of demand response revenue hours has risen overall. Thus, as service has grown, HRT has increased the efficiency of its paratransit vehicle operation. **Figure 2-42** shows the percentage of revenue versus non-revenue hours on demand response vehicles. Notably, compared to the previous years, where the proportion of revenue to non-revenue hours remained relatively constant, 2017 saw an increase in the percentage of non-revenue hours as compared to total hours. This indicates that in 2017, demand response service was less efficient than in years past.

Figure 2-42: Demand Response Percentage of Vehicle Revenue and Non-Revenue Hours



Ridership

Total Ridership

An assessment of ridership reveals how the usage of HRT services has changed over the six-year analysis period. This section reviews unlinked passenger trips, or the total number of boardings on vehicles, regardless of how many transfers were made during any single trip.

While bus ridership rose slightly from FY 2012 to FY 2013, the number of unlinked trips dropped each year thereafter, ultimately resulting in an overall 21 percent decrease over the six-year period.

Table 2-38 shows annual total ridership on the bus and demand response services from FY 2012 through FY 2017. Therefore, despite a slight increase in revenue miles and hours, HRT has served fewer bus passengers now than it did six years ago. There are several potential reasons for this drop:

- As mentioned, HRT's service area square mileage dropped sharply from FY 2013 to FY 2014. Although the population within the service area fluctuated in the ensuing years, it is possible that the loss of the Suffolk service area signified a loss of areas using transit, which in turn led to a gradual drop in ridership.
- In FY 2013, HRT updated the terms of its GoPass365 program, which offers businesses and educational institutions the opportunity to buy transit passes and supplement employees' and students' fares. Previously, the program consisted of one flat fee for institutions, which were subsequently passed on to riders in the form of unlimited access. This structure underpriced passes and resulted in lost revenue. Through the current program, institutions may select one of two options: a per pass flat rate based on tier pricing or a per swipe monthly based on accumulative swipes. Institutions now buy passes based on the level of interest; passes are priced higher, and institutions must support a minimum participation threshold to qualify. In addition to fare increases and the fact that several participating educational institutions now pass half of the transit costs on to students, these program restructuring factors contributed to a decline in overall ridership.
- A lengthy federal government shutdown in FY 2013 and a federal sequestration process in FY 2014 temporarily prevented many riders from reporting to work.
- Weather-related events in FY 2014 and FY 2015 temporarily closed the entire HRT system.
- HRT instituted a fare increase in FY 2015, which was complemented with lower gas prices.
- Service changes to routes over the five-year period have eliminated ridership from previously served areas.
- Gas prices decreased by approximately 38 percent between FY 2012 and FY 2016.

In contrast, demand response ridership has increased steadily each year, and by 25 percent overall. During the six-year period, as the costs for paratransit grew slower than those of inflation, HRT completed much work to improve its demand response service. In FY 2014, in addition to replacing its entire paratransit fleet, HRT participated in a symposium to inform a reengineering of the program, completed a peer review of demand response contract specifications, and developed a new Request for Proposals for the program. In addition, the demand for paratransit was perhaps also fueled by a growing senior population. According to the Five-Year American Community Survey, the percentage of residents aged 65 and older in HRT member cities increased from 10.8 percent in 2012 to 11.6 percent in 2015.

Table 2-38: Annual Total Ridership

Fiscal Year	Fixed-Route Bus	Demand Response	Total
2012	16,166,475	293,012	16,459,487
2013	16,217,920	304,004	16,521,924
2014	15,026,924	311,789	15,338,713
2015	14,218,168	324,510	14,542,678
2016	13,241,512	351,654	13,593,166
2017	12,586,719	365,310	12,952,029
% Change	**-22%**	**25%**	**-21%**

Passengers per Revenue Mile

Often but not always linked with trends in total ridership, this metric measures the productivity of HRT in transporting its passengers.

While HRT's passengers per revenue mile on bus service increased initially, as was the case with total ridership, this value decreased steadily through FY 2017, ultimately by 20 percent overall. This drop was likely related to the aforementioned reasons for decreased annual ridership, and perhaps also to the combined effects of minor route re-routings and schedule changes over the six-year period.

The number of demand response passengers per revenue mile remained steady at 0.1 throughout the analysis period, a figure well below this value for bus service in any analysis year. Although this reported value may appear low, paratransit vehicles are typically significantly smaller than most local or express buses and as a result often transport fewer passengers per mile covered. **Table 2-39** shows passengers per revenue mile for both services over the analysis period.

Table 2-39: Passengers per Revenue Mile

Fiscal Year	Fixed-Route	Demand Response
2012	1.5	0.1
2013	1.6	0.1
2014	1.5	0.1
2015	1.4	0.1
2016	1.2	0.1
2017	1.2	0.1
% Change	**-20%**	**0%**

Passengers per Revenue Hour

Passengers per revenue hour is another metric used to evaluate how productively HRT vehicles spend their time (rather than distance) in service.

As was the case with other ridership metrics covered in this section, passengers per bus revenue hour increased slightly from FY 2012 to FY 2013 (from 20.5 to 20.7) and decreased thereafter (by 26 percent overall). Demand response passengers per revenue hour also decreased over the six-year period, ultimately by 25 percent overall (from 2.0 to 1.5). **Table 2-40** summarizes passengers per revenue hour by service.

Table 2-40: Passengers per Revenue Hour

Fiscal Year	Fixed-Route	Demand Response
2012	20.5	2.0
2013	20.7	1.6
2014	19.3	1.6
2015	18.1	1.5
2016	16.1	1.5
2017	15.2	1.5
% Change	**-26%**	**-25%**

Revenue and Cost

Operating Expenses

An analysis of operating expenses over time can elicit an understanding of how much money HRT expends to operate its services each fiscal year. **Table 2-41** relays this information for both bus and demand response services.

While total bus operating expenses decreased from FY 2012 to FY 2013, expenses increased each year thereafter, and overall by 18 percent. However, the percentage by which operating expenses increased also decreased over time, with a slight increase from FY 2016 to FY 2017. From FY 2013 to FY 2014, expenses increased by 12 percent (from $62.8 million to $70.3 million); from FY 2014 to FY 2015, expenses increased by eight percent (from $70.3 million to $75.8 million); from FY 2015 to FY 2016, expenses only increased by 0.02 percent (from $75.84 million to $75.85 million), and from FY 2016 to FY 2017 expenses increased by two percent ($75.85 million to $76.05 million). In FY 2015, HRT completed a great deal of work to reduce operating expenses, limiting bus operator unscheduled overtime and absenteeism, reducing paid sick leave for employees, and renegotiating agency insurance premiums.

Demand response total operating expenses fluctuated markedly over the six-year period, initially increasing by 23 percent from FY 2012 to FY 2013 (from $8.8 million to $10.8 million), only to fall slightly over the period spanning FY 2013 to FY 2015 (from $10.8 million to $9.9 million). Operating expenses rose once again in FY 2016, but only by 0.47 percent (from $9.9 million to $10 million). In FY 2017, operating expenses fell compared to FY 2016 by one percent.

Table 2-41: Total Operating Expenses

Fiscal Year	Fixed-Route	Demand Response
2012	$64,594,584	$8,812,419
2013	$62,865,214	$10,819,386
2014	$70,334,896	$10,225,660
2015	$75,843,693	$9,986,092
2016	$75,859,835	$10,032,847
2017	$76,045,680	$9,932,249
% Change	**18%**	**13%**

Operating Expenses per Passenger Trip

Operating expenses per passenger trip can provide insight into how efficiently an agency is utilizing its operating resources. This analysis can also shed light on whether an agency's cost increases or decreases are correlated with ridership trends.

As total bus operating expenses decreased, operating expenses per trip too dropped from $4.00 per trip in FY 2012 to $3.88 per trip in FY 2013. Expenses per trip then steadily rose through FY 2017, increasing overall by 51 percent during the analysis period, this is a direct result of the decreasing ridership.

Demand response operating expenses per trip increased from $30.08 per trip in FY 2012 to $35.59 per trip in FY 2013, following the upward trend of overall operating expenses. However, between FY 2013 and FY 2017, expenses per passenger trip decreased. In all, operating expenses per passenger trip decreased to $27.19 in FY 2017, indicating a 10 percent overall decrease. Thus, as expenses for paratransit climbed during the analysis period, the service was carrying significantly more passengers. This was not the case for bus service.

Figure 2-43 shows operating expenses per passenger trip for bus and demand response from FY 2012 through FY 2017.

Figure 2-43: Operating Expenses per Passenger Trip

Service Efficiency

Cost Recovery Ratio

While all transit agencies seek to earn as much fare revenue as possible, the cost recovery ratio statistic, measures the percentage of operating expenses recovered by fare revenue, determining a service's cost effectiveness.

Fixed-route fare revenue dropped by ten percent from FY 2012 to FY 2013 (from $14.7 million to $13.2 million), then rose by five percent from FY 2013 to FY 2014 (from $13.2 million to $13.9 million), only to rise again the following year and remain relatively level between FY 2015 and FY 2016. Between FY 2016 and FY 2017 fare revenue dropped eight percent (from $14 million to $12.9 million).

During the six-year period, fixed-route cost recovery dropped steadily six percentage points overall (23 percent in FY 2012 to 17 percent in FY 2017). The rate of the cost recovery ratio decrease was largely correlated with the rate of increase in total operating expenses and decrease in ridership, appearing to level out from FY 2015 to FY 2016, a period during which operating expenses decreased relatively little. **Figure 2-44** shows fare revenue and the cost recovery ratio for fixed-route service from FY 2012 through FY 2016.

Demand response fare revenue increased steadily–by 85 percent overall–from FY 2012 to FY 2017. Moreover, although total operating expenses peaked and valleyed during this timeframe, the farebox recovery ratio increased by a small amount each year, reaching 11 percent in FY 2017. **Figure 2-45** details fare revenue and the cost recovery ratio for demand response service from FY 2012 through FY 2017.

Figure 2-44: Fixed-Route Fare Revenue / Cost-Recovery Ratio

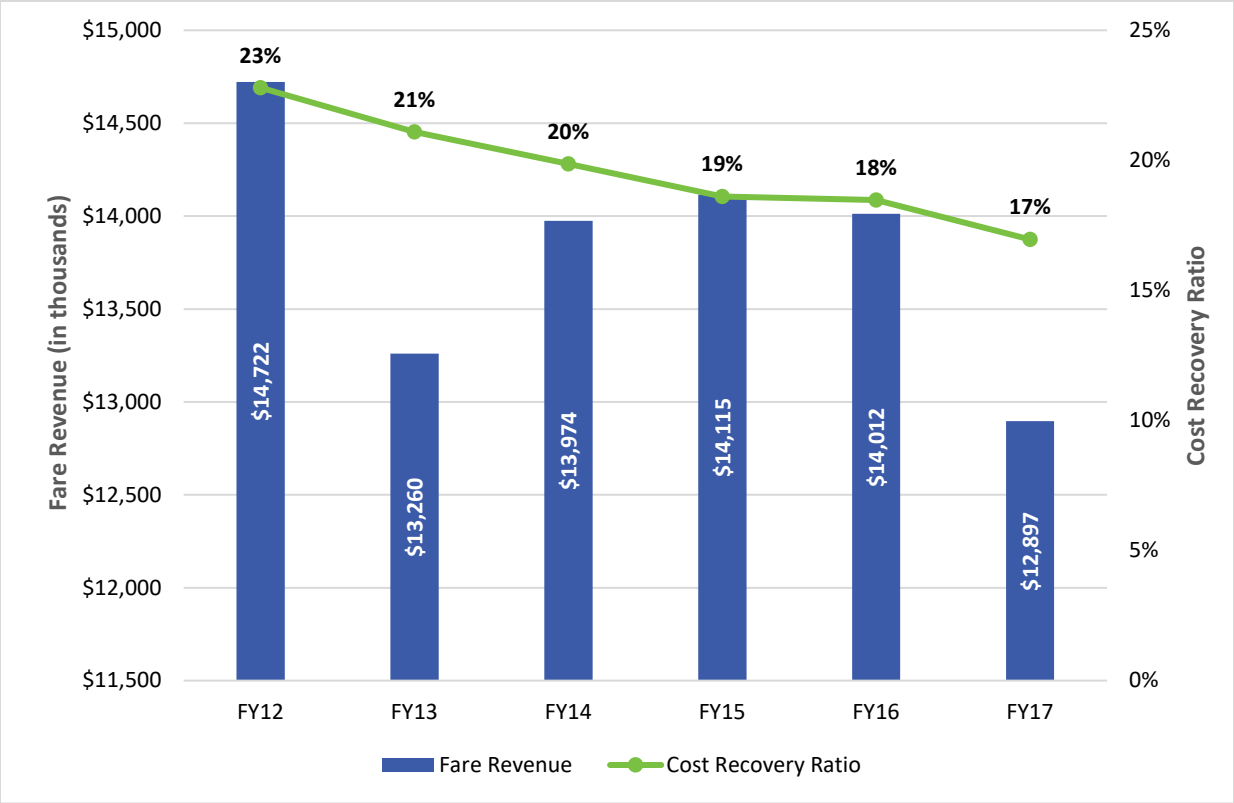
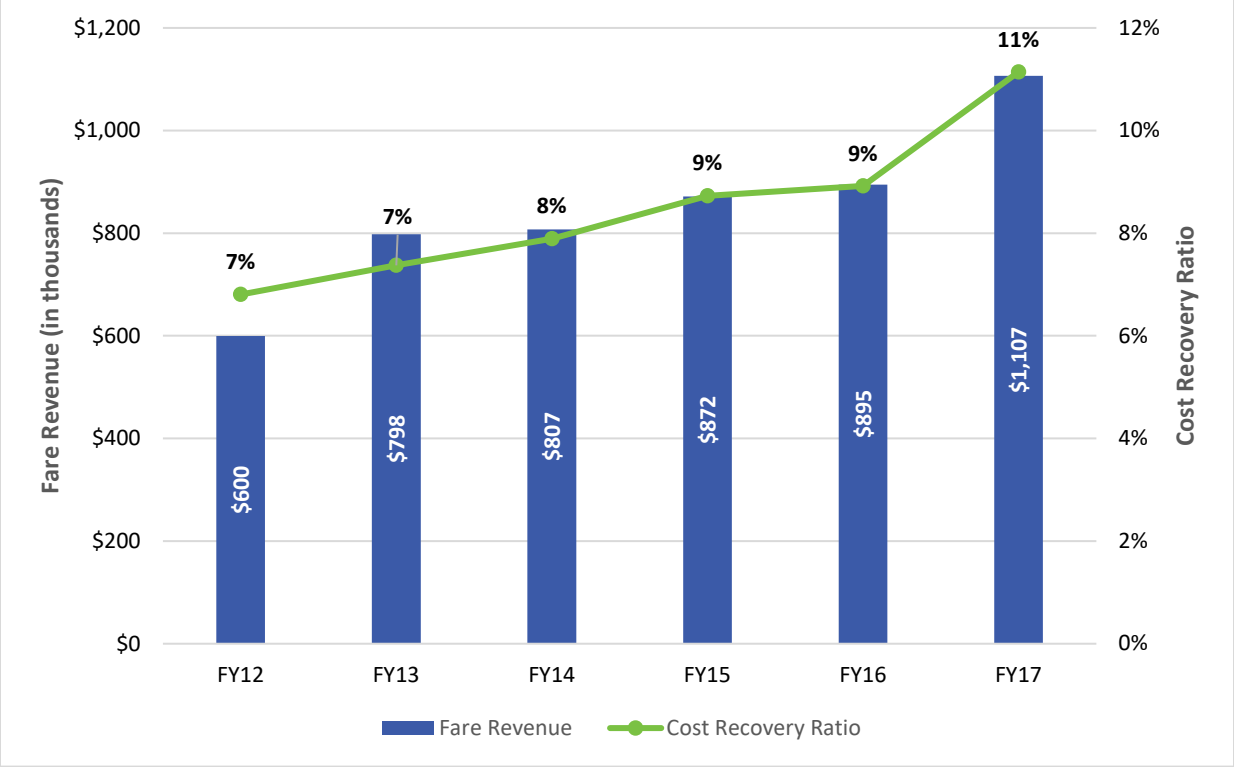


Figure 2-45: Demand Response Fare Revenue / Cost Recovery Ratio



Subsidy per Passenger

A subsidy is the cost incurred by the agency once fare revenue is deducted from the operating expenses. Assessing the average subsidy per passenger is an indication of the cost effectiveness of the service in relation to the local, state, federal or dedicated funding resources being devoted per passenger.

The subsidy per passenger for fixed-route service followed the trend of total operating expenses during this time period, decreasing from FY 2012 to FY 2013 and increasing each year thereafter. Overall, the fixed-route subsidy per passenger increased by 63 percent.

The demand response subsidy per passenger followed a reverse trend, increasing slightly from the first fiscal year to the next and decreasing each year thereafter (by 14 percent overall). In this case, the dollar amount required to subsidize each passenger decreased alongside increases in both fare revenue and the cost recovery ratio. **Table 2-42** shows the subsidy per passenger for bus and demand response services from FY 2012 through FY 2017.

Table 2-42: Subsidy per Passenger

Fiscal Year	Fixed-Route	Demand Response
2012	$3.08	$28.03
2013	$3.06	$32.97
2014	$3.75	$30.21
2015	$4.34	$28.09
2016	$4.67	$25.99
2017	$5.02	$24.16
% Change	**63%**	**-14%**

Summary and Key Findings

Between FY 2012 and FY 2017, HRT's service area decreased in terms of both square miles and population and has become slightly less dense. From an operational standpoint, HRT operates five percent fewer bus vehicles in maximum service, and 26 percent more demand response vehicles. Although the percentage of hours devoted to paratransit revenue service has increased slightly, the percentages of revenue miles and revenue hours of only demand response has changed significantly.

HRT's total fixed-route ridership has decreased, as have the values for measures regarding how efficiently the agency transports its passengers. While total demand response ridership rose by 25 percent over the six-year period, passengers per revenue hour decreased. Decreases in ridership are likely attributable to several factors, including a shrinking service area, service changes, changes to the GoPass365 program, federal government shutdowns, lower gas prices, extreme weather, and fare increases.

HRT's total operating expenses increased for both modes by similar percentages. However, while expenses per passenger trip rose by 51 percent for fixed-route service, this figure dropped by 10 percent for demand response service, indicating that the latter service is more efficient to operate. Due to several measures, the rate of increase of HRT operating expenses began to plateau toward the end of the six-year period.

Finally, regarding service efficiency, while fixed-route fare revenue dropped slightly, demand response fare revenue increased, in conjunction with increased ridership, by 85 percent. The cost recovery ratios for fixed-route and demand response service respectively dropped and rose slightly. While the operating subsidy for bus service went up by 63 percent, the subsidy for demand response went down by 14 percent. **Table 2-43** summarizes the results of the trend analysis by category, listing the percent change.

Table 2-43: FY 2012 to FY 2017 Trend Analysis Summary

Metric	Percent Change	
	Fixed-Route	Demand Response
Service Area		
Square Miles	-17%	
Population	-21%	
Population Density	-5%	
Operational		
Vehicles Operated in Maximum Service	-5%	23%
Revenue Miles	2%	69%
Revenue Hours	5%	60%
Ridership		
Total Ridership	-22%	25%
Passengers per Revenue Mile	-20%	0%
Passengers per Revenue Hour	-26%	-25%
Revenue and Cost		
Total Operating Expenses	18%	13%
Operating Expenses per Passenger Trip	51%	-10%
Service Efficiency		
Fare Revenue	-12%	85%
Cost Recovery Ratio	-6%	4%
Subsidy per Passenger	63%	-14%

2.3.2 Performance-Based Opportunities for Improvement

While previous sections provide analysis of a range of route-level and system-level metrics, the following section assesses each HRT fixed-route service against the passengers per revenue hour, passengers per one-way trip, farebox recovery and subsidy per passenger boarding key performance indicators (KPI) detailed in **Section 1.2.4: Performance Standards**.[25] These KPIs assess the performance of routes against the routes within their service classification in order to determine which are underperforming.

Key Performance Indicator: Passengers per Revenue Hour

The passengers per revenue hour metric is key to assessing the productivity of a route. Only local services (Southside, Peninsula, and VB Wave and Bayfront Shuttle Services) were evaluated using this KPI, as passengers per revenue hour is not appropriate for Limited/Express routes (Peninsula Commuters Services, Metro Area Express). For this KPI, any Southside or Peninsula route that fell short of 7.6 passengers per revenue hour and any VB Wave and Bayfront Shuttle Services route that fell short of 5.8 passengers per revenue hour did not meet the benchmark.[26] Routes that were deficient in this category are:

- **Southside Services:** Routes 18 and 33
- **Peninsula Services:** Routes 116 and 121
- **Bayfront Shuttle:** Route 35

[25] The service types identified in Chapter 1 – Regional Backbone, Local, and Coverage – are used for defining route recommendations as shown in Chapter 3. For existing HRT routes, all routes that are not Limited/Express are grouped together as a combination of these three service types. When the recommendations are implemented, each new non-Express/Limited route will be assigned one of these three classifications.
[26] The benchmark is determined by 50% of the service classification average on weekdays and weekends.

Key Performance Indicator: Passengers per One-way Trip

The passengers per one-way trip metric is key to assessing the productivity of an express or limited service route. Only the PCS and MAX routes were evaluated using this KPI, as passengers per one-way trip is not an appropriate measure for local services. For this KPI, any route that fell short of 20 passengers per one-way trip did not meet the benchmark.[27] Routes that were deficient in this category are:

- **PCS:** Route 414
- **MAX:** Routes 919, 922, 960, 961, 967, 973, and 974

Key Performance Indicator: Farebox Recovery

The farebox recovery ratio is used to assess if a route is operating cost effectively. For all service classifications, the benchmark is 50 percent of the service classification average on weekdays and weekends. For this KPI, any Southside route that fell short of a 9.1 percent farebox recovery ratio, any Peninsula route that fell short of an 8.9 percent farebox recovery ratio, and any VB Wave and Bayfront Shuttle Services route that fell short of a 6.9 percent farebox recovery ratio did not meet the benchmark. Routes that were deficient in this category are:

- **Southside:** Route 18
- **Peninsula Services:** Routes 116
- **Bayfront Shuttle:** Route 35

For PCS and MAX routes, any route that fell short of an 8.8 percent farebox recovery ratio did not meet the benchmark. Routes that were deficient in this category are:

- **MAX:** Routes 973 and 974

Key Performance Indicator: Subsidy per Passenger Boarding

The subsidy per passenger measures how much additional funding outside of the fare revenue an agency has to pay to cover the cost of an individual trip. For all service classifications, the benchmark is twice the service classification average on weekdays and weekends. For this KPI, any Southside route that exceeded a subsidy of $9.79 per passenger, any Peninsula route that exceeded a subsidy of $9.95 per passenger, and any VB Wave and Bayfront Shuttle Services route that exceeded a subsidy of $13.55 per passenger did not meet the benchmark. Routes that were deficient in this category are:

- **Southside:** Routes 18 and 33
- **Peninsula Services:** Routes 116
- **Bayfront Shuttle:** Route 35

For PCS and MAX routes, any route that exceeded $13.76 subsidy per passenger boarding did not meet the benchmark. These are:

- **MAX**: Routes 973 and 974

[27] Minimum passengers boardings per one-way trip is 20 on weekdays and 15 on weekends.

2.4 Operating and Network Efficiency Evaluation

2.4.1 Efficiency Evaluation

On-Time Performance

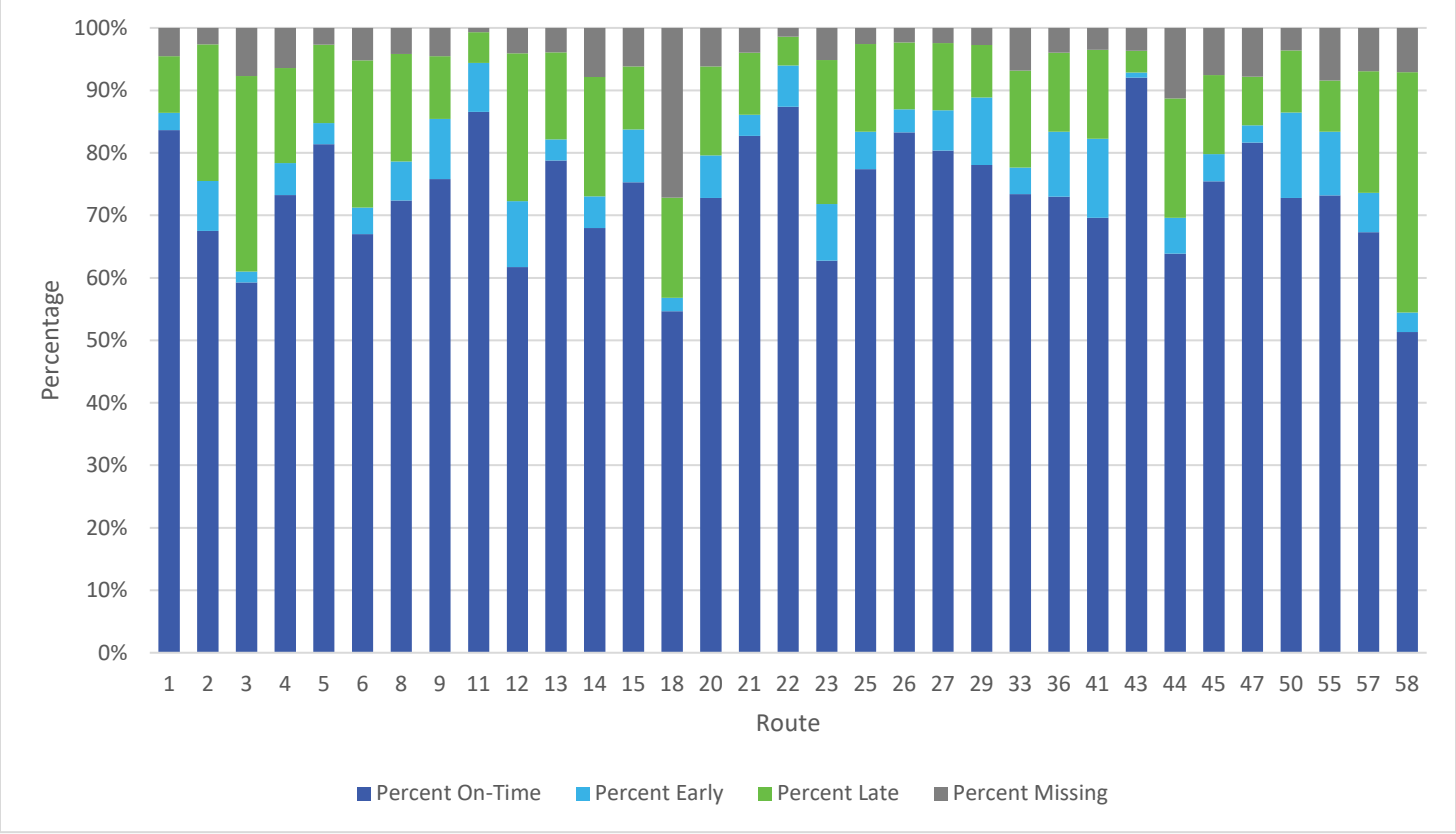
HRT's on-time performance standard defines "on time" as zero minutes early to five minutes late at each time point. HRT also has a minimum goal of 85 percent on-time performance system-wide, at all time-points. On-time performance is a reflection of the reliability of a bus to be there when a passenger is expecting to make a trip.

On-time performance data for FY 2019 was used to analyze HRT's on-time performance at the system level and service type level. In FY 2019, HRT's system wide average on-time performance across all modes was 88 percent, which is above the agency's target of 85 percent. HRT's fixed-route on-time performance was below average in FY 2019 at 79 percent, while paratransit's on-time performance was above average at 88 percent, and light rail's on-time performance was above average at 98 percent.

Based on the August 2019 route level data for fixed-route bus service, Route 919 (Silverleaf Park & Ride / Naval Station Norfolk Gate 4), Route 922 (Greenbrier Mall Park & Ride / Naval Station Norfolk Gate 4), Route 973 (Portsmouth / Naval Station Norfolk), and Route 974 (Chesapeake / Naval Station Norfolk) have the highest on-time performance of all routes, at 95 percent; Route 403 (Buckroe Shopping Center) had the lowest on-time performances of all routes, at 42 percent.

The overall on-time percentage for Southside routes is 74 percent; for Peninsula Routes, 71 percent; for PCS routes, 57 percent; and for MAX routes, 74 percent. **Figure 2-46** through **Figure 2-50** provide a route level overview of on-time performance.[28]

Figure 2-46: On-Time Performance by Southside Route, August 2019



[28] Route level on-time performance reflects August 2019 data.

Figure 2-47: On-Time Performance by Peninsula Route, August 2019

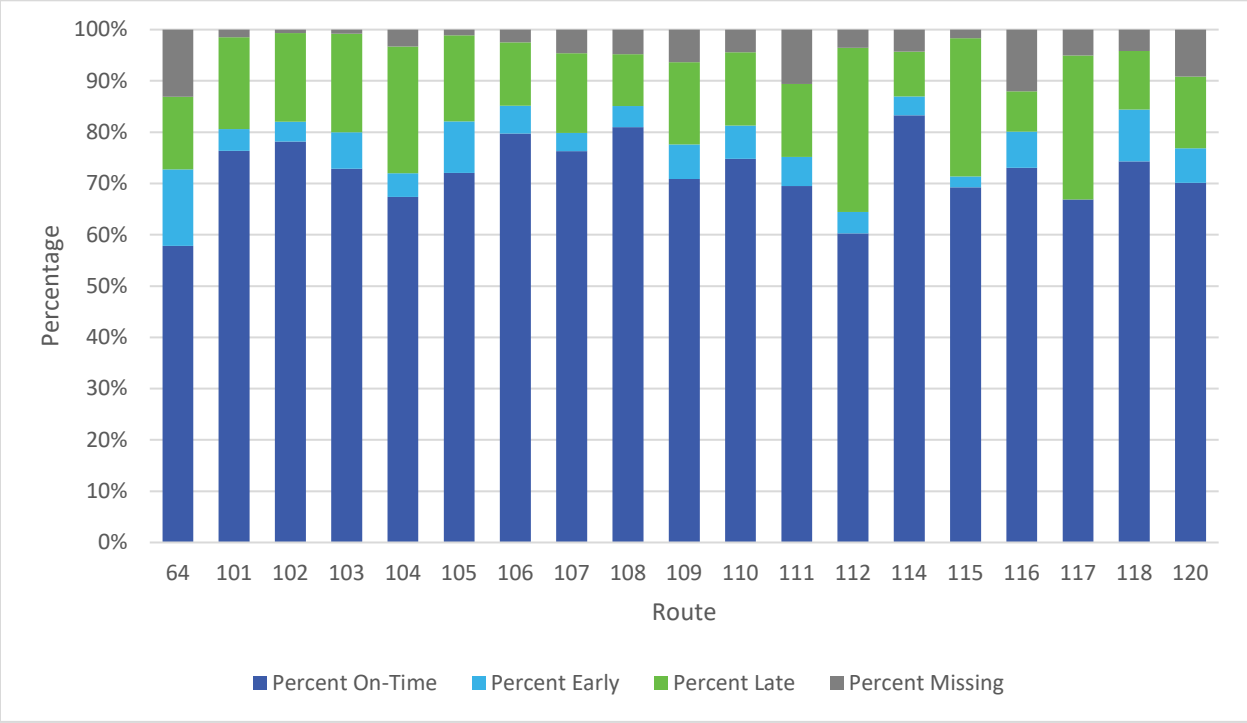


Figure 2-48: On-Time Performance by PCS Route, August 2019

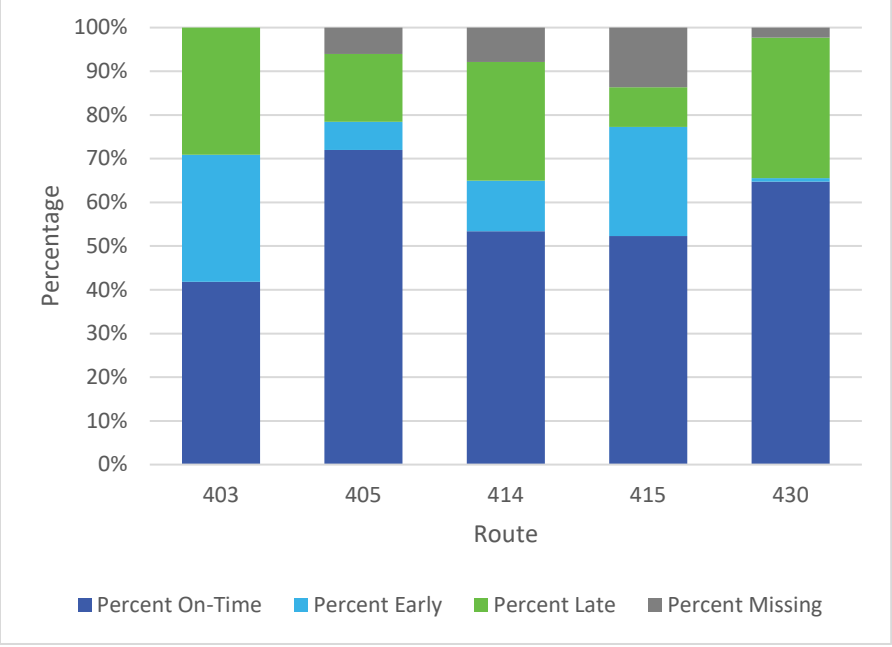


Figure 2-49: On-Time Performance by MAX Route, August 2019

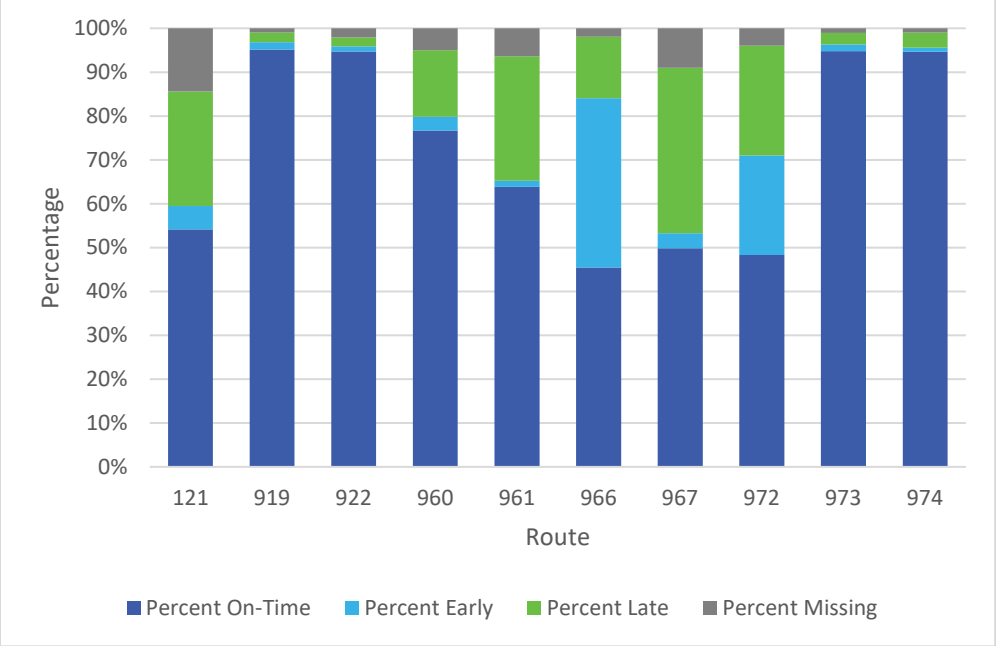
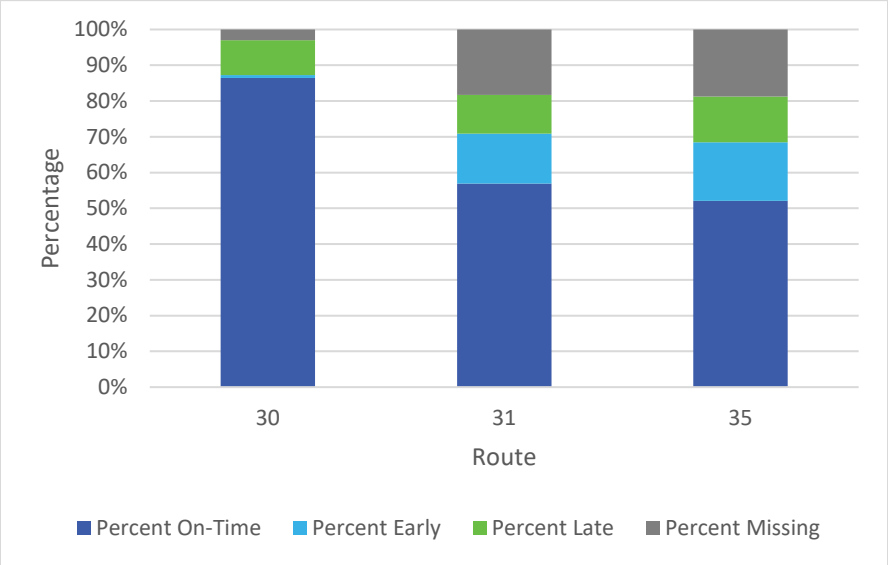


Figure 2-50: On-Time Performance by Trolley Route, August 2019



Passenger Loads

The passenger load assessment measures the comfort and safety of passengers while onboard a vehicle. It identifies how many people are on the bus at any given moment compared to its capacity. High passenger loads result in overcrowded conditions, which may require additional service to address the issue. For local services (Southside routes, Peninsula routes, and VB Wave and Bayfront Shuttle Services) the load standard is 125 percent of seated capacity for two or more miles. For Limited/Express services (PCS and MAX routes), the load standard is 100 percent of seated capacity and 125 percent if operated along an arterial road.

To identify routes with potential overcrowding, the weekday average maximum passenger loads on each route[29] were compared to the seated capacity of the vehicles assigned to each route.[30] The local load standards were applied to the Southside and Peninsula services, while Limited/Express load standards were applied to PCS and MAX services.

HRT's weekday passenger loads range from a low of six passengers on Route 43 (Downtown Portsmouth / Bart Street) to a high of 35 passengers on Route 967 (Virginia Beach - Chesapeake to Newport News). No routes had maximum loads that exceeded the load standard.

The average maximum weekday passenger loads for Southside and Peninsula routes are 18 and 17, respectively; PCS routes have an average maximum weekday passenger load of 20, and MAX routes have an average maximum weekday passenger load of 21.

Table 2-44 through **Table 2-47** detail the average maximum load experienced on a route and a load standard, or capacity, that should not be exceeded in order to ensure a safe, comfortable service.

[29] HRT Ridership Database reports on *Bus Stop Ridership by Route Trip* were used to identify weekday average maximum passenger loads. Southside and Peninsula route data is from March 1 to May 31, 2016; PCS and MAX route data is from February 1 to April 30, 2016, due to better sampling for those routes during this time. Route 922 is not included in the data; in both time periods, the sampling rate for the route was below 30 percent. VB Wave data was not available for either of these time periods.

[30] Capacity by route was determined by identifying HRT's assigned vehicle size by route, then finding the average capacity by vehicle size.

Table 2-44: Southside Max Load, March–May 2016

Route	Trip	Maximum Load	Load Standard
1	5:01 a.m.	*29*	*44*
2	7:13 a.m.	*18*	*40*
3	5:31 a.m.	*26*	*44*
4	6:29 a.m.; 2:04 p.m.; 3:42 p.m.; 4:22 p.m.	*12*	*38*
5	7:12 a.m.	*12*	*38*
6	6:26 a.m.; 4:21 a.m.	*20*	*40*
8	6:48 a.m.	*22*	*40*
9	12:58 p.m.; 4:25 p.m.	*18*	*38*
11	8:40 a.m.; 1:40 p.m.; 3:05 p.m.; 3:39 p.m.	*11*	*38*
12	6:48 p.m.	*19*	*40*
13	6:21 a.m.	*34*	*40*
14	8:22 a.m.	*32*	*40*
15	9:18 a.m.	*28*	*44*
18	5:44 p.m.	*7*	*38*
20	6:22 a.m.	*31*	*44*
21	3:01 p.m.	*20*	*44*
22	6:07 p.m.	12	38
23	2:06 p.m.	*17*	*44*
25	8:02 a.m.	*22*	*38*
26	4:25 p.m.	*11*	*38*
27	5:48 a.m.; 7:48 a.m.; 8:48 a.m.	*13*	*38*
29	6:48 a.m.	*17*	*38*
33	7:48 a.m.	*24*	*40*
36	1:48 p.m.	*19*	*38*
41	5:56 a.m.; 4:03 p.m.	*18*	*38*
43	6:36 a.m.; 7:03 a.m.; 10:38 a.m.; 4:03 p.m.; 5:03 p.m.	*6*	*40*
44	12:00 p.m.	*14*	*44*
45	6:07 a.m.	*28*	*40*
47	5:49 a.m.	*18*	*38*
50	6:03 a.m.; 3:33 p.m.	*11*	*38*
57	6:19 a.m.; 6:24 p.m.	*11*	*40*
58	7:48 a.m.; 4:18 p.m.	*9*	*38*

Table 2-45: Peninsula: Max Load, March–May 2016

Route	Trip	Maximum Load	Load Standard
64	5:35 a.m.	*18*	*40*
101	7:00 a.m.; 3:45 a.m.	*18*	*40*
102	8:19 a.m.; 9:19 a.m.	*13*	*33*
103	6:33 a.m.; 4:15 p.m.	*20*	*40*
104	6:45 a.m.; 7:15 a.m.; 9:45 a.m.; 3:45 p.m.	*14*	*40*
105	8:15 a.m.; 3:15 p.m.	*18*	*40*
106	6:02 a.m.	*30*	*49*
107	5:59 a.m.; 1:40 p.m.	*20*	*49*
108	9:25 a.m.; 2:43 p.m.	*15*	*33*
109	6:51 a.m.; 1:45 p.m.	*12*	*40*
110	7:00 a.m.	*17*	*40*
111	1:50 p.m.; 2:50 p.m.; 3:50 p.m.	*12*	*40*
112	10:45 a.m.	*24*	*49*
114	1:20 p.m.; 3:45 p.m.; 3:50 p.m.	*17*	*40*
115	5:45 a.m.	*19*	*33*
116	7:45 a.m.	*12*	*33*
117	6:15 a.m.	*19*	*40*
118	9:15 a.m.	*21*	*40*
120	1:31 p.m.	*7*	*33*
121	5:05 p.m.	*11*	*33*

Table 2-46: PCS: Max Load, February–April 2016

Route	Trip	Maximum Load	Load Standard
403	5:20 a.m.	*21*	*32*
405	3:40 p.m.	*23*	*32*
414	5:20 a.m.; 6:55 a.m.	*18*	*32*
415	3:45 p.m.	*23*	*39*
430	5:55 a.m.	*29*	*39*

Table 2-47: MAX: Max Load, February–April 2016

Route	Trip	Maximum Load	Load Standard
918	3:30 p.m.	12	35
919	2:54 p.m.	18	38
922	5:00 a.m.	14	
960	7:45 a.m.	29	38
961	3:40 p.m.	30	38
967	3:30 p.m.	35	38

2.4.2 Efficiency Based Opportunities for Improvement

Key Performance Indicator: On-time Performance

On-time performance is important to ensuring a reliable mode of travel for passengers, when routes are unreliable it discourages use of the system by existing passengers and even future passengers. For all service classifications, the benchmark is 85 percent on-time performance at all timepoints. HRT defines "on-time" as zero minutes early to five minutes late. Routes that fell short of 85 percent on-time performance did not meet the benchmark. Routes that were deficient in this category are:

- **Southside Services:** Routes 1, 2, 3, 4, 5, 6, 8, 9, 12, 13, 14, 15, 18, 20, 21, 23, 25, 26, 27, 29, 33, 36, 41, 44, 45, 47, 50, 55, 57, and 58
- **Peninsula Services:** Routes 64, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 114, 115, 116, 117, 118, 120, and 121
- **VB Wave and Bayfront Shuttle Services:** Routes 31 and 35
- **PCS:** Routes 403, 405, 414, 415, and 430
- **MAX:** Routes 960, 961, 966, 967, and 972

Key Performance Indicator: Maximum Load

The Maximum Load KPI is important in an important measure for comfort and safety. For local services (Southside, Peninsula, and VB Wave and Bayfront Shuttle Services), the benchmark is 125 percent of seated capacity for two or more miles. No Southside or Peninsula routes exceeded these maximum load capacities, as measured in February-April 2016. No load data is available for Southside Services Route 55 or VB Wave and Bayfront Shuttle Services Routes 30, 31, or 35.

For PCS and MAX routes, the benchmark is 100 percent of seated capacity for two or more miles (125 percent if operated along arterial rather than limited-access roadways). No PCS or MAX routes exceeded these maximum load capacities, as measured in February-April 2016. No load data is available for Metro Area Express Routes 922, 972, 973, or 974.

2.5 Analysis of Opportunities to Collaborate with Other Transit Providers

2.5.1 Collaboration Analysis

Two other transit providers, Suffolk Transit and the Williamsburg Area Transit Authority (WATA), operate adjacent to the HRT service area. HRT routes currently connect with two Suffolk Transit routes and six WATA routes. HRT works with Suffolk Transit and WATA as needed to coordinate the details of connecting services, such as stop location and schedule.

The City of Suffolk, located west of HRT's Southside communities, operates Suffolk Transit, which provides fixed-route and paratransit service in and around Suffolk's downtown core. Suffolk Transit began service in January 2012 following the city's withdrawal from the Transportation District Commission of Hampton Roads (TDCHR) in 2011, contracting with Virginia Regional Transit to operate six fixed routes (Green, Orange, Yellow, Red, Purple, and Pink).[31] The Purple route currently connects with HRT Route 47 at the Walmart in Suffolk, and the Pink Route connects with Routes 44, 967 and 974 at the Chesapeake Square Transfer Point.

WATA's 12-route system operates north and west of the HRT service area, serving the City of Williamsburg as well as parts of James City County, Surry County, and York County. Six WATA routes (Route 1: Lee Hall [Gray]; Route 2: Richmond Road [Blue]; Route 3: Merrimac Trail [Orange]; Route 5: Monticello [Red]; Route 6: Jamestown; and Route 7: Mooretown Road [Tan] serve the Williamsburg Transportation Center, which is also served by HRT Route 121. Additionally, WATA's Route 1: Lee Hall (Gray) and Route 11: Lackey connect with HRT Routes 108 and 116 at Lee Hall in Newport News.[32]

The Hampton Roads Transportation Planning Organization (HRTPO), the region's metropolitan planning organization (MPO), provides opportunities for HRT to coordinate with other jurisdictions and agencies throughout the region. The HRTPO Board has members from all six HRT member jurisdictions as well as the Cities of Franklin, Poquoson, Suffolk, and Williamsburg, and the Counties of Gloucester, Isle of Wight, James City, Southampton, and York. Representatives from HRT and WATA also serve on the board.[33] HRTPO manages its Rail and Public Transportation Task Force and the Transportation Technical Advisory Committee (TTAC). The TTAC has a subcommittee, Hampton Roads Transportation Operations (HRTO), which focuses on improving transportation operations in the region. HRT, its six member jurisdictions, the City of Suffolk, and WATA all serve on the Task Force, TTAC, and HRTO.[34]

Further collaboration among transit providers and other agencies in the region will benefit both transit users and transit providers. Users could benefit from more connected and streamlined services. By connecting and collaborating, transit providers could gain a wider base of potential riders and gain access to new technology and funding opportunities, leading to costs savings for both providers and users. Specific opportunities for collaboration fall into two broad categories: communication and service coordination. These opportunities are described in the following section.

2.5.2 Collaboration Based Opportunities for Improvement

The following provides an overview of opportunities for collaboration which could benefit HRT and other transit providers. These opportunities were discussed at inter-agency meeting between HRT, HRTPO, Suffolk Transit, and WATA on May 29 and August 15, 2019. During these meetings, strategies were identified that have low barriers to implementation and would most benefit from interagency collaboration.

Communication, Funding, and Procurement

There is an opportunity to improve communication between transit providers and between the providers and the public. The improved communication, especially among HRT, Suffolk Transit, and WATA, would help facilitate

[31] Suffolk Transit, Accessed at http://www.suffolkva.us/429/Suffolk-Transit
[32] Williamsburg Area Transit Authority, Accessed at https://gowata.org/
[33] HRTPO Board, Accessed at https://www.hrtpo.org/page/hrtpo-board/
[34] Hampton Roads Transportation Operations, Accessed at https://www.hrtpo.org/page/hampton-roads-transportation-operations-(hrto)/

improved coordination of service as well as other opportunities for collaboration, such as joint purchasing. These communication opportunities are listed in **Table 2-48.**

Table 2-48: Communication Collaboration Opportunities

Opportunity	Description
Establish regional transit technical committee that meets regularly and is facilitated by the HRTPO	Discussion of regional priorities for transit and potential joint funding and purchasing opportunities
	Discussion of opportunities for inter-agency collaboration, including coordination of relevant portions of Transit Strategic Plans
	Coordination of capital planning and programming
Joint marketing and rider information tool	Development of a regional transit map, schedules, and brochures
	Establishment of a regional trip planning website

Service Coordination

Another avenue for expanding collaboration among the service providers in the area is through service coordination. Service coordination allows for riders to more seamlessly transfer between systems and helps ensure that HRT, Suffolk Transit, and WATA are running complementary service. Specific service coordination opportunities are listed in **Table 2-49.**

Table 2-49: Service Coordination Collaboration Opportunities

Opportunity	Description
Coordinated scheduling and service	Establishment of regional transit priority corridors across systems
	Alignment of schedules and operations, especially at transfer locations
On-demand microtransit service	Exploration of new on-demand transit service to serve lower-density areas and exploration of jointly developing these services
Fare system integration	Development of common fares among service providers and shared transfer policies
	Establishment of a single fare payment mechanism (requires technology upgrades)
Shared technology	Exploration of trip planning apps that integrates all the service providers
Regional paratransit service	Designation of a regional paratransit service operator across jurisdictions

The initial collaboration actions for HRT and its regional partners are recommended to include: participating in the formal establishment of the HRTPO joint technical committee; meeting regularly and collaborating on a variety of initiatives; and developing and proceeding with action plans to further the opportunities identified above, along with any new opportunities that might be discovered.

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CHAPTER 3

Planned Improvements and Modifications

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Contents

Tables

Figures

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3. Planned Improvements and Modifications

This chapter includes the planned service improvements that were created based upon the service design standards outlined in **Chapter 1**, the analyses and performance assessments in **Chapter 2**, and the work performed during the *Transit Transformation Project*. This chapter describes the planned service changes and the phasing plan which groups the service changes into short-term, mid-term, and long-term implementation phases. The operational needs are presented in terms of annual service hours, which relates to bus operator hiring needs and peak vehicle requirements. Additional analyses were performed to measure service equity and the impact to HRT's paratransit network. Lastly, other factors that may impact the ability to implement the planned improvements have been identified and listed for consideration.

3.1 Planned Service Improvements

HRT began developing service improvements to its system by planning and evaluating several alternative networks during the *Transit Transformation Project*. This project considered the HRT bus network through the lens of a "blank slate" approach, in the sense that the plan focused on developing a route structure that was not beholden to the agency's existing network. In the new service plan, while most route numbers remain, some existing HRT routes have been reconfigured based on the results of the *Transit Transformation Project* to provide more direct service between origins and destinations that demonstrate the need for connections, while other routes have been maintained with minor changes because they are strong performers and already provide important connections.

As part of the *Transit Transformation Project*, HRT updated its service classifications and assigned service design standards to each classification, as described in **Chapter 1**. These standards guided the route planning process.

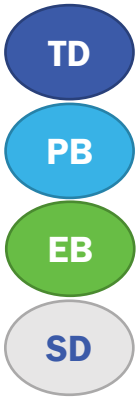
The improvements were designed to increase service efficiency and the attractiveness of using the HRT system, while also increasing route directness, which helps to increase overall transit trip speed and service on-time performance. Much consideration was also had towards improving the ability to transfer between services at convenient locations in order to increase system-wide accessibility. Based on public and stakeholder input received during the *Transit Transformation Project*, more high-frequency service and more consistent hours of service across jurisdictions will be provided. Additionally, focus was placed on increasing frequency of service during the peak periods, which is reflected in the increased level of service on several of the Regional Backbone routes, as well as the increased peak trips being added on existing PCS and MAX express services.

The planned service outlined in this chapter represents a locally cost-constrained plan, meaning that the service plans are constrained to what HRT's funding partners have identified as acceptable. To quantify the cost of operating the service plan, a service planning calculator was developed to estimate annual revenue hours, annual revenue miles, and peak vehicles, ensuring that each year of the plan involved an increase in revenue hours by route that was acceptable to each city in terms of the associated increase in cost. The results show that in FY 2030, HRT's bus system would operate approximately 27 percent more revenue hours than it does today and is estimated to achieve a 16 percent increase in annual ridership (**Section 3.2**).

This section contains route profiles that describe the planned service improvements through the ten years of the TSP and beyond. The planned system has 47 local fixed routes and 14 Limited/Express routes, compared to the existing 55 fixed route services and 14 Limited/Express routes; while eight routes are recommended for elimination, the majority of those areas will have an HRT service still within a convenient walking distance. No service adjustments are included for The Tide Light Rail or the ferry. Each route profile contains:

- A description of the service changes.
- The justifications for the service changes, including:
  - Key Performance Indicators, which are measures of a route's performance, are discussed when relevant to a service change (full performance analysis data can be found in **Chapter 2**, **Section 2.3**).
  - Some justifications also include reference to analyses that were part of the analysis of transit demand and underserved area opportunities for improvement from **Chapter 2**, **Section 2.2.2**.

- For each of the justifications, icons provide quick reference as to the types of justifications included for each route:



Transit demand and underserved areas-based opportunities for improvement identified in **Section 2.2.2**

Performance-based opportunities for improvement (passengers per revenue hour, passengers per one-way trip, farebox recovery, subsidy per passenger boarding) as described in **Section 2.3.2**

Efficiency-based opportunities for improvement (on-time performance and maximum load) as described in **Section 2.4.2**

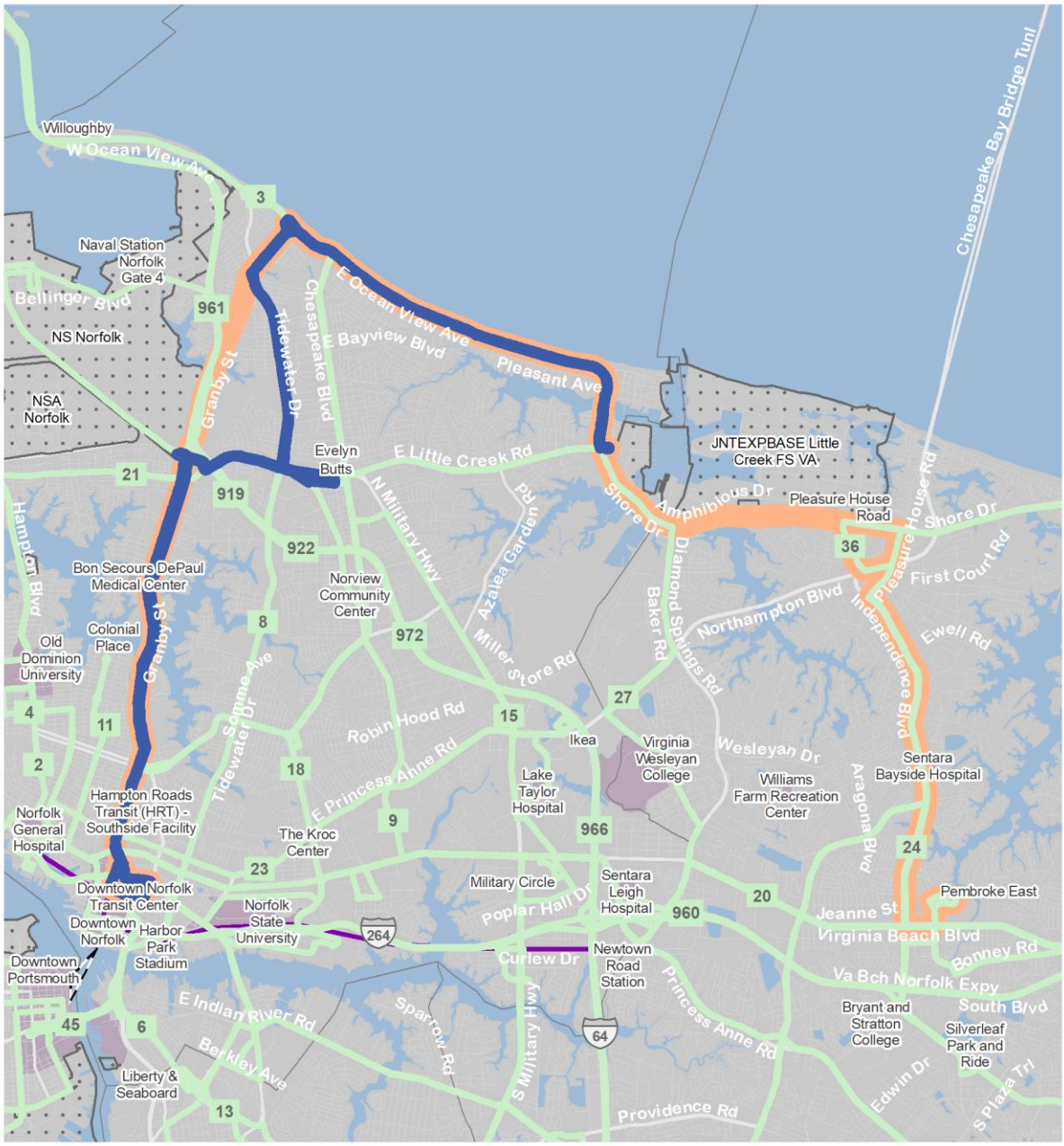
Improvements to meet the service design standards and goals as described in **Chapter 1**

- A table showing the route's new service classification.
- A table showing the origins and destinations as well as the jurisdictions served, comparing existing service to the planned service.
- A table comparing level of service—span and headway—between the existing service and the service targets[1] for the route:
  - On weekdays the periods shown are approximately associated with the following times, but would vary based on demand:
    - **Early** - Before 6:00 AM
    - **AM Peak** - 6:00 AM to 9:00 AM
    - **Midday** - 9:00 AM to 3:00 PM
    - **PM Peak** - 3:00 PM to 6:00 PM
    - **Evening** - 6:00 PM to 11:00 PM
    - **Late Night** - After 11:00 PM
  - On weekends the periods shown are approximately associated with the following times:
    - **Base** - 8:00 AM – 6:00 PM
    - **Non-Base** - 6:00 AM. – 8:00 AM and 6:00 PM – 9:00 PM
    - **Early/Late** - before 6:00 AM and after 9:00 PM
- A table showing the phased implementation across the ten-year period of route alignment changes, span of service changes, and frequency of service changes.
- A place for any special notes that apply to the route.
- A map showing the route, other related routes, eliminated sections of the route (if applicable), and other relevant transportation information.

Systemwide maps of the improvements are presented following the descriptions of the routes (pages **3-210** to **3-213**).

[1] The service targets describe the span and frequency a route would need to achieve in order to fulfill the service design standards for its service classification. Not all routes' service targets are met due to individual cost constraints of each of the jurisdictions.

Route 1



Route 1

Miles
0 0.5 1 1.5 2 2.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 1

Service Classification
Regional Backbone

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Downtown Norfolk Transit Center / Pembroke East	Downtown Norfolk Transit Center / Joint Expeditionary Base Little Creek
Jurisdictions	Norfolk, Virginia Beach	Norfolk, Virginia Beach

Level of Service			
Span			
		Existing	**Service Target**
Weekday		4:44 AM - 1:30 AM	4:44 AM - 1:30 AM
Saturday		4:40 AM - 1:31 AM	4:40 AM - 1:30 AM
Sunday		5:37 AM - 1:30 AM	4:40 AM - 1:30 AM
Headway			
		Existing	**Service Target**
Weekday	Early	30	30
	AM Peak	15	15
	Midday	30	15
	PM Peak	15	15
	Evening	40	30
	Late Night	60	60
Saturday	Base	30	15
	Non-Base	30	30
	Early / Late	60	60
Sunday	Base	60	15
	Non-Base	60	30
	Early / Late	60	60

Note
This route's existing service operates with regular short turns. The existing headways that are listed in this table may not necessarily apply to the full length of the existing route.

Service Changes

- Route 1 will operate along its current alignment between the Downtown Norfolk Transit Center (DNTC) and Wards Corner. It will be realigned at Wards Corner and deviate onto Little Creek Boulevard to service Evelyn T. Butts. Route 1 will travel on Tidewater Drive between Little Creek Boulevard and Lenox Avenue, replacing existing service on Granby Street. Between Lennox Avenue and Joint Expeditionary Base (JEB) Little Creek Route 1 will operate along its existing alignment on Ocean View Avenue. Service east of the JEB Little Creek will be discontinued on Route 1; however, much of the service along the discontinued segments will be covered by Routes 27 and 36.
- Eliminate short turns on Route 1 so that all trips operate the full length of the route.
- Weekday span of service remains the same as current Route 1 service. Route 1 will operate with 15-minute service between the AM and PM peak periods. In the early and evening periods service will be provided at half hour intervals. The route will operate hourly after 11:00 PM.
- Saturday service span on Route 1 will be offered between 4:40 AM and 1:30 AM, which matches the current Route 1 service, with 15-minute service through much of the day. Sunday service will be provided at levels that match Saturday service.
- In FY 2024, Route 1 will exceed the service design standards for the Regional Backbone service classification. In FY 2026, weekday midday headway will be increased to 15 minutes, meeting service targets.

Justification

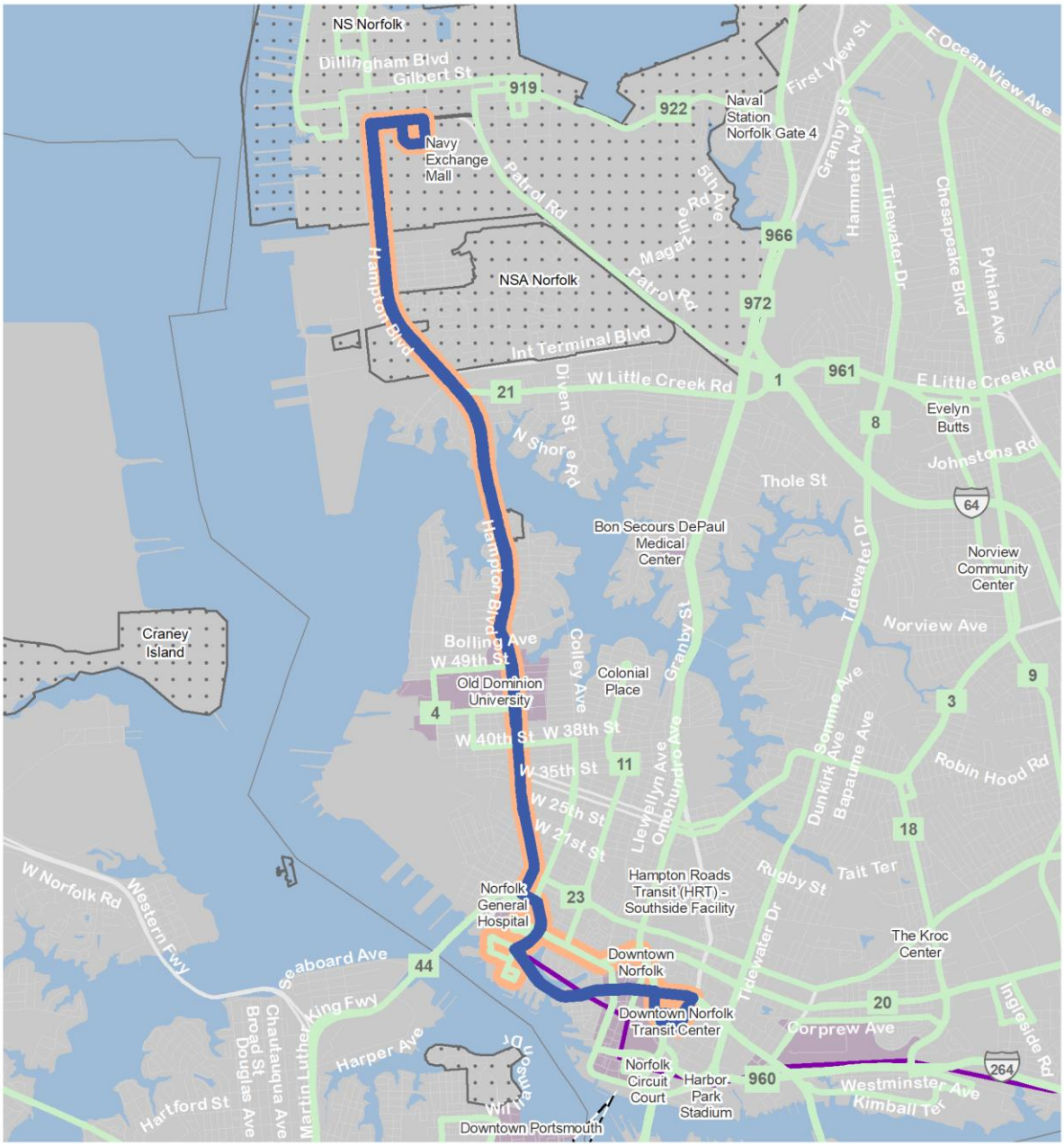
- Simplifying the route by shortening it and eliminating short turns will standardize service levels across the entire route and will create a simpler schedule and map for customers to understand.
- This corridor warrants 15-minute service on weekdays in the peak periods and midday due to the transit market demand and activity centers served along the alignment (Granby Street is a key north-south corridor in Norfolk). This corridor has a high concentration of areas with opportunities for improvement of service according to the multimodal service index analysis from **Chapter 2**, **Section 2.2.2**.
- The service levels for Route 1 meet the service standards defined for Regional Backbone routes.

Route 1

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.			
2022	No additional changes.			
2023	No additional changes.			
2024	Route 1 will operate along its current alignment between the Downtown Norfolk Transit Center (DNTC) and Wards Corner. It will be realigned at Wards Corner and deviate onto Little Creek Boulevard to service Evelyn T. Butts. Route 1 will travel on Tidewater Drive between Little Creek Boulevard and Lenox Avenue, replacing existing service on Granby Street. Between Lennox Avenue and Joint Expeditionary Base (JEB) Little Creek Route 1 will operate along its existing alignment on Ocean View Avenue. Service east of the JEB Little Creek will be discontinued on Route 1; however, much of the service along the discontinued segments will be covered by Routes 27 and 36. Sunday span will be increased to 4:40 am – 1:30 am. Change weekday evening headways to 30 minutes, weekday midday headways to 15 minutes, and Saturday base and Sunday base and non-base headways to 30 minutes.	✓	✓	
2025	No additional changes.			
2026	Change Saturday and Sunday base headways to 15 minutes.			✓
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 2



Route 2

Miles
0 0.5 1 1.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 2

Service Classification
Local Priority

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Navy Exchange Mall / Downtown Norfolk Transit Center	Navy Exchange Mall / Downtown Norfolk Transit Center
Jurisdictions	Norfolk	Norfolk

Level of Service			
Span			
		Existing	**Service Target**
Weekday		4:51 AM - 11:42 PM	4:51 AM - 1:00 AM
Saturday		5:11 AM - 1:04 AM	5:11 AM - 1:00 AM
Sunday		5:28 AM - 12:10 AM	5:11 AM - 1:00 AM
Headway			
		Existing	**Service Target**
Weekday	Early	30	30
	AM Peak	30	30
	Midday	30	30
	PM Peak	30	30
	Evening	49	30
	Late Night	60	60
Saturday	Base	60	30
	Non-Base	60	60
	Early / Late	60	60
Sunday	Base	60	30
	Non-Base	60	60
	Early / Late	60	60

Note
Route 2 is classified here as a Local Priority route, with Local Priority levels of service. In the plan shown in Chapter 6, which accounts for new dedicated funding for regional transit, Route 2 is classified as a Regional Backbone route because the additional funding allows for more routes to have high-frequency service.

Service Changes

- Route 2 will be realigned to travel on Hampton Boulevard, Redgate Avenue, Colley Avenue, and Brambleton Avenue in order to streamline the service through Downtown Norfolk. The realigned Route 2 will be more direct compared to its existing alignment. Route 2 will still operate within a short walking distance of Norfolk General Hospital via Colley Avenue. Route 23 will continue to serve the Fort Norfolk area where Route 2 will no longer serve. Route 2 will no longer service Virginia Beach Boulevard or Olney Road, which will be covered by service on the realigned Route 4.
- Weekday headways remain the same as existing, except evening service is improved to half hour intervals from 6:00 PM to 11:00 PM. Weekday span is increased with service ending at 1:00 AM.
- Weekend service will be provided between 5:11 AM and 1:00 AM and will be offered at half hour intervals through much of the service day.
- With the changes to Route 2 level of service in FY 2025, this route will exceed the service design standards for the Local Priority service classification.

TD SD

Justification

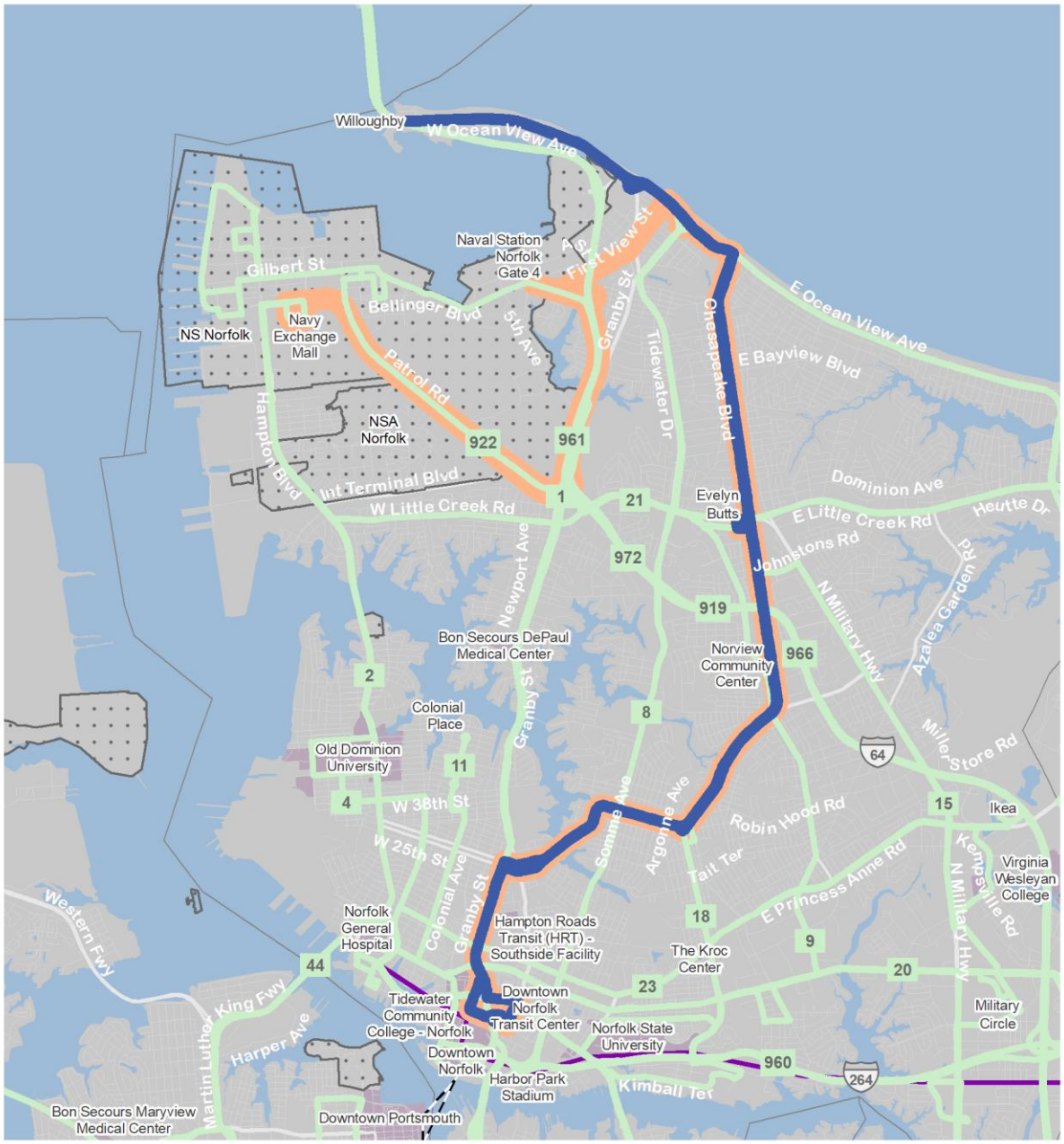
- The multimodal service index analysis from **Chapter 2**, **Section 2.2.2**, reveals areas served by Route 2 as major activity generators. Providing more direct service and shorter headways will improve this route and could attract more riders.
- The service levels for Route 2 meet the service standards defined for Local Priority routes.

Route 2

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.			
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	Route 2 will be realigned to travel on Hampton Boulevard, Redgate Avenue, Colley Avenue, and Brambleton Avenue in order to streamline the service through Downtown Norfolk. Route 2 will be a more direct and efficient use of revenue hours than existing Route 2. Route 2 will still operate within short walking distance of Norfolk General Hospital via Colley Avenue. Route 23 will continue to serve the Fort Norfolk area with Route 2 no longer continuing in that area. Route 2 will no longer service Virginia Beach Boulevard or Olney Road. Weekday span will extend to 1:00am, and Sunday span will change to 5:11am – 1:00am. Weekday evening and Saturday and Sunday base headways will change to 30 minutes.	✓	✓	✓
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 3



Route 3

Miles
0 0.5 1 1.5 2

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 3

Service Classification
Regional Backbone

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Downtown Norfolk / Naval Station Norfolk	Downtown Norfolk / Evelyn T. Butts Avenue / Ocean View Avenue
Jurisdictions	Norfolk	Norfolk

Level of Service			
Span			
		Existing	**Service Target**
Weekday		4:51 AM - 1:27 AM	4:51 AM - 1:27 AM
Saturday		5:21 AM - 1:27 AM	5:21 AM - 1:34 AM
Sunday		5:59 AM - 12:31 PM	5:21 AM - 1:34 AM
Headway			
		Existing	**Service Target**
Weekday	Early	30	30 / 60
	AM Peak	15	15 / 30
	Midday	30	15 / 30
	PM Peak	15	15 / 30
	Evening	49	30 / 60
	Late Night	60	60
Saturday	Base	30	30
	Non-Base	30	30 / 60
	Early / Late	60	60
Sunday	Base	60	30
	Non-Base	60	30 / 60
	Early / Late	60	60

Note
This route's existing service operates with regular short turns. The existing headways that are listed in this table may not necessarily apply to the full length of the existing route. This route's planned service also operates with short turns. The two numbers listed in the table show the headways for the portions of the route with and without the short turn. To see where the short turn operates, please refer to the Service Changes bullets.

Service Changes

- The northern end of Route 3 will be realigned to serve Ocean View Avenue to Willoughby (covering a portion of the eliminated Route 5), providing a one-seat ride between Willoughby and Downtown Norfolk. Navy Exchange Mall will no longer be served via Route 3. To reach the Navy Exchange Mall passengers may transfer at Evelyn T. Butts to Route 21.
- On weekdays during the peak periods and midday period service will operate on a short turn between DNTC and Evelyn T. Butts every 15 minutes. During the early and evening time periods the short turn service will operate every half hour half. Hourly service will be offered the full length of the route from Willoughby to DNTC late night. Service to Willoughby will be hourly in the early and evening periods, and during the peak periods and midday it will increase to half hour headways. Route 3 will maintain its existing weekday span.
- Weekend service will operate every 30 minutes between 6:00 AM and 9:00 PM from Willoughby to DNTC. In the non-peak weekend period, service will operate every half hour on the short turn between Evelyn T. Butts and DNTC, and hourly along the full length of the route. In the early/late period hourly service will be offered on the full length of the route. Sunday has the same level of service as Saturday.
- In a future out-year, Route 3 will meet the service design standards for the Regional Backbone service classification once all headway standards are met.

EB SD

Justification

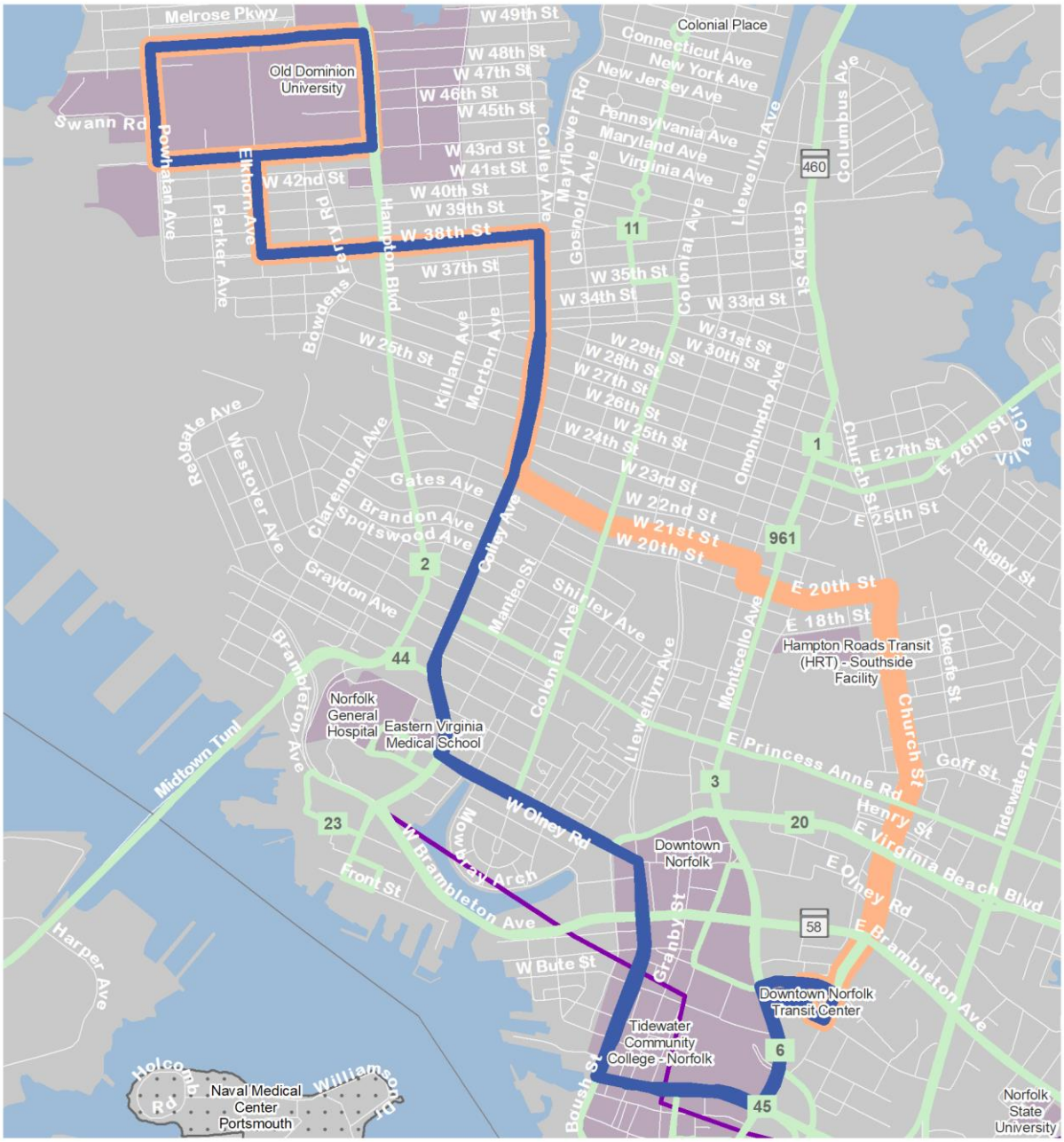
- Route 3's underperformance on On-time Performance warrants a change in service in an effort to make the route operate more efficiently: its On-time Performance is 59 percent, well short of the benchmark of 85 percent.
- Shortening headways on the weekend should encourage additional service usage.
- Service to Willoughby, which is currently offered every hour during weekday periods, will now be offered every half hour during the peak periods, which should help encourage additional service usage.
- The service levels for Route 3 meet the service standards defined for Regional Backbone routes.

Route 3

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.			
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	Realign the northern end of Route 3 to serve Ocean View Avenue to Willoughby (covering a portion of the eliminated Route 5). Navy Exchange Mall will no longer be served via Route 3. To reach the Navy Exchange Mall passengers may transfer at Evelyn T. Butts to Route 21. Change Sunday span to 5:21am – 1:34am. Change weekday evening headways to effective 30 minutes on the short turn, 60 on long pattern, Sunday base and non-base headways to effective 30 minutes on the short turn, 60 on long pattern.	✓	✓	
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	Change weekday midday headways to effective 15 minutes on the short turn and 30 minutes on the long pattern, Saturday and Sunday base to 30 minutes on the long pattern, removing the short turn on weekend base periods.			✓

Route 4



Route 4

0 0.5 Miles

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 4

Service Classification
Coverage

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Downtown Norfolk / Old Dominion University	Downtown Norfolk / Old Dominion University
Jurisdictions	Norfolk	Norfolk

Level of Service			
Span			
		Existing	**Service Target**
Weekday		6:00 AM - 10:51 PM	5:00 AM - 10:51 PM
Saturday		7:00 AM - 10:51 PM	7:00 AM - 10:51 PM
Sunday		8:00 AM - 10:49 PM	8:00 AM - 10:49 PM
Headway			
		Existing	**Service Target**
Weekday	Early	-	60
	AM Peak	60	60
	Midday	60	60
	PM Peak	60	60
	Evening	60	60
	Late Night	-	-
Saturday	Base	60	60
	Non-Base	60	60
	Early / Late	60	60
Sunday	Base	70	60
	Non-Base	70	60
	Early / Late	-	60

Service Changes

- Route 4 currently operates hourly throughout the day and provides connections between neighborhoods close to Downtown Norfolk and the DNTC. The new Route 4 will provide a more direct service between Old Dominion University and DNTC using Colley Avenue, Olney Avenue, Boush Street, City Hall Avenue, and St. Paul's Boulevard. The route will no longer provide service along 21st Street or Church Street.
- Weekday hourly service will be maintained on Route 4. In FY 2027, Route 4 will meet the service design standards for the Coverage service classification with increases in span.

Justification

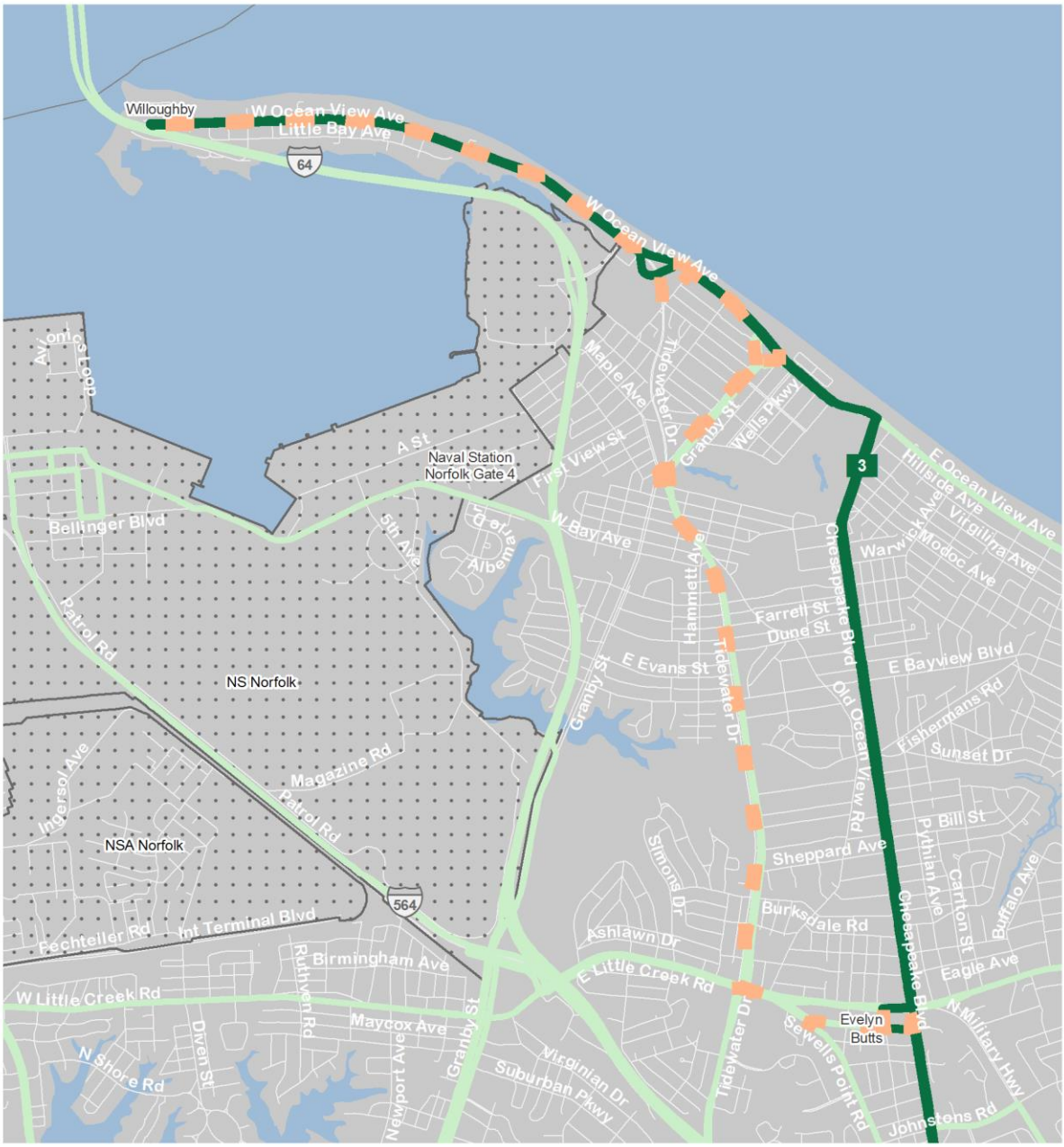
- Streamlining Route 4 will allow for shortened overall trip times and overall route on-time performance, improvements that should help attract ridership. The realignment will also provide a direct connection between Old Dominion University and Downtown Norfolk.
- While service will be removed from Church Street, the Downtown Norfolk Transit Center and several other HRT routes are within close proximity of the corridor. Routes 1, 4, and 11 will provide north-south service in the 21st Street area, even though service along 21st Street will be removed.
- The service levels for Route 4 meet the service standards defined for Coverage routes.

Route 4

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.			
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	Realign Route 4 to provide a more direct service between Old Dominion University and DNTC using Colley Avenue, Olney Avenue, Boush Street, City Hall Avenue, and St Paul's Boulevard. The route will no longer provide service along 21st Street or Church Street. Change Sunday headways to 60 minutes.	✓		
2026	No additional changes.			
2027	Change weekday span to begin at 5:00 AM.		✓	✓
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 5



Route 5

Miles
0 0.5

Focus Route

- Eliminated Route
- Routes Providing Replacement Coverage
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 5

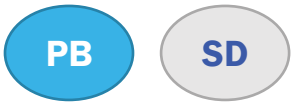
Service Classification
-

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Willoughby / Evelyn T. Butts Avenue	-
Jurisdictions	Norfolk	-

Level of Service			
Span			
		Existing	**Service Target**
Weekday		6:12 AM - 6:14 PM	-
Saturday		7:17 AM - 6:12 PM	-
Sunday		-	-
Headway			
		Existing	**Service Target**
Weekday	Early	-	-
	AM Peak	60	-
	Midday	60	-
	PM Peak	60	-
	Evening	-	-
	Late Night	-	-
Saturday	Base	60	-
	Non-Base	-	-
	Early / Late	-	-
Sunday	Base	-	-
	Non-Base	-	-
	Early / Late	-	-

Service Changes

- Route 5 will be eliminated. Service provided by the Route 5 between Ocean View Avenue and Willoughby will be serviced by the extension to Route 3 which will be implemented at the same time. No service will be provided by Route 5 along Tidewater Drive between Little Creek Road and Ocean View Avenue; however, this segment will continue to be served by the realigned Route 1 service.



Justification

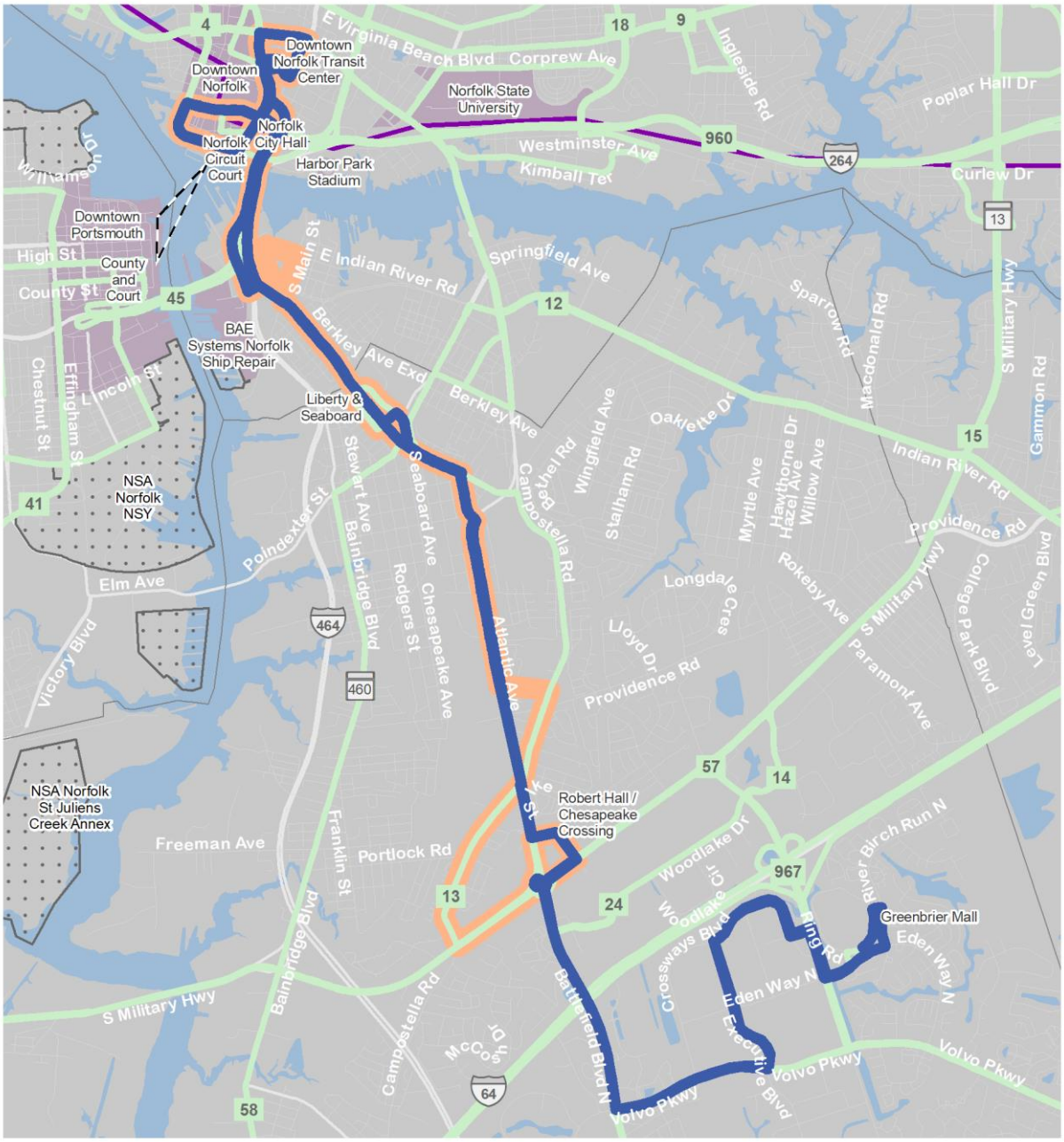
- Route 5 performs well based on the six Key Performance Indicators (results of this analysis are in **Chapter 2**, **Section 2.3**) and would be further improved by more direct connections provided by the combination with Route 3. The extension of Route 3 will provide service to Willoughby in a similar fashion as the current Route 5 service and will also provide a direct connection from Willoughby into Downtown Norfolk.

Route 5

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.			
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	Eliminated the route as called for by service target. Most of the Route 5 alignment will be covered by the realigned Route 3.	✓	✓	✓
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 6



Route 6

Miles
0 0.5 1

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 6

Service Classification
Local Priority

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Downtown Norfolk / South Norfolk / Robert Hall Boulevard	Downtown Norfolk / South Norfolk / Robert Hall Boulevard / Greenbrier Mall
Jurisdictions	Chesapeake, Norfolk	Chesapeake, Norfolk

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:30 AM - 12:50 AM	5:00 AM - 12:50 AM
Saturday		5:42 AM - 12:42 AM	5:30 AM - 11:30 PM
Sunday		5:54 AM - 6:38 PM	5:30 AM - 11:00 PM
Headway			
		Existing	**Service Target**
Weekday	Early	30	30
	AM Peak	30	30
	Midday	60	30
	PM Peak	30	30
	Evening	53	60
	Late Night	60	60
Saturday	Base	60	30
	Non-Base	60	60
	Early / Late	60	60
Sunday	Base	60	30
	Non-Base	-	60
	Early / Late	-	60

Service Changes

- Route 6 will be extended in Chesapeake to provide a one-seat ride between Greenbrier Mall in Chesapeake, downtown Norfolk, and transfer opportunities at the DNTC. The new alignment will also streamline service by eliminating deviations near Indian River, Broad Street, A Street and Seaboard Avenue, and Campostella Road.
- Route 13 will replace Route 6 service along Campostella Road between Broad Street and Military Highway traveling to Robert Hall, which is currently served by the existing Route 6. Route 13 will also serve Route 6's eliminated deviation to A Street and Seaboard Avenue.
- Route 6 service between Robert Hall and Greenbrier Mall will operate via Military Highway, Battlefield Boulevard, Volvo Parkway, Executive Boulevard, Crossways Boulevard, and Greenbrier Parkway, covering a portion of the eliminated Route 55.
- The current Route 14 service on Battlefield Boulevard between Military Highway and Volvo Parkway will be replaced with the realigned Route 6 service.
- In a future out-year, Route 6 will meet the service design standards for the Local Priority service classification, when it achieves full span and headway standards.

Justification

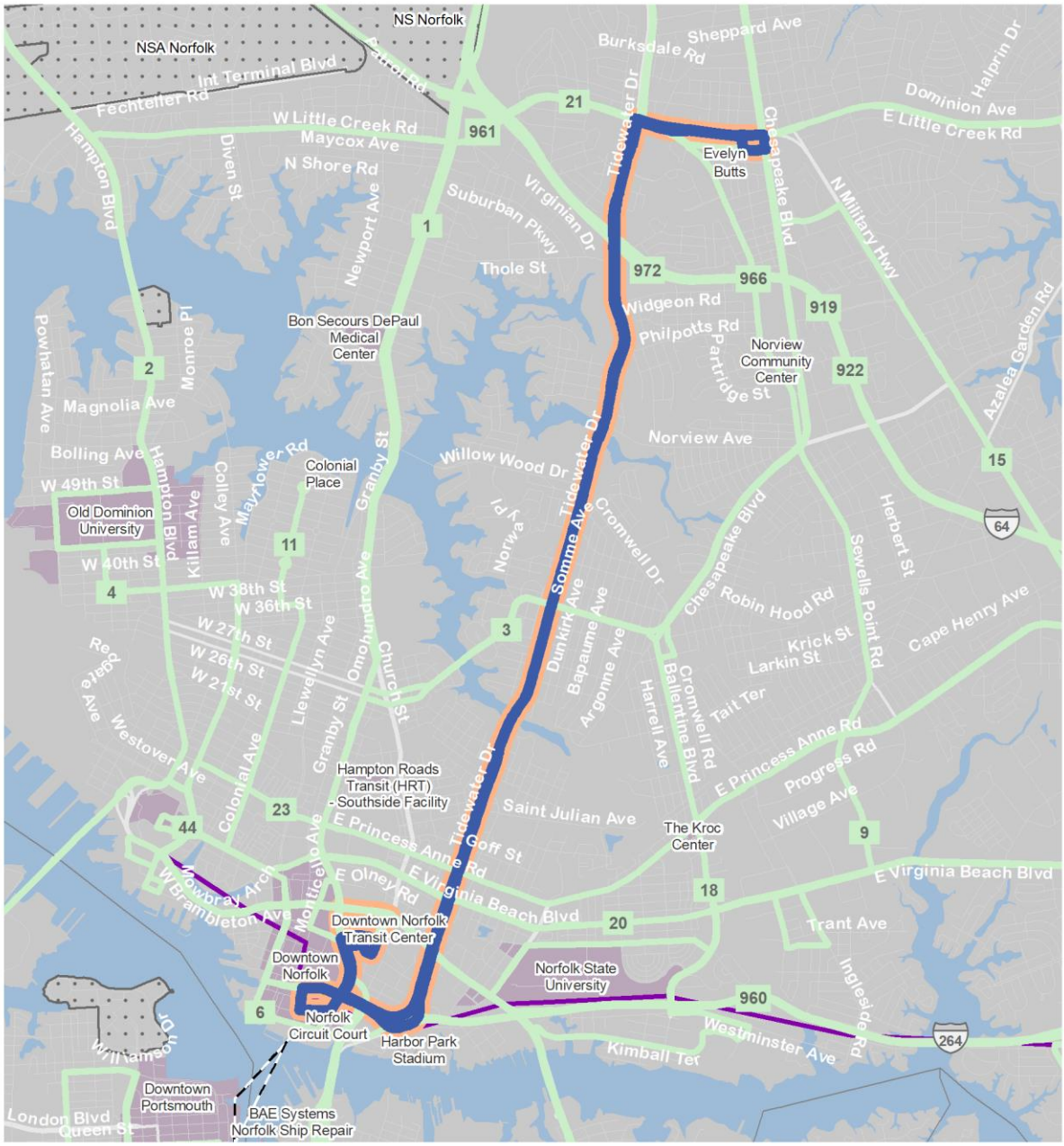
- Route 6 performs in the top half of HRT routes on passengers per revenue hour, in the top quarter for passengers per revenue mile, and in the top half for subsidy per passenger and farebox recovery ratio. This performance warrants increases in service and improved direct connections to induce even higher performance.
- Extending Route 6 service to Greenbrier Mall and increasing the level of service addresses a gap in all-day demand along the existing alignments of Routes 6 and 55. Increased service levels should help induce additional service utilization.
- The service levels for Route 6 meet the service standards defined for Local Priority routes.

Route 6

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.			
2022	No additional changes.			
2023	No additional changes.			
2024	Route 6 will be partially realigned. The interim alignment will streamline Route 6 by eliminating the deviation along Indian River and Broad Street, but it will maintain the deviation at Campostella Road, terminating at Robert Hall Boulevard. Change Saturday span to 6:00 AM-11:30 PM and Sunday span to 6:00 AM-7:00 PM. Change weekday evening headways to 60 minutes.			
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	Change weekday span to start at 5:00 AM and Saturday and Sunday span starts to 5:30 AM. Change weekday midday headways to 30 minutes.			
2030	No additional changes.			
Out-years	Implement full Route 6 realignment and eliminate interim alignment. Route 6 will be extended in Chesapeake to provide a one-seat ride between Greenbrier Mall in Chesapeake, downtown Norfolk, and transfer opportunities at the DNTC. The new alignment will further streamline service by eliminating the deviation on Campostella Road. Route 13 will replace the service along Campostella Road between Atlantic Avenue and Military Highway traveling to Robert Hall currently served by Route 6. Route 6 service between Robert Hall and Greenbrier Mall will operate via Military Highway, Old Greenbrier Road, Greenbrier Parkway, Crossways Boulevard, Executive Boulevard, and Volvo Parkway (similar to the service provided by the eliminated Route 55). The current Route 14 service on Battlefield Boulevard between Military Highway and Volvo Parkway will be replaced with the extended Route 6 service. Change Sunday span to end at 11:00 PM. Change Saturday and Sunday peak headways to 30 minutes.	✓	✓	✓

Route 8



Route 8

Miles
0 0.5 1

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 8

Service Classification
Regional Backbone

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Downtown Norfolk / Evelyn T. Butts Avenue	Downtown Norfolk / Evelyn T. Butts Avenue
Jurisdictions	Norfolk	Norfolk

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:18 AM - 12:15 AM	5:00 AM - 1:00 AM
Saturday		5:42 AM - 12:45 AM	5:40 AM - 12:00 AM
Sunday		6:40 AM - 8:58 PM	5:40 AM - 12:00 AM
Headway			
		Existing	**Service Target**
Weekday	Early	30	30
	AM Peak	30	15
	Midday	30	30
	PM Peak	30	15
	Evening	42	30
	Late Night	60	60
Saturday	Base	30	30
	Non-Base	30	30
	Early / Late	60	60
Sunday	Base	60	30
	Non-Base	-	30
	Early / Late	-	60

Service Changes

- There are no alignment changes.
- As a Regional Backbone route, on weekdays Route 8 will provide service between 5:00 AM and 1:00 AM and will operate with 15-minute service in the AM and PM peak periods; half hour service in the early, midday, and evening periods; and hourly service in the late-night period.
- On weekends Route 8 will operate between 5:40 AM and 12:00 AM, which is a slight decrease in hours on Saturday but a longer day of service on Sunday. Half hour service will be offered through much of the day, with hourly service being offered during the early and late-night hours.
- In FY 2025, Route 8 will meet the service design standards for the Regional Backbone service classification.

Justification

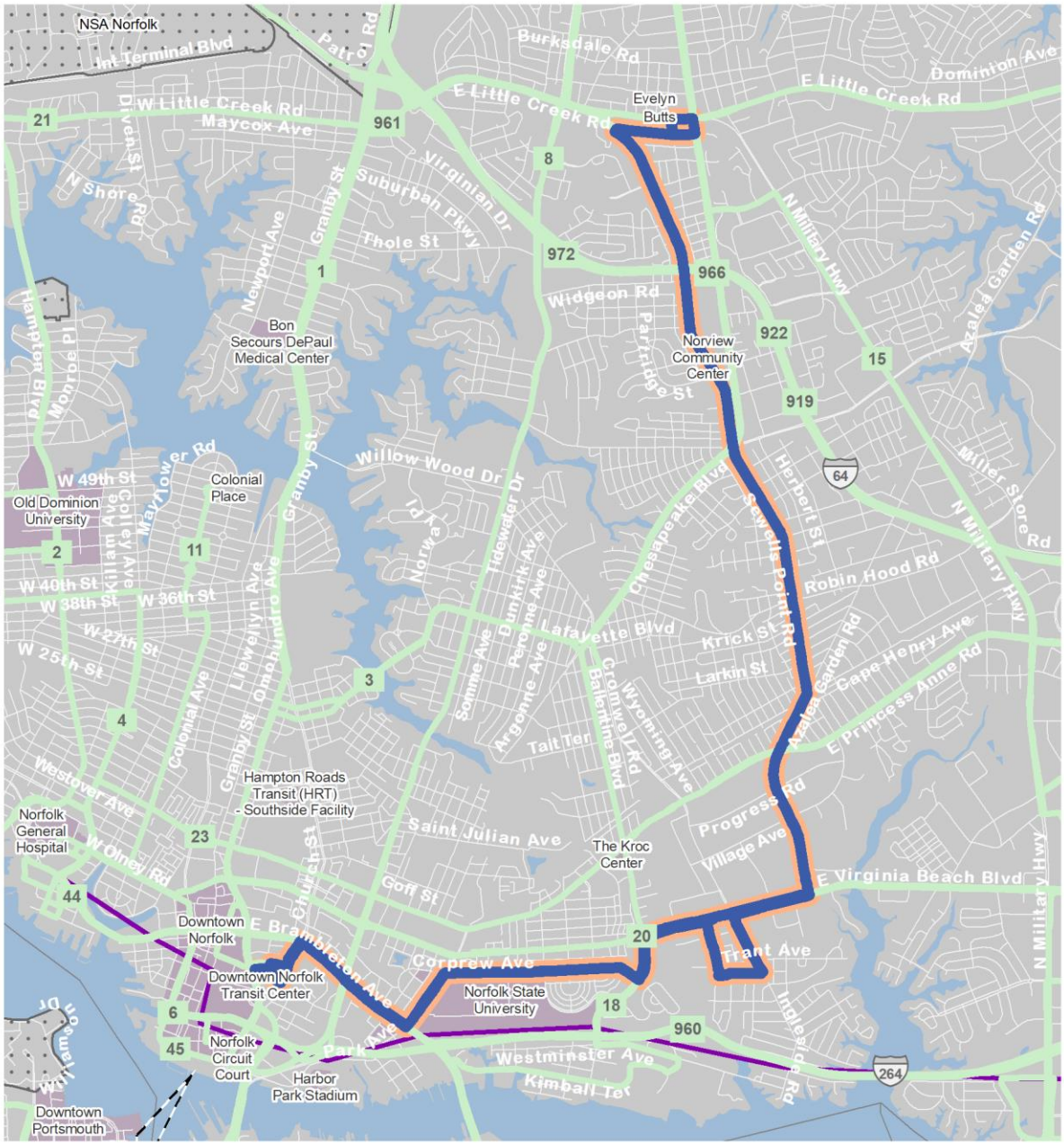
- Overall, Route 8 performs very well based on the six Key Performance Indicators (KPI). Its farebox recovery ratio is over 25 percent and passengers per revenue mile is 22.
- Increasing peak period service to 15-minute headways along the existing alignment should help increase service utilization and will also act as an important connecting service to several other routes.
- The service levels for Route 8 meet the service standards defined for Regional Backbone routes.

Route 8

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.	✓		
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	Change weekday peak headways to 15 minutes, weekday evening headways to 30 minutes, and Sunday base headways to 30 minutes. Change weekday span to 5:00 AM – 1:00 AM and Saturday and Sunday spans to 5:40 AM – 12:00 AM.		✓	✓
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 9



Route 9

Miles
0 0.5 1

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 9

Service Classification
Coverage

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Downtown Norfolk / Sewells Point Road	Downtown Norfolk / Sewells Point Road
Jurisdictions	Norfolk	Norfolk

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:48 AM - 12:11 AM	5:00 AM - 12:11 AM
Saturday		5:32 AM - 12:12 AM	5:32 AM - 12:12 AM
Sunday		-	8:00 AM - 7:00 PM
Headway			
		Existing	**Service Target**
Weekday	Early	30	30
	AM Peak	30	30
	Midday	30	30
	PM Peak	30	30
	Evening	43	30 until 8:00 PM, 60 after
	Late Night	60	60
Saturday	Base	60	60
	Non-Base	60	60
	Early / Late	60	60
Sunday	Base	-	60
	Non-Base	-	60
	Early / Late	-	-

Service Changes

- No changes from existing service alignment.
- Weekday span and headways will remain the same as existing.
- Saturday span will remain the same as existing, with hourly service as in existing. Sunday service will be introduced with hourly service operating from 8:00 AM - 7:00 PM.
- In a future out-year, Route 9 will meet the service design standards for the Coverage service classification when Sunday service is added and the weekday span starts earlier at 5:00 AM.

Justification

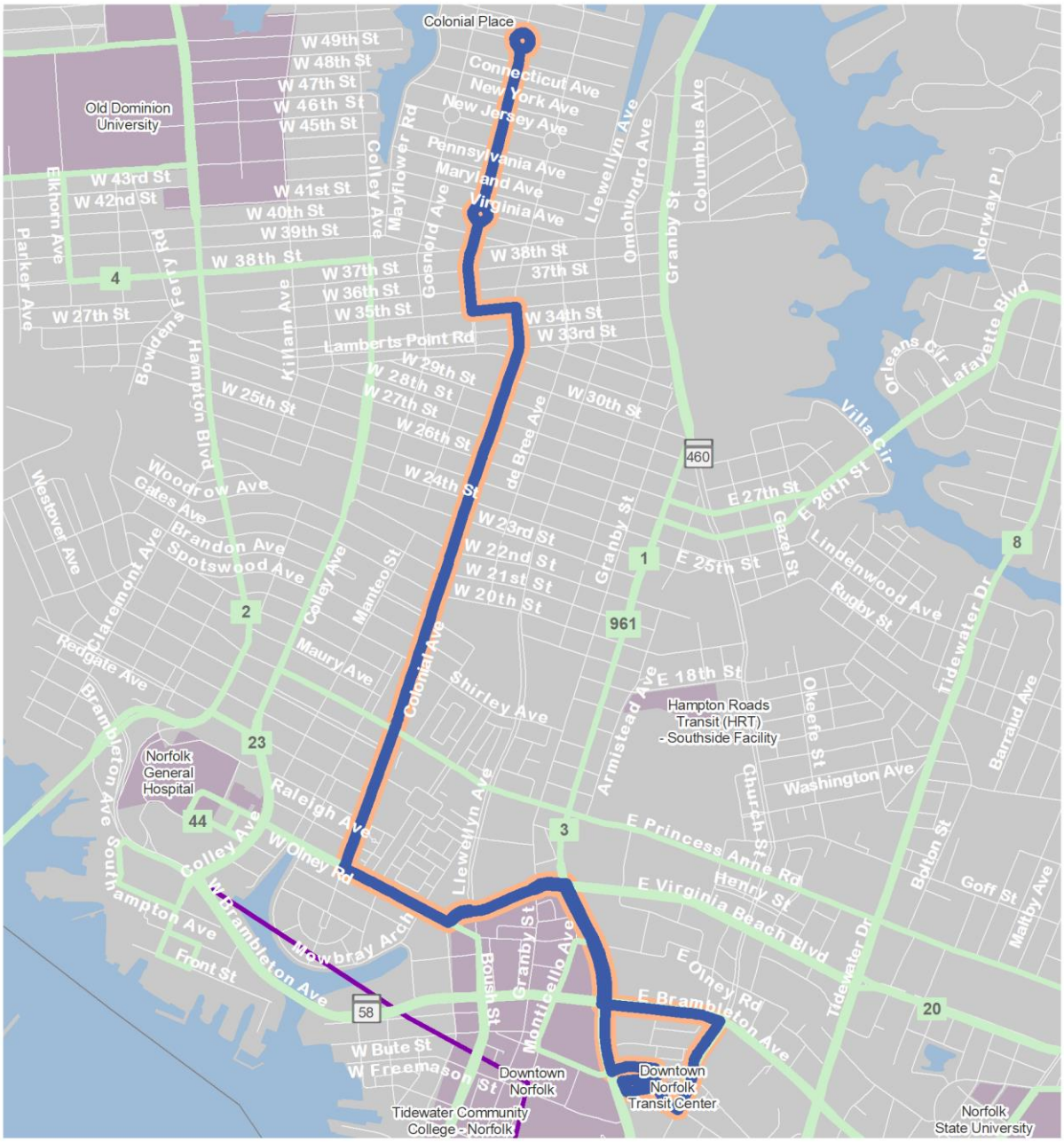
- Route 9's performance is average, yet it provides important connections within Norfolk, therefore the alignment and level of service will be kept as existing for weekdays and Saturdays.
- In order to meet the service design standards, Sunday service should be initiated. The service levels for Route 9 meet the service standards defined for Coverage routes.

Route 9

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.	✓		
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	Add Sunday service from 8:00 AM – 7:00 PM. Change weekday span to start at 5:00 AM.		✓	✓

Route 11



Route 11

Miles
0
0.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 11

Service Classification
Coverage

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Downtown Norfolk / Colonial Place	Downtown Norfolk / Colonial Place
Jurisdictions	Norfolk	Norfolk

Level of Service			
Span			
		Existing	**Service Target**
Weekday		6:07 AM - 6:30 PM	5:00 AM - 7:00 PM
Saturday		6:07 AM - 6:27 PM	6:07 AM - 7:00 PM
Sunday		8:42 AM - 5:38 PM	8:00 AM - 7:00 PM
Headway			
		Existing	**Service Target**
Weekday	Early	-	60
	AM Peak	60	60
	Midday	60	60
	PM Peak	60	60
	Evening	60	60
	Late Night	-	-
Saturday	Base	60	60
	Non-Base	60	60
	Early / Late	-	-
Sunday	Base	60	60
	Non-Base	-	60
	Early / Late	-	-

Service Changes

- No changes from existing service alignment or headways. Span increases are needed in order for this route to reach the service design standards.
- In a future out-year, Route 11 will meet the service design standards for the Coverage service classification when span improvements are made.

Justification

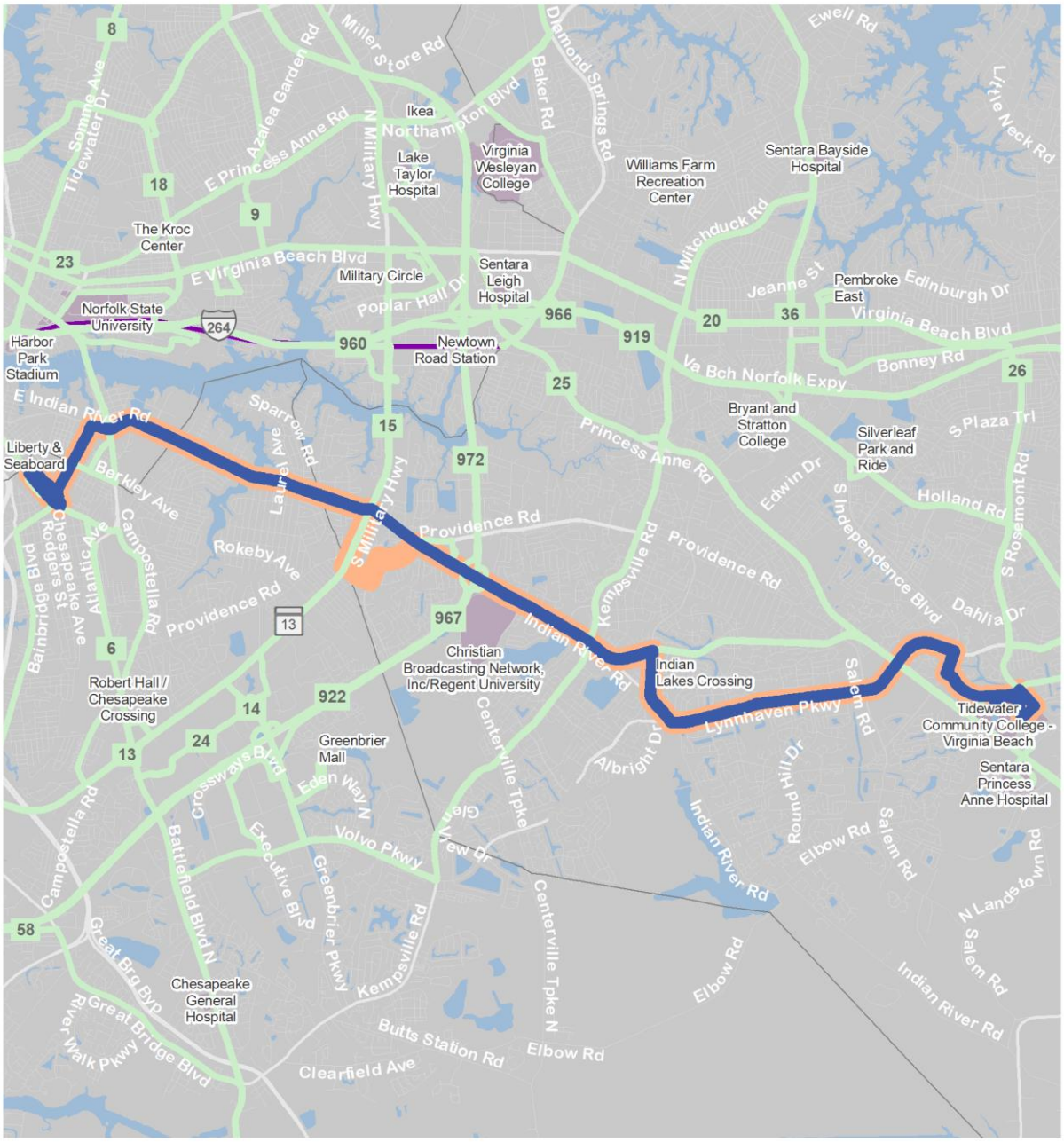
- While Route 11 is a lower performing route, maintaining its current alignment and levels of service will help provide important north-south connections within Norfolk, especially in the 21st Street area.
- The service levels for Route 11 meet the service standards defined for Coverage routes.

Route 11

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.	✓		
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	Change weekday span to 5:00 AM – 7:00 PM, Saturday span to end at 7:00 PM, and Sunday span to 8:00 AM – 7:00 PM.		✓	✓

Route 12


Route 12
Miles
0 0.5 1 1.5 2 2.5
Focus Route
Planned Alignment
Existing Alignment
Planned System
Light Rail
Ferry
Military Bases
City Boundary
Activity Centers
N
8
18
9
23
15
25
20
36
26
6
14
24
13
58
960
966
919
972
967
922
Ikea
Northampton Blvd
Lake Taylor Hospital
Virginia Wesleyan College
Williams Farm Recreation Center
Sentara Bayside Hospital
The Kroc Center
E Virginia Beach Blvd
Military Circle
Sentara Leigh Hospital
Norfolk State University
Harbor Park Stadium
Newtown Road Station
Pembroke East
Virginia Beach Blvd
Va Bch Norfolk Expy
Bonney Rd
Bryant and Stratton College
Silverleaf Park and Ride
Holland Rd
Liberty & Seaboard
E Indian River Rd
Providence Rd
Princess Anne Rd
Kempsville Rd
Indian Lakes Crossing
Lynnhaven Pkwy
Tidewater Community College - Virginia Beach
Sentara Princess Anne Hospital
Christian Broadcasting Network, Inc/Regent University
Robert Hall / Chesapeake Crossing
Greenbrier Mall
Crossways Blvd
Eden Way N
Volvo Pkwy
Centerville Tpke
Indian River Rd
Elbow Rd
Salem Rd
Chesapeake General Hospital
Great Bridge Blvd
Butts Station Rd
Clearfield Ave
Kempsville Rd
Centerville Tpke N

Route 12

Service Classification
Local Priority

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	South Norfolk / TCC Virginia Beach	South Norfolk / TCC Virgnia Beach
Jurisdictions	Chesapeake, Norfolk, Virginia Beach	Chesapeake, Norfolk, Virginia Beach

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:48 AM - 9:35 PM	5:00 AM - 11:00 PM
Saturday		5:48 AM - 9:35 PM	5:48 AM - 11:00 PM
Sunday		-	7:00 AM - 11:00 PM
Headway			
		Existing	**Service Target**
Weekday	Early	60	30
	AM Peak	60	30
	Midday	60	30
	PM Peak	60	30
	Evening	60	30 until 8:00 PM, 60 after
	Late Night	-	-
Saturday	Base	60	30
	Non-Base	60	60
	Early / Late	60	60
Sunday	Base	-	30
	Non-Base	-	60
	Early / Late	-	60

Service Changes

- Route 12 will provide more direct service by remaining on Indian River Road and eliminating the current deviation that operates on Military Highway, Auburn Drive, College Park Boulevard, and Providence Road.
- On weekdays service will start earlier at 5:00 AM and operate every 30-minutes until 8:00 PM, with hourly service after.
- On Saturdays the span of service will extend to 11:00 PM. Sunday service will be added to Route 12, operating from 7:00 AM - 11:00 PM.
- In a future out-year, Route 12 will meet the service design standards for the Local Priority service classification, once Sunday service is added and other span and headway improvements are made.

TD SD

Justification

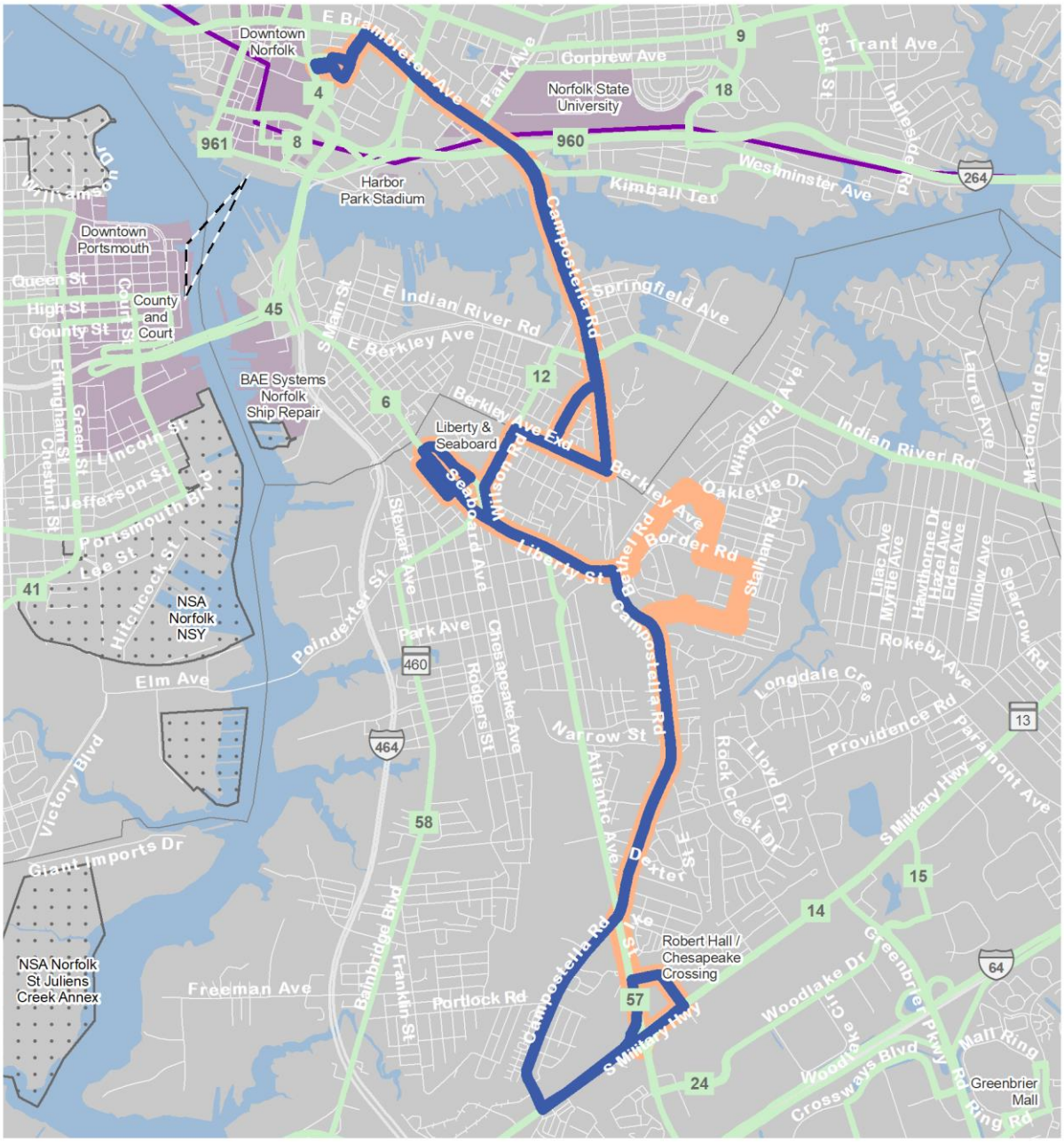
- Route 12 service is one of the higher-performing routes within the HRT system.
- Shortening headways on Route 12 will provide better transfer opportunities between this route and routes which provide north-south connections, enhancing regional connectivity.
- This route improvement addresses an identified gap in all-day transit demand between Virginia Beach, South Norfolk, and Chesapeake with higher levels of midday service than these areas currently experience. This also addresses a gap in peak service coverage with higher levels of service in the peak periods.
- Removing the slight deviation and allowing the service to remain on Indian River Road will improve the route directness, which will help to improve on time performance and shorten overall trip times, which are two attractive transit features that will help to attract additional riders.
- The service levels for Route 12 meet the service standards defined for Local Priority routes.

Route 12

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.			
2022	No additional changes.			
2023	No additional changes.			
2024	Route 12 will be realigned to provide more direct service by remaining on Indian River Road and eliminating the current deviation that operates on Military Highway, Auburn Drive, College Park Boulevard, and Providence Road. Change weekday span to start at 5:00 AM. Change weekday headways to 30 minutes from the early period until 8:00 PM.	✓		
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	Change weekday and Saturday spans to end at 11:00 PM and introduce Sunday service from 7:00 AM – 11:00 PM. Increase weekend peak headways to 30 minutes.		✓	✓

Route 13



Route 13

Miles
0 0.5 1

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 13

Service Classification
Local Priority

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Downtown Norfolk / Robert Hall Boulevard	Downtown Norfolk / Robert Hall Boulevard
Jurisdictions	Chesapeake, Norfolk	Chesapeake, Norfolk

Level of Service			
Span			
		Existing	**Service Target**
Weekday		4:48 AM - 12:43 AM	4:48 AM - 12:43 AM
Saturday		5:26 AM - 12:43 AM	5:30 AM - 11:48 PM
Sunday		5:52 AM - 10:36 PM	5:30 AM - 11:48 PM
Headway			
		Existing	**Service Target**
Weekday	Early	60	30
	AM Peak	30	30
	Midday	60	30
	PM Peak	30	30
	Evening	52	60
	Late Night	60	60
Saturday	Base	60	30
	Non-Base	60	60
	Early / Late	60	60
Sunday	Base	60	30
	Non-Base	60	60
	Early / Late	-	60

Note
This route's existing service operates with regular short turns. The existing headways that are listed in this table may not necessarily apply to the full length of the existing route.

Service Changes

- Route 13 will provide streamlined service along Campostella Road; the deviation currently operating along Bethel Road and Parkside Drive will be eliminated to help streamline the service.
- Route 13 will replace service lost by Route 6 along Campostella Road between Atlantic Avenue and Military Highway traveling to Robert Hall.
- The current weekday span of service will be maintained with the route beginning service at 4:48 AM and ending at 12:43 AM. Service along the full length of the route from DNTC to Robert Hall will be offered from start of service until 11:00 PM, at which time service will be offered between Liberty and Seaboard and Robert Hall.
- On the weekends the full length of the route will be provided on all trips (DNTC to Robert Hall).
- In a future out-year, Route 13 will meet the service design standards for the Local Priority service classification, once headway improvements are made and the full realignment is implemented.

TD PB SD

Justification

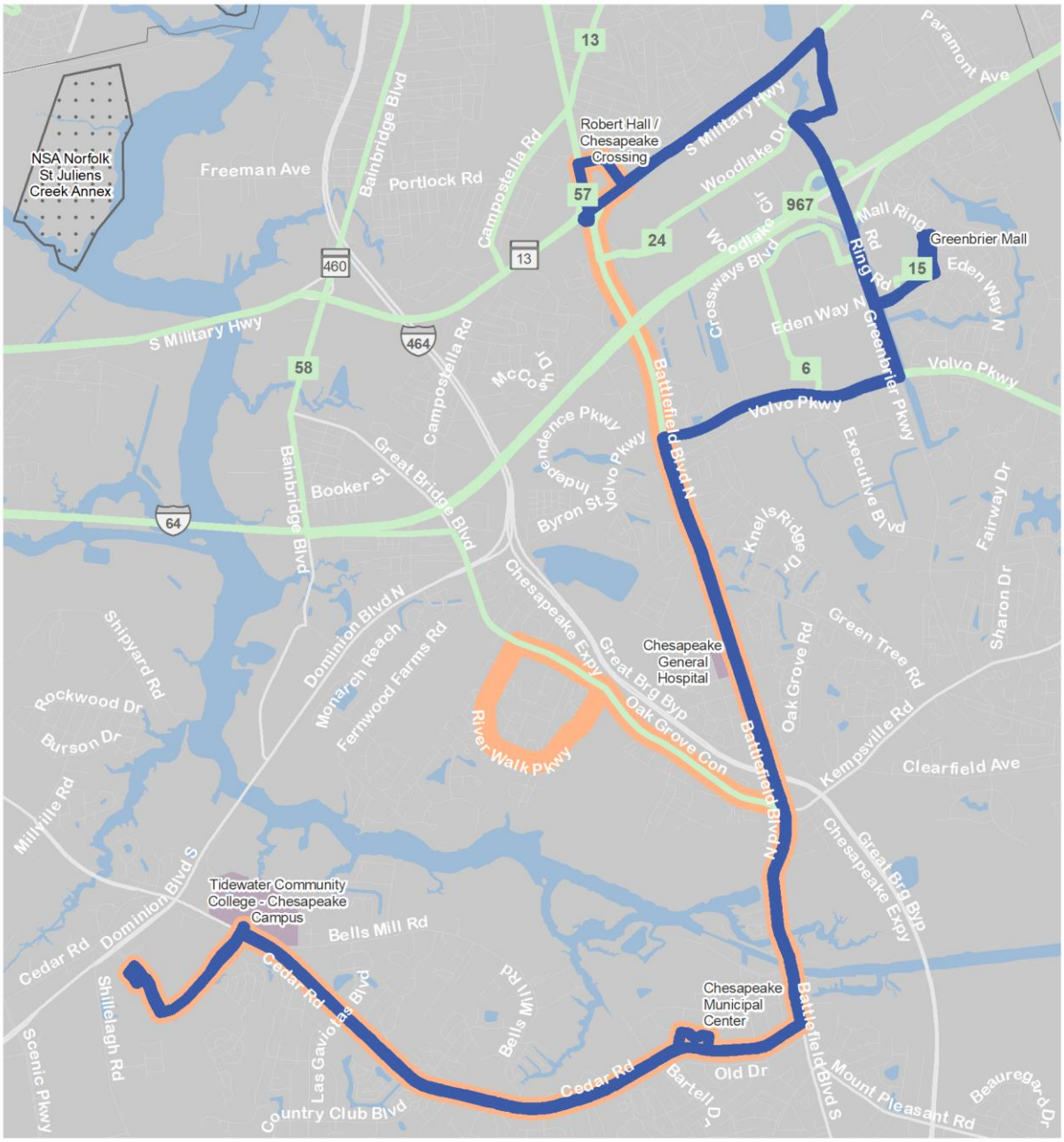
- Route 13 performs well on the six Key Performance Indicators (KPI) and warrants increases of service as a result. Improving headways on weekdays in the midday time period will address an identified gap in all-day transit demand from Indian River in South Norfolk to Chesapeake Crossing.
- The service levels for Route 13 meet the service standards defined for Local Priority routes.

Route 13

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.			
2022	No additional changes.			
2023	No additional changes.			
2024	Implement interim alignment. The alignment will match existing, except the deviation to Bethel Road will be eliminated. Change Saturday span to 5:30 AM-11:30 PM and Sunday span to 6:00 AM-10:30 PM. Change weekday evening headways to 60 minutes and run all trips from DNTC to Robert Hall between the AM peak and evening periods.			
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	Change the span start time of the interim pattern to 4:48 AM and have the short turn operate only between the hours of 11:00 PM and 12:43 AM. Extend the Saturday span to end at 11:48 PM and change the Sunday span to 5:30 AM – 11:48 PM. Increase weekday early headways to 30 minutes on the long pattern.		✓	
2029	No additional changes.			
2030	No additional changes.			
Out-years	Eliminate the interim pattern and implement full planned alignment, which will provide streamlined service along Campostella Road. Change weekday midday, Saturday peak, and Sunday peak headways to 30 minutes.	✓		✓

Route 14


NSA Norfolk
St Juliens
Creek Annex
Freeman Ave
Bainbridge Blvd
Portlock Rd
Campostella Rd
Robert Hall /
Chesapeake
Crossing
S Military Hwy
Woodlake Dr
Paramont Ave
Mall Ring Rd
Greenbrier Mall
Eden Way N
Crossways Blvd
Greenbrier Pkwy
Volvo Pkwy
Battlefield Blvd N
Executive Blvd
Fairway Dr
Sharon Dr
Booker St
Great Bridge Blvd
Byron St
Knells Ridge Dr
Green Tree Rd
Oak Grove Rd
Kempsville Rd
Clearfield Ave
Chesapeake
General
Hospital
Great Brg Byp
Oak Grove Con
River Walk Pkwy
Chesapeake Expy
Dominion Blvd N
Monarch Reach
Fernwood Farms Rd
Shipyard Rd
Rockwood Dr
Burson Dr
Millville Rd
Dominion Blvd S
Tidewater Community
College - Chesapeake
Campus
Bells Mill Rd
Cedar Rd
Shillelagh Rd
Las Gaviotas Blvd
Country Club Blvd
Scenic Pkwy
Chesapeake
Municipal
Center
Old Dr
Bartell Dr
Mount Pleasant Rd
Beauregard Dr
13
57
24
967
460
464
58
64
6
15
Route 14
Miles
0
0.5
1
Focus Route
Planned Alignment
Existing Alignment
Planned System
Light Rail
Ferry
Military Bases
City Boundary
Activity Centers
N

Route 14

Service Classification
Coverage

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Robert Hall Boulevard / TCC Chesapeake	Robert Hall Boulevard / Greenbrier Mall / TCC Chesapeake
Jurisdictions	Chesapeake	Chesapeake

Level of Service			
Span			
		Existing	**Service Target**
Weekday		6:17 AM - 7:12 PM	5:00 AM - 7:12 PM
Saturday		6:17 AM - 7:12 PM	6:20 AM - 7:00 PM
Sunday		-	6:20 AM - 7:00 PM
Headway			
		Existing	**Service Target**
Weekday	Early	-	60
	AM Peak	60	60
	Midday	60	60
	PM Peak	60	60
	Evening	60	60
	Late Night	-	-
Saturday	Base	60	60
	Non-Base	60	60
	Early / Late	-	-
Sunday	Base	-	60
	Non-Base	-	60
	Early / Late	-	-

Service Changes

- Route 14 will be realigned to serve both Robert Hall and Greenbrier Mall.
- The current diversion to River Walk Parkway via Great Bridge Boulevard will be eliminated on Route 14; this area will continue to have service via the realigned Route 58.
- After serving Robert Hall, Route 14 will serve Military Highway, Old Greenbrier Road, Greenbrier Parkway, Greenbrier Mall, Greenbrier Parkway, Volvo Parkway, and Battlefield Boulevard. This covers an eliminated portion of the existing Route 55.
- Route 14 service on Battlefield Boulevard between Robert Hall and Volvo Parkway will be replaced with the extended Route 6 service.
- Weekday service levels will remain consistent with the existing Route 14 service, providing hourly service between 5:00 AM and 7:12 PM.
- Saturday service will be provided at hourly intervals between 6:20 AM and 7:00 PM. Sunday service will be offered to match the levels of service offered on Saturdays.
- In a future out-year, Route 14 will exceed the service design standards for the Coverage service classification once span increases are made and the full realignment is implemented.

Justification

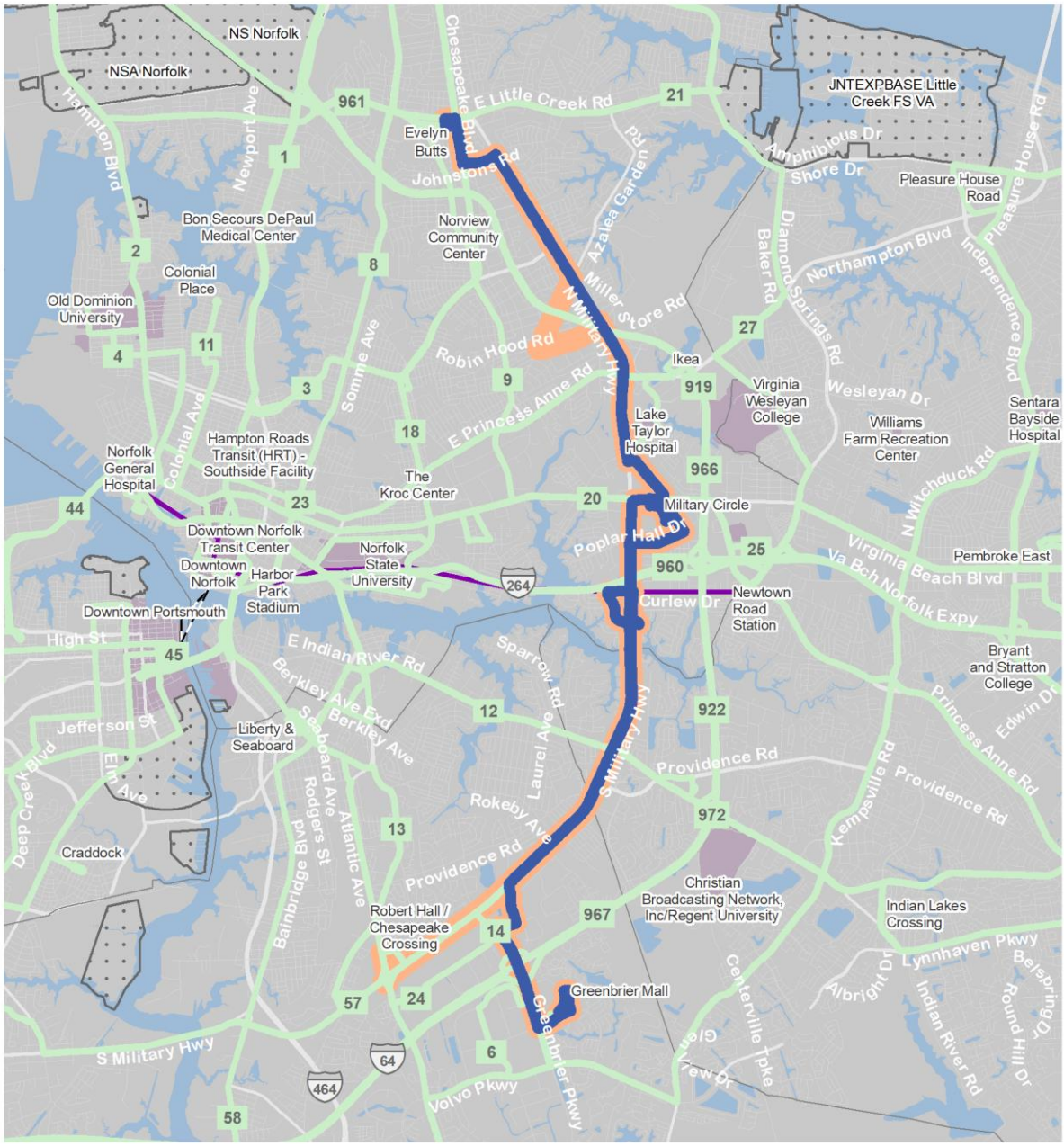
- Route 14 performs in the lower half on most of the six Key Performance Indicators (KPI). The existing service has an average of 11 passengers per revenue hour which is below the Southside average of 15. As a result, Route 14 service will be reconfigured along with Route 58 service; changes on both routes will provide more direct connections and serve destinations throughout Chesapeake.
- The service will be realigned to serve both Robert Hall and Greenbrier Mall in an effort to help to boost performance of the route and provide more transit options to connect to the Chesapeake Municipal Center.
- Additionally, service currently provided on Route 14 along Great Bridge Boulevard will now be offered on the realigned Route 58. This will help to decrease the overall travel time on the Route 14 while also helping to increase its on-time performance, qualities known to help increase service utilization.
- The service levels for Route 14 meet the service standards defined for Coverage routes.

Route 14

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.			
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	Implement interim alignment. The deviation on Great Bridge Boulevard is eliminated and covered by the realigned Route 58. Route 14 will maintain its existing alignment and continue up Battlefield to terminate at Robert Hall. This pattern will not serve Greenbrier. Change Saturday span to 6:20 AM – 7:00 PM.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	Implement service target alignment and eliminate interim alignment. Route 14 will service Greenbrier Mall and Robert hall. Change weekday span to start at 5:00 AM and add Sunday service from 6:20 AM – 7:00 PM.	✓	✓	✓

Route 15



Route 15

Miles
0 0.5 1 1.5 2 2.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 15

Service Classification
Regional Backbone

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Robert Hall Boulevard / Evelyn T. Butts Avenue	Greenbrier Mall / Evelyn T. Butts Avenue
Jurisdictions	Chesapeake, Norfolk, Virginia Beach	Chesapeake, Norfolk, Virginia Beach

Level of Service			
Span			
		Existing	**Service Target**
Weekday		4:48 AM - 1:17 AM	5:00 AM - 1:15 AM
Saturday		5:18 AM - 12:45 AM	5:18 AM - 12:00 AM
Sunday		6:46 AM - 12:45 AM	5:18 AM - 12:00 AM
Headway			
		Existing	**Service Target**
Weekday	Early	30	30
	AM Peak	15	15
	Midday	30	30
	PM Peak	15	15
	Evening	30	30
	Late Night	60	60
Saturday	Base	30	30
	Non-Base	60	30
	Early / Late	60	60
Sunday	Base	60	30
	Non-Base	60	30
	Early / Late	60	60

Note
This route's existing service operates with regular short turns. The existing headways that are listed in this table may not necessarily apply to the full length of the existing route.

Service Changes

- Route 15 will be streamlined along Military Highway by eliminating the diversion onto Azalea Garden Road and Robin Hood Road. Upon reaching Old Greenbrier Road, it will serve Greenbrier Mall using the route's current alignment.
- The streamlined short turn between Evelyn T. Butts and Curlew Boulevard, serving the Military Highway light rail station, will be maintained for some years until it can be eliminated. The elimination of the short turn will create improved levels of service across the entire route.
- The current service to Chesapeake Crossing via Military Highway will be removed from Route 15 and replaced with service on the realigned Route 57. Route 15 will serve Greenbrier Mall in lieu of Chesapeake Crossing, which will allow Route 15 to provide connections where there is a higher concentration of other HRT routes.
- The current weekday service levels will be maintained, starting service at 5:00 AM and ending at 1:15 AM. AM and PM peak service will be provided at 15-minute intervals; half hour service will be provided during the early morning, midday and evening periods; and hourly service will be provided during the late-night period. While the short turn still exists, the shorter headways will only be offered on the short turn, and double the headway will be offered on the pattern operating between Evelyn Butts and Greenbrier; once the short turn is eliminated, the shorter headways will be offered along the full length of the route.
- Saturday service on Route 15 will be offered between 5:18 AM and midnight at half hour intervals through much of the service day. Sunday service will be offered at the same level as provided on Saturdays.
- In FY 2026, Route 15 will meet the service design standards for the Regional Backbone service classification when the short turn will be eliminated and the service target headways are implemented along the full length of the route.

Route 15

TD PB EB SD

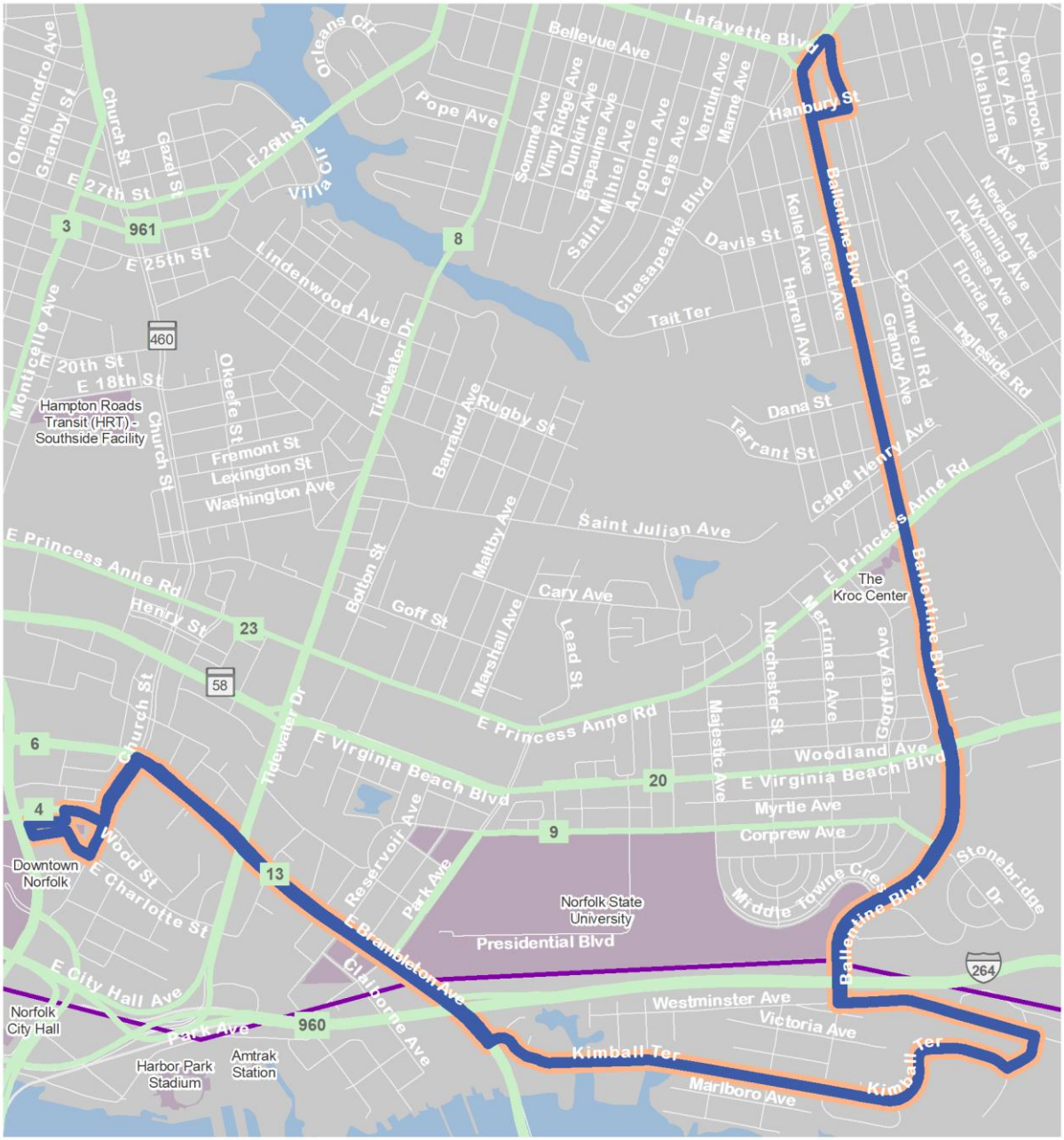
Justification

- Route 15 performs well on the six Key Performance Indicators (results of this analysis are in Chapter 2, Section 2.3), especially the passengers per hour measures—19, well above the Southside average of 14. Farebox recovery ratio and subsidy per passenger are within the top quarter of all routes. Route 15's performance indicates a demand for this service and warrants increases in service.
- The changes to Route 15 will help to decrease overall route travel time, improve route directness, and enhance frequent connections between Norfolk and Chesapeake, all factors that will help to increase the attractiveness of this service.
- The service levels for Route 15 meet the service standards defined for Regional Backbone routes.

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.			
2022	No additional changes.			
2023	No additional changes.			
2024	Implement service target alignment, streamlining the full pattern and maintaining a short turn operating between Evelyn T. Butts and Curlew Boulevard (serving the Military Highway light rail station). Implement service target span and headways on the short turn. Full pattern service will have double the headways, operating from 6:00 AM – 10:30 PM on weekdays, 6:15 AM – 9:00 PM on Saturdays, and 8:00 AM – 6:15 PM on Sundays.	✓		
2025	Implement service target span on the full pattern. Replace short-turn service with service on the full pattern every 30 minutes during the midday and every 60 minutes during the late night period. Similarly, replace weekend late night short-turn service with 60-minute headways on the full pattern.		✓	
2026	Remove the short turn entirely and implement service target headways on the full alignment.			✓
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 18


Route 18
Miles
0
0.5
Focus Route
Planned Alignment
Existing Alignment
Planned System
Light Rail
Ferry
Military Bases
City Boundary
Activity Centers
N
Lafayette Blvd
Hanbury St
Bellevue Ave
Orleans Cir
Pope Ave
Somme Ave
Vimy Ridge Ave
Dunkirk Ave
Bapaume Ave
Saint Mihiel Ave
Argonne Ave
Lens Ave
Verdun Ave
Marne Ave
Chesapeake Blvd
Davis St
Keller Ave
Vincent Ave
Harrell Ave
Tait Ter
Ballentine Blvd
Hurley Ave
Oklahoma Ave
Overbrook Ave
Nevada Ave
Wyoming Ave
Arkansas Ave
Florida Ave
Ingleside Rd
Cromwell Rd
Grandy Ave
Dana St
Tarrant St
Cape Henry Ave
E Princess Anne Rd
Omohundro Ave
Granby St
Church St
Gazel St
E 26th St
E 27th St
Villa Cir
3
961
E 25th St
Lindenwood Ave
8
460
E 20th St
E 18th St
Monticello Ave
Hampton Roads Transit (HRT) - Southside Facility
Okeefe St
Fremont St
Lexington St
Washington Ave
Tidewater Dr
Barraud Ave
Rugby St
Saint Julian Ave
Maltby Ave
Bolton St
Goff St
Cary Ave
Lead St
Marshall Ave
Henry St
23
58
E Princess Anne Rd
The Kroc Center
Merrimac Ave
Norchester St
Majestic Ave
Godfrey Ave
Woodland Ave
E Virginia Beach Blvd
20
6
4
Myrtle Ave
Corprew Ave
9
Middle Towne Cres
Stonebridge Dr
Downtown Norfolk
Wood St
E Charlotte St
13
Reservoir Ave
Park Ave
Norfolk State University
Presidential Blvd
E Brambleton Ave
Claiborne Ave
E City Hall Ave
Norfolk City Hall
960
Harbor Park Stadium
Amtrak Station
Westminster Ave
Victoria Ave
Kimball Ter
Marlboro Ave
264

Route 18

Service Classification
Coverage

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Downtown Norfolk / Ballentine Boulevard	Downtown Norfolk / Ballentine Boulevard
Jurisdictions	Norfolk	Norfolk

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:42 AM - 10:38 PM	5:00 AM - 10:38 PM
Saturday		6:16 AM - 10:18 PM	6:16 AM - 10:18 PM
Sunday		-	8:00 AM - 7:00 PM
Headway			
		Existing	**Service Target**
Weekday	Early	60	60
	AM Peak	60	60
	Midday	60	60
	PM Peak	60	60
	Evening	60	60
	Late Night	-	-
Saturday	Base	60	60
	Non-Base	60	60
	Early / Late	-	-
Sunday	Base	-	60
	Non-Base	-	60
	Early / Late	-	-

Service Changes

- No changes from existing service alignment.
- In a future out-year, Route 18 will meet the service design standards for the Coverage service classification when span targets are reached.

Justification

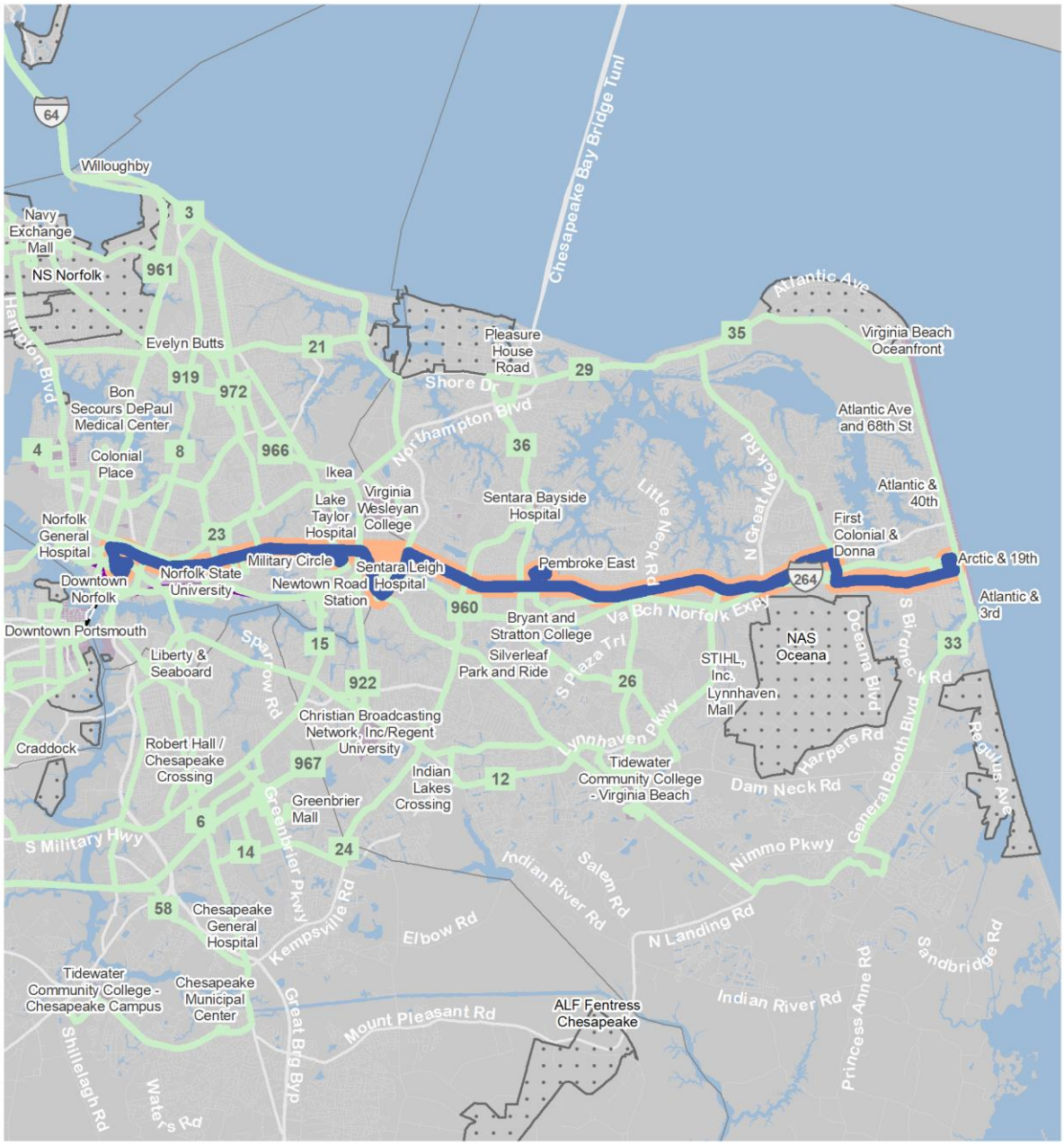
- Route 18's performance is low compared to other routes within the HRT system, but because it provides important connections within Norfolk, the alignment and level of service will be kept as existing for weekdays and Saturdays.
- In order to meet the service design standards, Sunday service should also be added.
- The service levels for Route 18 meet the service standards defined for Coverage routes.

Route 18

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.	✓		
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	Begin weekday service at 5:00 AM. Add Sunday service from 8:00 AM-7:00 PM.		✓	✓

Route 20



Route 20

Miles
0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 20

Service Classification
Regional Backbone

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Downtown Norfolk / Virginia Beach Oceanfront	Downtown Norfolk / Virginia Beach Oceanfront
Jurisdictions	Norfolk, Virginia Beach	Norfolk, Virginia Beach

Level of Service			
Span			
		Existing	**Service Target**
Weekday		4:52 AM - 1:15 AM	4:52 AM - 1:15 AM
Saturday		5:22 AM - 1:14 AM	5:00 AM - 1:14 AM
Sunday		6:23 AM - 1:13 AM	5:00 AM - 1:14 AM
Headway			
		Existing	**Service Target**
Weekday	Early	30	30
	AM Peak	15	15
	Midday	30	15
	PM Peak	15	15
	Evening	46	30 until 7:00 PM, 60 after
	Late Night	60	60
Saturday	Base	30	15
	Non-Base	30	30
	Early / Late	60	60
Sunday	Base	30	15
	Non-Base	60	30
	Early / Late	60	60

Note
This route's existing service operates with regular short turns. The existing headways that are listed in this table may not necessarily apply to the full length of the existing route.

Service Changes

- Route 20 will be realigned to serve the Newtown Road light rail station via Kempsville Road and Newtown Road instead of going up and down Kempsville Road in both directions. Short turns on this route will be eliminated, which will help to provide consistent frequency of service across the entire route's alignment.
- The current weekday span will be maintained, operating between 4:52 AM and 1:15 AM, with service provided every 15 minutes between the AM and PM peak periods across the whole length of the route. During the early morning and evening periods service will be increased to half hour intervals across the whole route, with hourly service being offered in the late-night period.
- Saturday service will be offered between 5:00 AM and 1:14 AM with 15-minute service being offered through much of the day. Sunday service will be increased to match Saturday levels.
- In FY 2028, Route 15 will exceed the service design standards for the Regional Backbone service classification once the weekday evening headways are increased to 30-minutes and weekend span starts earlier at 5:00 AM.

Justification

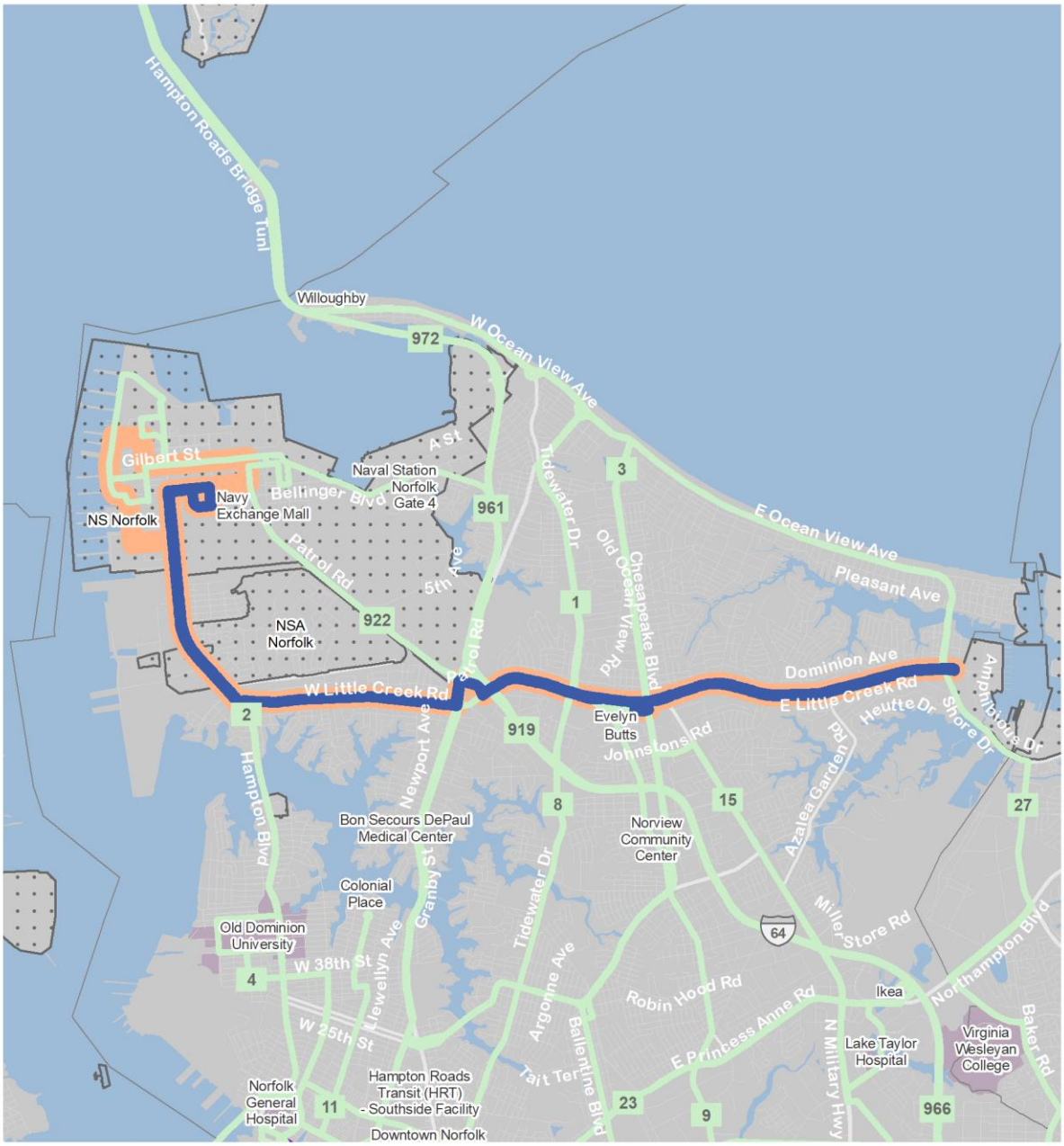
- Route 20 performs well on the six Key Performance Indicators (KPI) and is one of the highest performing routes in the system. Planned improvements will eliminate short turns on this route, providing continuous high-frequency service between Virginia Beach and Norfolk during the peak periods and providing consistent service across the whole length of the route in the other periods.
- This high-frequency Regional Backbone service will provide an enhanced regional connection between Downtown Norfolk and Virginia Beach, addressing a peak coverage demand gap in Virginia Beach.
- The service levels for Route 20 meet the service standards defined for Regional Backbone routes.

Route 20

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.			
2022	Implement service target alignment change. Extend 30-minute headways until 7:00 PM, after which the evening period will have 60-minute headways.	✓		
2023	No additional changes.			
2024	No additional changes.			
2025	Increase weekday midday headways to 15 minutes, meeting service targets. Change Sunday off-peak headways to 30 minutes.			
2026	No additional changes.			
2027	No additional changes.			
2028	Begin Saturday and Sunday service at 5:00 AM. Extend weekday evening headways of 30 minutes until 11:00 PM.		✓	
2029	No additional changes.			
2030	Change weekend peak headways to 15 minutes.			✓
Out-years	No additional changes.			

Route 21



Route 21

Miles
0 0.5 1 1.5 2

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 21

Service Classification
Regional Backbone

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Naval Station Norfolk / Navy Exchange Mall / Joint Expeditionary Base Little Creek	Navy Exchange Mall / Joint Expeditionary Base Little Creek
Jurisdictions	Norfolk	Norfolk, Virginia Beach

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:11 AM - 1:17 AM	5:00 AM - 1:00 AM
Saturday		5:12 AM - 1:38 AM	5:00 AM - 1:00 AM
Sunday		6:43 AM - 1:38 AM	5:00 AM - 1:00 AM
Headway			
		Existing	**Service Target**
Weekday	Early	30	30
	AM Peak	30	15
	Midday	30	30
	PM Peak	30	15
	Evening	43	30
	Late Night	60	60
Saturday	Base	30	30
	Non-Base	30	30
	Early / Late	60	60
Sunday	Base	60	30
	Non-Base	60	30
	Early / Late	60	60

Service Changes

- All trips will go directly to Navy Exchange Mall and not deviate through the naval base, no longer serving the B Avenue and Virginia Avenue stop.
- Route 21 is a Regional Backbone route and service will be increased to every 15 minutes in the peak periods on the weekdays to meet the service classification standard, and evening service will be improved to every half hour.
- Weekday and weekend service will be offered between 5:00 AM and 1:00 AM. On Saturdays there will be half hour service through much of the day, representing an increase over the existing Saturday service. Sunday service will be increased to match Saturday levels.
- In FY 2022, Route 21 will exceed the service design standards for the Regional Backbone service classification.

TD SD

Justification

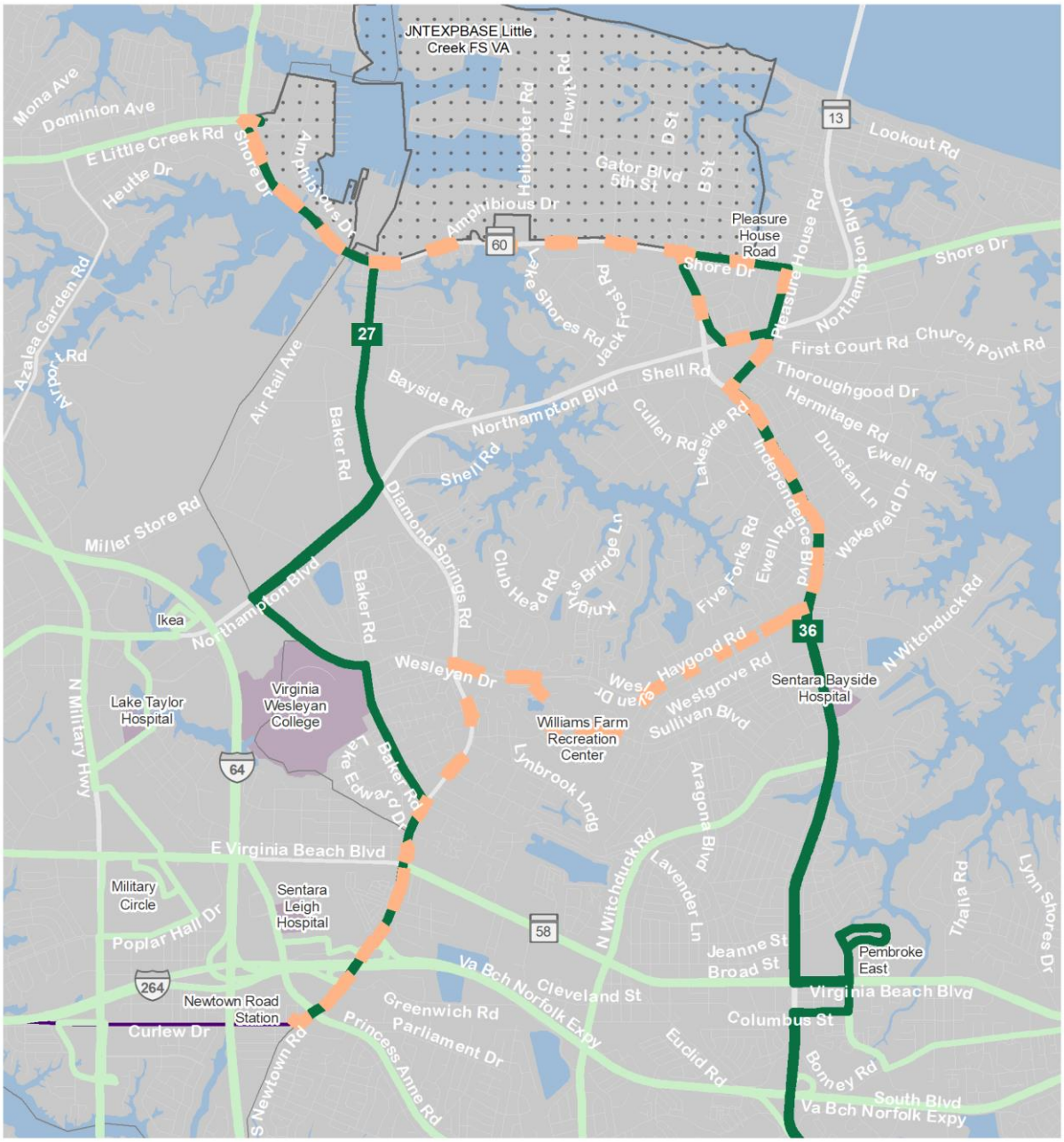
- Route 21 performs well on the six KPIs and will continue providing east-west connections in Norfolk in a similar fashion as currently operated.
- As a Regional Backbone route, Route 21 provides important crosstown connections between Route 1, Route 3, Route 8, and Route 15, the high-frequency services providing north-south trips in Norfolk. Shortening peak period headways on Route 21 addresses a peak coverage demand gap between JEB Little Creek and Naval Station Norfolk.
- The service levels for Route 21 meet the service standards defined for Regional Backbone routes.

Route 21

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes to existing alignment or LOS.			
2022	Implement service target alignment, span, and headways.	✓	✓	✓
2023	No additional changes.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 22



Route 22

Miles
0 0.5

Focus Route

- Eliminated Route
- Routes Providing Replacement Coverage
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 22

Service Classification
-

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Newtown Road Station / Joint Expeditionary Base Little Creek	-
Jurisdictions	Norfolk, Virginia Beach	-

Level of Service			
Span			
		Existing	**Service Target**
Weekday		6:03 AM - 6:56 PM	-
Saturday		6:03 AM - 6:50 PM	-
Sunday		-	-
Headway			
		Existing	**Service Target**
Weekday	Early	-	-
	AM Peak	60	-
	Midday	60	-
	PM Peak	60	-
	Evening	60	-
	Late Night	-	-
Saturday	Base	60	-
	Non-Base	60	-
	Early / Late	-	-
Sunday	Base	-	-
	Non-Base	-	-
	Early / Late	-	-

Service Changes

- Route 22 will be eliminated and partially covered by the realigned Route 27 and Route 36. Route 27 will cover eliminated Route 22 service from Newtown Road Station to Baker Road and Route 36 will cover eliminated Route 22 service from Pleasure House to Independence and Haygood. Route 22 will also be partially covered by a planned on-demand zone.
- These roads and segments will no longer have transit service: Shore Drive between Diamond Springs Road and Independence Boulevard, Newtown Road/Diamond Springs Road between Baker Road and Wesleyan Drive, Wesleyan Drive between Diamond Springs Road and Broad Meadows Boulevard, Broad Meadows Boulevard between Wesleyan Drive and Newtown Road, Newtown Road between Broad Meadows Boulevard and Haygood Road, and Haygood Road between Newtown Road and Independence Boulevard.

PB

Justification

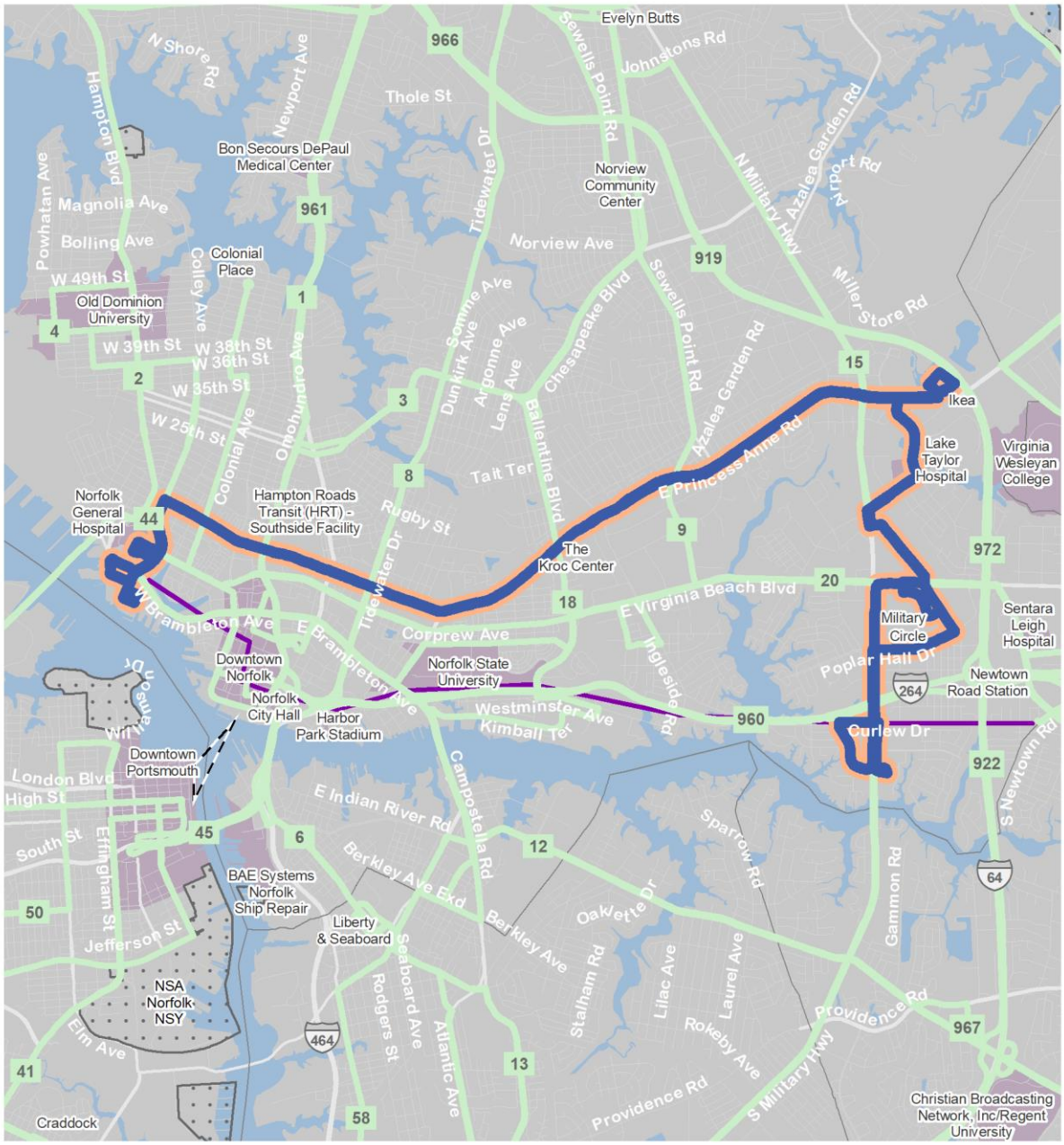
- Route 22 performs in the bottom third or quarter on all six Key Performance Indicators (KPI). Its nine passengers per hour is well below the Southside average of 15. Because the ridership levels on the current Route 22 are quite low, the service will be eliminated.

Route 22

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.			
2022	No additional changes.			
2023	No additional changes.			
2024	Route eliminated as called for in service target. Changes to the alignments of Routes 27 and 36 will occur simultaneously so as to provide continuous coverage on certain segments.	✓	✓	✓
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 23



Route 23

Miles
0 0.5 1 1.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 23

Service Classification
Local Priority

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Norfolk General Hospital / JANAF / Military Circle	Norfolk General Hospital / JANAF / Military Circle
Jurisdictions	Norfolk	Norfolk

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:06 AM - 12:56 AM	5:00 AM - 1:29 AM
Saturday		5:02 AM - 1:22 AM	5:00 AM - 12:00 AM
Sunday		6:25 AM - 9:25 PM	5:00 AM - 12:00 AM
Headway			
		Existing	**Service Target**
Weekday	Early	30	30
	AM Peak	30	30
	Midday	30	30
	PM Peak	30	30
	Evening	48	30 until 8:00 PM, 60 after
	Late Night	60	60
Saturday	Base	30	30
	Non-Base	30	60
	Early / Late	60	60
Sunday	Base	60	30
	Non-Base	60	60
	Early / Late	-	60

Service Changes

- Route 23 will maintain its current alignment, including the newly added service to IKEA.
- Weekday service will be offered between 5:00 AM and 1:29 AM with half hour service from service start until 8:00 PM and hourly service thereafter. This matches the headways of the current Route 23 and represents an increase in span.
- Weekend service will be offered from 5:00 AM to 12:00 AM, with half hour service being provided through much of the service day.
- In FY 2025, Route 23 will exceed the service design standards for the Local Priority service classification.

TD PB SD

Justification

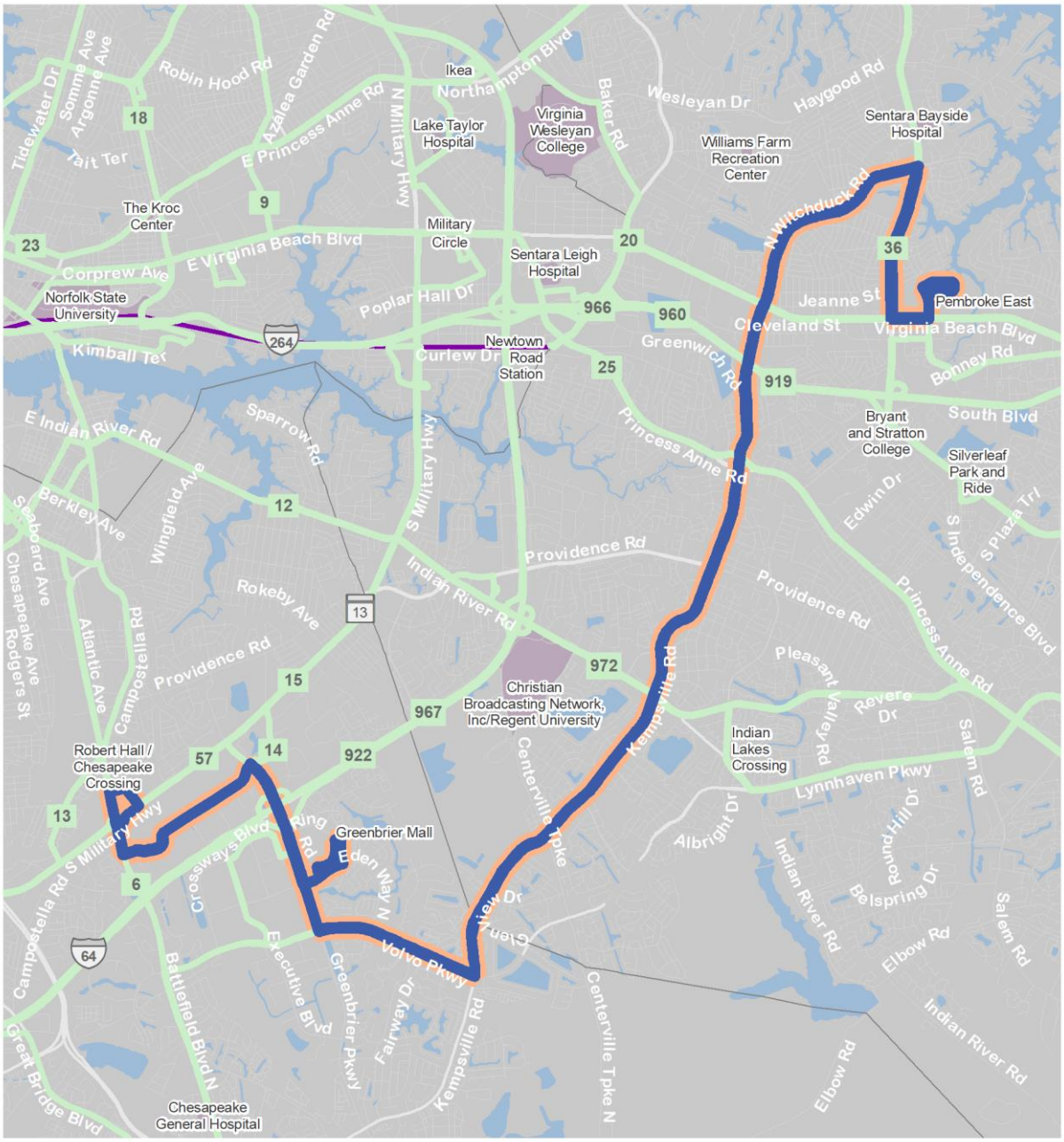
- Route 23 performs average on the six Key Performance Indicators (KPI) and provides an important connection between Military Highway and Downtown Norfolk. As such, no alignment changes are recommended.
- Few passengers are using the existing service past midnight on Saturdays, so the service is recommended to terminate at 12:00 AM. The recommended span for Saturday service will still fall within the service standards for Local Priority routes. Sunday service is recommended to operate until 12:00 AM to meet the service standards.
- The service levels for Route 23 meet the service standards defined for Local Priority routes.

Route 23

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.	✓		
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	Implement service target span, and headways.		✓	✓
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 24



Route 24

Miles
0 0.5 1 1.5 2

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 24

Service Classification
Coverage

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Robert Hall Boulevard / Greenbrier Mall / Pembroke East	Robert Hall Boulevard / Greenbrier Mall / Pembroke East
Jurisdictions	Chesapeake, Virginia Beach	Chesapeake, Virginia Beach

Level of Service			
Span			
		Existing	**Service Target**
Weekday		7:00 AM -10:19 PM	5:00 AM - 10:19 PM
Saturday		7:00 AM - 10:23 PM	7:00 AM - 10:23 PM
Sunday		8:00 AM - 7:55 PM	8:00 AM - 7:55 PM
Headway			
		Existing	**Service Target**
Weekday	Early	-	60
	AM Peak	30	30
	Midday	60	60
	PM Peak	30	30
	Evening	60	60
	Late Night	-	-
Saturday	Base	60	60
	Non-Base	60	60
	Early / Late	60	60
Sunday	Base	60	60
	Non-Base	60	60
	Early / Late	-	-

Service Changes

- Route 24 alignment and level of service will remain same as existing for now, until evaluation of this newly implemented route is complete.
- To meet the service design standards for a Coverage route, weekday service will need be offered between 5:00 AM and 11:00 PM and weekend service will need to be provided between 7:00 AM and 10:00 PM. These span changes are reserved for the out-years for now.
- In a future out-year, Route 24 will exceed the service design standards for the Coverage service classification.

TD

Justification

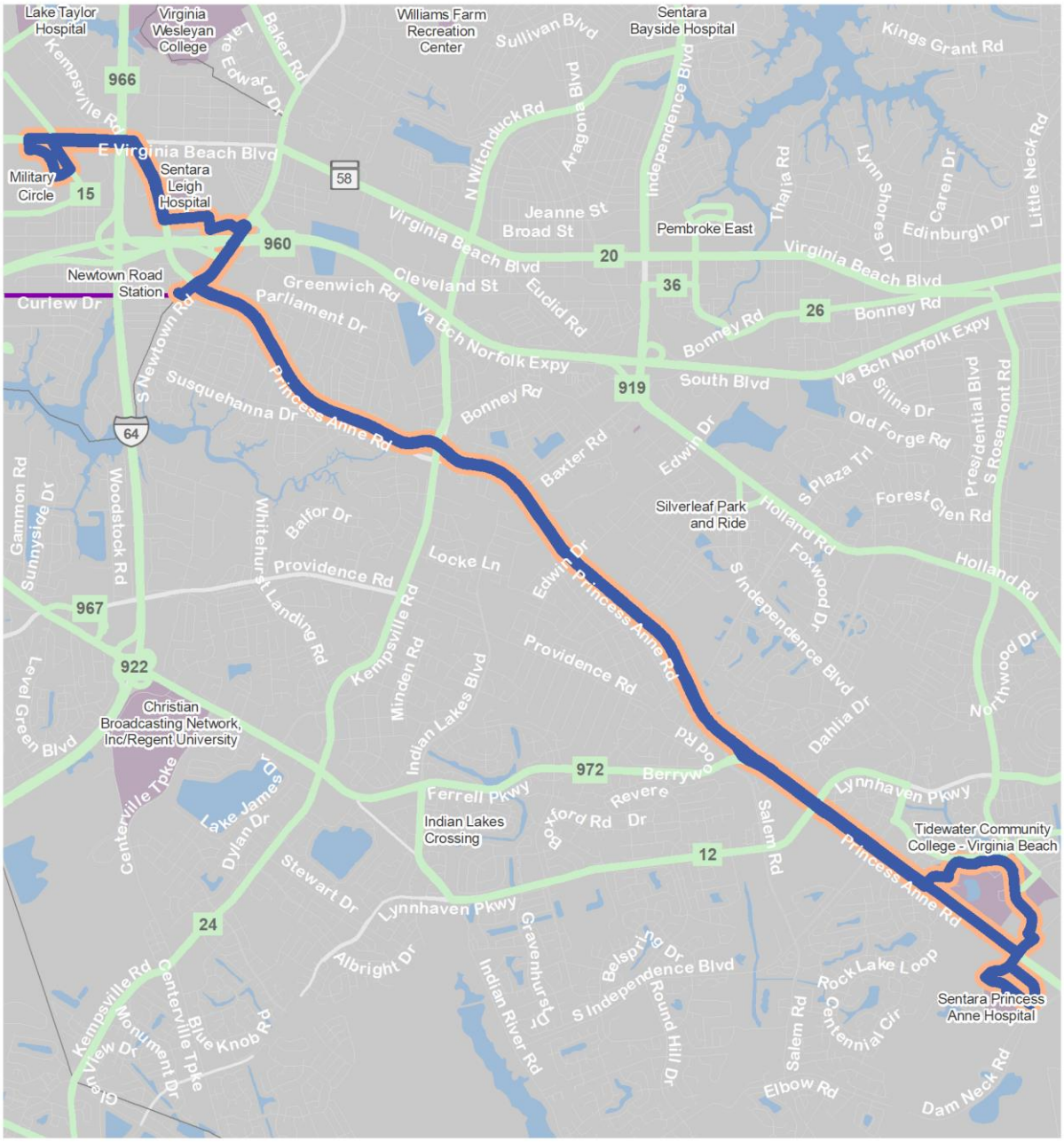
- At present, Route 24 has been operating for less than half a year. Once Route 24 has operated for a long enough time to evaluate its performance (approximately 12 to 18 months should be sufficient), the route will be reevaluated, and the recommendations may change. For now, the recommendations are to keep Route 24 at its current operating levels and to increase span and headway in the out-years to meet the service design standards for Coverage routes.
- The service levels for Route 24 meet the service standards defined for Coverage routes.

Route 24

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.	✓		
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	Begin weekday service at 5:00 AM.		✓	✓

Route 25



Route 25

0 0.5 1 1.5 Miles

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 25

Service Classification
Coverage

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Military Circle / TCC Virginia Beach / Sentara Princess Anne Hospital	Military Circle / TCC Virginia Beach / Sentara Princess Anne Hospital
Jurisdictions	Norfolk, Virginia Beach	Norfolk, Virginia Beach

Level of Service			
Span			
		Existing	**Service Target**
Weekday		6:02 AM - 11:45 PM	5:00 AM - 12:00 AM
Saturday		6:03 AM - 12:45 AM	6:00 AM - 12:00 AM
Sunday		-	6:00 AM - 12:00 AM
Headway			
		Existing	**Service Target**
Weekday	Early	-	60
	AM Peak	60	60
	Midday	60	60
	PM Peak	60	60
	Evening	60	60
	Late Night	60	60
Saturday	Base	60	60
	Non-Base	60	60
	Early / Late	60	60
Sunday	Base	-	60
	Non-Base	-	60
	Early / Late	-	60

Service Changes

- No changes to existing alignment.
- Weekday service will begin and end earlier than the current Route 25, with hourly service being provided throughout the service day.
- Saturday service will end earlier than the current Route 25, with hourly service being provided throughout the service day.
- Sunday service will be added, operating from 6:00 AM-12:00 AM.
- In FY 2026, Route 25 will exceed the service design standards for the Coverage service classification.

PB SD

Justification

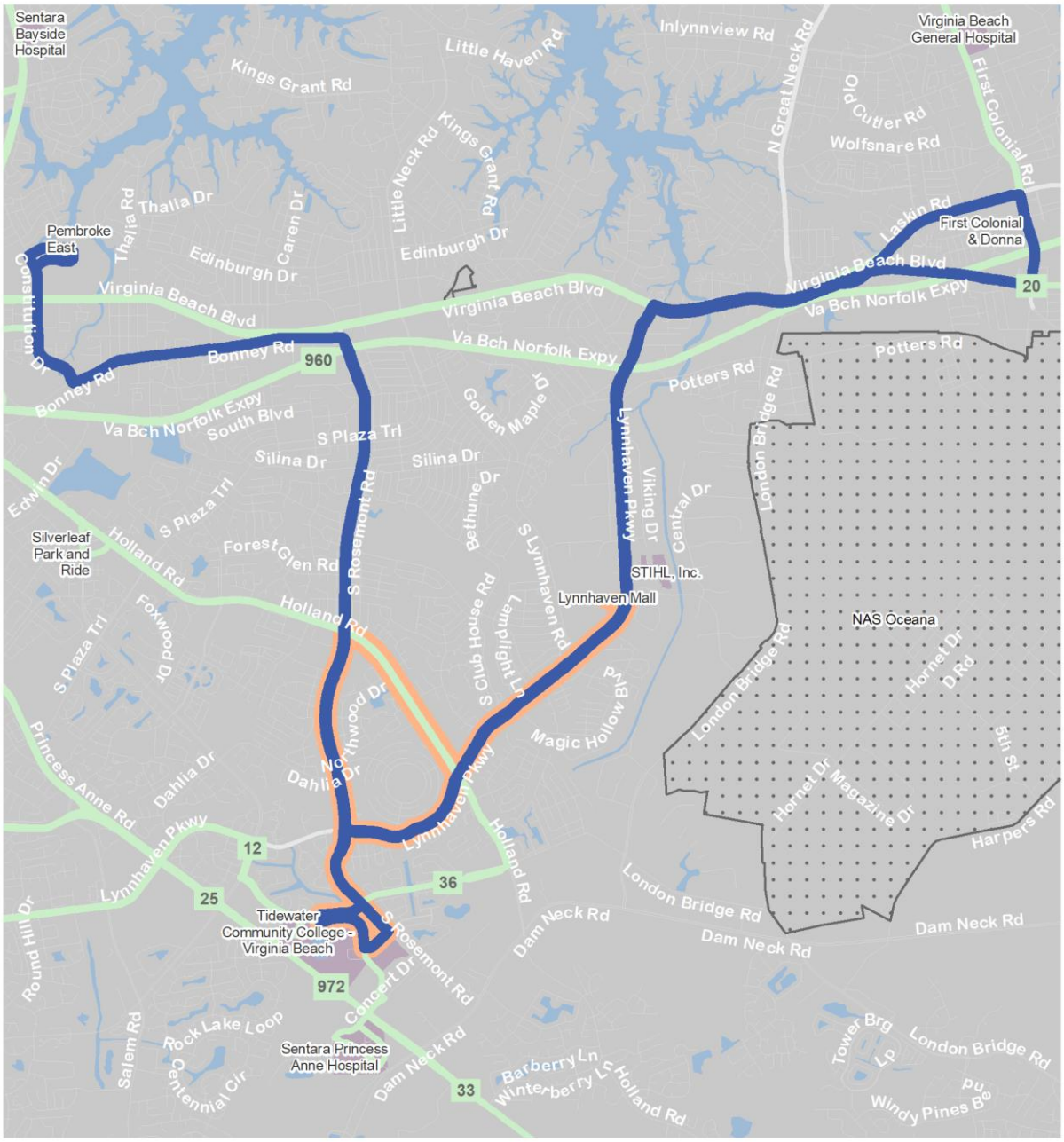
- Route 25 is one of the lower performing routes on the Southside; however, it provides important connections between Norfolk, TCC Virginia Beach, and Sentara Princess Anne Hospital.
- Few passengers use Route 25 at the end of its daily service on Saturdays, so the service changes involve Saturday service ending earlier at 8:00 PM.
- The service levels for Route 25 meet the service standards defined for Coverage routes.

Route 25

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.	✓		
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	Change weekday span to 5:00 AM-12:00 AM and Saturday span to 6:00 AM-12:00 AM.			
2026	Add Sunday service from 6:00 AM-12:00 AM. This matches Saturday service and exceeds service design standards.		✓	✓
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 26



Route 26

Miles
0 0.5 1 1.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 26

Service Classification
Coverage

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	TCC Virginia Beach / Lynnhaven Mall	Pembroke East / TCC Virginia Beach / First Colonial Road & Donna Drive
Jurisdictions	Virginia Beach	Virginia Beach

Level of Service			
Span			
		Existing	**Service Target**
Weekday		6:29 AM - 6:45 PM	5:00 AM - 8:00 PM
Saturday		7:32 AM - 6:46 PM	7:00 AM - 8:00 PM
Sunday		-	7:00 AM - 8:00 PM
Headway			
		Existing	**Service Target**
Weekday	Early	-	60
	AM Peak	30	60
	Midday	30	60
	PM Peak	30	60
	Evening	30	60
	Late Night	-	-
Saturday	Base	30	60
	Non-Base	-	60
	Early / Late	-	-
Sunday	Base	-	60
	Non-Base	-	60
	Early / Late	-	-

Note
This route's existing service operates with regular short turns. The existing headways that are listed in this table may not necessarily apply to the full length of the existing route.

Service Changes

- Route 26 will continue providing a connection between Lynnhaven Mall and Tidewater Community College (TCC) Virginia Beach. North of S Rosemont Road and Holland Road, service will be extended to Bonney Road and Pembroke East. North of Lynnhaven Mall, Route 26 will extend service to operate on Lynnhaven Boulevard, Virginia Beach Boulevard, and Laskin Road, terminating at First Colonial and Donna. This extension will cover the realigned Route 29 which will no longer operate south of First Colonial and Donna.
- Weekday service will be provided hourly from 5:00 AM until 8:00 PM.
- Saturday service will be offered hourly from 7:00 AM to 8:00 PM, which is an expansion of service hours. Sunday service will be added, matching Saturday levels of service.
- In FY 2029, Route 26 will exceed the service design standards for the Coverage service classification.

Justification

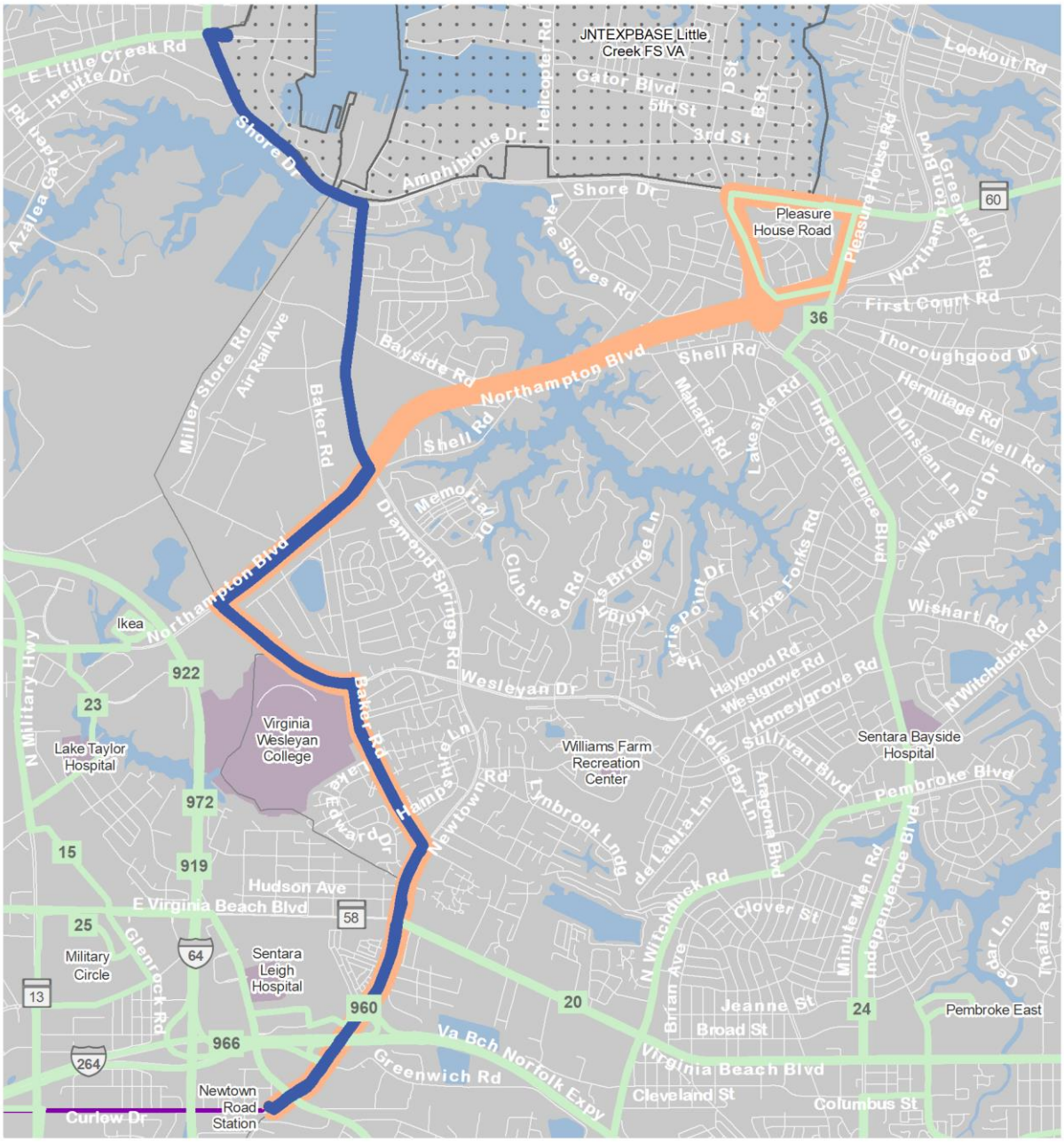
- Reconfiguring Route 26 to serve more destinations and provide more connections throughout Virginia Beach addresses the need to improve the performance and utilization of the route, as it currently displays low performance on the six Key Performance Indicators (KPI). The route falls particularly short on Subsidy per Passenger Boarding at $9.46.
- The service levels for Route 26 meet the service standards defined for Coverage routes.

Route 26

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes to existing alignment or LOS.			
2022	No additional changes.			
2023	Implement service target alignment, span and headways on weekdays and Saturday.	✓		
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	Add Sunday service to match Saturday service. This meets service targets and exceeds service design standards.		✓	✓
2030	No additional changes.			
Out-years	No additional changes.			

Route 27



Route 27

0 0.5 1 Miles

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 27

Service Classification
Local Priority

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Newtown Road Station / Pleasure House Road	Joint Expeditionary Base Little Creek / Newtown Road Station
Jurisdictions	Norfolk, Virginia Beach	Norfolk, Virginia Beach

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:48 AM - 11:54 PM	5:00 AM - 11:00 PM
Saturday		5:48 AM - 1:03 AM	6:30 AM - 11:00 PM
Sunday		-	7:00 AM - 11:00 PM
Headway			
		Existing	**Service Target**
Weekday	Early	30	60
	AM Peak	30	30
	Midday	60	30
	PM Peak	30	30
	Evening	60	60
	Late Night	60	-
Saturday	Base	60	30
	Non-Base	60	60
	Early / Late	60	60
Sunday	Base	-	30
	Non-Base	-	60
	Early / Late	-	60

Service Changes

- Route 27 will be reconfigured to operate between JEB Little Creek and the Newtown Road light rail station, no longer serving Pleasure House Road, and providing a new transfer connection to Regional Backbone Route 21. Service on Northampton Boulevard east of Diamond Springs Road is eliminated. Route 27 covers the eliminated portion of Route 1 on Shore Drive between E Little Creek Road and Diamond Springs Road.
- The weekday service will both start and end slightly earlier than the current Route 27, operating from 5:00 AM to 11:00 PM. Half hour service will be provided during the AM and PM peak periods and midday, while hourly service will be offered in the early morning and evening periods.
- Hourly service will be offered on Saturdays from 6:30 AM to 11:00 PM, which represents a decreased span of service.
- Hourly service will be offered on Sundays from 7:00 AM to 11:00 PM.
- In a future out-year, Route 27 will exceed the service design standards for the Local Priority service classification once weekend base headways are increased to 30 minutes and weekday midday headways are increased to 30 minutes.

TD PB

Justification

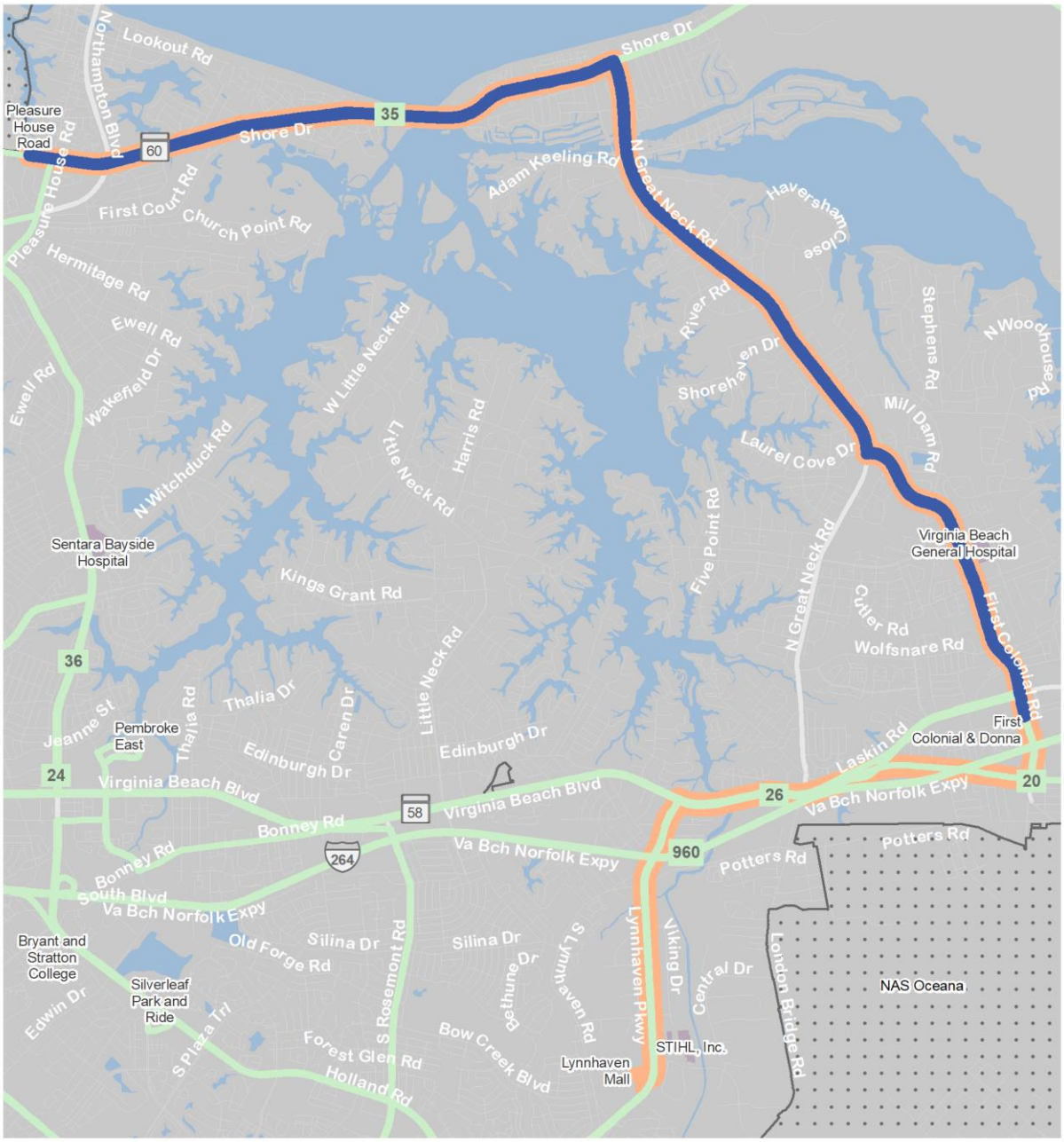
- Route 27 is receiving a significant realignment due to the modest performance of the current route. The new alignment will provide a quick connection between JEB Little Creek and the Newtown Road light rail station via Diamond Springs Road. This streamlined service and new termination point at JEB Little Creek (with connections to several other HRT services) will provide a more attractive service which will help to grow service utilization.
- The service levels for Route 27 meet the service standards defined for Local Priority routes.

Route 27

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.			
2022	No additional changes.			
2023	No additional changes.			
2024	Implement service target alignment and span on weekdays and Saturday. Change the headway during early weekday period to 60 minutes.	✓		
2025	No additional changes.			
2026	No additional changes.			
2027	Introduce Sunday service from 7:00 AM-11:00 PM at a headway of 60 minutes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	Increase weekday midday and weekend base headways to 30 minutes.		✓	✓

Route 29



Route 29

Miles
0 0.5 1 1.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 29

Service Classification
Coverage

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Pleasure House Road / Lynnhaven Parkway	Pleasure House Road / First Colonial Road & Donna Drive
Jurisdictions	Virginia Beach	Virginia Beach

Level of Service			
Span			
		Existing	**Service Target**
Weekday		6:48 AM - 10:16 PM	5:00 AM - 10:16 PM
Saturday		6:48 AM - 10:22 PM	6:48 AM - 10:22 PM
Sunday		-	8:00 AM - 7:00 PM
Headway			
		Existing	**Service Target**
Weekday	Early	-	60
	AM Peak	60	60
	Midday	60	60
	PM Peak	60	60
	Evening	60	60
	Late Night	-	-
Saturday	Base	60	60
	Non-Base	60	60
	Early / Late	-	60
Sunday	Base	-	60
	Non-Base	-	60
	Early / Late	-	-

Service Changes

- Route 29 will operate between Pleasure House Road and First Colonial Road and Donna Drive, where it will connect with Route 20 and the extended Route 26. Service south of First Colonial and Donna will be covered by the realigned Route 26.
- Weekday service will begin slightly early than existing service, operating from 5:00 AM to 10:16 PM. Hourly service will be offered during all periods.
- Saturday service will be offered from 6:48 AM to 10:22 PM, the same as existing service. Sunday service will be added, operating from 8:00 AM to 7:00 PM.

TD PB

Justification

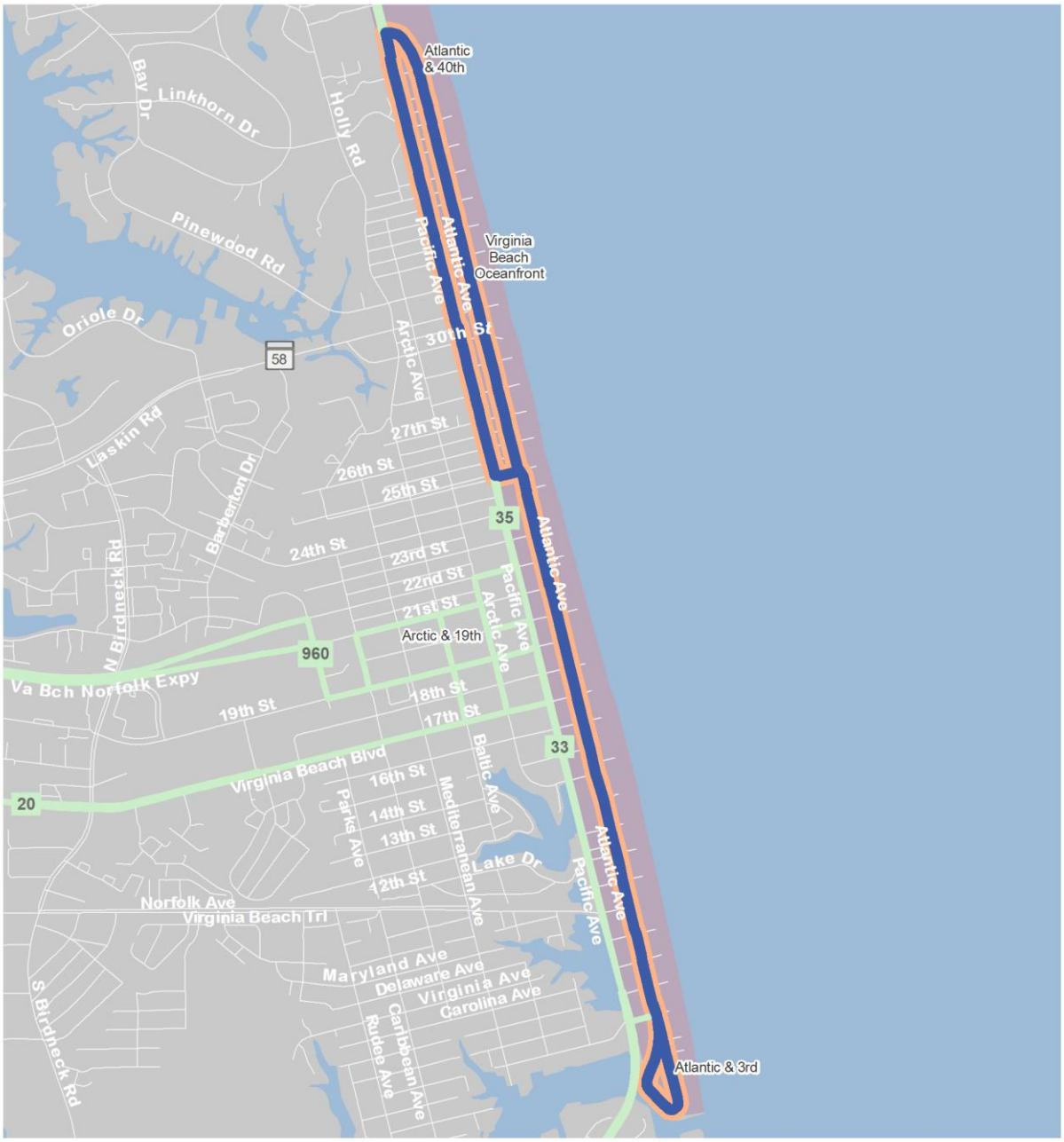
- Route 29 performs in the lowest quarter of routes on the six Key Performance Indicators (KPI) but provides an important connection to Virginia Beach General Hospital. Realigning Route 26 and Route 29 to both truncate at First Colonial and Donna prevents overlapping service between the two of them and provides a better transfer point, with the opportunity to connect with the high-frequency service of the Regional Backbone Route 20, which should induce further utilization of these routes.
- The service levels for Route 29 meet the service standards defined for Coverage routes.

Route 29

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes to existing alignment or LOS.			
2022	No additional changes.			
2023	Implement service target alignment. Keep existing span and headways.	✓		
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	Introduce hourly Sunday service from 8:00 AM-7:00 PM.			
2028	No additional changes.			
2029	Change weekday span to start at 5:00 AM to meet service targets.		✓	✓
2030	No additional changes.			
Out-years	No additional changes.			

Route 30



Route 30

Miles
0 0.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 30

Service Classification
Local Priority

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Atlantic Avenue Trolley	Atlantic Avenue Trolley
Jurisdictions	Virginia Beach	Virginia Beach

Level of Service			
Span			
		Existing	**Service Target**
Weekday		8:00 AM - 2:00 AM	8:00 AM - 2:00 AM
Saturday		8:00 AM - 2:00 AM	8:00 AM - 2:00 AM
Sunday		8:00 AM - 2:00 AM	8:00 AM - 2:00 AM
Headway			
		Existing	**Service Target**
Weekday	Early	-	-
	AM Peak	15	15
	Midday	15	15
	PM Peak	15	15
	Evening	15	15
	Late Night	15	15
Saturday	Base	10-20	10-20
	Non-Base	10	10
	Early / Late	15	15
Sunday	Base	10-20	10-20
	Non-Base	10	10
	Early / Late	15	15

Note
Only operates during summer.

Service Changes

- No alignment or level of service changes are proposed.

Justification

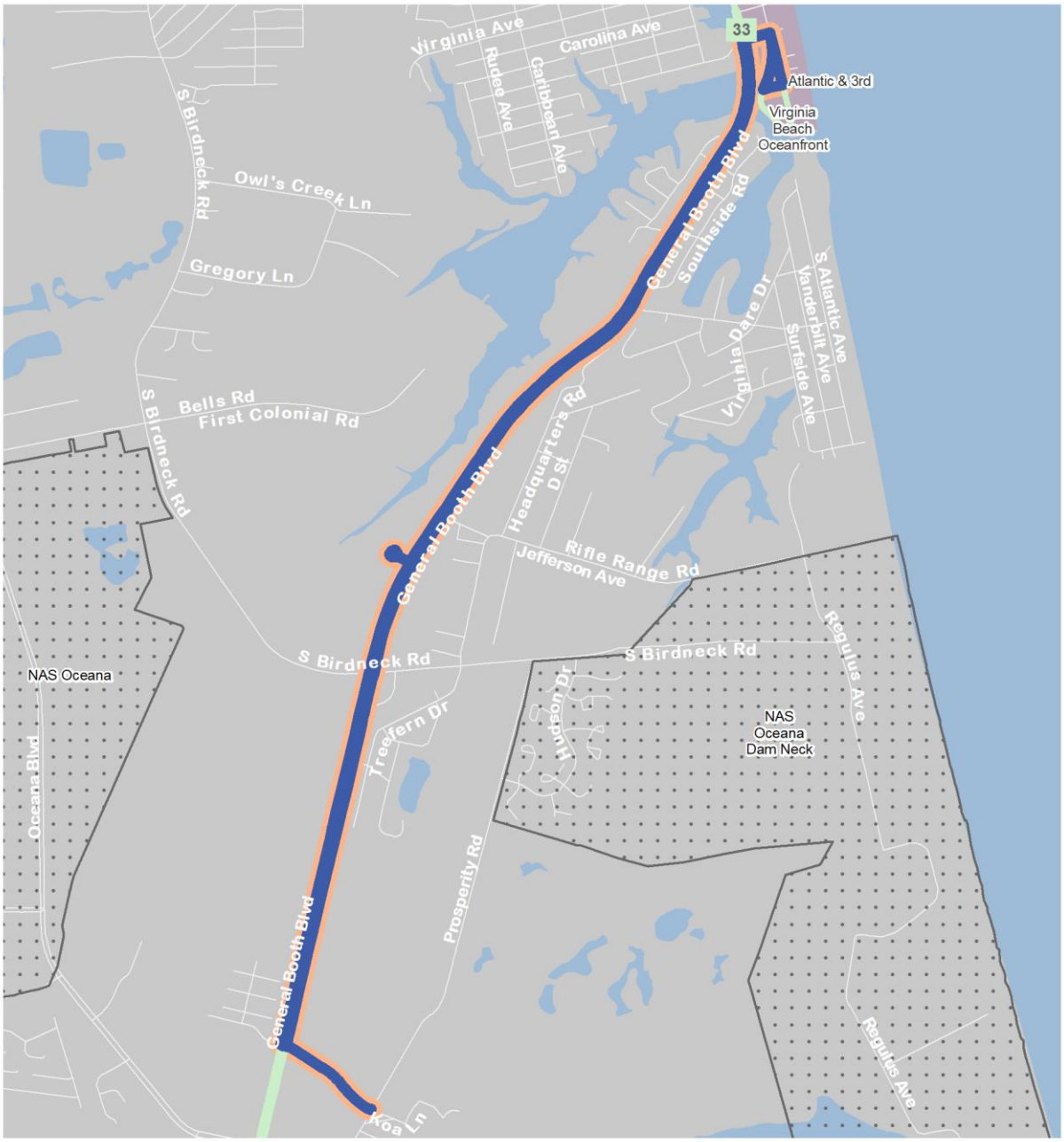
- Route 30 is a seasonal service that operates in Virginia Beach and will remain in service as it is currently operated.

Route 30

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.	✓	✓	✓
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 31



Route 31

Miles
0 0.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 31

Service Classification
Local Priority

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Aquarium and Campground Trolley	Aquarium and Campground Trolley
Jurisdictions	Virginia Beach	Virginia Beach

Level of Service			
Span			
		Existing	**Service Target**
Weekday		9:30 AM - 11:10 PM	9:30 AM - 11:10 PM
Saturday		9:30 AM - 11:10 PM	9:30 AM - 11:10 PM
Sunday		9:30 AM - 11:10 PM	9:30 AM - 11:10 PM
Headway			
		Existing	**Service Target**
Weekday	Early	-	-
	AM Peak	20	20
	Midday	20	20
	PM Peak	20	20
	Evening	20	20
	Late Night	20	20
Saturday	Base	20	20
	Non-Base	20	20
	Early / Late	20	20
Sunday	Base	20	20
	Non-Base	20	20
	Early / Late	20	20

Note
Only operates during summer.

Service Changes

- No alignment or level of service changes are proposed.

Justification

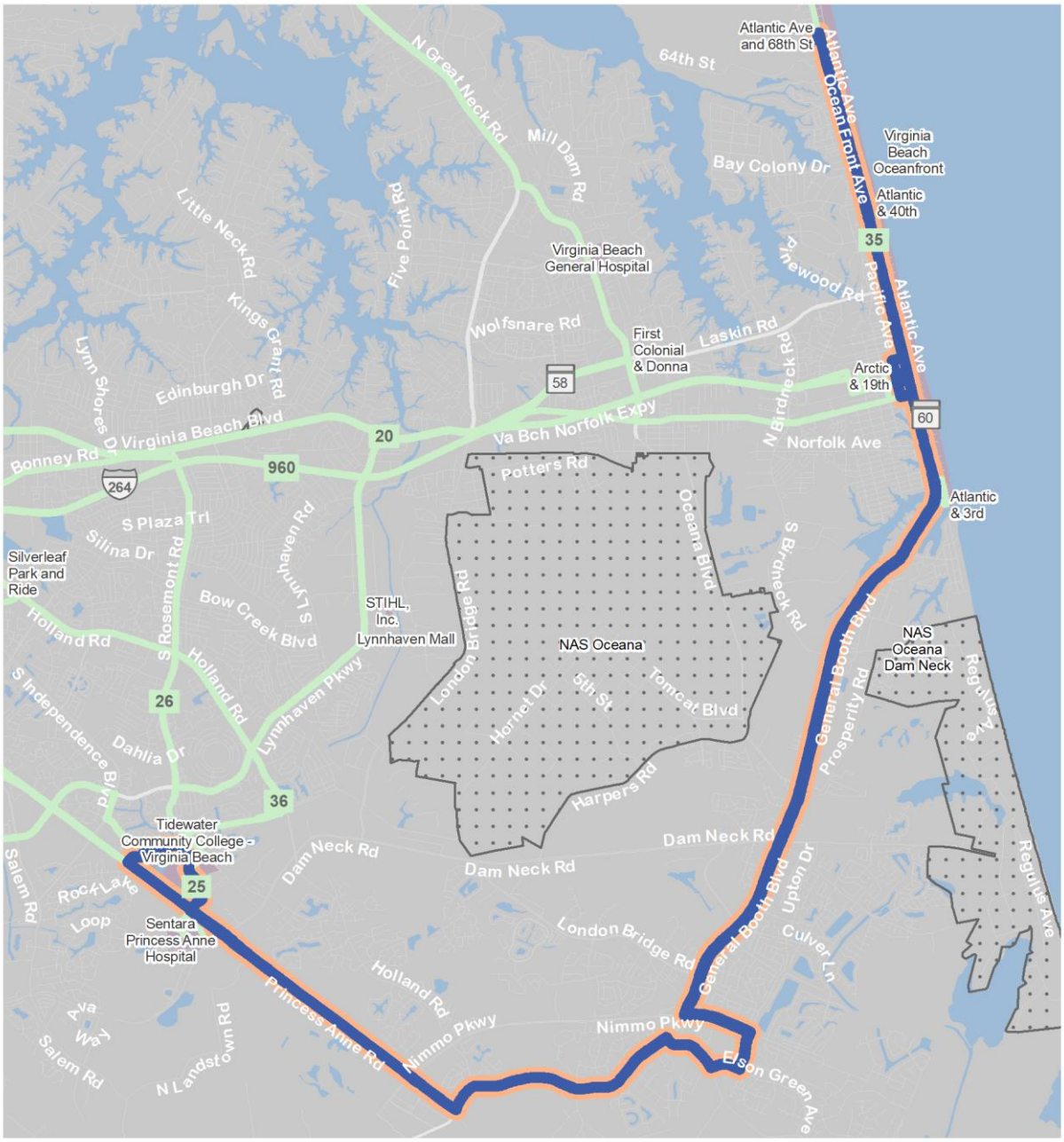
- Route 31 is a seasonal service that operates in Virginia Beach and will remain in service as it is currently operated.

Route 31

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.	✓	✓	✓
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 33



Route 33

0 0.5 1 1.5 2 Miles

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 33

Service Classification
Coverage

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	TCC Virginia Beach / Atlantic Avenue / 68th Street	TCC Virginia Beach / Atlantic Avenue / 68th Street
Jurisdictions	Virginia Beach	Virginia Beach

Level of Service			
Span			
		Existing	**Service Target**
Weekday		6:16 AM - 10:58 PM	5:00 AM - 10:58 PM
Saturday		6:26 AM - 10:53 PM	6:30 AM - 10:00 PM
Sunday		6:02 AM - 6:58 PM	6:02 AM - 10:00 PM
Headway			
		Existing	**Service Target**
Weekday	Early	-	60
	AM Peak	60	60
	Midday	60	60
	PM Peak	60	60
	Evening	60	60
	Late Night	-	-
Saturday	Base	60	60
	Non-Base	60	60
	Early / Late	-	60
Sunday	Base	45	60
	Non-Base	45	60
	Early / Late	-	60

Service Changes

- In FY 2021 Sunday service will be eliminated, but there are no other alignment or level of service changes planned within the ten-year implementation period.
- In a future out-year, Route 33 will meet the service design standards for the Coverage service classification when weekday span is increased to begin at 5:00 AM and Sunday service is reintroduced from 6:02 AM to 10:00 PM along the full length of the route. In a future out-year, Saturday service will be maintained at hour levels between 6:30 AM and 10:00 PM.

SD

Justification

- Route 33 is one of the lowest performing routes on the Southside, but it provides important connections between TCC Virginia Beach, the Virginia Beach Municipal Center, and the Virginia Beach Oceanfront. As such, service will be maintained mostly the same as existing.
- Low ridership on Sundays is prompting the removal of Sunday service in FY 2021. In order to meet service design standards, Sunday service would need to be reintroduced.
- The service levels for Route 33 meet the service standards defined for Coverage routes.

Route 33

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	Sunday service eliminated.			
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	Implement service target weekday and Saturday spans and headways. Re-introduce Sunday service between 6:02 AM – 10:00 PM with 60-minute headways.	✓	✓	✓

Route 35

Route 35

Miles
0 0.5 1 1.5 2

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 35

Service Classification
Local Priority

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Bayfront Shuttle	Bayfront Shuttle
Jurisdictions	Virginia Beach	Virginia Beach

Level of Service			
Span			
		Existing	**Service Target**
Weekday		8:00 AM - 12:50 AM	8:00 AM - 12:50 AM
Saturday		8:00 AM - 12:50 AM	8:00 AM - 12:50 AM
Sunday		8:00 AM - 12:50 AM	8:00 AM - 12:50 AM
Headway			
		Existing	**Service Target**
Weekday	Early	-	-
	AM Peak	30	30
	Midday	30	30
	PM Peak	30	30
	Evening	30	30
	Late Night	30	30
Saturday	Base	30	30
	Non-Base	30	30
	Early / Late	30	30
Sunday	Base	30	30
	Non-Base	30	30
	Early / Late	30	30

Note
Only operates during summer.

Service Changes

- No changes from existing service.

Justification

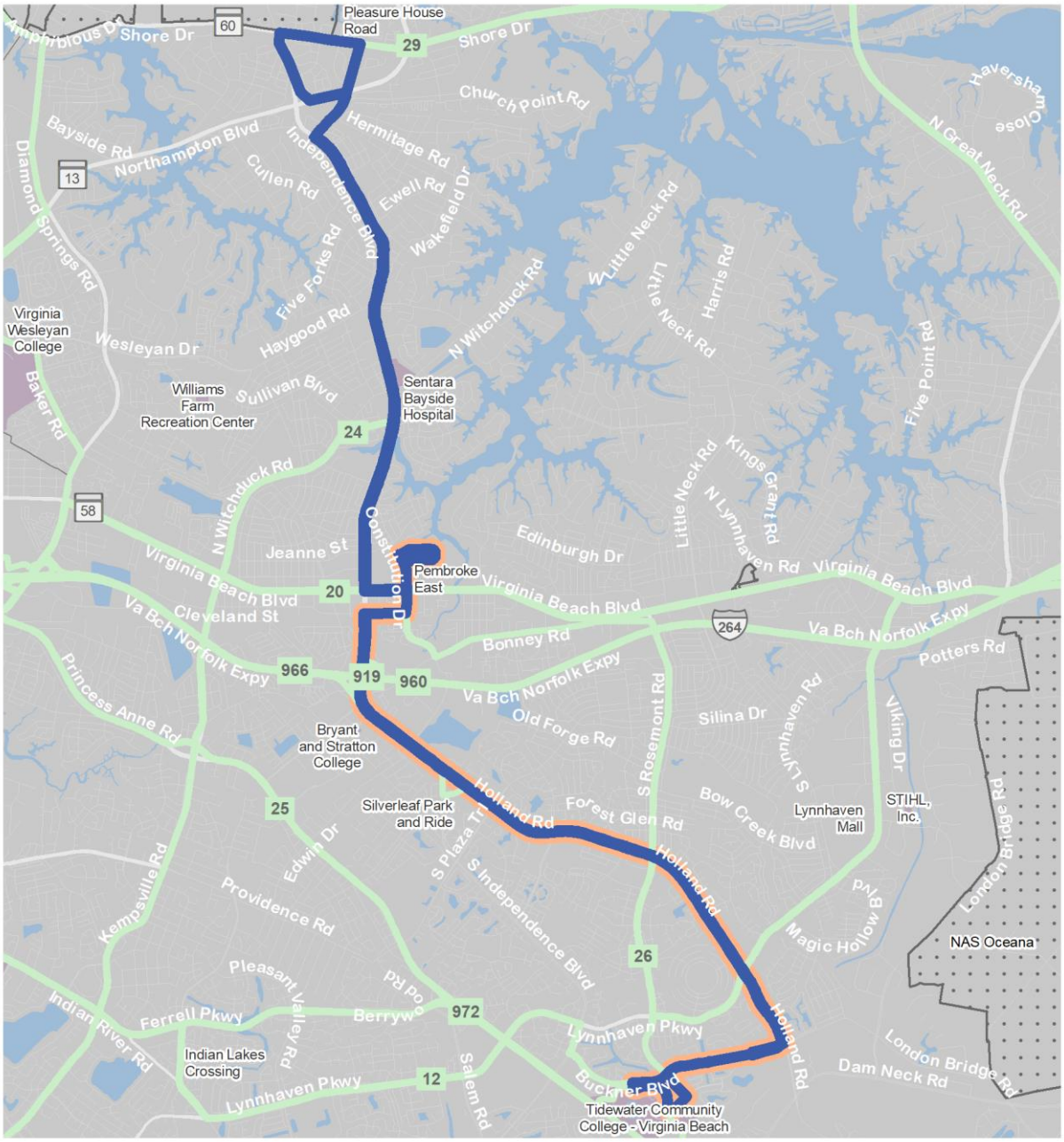
- Route 35 is a seasonal service that operates in Virginia Beach and will remain in service as it is currently operated.

Route 35

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.	✓	✓	✓
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 36



Route 36

Miles
0 0.5 1 1.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 36

Service Classification
Local Priority

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Pembroke East / TCC Virginia Beach	Pleasure House Road / Pembroke East / TCC Virginia Beach
Jurisdictions	Virginia Beach	Virginia Beach

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:48 AM - 10:41 PM	5:00 AM - 11:00 PM
Saturday		6:10 AM - 10:43 PM	5:00 AM - 11:00 PM
Sunday		-	5:00 AM - 11:00 PM
Headway			
		Existing	**Service Target**
Weekday	Early	30	60
	AM Peak	30	30
	Midday	60	30
	PM Peak	30	30
	Evening	60	60
	Late Night	-	-
Saturday	Base	60	30
	Non-Base	60	60
	Early / Late	60	60
Sunday	Base	-	30
	Non-Base	-	60
	Early / Late	-	60

Note
Route 36 is classified here as a Local Priority route, with Local Priority levels of service. In the plan shown in Chapter 6, which accounts for new dedicated funding for regional transit, Route 36 is classified as a Regional Backbone route because the additional funding allows for more routes to have high-frequency service.

Service Changes

- Route 36 will be extended to Pleasure House Road and Shore Drive north of Pembroke East. Route 36 will cover the Independence Boulevard corridor currently served by Route 1.
- During the weekday Route 36 service will be offered every half hour between 6:00 AM and 6:00 PM. Hourly service will be provided before and after that on weekdays. Weekday span of service will be extended to operate between 5:00 AM and 11:00 PM.
- On weekends, service will be also be offered between 5:00 AM and 11:00 PM with much of the service being offered at half hour intervals.
- In FY 2024, when the alignment, span, and headway changes are made, Route 36 will meet the service design standards for the Local Priority service classification.

Justification

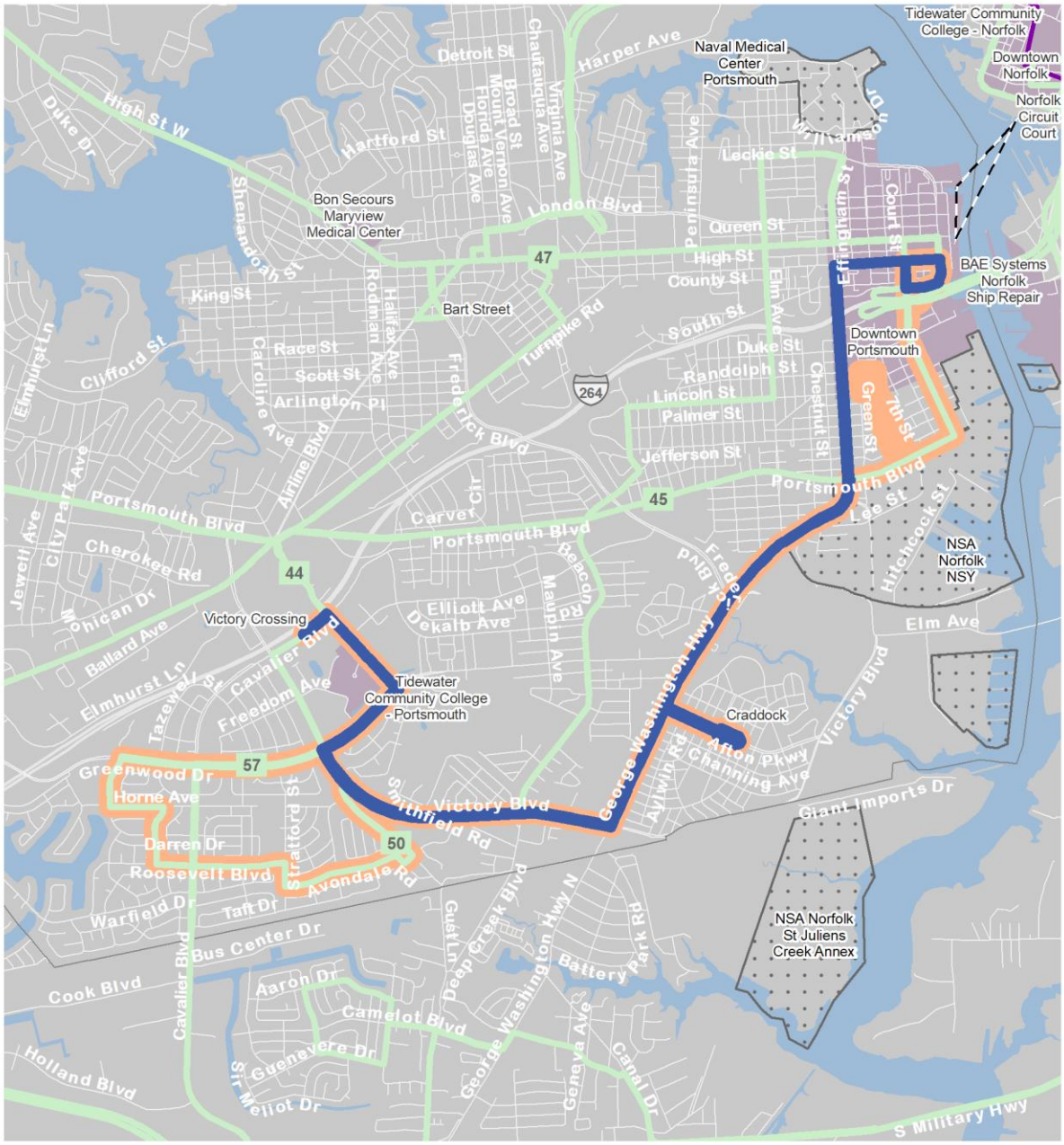
- Route 36 performs above average on most of the six Key Performance Indicators (KPI). The new extension of service on Route 36 connecting high-production areas will further improve the performance of the route.
- The extension of the service to Pleasure House Road will help to allow for the truncating of the current Route 1 to JEB Little Creek by providing the north-south connection between Virginia Beach Avenue and Pleasure House Road in this area. This new connection via the extended Route 36 addresses a gap in all-day transit demand and provides a higher level of service to the area. Route 36 will provide a cross-regional connection between Shore Drive and TCC Virginia Beach, which previously required a transfer. Route 36 will also provide a connection from these two areas to the high-frequency Route 20.
- The service levels for Route 36 meet the service standards defined for Local Priority routes.

Route 36

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.			
2022	No additional changes.			
2023	No additional changes.			
2024	Implement service target alignment and span.	✓	✓	
2025	No additional changes.			
2026	Implement service target headway.			✓
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 41


Tidewater Community College - Norfolk
Downtown Norfolk
Norfolk Circuit Court
Naval Medical Center Portsmouth
Detroit St
Harper Ave
Chautauqua Ave
Virginia Ave
Broad St
Mount Vernon Ave
Florida Ave
Douglas Ave
Hartford St
High St W
Duke Dr
Shenandoah St
Bon Secours Maryview Medical Center
London Blvd
Peninsula Ave
Leckie St
Queen St
High St
County St
47
King St
Bart Street
Turnpike Rd
South St
Elm Ave
Duke St
Randolph St
Lincoln St
Palmer St
Jefferson St
Chestnut St
Effingham St
Court St
BAE Systems Norfolk Ship Repair
Downtown Portsmouth
Green St
7th St
Lee St
Portsmouth Blvd
45
NSA Norfolk NSY
Hitchcock St
Elm Ave
Victory Blvd
Afton Pkwy
Craddock
Channing Ave
Aylwin Rd
George Washington Hwy
Freeman Blvd
Giant Imports Dr
NSA Norfolk St Juliens Creek Annex
Battery Park Rd
Deep Creek Blvd
Gust Ln
Geneva Ave
Canal Dr
S Military Hwy
Clifford St
Elmhurst Ln
Race St
Scott St
Arlington Pl
Caroline Ave
Halifax Ave
Rodman Ave
Frederick Blvd
Airline Blvd
Jewett Ave
City Park Ave
Portsmouth Blvd
Cherokee Rd
Mohican Dr
Ballard Ave
Elmhurst Ln
Tazewell St
Cavalier Blvd
Freedom Ave
Victory Crossing
44
Carver Cir
Portsmouth Blvd
Elliott Ave
Dekalb Ave
Beacon Rd
Maupin Ave
Tidewater Community College - Portsmouth
Greenwood Dr
57
Horne Ave
Darren Dr
Roosevelt Blvd
Stratford St
Avondale Rd
50
Smithfield Rd
Victory Blvd
Warfield Dr
Taft Dr
Bus Center Dr
Cook Blvd
Cavalier Blvd
Aaron Dr
Camelot Blvd
Holland Blvd
Sir Guenevere Dr
Sir Meliot Dr
George Washington Hwy N
Miles
0
0.5
1
Route 41
Focus Route
Planned Alignment
Existing Alignment
Planned System
Light Rail
Ferry
Military Bases
City Boundary
Activity Centers
N

Route 41

Service Classification
Local Priority

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Downtown Portsmouth / Craddock	Downtown Portsmouth / Victory Crossing
Jurisdictions	Portsmouth	Portsmouth

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:56 AM - 6:53 PM	5:00 AM - 11:00 PM
Saturday		6:03 AM - 6:55 PM	6:03 AM - 11:00 PM
Sunday		-	6:03 AM - 11:00 PM
Headway			
		Existing	**Service Target**
Weekday	Early	60	60
	AM Peak	60	30
	Midday	60	30
	PM Peak	60	30
	Evening	60	30
	Late Night	-	-
Saturday	Base	60	30
	Non-Base	60	60
	Early / Late	-	60
Sunday	Base	-	30
	Non-Base	-	60
	Early / Late	-	60

Service Changes

- Route 41 will no longer serve Port Centre Parkway, 7th Street, Lincoln Street, 8th Street, and Portsmouth Boulevard east of Effingham Street, but will instead continue straight onto County Street after leaving the Court and County hub, and then turn left on Effingham to continue onto George Washington Highway (following a portion of existing Route 45). The route will bypass the existing deviation on Gust Lane, Avondale Road, Roosevelt Boulevard, and Greenwood Drive, and continue straight on Victory Boulevard and turn right onto Greenwood Drive. The service will then follow the existing route to Victory Crossing. Service on Gust Lane, Avondale Road, Roosevelt Boulevard, and Greenwood Drive will be replaced by the realigned Route 50, and service along Portsmouth Boulevard and Port Centre Parkway will be replaced with the realigned Route 45.
- Service will no longer be provided along 7th Street and 8th Street in Portsmouth; however, the realigned Route 41 will be a short walk away along Effingham Street.
- Service on weekdays will be extended to operate between 5:00 AM and 11:00 PM, with half hour service through most of the service day.
- Saturday service will be provided hourly between 6:03 AM and 11:00 PM, extending the span in the evening in order to meet the service design standard for Local Priority routes. Sunday service will be introduced at the same levels of Saturday service.
- In a future out-year, Route 41 will exceed the service design standards for the Local Priority service classification once the span and headway improvements are made.

Route 41

TD PB EB SD

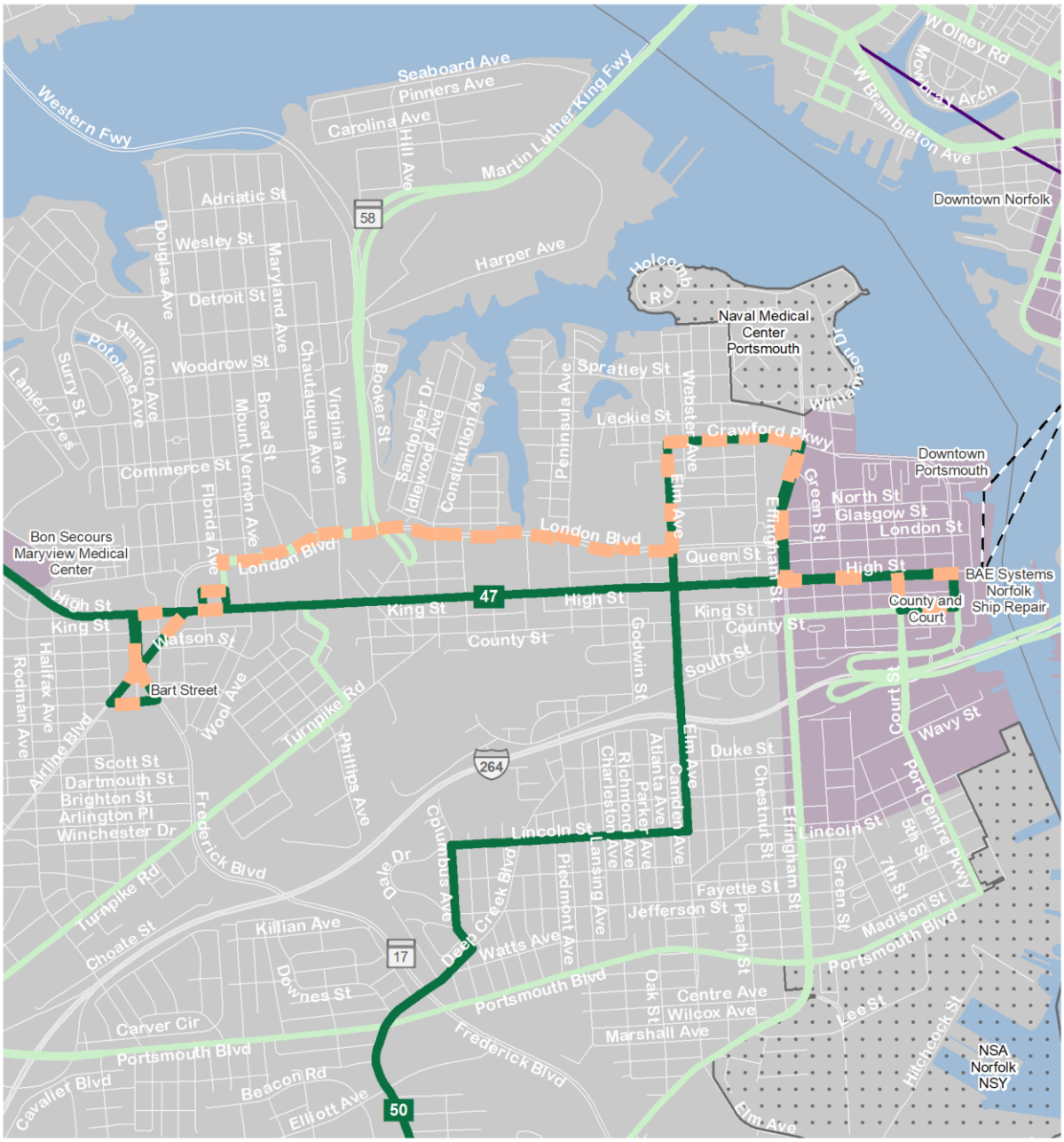
Justification

- The service changes for Routes 41, 44, and 45 work in tandem to help improve route directness for each of the routes by providing efficient services that operate along single corridors for longer distances with fewer turns. These changes will help to improve on-time performance for each of these routes and will simplify service patterns; these are characteristics which will help to improve service utilization.
- The proposed realignment, with fewer deviations, will provide a more direct and efficient connection from Victory Crossing to Downtown Portsmouth, and the minimized diversions along with greatly improved route directness will help improve the service's performance by attracting more riders while operating across fewer miles.
- The proposed alignment addresses a midday and peak service demand gap between downtown and midtown Portsmouth with a higher level of service than existing.
- The path between midtown Portsmouth and Downtown Portsmouth on Routes 41 and 45 have been "flipped" under the planned service. This service change develops two separate and more direct corridors approaching Downtown Portsmouth, one via the George Washington Parkway / Effingham Street (Route 41) and the second via Portsmouth Boulevard (Route 45).
- The service levels for Route 41 meet the service standards defined for Local Priority routes.

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.			
2022	No additional changes.			
2023	Implement service target alignment.	✓		
2024	No additional changes.			
2025	Change weekday peak headways to 45 minutes.			
2026	Change weekday peak headways to 60 minutes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	Change weekday span to 5:00 AM-11:00 PM and Saturday span to end at 11:00 PM. Increase weekday midday, weekday evening, and Saturday peak headways to 30 minutes. Introduce Sunday service to match Saturday service.		✓	✓

Route 43



Route 43

Miles
0 0.4

Focus Route

- Eliminated Route
- Routes Providing Replacement Coverage
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 43

Service Classification
-

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Downtown Portsmouth / Bart Street	-
Jurisdictions	Portsmouth	-

Level of Service			
Span			
		Existing	**Service Target**
Weekday		6:36 AM - 6:23 PM	-
Saturday		6:50 AM - 6:01 PM	-
Sunday		-	-
Headway			
		Existing	**Service Target**
Weekday	Early	-	-
	AM Peak	60	-
	Midday	60	-
	PM Peak	60	-
	Evening	60	-
	Late Night	-	-
Saturday	Base	60	-
	Non-Base	-	-
	Early / Late	-	-
Sunday	Base	-	-
	Non-Base	-	-
	Early / Late	-	-

Service Changes

- In FY 2023 Route 43's service area will be covered by the realigned Route 50 and Route 47. Route 43 service will no longer operate.

PB

Justification

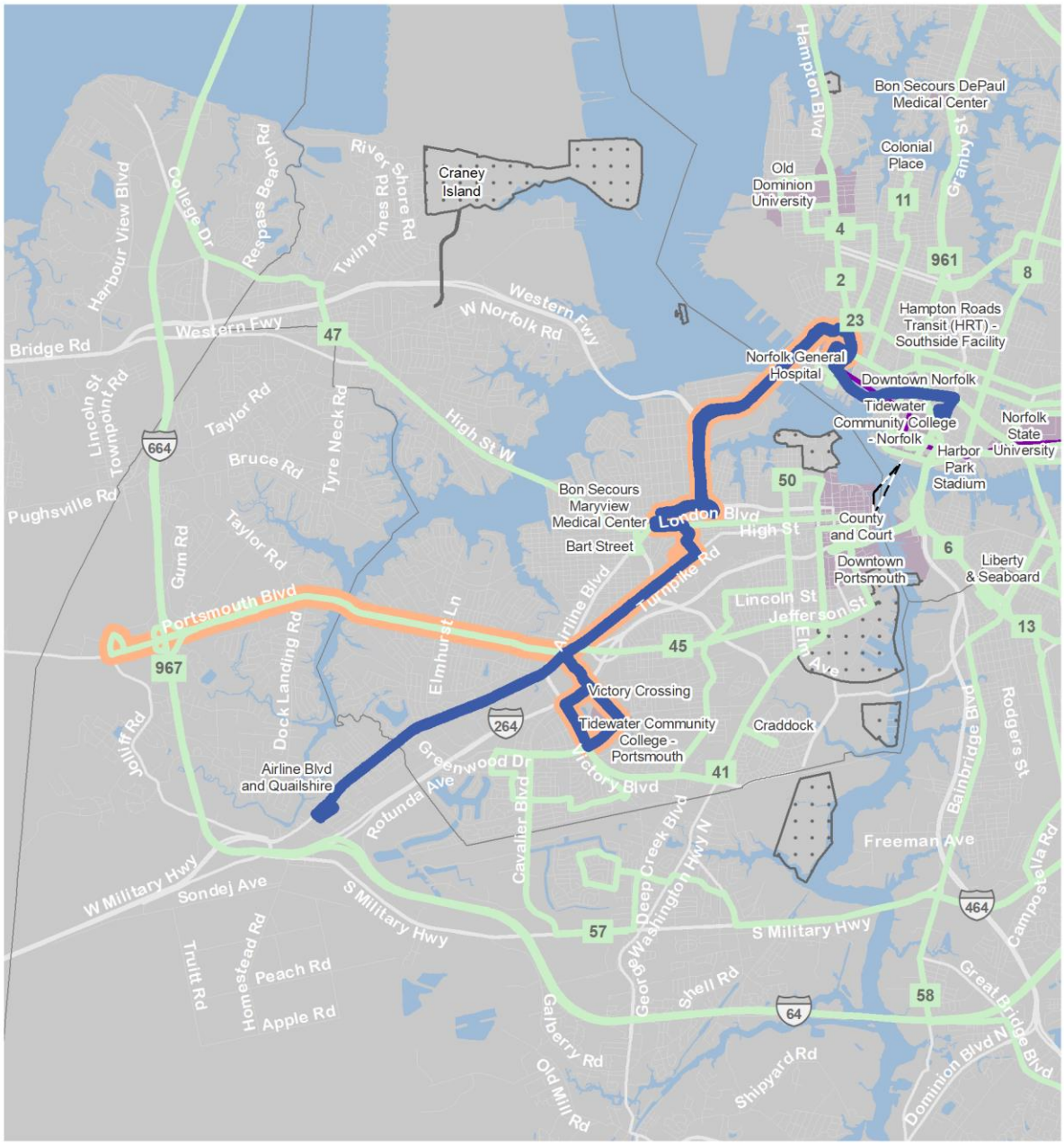
- Route 43 is among the lowest performing routes. It has consistently performed below average in the passenger per hour, farebox recovery and subsidy per passenger metrics.
- Route 43's service from County and Court to Elm Avenue and London Boulevard will be covered by the realigned Route 50, which will then extend southward towards Victory Crossing and TCC Portsmouth. This new service connection will help to provide additional one seat ride options into Downtown Portsmouth. Service on Route 50 will offer an improved span of service compared to what is currently offered on Route 43 (5:00 AM - 8:00 PM on weekdays, 6:00 AM - 7:00 PM on Saturdays, and 8:00 AM - 7:00 PM on Sundays).
- Service to Bart Street and the Walmart/Frederick Boulevard commercial area will be covered by the realigned Route 47, which will provide hourly service to this area with a significantly longer span of service than Route 43 currently offers (on weekdays it will operate between 5:00 AM and seven days a week (5:00 AM - 11:00 PM on weekdays and 7:00 AM - 11:00 PM on weekends).

Route 43

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.			
2022	No additional changes.			
2023	Realigned Route 50 and Route 47 will cover most of Route 43's removed service.	✓	✓	✓
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 44



Route 44

Miles
0 0.5 1 1.5 2 2.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 44

Service Classification
Coverage

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Norfolk General Hospital / Midtown Portsmouth	Downtown Norfolk Transit Center / Airline Boulevard
Jurisdictions	Chesapeake, Norfolk, Portsmouth	Chesapeake, Norfolk, Portsmouth

Level of Service			
Span			
		Existing	**Service Target**
Weekday		6:05 AM - 10:02 PM	5:00 AM - 10:02 PM
Saturday		6:05 AM - 10:01 PM	6:05 AM - 10:01 PM
Sunday		7:00 AM – 8:00 PM	6:00 AM - 10:00 PM
Headway			
		Existing	**Service Target**
Weekday	Early	-	60
	AM Peak	60	60
	Midday	60	60
	PM Peak	60	60
	Evening	60	60
	Late Night	-	-
Saturday	Base	60	60
	Non-Base	60	60
	Early / Late	-	60
Sunday	Base	60	60
	Non-Base	60	60
	Early / Late	-	60

Note
Route 44 may warrant additional service in the future to better serve new Amazon facilities. During the process of updating the service plan in the next annual update of the TSP, the employment data for these facilities will be examined. Route 44 may warrant more frequent service or additional trips to meet shift-specific demand.

Service Changes

- In FY 2021 Route 44 will be extended to serve Downtown Norfolk Transit Center via Colley Avenue, Brambleton Avenue, and Fenchurch Street.
- In FY 2023 further alignment changes will be made. West of Victory Crossing, Route 44 will operate on Airline Boulevard until Sunkist Road, taking over a portion of the existing Route 57 (which is being realigned to no longer serve Airline Boulevard). Service on Portsmouth Boulevard west of Turnpike Road will no longer be offered via Route 41 but will instead be served by the realigned Route 45.
- In FY 2023, Route 44 will operate to Tidewater Community College from 7:00 PM to 10:00 PM on weekdays. Sunday service will be operated from 7:00 AM to 8:00 PM hourly between Norfolk General Hospital and Airline Boulevard.
- Weekday service will begin earlier at 5:00 AM.
- Saturday's existing hourly service between 6:00 AM and 10:00 PM will be maintained as currently offered.
- In a future out-year, Route 44 will exceed the service design standards for the Coverage service classification when Sunday span is increased to operate from 6:00 AM to 10:00 PM on the full length of the route, eliminating the short Sunday service alignment.

Justification

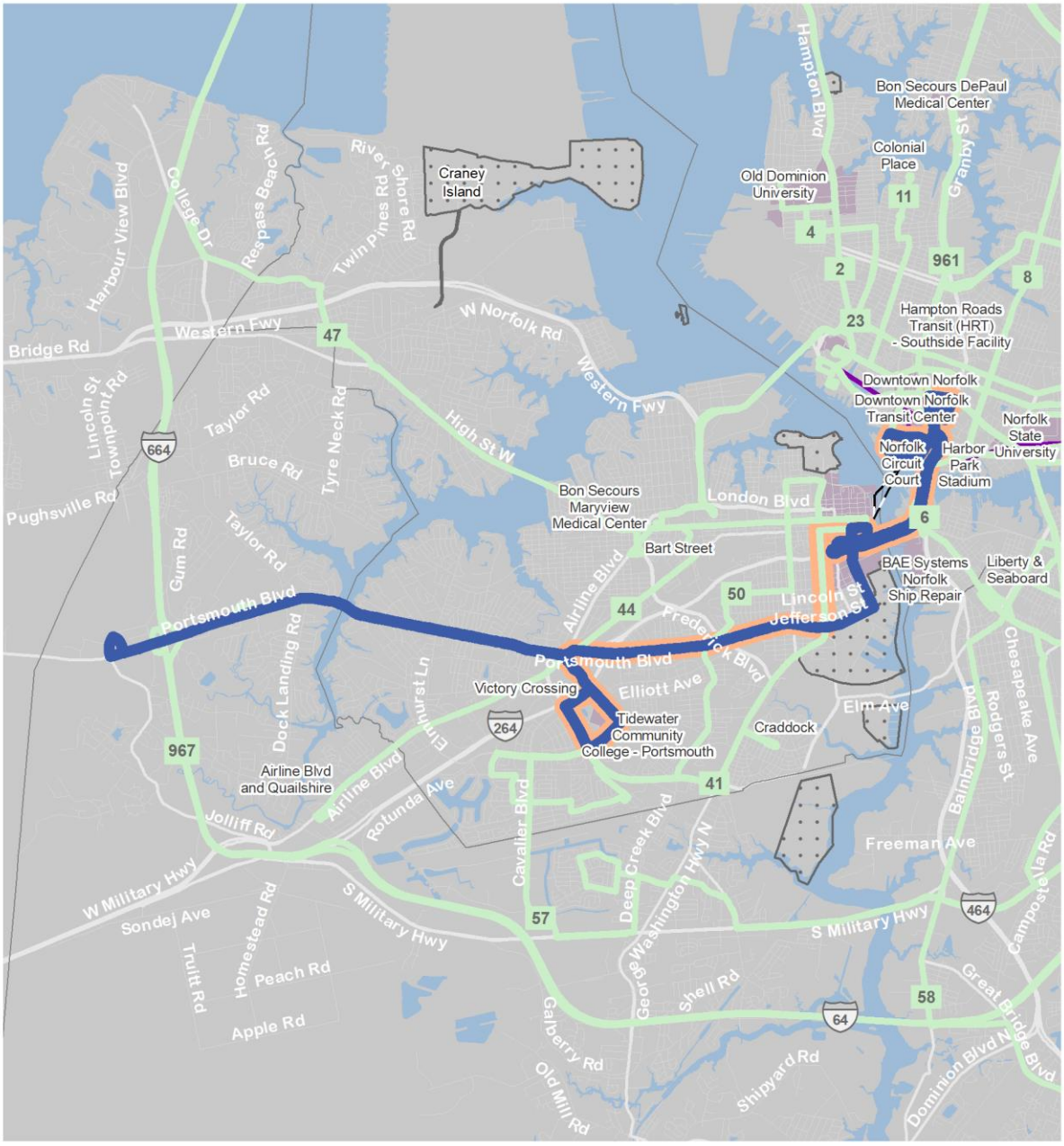
- Route 44 performs around or below average on the six Key Performance Indicators (KPI). Its low On-time Performance of 63 percent, short of the benchmark of 85 percent, will be addressed by the realignment to provide more direct service along Airline Boulevard that will help to improve Route 44's performance. This alignment addresses an all-day service and peak demand gap by providing a higher level of midday and peak service in this area than is currently provided by the route 57.
- The service changes for Routes 41, 44, and 45 work in tandem to help improve route directness for each of the routes by providing efficient services that operate along single corridors for longer distances with fewer turns. These changes will help to improve on-time performance for each of these routes and will simplify service patterns; these are characteristics which will help to improve service utilization.
- High ridership on the current Route 44's early morning trips suggest Sunday service will be successful if offered earlier than the service design standards in the morning.
- The service levels for Route 44 meet or exceed the service standards defined for Coverage routes.

Route 44

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	Service extended to DNTC.			
2022	No additional changes.			
2023	Implement service target alignment on weekdays and Saturdays, with a short turn between Norfolk General Hospital and Airline Boulevard.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	Change weekday span to start at 5:00 AM.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	Change Sunday span to 6:00 AM – 10:00 PM and extend Sunday service to Downtown Norfolk Transit Center.	✓	✓	✓

Route 45



Route 45

Miles
0 0.5 1 1.5 2 2.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 45

Service Classification
Regional Backbone

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Downtown Norfolk Transit Center / Victory Crossing	Downtown Norfolk Transit Center / Midtown Portsmouth
Jurisdictions	Norfolk, Portsmouth	Chesapeake, Norfolk, Portsmouth

Level of Service			
Span			
		Existing	**Service Target**
Weekday		4:39 AM - 11:54 PM	4:39 AM - 1:00 AM
Saturday		5:10 AM - 12:51 AM	5:10 AM - 12:51 AM
Sunday		6:06 AM - 10:51 PM	5:10 AM - 12:51 AM
Headway			
		Existing	**Service Target**
Weekday	Early	30	30/60
	AM Peak	15	15 / 30
	Midday	30	30
	PM Peak	15	15 / 30
	Evening	30	30 /60
	Late Night	60	60
Saturday	Base	30	30
	Non-Base	30	30 / 60
	Early / Late	60	60
Sunday	Base	60	30
	Non-Base	60	30 / 60
	Early / Late	60	60

Note
This route's existing service operates with regular short turns. The existing headways that are listed in this table may not necessarily apply to the full length of the existing route. This route's planned service also operates with short turns. The two numbers listed in the table show the headways for the portions of the route with and without the short turn. To see where the short turn operates, please refer to the route description in the Service Changes bullets.

Service Changes

- Route 45 will be extended to Starmount Parkway and Joliff Road to cover the eliminated segment of Portsmouth Boulevard currently served by Route 44.
- In Downtown Portsmouth, Route 45 will operate via Port Centre Parkway and Portsmouth Boulevard instead of via Effingham Street and Court Street (service along these corridors will be replaced with the realigned Route 41). Transferring the service onto Port Centre Parkway will improve route directness and decrease travel time.
- Route 45 is a Regional Backbone service that will operate on weekdays between 4:39 AM and 1:00 AM between Victory Crossing, Downtown Portsmouth, and Norfolk. Route 45 will provide 15-minute service between Victory Crossing and Downtown Norfolk during AM and PM peak periods, with non-peak period (except late night) service being offered at half hour intervals within Portsmouth and to Norfolk.
- Throughout the span of service, hourly service will be provided between Norfolk and Starmount Parkway and Joliff Road. After 7:00 PM service will be provided to TCC Portsmouth (College/McLean) and will still serve Starmount Parkway and Joliff Road.
- The Saturday span of service will be maintained from the current Route 45 service levels, beginning at 5:10 AM and ending at 12:51 AM. Half hour service will be offered between Norfolk and Victory Crossing, and hourly service will be offered across the whole length of the route before and after that time period. No Saturday service will be provided to College/McLean.
- Sunday service will be extended to 12:51 AM and will offer the same levels of service as provided on Saturdays. No Sunday service will be provided to College/McLean.
- In a future out-year, Route 45 will meet the service target and exceed the service design standards for the Regional Backbone service classification.

EB SD

Justification

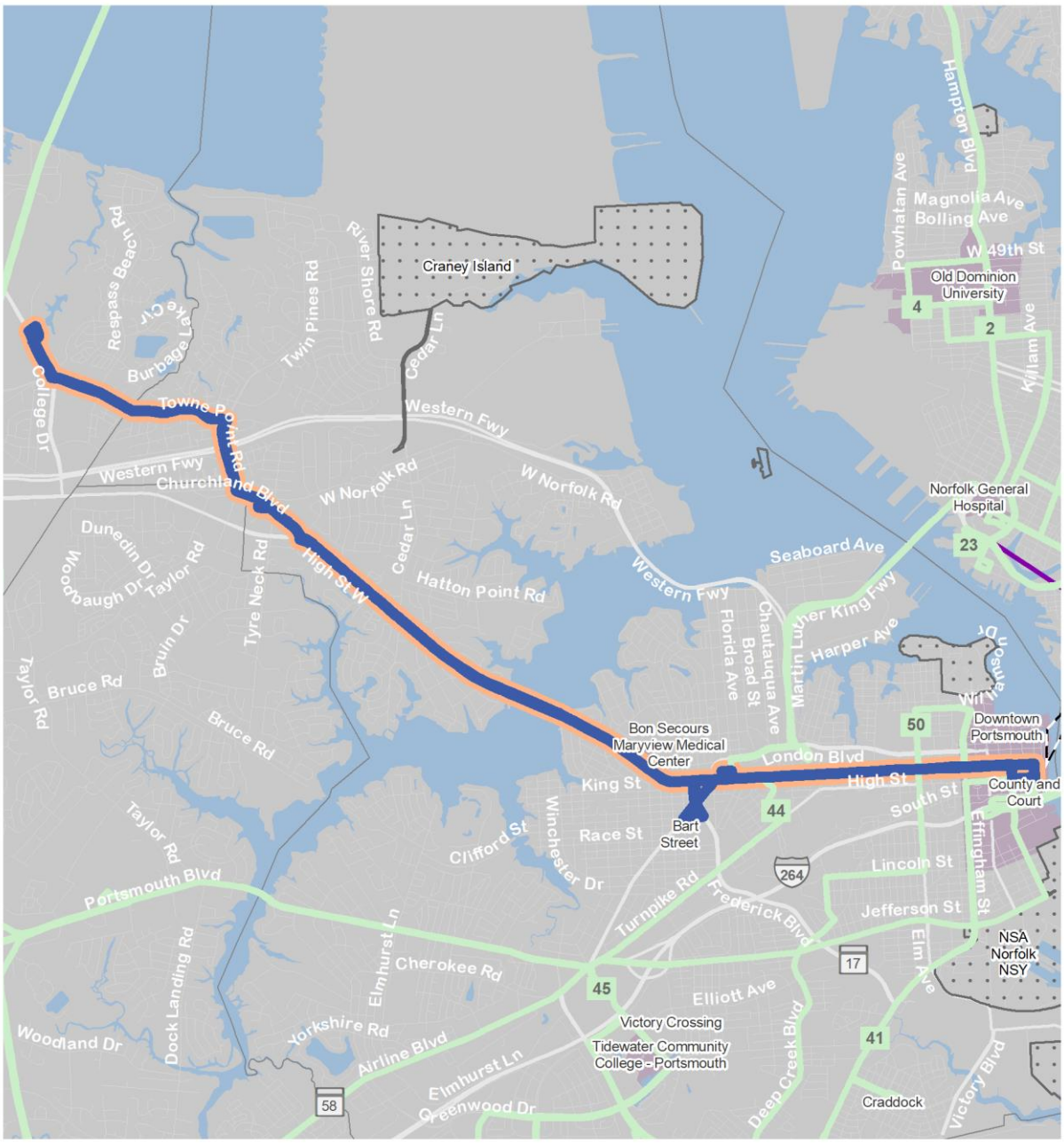
- The service changes for Routes 41, 44, and 45 work in tandem to help improve route directness for each of the routes by providing efficient services that operate along single corridors for longer distances with fewer turns. These changes will help to improve on-time performance for each of these routes and will simplify service patterns; these are characteristics which will help to improve service utilization.
- The service levels for Route 45 meet the service standards defined for Regional Backbone routes.

Route 45

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.			
2022	No additional changes.			
2023	Implement service target alignment. Maintain existing span and headways on weekdays and Saturdays for the short turn between Victory Crossing and Downtown Norfolk. Extend Sunday span to 5:10 AM – 12:51 AM. The extension to Chesapeake will have the same span and headway as the existing Route 44, with added hourly Sunday service from 6:00 AM – 8:00 PM.	✓		
2024	Change Sunday peak headway to 30 minutes on the short turn.			
2025	Change Sunday off-peak headway to 30 minutes on the short turn.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	Change full pattern weekday span to begin at 5:00 AM. End weekday service at 1:00 AM. Change full pattern Saturday and Sunday span to end at 12:51 AM and change the short pattern to end at 9:00 PM.		✓	
2030	No additional changes.			
Out-years	Increase weekday peak, weekday midday, and weekend peak headways to 30 minutes on the full pattern. Adjust short turn headways to maintain 15-minute weekday peak, 30-minute weekday midday, and 30-minute weekend peak service between Victory Crossing and downtown Norfolk.			✓

Route 47



Route 47

Miles
0 0.5 1 1.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 47

Service Classification
Regional Backbone

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Downtown Portsmouth / Churchland	Downtown Portsmouth / Churchland
Jurisdictions	Suffolk, Portsmouth	Suffolk, Portsmouth

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:49 AM - 10:30 PM	5:00 AM - 1:00 AM
Saturday		6:03 AM - 10:30 PM	5:00 AM - 12:00 AM
Sunday		6:33 AM - 7:30 PM	5:00 AM - 12:00 AM
Headway			
		Existing	**Service Target**
Weekday	Early	30	30 / 60
	AM Peak	15	15 / 30
	Midday	30	30
	PM Peak	15	15 / 30
	Evening	30	30 / 60
	Late Night	-	60
Saturday	Base	30	30
	Non-Base	60	30 / 60
	Early / Late	-	60
Sunday	Base	60	30
	Non-Base	60	30 / 60
	Early / Late	-	60

Note
This route's existing service operates with regular short turns. The existing headways that are listed in this table may not necessarily apply to the full length of the existing route. This route's planned service also operates with short turns. The two numbers listed in the table show the headways for the portions of the route with and without the short turn. To see where the short turn operates, please refer to the route description in the Servce Changes bullets.

Service Changes

- The alignment for Route 47 will remain predominantly the same as existing, with the addition of providing hourly service between downtown Portsmouth and the Walmart/Frederick Boulevard commercial area; with the elimination of Route 43, Route 47 will continue to provide this connection at an hourly interval and also will provide a longer span of service between Downtown Portsmouth and the commercial area.
- Weekday peak period service and midday service is to remain the same as existing: during weekday peak periods there will be 15-minute high-frequency service between Village Street and Churchland Boulevard and County Street and Court Street and 60-minute service from College Drive and Lake View Parkway to County Street and Court Street. During the weekday midday period there will be 30-minute service between Village Street and Churchland Boulevard and County Street and Court Street and 60-minute service from College Drive and Lake View Parkway to County Street and Court Street.
- The span of service is proposed to be extended, with service starting at 5:00 AM and ending at 1:00 AM, meeting Regional Backbone standards. The route will have increased weekday evening service every 30-minutes between Village Street and Churchland Boulevard and County Street and Court Street and extended hourly service to College Drive and Lake View Parkway.
- Early and late-night service should operate every 60-minutes between College Drive and Lake View Parkway and County Street and Court Street.
- During the weekend period, the span will be extended to 5:00 AM to midnight to meet Regional Backbone service design standards, with 30-minute service from 6:00 AM to 9:00 PM on the short-turn and hourly service along the whole length of the route for the full span of service.
- In a future out-year, Route 47 will meet the service targets when the span on the full length of the route is increased and headway improvements are made

Route 47

TD SD

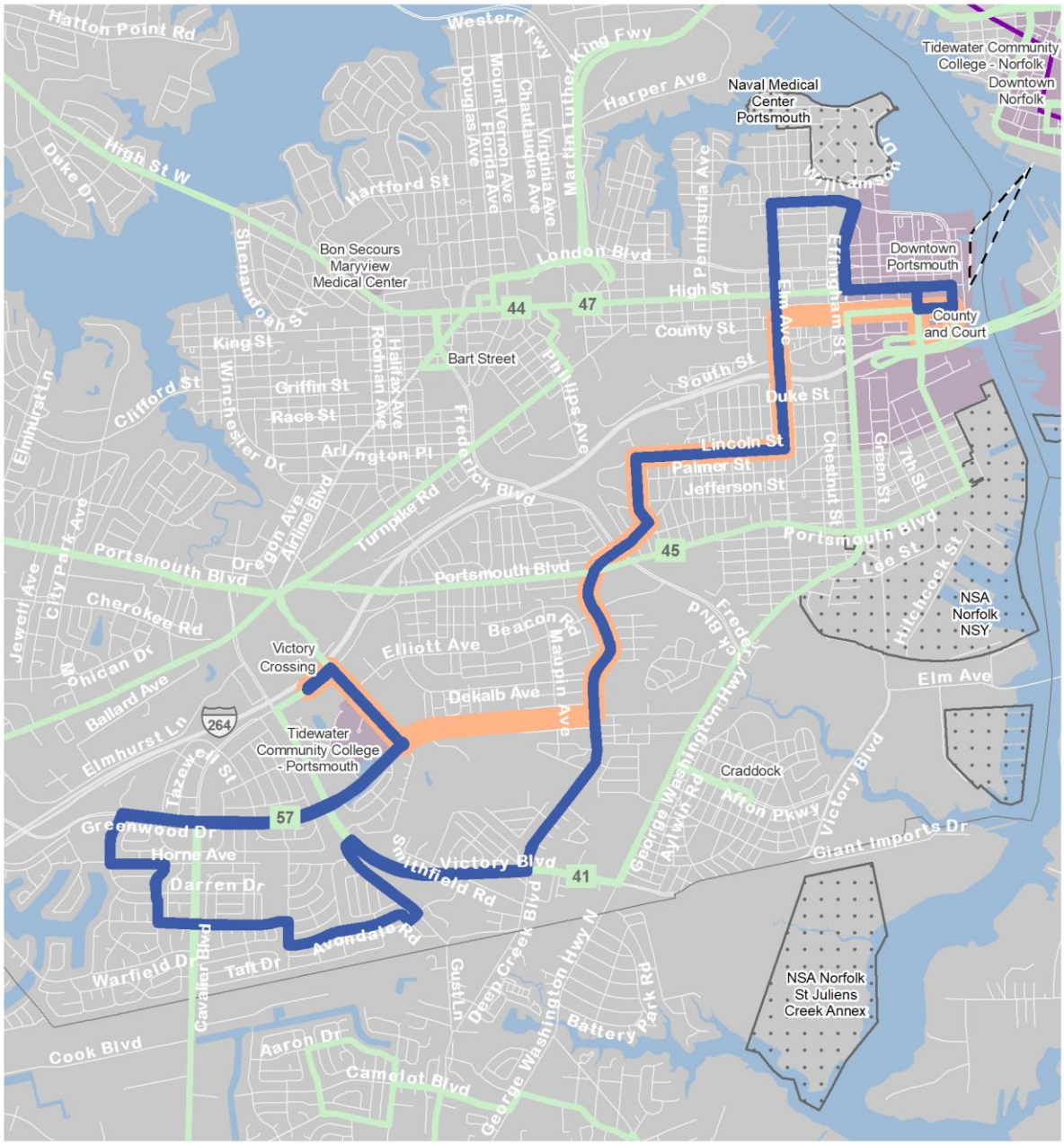
Justification

- Route 47 is a Regional Backbone route and will have service levels that meet the standards set forth for Regional Backbone services.
- The current Route 47 service offers an important connection between Downtown Portsmouth and the neighboring City of Suffolk, enabling a direct connection to the Suffolk Transit bus system.
- The service levels for Route 47 meet the service standards defined for Regional Backbone routes.

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.			
2022	No additional changes.			
2023	Implement service target alignment. On the short turn, implement service target headways and extend span to 5:00 AM – 12:00 AM on weekdays and 5:00 AM – 11:00 PM on weekends. Change Sunday base headways to 30 minutes. Weekday service to College and Lake View reflects existing service, ending at 7:00 PM. On Saturdays the long pattern to College and Lake View operates 7:00 AM – 6:00 PM.	✓		
2024	No additional changes.			
2025	No additional changes.			
2026	Introduce hourly Sunday service to College and Lake View from 8:00 AM – 6:00 PM.			
2027	Extend weekday span to 1:00 AM on the short turn. Extend Sunday span on the full pattern to start at 7:00 AM.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	Extend span on the long pattern to 5:00 AM-11:00 PM on weekdays and 7:00 AM-11:00 PM on weekends. Change weekend span on the short turn to end at 12:00 AM. Provide half hour service on the long pattern during weekday peaks, weekday midday, and weekend base.		✓	✓

Route 50


Hatton Point Rd
Western Fwy
King Fwy
Harper Ave
Tidewater Community College - Norfolk
Downtown Norfolk
Naval Medical Center Portsmouth
High St W
Duke Dr
Hartford St
Douglas Ave
Mount Vernon Ave
Florida Ave
Chautauqua Ave
Virginia Ave
Martin Luther
Peninsula Ave
Bon Secours Maryview Medical Center
London Blvd
Shenandoah St
King St
Bart Street
44
47
High St
County St
Downtown Portsmouth
County and Court
Elm Ave
Effingham St
South St
Duke St
Clifford St
Griffin St
Race St
Halifax Ave
Roanman Ave
Phillips Ave
Frederick Blvd
Lincoln St
Palmer St
Jefferson St
Chestnut St
Green St
7th St
Elmhurst Ln
Winchester Dr
Arlington Pl
Turnpike Rd
Oregon Ave
Airline Blvd
City Park Ave
Jewett Ave
Portsmouth Blvd
45
Lee St
Hitchcock St
NSA Norfolk NSY
Cherokee Rd
Mohican Dr
Victory Crossing
Elliott Ave
Beacon Rd
Maupin Ave
Dekalb Ave
Elm Ave
Ballard Ave
264
Elmhurst Ln
Tidewater Community College - Portsmouth
Tazewell St
Craddock
Afton Pkwy
Victory Blvd
Giant Imports Dr
Greenwood Dr
57
Horne Ave
Darren Dr
Victory Blvd
41
Smithfield Rd
Avondale Rd
Warfield Dr
Taft Dr
Cavalier Blvd
Gust Ln
Deep Creek Blvd
Battery Park Rd
NSA Norfolk St Juliens Creek Annex
Cook Blvd
Aaron Dr
Camelot Blvd
George Washington Hwy
Route 50
Miles
0
0.5
1
Focus Route
Planned Alignment
Existing Alignment
Planned System
Light Rail
Ferry
Military Bases
City Boundary
Activity Centers
N

Route 50

Service Classification
Coverage

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Downtown Portsmouth / Victory Crossing	Downtown Portsmouth / Victory Crossing
Jurisdictions	Portsmouth	Portsmouth

Level of Service			
Span			
		Existing	**Service Target**
Weekday		6:03 AM - 6:55 PM	5:00 AM - 8:00 PM
Saturday		7:03 AM - 6:29 PM	6:00 AM - 7:00 PM
Sunday		7:00 AM - 6:20 PM	8:00 AM - 7:00 PM
Headway			
		Existing	**Service Target**
Weekday	Early	-	60
	AM Peak	60	60
	Midday	60	60
	PM Peak	60	60
	Evening	60	60
	Late Night	-	-
Saturday	Base	60	60
	Non-Base	-	60
	Early / Late	-	-
Sunday	Base	60	60
	Non-Base	-	60
	Early / Late	-	-

Service Changes

- Route 50 will be realigned to cover the eliminated portion of Route 43 in the Parkview area and an eliminated portion of Route 41 serving Roosevelt Boulevard and Vaughn Court. As a Coverage route, Route 50 will provide hourly service connecting neighborhoods in Portsmouth, freeing up other routes to provide more direct and frequent service between Portsmouth and Norfolk. There will no longer be service on Greenwood Drive between McLean and Deep Creek or on King Street between Elm Avenue and Effingham Street.
- Weekday service will be offered hourly between 5:00 AM and 8:00 PM, which provides one earlier hour of service in the morning and one later hour of service in the evening than existing.
- Saturday service will be offered hourly from 6:00 AM to 7:00 PM to provide service consistent with existing Saturday service on Routes 41, 43, and 50.
- Sunday service offered hourly from 8:00 AM to 7:00 PM, providing a longer span of service than existing.
- In a future out-year, Route 50 will exceed the service design standards for the Coverage service classification once full span increases are made.

Justification

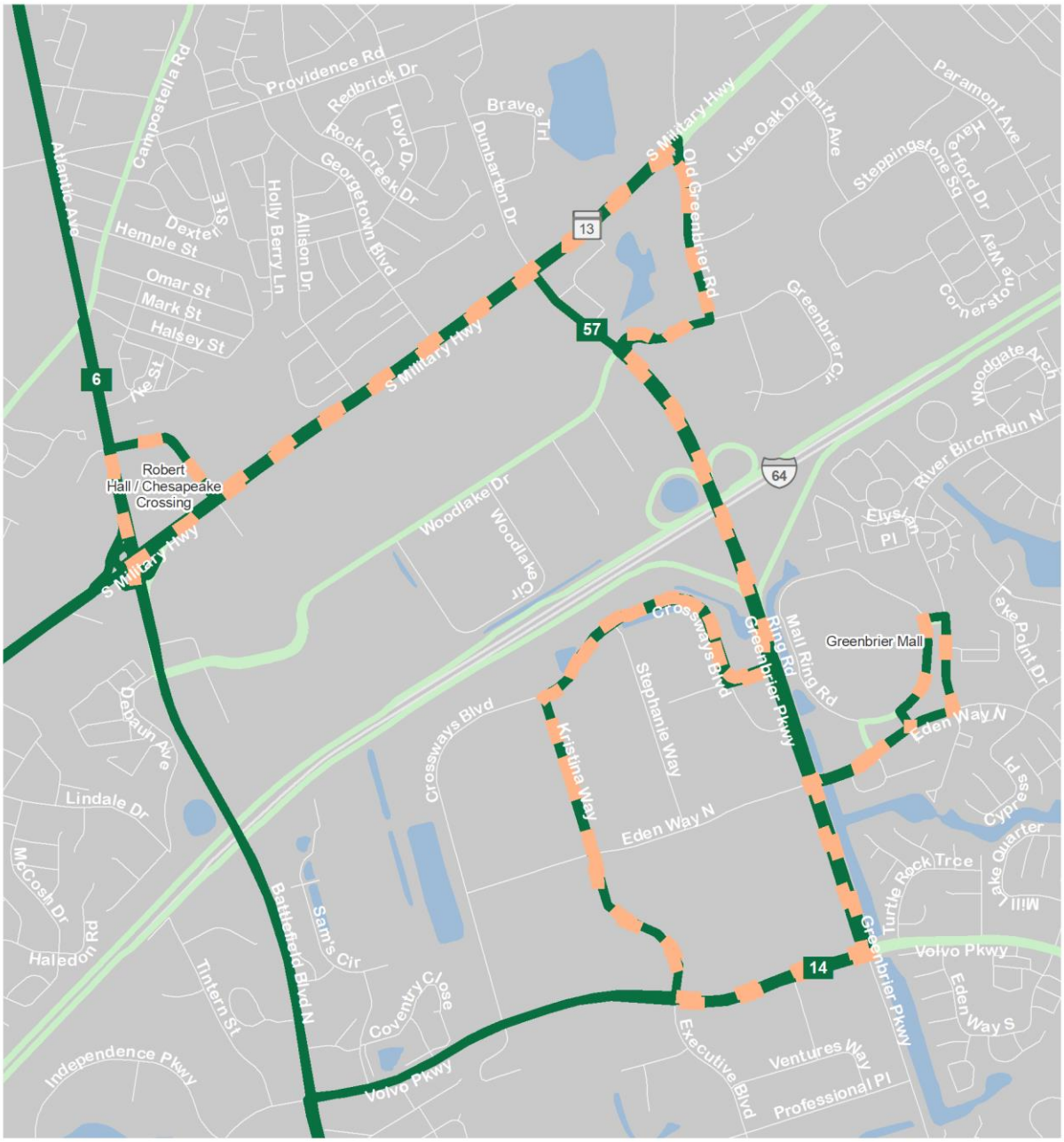
- Route 50 performs around or below average on the six Key Performance Indicators (KPI). The Route 50 realignment will provide Coverage level service to several Portsmouth neighborhoods and will increase service connections through the Naval Medical Center Portsmouth and Downtown Portsmouth (in accordance with the elimination of the current Route 43 service).
- The service change will create a slightly increased span of service, which will help to grow route utilization by providing earlier and later service options, an attractive feature to potential passengers.
- The service levels for Route 50 meet the service standards defined for Coverage routes.

Route 50

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.			
2022	No additional changes.			
2023	Implement service target alignment. Extend weekday service until 8:00 PM and change weekend span to 8:00 AM – 6:00 PM. Eliminate Sunday service.	✓		
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	Begin weekday service at 5:00 AM.			
2029	No additional changes.			
2030	Implement Sunday service from 8:00 AM to 6:00 PM.			
Out-years	Extend Saturday span to 6:00 AM – 7:00 PM and extend Sunday service to end at 7:00 PM.		✓	✓

Route 55



Route 55

Miles
0 0.35

Focus Route

- Eliminated Route
- Routes Providing Replacement Coverage
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 55

Service Classification
-

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Greenbrier Circulator	-
Jurisdictions	Chesapeake	-

Level of Service			
Span			
		Existing	**Service Target**
Weekday		6:30 AM - 7:36 PM	-
Saturday		7:48 AM - 8:12 PM	-
Sunday		-	-
Headway			
		Existing	**Service Target**
Weekday	Early	-	-
	AM Peak	60	-
	Midday	60	-
	PM Peak	60	-
	Evening	60	-
	Late Night	-	-
Saturday	Base	60	-
	Non-Base	60	-
	Early / Late	-	-
Sunday	Base	-	-
	Non-Base	-	-
	Early / Late	-	-

Service Changes

- Route 55 will be eliminated. Route 6 will be extended to operate between Robert Hall and Greenbrier Mall. Routes 14 and 57 will operate between Robert Hall and Greenbrier, with Route 14 covering the portion of Route 55 from Robert Hall to Military Highway, Old Greenbrier Road, and Greenbrier Parkway.
- The realignments to the other routes will be made concurrent with or before the elimination of Route 55 to prevent loss of coverage.

TD PB

Justification

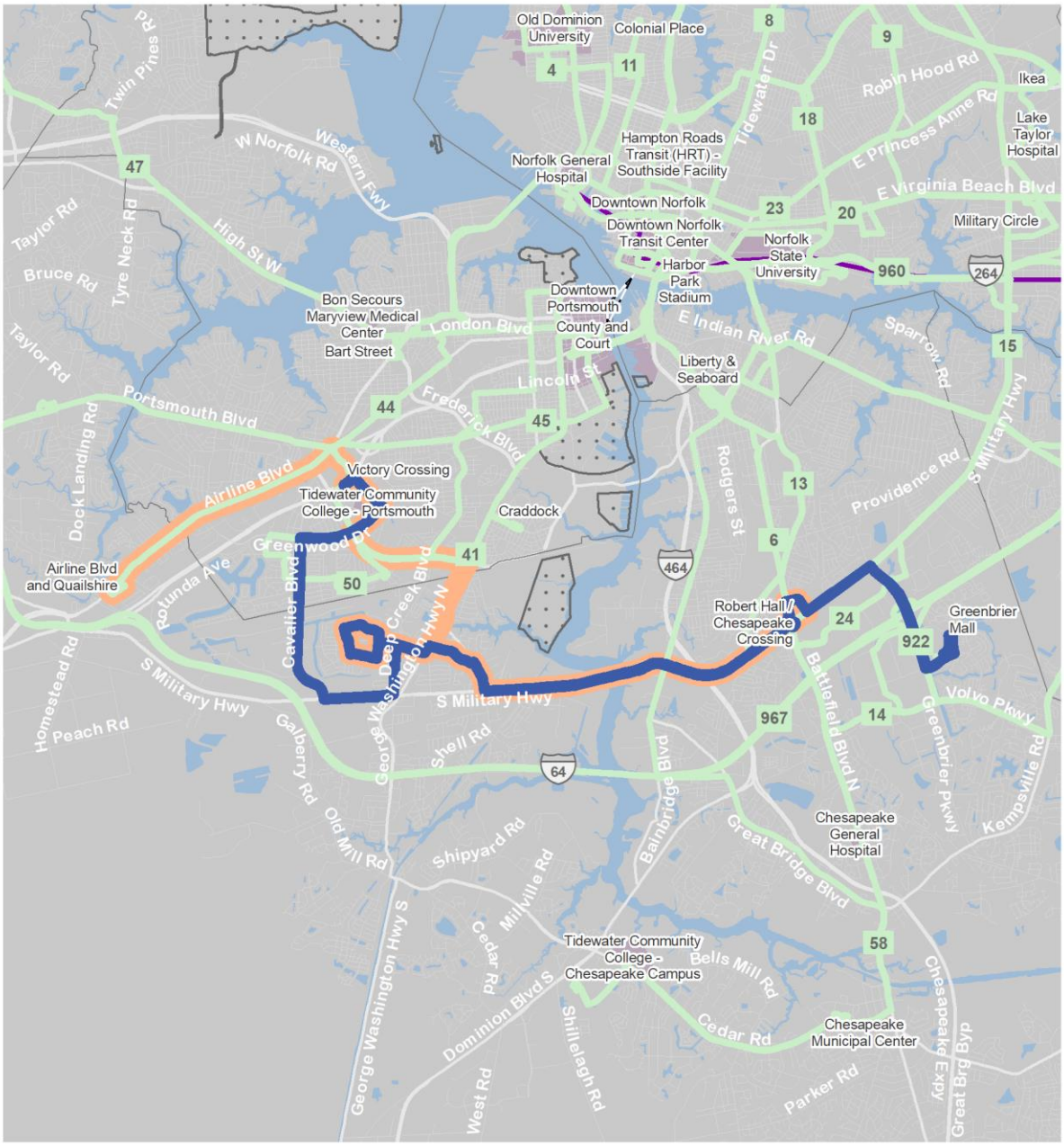
- Route 55 is a low-performing route. The area it serves will receive increased levels of service and more direct connections under the realigned Route 6, Route 14, and Route 57.
- The extended Route 6 will provide more attractive service than the currently separate Route 6 and Route 55 by providing more direct service, more frequent service, and a longer span of service connecting the Greenbrier Mall area to points north in Chesapeake and Norfolk.

Route 55

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.			
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	Route eliminated as called for by service target, with service replaced by realigned Routes 6, 14, and 57.	✓	✓	✓

Route 57



Route 57

Miles
0 0.5 1 1.5 2 2.5 3

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 57

Service Classification
Coverage

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Robert Hall Boulevard / Airline Boulevard	Greenbrier Mall / Victory Crossing
Jurisdictions	Chesapeake, Portsmouth	Chesapeake, Portsmouth

Level of Service			
Span			
		Existing	**Service Target**
Weekday		6:19 AM - 7:20 PM	5:00 AM - 9:30 PM
Saturday		6:18 AM - 7:20 PM	6:18 AM - 7:20 PM
Sunday		-	8:00 AM - 7:00 PM
Headway			
		Existing	**Service Target**
Weekday	Early	-	60
	AM Peak	60	60
	Midday	60	60
	PM Peak	60	60
	Evening	60	60
	Late Night	-	-
Saturday	Base	60	60
	Non-Base	60	60
	Early / Late	-	-
Sunday	Base	-	60
	Non-Base	-	60
	Early / Late	-	-

Service Changes

- Route 57 will be extended from Chesapeake Crossing to Greenbrier Mall. Service will continue to operate on Camelot Boulevard, west of Deep Creek Boulevard, as well as on King Arthur Drive, Aaron Drive, Sir Galahad Drive, and Guinevere Drive, but will be realigned onto Deep Creek Boulevard, Military Highway, and Cavalier Boulevard to serve the industrial park. Route 57 will then continue north and terminate at Victory Crossing, providing transfer opportunities to many other routes. Service on Route 57 will be discontinued on Airline Boulevard between Victory Boulevard and Sunkist Road, replaced by the realigned Route 44. Service on Route 57 will be discontinued on High Street and Victory Boulevard, with service on Victory Boulevard being covered by Route 41.
- Weekday service will be offered hourly between 5:00 AM and 9:30 PM, providing an expanded service day to allow for more cross-jurisdictional travel in the evening periods and increased transfer options to Greenbrier Mall, Robert Hall, and Victory Crossing throughout the day.
- Maintain Saturday span and headways as currently offered on the current Route 57.
- Add Sunday service, to operate hourly between 8:00 AM and 7:00 PM.
- In a future out-year, Route 57 will meet the service design standards for the Coverage service classification once Sunday service is added.

Justification

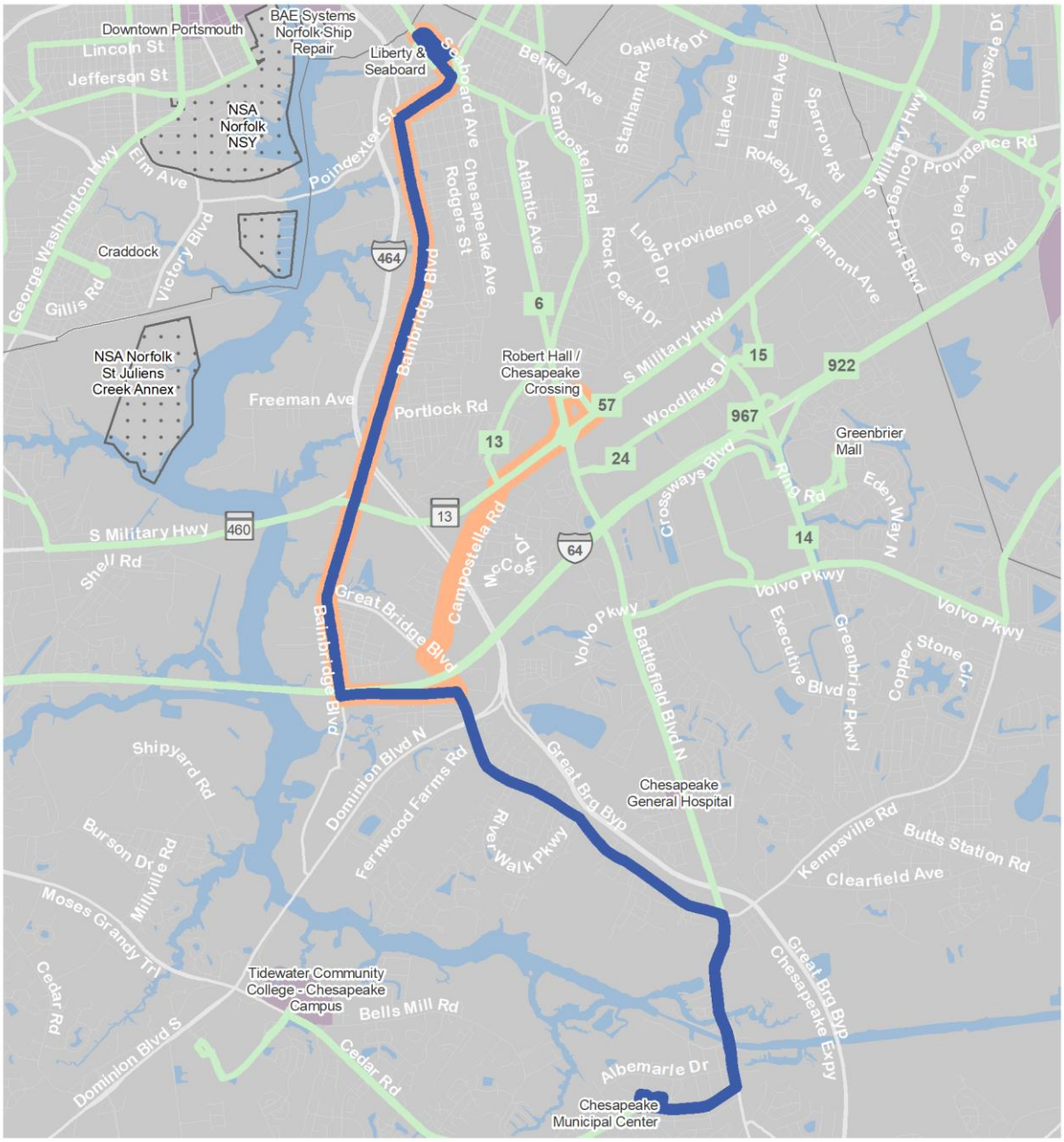
- Route 57 performs around or below average on the six Key Performance Indicators (KPI); however, the existing connection that Route 57 provides between Portsmouth and Chesapeake is vital in providing a cohesive network of transit options. The service changes for Route 57 will help streamline service, providing shorter overall travel times and improved on-time performance. These changes will improve the attractiveness of the route which will help to increase service utilization.
- The service levels for Route 57 meet the service standards defined for Coverage routes.

Route 57

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.			
2022	No additional changes.			
2023	Implement service target alignment.	✓		
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	Change weekday span to 5:00 AM – 9:30 PM.			
Out-years	Add Sunday service from 8:00 AM – 7:00 PM.		✓	✓

Route 58



Route 58

0 0.5 1 1.5 Miles

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 58

Service Classification
Coverage

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	South Norfolk / Bainbridge Boulevard	South Norfolk / Chesapeake Municipal Center
Jurisdictions	Chesapeake	Chesapeake

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:48 AM - 7:10 PM	5:00 AM - 7:10 PM
Saturday		5:48 AM - 7:10 PM	5:48 AM - 7:10 PM
Sunday		-	8:00 AM - 7:00 PM
Headway			
		Existing	**Service Target**
Weekday	Early	60	60
	AM Peak	60	60
	Midday	60	60
	PM Peak	60	60
	Evening	60	60
	Late Night	-	-
Saturday	Base	60	60
	Non-Base	60	60
	Early / Late	-	60
Sunday	Base	-	60
	Non-Base	-	60
	Early / Late	-	-

Service Changes

- Route 58 will continue to serve Liberty Street and Seaboard Avenue but rather than looping back to Robert Hall, Route 58 will instead continue onto Great Bridge Boulevard, serving the area eliminated from the realigned Route 14, and then continue to the Chesapeake municipal center where it will terminate. Route 58 will not deviate onto River Walk Parkway like the current Route 14 does, but a new stop will be added at the western intersection of the two roads to serve the community center adjacent to that intersection.
- Weekday service will begin at 5:00 AM, which is slightly earlier than the current Route 58 service. Hourly service will be maintained throughout the service day.
- Maintain Saturday span and headways as provided by the current Route 58 service.
- Add Sunday service, to operate hourly between 8:00 AM and 7:00 PM.
- In a future out-year, Route 58 will meet the service design standards for the Coverage service classification once Sunday service is added.

Justification

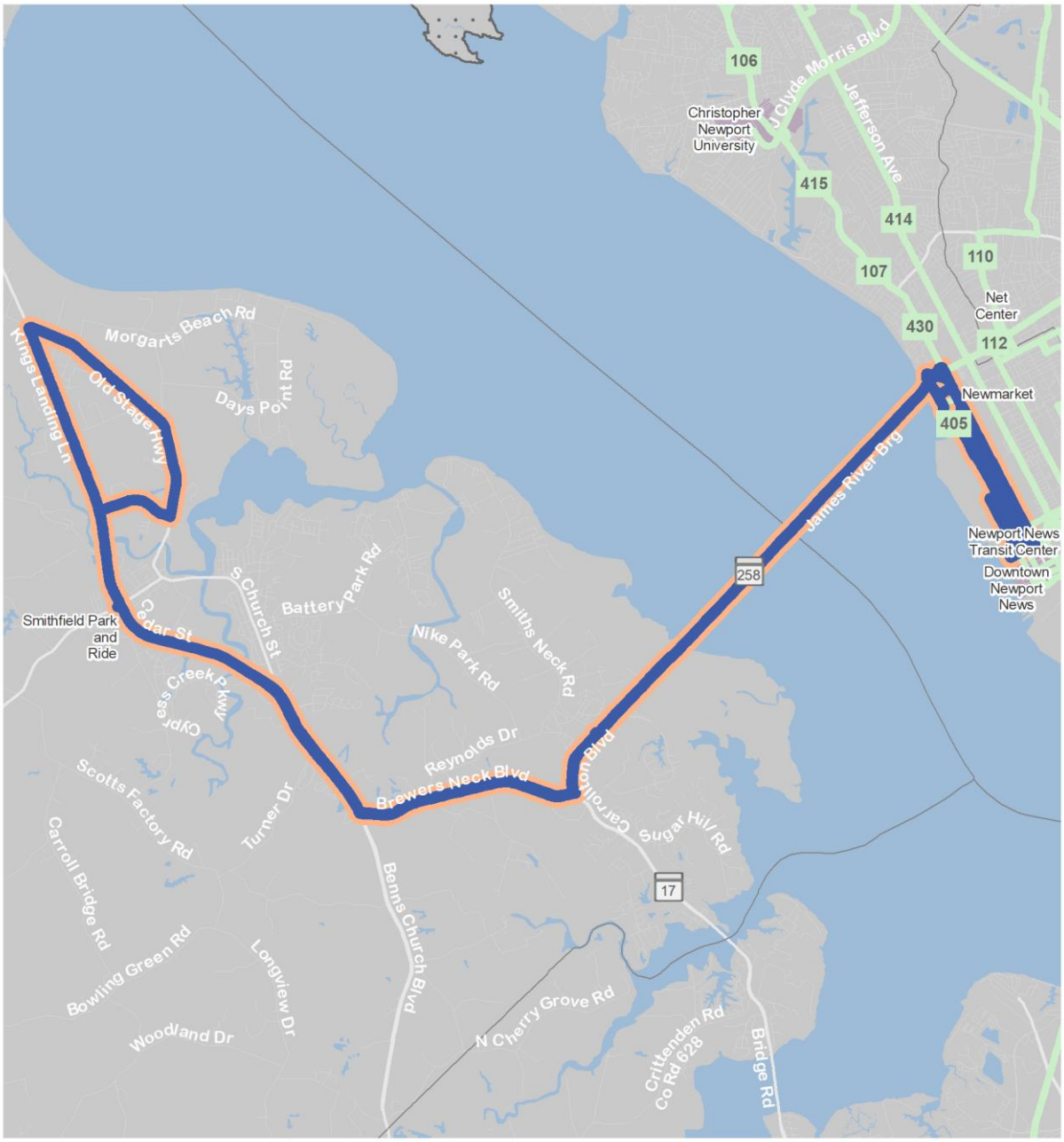
- Route 58 performs worse than average on the six Key Performance Indicators (KPI) and will be realigned in order to provide more direct service that will better serve areas with transit demand, resulting in improved performance.
- The realignment will reduce the circuity of the existing Route 58 and increase service to the Chesapeake Municipal Center (in concert with the service changes for Route 14).
- Between Routes 14 and 58, the roads losing service will be River Walk Parkway, Battlefield Boulevard between Military Highway and Volvo Parkway (which will be offered by Route 6), and Great Bridge Boulevard and Campostella Road between Military Highway and Libertyville Road.
- The service levels for Route 58 meet the service standards defined for Coverage routes.

Route 58

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.			
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	Implement service target alignment and span on weekdays and Saturday.	✓		
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	Add Sunday service from 8:00 AM – 7:00 PM.		✓	✓

Route 64



Route 64

0 0.5 1 1.5 2 2.5 3 Miles

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 64

Service Classification
Limited/Express

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Newport News / Smithfield	Newport News / Smithfield
Jurisdictions	Newport News, Isle of Wight	Newport News, Isle of Wight

Level of Service			
Span			
		Existing	**Service Target**
Weekday		4:40 AM - 7:52 AM; 2:10 PM - 5:27 PM	4:40 AM - 7:52 AM; 2:10 PM - 5:27 PM
Saturday		-	-
Sunday		-	-
Headway			
		Existing	**Service Target**
Weekday	Early	3 Trips	3 Trips
	AM Peak		-
	Midday		-
	PM Peak	4 Trips	4 Trips
	Evening	-	-
	Late Night	-	-
Saturday	Base	-	-
	Non-Base	-	-
	Early / Late	-	-
Sunday	Base	-	-
	Non-Base	-	-
	Early / Late	-	-

Service Changes

- No schedule or alignment changes.

Justification

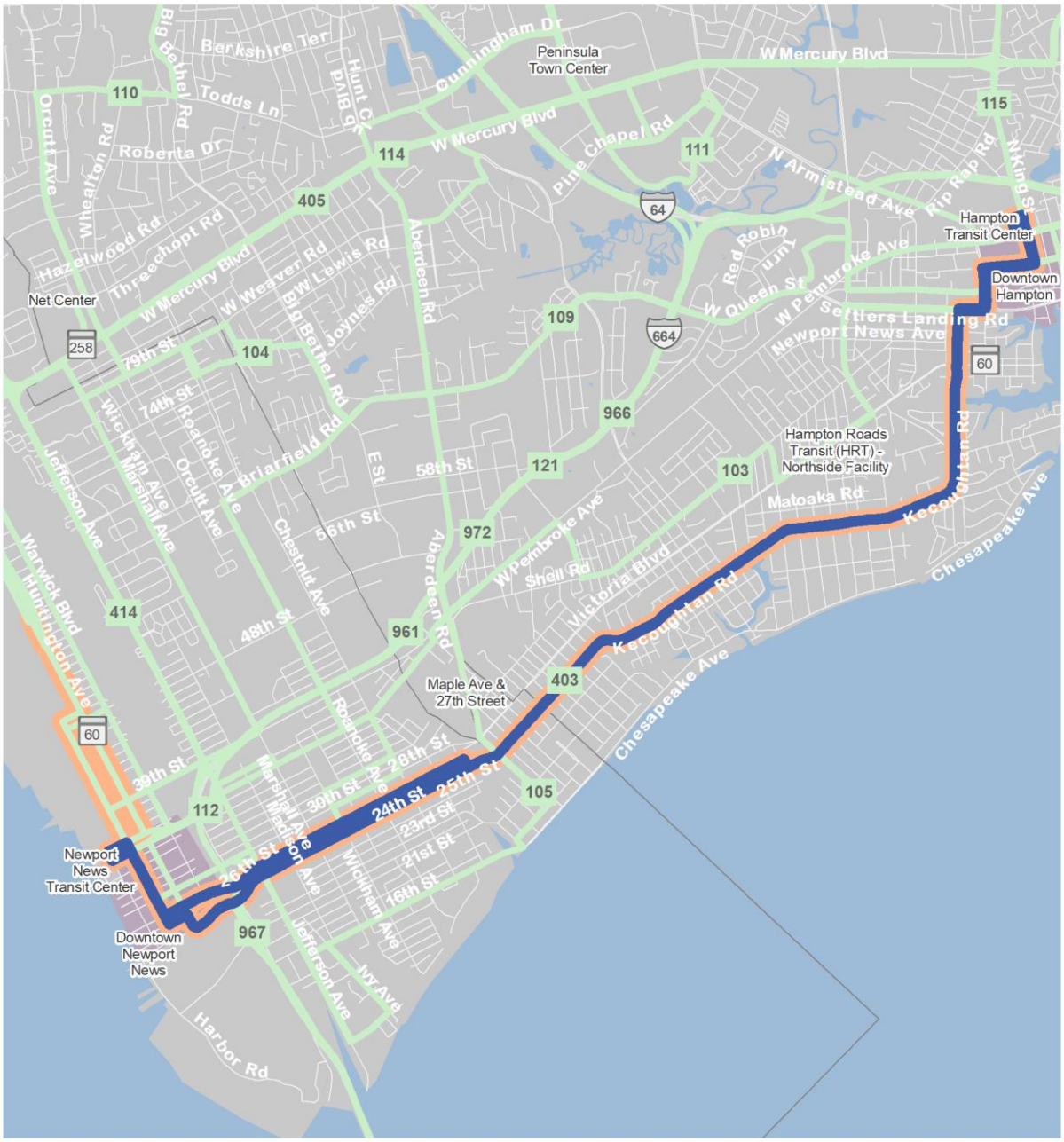
- Route 64 service will remain unchanged from what is currently offered.

Route 64

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.	✓	✓	✓
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 101


Peninsula Town Center
W Mercury Blvd
Cunningham Dr
Berkshire Ter
Big Bethel Rd
Todds Ln
Hunt Club Blvd
Orcutt Ave
Wheaton Rd
Roberta Dr
Hazelwood Rd
Threechopt Rd
Net Center
W Weaver Rd
Joynes Rd
Aberdeen Rd
Pine Chapel Rd
N Armistead Ave
Rip Rap Rd
N King St
Hampton Transit Center
Red Robin Way
W Queen St
W Pembroke Ave
Settlers Landing Rd
Newport News Ave
Downtown Hampton
79th St
74th St
Wickham Ave
Marshall Ave
Roanoke Ave
Briarfield Rd
E St
58th St
56th St
Chestnut Ave
Jefferson Ave
Warwick Blvd
Huntington Ave
48th St
Hampton Roads Transit (HRT) - Northside Facility
Matoaka Rd
Kecoughtan Rd
Chesapeake Ave
Shell Rd
Victoria Blvd
Maple Ave & 27th Street
39th St
30th St
28th St
25th St
24th St
23rd St
21st St
16th St
Newport News Transit Center
Downtown Newport News
Harbor Rd
Ivy Ave
110
405
114
111
115
109
664
64
966
121
103
972
961
403
414
104
112
105
967
258
60
Route 101
Miles
0
0.5
1
Focus Route
Planned Alignment
Existing Alignment
Planned System
Light Rail
Ferry
Military Bases
City Boundary
Activity Centers
N

Route 101

Service Classification
Local Priority

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	(Kecoughtan) Downtown Newport News / Downtown Hampton	(Kecoughtan) Downtown Newport News / Downtown Hampton
Jurisdictions	Hampton, Newport News	Hampton, Newport News

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:15 AM - 12:10 AM	5:00 AM - 1:00 AM
Saturday		5:15 AM - 12:10 AM	5:15 AM - 12:10 AM
Sunday		5:45 AM - 7:38 PM	5:15 AM - 12:10 AM
Headway			
		Existing	**Service Target**
Weekday	Early	30	60
	AM Peak	35	30
	Midday	35	30
	PM Peak	35	30
	Evening	60	60
	Late Night	60	60
Saturday	Base	35	30
	Non-Base	60	60
	Early / Late	60	60
Sunday	Base	60	30
	Non-Base	60	60
	Early / Late	-	60

Note
Route 101 is classified here as a Local Priority route, with Local Priority levels of service. In the plan shown in Chapter 6, which accounts for new dedicated funding for regional transit, Route 101 is classified as a Regional Backbone route because the additional funding allows for more routes to have high-frequency service.

Service Changes

- Route 101 will operate between the Newport News Transfer Center (NNTC) and Hampton Transfer Center (HTC), no longer serving Northgate (the current 3:40 PM trip will be provided by an additional trip on Route 403).
- Weekday service will be offered between 5:00 AM and 1:00 AM, which is a slightly later end time than currently offered on the Route 101.
- Service in the AM and PM peak and midday periods will be offered every 30 minutes, with hourly service being offered in the early morning and evening periods.
- On weekends, Sunday service is expanded to match current Saturday levels of service from 5:15 AM to 12:10 AM, with 30-minute headways from 6:00 AM to 9:00 PM and 60-minute headways during other times.
- In a future out-year, Route 101 will exceed the service design standards for the Local Priority service classification once weekend headways are improved.

PB SD

Justification

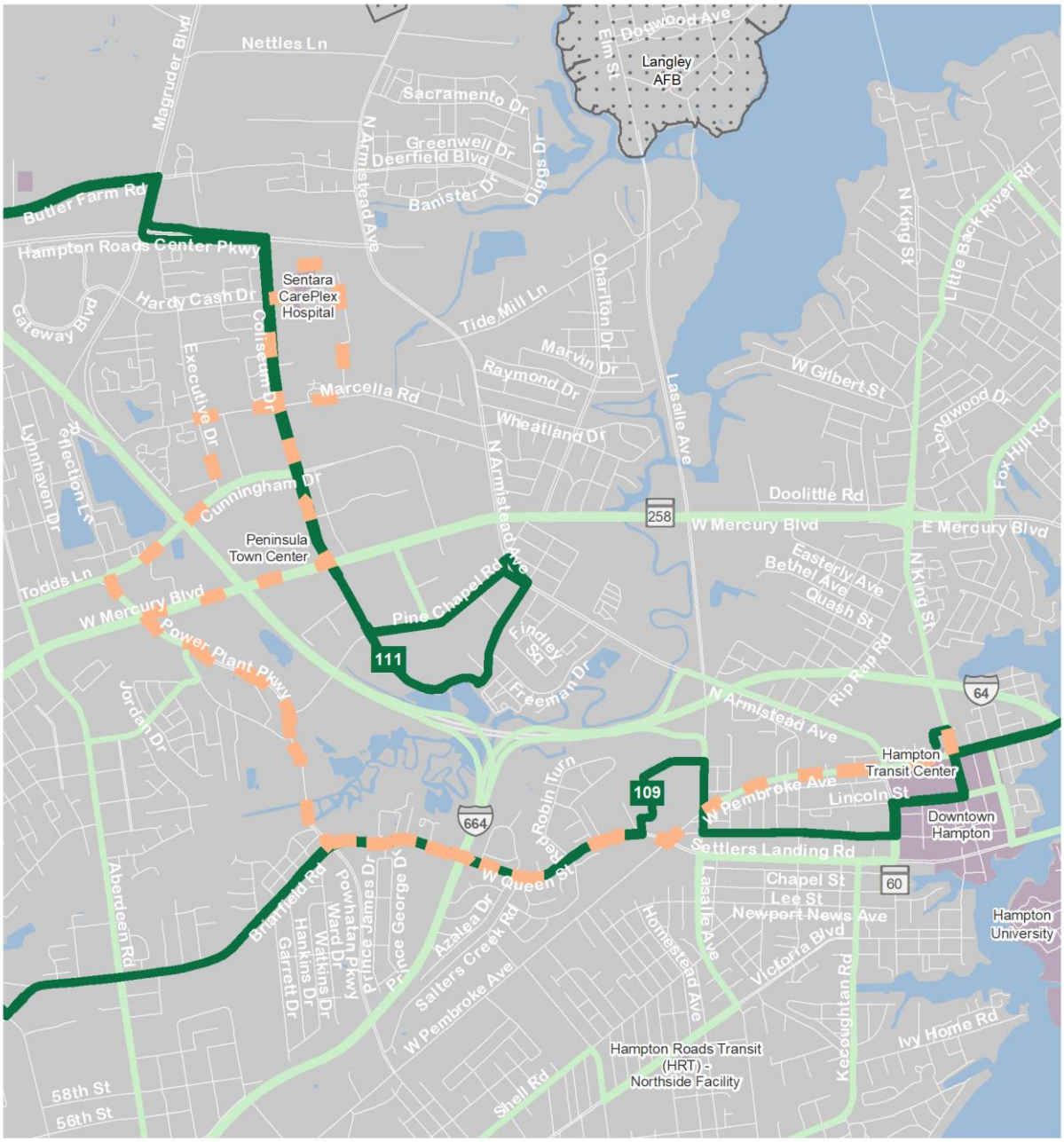
- Route 101 performs well on the six Key Performance Indicators (KPI) and warrants an increase in service.
- The service levels for Route 101 meet the service standards defined for Local Priority routes.

Route 101

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.			
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	Implement service target alignment and span. Adjust weekday and Saturday headways to meet service targets.	✓	✓	
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	Increase Sunday peak headways to 30 minutes.			✓

Route 102



Route 102

Miles
0 0.5

Focus Route

- Eliminated Route
- Routes Providing Replacement Coverage
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 102

Service Classification
-

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	(Coliseum) Peninsula Town Center / Downtown Hampton	-
Jurisdictions	Hampton	-

Level of Service			
Span			
		Existing	**Service Target**
Weekday		6:19 AM - 8:10 PM	-
Saturday		7:19 AM - 7:10 PM	-
Sunday		8:20 AM - 7:08 PM	-
Headway			
		Existing	**Service Target**
Weekday	Early	-	-
	AM Peak	60	-
	Midday	60	-
	PM Peak	60	-
	Evening	60	-
	Late Night	-	-
Saturday	Base	60	-
	Non-Base	-	-
	Early / Late	-	-
Sunday	Base	60	-
	Non-Base	-	-
	Early / Late	-	-

Service Changes

- Route 102 will be eliminated due to poor performance and the realignment of other nearby routes to cover much of the route's service. Routes 109 and 111 will provide similar connections that the 102 provides, with Route 109 operating on W Queen Street and Route 111 operating on Coliseum Drive. Medical Drive will be serviced via Coliseum Drive, provided by Route 111. Marcella Road and Executive Drive will no longer have service, but service on Routes 111 and 114 are within short walking distance.
- Segments of Power Plant Parkway and Pembroke Avenue losing service have low transit demand and are also within a half mile of other routes.

Justification

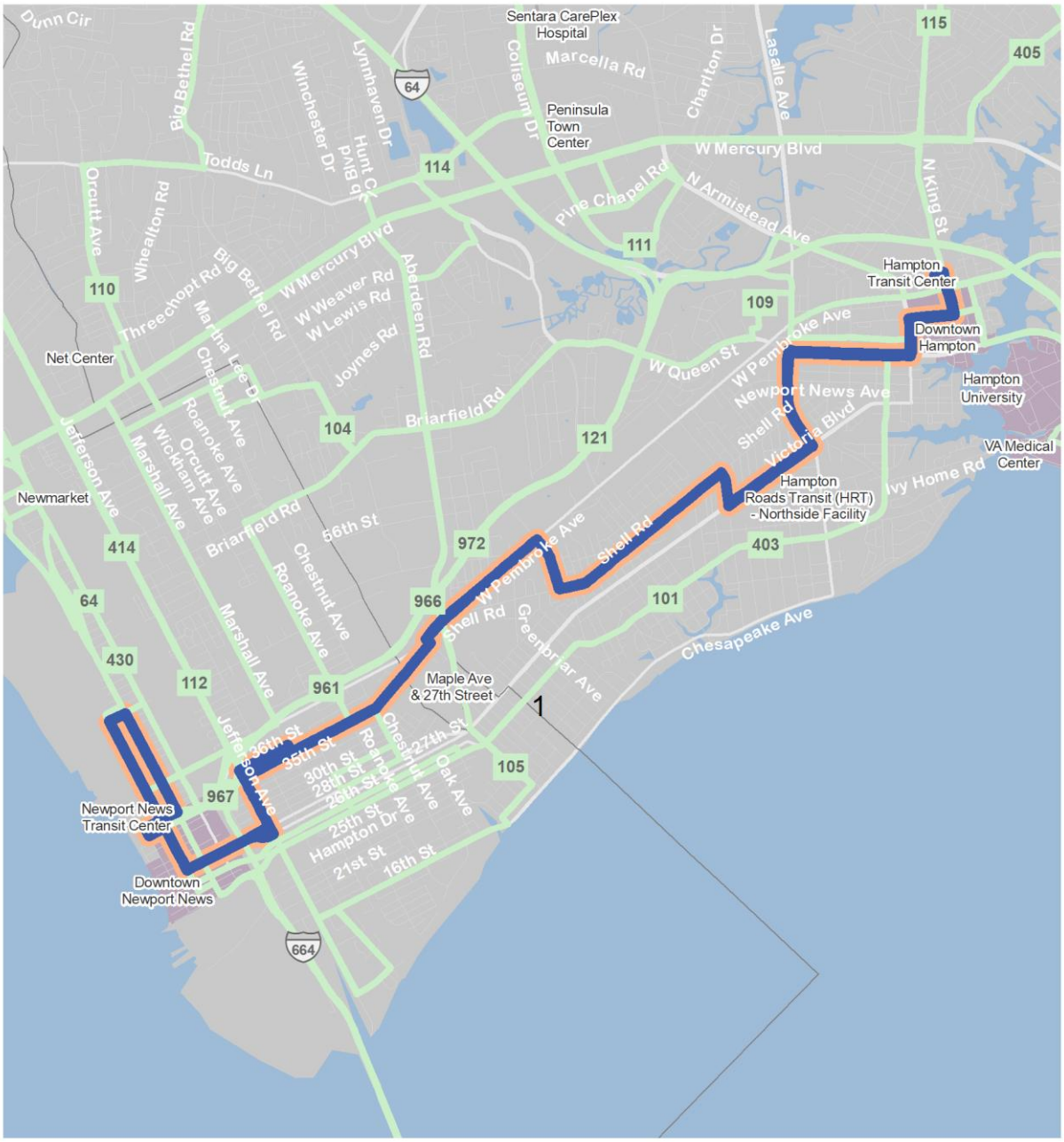
- Route 102 performs within the lowest third of routes on the six Key Performance Indicators (KPI) and as a result will be eliminated, with the resources from this eliminated service being used to further transit development elsewhere in Hampton.

Route 102

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	Sunday service removed.			
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	Route eliminated as called for by service target.	✓	✓	✓
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 103



Route 103

Miles
0 0.5 1 1.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 103

Service Classification
Local Priority

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Downtown Hampton / Downtown Newport News	Downtown Hampton / Downtown Newport News
Jurisdictions	Hampton, Newport News	Hampton, Newport News

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:15 AM - 11:52 PM	5:00 AM - 11:52 PM
Saturday		5:15 AM - 11:52 PM	5:15 AM - 11:52 PM
Sunday		7:30 AM - 8:07 PM	7:00 AM - 11:00 PM
Headway			
		Existing	**Service Target**
Weekday	Early	30	30
	AM Peak	30	30
	Midday	30	30
	PM Peak	30	30
	Evening	30	30
	Late Night	45	45
Saturday	Base	30	30
	Non-Base	30	30
	Early / Late	60	60
Sunday	Base	60	30
	Non-Base	60	60
	Early / Late	-	60

Service Changes

- No change to existing service alignment.
- Route 103 will start earlier on weekdays at 5:00 AM and will maintain existing headways.
- Saturday span of service and headways will remain the same as existing.
- Sunday span of service will be increased to 7:00 AM through 11:00 PM, with half hour service offered much of the day.
- In a future out-year, Route 103 will exceed the service design standards for the Local Priority service classification, once the span improvements are made.

PB SD

Justification

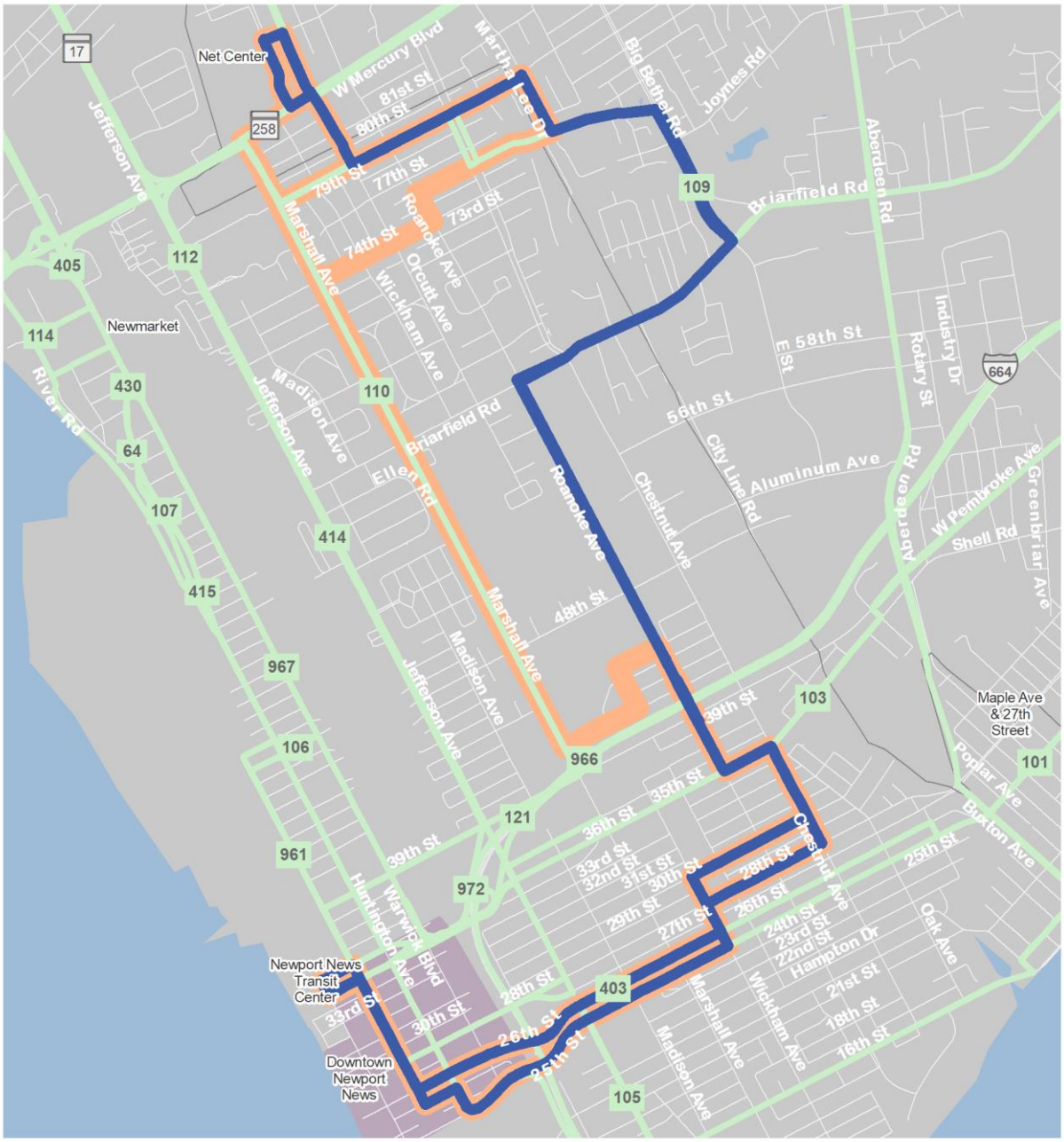
- Route 103 performs around average on the six Key Performance Indicators (KPI). As such, the current Route 103 alignment will be maintained, as will the span of service and the existing headways on weekdays and Saturdays, with shorter headways and a longer span of service being introduced on Sundays.
- For most of its alignment, Route 103 operates within a half mile of Route 101. By increasing service on both routes, service will be enhanced in this corridor.
- The service levels for Route 103 meet the service standards defined for Local Priority routes.

Route 103

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.	✓		
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	Begin weekday service at 5:00 AM. Increase Sunday span to 7:00 AM – 11:00 PM and change Sunday peak headways to 30 minutes.		✓	✓

Route 104



Route 104

Miles
0 0.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 104

Service Classification
Coverage

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	(Marshall) Downtown Newport News / Newmarket	(Roanoke) Downtown Newport News / Newmarket
Jurisdictions	Hampton, Newport News	Hampton, Newport News

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:45 AM - 10:41 PM	5:00 AM - 11:00 PM
Saturday		5:45 AM - 10:41 PM	6:00 AM - 11:00 PM
Sunday		5:45 AM - 7:43 PM	6:00 AM - 11:00 PM
Headway			
		Existing	**Service Target**
Weekday	Early	30	60
	AM Peak	30	30
	Midday	30	30
	PM Peak	30	30
	Evening	30	60
	Late Night	-	-
Saturday	Base	30	60
	Non-Base	30	60
	Early / Late	60	60
Sunday	Base	60	60
	Non-Base	60	60
	Early / Late	60	60

Service Changes

- Route 104 will be realigned from serving 41st Street and Marshall Avenue to continue on Roanoke Avenue, then travel east on Briarfield Road, north on Big Bethel Road, west on Lassiter Drive, north on Martha Lee Drive, west on 79th Street, and north on Orcutt Avenue to serve the Net Center. Route 110 will operate along the segment of Marshall Road currently served by Route 104.
- Weekday service will be offered hourly beginning at 5:00 AM and ending at 11:00 PM. Half hour service will be offered between 6:00 AM and 6:00 PM.
- On weekends, span of service will be adjusted to 6:00 AM to 11:00 PM, with hourly service throughout the day.
- In FY 2027, Route 104 will meet the service targets and service design standards for Coverage routes.

Justification

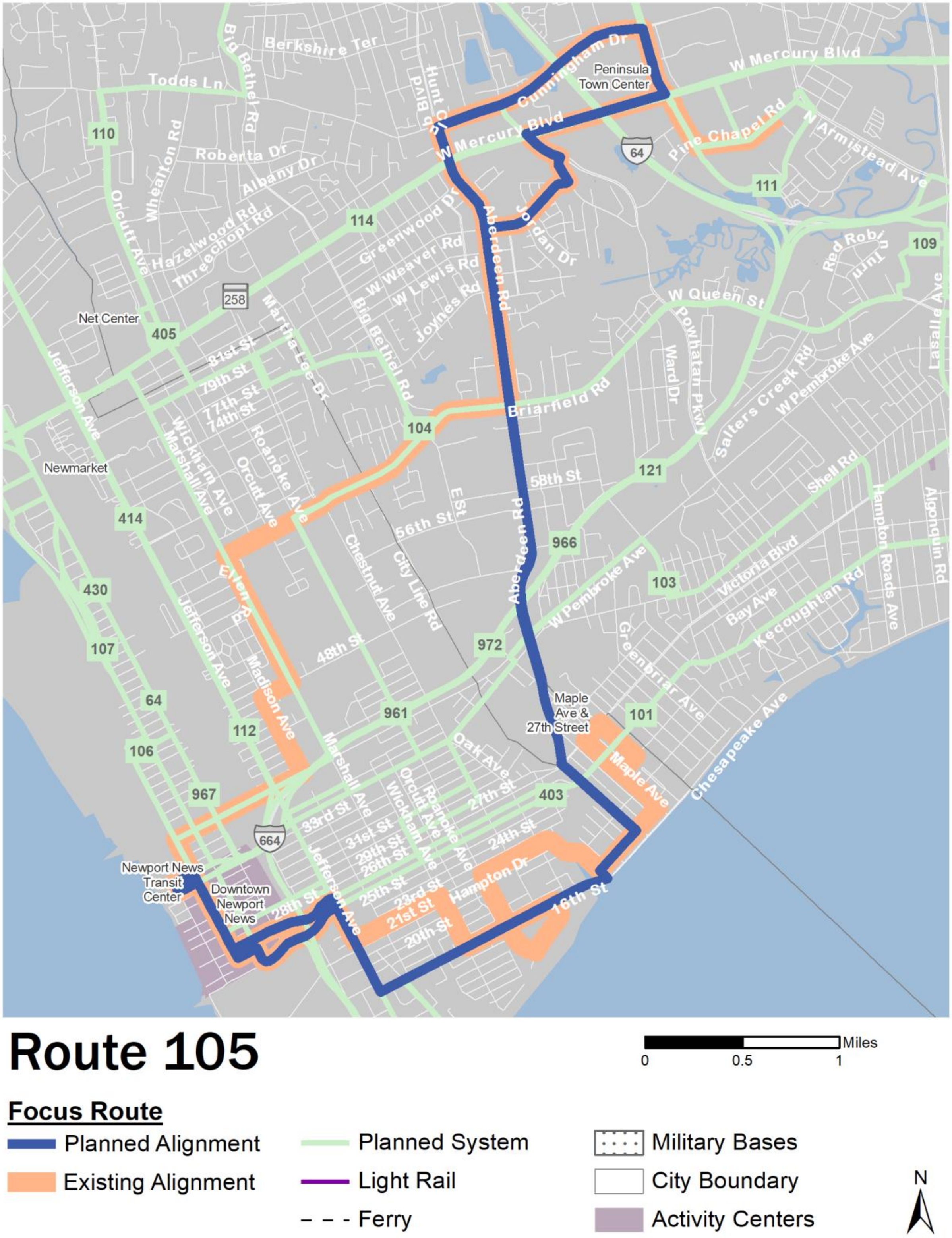
- Route 104 performs around average on the six Key Performance Indicators (KPI). The alignment and level of service changes were designed to improve the route's performance.
- The current Route 104 operates along several different corridors within Newport News. Route 104 will operate along a more streamlined alignment between Net Center and the Newport News Transit Center, offering fewer turns and a simplified alignment which will help make the route easier to understand for all users and make the operations more efficient.
- The alignment changes to Route 104 were developed in concert with service changes to Route 105 and Route 110 to improve route directness and on-time performance, and to create routes that are simpler to understand.
- The service levels for Route 104 meet the service standards defined for Coverage routes.

Route 104

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.			
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	Implement service target alignment and span. Change weekday early and evening headways to 60 minutes and Saturday headways to 60 minutes.	✓	✓	✓
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 105


Route 105
Focus Route
Planned Alignment
Existing Alignment
Planned System
Light Rail
Ferry
Military Bases
City Boundary
Activity Centers
Miles
0
0.5
1
N
Peninsula Town Center
Net Center
Newmarket
Maple Ave & 27th Street
Newport News Transit Center
Downtown Newport News
W Mercury Blvd
Cunningham Dr
Aberdeen Rd
Jordan Dr
Briarfield Rd
Pine Chapel Rd
Chesapeake Ave
Maple Ave
Hampton Dr
16th St
28th St
Jefferson Ave
Marshall Ave
Roanoke Ave
Madison Ave
Ellen Rd
W Queen St
Powhatan Pkwy
Kecoughtan Rd
Victoria Blvd
Shell Rd
W Pembroke Ave
Greenbriar Ave
Big Bethel Rd
Todds Ln
Berkshire Ter
Roberta Dr
Albany Dr
Hazelwood Rd
Threechopt Rd
Orcutt Ave
Wheaton Rd
Chestnut Ave
City Line Rd
Oak Ave
Hampton Roads Ave
Algonquin Rd
Lasalle Ave
N Armistead Ave
Salters Creek Rd
Ward Dr
110
114
405
414
430
107
64
106
967
112
961
972
966
121
104
103
101
403
111
109
258
664

Route 105

Service Classification
Local Priority

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Maple Avenue & 27th Street / Peninsula Town Center	Downtown Newport News / Penninsula Town Center
Jurisdictions	Hampton, Newport News	Hampton, Newport News

Level of Service			
Span			
		Existing	**Service Target**
Weekday		6:12 AM - 12:13 AM	5:00 AM - 12:13 AM
Saturday		6:15 AM - 12:13 AM	6:15 AM - 12:13 AM
Sunday		8:15 AM - 8:13 PM	6:15 AM - 12:13 AM
Headway			
		Existing	**Service Target**
Weekday	Early	-	60
	AM Peak	60	30
	Midday	60	30
	PM Peak	60	30
	Evening	60	60
	Late Night	60	60
Saturday	Base	60	30
	Non-Base	60	60
	Early / Late	60	60
Sunday	Base	60	30
	Non-Base	-	60
	Early / Late	-	60

Service Changes

- Route 105 will travel via a more direct path between the Peninsula Town Center / Riverdale Plaza Shopping Center and the Newport News Transit Center (NNTC). Where the existing route currently travels onto Briarfield Road from Aberdeen Road, the service will remain on Aberdeen Road / Buxton Avenue, and will then travel on Blair Avenue and 16th Street, then finish the trip to NNTC.
- Service along Maple Avenue, Hampton Avenue and Garden Drive will be eliminated. The realigned Route 110 will provide service from along Marshall Avenue. The realigned Route 104 will operate on Briarfield Road between Roanoke Avenue and Big Bethel Road. Other portions of Briarfield Road will lose service from Route 105 but will be mostly covered by the realigned Routes 104 and 109.
- The existing Route 105 tripper from Pine Chapel and Barrack will be eliminated.
- The weekday span of service will begin an hour earlier at 5:00 AM to match the standards for Local Priority routes. During the weekday peak periods and weekday midday, service will be offered half hourly, which represents an increase over the hourly service offered on the current Route 105. Service will be offered hourly through the rest of the service day.
- The Saturday span of service will be the same as offered on the current Route 105; however, 30-minute service will be offered through much of the service day, an increase over what is currently offered. The Sunday span and headways will be increased to match what is offered on Saturday.
- In a future out-year, Route 105 will exceed the service design standards for the Local Priority service classification once span and headway updates are complete.

Route 105

PB EB SD

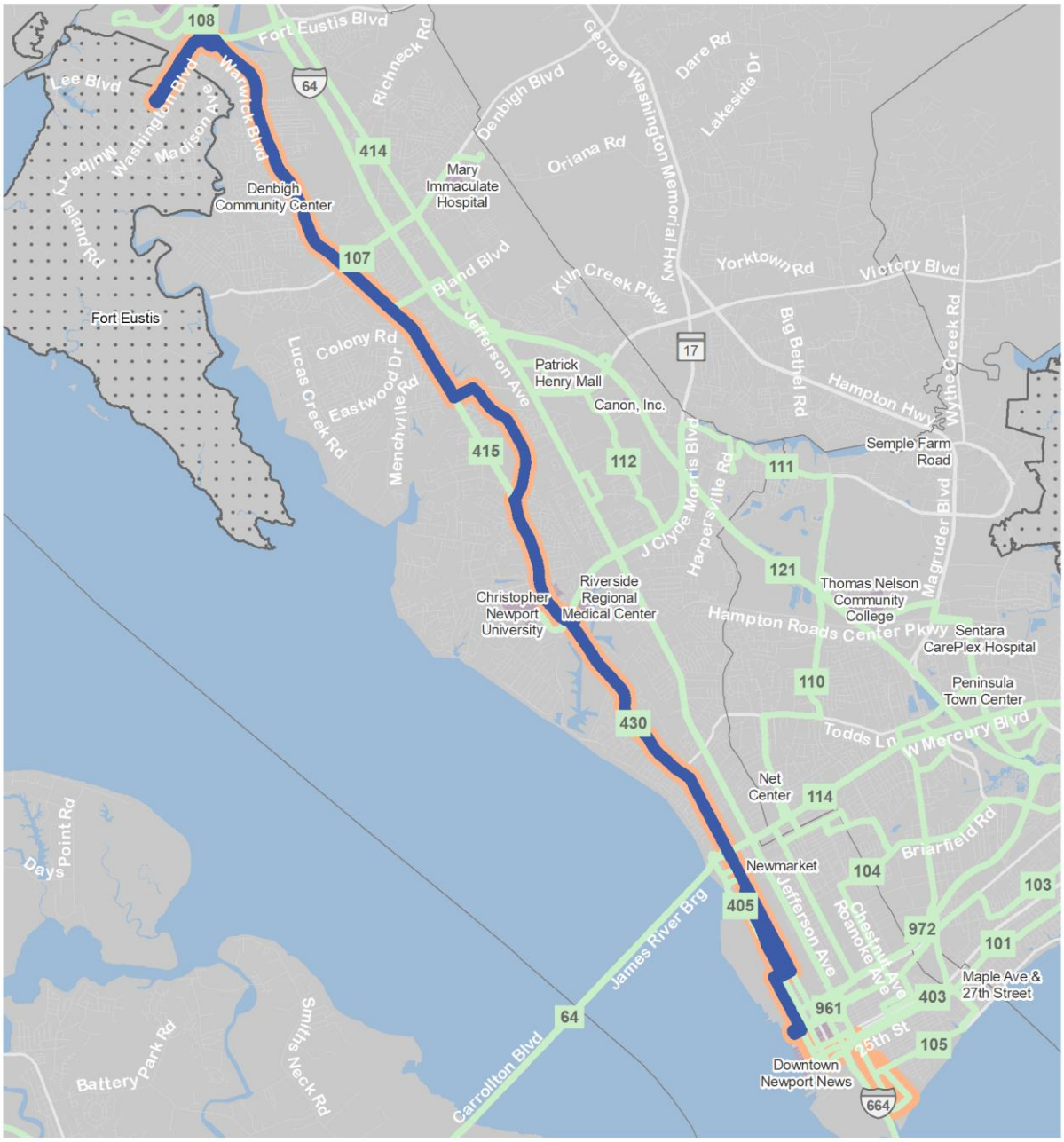
Justification

- Route 105 performs above average on the six Key Performance Indicators (KPI). In order to increase ridership on an already well-performing route, its level of service will be increased, and the realignment will provide more direct and efficient service.
- Route 105's realignment provides more direct service between Peninsula Town Center and Downtown Newport News via Aberdeen Road, compared to its existing circuitous route pattern. Adjustments to Route 104 and Route 110 will provide coverage through much of the areas no longer served by Route 105, allowing for more efficient service in these areas.
- A more simplified routing through the Wilson, Magruder, Reed and Marshall communities is also planned, which may require short walks to access the service, but which will help to provide shorter overall trip times and improved on time performance.
- The alignment changes to Route 105 were developed in concert with service changes to Route 104 and Route 110 to improve route directness and on-time performance, and to create routes that are simpler to understand.
- The service levels for Route 105 meet the service standards defined for Local Priority routes.

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.			
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	Implement service target alignment.	✓		
2028	Change weekday peak headways to 30 minutes and Saturday and Sunday peak headways to 30 minutes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	Begin weekday service at 5:00 AM and increase weekday midday headways to 30 minutes. Extend Sunday span to match Saturday.		✓	✓

Route 106



Route 106

Miles
0 0.5 1 1.5 2 2.5 3

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 106

Service Classification
Local Priority

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Newport News / Warwick Boulevard / Denbigh Fort Eustis	Newport News Transit Center / Warwick Boulevard / Denbigh Fort Eustis
Jurisdictions	Newport News	Newport News

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:09 AM - 12:42 AM	5:00 AM - 12:42 AM
Saturday		5:09 AM - 12:42 AM	5:09 AM - 12:42 AM
Sunday		5:59 AM - 8:19 PM	5:59 AM - 11:00 PM
Headway			
		Existing	**Service Target**
Weekday	Early	20	60
	AM Peak	60	30
	Midday	60	30
	PM Peak	60	30
	Evening	60	60
	Late Night	60	60
Saturday	Base	60	30
	Non-Base	60	60
	Early / Late	60	60
Sunday	Base	60	30
	Non-Base	60	60
	Early / Late	-	60

Service Changes

- Starting in FY 2021, Route 106 service will no longer operate on Ivy Avenue and 6th Street; the area will instead be served via the realigned Route 112.
- The weekday span of service on Route 106 will be maintained, and hourly service will continue to be offered throughout the service day.
- The Saturday span of service on Route 106 will be maintained and half hour service will be offered during the weekend base period.
- The Sunday span of service will be expanded to end at 11:00 PM and half hour service will be offered during the base period.
- In a future out-year, Route 106 and Route 107 effective combined service along Warwick Boulevard will exceed the service design standards for the Local Priority service classification.

PB SD

Justification

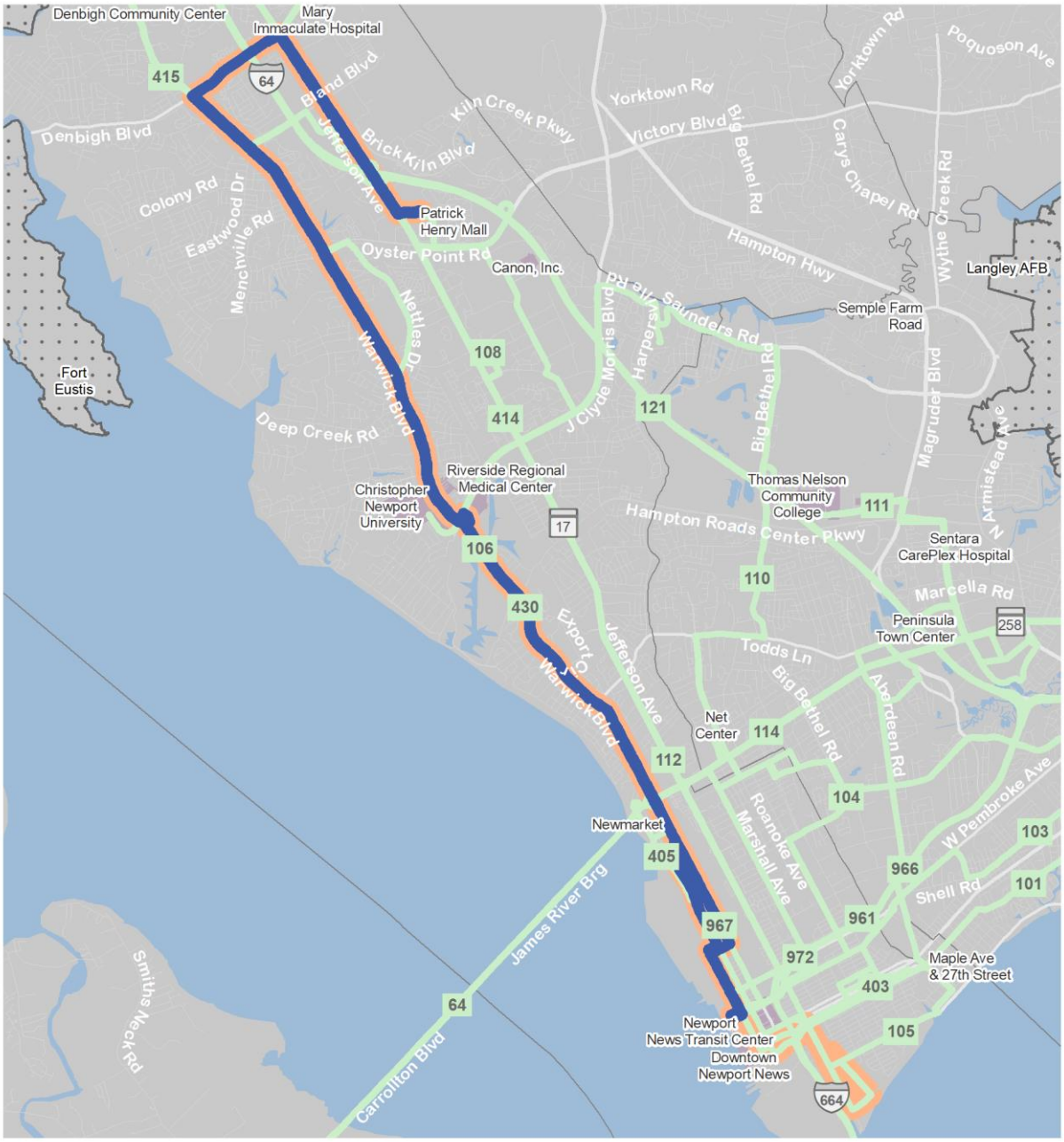
- Route 106 performs around or above average on the six Key Performance Indicators (KPI). The realigned Route 106 will operate similarly as the current Route 106, with the exception of service being removed from Ivy Avenue and 6th Street. This service change will help to streamline the service and improve on-time performance. Service on Ivy Avenue and 6th Street will now be provided by Route 112.
- The span and level of service will also be similar to the existing route, with the exception of later service being offered on Sundays, which will meet the service standards for Local Priority routes.
- In conjunction with Route 107, Route 106 will provide 20- to 30-minute service all day on Warwick Boulevard between Nettles Drive and Newport News Transit Center.

Route 106

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	Route 106 will no longer operate on Ivy Avenue and 6th Street; the area will instead be served via the realigned Route 112. No changes from existing LOS.	✓		
2022	Change weekday span to 5:00 AM – 12:42 AM and change Sunday span to end at 9:00 PM. Change weekday early headway to 60 minutes.			
2023	No additional changes.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	Change weekday peak headways to 30 minutes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	Extend Sunday span end to 11:00 PM. Change weekday midday and weekend peak headways to 30 minutes.		✓	✓

Route 107



Route 107

0 0.5 1 1.5 2 2.5 Miles

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 107

Service Classification
Local Priority

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Newport News / Warwick Boulevard / Denbigh	Newport News Transit Center / Warwick Boulevard / Denbigh / Patrick Henry Mall
Jurisdictions	Newport News	Newport News

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:59 AM - 12:07 AM	5:00 AM - 12:07 AM
Saturday		5:59 AM - 12:07 AM	6:00 AM - 12:07 AM
Sunday		7:15 AM - 8:27 PM	6:00 AM - 9:00 PM
Headway			
		Existing	**Service Target**
Weekday	Early	-	60
	AM Peak	60	60
	Midday	60	60
	PM Peak	60	60
	Evening	60	60
	Late Night	60	60
Saturday	Base	60	60
	Non-Base	60	60
	Early / Late	60	60
Sunday	Base	60	60
	Non-Base	60	60
	Early / Late	-	-

Service Changes

- Similar to the service changes for Route 106, starting in FY 2021, Route 107 service on Ivy Avenue and 6th Street will be eliminated, and this area will instead be served via the realigned Route 112.
- Weekday service on Route 107 will start an hour earlier at 5:00 AM. Hourly service will continue to be provided throughout the service day.
- Saturday service on Route 107 will be offered from 6:00 AM to 12:07 AM, at hourly intervals, which is the same as provided by the current Route 107.
- The Sunday span of service will be adjusted to operate from 8:00 AM to 7:00 PM.
- In a future out-year, Route 106 and Route 107 effective combined service along Warwick Boulevard will exceed the service design standards for the Local Priority service classification.

PB SD

Justification

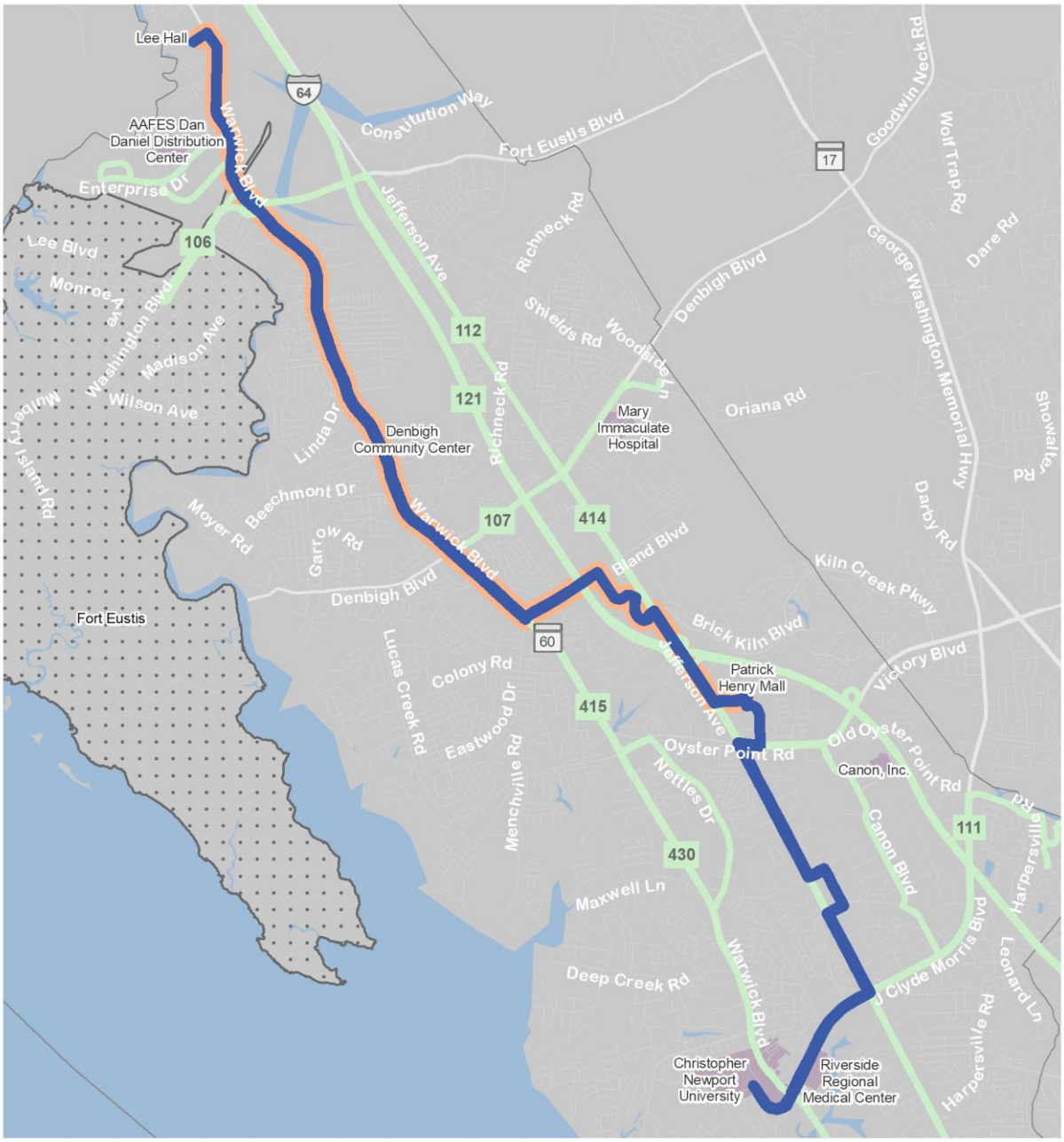
- Route 107 performs around or above average on the six Key Performance Indicators (KPI). Route 107 will operate similarly as the current Route 107, with the exception of service being removed from Ivy Avenue and 6th Street. This service change will help to streamline the service and improve on-time performance. Service on Ivy Avenue and 6th Street will now be provided by Route 112.
- In conjunction with Route 106, Route 107 will provide 20- to 30-minute service all day on Warwick Boulevard between Nettles Drive and Newport News Transit Center, which combined matches the defined service standards for Local Priority routes.

Route 107

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	Route 107 will no longer operate on Ivy Avenue and 6th Street; the area will instead be served via the realigned Route 112. No changes to from existing LOS.	✓		
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	Begin weekday service at 5:00 AM. Extend Sunday span to 6:00 AM – 9:00 PM.		✓	✓
2030	No additional changes.			
Out-years	No additional changes.			

Route 108



Route 108

0 0.5 1 1.5 2 Miles

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 108

Service Classification
Coverage

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Patrick Henry Mall / Lee Hall	Boulevard Park / Patrick Henry Mall / Lee Hall
Jurisdictions	Newport News	Newport News

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:55 AM - 11:31 PM	5:00 AM - 9:00 PM
Saturday		5:55 AM - 11:31 PM	6:00 AM - 9:00 PM
Sunday		6:35 AM - 7:02 PM	6:00 AM - 9:00 PM
Headway			
		Existing	**Service Target**
Weekday	Early	-	60
	AM Peak	60	60
	Midday	60	60
	PM Peak	60	60
	Evening	60	60
	Late Night	60	-
Saturday	Base	60	60
	Non-Base	60	60
	Early / Late	60	-
Sunday	Base	60	60
	Non-Base	60	60
	Early / Late	-	-

Service Changes

- Route 108 will be extended from Patrick Henry Mall to Fishing Point, Riverside Regional Medical Center, and Christopher Newport University, providing service to areas along the southern portion of the eliminated Route 116.
- Route 108 will offer hourly weekday service that will begin and end earlier than the current service, starting at 5:00 AM and ending at 9:00 PM.
- Saturday service will be provided hourly beginning at 6:00 AM and ending at 9:00 PM, which represents a decrease in service compared to the current route. Sunday service will be increased to match Saturday service levels.
- In FY 2025, Route 108 will exceed the service design standards for the Coverage service classification.

SD

Justification

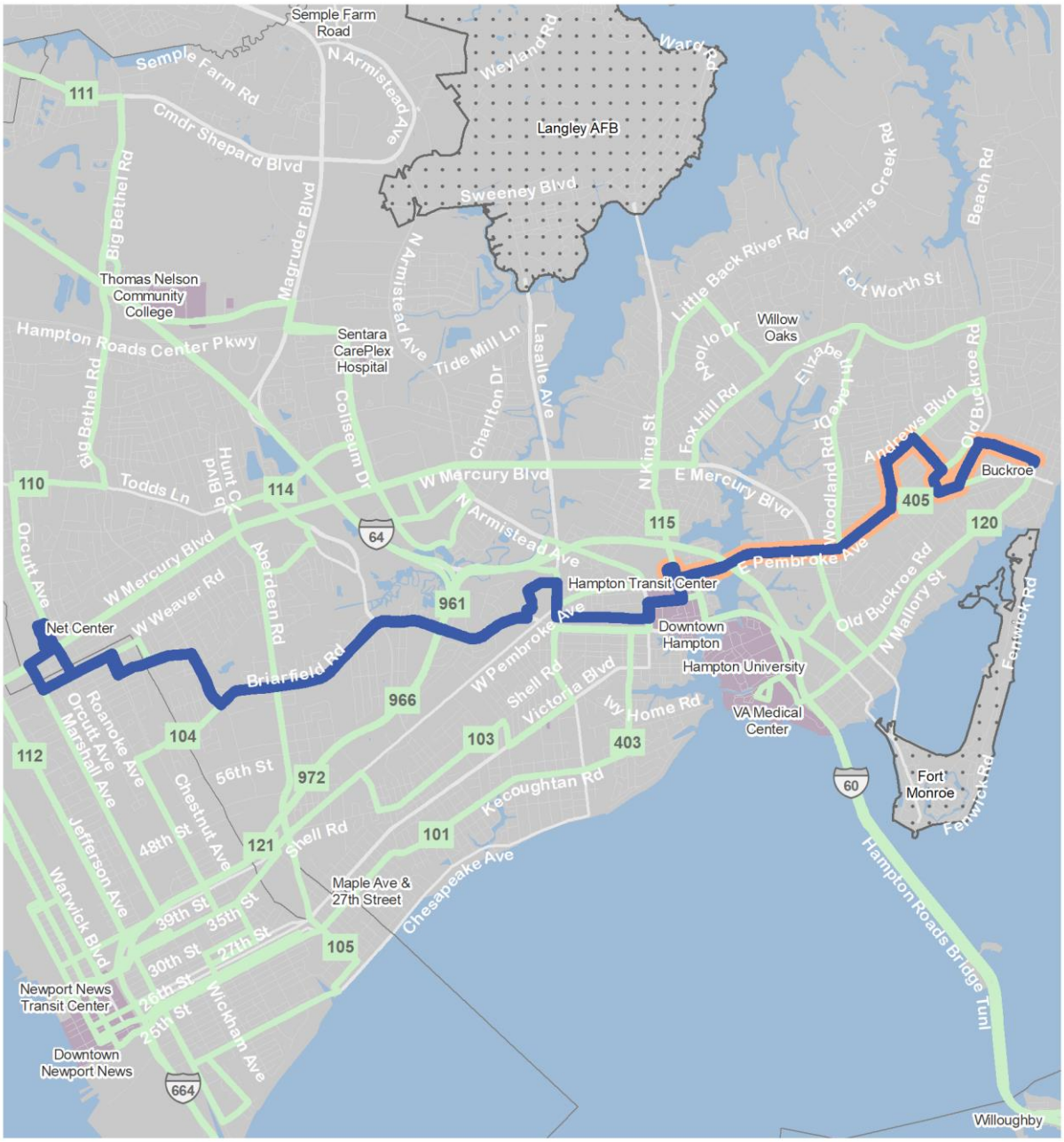
- The realignment of Route 108 will help to cover some of the service lost through the elimination of the current Route 116.
- The adjustments in start and end times during the weekday and weekend service day, and the headways, are reflective of the service standards developed for Coverage routes.

Route 108

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes to existing alignment or LOS.			
2022	Implement service target alignment. Change weekday span to 5:55 AM – 9:00 PM and Saturday span to 6:00 AM – 9:00 PM.	✓		
2023	No additional changes.			
2024	No additional changes.			
2025	Begin weekday service at 5:00 AM. Extend Sunday span to 6:00 AM – 9:00 PM.		✓	✓
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 109



Route 109

Miles
0 0.5 1 1.5 2

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 109

Service Classification
Local Priority

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	(Pembroke) Downtown Hampton / Buckroe	Net Center / Buckroe
Jurisdictions	Hampton	Hampton, Newport News

Level of Service			
Span			
		Existing	**Service Target**
Weekday		6:51 AM - 10:05 PM	5:00 AM - 11:00 PM
Saturday		7:45 AM - 9:10 PM	6:00 AM - 11:00 PM
Sunday		6:45 AM - 7:10 PM	6:00 AM - 11:00 PM
Headway			
		Existing	**Service Target**
Weekday	Early	-	60
	AM Peak	60	30
	Midday	60	30
	PM Peak	60	30
	Evening	60	30 until 8:00 PM, 60 after
	Late Night	-	-
Saturday	Base	60	30
	Non-Base	60	60
	Early / Late	-	60
Sunday	Base	60	30
	Non-Base	60	60
	Early / Late	-	60

Service Changes

- Route 109 service will be extended from its current terminus at the Hampton Transit Center to Net Center via the existing Route 110 alignment, thus providing direct service between Net Center, Hampton Transit Center, and the Mallory/Buckroe area.
- The weekday span of service for Route 109, which will start at 5:00 AM, will see service offered nearly two hours earlier than the current start time; the route end time of 9:00 PM will end one hour earlier than current service. The additional early morning service will be provided hourly, while the AM and PM peak, midday, and most of the evening period will see service offered at half hour intervals.
- Saturday service will be provided between 6:00 AM and 9:00 PM, which offers nearly two hours of additional early morning service. Sunday service will match Saturday service, which offers approximately one hour earlier and one hour later service over what is current provided. All weekend service will be offered hourly.
- In a future out-year, Route 109 will exceed the service design standards for the Local Priority service classification once the span and headway targets are fully reached.

Justification

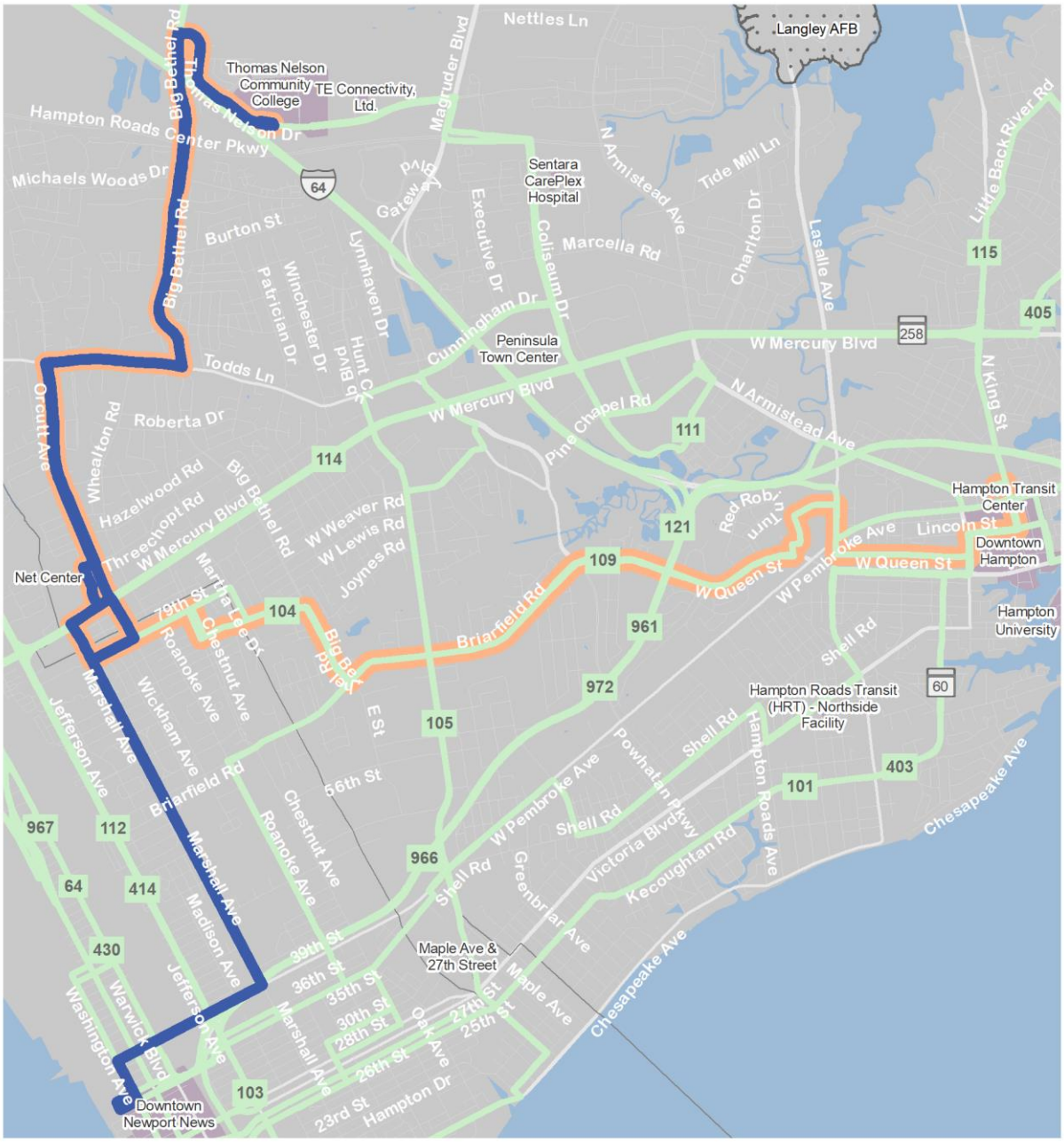
- Route 109 will now function as a comprehensive crosstown service between Net Center in Newport News and Buckroe in Hampton via the Hampton Transit Center. The service change will provide a one seat ride between the two termini, where currently a transfer is needed to complete this trip. Transfers to several other HRT north-south routes will be possible along the new alignment, enhancing transit connectivity throughout the Peninsula.
- The extension of Route 109 will operate via the current alignment of the Route 110 between the Hampton Transit Center and Net Center, which will allow the Route 110 to be realigned and streamlined and will allow service to be more efficient in this area.
- The service levels for Route 109 meet the service standards defined for Local Priority routes.

Route 109

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.			
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	Implement service target alignment.	✓		
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	Increase span to meet service targets. Change weekday peak, weekday midday, and weekend peak headways to 30 minutes.		✓	✓

Route 110



Route 110

Miles
0 0.5 1

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 110

Service Classification
Local Priority

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Downtown Hampton / Thomas Nelson Community College	Downtown Newport News / Thomas Nelson Community College
Jurisdictions	Hampton, Newport News	Hampton, Newport News

Level of Service			
Span			
		Existing	**Service Target**
Weekday		6:00 AM - 10:50 PM	5:00 AM - 11:00 PM
Saturday		7:00 AM - 10:50 PM	7:00 AM - 11:00 PM
Sunday		8:00 AM - 7:48 PM	7:00 AM - 11:00 PM
Headway			
		Existing	**Service Target**
Weekday	Early	-	60
	AM Peak	60	30
	Midday	60	30
	PM Peak	60	30
	Evening	60	30 until 8:00 PM, 60 after
	Late Night	-	-
Saturday	Base	60	30
	Non-Base	60	60
	Early / Late	-	60
Sunday	Base	60	30
	Non-Base	-	60
	Early / Late	-	60

Service Changes

- Route 110 will provide a new direct connection between Thomas Nelson Community College, Net Center, and Newport News Transit Center. It will operate on Marshall Avenue, replacing existing Marshall Avenue service provided by Routes 104 and 105.
- The existing Route 110 alignment from Net Center to Hampton Transit Center will be covered by the realigned Route 109.
- Weekday service will be offered between 5:00 AM and 11:00 PM, which offers one earlier hour of service when compared to the current route. Half hour service will be offered during the AM and PM peak, midday and evening (through 8:00 PM) periods. Hourly service will be offered during all other times.
- Saturday service will be offered hourly between 7:00 AM and 11:00 PM, which matches the existing service. Sunday service will be increased to match Saturday service, which will provide an additional hour of service in the morning and three hours of additional service in the evening when compared to the current Route 110.
- In a future out-year, Route 110 will exceed the service design standards for the Local Priority service classification once the span and headway targets are fully reached.

EB SD

Justification

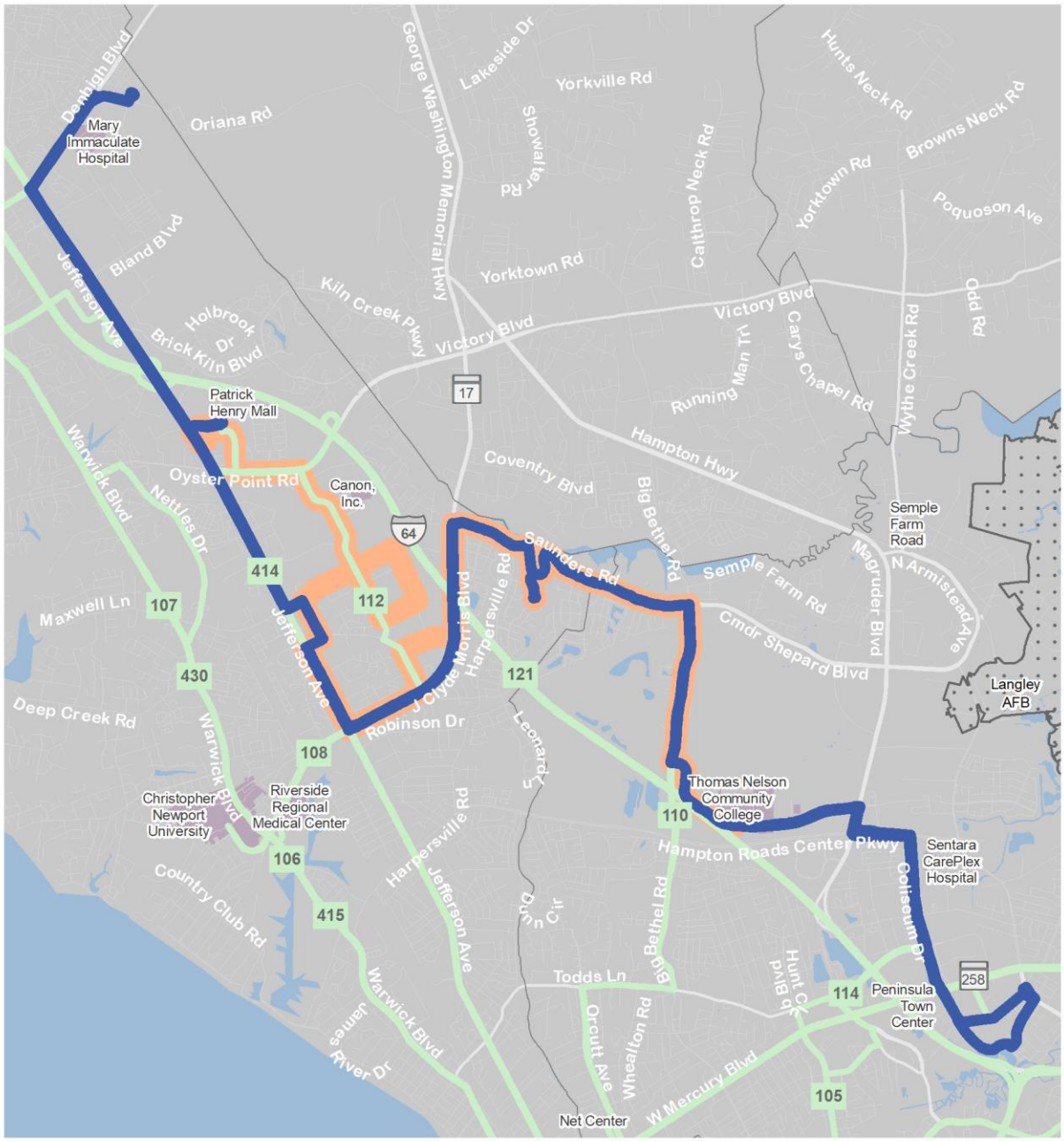
- Route 110 performs around or below average on the six Key Performance Indicators (KPI). The alignment changes to Route 110 were developed in concert with service changes to Route 104 and Route 105 in an effort to improve route directness and on-time performance, and to create routes that are simpler to understand.
- The extension of Route 109 will cover the portion of the existing Route 110 between Net Center and the Hampton Transit Center. This allows for Route 110 to provide a direct connection between Downtown Newport News and the Thomas Nelson Community College.
- The increases to the levels of service are to match the service standards defined for Local Priority routes.

Route 110

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.			
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	Implement service target alignment.	✓		
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	Increase span to meet service targets. Change weekday peak, weekday midday, and weekend base headways to 30 minutes and evening headways to 30 minutes before 8:00 PM.		✓	✓

Route 111



Route 111

Miles
0 0.5 1 1.5 2

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 111

Service Classification
Coverage

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Thomas Nelson Community College / Patrick Henry Lane	Peninsula Town Center / Thomas Nelson Community College / Patrick Henry Mall / Denbigh
Jurisdictions	Hampton, Newport News	Hampton, Newport News

Level of Service			
Span			
		Existing	**Service Target**
Weekday		6:54 AM - 10:48 PM	5:00 AM - 10:48 PM
Saturday		7:00 AM - 10:39 PM	7:00 AM - 10:39 PM
Sunday		7:50 AM - 7:31 PM	7:50 AM - 7:31 PM
Headway			
		Existing	**Service Target**
Weekday	Early	-	60
	AM Peak	60	60
	Midday	60	60
	PM Peak	60	60
	Evening	60	60
	Late Night	-	-
Saturday	Base	60	60
	Non-Base	60	60
	Early / Late	-	60
Sunday	Base	60	60
	Non-Base	-	60
	Early / Late	-	-

Note
During the process of updating the service plan in the next annual update of the TSP, HRT will explore a potential alteration to the Route 111 alignment in order to more closely serve the Community Resource Center on Medical Drive, potentially via Marcalla Road.

Service Changes

- Route 111 will be realigned by extending the route beyond Thomas Nelson to connect to Peninsula Town Center, covering a portion of the eliminated Route 118 and providing service to Sentara CarePlex Hospital. Route 111 service will be streamlined on J Clyde Morris Boulevard and Jefferson Avenue to Patrick Henry Mall, and will terminate at Denbigh, covering a portion of the eliminated Route 116.
- Route 111 will no longer deviate into the City Center area. Route 112, a high-frequency route, will provide adequate service in that area.
- On weekdays Route 111 will begin service two hours earlier, starting at 5:00 AM. Service will be provided at hourly intervals, which matches current headways.
- Saturday and Sunday spans will remain the same as existing. All weekend service is provided hourly. Sunday service will not operate in Hampton.
- In a future out-year, Route 111 will exceed the service design standards for the Coverage service classification once the span standard is fully met and Sunday service operates on the full length of the route, between Denbigh and Peninsula Town Center.

Justification

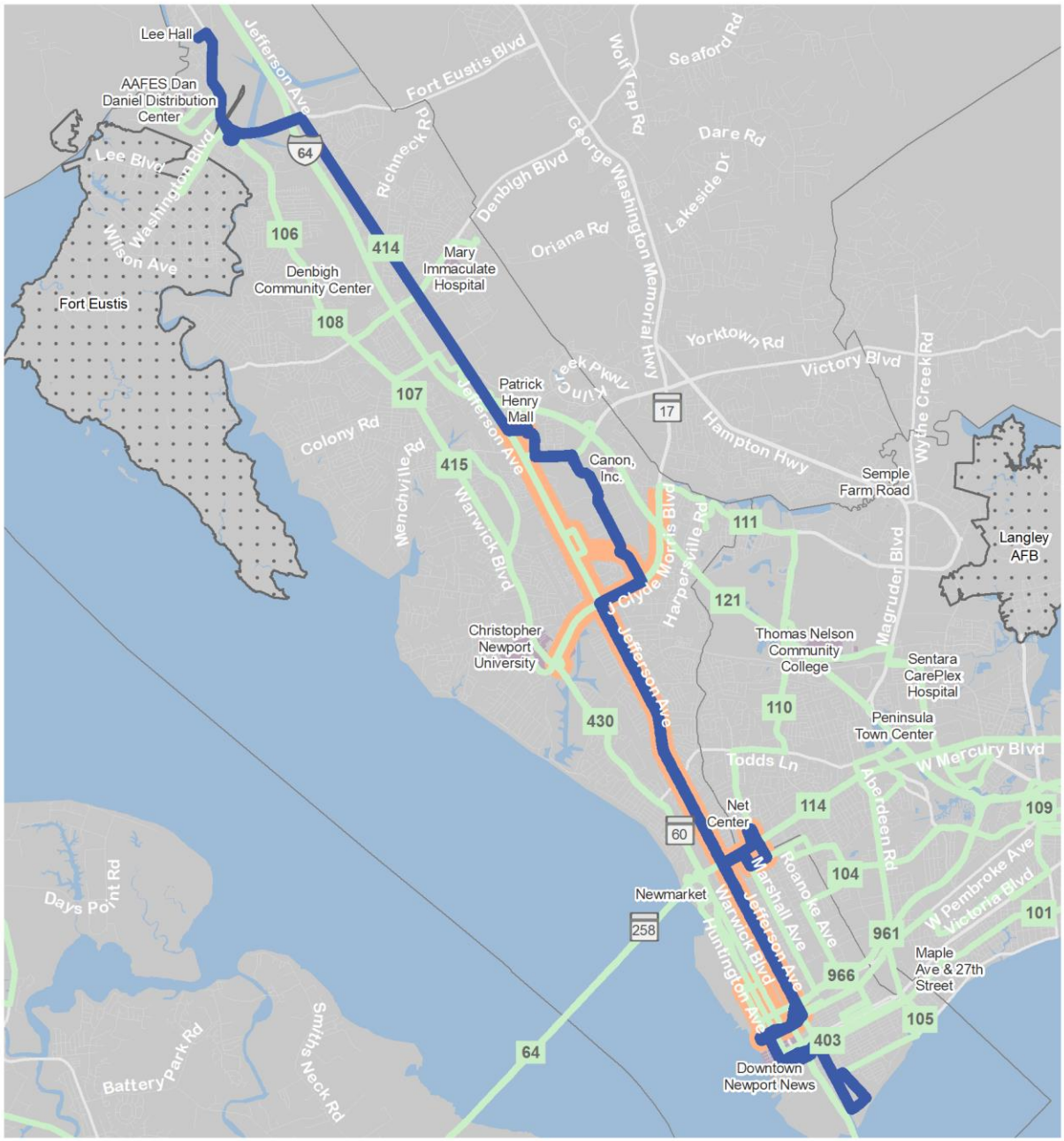
- The realignment of Route 111 will help to cover portions of the eliminated Route 116 and the eliminated Route 118.
- The extended route will provide a one seat ride service between Denbigh, Patrick Henry, and Hampton and will provide transfer connections to several high frequency HRT services.
- The levels of service for the Route 111 meet the service standards defined for Coverage routes.

Route 111

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	Sunday service to Hampton eliminated.			
2022	Implement service target alignment on weekdays and Saturdays. On Sundays, operate a short turn between Denbigh and Berkley Village.			
2023	No additional changes.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	Begin weekday service at 5:00 AM. Begin Sunday service in Hampton.	✓	✓	✓

Route 112



Route 112

0 0.5 1 1.5 2 2.5 3 3.5 Miles

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 112

Service Classification
Regional Backbone

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Downtown Newport News / Patrick Henry Mall	Ivy Avenue & 6th Street / Downtown Newport News / Patrick Henry Mall / Lee Hall
Jurisdictions	Hampton, Newport News	Hampton, Newport News

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:15 AM - 12:35 AM	5:00 AM - 1:00 AM
Saturday		5:15 AM - 12:35 AM	5:15 AM - 12:35 AM
Sunday		6:15 AM - 8:01 PM	5:15 AM - 12:35 AM
Headway			
		Existing	**Service Target**
Weekday	Early	30	30 / 60
	AM Peak	30	15 / 30
	Midday	30	15 / 30
	PM Peak	30	15 / 30
	Evening	30	30 / 60
	Late Night	30	60
Saturday	Base	30	15 / 30
	Non-Base	30	30 / 60
	Early / Late	60	60
Sunday	Base	60	15 / 30
	Non-Base	60	30 / 60
	Early / Late	-	60

Note
This route's planned service operates with short turns. The two numbers listed in the table show the headways for the portions of the route with and without the short turn. To see where the short turn operates, please refer to the route description in the Service Changes bullets.

Service Changes

- Route 112 will operate high-frequency service between NNTC and Patrick Henry Mall, following the alignment as designated in the Peninsula BRT corridor study plan. Select trips will continue north to Lee Hall (covering a portion of the eliminated Route 116) and south to Ivy Avenue and 6th Street (covering service removed from Route 106 and Route 107). Route 112 will be diverted from Jefferson Avenue between J. Clyde Morris Boulevard and Patrick Henry Mall to service City Center. Service along Jefferson Avenue between J Clyde Morris Boulevard and Patrick Henry Mall will be offered via Route 108 and Route 111. Route 108 will also cover service on J Clyde Morris to Riverside.
- On weekdays, Route 112 will begin service at 5:00 AM and operate until 1:00 AM, which represents a small increase in service during the early morning period and an additional half hour of service in the late-night period. Service will operate every 15 minutes between 6th and Ivy and Patrick Henry Mall from 6:00 AM to 6:00 PM and every 30 minutes on the extensions to Lee Hall in the north. Before 6:00 AM and between 6:00 PM and 11:00 PM service will operate every 30 minutes between 6th and Ivy and Patrick Henry Mall and hourly on the extension. After 11:00 PM, service will operate hourly along the entire alignment.
- The existing Saturday span of service will be maintained, starting at 5:15 AM and ending service at 12:35 AM; the Sunday span of service will be increased to match Saturday. The frequency of weekend service will be increased to 15-minute headways between 6th and Ivy and Patrick Henry and 30 minutes on the north extension through much of the service day. Morning and evening service will be offered every 30 minutes between 6th and Ivy and Patrick Henry and hourly on the extension. Throughout the weekend span of service, Route 112 will operate hourly to Lee Hall in the north. Weekend service before 6:00 AM and after 9:00 PM will operate hourly on the full length of the route.
- In an out-year, Route 112 will exceed the service design standards for the Regional Backbone service classification once 15-minute service is offered on the short turn and 30-minute service is offered on the full length of the route during weekday peak, weekday midday, and weekend peak periods.

Route 112

TD PB SD

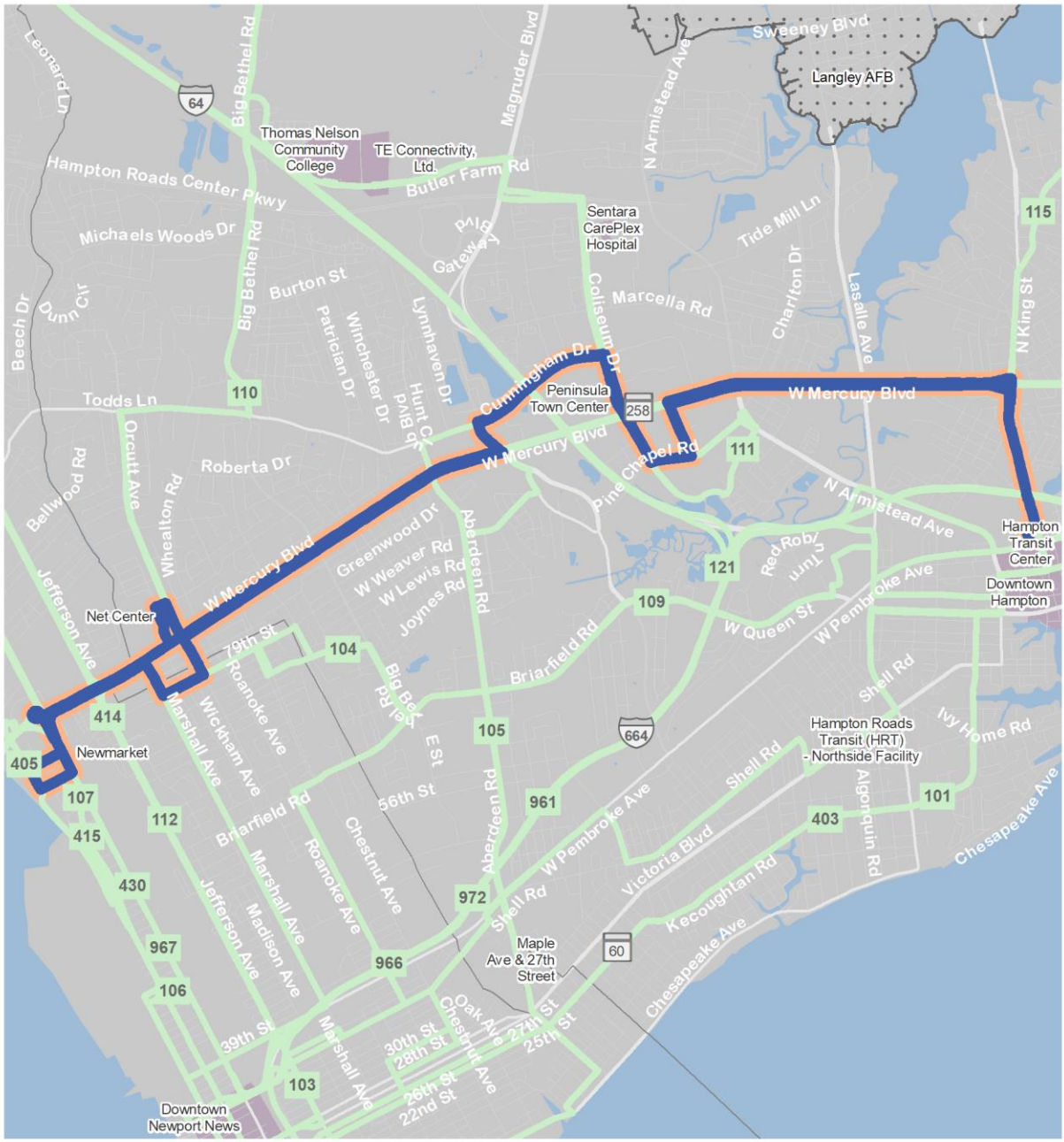
Justification

- Route 112 is performing well based on the six Key Performance Indicators (KPI). Route 112 is one of the alignments identified in the Peninsula BRT corridor study plan. The alignment will be streamlined to match the alignment from the Peninsula BRT corridor study plan, and to make service more direct and improve on-time performance. Route 112 service will be increased, in line with the travel demand along the route and the BRT study plan.
- These service changes address an all-day service gap in Newport News.

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	Extend Route 112 south of NNTC to serve Ivy Avenue and 6th Street, replacing service from Route 106 and Route 107.			
2022	Implement service target alignment. Change weekday span to 5:00 AM – 1:00 AM and Sunday span to 6:00 AM – 9:00 PM. Implement 60-minute headways on the full route length, with short turn overlays providing more frequent service. Between NNTC and Patrick Henry, implement 15-minute peak headways, 20-minute midday headways, and 30-minute headways during the early, evening, and weekend peak and off-peak periods. South of NNTC, implement 30-minute service to Ivy Avenue and 6th Street on weekdays from 6:00 AM – 6:00 PM.	✓		
2023	Increase weekday midday headways to 15 minutes between NNTC and Patrick Henry Mall, meeting service targets for this segment. Increase Saturday peak headways to 15 minutes between NNTC and Patrick Henry Mall and 30 minutes on the full length of the route.			
2024	Increase Sunday peak headways to 15 minutes between NNTC and Patrick Henry Mall and 30 minutes on the full length of the route.		✓	
2025	Extend Sunday span to match Saturday, with 60-minute headways on the full route in the early and late periods.			
2026	Eliminate the short turn between NNTC and Patrick Henry. Operate service between Patrick Henry and Ivy Avenue and 6th Street from 5:00 AM to 11:00 PM on weekdays and 8:00 AM to 6:00 PM on weekends with 15-minute headways during the weekday peak, weekday midday, and weekend peak periods and 30-minute headways during all other periods.			
2027	Increase full pattern headways during the weekday peak and weekday midday to 30 minutes.			✓
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 114


Route 114
Miles
0
0.5
1
Focus Route
Planned Alignment
Existing Alignment
Planned System
Light Rail
Ferry
Military Bases
City Boundary
Activity Centers
N
Langley AFB
Sweeney Blvd
Thomas Nelson Community College
TE Connectivity, Ltd.
Hampton Roads Center Pkwy
Butler Farm Rd
Magruder Blvd
N Armistead Ave
Sentara CarePlex Hospital
Tide Mill Ln
Charlton Dr
Lasalle Ave
N King St
Michaels Woods Dr
Big Bethel Rd
Burton St
Gateway Blvd
Coliseum Dr
Marcella Rd
Beech Dr
Dunn Cir
Patrician Dr
Winchester Dr
Lynnhaven Dr
Hunt Club Blvd
Cunningham Dr
Peninsula Town Center
W Mercury Blvd
Todds Ln
Roberta Dr
Orcutt Ave
Whealton Rd
Bellwood Rd
Pine Chapel Rd
N Armistead Ave
Hampton Transit Center
Downtown Hampton
Red Robin Cir
Greenwood Dr
W Weaver Rd
W Lewis Rd
Joynes Rd
Aberdeen Rd
Jefferson Ave
Net Center
79th St
Roanoke Ave
Wickham Ave
Marshall Ave
Briarfield Rd
W Queen St
W Pembroke Ave
Shell Rd
Ivy Home Rd
Hampton Roads Transit (HRT) - Northside Facility
Newmarket
56th St
E St
Big Bethel Rd
Chestnut Ave
Madison Ave
Algonquin Rd
Chesapeake Ave
Victoria Blvd
Kecoughtan Rd
Maple Ave & 27th Street
Oak Ave
30th St
28th St
26th St
22nd St
27th St
25th St
39th St
Downtown Newport News
64
664
60
258
110
111
115
121
109
104
105
961
414
405
107
112
415
430
967
106
966
972
403
101
103

Route 114

Service Classification
Regional Backbone

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Newmarket / Downtown Hampton	Newmarket / Downtown Hampton
Jurisdictions	Hampton, Newport News	Hampton, Newport News

Level of Service			
Span			
		Existing	**Service Target**
Weekday		6:20 AM - 11:38 PM	5:00 AM - 1:00 AM
Saturday		6:45 AM - 11:32 PM	6:00 AM - 12:00 AM
Sunday		6:45 AM - 7:30 PM	6:00 AM - 12:00 AM
Headway			
		Existing	**Service Target**
Weekday	Early	-	30
	AM Peak	30	15
	Midday	30	15
	PM Peak	30	15
	Evening	60	30
	Late Night	60	60
Saturday	Base	30	15
	Non-Base	60	30
	Early / Late	60	60
Sunday	Base	60	15
	Non-Base	60	30
	Early / Late	-	60

Service Changes

- No change to existing alignment.
- On weekdays, expand the span of service to match the service design guidelines for Regional Backbone, starting at 5:00 AM and ending at 1:00 AM.
- From 6:00 AM to 6:00 PM, the service will operate every 15-minutes. Before 6:00 AM and between 6:00 PM and 11:00 PM, service will operate at half hour intervals. After 11:00 PM, service will be offered hourly.
- On weekends, the span of service will be expanded to match the service design standards for Regional Backbone routes, starting at 6:00 AM and ending at 12:00 AM, with 15-minute service being provided through much of the day.
- In FY 2030, Route 114 will exceed the service design standards for the Regional Backbone service classification once the Sunday peak headways are increased.

Justification

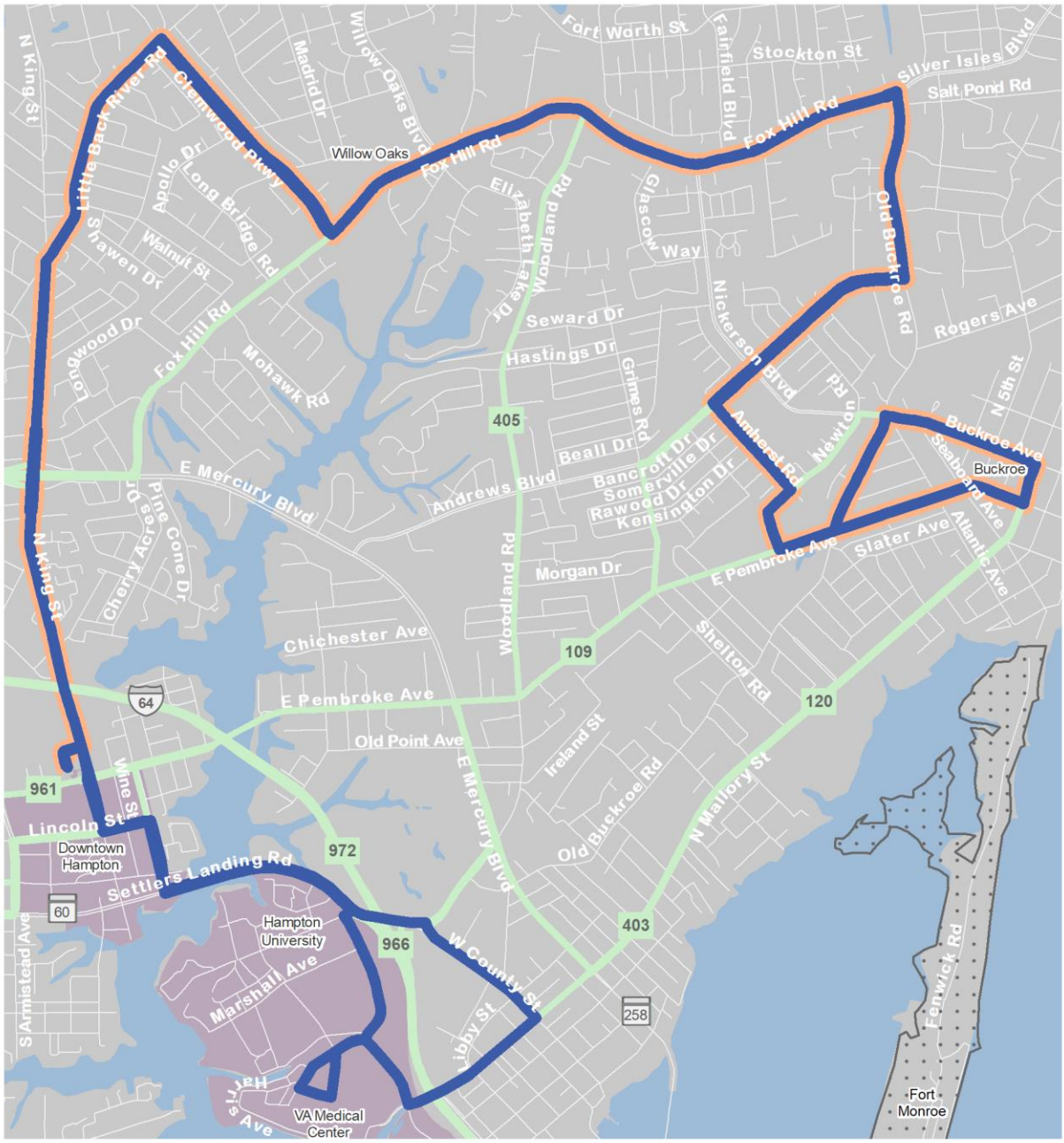
- Route 114 is performing well on the six Key Performance Indicators (KPI). Route 114 is one of the alignments identified in the Peninsula BRT corridor study plan—the planned and existing alignment match that from the corridor plan. Route 114 service will improve in line with the travel demand along the route and the BRT study plan.
- These service changes address an all-day service gap between Newport News and Hampton by increasing midday service in this area.
- The levels of service for Route 114 meet the service standards defined for Regional Backbone routes.

Route 114

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes to existing alignment or LOS.	✓		
2022	Increase weekday headways to meet service targets.			
2023	Extend Sunday service to 9:00 PM.			
2024	No additional changes.			
2025	Change weekday span to 5:00 AM - 1:00 AM. Change Sunday peak headways to 30 minutes.			
2026	Change weekend off-peak headways to 30 minutes.			
2027	No additional changes.			
2028	No additional changes.			
2029	Extend Saturday and Sunday spans to 6:00 AM-12:00 AM. Change Saturday peak headway to 15 minutes.		✓	
2030	Change Sunday peak headway to 15 minutes.			✓
Out-years	No additional changes.			

Route 115



Route 115

Miles
0 0.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 115

Service Classification
Local Priority

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Buckroe / Willow Oaks / Downtown Hampton	Buckroe / Willow Oaks / Downtown Hampton / VA Medical Center
Jurisdictions	Hampton	Hampton

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:45 AM - 12:11 AM	5:00 AM - 12:11 AM
Saturday		6:15 AM - 10:08 PM	7:00 AM - 11:00 PM
Sunday		8:15 AM - 7:41 PM	7:00 AM - 11:00 PM
Headway			
		Existing	**Service Target**
Weekday	Early	60	60
	AM Peak	60	30
	Midday	60	30
	PM Peak	60	30
	Evening	60	30 until 7:00 PM, 60 after
	Late Night	60	60
Saturday	Base	60	30
	Non-Base	60	60
	Early / Late	-	60
Sunday	Base	60	30
	Non-Base	-	60
	Early / Late	-	60

Service Changes

- No changes to alignment, span, or headway until a future out-year.
- In a future year, Route 115 will be realigned to be a combination of two high-performing existing routes: 115 and 117. The new Route 115 will operate between the Mallory/Buckroe area and the Hampton VA Medical Center, passing through Downtown Hampton and serving Hampton University. Route 117 will be eliminated, with the extended Route 115 providing full service where Route 117 previously operated.
- Weekday service, operating from 5:00 AM to 12:11 AM, will provide slightly more early morning service than the current Route 115 (which begins at 5:45 AM), but the service end time will remain consistent.
- On Saturday the start time will be slightly later at 7:00 AM and the end time will also be slightly later at 11:00 PM. The Sunday span of service will be increased to match the Saturday span, which will provide approximately four and a half additional hours of service on Sundays. Weekend base service will be operated every half hour which is an increase of service.
- In a future out-year, Route 115 will meet the design standards for the Local Priority service classification once the full alignment, span, and frequency changes are implemented.

Justification

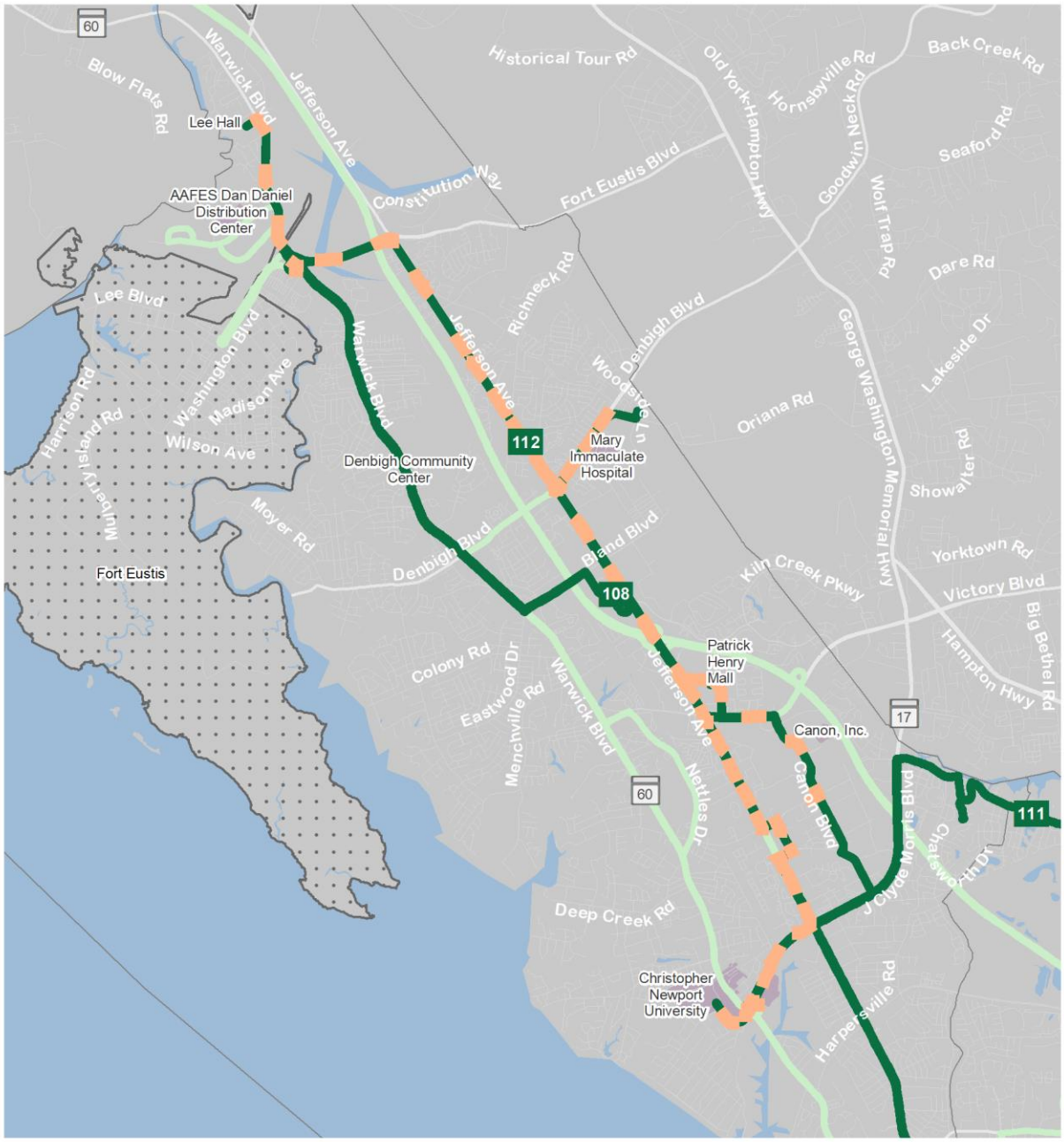
- The service change for Route 115 calls for a service consolidation and an increase of the level of service for two successful routes, Route 115 and Route 117, both of which fall within the top third of HRT routes in terms of passengers per hour. Joining these two services will provide a one-seat ride between the Mallory/Buckroe area and the VA Medical Center.
- This service change addresses an all-day service gap in the area with increased midday service along the full route from 60-minute to 30-minute headways and also simplifies the service design by combining the two routes.
- The level of service increases on Route 115 help the service match the standards for Local Priority routes.

Route 115

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.			
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	Implement service target alignment by eliminating Route 117 and extending Route 115. Extend span and headway to meet service targets for all periods.	✓	✓	✓

Route 116



Route 116

Miles
0 0.5 1

Focus Route

- Eliminated Route
- Routes Providing Replacement Coverage
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 116

Service Classification
-

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Patrick Henry Mall / Lee Hall	-
Jurisdictions	Newport News	-

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:45 AM - 12:08 AM	-
Saturday		7:00 AM - 11:47 PM	-
Sunday		7:33 AM - 7:09 PM	-
Headway			
		Existing	**Service Target**
Weekday	Early	-	-
	AM Peak	60	-
	Midday	60	-
	PM Peak	60	-
	Evening	60	-
	Late Night	60	-
Saturday	Base	60	-
	Non-Base	60	-
	Early / Late	60	-
Sunday	Base	60	-
	Non-Base	-	-
	Early / Late	-	-

Service Changes

- Route 116 will be eliminated. Route 108 will connect Patrick Henry, Fishing Point, and Riverside. Service on J Clyde Morris Boulevard west of Jefferson Avenue will also be covered by Route 108. Route 111 will connect Denbigh, Patrick Henry, Fishing Point, and connect to Hampton. Service along Jefferson Avenue to Lee Hall will be covered by Route 112. Route 116 will be eliminated simultaneous to or following the other routes' alignment changes so as to maintain coverage.

PB

Justification

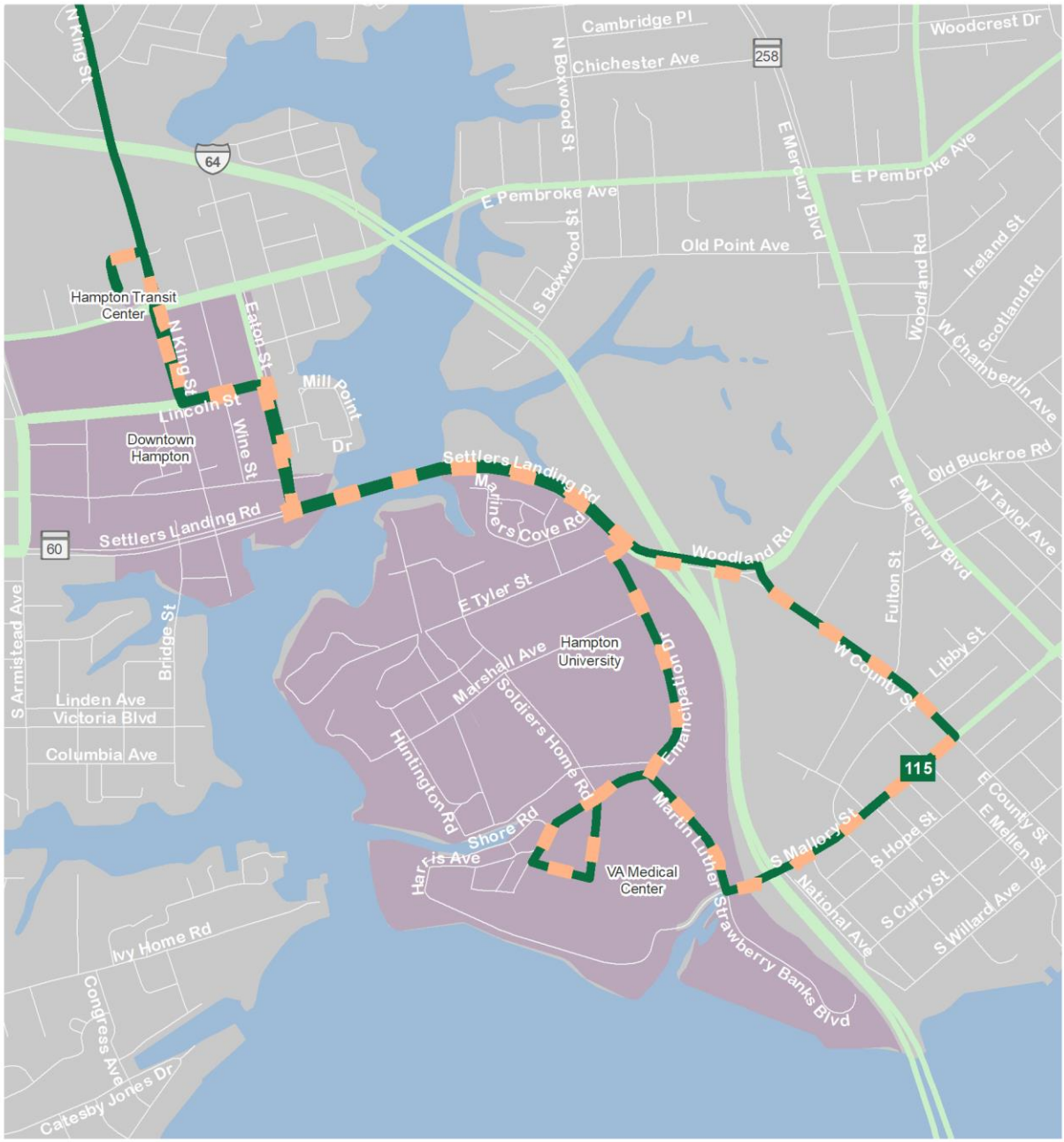
- Route 116 performs poorly based on the six Key Performance Indicators (KPI). In particular, its Subsidy per Passenger Boarding is $13.71, the worst of the Peninsula routes. Service changes for Route 108, Route 111, and Route 112 will cover service lost by the elimination of Route 116.

Route 116

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	Sunday service eliminated.			
2022	Eliminate route as called for by service target.	✓	✓	✓
2023	No additional changes.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 117



Route 117

Miles
0 0.25

Focus Route

- Eliminated Route
- Routes Providing Replacement Coverage
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 117

Service Classification
-

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	(Phoebus) Hampton University / VA Hospital	-
Jurisdictions	Hampton	-

Level of Service			
Span			
		Existing	**Service Target**
Weekday		6:15 AM - 7:38 PM	-
Saturday		8:15 AM - 7:38 PM	-
Sunday		8:15 AM - 6:38 PM	-
Headway			
		Existing	**Service Target**
Weekday	Early	-	-
	AM Peak	60	-
	Midday	60	-
	PM Peak	60	-
	Evening	60	-
	Late Night	-	-
Saturday	Base	60	-
	Non-Base	60	-
	Early / Late	-	-
Sunday	Base	60	-
	Non-Base	-	-
	Early / Late	-	-

Service Changes

- In a future out-year, Route 117 service will be eliminated, with the service being fully replaced by the realigned Route 115 (Buckroe / Willow Oaks / Downtown Hampton / VA Medical Center). The level of service on the realigned Route 115 will provide higher levels of service than the Route 117 currently provides. The extension of Route 115 to cover Route 117 will occur simultaneously with the elimination of Route 117 to maintain continuous coverage.

TD PB SD

Justification

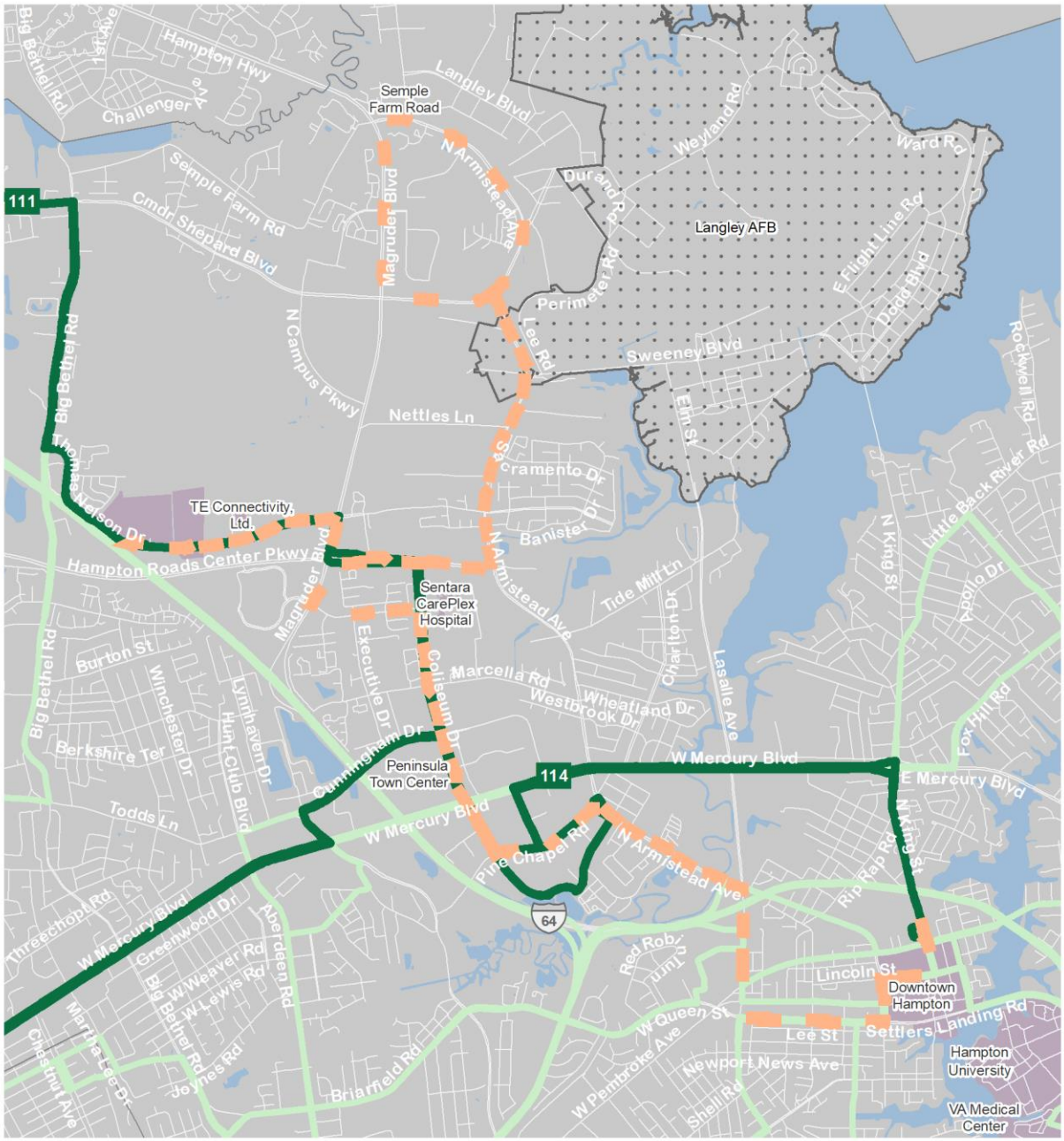
- Overall, Route 117 is performing well based on the six Key Performance Indicators (KPI). The service provided by the new Route 115 will provide increased levels of service on the same alignment of the existing Route 117.
- Route 115 will now operate to Hampton University via the existing Route 117's alignment. This will improve the simplicity of HRT's service in Hampton, in line with the service design standards, while providing greater access for Hampton University students to additional regional destinations. Students and residents around the University will receive a direct connection to Buckroe Beach as well connections to points west.

Route 117

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.			
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	Eliminate route as called for by service target.	✓	✓	✓

Route 118



Route 118

0 0.5 Miles

Focus Route

- Eliminated Route
- Routes Providing Replacement Coverage
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 118

Service Classification
-

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	(Magruder) Langley / Semple Farm Road	-
Jurisdictions	Hampton	-

Level of Service			
Span			
		Existing	**Service Target**
Weekday		6:15 AM - 10:13 PM	-
Saturday		6:15 AM - 10:13 PM	-
Sunday		8:15 AM - 7:13 PM	-
Headway			
		Existing	**Service Target**
Weekday	Early	-	-
	AM Peak	60	-
	Midday	60	-
	PM Peak	60	-
	Evening	60	-
	Late Night	-	-
Saturday	Base	60	-
	Non-Base	60	-
	Early / Late	-	-
Sunday	Base	60	-
	Non-Base	-	-
	Early / Late	-	-

Service Changes

- Route 118 will be eliminated. Route 114 will provide direct and more frequent service between Hampton Transit Center and Peninsula Town Center than Route 118 currently offers. The realigned Route 111 will connect Peninsula Town Center to Thomas Nelson Community College and points north. The alignment changes to Route 111 will occur before or simultaneous to the elimination of service on Route 118, and no alignment changes are required on Route 114.

PB

Justification

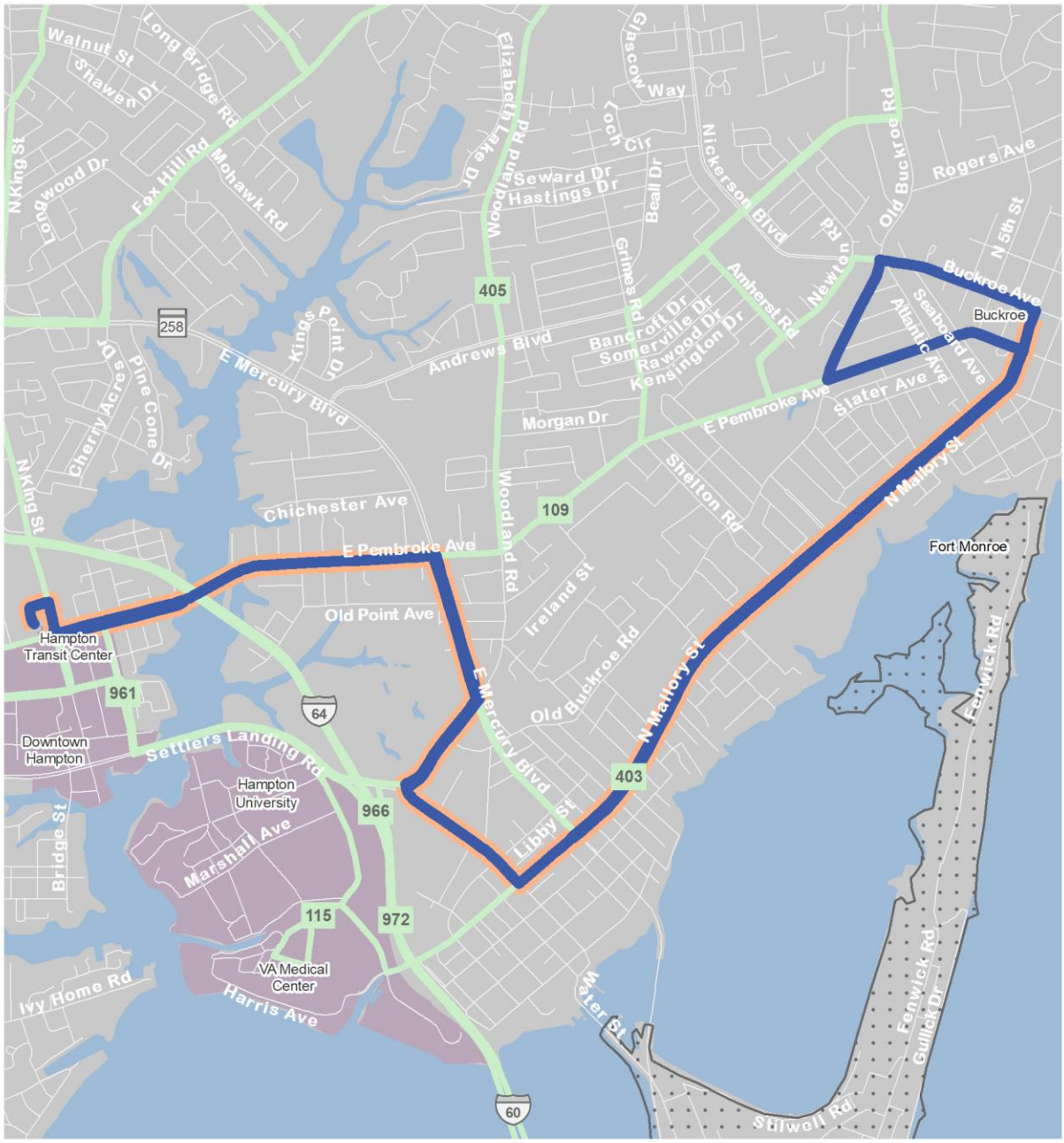
- Route 118 performs around average on the six Key Performance Indicators (KPI) but overall efficiency can be gained by covering parts of this existing route with other realigned routes.

Route 118

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes to existing alignment or LOS.			
2022	Eliminate route as called for by service target.	✓	✓	✓
2023	No additional changes.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 120



Route 120

Miles
0
0.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 120

Service Classification
Coverage

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	(Mallory) Downtown Hampton / Mallory / Buckroe	(Mallory) Downtown Hampton / Mallory / Buckroe
Jurisdictions	Hampton	Hampton

Level of Service			
Span			
		Existing	**Service Target**
Weekday		7:10 AM - 8:48 PM	5:00 AM - 8:48 PM
Saturday		8:10 AM - 8:48 PM	8:00 AM - 8:48 PM
Sunday		8:10 AM - 6:48 PM	8:00 AM - 8:48 PM
Headway			
		Existing	**Service Target**
Weekday	Early	-	60
	AM Peak	60	60
	Midday	60	60
	PM Peak	60	60
	Evening	60	60
	Late Night	-	-
Saturday	Base	60	60
	Non-Base	60	60
	Early / Late	-	-
Sunday	Base	60	60
	Non-Base	-	60
	Early / Late	-	-

Note
Route 120 performance should be monitored moving forward as it should be considered for increased span and frequency as residential and commercial development in the area continues to flourish.

Service Changes

- Route 120 will be extended to Buckroe Avenue and Ralph Street to serve new development in this area.
- Route 120 will provide hourly service on weekdays starting at 5:00 AM and ending at 8:48 PM. The 5:00 AM start time provides earlier morning service than the current Route 120.
- Saturday service will continue to provide hourly trips between 8:00 AM and 8:48 PM. Sunday service will be increased to match Saturday levels.
- In FY 2030, Route 120 will meet the service design standards for the Coverage service classification once the standard for weekday service starting at 5:00 AM is met.

Justification

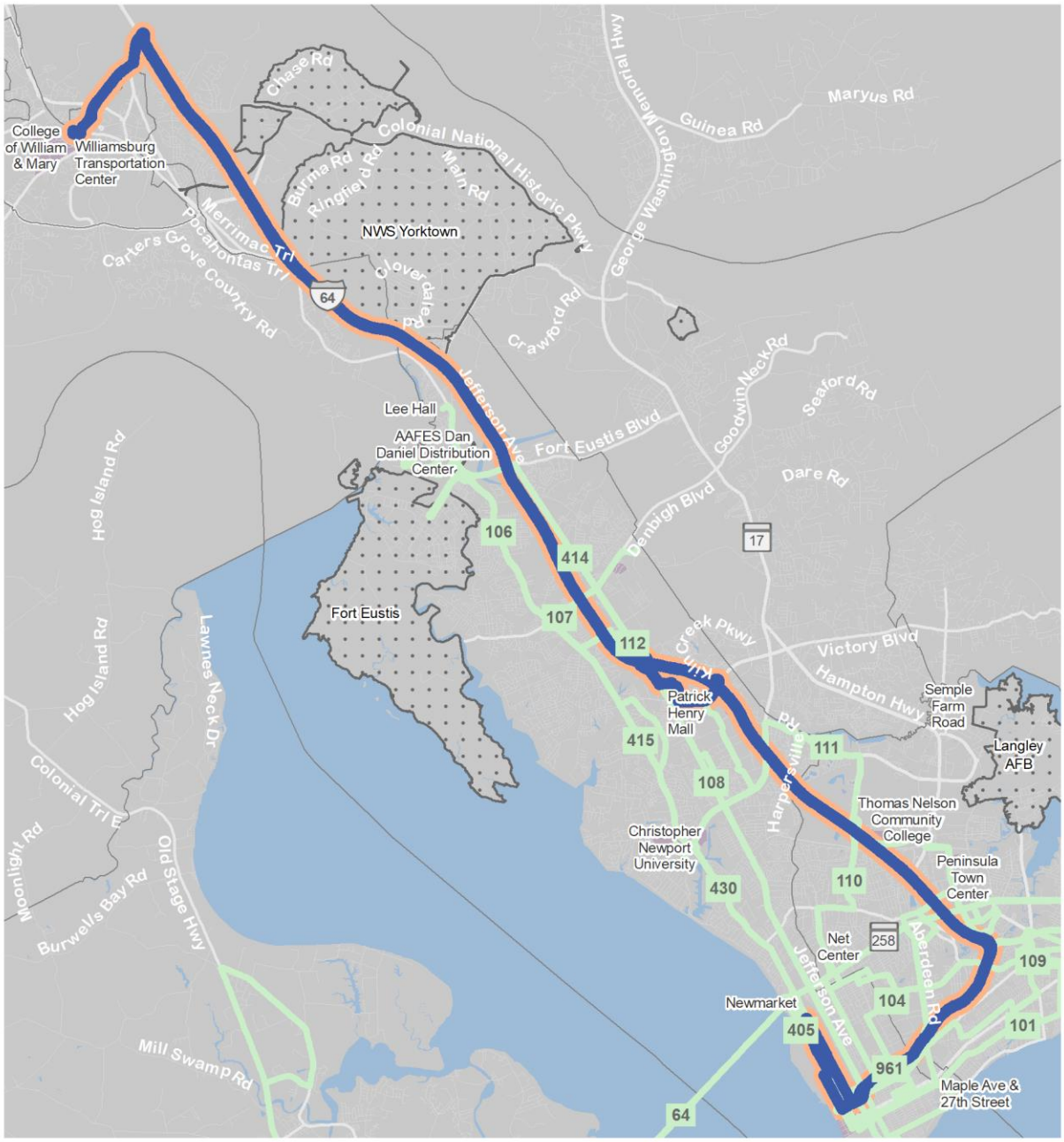
- The extended alignment of the Route 120 service will provide transit service to additional generators in the Buckroe area.
- Trips will be offered earlier in the morning during the weekday and later in the evening during the weekends to better match the needs of area residents and employees. The planned service levels match the standards defined for Coverage routes.

Route 120

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.			
2022	No additional changes.			
2023	No additional changes.			
2024	Implement service target alignment. Extend Sunday span to match Saturday service.	✓		
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	Begin weekday service at 5:00 AM.		✓	✓
Out-years	No additional changes.			

Route 121



Route 121

Miles
0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 121

Service Classification
Limited/Express

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Newport News Transit Center / Williamsburg Transportation Center	Newport News Transit Center / Williamsburg Transportation Center
Jurisdictions	Newport News	Newport News

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:30 AM - 7:00 AM; 3:40 PM - 5:50 PM	5:30 AM - 7:00 AM; 3:40 PM - 5:50 PM
Saturday		-	-
Sunday		-	-
Headway			
		Existing	**Service Target**
Weekday	Early	1 Trip	1 Trip
	AM Peak	1 Trip	1 Trip
	Midday	-	-
	PM Peak	2 Trips	2 Trips
	Evening	-	-
	Late Night	-	-
Saturday	Base	-	-
	Non-Base	-	-
	Early / Late	-	-
Sunday	Base	-	-
	Non-Base	-	-
	Early / Late	-	-

Service Changes

- Route 121 will be re-classified as a MAX route (a limited/express service), as it only has four trips a day.
- No schedule or alignment changes.

SD

Justification

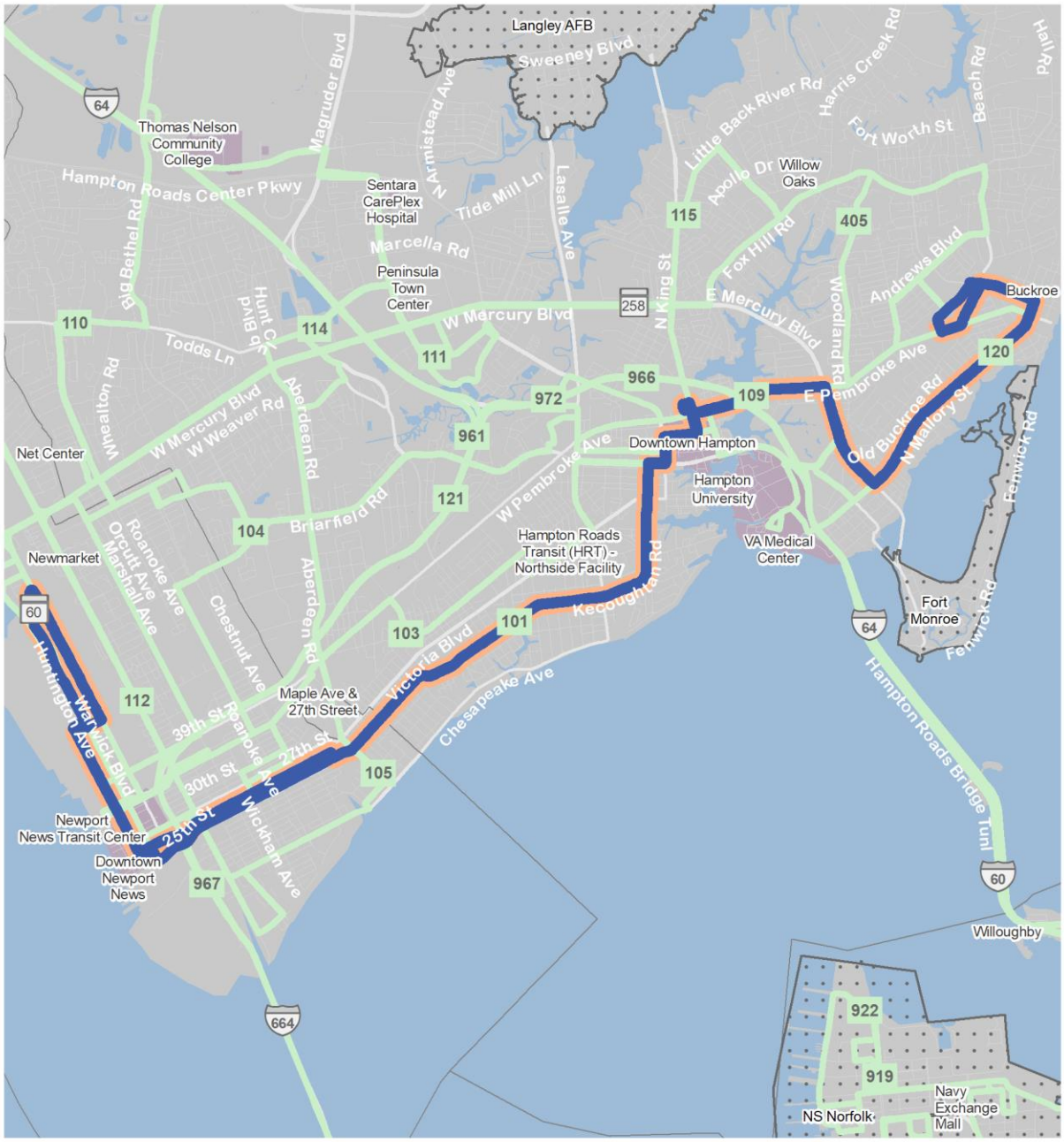
- Route 121 service will remain unchanged from what is currently offered; however, the route will now be classified as a MAX route.

Route 121

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.	✓	✓	✓
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 403



Route 403

0 0.5 1 1.5 2 Miles

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 403

Service Classification
Limited/Express

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Buckroe Shopping Center	Buckroe Shopping Center
Jurisdictions	Hampton, Newport News	Hampton, Newport News

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:28 AM - 6:18 AM	5:28 AM - 6:18 AM; 3:40 PM - 4:15 PM
Saturday		-	-
Sunday		-	-
Headway			
		Existing	**Service Target**
Weekday	Early	1 Trip	1 Trip
	AM Peak	-	-
	Midday	-	-
	PM Peak	-	1 Trip
	Evening	-	-
	Late Night	-	-
Saturday	Base	-	
	Non-Base	-	
	Early / Late	-	
Sunday	Base	-	-
	Non-Base	-	-
	Early / Late	-	-

Service Changes

- One trip will be added to Route 403 in the PM peak period at 3:40 PM. The 3:40 PM trip is being transferred from Route 101.

PB SD

Justification

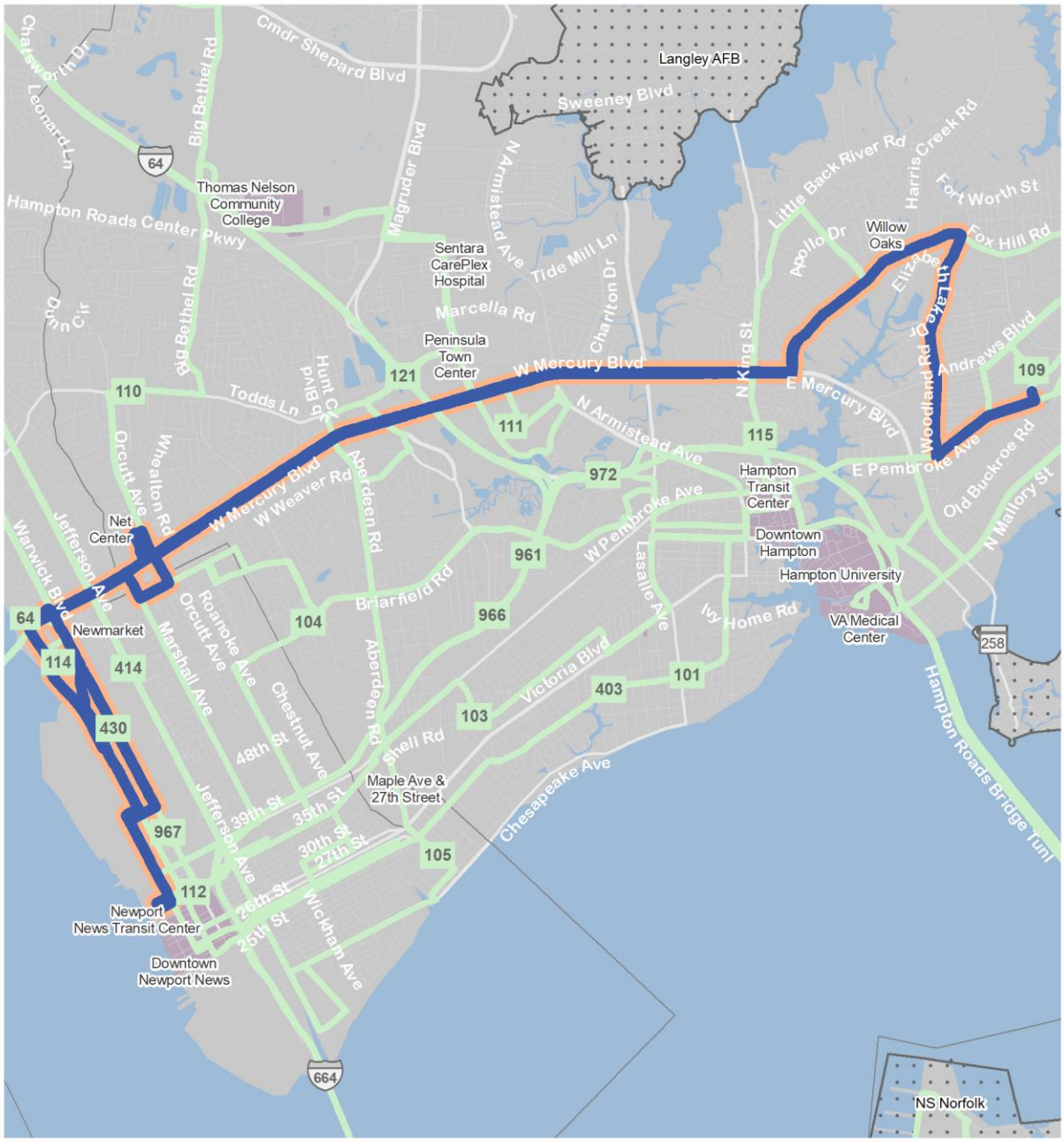
- An additional trip will be added to Route 403 which will replace service removed from Northgate currently being provided by Route 101.

Route 403

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.	✓		
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	Implement additional trips.		✓	✓
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 405



Route 405

Miles
0 0.5 1 1.5 2

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 405

Service Classification
Limited/Express

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Newport News Transit Center / Buckroe	Newport News Transit Center / Buckroe
Jurisdictions	Hampton, Newport News	Hampton, Newport News

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:50 AM - 6:31 AM; 2:40 PM - 3:38 PM	4:50 AM - 6:31 AM; 2:40 PM - 4:38 PM
Saturday		-	-
Sunday		-	-
Headway			
		Existing	**Service Target**
Weekday	Early	1 Trip	2 Trips
	AM Peak	-	-
	Midday	-	-
	PM Peak	1 Trip	2 Trips
	Evening	-	-
	Late Night	-	-
Saturday	Base	-	
	Non-Base	-	
	Early / Late	-	
Sunday	Base	-	-
	Non-Base	-	-
	Early / Late	-	-

Service Changes

- Two trips will be added to Route 405, one in the early period at 4:50 AM, and one additional trip in the PM peak period at 3:40 PM.

TD

Justification

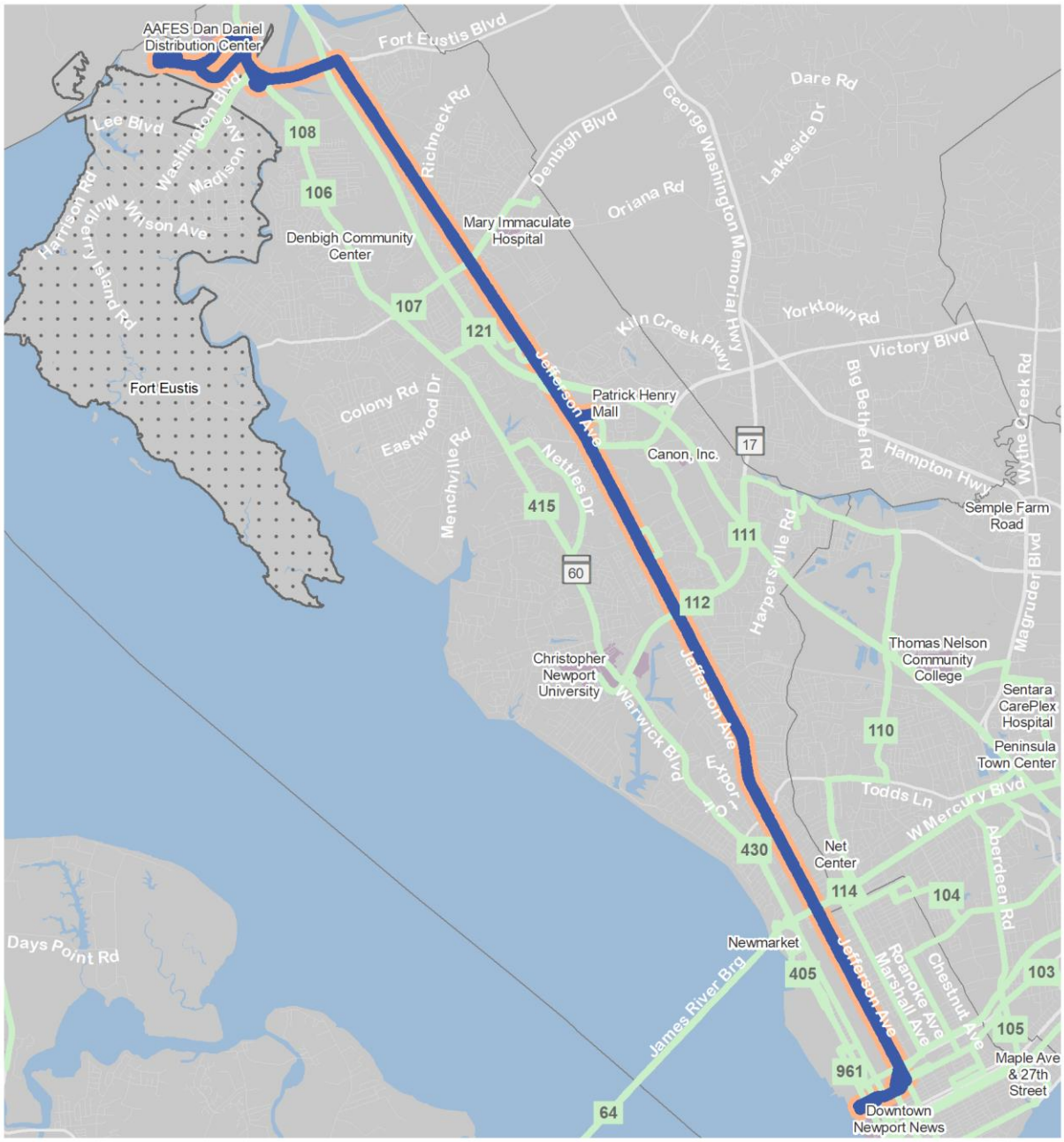
- Additional trips will be added to Route 405 to meet shift-specific demand.

Route 405

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.	✓		
2022	No additional changes.			
2023	Implement additional trips.		✓	✓
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 414



Route 414

Miles
0 0.5 1 1.5 2 2.5 3

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 414

Service Classification
Limited/Express

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Newport News Transit Center / Jefferson / Oakland	Newport News Transit Center / Jefferson / Oakland
Jurisdictions	Newport News	Newport News

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:20 AM - 7:49 AM; 4:04 PM - 6:33 PM	5:20 AM - 7:49 AM; 4:04 PM - 6:33 PM
Saturday		-	-
Sunday		-	-
Headway			
		Existing	**Service Target**
Weekday	Early	1 Trip	1 Trip
	AM Peak	1 Trip	1 Trip
	Midday	-	-
	PM Peak	3 Trips	3 Trips
	Evening	-	-
	Late Night	-	-
Saturday	Base	-	
	Non-Base	-	
	Early / Late	-	
Sunday	Base	-	-
	Non-Base	-	-
	Early / Late	-	-

Service Changes

- No alignment or level of service changes are proposed.

Justification

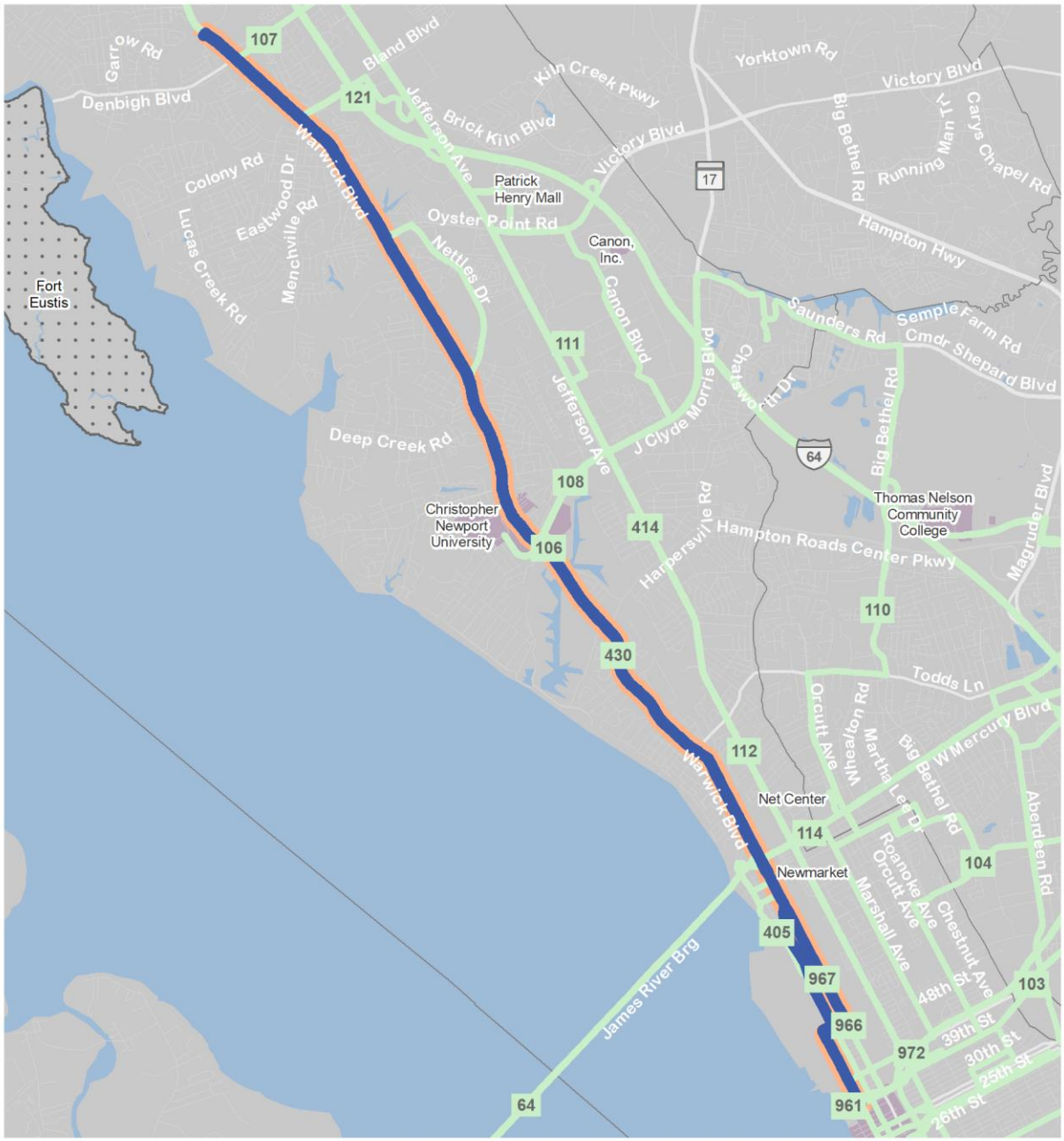
- Route 414 fulfills a need in terms of getting employees to work at specific shift times and will remain unchanged.

Route 414

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.	✓	✓	✓
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 415


Route 415
Miles
0 0.5 1 1.5 2
Focus Route
Planned Alignment
Existing Alignment
Planned System
Light Rail
Ferry
Military Bases
City Boundary
Activity Centers
N
107
121
111
108
106
414
430
112
114
104
405
967
966
972
961
64
17
Garrow Rd
Denbigh Blvd
Bland Blvd
Jefferson Ave
Brick Kiln Blvd
Kiln Creek Pkwy
Yorktown Rd
Victory Blvd
Big Bethel Rd
Running Man Trl
Carys Chapel Rd
Hampton Hwy
Warwick Blvd
Colony Rd
Eastwood Dr
Menchville Rd
Lucas Creek Rd
Patrick Henry Mall
Oyster Point Rd
Nettles Dr
Canon, Inc.
Canon Blvd
Fort Eustis
Deep Creek Rd
J Clyde Morris Blvd
Chatsworth Dr
Saunders Rd
Semple Farm Rd
Cmdr Shepard Blvd
Thomas Nelson Community College
Christopher Newport University
Harpersville Rd
Hampton Roads Center Pkwy
Magruder Blvd
Todds Ln
W Mercury Blvd
Orcutt Ave
Wheaton Rd
Martha Leer Dr
Net Center
Newmarket
Roanoke Ave
Marshall Ave
Chestnut Ave
Aberdeen Rd
48th St
39th St
30th St
25th St
26th St
James River Brg

Route 415

Service Classification
Limited/Express

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Newport News Transit Center / Denbigh	Newport News Transit Center / Denbigh
Jurisdictions	Newport News	Newport News

Level of Service			
Span			
		Existing	**Service Target**
Weekday		3:45 PM - 4:27 PM	6:00 AM - 6:42 AM; 3:45 PM - 4:27 PM
Saturday		-	-
Sunday		-	-
Headway			
		Existing	**Service Target**
Weekday	Early	-	-
	AM Peak	-	1 Trip
	Midday	-	-
	PM Peak	1 Trip	1 Trip
	Evening	-	-
	Late Night	-	-
Saturday	Base	-	
	Non-Base	-	
	Early / Late	-	
Sunday	Base	-	-
	Non-Base	-	-
	Early / Late	-	-

Service Changes

- One trip will be added to Route 415 at 6:00 AM.

TD

Justification

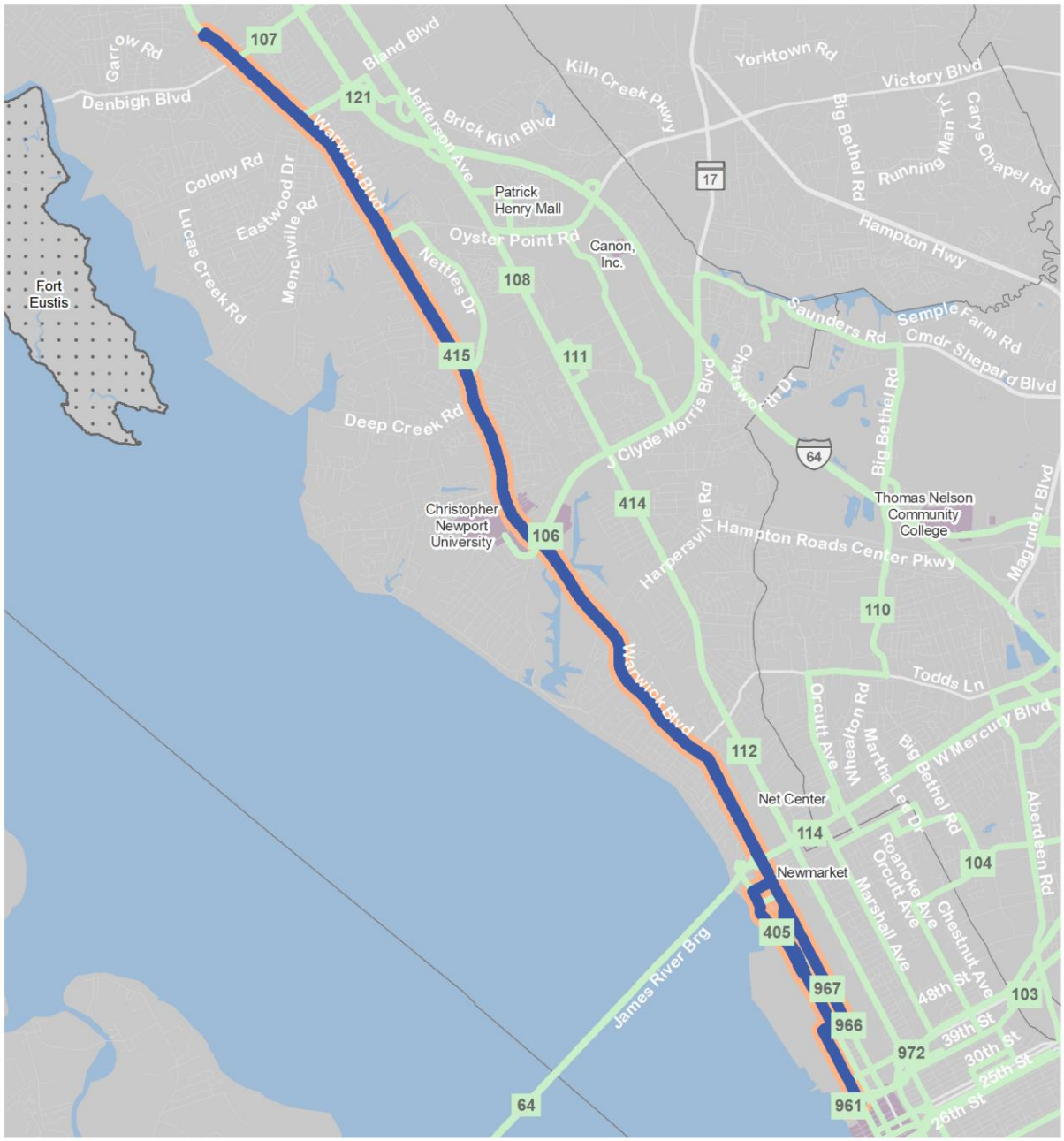
- The additional trip will be added to meet shift-specific demand.

Route 415

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.	✓		
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	Implement one additional trip.		✓	✓
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 430



Route 430

0 0.5 1 1.5 2 Miles

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 430

Service Classification
Limited/Express

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Denbigh Fringe	Denbigh Fringe
Jurisdictions	Newport News	Newport News

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:35 AM - 6:30 AM; 3:45 PM - 4:29 PM	5:00 AM - 6:30 AM; 3:40 PM - 4:29 PM
Saturday		-	-
Sunday		-	-
Headway			
		Existing	**Service Target**
Weekday	Early	2 Trips	3 Trips
	AM Peak	-	-
	Midday	-	-
	PM Peak	1 Trip	2 Trips
	Evening	-	-
	Late Night	-	-
Saturday	Base	-	
	Non-Base	-	
	Early / Late	-	
Sunday	Base	-	-
	Non-Base	-	-
	Early / Late	-	-

Service Changes

- One trip will be added to Route 430 at 5:00 AM. Another will be added at 3:40 PM.

TD

Justification

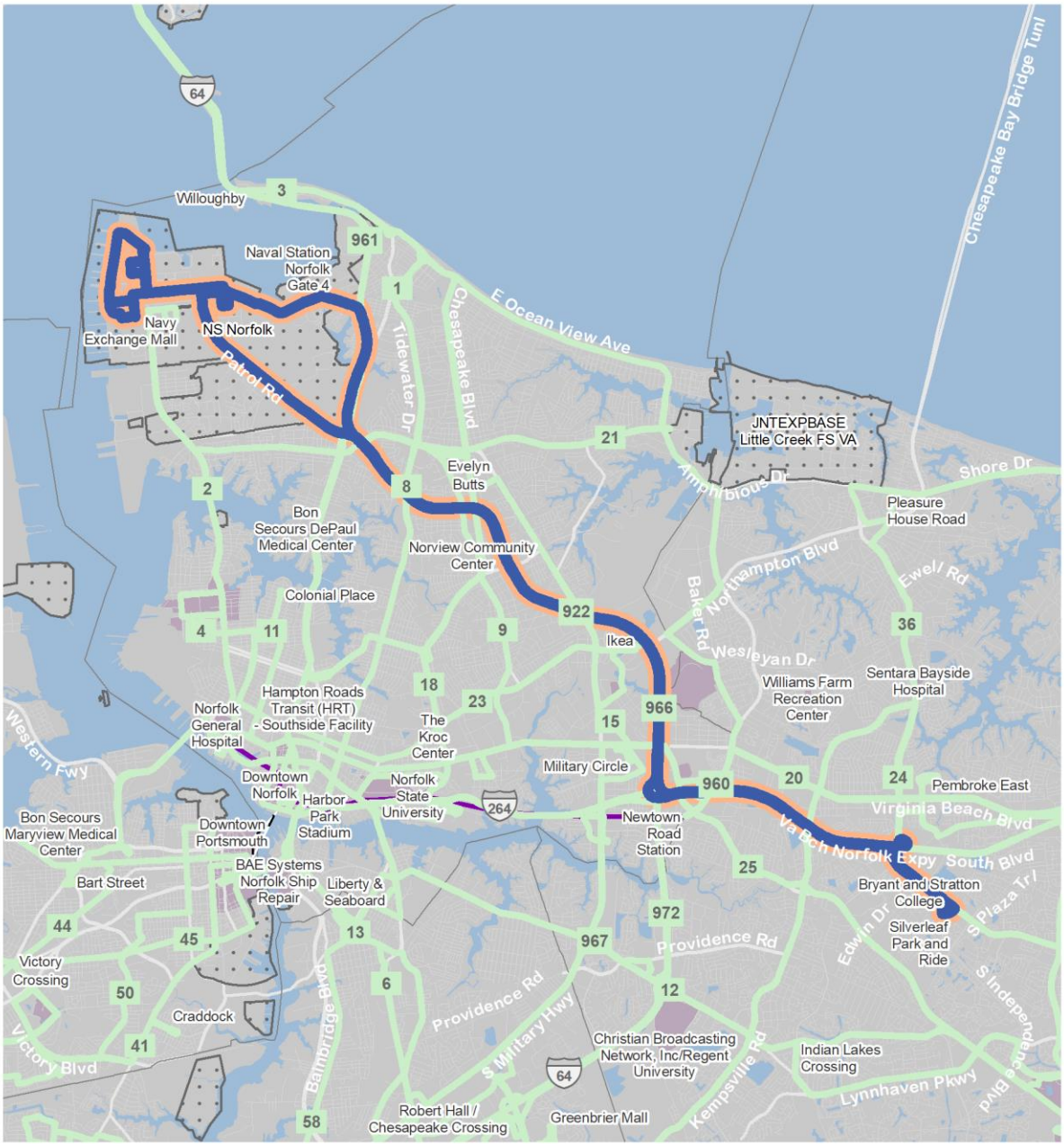
- The additional trips will be added to meet shift-specific demand.

Route 430

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.	✓		
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	Implement additional trips.		✓	✓
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 919



Route 919

Miles
0 0.5 1 1.5 2 2.5 3 3.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 919

Service Classification
Limited/Express

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Silverleaf Park & Ride / Naval Station Norfolk Gate 4	Silverleaf Park & Ride / Naval Station Norfolk Gate 4
Jurisdictions	Norfolk, Virginia Beach	Norfolk, Virginia Beach

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:10 AM - 7:26 AM; 2:54 PM - 5:03 PM	5:10 AM - 7:26 AM; 2:54 PM - 5:03 PM
Saturday		-	-
Sunday		-	-
Headway			
		Existing	**Service Target**
Weekday	Early	1 Trip	1 Trip
	AM Peak	2 Trips	2 Trips
	Midday	-	-
	PM Peak	4 Trips	3 Trips
	Evening	-	-
	Late Night	-	-
Saturday	Base	-	
	Non-Base	-	
	Early / Late	-	
Sunday	Base	-	-
	Non-Base	-	-
	Early / Late	-	-

Service Changes

- The 3:18 PM trip on Route 919 will be eliminated.

TD

Justification

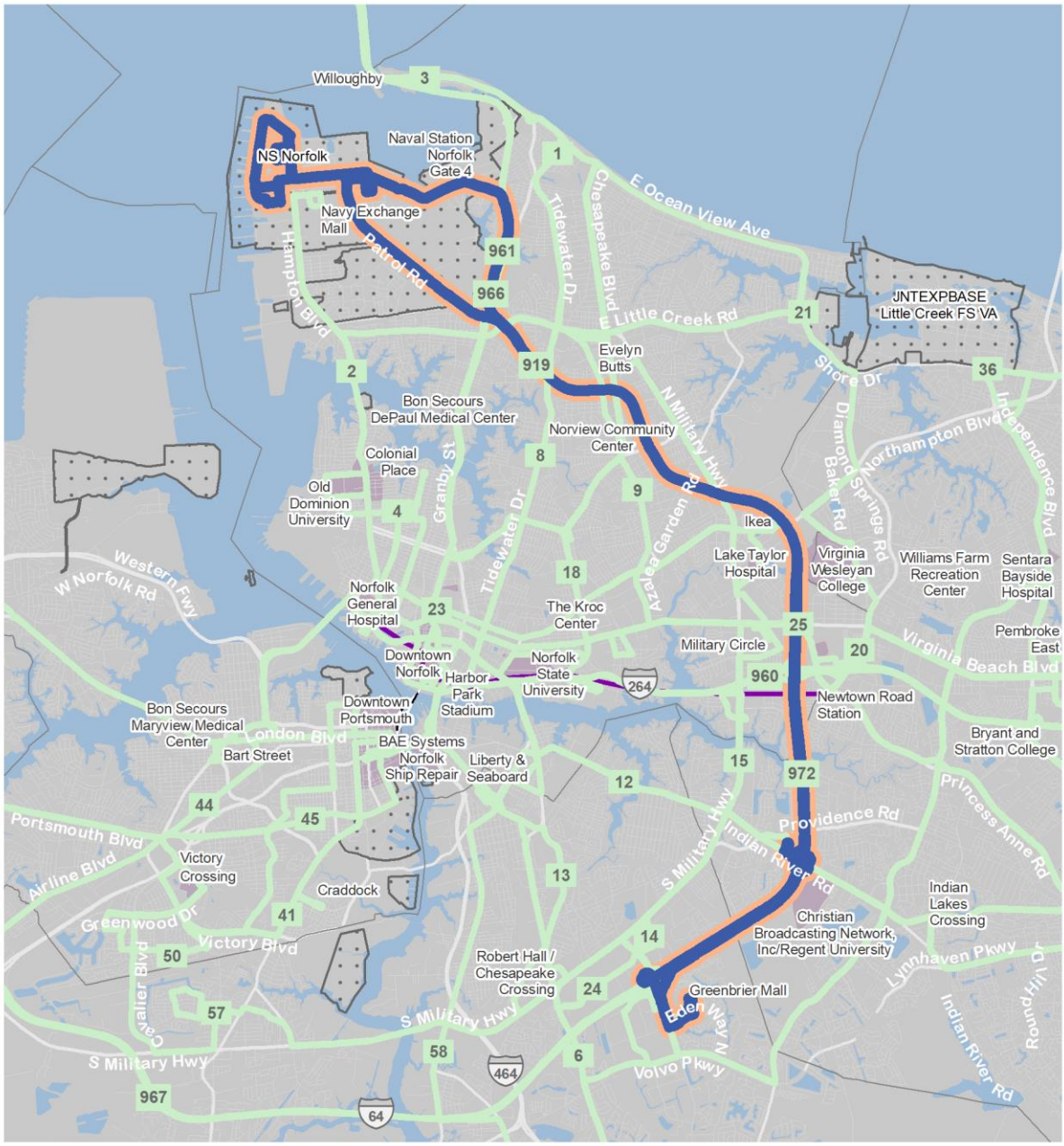
- Few passengers utilize the 3:18 PM trip on the current Route 919 service. The resources from this trip will be used more effectively elsewhere in the system.

Route 919

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.	✓		
2022	No additional changes.			
2023	No additional changes.			
2024	Eliminate one trip.		✓	✓
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 922



Route 922

Miles
0 0.5 1 1.5 2 2.5 3 3.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 922

Service Classification
Limited/Express

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Greenbrier Mall Park & Ride / Naval Station Norfolk Gate 4	Greenbrier Mall Park & Ride / Naval Station Norfolk Gate 4
Jurisdictions	Chesapeake, Norfolk, Virginia Beach	Chesapeake, Norfolk, Virginia Beach

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:00 AM - 7:13 AM; 2:55 PM - 4:42 PM	5:00 AM - 6:52 AM; 2:55 PM - 4:23 PM
Saturday		-	-
Sunday		-	-
Headway			
		Existing	**Service Target**
Weekday	Early	3 Trips	3 Trips
	AM Peak	1 Trip	-
	Midday	-	-
	PM Peak	3 Trips	2 Trips
	Evening	-	-
	Late Night	-	-
Saturday	Base	-	
	Non-Base	-	
	Early / Late	-	
Sunday	Base	-	-
	Non-Base	-	-
	Early / Late	-	-

Service Changes

- The 6:10 AM and 3:44 PM trips on Route 922 will be eliminated.

PB

Justification

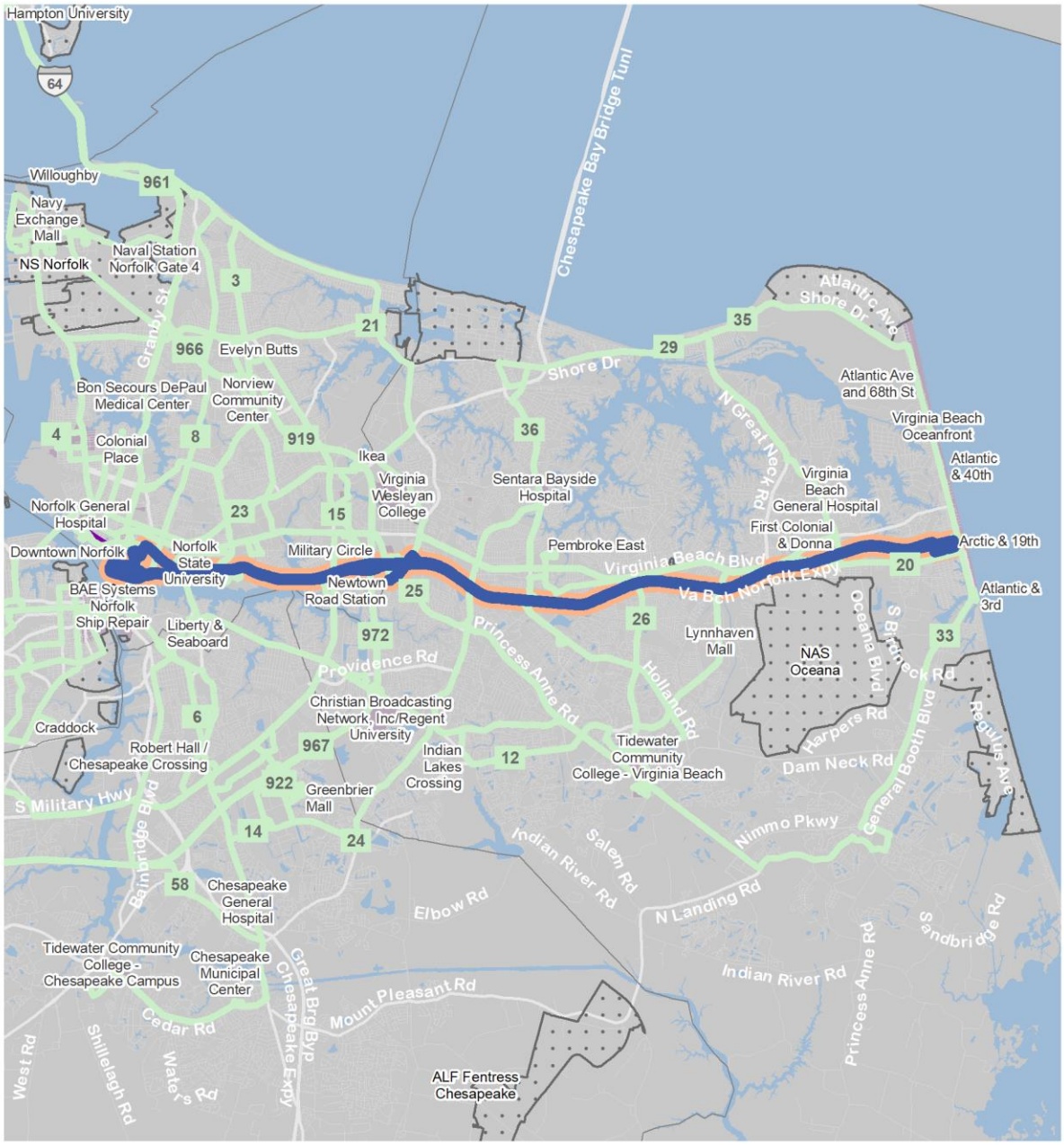
- Few passengers utilize the 6:10 AM and 3:44 PM trips on the current service. The resources from these trips will be used more effectively elsewhere in the system.

Route 922

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.	✓		
2022	No additional changes.			
2023	No additional changes.			
2024	Eliminate select trips.		✓	✓
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 960



Route 960

Miles
0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 960

Service Classification
Limited/Express

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Norfolk to Virginia Beach	Norfolk to Virginia Beach
Jurisdictions	Norfolk, Virginia Beach	Norfolk, Virginia Beach

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:35 AM - 8:27 PM	6:00 AM - 9:00 AM; 3:00 PM – 7:35 PM
Saturday		6:30 AM - 8:19 PM	-
Sunday		7:50 AM - 8:44 PM	-
Headway			
		Existing	**Service Target**
Weekday	Early	60	-
	AM Peak	60	3 Trips
	Midday	60	-
	PM Peak	60	3 Trips
	Evening	60	-
	Late Night	-	-
Saturday	Base	60	-
	Non-Base	60	-
	Early / Late	-	-
Sunday	Base	60	-
	Non-Base	60	-
	Early / Late	-	-

Service Changes

- Six trips in each direction per weekday will be maintained on Route 960: three AM peak and three PM peak in each direction. All other weekday trips will be eliminated.
- All weekend service will be eliminated.

PB

Justification

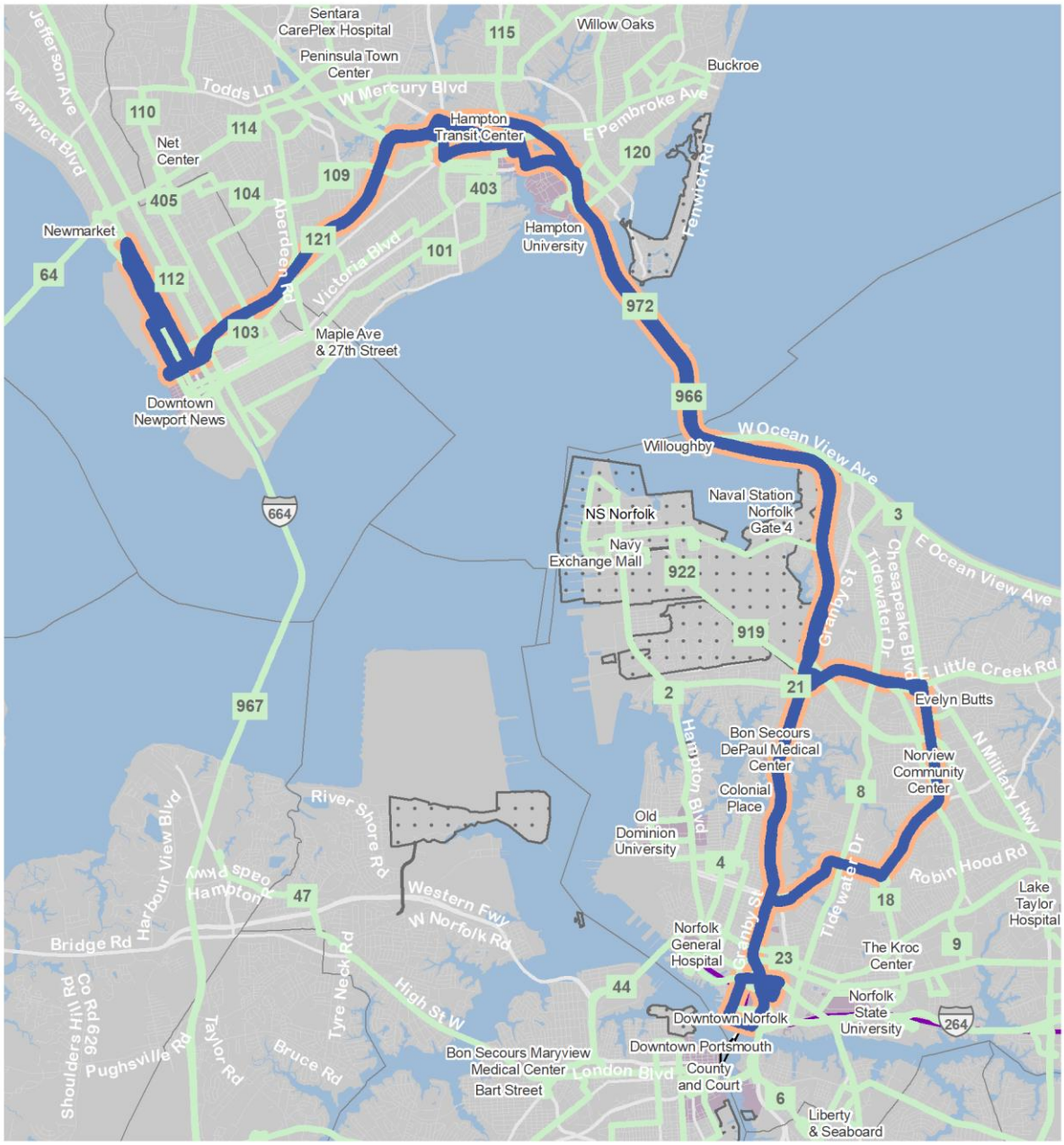
- Service will be reduced on Route 960 as a result of the Route 20 service being increased, providing service between the same key points, and because Route 960 has low performance metrics.

Route 960

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes to existing alignment or LOS.	✓		
2022	Eliminate select trips.		✓	✓
2023	No additional changes.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 961


Sentara CarePlex Hospital
Peninsula Town Center
Willow Oaks
Buckroe
Todds Ln
W Mercury Blvd
E Pembroke Ave
Jefferson Ave
Warwick Blvd
Hampton Transit Center
Net Center
Newmarket
Aberdeen Rd
Victoria Blvd
Hampton University
Jenkins Rd
Maple Ave & 27th Street
Downtown Newport News
Willoughby
W Ocean View Ave
Naval Station Norfolk Gate 4
NS Norfolk
Navy Exchange Mall
E Ocean View Ave
Granby St
Chesapeake Blvd
Tidewater Dr
E Little Creek Rd
Evelyn Butts
Bon Secours DePaul Medical Center
Norview Community Center
N Military Hwy
Colonial Place
Old Dominion University
Hampton Blvd
Robin Hood Rd
Lake Taylor Hospital
River Shore Rd
Harbour View Blvd
Hampton Roads Pkwy
Western Fwy
W Norfolk Rd
Bridge Rd
Norfolk General Hospital
The Kroc Center
Tyre Neck Rd
High St W
Co Rd 626 Shoulders Hill Rd
Pughsville Rd
Taylor Rd
Bruce Rd
Bon Secours Maryview Medical Center
Bart Street
Downtown Norfolk
Norfolk State University
Downtown Portsmouth
County and Court
London Blvd
Liberty & Seaboard
664
967
64
Route 961
Miles
0 0.5 1 1.5 2 2.5 3 3.5
Focus Route
Planned Alignment
Existing Alignment
Planned System
Light Rail
Ferry
Military Bases
City Boundary
Activity Centers
N

Route 961

Service Classification
Limited/Express

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Newport News / Hampton / Norfolk	Newport News / Hampton / Norfolk
Jurisdictions	Norfolk, Hampton, Newport News	Norfolk, Hampton, Newport News

Level of Service			
Span			
		Existing	**Service Target**
Weekday		4:55 AM - 11:12 PM	4:55 AM - 11:12 PM
Saturday		4:58 AM - 10:57 PM	4:58 AM - 10:57 PM
Sunday		7:00 AM - 8:58 PM	7:00 AM - 8:58 PM
Headway			
		Existing	**Service Target**
Weekday	Early	30	30
	AM Peak	30	30
	Midday	30	30
	PM Peak	30	30
	Evening	60	60
	Late Night	60	60
Saturday	Base	40	40
	Non-Base	60	60
	Early / Late	-	-
Sunday	Base	60	60
	Non-Base	60	60
	Early / Late	-	-

Service Changes

- No alignment or level of service changes are proposed.

Justification

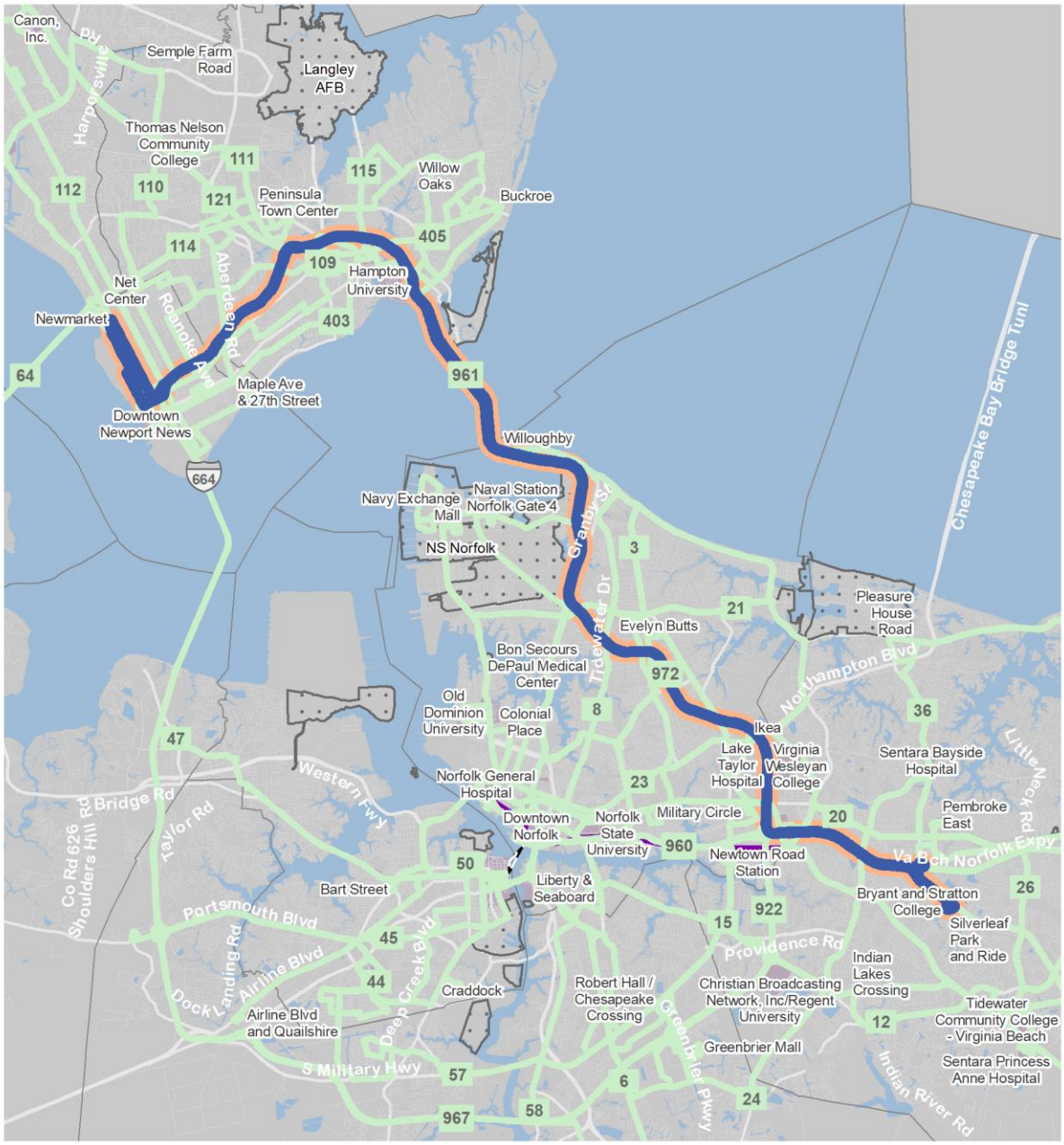
- Route 961 fulfills a need in terms of getting employees to work throughout the day and will remain unchanged.

Route 961

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.	✓	✓	✓
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 966



Route 966

Miles
0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5 5.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 966

Service Classification
Limited/Express

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Silverleaf Park & Ride / Newport News Transit Center	Silverleaf Park & Ride / Newport News Transit Center
Jurisdictions	Newport News, Virginia Beach	Newport News, Virginia Beach

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:20 AM - 6:31 AM; 3:40 PM - 5:03 PM	5:20 AM - 6:31 AM; 3:40 PM - 5:03 PM
Saturday		-	-
Sunday		-	-
Headway			
		Existing	**Service Target**
Weekday	Early	2 Trips	2 Trips
	AM Peak	-	-
	Midday	-	-
	PM Peak	2 Trips	2 Trips
	Evening	-	-
	Late Night	-	-
Saturday	Base	-	-
	Non-Base	-	-
	Early / Late	-	-
Sunday	Base	-	-
	Non-Base	-	-
	Early / Late	-	-

Service Changes

- No alignment or level of service changes are proposed.

Justification

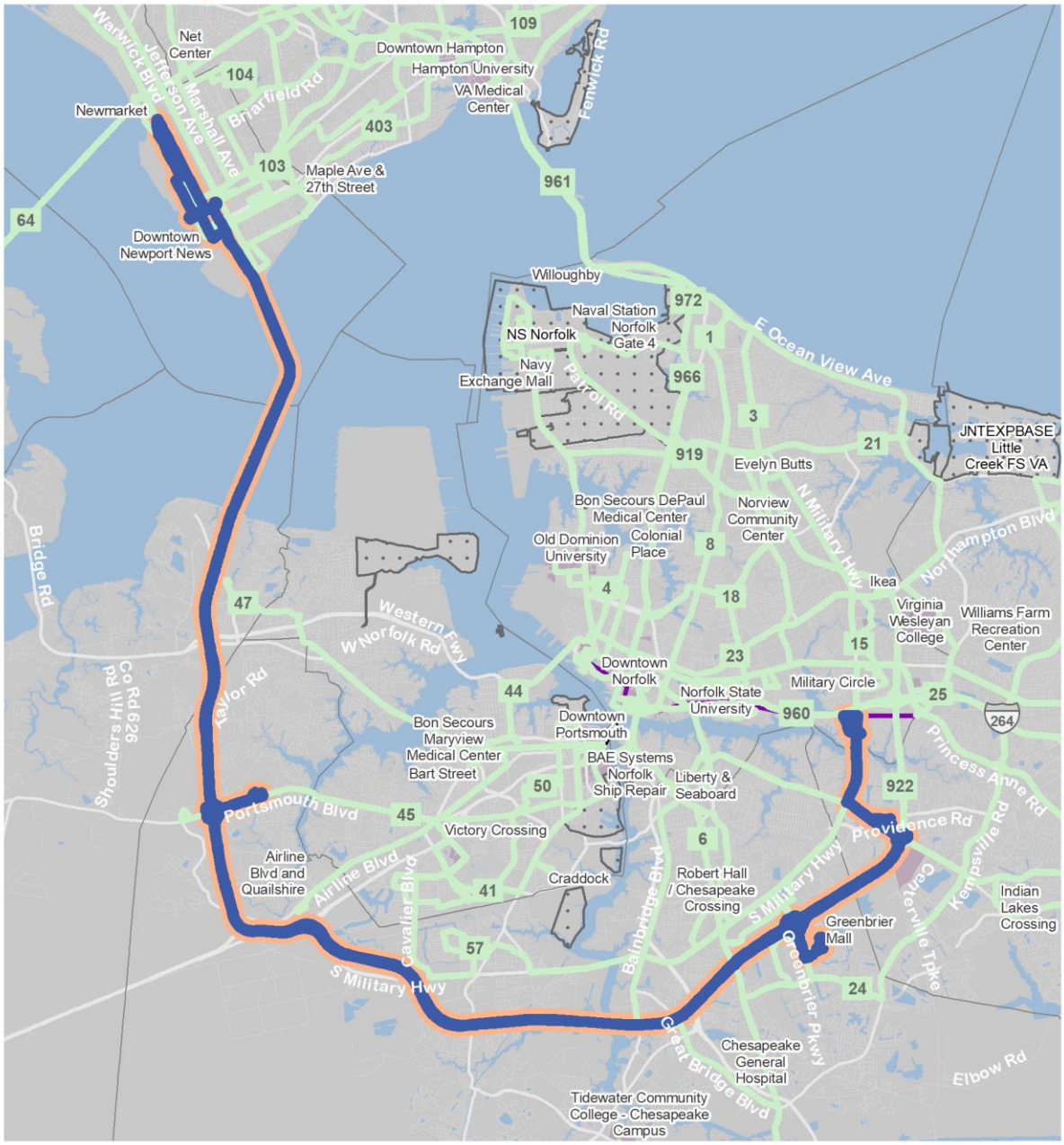
- Route 966 fulfills a need in terms of getting employees to work at specific shift times and will remain unchanged.

Route 966

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.	✓	✓	✓
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 967



Route 967

Miles
0 0.5 1 1.5 2 2.5 3 3.5 4 4.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 967

Service Classification
Limited/Express

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Virginia Beach / Chesapeake / Newport News	Virginia Beach / Chesapeake / Newport News
Jurisdictions	Chesapeake, Newport News, Norfolk, Virginia Beach	Chesapeake, Newport News, Norfolk, Virginia Beach

Level of Service			
Span			
		Existing	**Service Target**
Weekday		4:25 AM - 7:14 AM; 3:00 PM - 6:24 PM	4:25 AM - 7:14 AM; 3:00 PM - 6:24 PM
Saturday		-	-
Sunday		-	-
Headway			
		Existing	**Service Target**
Weekday	Early	5 Trips	5 Trips
	AM Peak	1 Trip	1 Trip
	Midday	-	-
	PM Peak	6 Trips	6 Trips
	Evening	-	-
	Late Night	-	-
Saturday	Base	-	-
	Non-Base	-	-
	Early / Late	-	-
Sunday	Base	-	-
	Non-Base	-	-
	Early / Late	-	-

Service Changes

- No alignment or level of service changes are proposed.

Justification

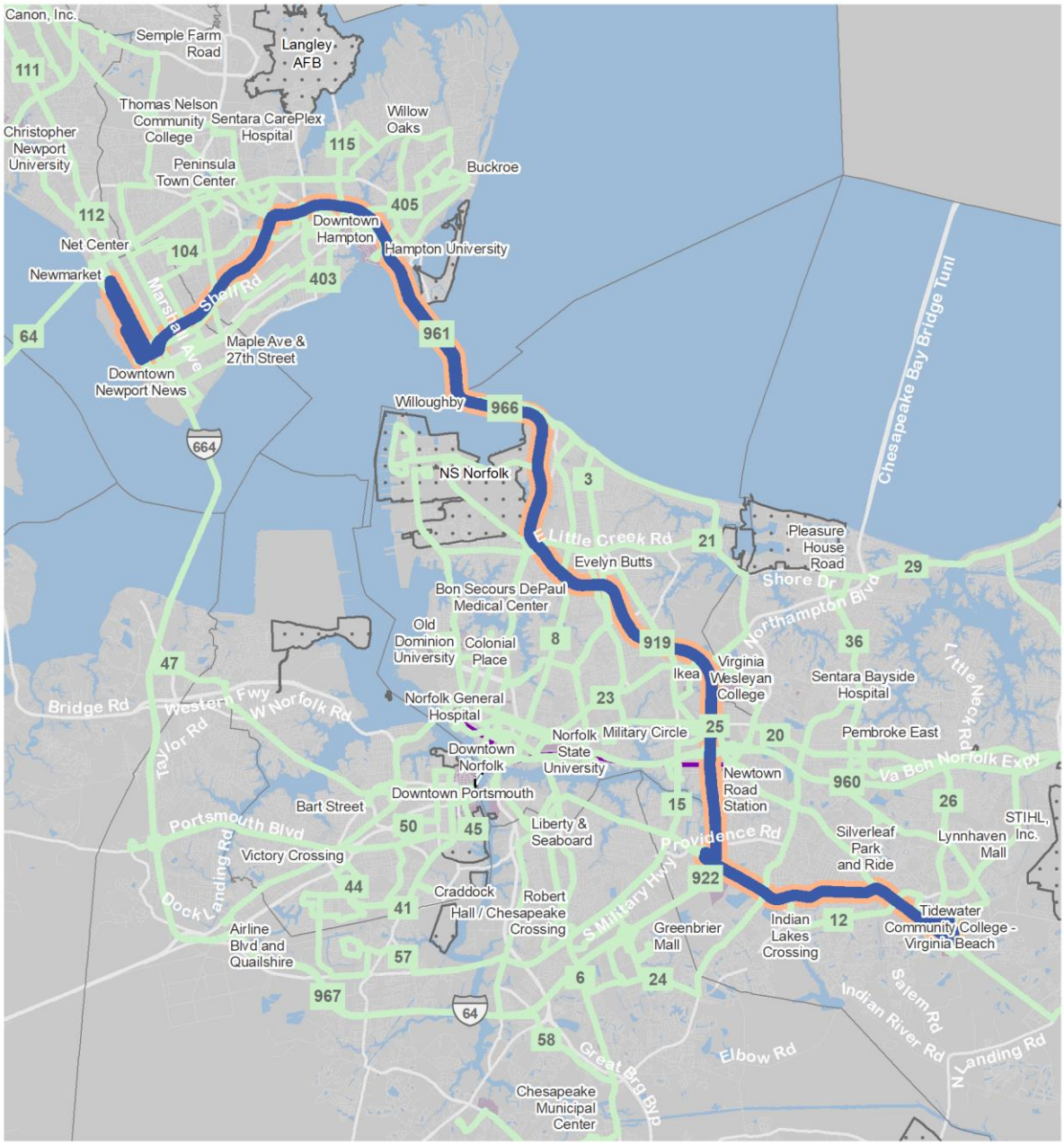
- Route 967 fulfills a need in terms of getting employees to work at specific shift times and will remain unchanged.

Route 967

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.	✓	✓	✓
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Route 972



Route 972

Miles
0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5 5.5 6

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 972

Service Classification
Limited/Express

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Virginia Beach / Newport News	Virginia Beach / Newport News
Jurisdictions	Newport News, Virginia Beach	Newport News, Virginia Beach

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:15 AM - 6:17 AM; 3:40 PM - 4:58 PM	5:15 AM - 6:17 AM; 3:40 PM - 4:58 PM
Saturday		-	-
Sunday		-	-
Headway			
		Existing	**Service Target**
Weekday	Early	1 Trip	1 Trip
	AM Peak	-	-
	Midday	-	-
	PM Peak	1 Trip	1 Trip
	Evening	-	-
	Late Night	-	-
Saturday	Base	-	-
	Non-Base	-	-
	Early / Late	-	-
Sunday	Base	-	-
	Non-Base	-	-
	Early / Late	-	-

Service Changes

- No alignment or level of service changes are proposed.

Justification

- Route 972 fulfills a need in terms of getting employees to work at specific shift times and will remain unchanged.

Route 972

Improvements by Year

Fiscal Year	Improvement Description	Service Target Reached		
		Alignment	Span	Headway
2021	No changes from existing alignment or LOS.	✓	✓	✓
2022	No additional changes.			
2023	No additional changes.			
2024	No additional changes.			
2025	No additional changes.			
2026	No additional changes.			
2027	No additional changes.			
2028	No additional changes.			
2029	No additional changes.			
2030	No additional changes.			
Out-years	No additional changes.			

Systemwide Maps

Additional maps (including the four above) depicting systemwide service in the peak periods for the ten years of the plan can be found in **Appendix B: Phased System Maps for Locally Cost-Constrained Plan**.

Figure 3-1: FY 2030 Weekday AM Peak Frequency (Peninsula)

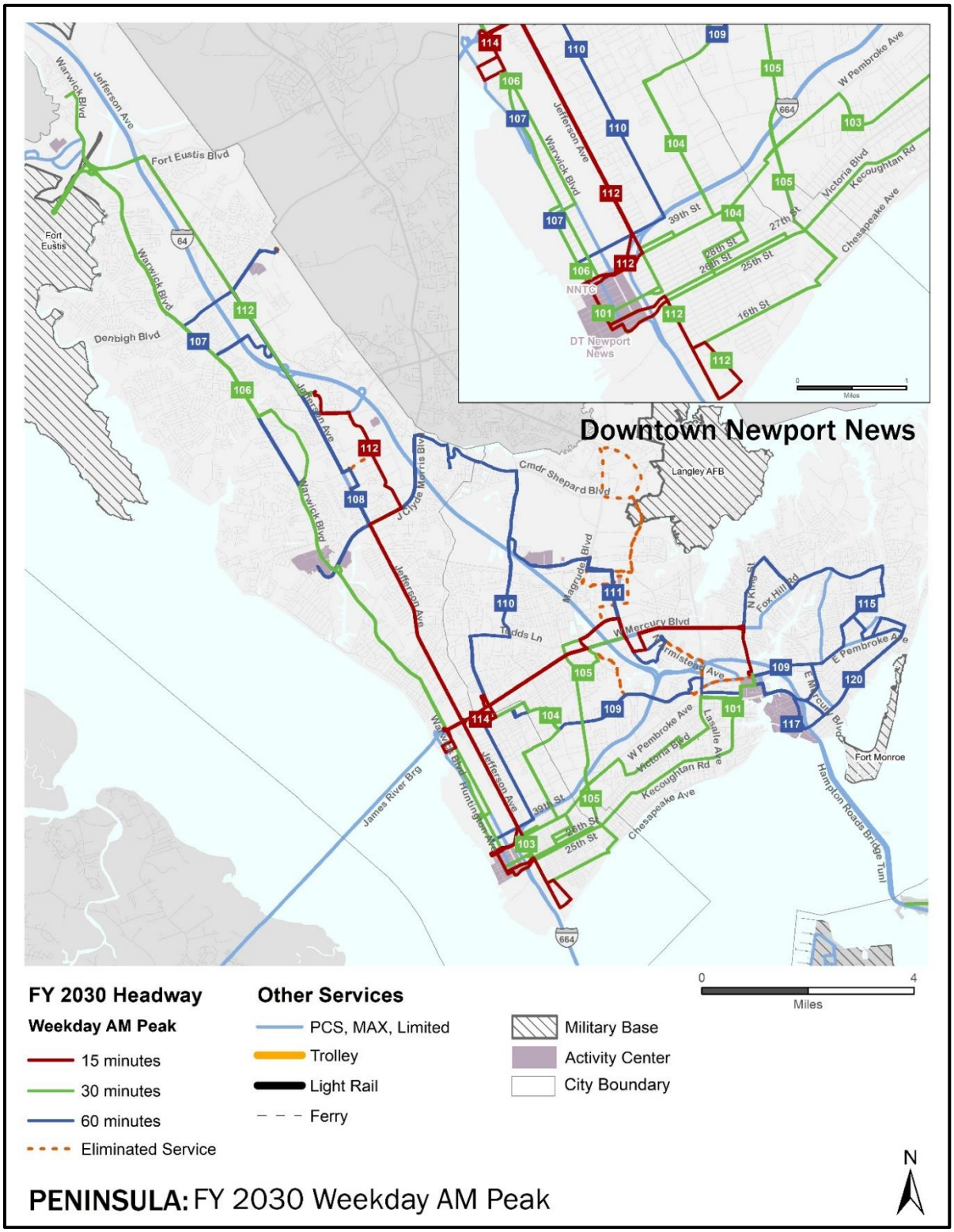


Figure 3-2: FY 2030 Weekday Peak Frequency (Southside)

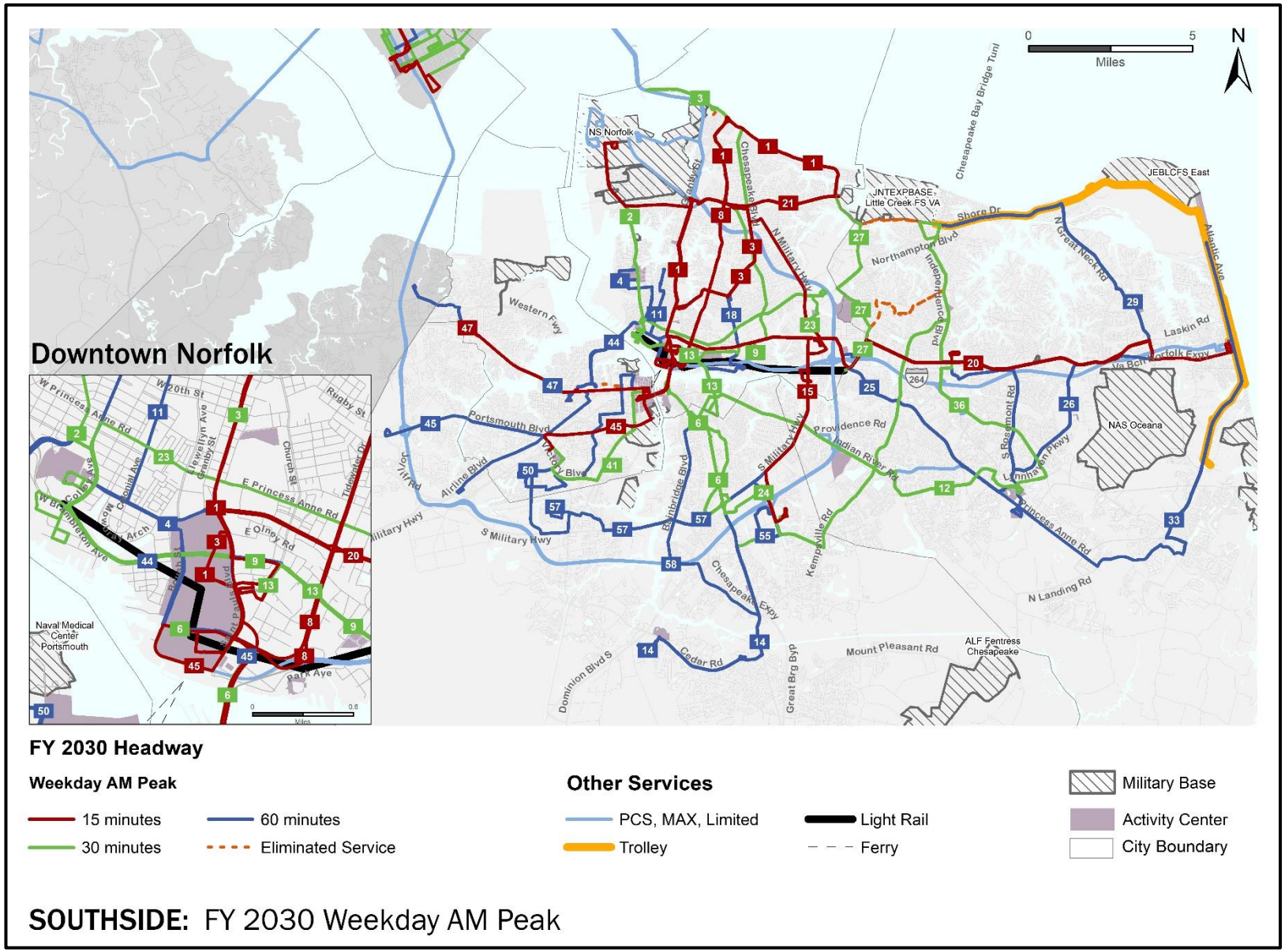


Figure 3-3: Service Target Weekday Peak Frequency (Peninsula)

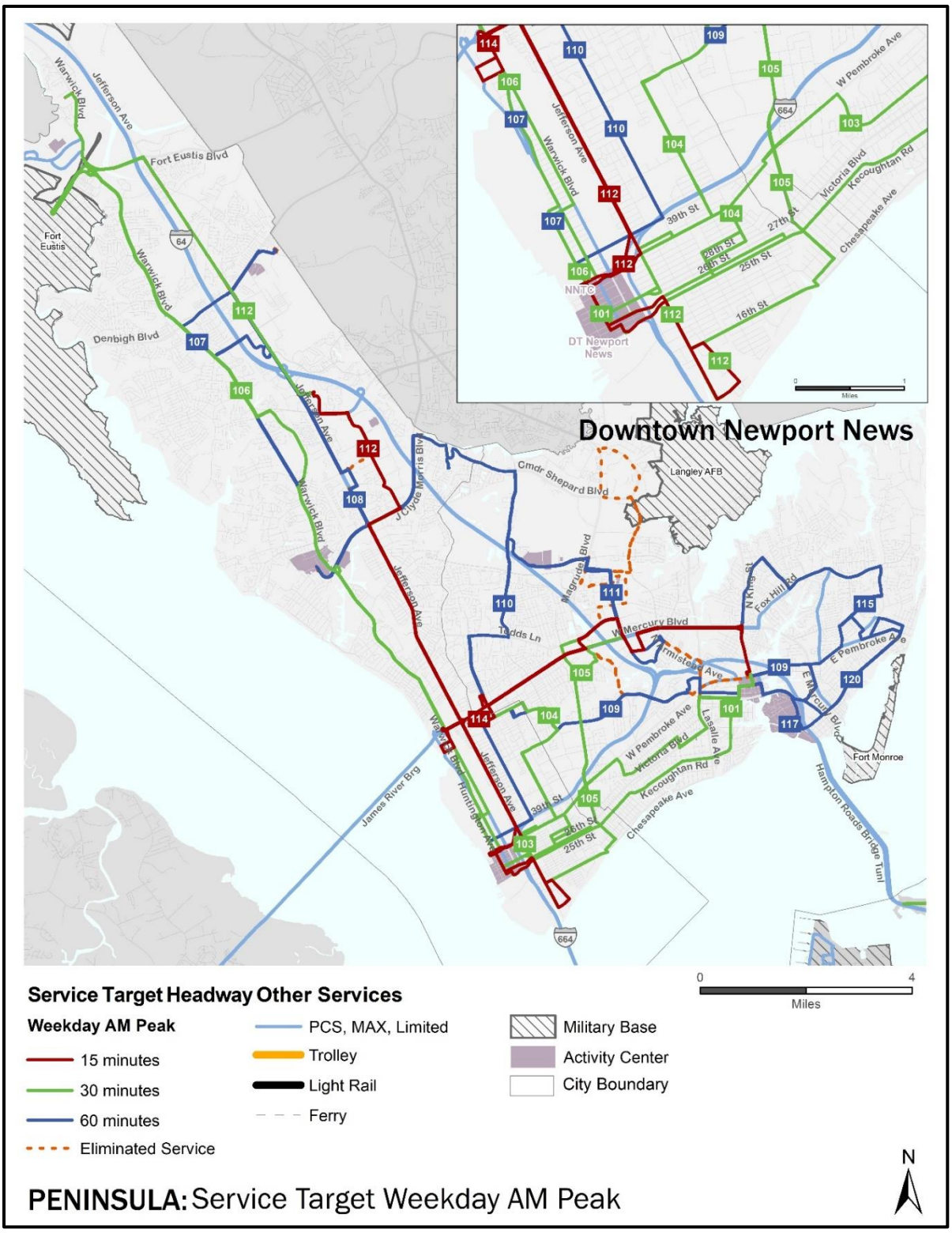
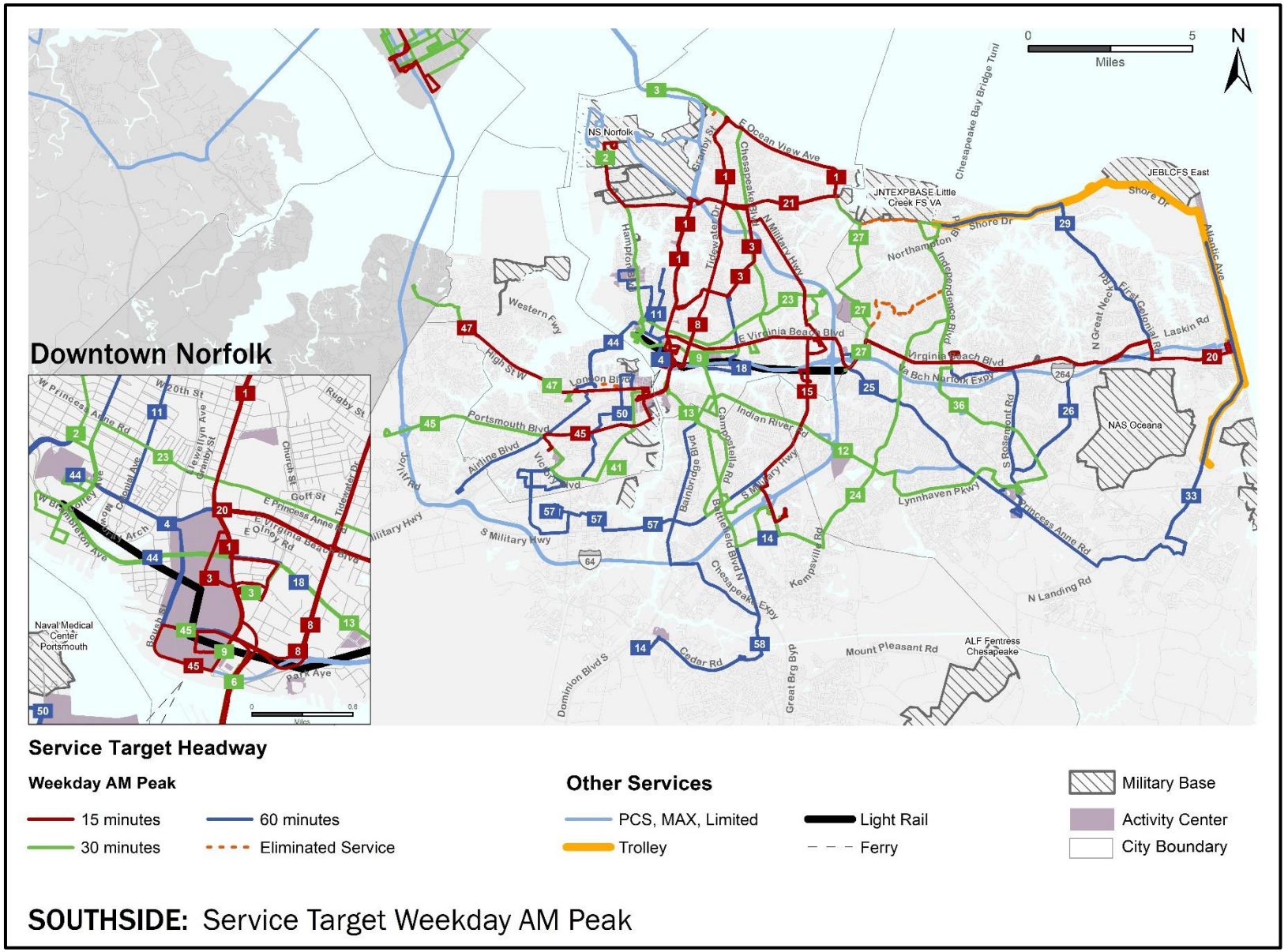


Figure 3-4: Service Target Weekday Peak Frequency (Southside)



3.2 Estimated Ridership Due to Improvements

Table 3-1 shows the estimated weekday daily ridership and estimated passengers per revenue hour based on the planned service improvements as described in the route sheets in **Section 3.1**. Estimated ridership is shown as a percentage change from existing ridership as modeled by the ridership estimation methodology detailed in **Appendix C: Methodology for Estimating Ridership**. The methodology uses observed ridership data and transit demand elasticities to estimate the impact of alignment, span, and headway improvements.

In FY 2030, the daily weekday ridership is projected to increase by 14 percent, not accounting for forecasted increases in population and employment in the Hampton Roads region over the next decade. Weekday ridership on Regional Backbone routes alone (highlighted in gray) is projected to increase by 24 percent. On weekends, systemwide ridership is projected to increase by nine percent on Saturday and 52 percent on Sunday, due in part to new Sunday service being introduced on six routes. Annual ridership is projected to exceed 12.8 million passenger trips in FY 2030, a 16 percent increase over FY 2019. The complete results for weekday, Saturday, and Sunday estimated ridership are presented in **Appendix C: Estimated Ridership Methodology and Results**.

Table 3-1: Estimated Weekday Daily Ridership for Improvements Compared to Existing Ridership

	Route	Existing Weekday Daily Ridership (FY 2019)	Forecasted Weekday Daily Ridership (FY 2030)	Weekday Daily Ridership Percent Change (FY 2019 - FY 2030)
Southside Total		**32,001**	**36,803**	**15%**
Southside Routes	1	3,058	4,425	45%
	2	997	810	-19%[2]
	3	2,214	2,035	-8%[3]
	4	331	386	17%
	5	279	0	Route Eliminated
	6	823	1,210	47%
	8	1,343	1,931	44%
	9	966	966	0%
	11	213	213	0%
	12	566	753	33%
	13	1,178	1,197	2%
	14	465	379	-19%[4]
	15	2,543	2,322	-9%[5]

[2] Route 2 ridership is estimated to decrease since it will no longer directly serve stops within the Sentara Hospital/Eastern Virginia Medical campus. Route 2 is classified here as a Local Priority route, with Local Priority levels of service. In the plan shown in Chapter 6, which accounts for new dedicated funding for regional transit, Route 2 is classified as a Regional Backbone route because the additional funding allows for more routes to have high-frequency service.
[3] Route 3 ridership is estimated to decrease due to its realignment from 1st View St to West Ocean View Ave.
[4] Route 14 ridership is estimated to decrease after its service on Great Bridge Blvd and River Walk Pkwy is replaced by Route 58.
[5] Route 15 ridership is estimated to decrease due to the elimination of its service to Robert Hall Blvd.

	Route	Existing Weekday Daily Ridership (FY 2019)	Forecasted Weekday Daily Ridership (FY 2030)	Weekday Daily Ridership Percent Change (FY 2019 - FY 2030)
Southside Routes	18	172	172	0%
	20	4,368	5,314	22%
	21	2,017	2,652	32%
	22	348	0	Route Eliminated
	23	1,441	1,499	4%
	24	107	107	0%
	25	583	618	6%
	26	264	779	195%[6]
	27	436	403	-7%
	29	394	266	-33%[7]
	30	551	551	0%
	31	118	118	0%
	33	518	518	0%
	35	64	64	0%
	36	656	1,289	97%[8]
	41	473	762	61%
	43	159	0	Route Eliminated
	44	515	743	44%[9]
	45	1,711	1,742	2%
	47	1,044	1,235	18%
	50	253	414	64%[10]
	55	179	179	0%
	57	406	465	15%
	58	251	289	15%

[6] Route 26 ridership is estimated to nearly triple due to its extended alignment between Pembroke East and First Colonial & Donna.
[7] Route 29 ridership is estimated to decrease after its service between First Colonial & Donna and Lynnhaven Mall is replaced by Route 26.
[8] Route 36 ridership is estimated to nearly double due to its extension along Independence Blvd. Route 36 is classified here as a Local Priority route, with Local Priority levels of service, but in Chapter 6, which accounts for new dedicated funding for regional transit, Route 36 is reclassified as a Regional Backbone route.
[9] Route 44 ridership is estimated to increase due to its extension to the Downtown Norfolk Transit Center.
[10] Route 50 ridership is estimated to increase due to its extended alignment which replaces Route 43 service through downtown Portsmouth and Route 41 service in the Roosevelt Blvd neighborhood.

	Route	Existing Weekday Daily Ridership (FY 2019)	Forecasted Weekday Daily Ridership (FY 2030)	Weekday Daily Ridership Percent Change (FY 2019 - FY 2030)
Peninsula Total		**13,282**	**15,231**	**15%**
Peninsula Routes	101	1,045	1,164	11%[11]
	102	259	0	Route Eliminated
	103	1,082	1,082	0%
	104	941	795	-15%
	105	769	810	5%
	106	1,351	1,616	20%[12]
	107	986	879	-11%[13]
	108	435	680	56%
	109	237	818	245%[14]
	110	591	622	5%
	111	539	847	57%
	112	1,780	2,892	62%
	114	1,309	2,031	55%
	115	414	414	0%
	116	267	0	Route Eliminated
	117	274	274	0%
	118	726	0	Route Eliminated
	120	182	214	17%
	64	94	94	0%

[11] Route 101 is classified here as a Local Priority route, with Local Priority levels of service. In the plan shown in Chapter 6, which accounts for new dedicated funding for regional transit, Route 101 is classified as a Regional Backbone route because the additional funding allows for more routes to have high-frequency service.

[12] Route 106 ridership is estimated to increase due to increased levels of service, despite Route 112 replacing its service south of Newport News Transit Center to 6th St & Ivy Ave.

[13] Route 107 ridership is estimated to decrease after its service south of Newport News Transit Center to 6th St & Ivy Ave is replaced by Route 112.

[14] Route 109 ridership is estimated to more than triple after its extension to replace Route 110 service between the Hampton Transit Center and Net Center.

	Route	Existing Weekday Daily Ridership (FY 2019)	Forecasted Weekday Daily Ridership (FY 2030)	Weekday Daily Ridership Percent Change (FY 2019 - FY 2030)
PCS Total		**284**	**432**	**52%**
PCS Routes	403	25	49	100%
	405	51	102	100%
	414	112	112	0%
	415	26	51	100%
	430	71	118	67%
MAX Total		**1,775**	**1,609**	**-9%**
MAX Routes	121	37	37	0%
	919	153	145	-5%
	922	71	56	-21%
	960	269	126	-53%
	961	859	859	0%
	966	49	49	0%
	967	311	311	0%
	972	26	26	0%
System Total		**47,341**	**54,075**	**14%**

3.3 Prioritization of Planned Service Improvements

3.3.1 Prioritization

The TSP guidelines require that each "project" be assigned a time frame with estimated capital and operating costs. For HRT's TSP the three required time frames are:

- Short-Term: FY 2021 – FY 2023
- Mid-Term: FY 2024 – FY 2027
- Long-Term: FY 2028 – FY 2030

The prioritization process was based on first implementing the improvements identified in the FY 2021 TSP letters (a different TSP acronym—Transportation Service Plan) in the first year of the plan and starting two pilots of new on-demand service. For the remainder of the ten-year plan, the implementation of service improvements outlined in **Section 3.2** would be phased by year so as to balance the service increases across each jurisdiction and provide manageable increases in operating and capital costs. The service improvements would be implemented incrementally, and not all proposed improvements would occur before FY 2030, leaving additional service changes for implementation in future years.

There are many routes which are being realigned and segments of routes are being taken over by other routes. Because of this, the phasing of the route changes needs to consider how some routes' realignments are dependent upon others. For this reason, the routes were all placed into "buckets" that group together routes whose alignment changes must happen simultaneously in order to maintain a maximum amount of coverage in the system.

During the short-term period, and in addition to the service changes already being planned for FY2021, all HRT routes will be reclassified into the new service classifications outlined in **Chapter 1**, including the introduction of the interjurisdictional, high-frequency Regional Backbone network. In FY 2022 and FY 2023, Regional Backbone routes would begin to be implemented across every jurisdiction, along with realigning local routes throughout the system. The mid-term would involve implementing the remainder of the alignment improvements that occur within the ten-year plan, as well as increasing Regional Backbone levels of service in each jurisdiction. In the long-term, further increases in levels of service to Regional Backbone and other routes would be implemented in every jurisdiction.

Table 3-2 summarizes the phased improvements and notes any operational or capital investments that need to be made for the service improvements to occur. The capital needs considered were peak vehicle need and transfer facility capacity. New vehicle needs are also described in **Table 3-2**. **Table 3-3** shows the results of an analysis of capacity at transfer facilities was conducted to determine whether new capacity would be needed at any of HRT's most-used facilities in order to implement the plan. The analysis measured the hourly bus capacity at each facility by attributing 60 minutes of availability to each bus bay or equivalent curb space. Then, by estimating the layover duration of each bus arrival in the FY 2030 plan, the total minutes of use at each facility was measured for every hour of the day. Finally, the maximum hourly need (during the busiest hour at each facility) was subtracted from the capacity to find the minimum spare capacity for each transfer facility. Overall, this analysis concluded that all additional trips and vehicles for FY 2030 are within each facility's capacity.

Table 3-2: Prioritization

Time Frame	Year	Service Improvements	Routes Impacted	Operational Needs	Capital Needs
Short-Term	FY 2021	**First Half:** Implement service changes in FY2021 Transportation Service Plan Letters. **Second Half:** Implement two pilot on-demand zones, one in Virginia Beach and one in Newport News.	**Changes to service**: Routes 33, 44, 102, 106, 107, 111, 112, 116 **New service:** Pilot On-Demand Microtransit services (see: **Appendix D: On-Demand Microtransit Services**)	2,000 fewer hours of service (does not include on-demand pilots)	The on-demand pilot program will involve new vehicles; however, it is anticipated that they would be provided through the operating contractor.
	FY 2022	Realign routes in Newport News. Increase Regional Backbone service in Norfolk, Virginia Beach, and the Peninsula.	**Changes to service**: Routes 20, 21, 106, 108, 111, 112, 114, 960 **Eliminated service**: Routes 116, 118	21,200 additional hours of service	9 new vehicles needed to meet peak vehicle requirements
	FY 2023	Realign routes on the Southside. Increase Regional Backbone service in Portsmouth, Chesapeake, and the Peninsula.	**Changes to service:** Routes 26, 29, 41, 43, 44, 45, 47, 50, 57, 111, 112, 114, 405	14,900 additional hours of service	No new vehicles needed to meet peak vehicle requirements
	Short-Term Total			**34,100 additional hours of service in short-term phase**	**9 new vehicles needed in short-term phase**
Mid-Term	FY 2024	Realign routes on the Southside. Increase Regional Backbone service on the Southside and in Newport News.	**Changes to service:** Routes 1, 6, 12, 13, 15, 27, 36, 45, 112, 120, 919, 922 **Eliminated service:** Route 22	39,800 additional hours of service	No new vehicles needed to meet peak vehicle requirements
	FY 2025	Realign routes in Norfolk. Increase Regional Backbone service in all jurisdictions.	**Changes to service:** Routes 2, 3, 4, 8, 15, 20, 23, 25, 41, 45, 101, 108, 112, 114, 403, 415 **Eliminated service:** Route 5	25,600 additional hours of service	No new vehicles needed to meet peak vehicle requirements
	FY 2026	Increase local service in Norfolk, Virginia Beach, and Portsmouth. Increase Regional Backbone service in all jurisdictions.	**Changes to service:** Routes 1, 15, 25, 41, 47, 112, 114	19,300 additional hours of service	2 new vehicles needed to meet peak vehicle requirements
	FY 2027	Realign routes in Portsmouth, Chesapeake, and the Peninsula. Increase Regional Backbone service in Newport News and Portsmouth.	**Changes to service:** Routes 4, 14, 27, 29, 36, 47, 58, 104, 105, 106, 109, 110, 112 **Eliminated service:** Route 102	14,500 additional hours of service	2 new vehicles needed to meet peak vehicle requirements
	Mid-Term Total			**99,200 additional hours of service in mid-term phase**	**4 new vehicles needed in mid-term phase**

Time Frame	Year	Service Improvements	Routes Impacted	Operational Needs	Capital Needs
Long-Term	FY 2028	Increase local service in Chesapeake, Portsmouth, and the Peninsula. Increase Regional Backbone service on Route 20.	**Changes to service:** Routes 13, 20, 44, 50, 105	9,900 additional hours of service	1 new vehicle needed to meet peak vehicle requirements
	FY 2029	Increase local service in Chesapeake, Virginia Beach,and Newport News. Increase Regional Backbone service in Portsmouth, Chesapeake, and the Peninsula.	**Changes to service:** Routes 6, 26, 29, 45, 107, 114	10,000 additional hours of service	No new vehicles needed to meet peak vehicle requirements
	FY2030	Increase local service in Portsmouth, Chesapeake, and Hampton. Increase Regional Backbone service in Norfolk, Virginia Beach, and the Peninsula.	**Changes to service:** Routes 20, 50, 57, 114, 120	13,300 additional hours of service	No new vehicles needed to meet peak vehicle requirements
	Long-Term Total			**33,200 additional hours of service in long-term phase**	**1 new vehicle needed in long-term phase**
Out-Years		Realign routes in Chesapeake. Increase local and Regional Backbone service to meet all service targets. Most additional service is during off-peak and weekend periods.	**Changes to service:** Routes 3, 6, 9, 11, 12, 13, 14, 18, 24, 27, 33, 41, 44, 45, 47, 50, 57, 58, 101, 103, 105, 106, 109, 110, 111, 115 **Eliminated service:** 55, 117	91,476 additional hours of service in out-years	5 new vehicles needed to meet peak vehicle requirements

Table 3-3: Results of Transfer Facility Analysis

Transfer Facility	Bus Bays or Equivalent	Hourly Capacity (minutes)	Existing Maximum Hourly Use (minutes)	FY 2030 Maximum Hourly Use (minutes)	FY 2030 Minimum Spare Hourly Capacity (minutes)
Downtown Norfolk Transit Center	16	960	256	271	689
Newport News Transit Center	10	600	233	302	298
Hampton Transit Center	10	600	114	121	479
Evelyn T. Butts Transfer Center	4	240	166	157	83
Military Circle Mall	3	180	59	63	118
Greenbrier Mall	2	120	70	85	35
Robert Hall Boulevard	4	240	88	79	161

3.3.2 Inclusion in Other Plans

HRT's fiscally constrained Capital Improvement Plan (CIP) calls for the procurement of five expansion buses in FY 2025 and 12 expansion buses in FY 2026. These vehicles will meet the fleet expansion needs outlined in the TSP's locally cost-constrained service plan. In addition to these investments, the CIP allocates funding for the relocation and reconstruction of HRT's Parks Avenue garage in Virginia Beach. The replacement of the garage with a new facility will give the agency additional bus operating capacity and improve the efficiency of existing Virginia Beach operations by reducing the need to deadhead to the agency's Norfolk garage. While work has not begun on the Parks Avenue replacement, the CIP projects that work will be completed by 2026.

Implementation of any recommendations is predicated on the system sustaining a State of Good Repair. The agency's CIP is largely focused on maintaining or replacing existing assets at the end of their useful life, including vehicles, buildings, equipment, and technology. Ongoing investments in technology infrastructure such as the replacement of servers, improvements in network security, and increases in fiber optic bandwidth will be important for future technology improvements.

3.4 Service Development

3.4.1 Operations Planning

Table 3-4 details the operational changes and needs by year and by route for implementing the service changes described in **Table 3-2** and in the route profiles. Changes to revenue hours by year by route are displayed and represent a change in hours from that route in the previous year. Additional peak vehicles needed by route are also included in this table.

Table 3-4: Service Expansion and Reduction by Year

Year	Route	Description of Changes	Approximate Change in Revenue Hours	Additional Peak Vehicle Need
FY 2021	Route 33	Eliminate Sunday service	(600)	-
	Route 44	Realign	4,000	-
	Route 102	Eliminate Sunday service	(500)	-
	Route 106	Realign	(1,700)	-
	Route 107	Realign	(2,300)	-
	Route 111	Eliminate Sunday service	-	-
	Route 112	Partially realign	4,600	-
	Route 116	Eliminate Sunday service	(700)	-
FY 2022	Route 20	Realign and increase frequency	8,000	-
	Route 21	Realign, modify weekday and weekend span, and increase weekday and weekend frequency	7,100	4
	Route 106	Increase weekday and weekend span, and change weekday frequency	2,000	-
	Route 108	Realign, modify weekday and weekend span	(500)	-
	Route 111	Realign, modify weekend span	4,600	-
	Route 112	Realign, modify weekday and weekend span, and change weekday and weekend frequency	21,300	6
	Route 114	Increase weekday frequency	13,600	4
	Route 116	Eliminate route	(15,800)	(3)
	Route 118	Eliminate route	(11,000)	(2)
	Route 960	Eliminate trips	(8,100)	-

Year	Route	Description of Changes	Approximate Change in Revenue Hours	Additional Peak Vehicle Need
FY 2023	Route 26	Realign, increase weekday and weekend span, and decrease weekday and weekend frequency	3,100	(1)
	Route 29	Realign	700	(1)
	Route 41	Realign	(3,200)	-
	Route 43	Eliminate route	(3,600)	(1)
	Route 44	Realign	(4,200)	-
	Route 45	Realign and increase weekend span	8,400	1
	Route 47	Realign, increase weekday and weekend span, and increase weekend frequency	3,500	-
	Route 50	Realign, modify weekday and weekend span. Eliminate Sunday service	3,600	1
	Route 57	Realign	100	(3)
	Route 111	Increase weekend span	300	-
	Route 112	Increase weekday and weekend frequency	5,600	-
	Route 114	Increase weekend span	300	-
	Route 405	Implement additional trips	400	1
FY 2024	Route 1	Realign, increase weekend span, and increase weekday and weekend frequency	17,300	1
	Route 6	Partially realign, increase weekend span, and decrease weekday frequency	2,700	-
	Route 12	Realign, increase weekday span, and increase weekday frequency	7,000	2
	Route 13	Partially realign, modify weekend span, and change weekday frequency	2,200	-
	Route 15	Realign, modify weekday and weekend span, and change weekday and weekend frequency	600	(1)
	Route 22	Eliminate route	(7,900)	(2)
	Route 27	Realign, modify weekday and weekend span, and change weekday and weekend frequency	100	-
	Route 36	Realign, increase weekday and weekend span, add Sunday service, and increase weekend frequency	12,500	1
	Route 45	Increase weekend frequency	1,200	-
	Route 112	Increase weekend span and frequency	3,100	-
	Route 120	Realign, increase weekend span	1,500	-
	Route 919	Eliminate one trip	(100)	(1)
	Route 922	Eliminate trips	(400)	(1)
FY 2025	Route 2	Realign, increase weekday and weekend span, and increase weekday and weekend frequency	1,700	(1)
	Route 3	Realign, increase weekend span, and increase weekday and weekend frequency	(2,200)	(1)
	Route 4	Realign and increase weekend frequency	(100)	-

Year	Route	Description of Changes	Approximate Change in Revenue Hours	Additional Peak Vehicle Need
	Route 5	Eliminate route	(3,700)	(1)
	Route 8	Modify weekday and weekend span, increase weekday and weekend frequency	9,000	3
	Route 15	Modify weekday and weekend span, and change weekday and weekend frequency	800	-
	Route 20	Increase weekday and weekend frequency	13,900	-
	Route 23	Modify weekday and weekend span, and change weekday and weekend frequency	500	-
	Route 25	Modify weekday and weekend span	-	-
	Route 41	Increase weekday frequency	800	1
	Route 45	Increase weekend frequency.	600	-
	Route 101	Realign, modify weekday and weekend span, and change weekday and weekend frequency	(700)	-
	Route 108	Increase weekday and weekend span	800	-
	Route 112	Increase weekend span	1,100	-
	Route 114	Increase weekday span	2,400	-
	Route 403	Implement additional trips	300	1
	Route 415	Implement one additional trip	200	-
	Route 430	Implement additional trips	400	1
FY 2026	Route 1	Increase weekend frequency	5,000	-
	Route 15	Change weekday and weekend frequency	6,300	2
	Route 25	Increase weekend span and frequency	2,200	-
	Route 41	Increase weekday frequency	800	-
	Route 47	Add Sunday service on full pattern	600	-
	Route 112	Modify weekday and weekend span, change weekday and weekend frequency	3,000	1
	Route 114	Increase weekend frequency	1,300	-
FY 2027	Route 4	Increase weekday span	300	-
	Route 14	Partially realign and change weekend span	-	(1)
	Route 27	Add Sunday service	1,000	-
	Route 29	Add Sunday service	1,400	-
	Route 36	Increase weekend frequency	1,200	-
	Route 47	Increase weekday and weekend span	400	-
	Route 58	Realign	4,400	1
	Route 102	Eliminate route	(4,300)	(1)
	Route 104	Realign, modify weekday and weekend span, and change weekday and weekend frequency	(4,300)	-
	Route 105	Realign	400	-

Year	Route	Description of Changes	Approximate Change in Revenue Hours	Additional Peak Vehicle Need
	Route 106	Increase weekday frequency	4,500	3
	Route 109	Realign	6,300	1
	Route 110	Realign	500	(2)
	Route 112	Increase weekday frequency	3,000	1
FY 2028	Route 13	Modify weekday and weekend span, increase weekday frequency	900	-
	Route 20	Increase weekend span and increase weekday frequency	4,300	-
	Route 44	Increase weekday span	500	-
	Route 50	Increase weekday span	500	-
	Route 105	Increase weekday and weekend frequency	3,700	1
FY 2029	Route 6	Increase weekday and weekend span, increase weekday frequency	2,000	-
	Route 26	Add Sunday service	1,600	-
	Route 29	Increase weekday span	900	-
	Route 45	Increase weekday and weekend span	1,400	-
	Route 107	Increase weekday and weekend span	1,300	-
	Route 114	Increase weekend span and frequency	2,800	-
FY 2030	Route 20	Increase weekend frequency	7,900	-
	Route 50	Add Sunday service	1,200	-
	Route 57	Increase weekday span	1,800	-
	Route 114	Increase weekend frequency	1,900	-
	Route 120	Increase weekday span	500	-

3.4.3 Equity Evaluation

This high-level equity evaluation illustrates where service reductions may impact minority and low-income communities. This equity evaluation is NOT a Title VI Service Equity Analysis but rather a high-level "gut-check" of whether and how the plan might impact these communities. Additionally, this analysis was conducted on the full implementation of the plan in 2030 and does not address any interim impacts at other points during plan implementation. For this analysis, reduced service refers both to geographic losses in service due to the elimination or realignment of a route or to a reduction in level of service (hours of service provided). Most areas that will experience reductions in service are either covered by other realigned routes, covered by new fixed-route or on-demand coverage, or have improved levels of service on nearby routes, or a combination of these.

Methodology

The following steps were undertaken to complete a high-level equity evaluation that shows which Census Tracts with high percentages of low-income and/or minority residents may be impacted by service reductions:

1. **Determine the geographic areas losing transit service:** Segments losing service either through route elimination or realignment were identified. This analysis was performed systemwide and not on a route-by-route basis; for example, if an existing route segment was replaced by service on another route, there would be no impact to geographic coverage. A buffer of one-quarter mile was used around eliminated segments to demonstrate the approximate area losing service (though it was common for other routes to remain within one-quarter mile of these eliminated segments).
2. **Determine which routes' changes in levels of service count as a "Major Service Change:"** Routes which are estimated to have their revenue hours reduced by 20 percent or more by FY 2030 (compared to existing service) were identified as undergoing a Major Service Change.[15] A one-quarter mile buffer was used around these existing routes to demonstrate the approximate area with a service reduction.
3. **Overlay low-income and/or minority Census Tracts over the service changes:** HRT's Title VI Program[16] defines a minority Census Tract as one that had a minority population greater than the regional average of 47.1 percent and a low-income Census Tract as one with more than 20.5 percent at or below the federal poverty line. To determine which of the Minority and Low-Income Census Tracts may be impacted by the planned reductions in service, the identified Census Tracts were overlaid over the geographic areas losing service and routes undergoing Major Service Change buffers.

Findings

Figure 3-5 and **Figure 3-6** show the geographic loss of coverage overlaid with the Minority and Low-Income Census Tracts. **Figure 3-7** and **Figure 3-8** show reductions of hours service overlaid with the Minority and Low-Income Census Tracts. **Table 3-5** shows the Minority and Low-Income Census Tracts that intersect with buffers of reductions in service by route.

On the geographic loss of service maps (**Figure 3-5** and **Figure 3-6**), the reductions in service are shown in blue and the Minority and Low-Income Census Tracts are shown in transparent yellow overlaid on the blue. Wherever the transparent yellow and dark blue intersect, the subsequent green color represents a Census Tract that may be impacted by the loss of geographic coverage. If there is no yellow overlapping a blue area, then that area is not in a Minority and/or Low-Income Tract. These two maps do not take into account levels of service of nearby routes, meaning that even though some areas are identified as losing geographic coverage, these areas could still be served by a nearby route which has the same or a higher level of service. For example, in **Figure 3-5** the loss of coverage being shown near the Hampton Transit Center represents a small segment of Route 102 coverage that is lost when the route is eliminated; however, the realigned Route 109 provides a similar connection and operates two blocks over, plus many other routes still continue to serve the Hampton Transit Center.

In the reductions in level of service maps (**Figure 3-7** and **Figure 3-8**), the transparent yellow layer again symbolizes the Minority and Low-Income Census Tracts; routes planned for a reduction in level of service are shown in purple

[15] The threshold of 20 percent was chosen based on the methodology in HRT's Title VI Program for determining a "Major Service Change" which states a 25 percent threshold. For this high-level analysis, 20 percent was chosen so that this analysis would err on the side of including more service changes rather than less. This equity evaluation is NOT a Title VI Service Equity Analysis.

[16] Hampton Roads Transit, "Title VI Program 2017-2020," Accessed at https://gohrt.com/wp-content/uploads/2019/08/Title-VI-2017-Main.pdf.

and eliminated routes are highlighted in orange to demonstrate that the level of service along those corridors may be reduced. However, many of the Census Tracts intersecting with the eliminated routes will still receive coverage from other changed or new transit service; Census Tracts which do experience losses of service from segments of eliminated routes are shown in the geographic losses of service column in **Table 3-5**.

The ten-year phased plan includes 24 routes with a geographic and/or level of service reduction by FY 2030:

- Six routes will be eliminated: Route 5, Route 22, Route 43, Route 102, Route 116, and Route 118. However, most segments of service on these routes will be covered by service on other realigned or extended fixed routes. While these routes are eliminated, a high level of coverage is maintained across the system.
- Sixteen routes lose segments of geographic coverage due to realignment but do not undergo reductions in level of service. Each of these alignment changes impact anywhere from one to 11 Census Tracts, with most routes only impacting a few Census Tracts. Most of these areas are either covered by service on other realigned routes or are within short walking distance of other routes.
- One route will have reduced levels of service but does not undergo a loss of geographic coverage (Route 41). This route is covered by service on other realigned routes that run at an equivalent or higher frequency.
- One route undergoes both a reduction in level of service and a small loss of geographic coverage (Route 104). This route is covered by new realigned routes and is within a quarter-mile walking distance of routes with equivalent or higher frequency.

Details on the specific changes recommended for each route as well as how losses of service are made up for by other routes are included in the route profiles in **Section 3.1**.

Figure 3-5: Peninsula Geographic Loss of Service

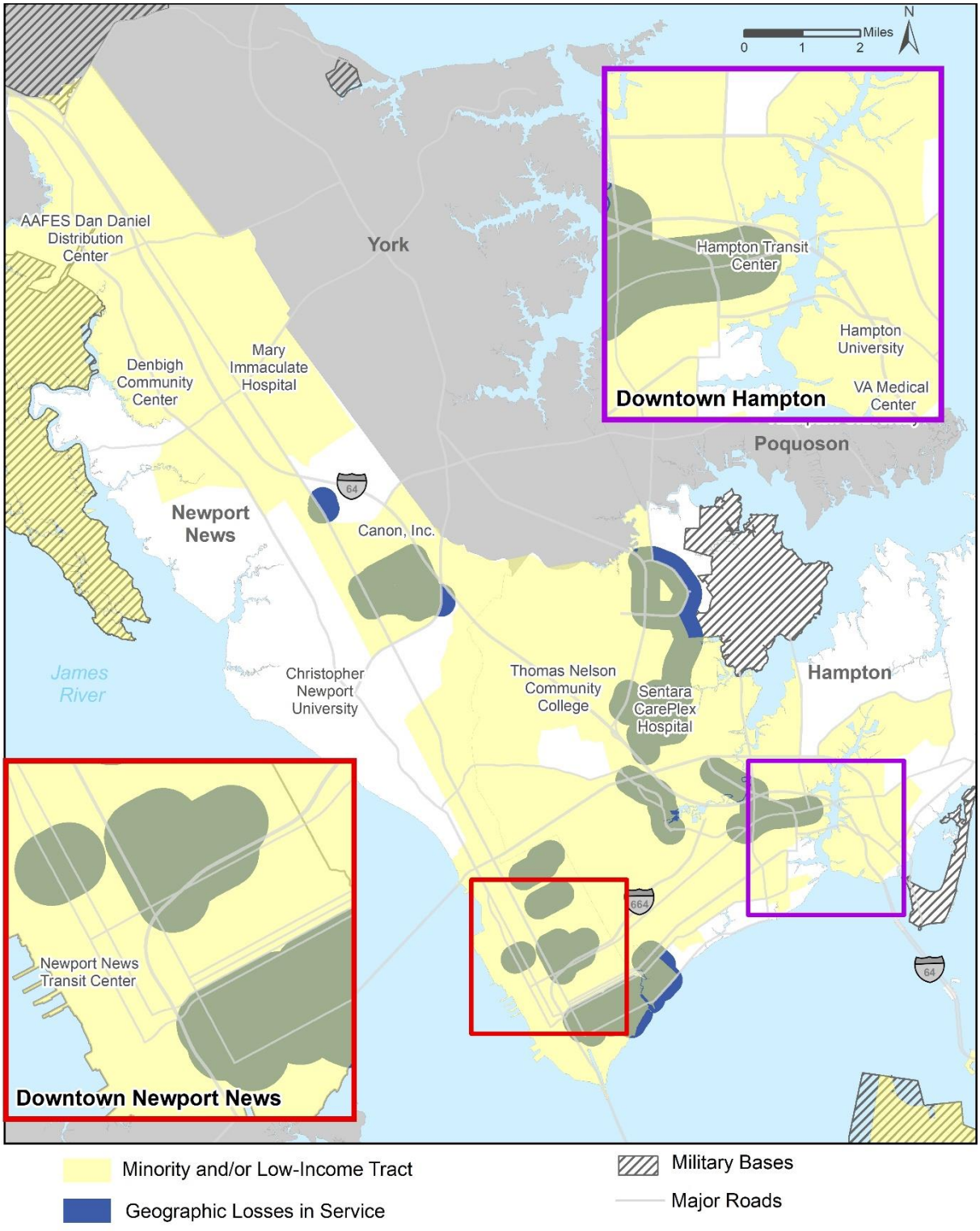


Figure 3-6: Southside Geographic Loss of Service

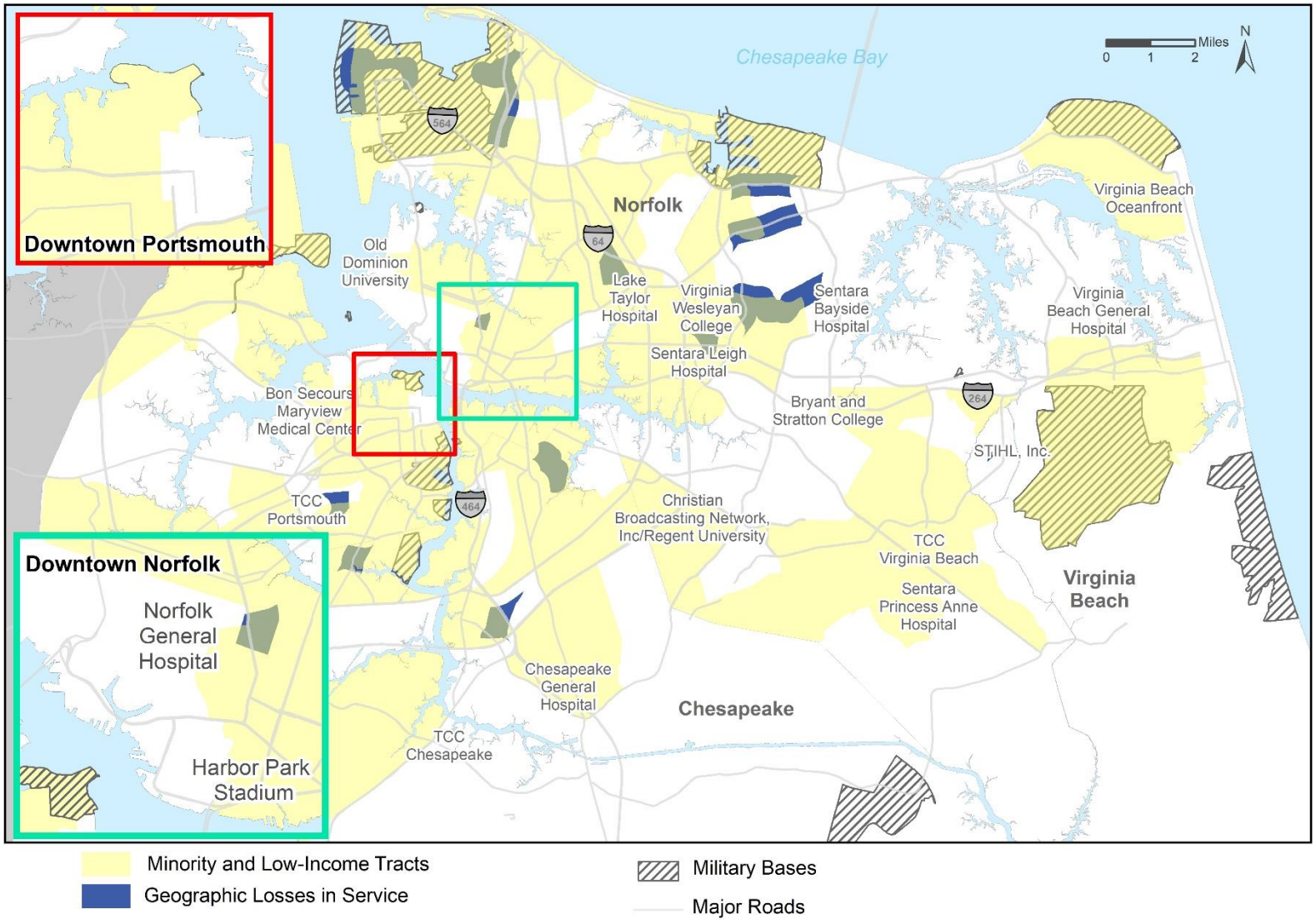


Figure 3-7: Peninsula Level of Service Loss

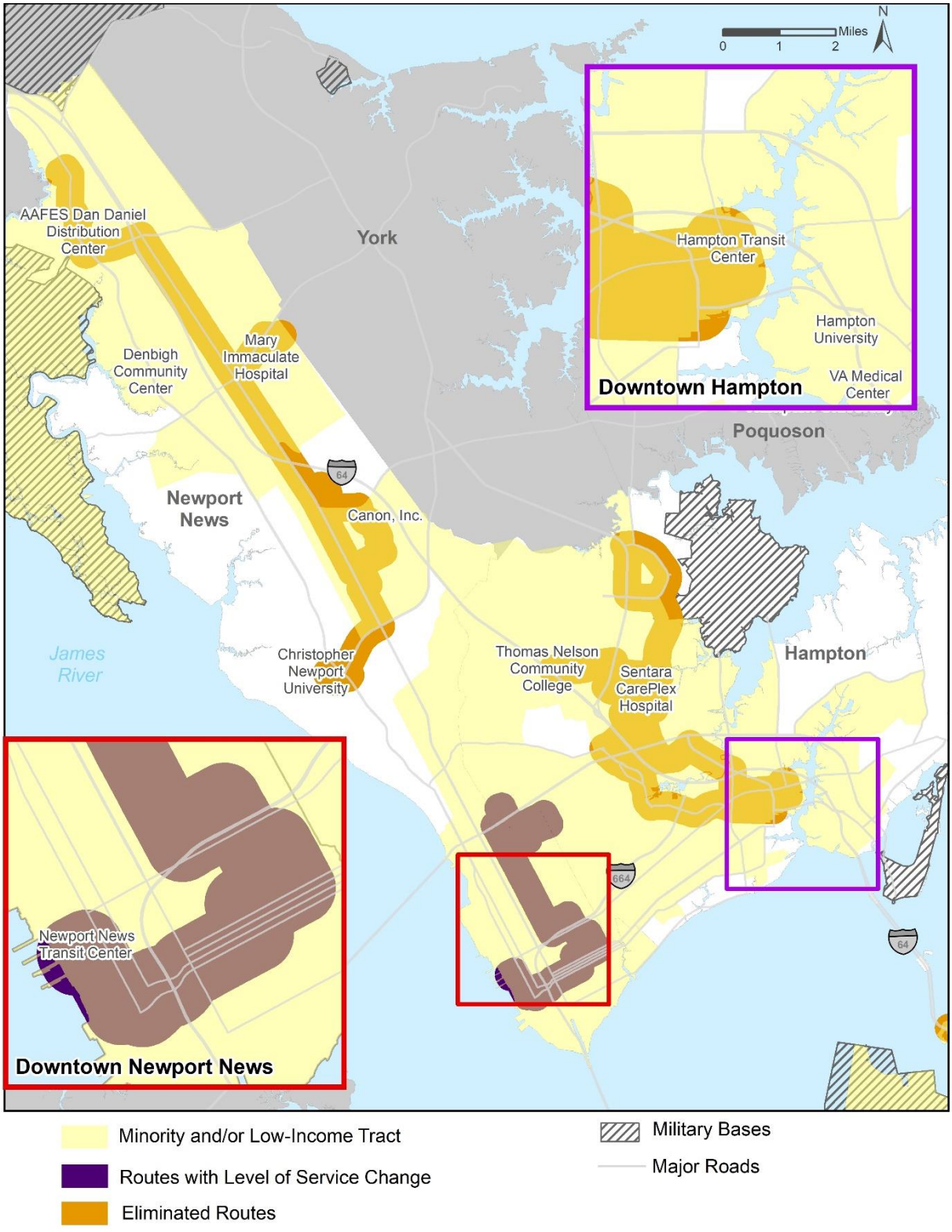


Figure 3-8: Southside Level of Service Loss

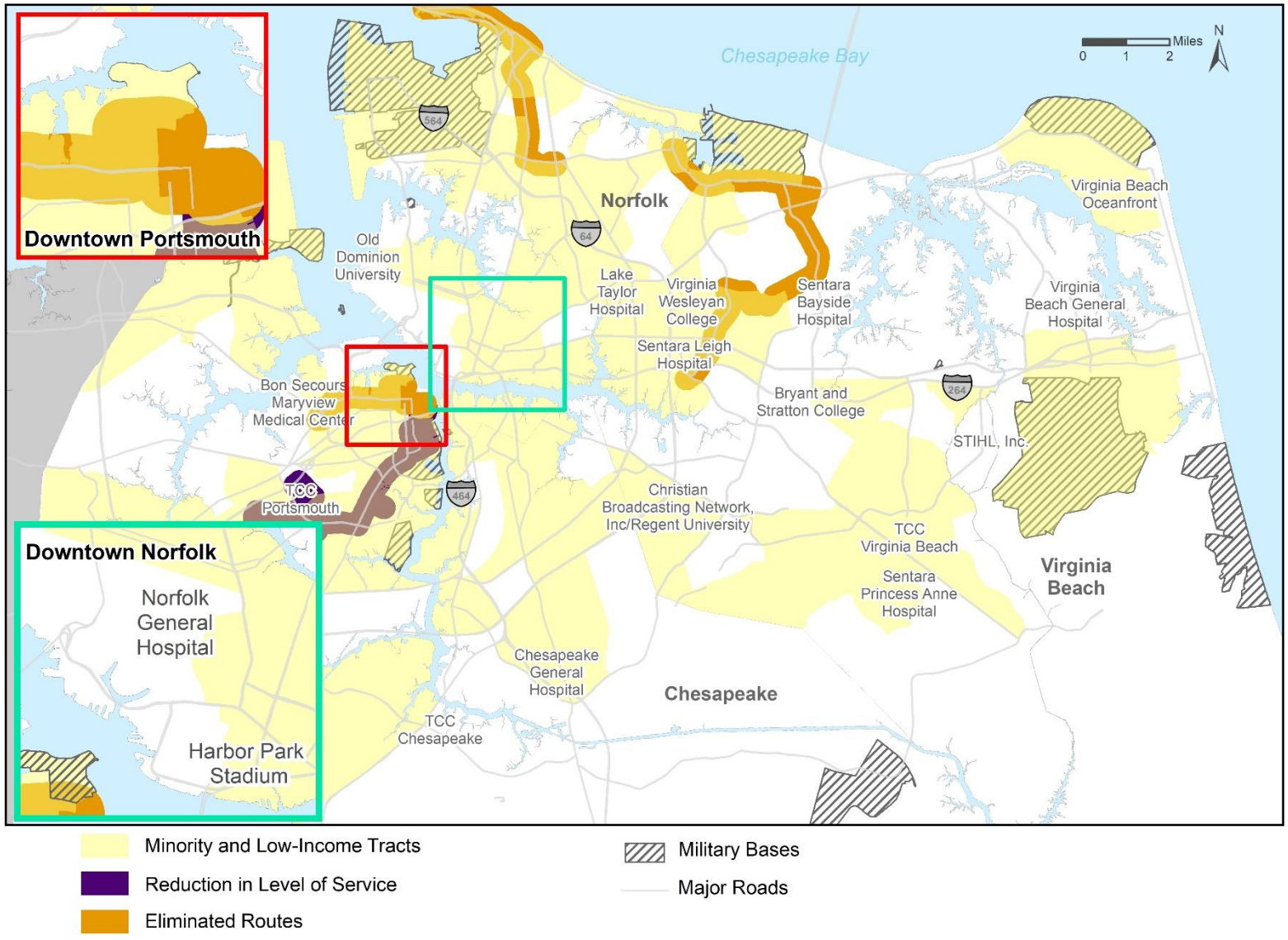


Table 3-5: Equity Analysis Results

Route	Loss of Geographic Coverage	Minority or Low-Income Census Tracts Impacted by Loss of Geographic Coverage	Reduced Level of Service	Minority or Low-Income Census Tracts Impacted by Reduced Level of Service
1	Yes	Tract 5, 6, 8, 9.02, 55, 400, 404.03	No	-
2	No	-	No	-
3	Yes	Tract 3, 5, 6, 8, 9.02, 55	No	-
4	Yes	Tract 34, 35.01	No	-
5	Yes	Tract 3, 5	*Eliminated*	-
6	No	-	No	-
9	No	-	No	-
11	No	-	No	-
12	No	-	No	-
13	Yes	Tract 51, 200.02, 201	No	-
14	No	-	No	-
15	Yes	Tract 59.02, 59.03	No	-
18	No	-	No	-
20	Yes	Tract 68, 69.01	No	-
21	Yes	Tract 9.02	No	-
22	Yes	Tract 400, 404.02, 404.03, 406, 408.02	*Eliminated*	-
23	No	-	No	-
25	No	-	No	-
27	Yes	Tract 404.03	No	-
29	No	-	No	-
33	No	-	No	-
41	No	-	Yes	Tract 2119, 2120, 2121, 2123, 2127.02, 2124, 9801, 2125, 2127.01
43	Yes	Tract 50, 2103, 2105, 2106, 2111, 2114, 2115, 2112, 2132	*Eliminated*	-
44	No	-	No	-
50	Yes	Tract 2125	No	-
55	No	-	No	-
57	Yes	Tract 214.03, 214.04, 2124	No	-
58	Yes	Tract 209.03	No	-
101	No	-	No	-
102	Yes	Tract 103.06, 103.11, 103.13, 103.14, 104, 105.01, 106.01, 106.02, 118	*Eliminated*	-
103	No	-	No	-
104[17]	Yes	Tract 104, 304, 306, 308, 309, 312, 313	Yes	Tract 301, 304, 306, 308, 104, 309, 312, 305, 103.09, 311, 313

[17] For Route 104, the tracts included under the geographic loss of coverage overlap with segments of Route 104 that experience a loss in geographic coverage. The tracts included under reduction in level of service include all tracts that overlap with the entire length of the existing alignment of Route 104.

Route	Loss of Geographic Coverage	Minority or Low-Income Census Tracts Impacted by Loss of Geographic Coverage	Reduced Level of Service	Minority or Low-Income Census Tracts Impacted by Reduced Level of Service
105	Yes	Tract 119, 120, 301, 303, 304, 305, 306, 308, 309, 312, 313	No	-
106	Yes	Tract 301, 303, 304	No	-
107	Yes	Tract 301, 303, 304	No	-
111	Yes	Tract 321.17, 321.26, 321.27, 321.28, 321.29	No	-
112	Yes	Tract 311, 312, 321.27, 321.28	No	-
116	Yes	Tract 321.27, 321.28	*Eliminated*	-
117	No	-	No	-
118	Yes	Tract 103.04, 103.06, 103.13, 103.14, 105.02, 106.01, 106.02	*Eliminated*	-

The above analysis focuses on local fixed-route service. For Limited/Express service, two MAX routes, Routes 922, and 960, have planned reductions in levels of service. These routes have limited service with fewer stops, many of which are accessed by park-and-rides, so the impacts of changes to level of service would be felt differently. To determine the impact of level of service changes on the MAX routes, a two-mile buffer was used on each of the route's stops, rather than along the whole alignment. The Minority and Low-Income Census Tracts were then overlaid over the two-mile stop buffers to determine the tracts potentially impacted by changes in level of service on Route 922 and Route 960. The results of this analysis on the MAX routes are shown in **Table 3-6**.[18] Reductions in Route 960 are largely made up for by increases of service on Route 20.

Table 3-6: MAX Equity Analysis Results

Route	Loss of Geographic Coverage	Minority or Low-Income Census Tracts Impacted by Loss of Geographic Coverage	Reduced Level of Service	Minority or Low-Income Census Tracts Impacted Reduced Level of Service
922	No	-	Yes	Tract 2.01, 2.02, 2.07, 3, 4, 5, 6, 8, 9.01, 9.02, 11, 13, 14, 15, 16, 55, 69.02, 70.02, 208.05, 208.06, 208.08, 208.09, 460.10, 462.07, 462.03, 462.07, 462.19, 462.20
960	No	-	Yes	Tract 25, 27, 29, 32, 33, 34, 35.01, 41, 42, 43, 44, 45, 46, 47, 48, 50, 51, 64, 68, 69.01, 69.02, 70.01, 70.02, 202, 23, 205, 402, 404.02, 406, 442, 448.05, 448.06, 450, 454.05, 454.14, 456.04, 458.01, 458.06, 458.07, 458.08, 458.09, 458.10, 460.10, 460.12, 460.13, 460.14, 462.14, 2016, 2111, 2118, 2120, 2121, 2132, 9801

3.4.4 Paratransit Service Area Evaluation

The high-level paratransit service area evaluation illustrates where the service plan for FY 2030 would result in gains and losses of geographic coverage, potentially impacting the provision of paratransit. This is a high-level "gut-check" and not a full analysis of the paratransit service area. This high-level evaluation examined local routes only and does not consider Limited/Express routes.[19]

[18] No PCS routes undergo reduction in service.
[19] No alignment changes were implemented on the Limited/Express routes, so these routes are not expected to cause any paratransit service area changes.

Methodology

The following steps were undertaken to complete the high-level paratransit service area analysis:

1. **Determine the geographic areas losing transit service.** Segments losing service either through route elimination or realignment were identified. This analysis was performed systemwide and not on a route-by-route basis; for example, if an existing route segment was replaced by service on another route, there would be no impact to geographic coverage. These geographic areas losing transit service are the same geographic areas losing transit service in the high-level equity analysis presented in **Section 3.4.2: Equity Evaluation**.
2. **Determine the geographic areas gaining transit service.** Segments gaining service through route realignment were identified. This analysis was also performed systemwide and not on a route-by-route basis. Only segments that serve completely new geographic areas are included as areas gaining transit service.
3. **Create a buffer of three-quarter miles around the new and eliminated geographic areas** from Steps 1 and 2 to demonstrate the approximate paratransit service area impacted by these changes.[20]
4. **Create a three-quarter mile buffer around the existing system and the planned system**. Remove areas from the Step 3 loss buffer which overlap with the three-quarter mile buffer around the planned system, as those areas will continue to be within the paratransit service area. Remove areas from the Step 3 gain buffer which overlap with the three-quarter mile buffer around the existing system, as those areas already were within the paratransit service area.
5. Find the square mileage of the resulting geographic areas from Step 4, representing the square mileage of area being added to the paratransit service area and being taken away from it.

Findings

Figure 3-9 and **Figure 3-10** display the areas where the paratransit service area would be reduced and expanded by FY 2030. Note that these maps illustrate the changes in the paratransit service area; they do not show the full extent of the area served by paratransit. On the maps, the blue areas represent geographic losses in the paratransit service area and the purple areas show geographic gains in the paratransit service area.

The proposed realignments and eliminations do not lead to significant changes in the paratransit service area; in general, eliminated and realigned routes were covered by the realignments of other routes. Approximately 11 square miles could be removed from the paratransit service area due to geographic losses in fixed route service. These losses are split between the Southside and the Peninsula, with the Southside losing 6.2 square miles and the Peninsula losing 4.8 square miles. Four square miles (35 percent) of the geographic losses in the paratransit service area are within military bases, which are areas that may or may not be receiving paratransit service currently. On the Peninsula, the loss in the service area is driven by the elimination of Route 118. On the Southside, the geographic losses are driven by realignments on Route 1, Route 3, Route 12, Route 13, Route 14, Route 21, and Route 27 as well as the elimination of Route 22.

Approximately 2.4 square miles will be added to the paratransit service area as a result of geographic gains in coverage in the planned system. All of the geographic gains in the paratransit service area will occur on the Southside. None of the geographic gains in the paratransit service area are within a military base. These gains in service area, which represent only a small percentage of the total paratransit service area, are driven by realignments of Route 23, Route 26, Route 27, and Route 57.

As a result of this plan, HRT's paratransit service area may undergo minimal changes. In accordance with the guidance from the ADA, the new areas on the Southside now within three quarter miles of fixed route transit service would become eligible for paratransit service. The areas on the Peninsula and Southside losing geographic coverage could continue to be included within the paratransit service area to ensure customers currently using the service will not lose access. Because the paratransit service area losses represent only a small percentage of the total paratransit service area, the cost to continue to operate paratransit in these geographies is expected to be modest.

[20] The three-quarter mile buffer was selected based on the Americans With Disabilities Act of 1990 (ADA), which stipulates that an agency's paratransit service area be "a corridor surrounding the routes ¾ of a mile on either side, or for rail, a series of circles of radius ¾ mile centered on each station." The three-quarter mile buffer is also consistent with HRT's existing paratransit policy.

Figure 3-9: Peninsula Paratransit Service Area Gains and Losses

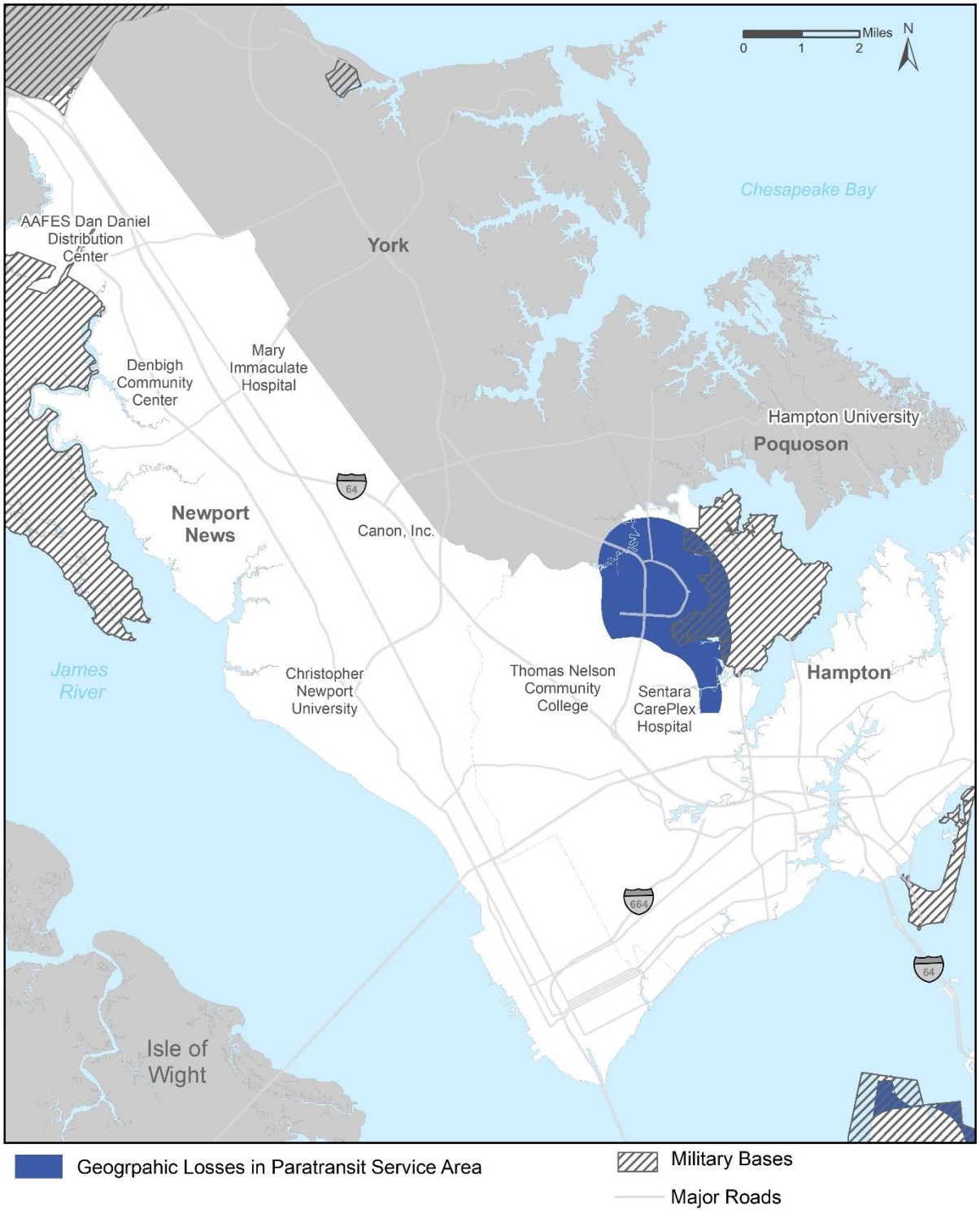
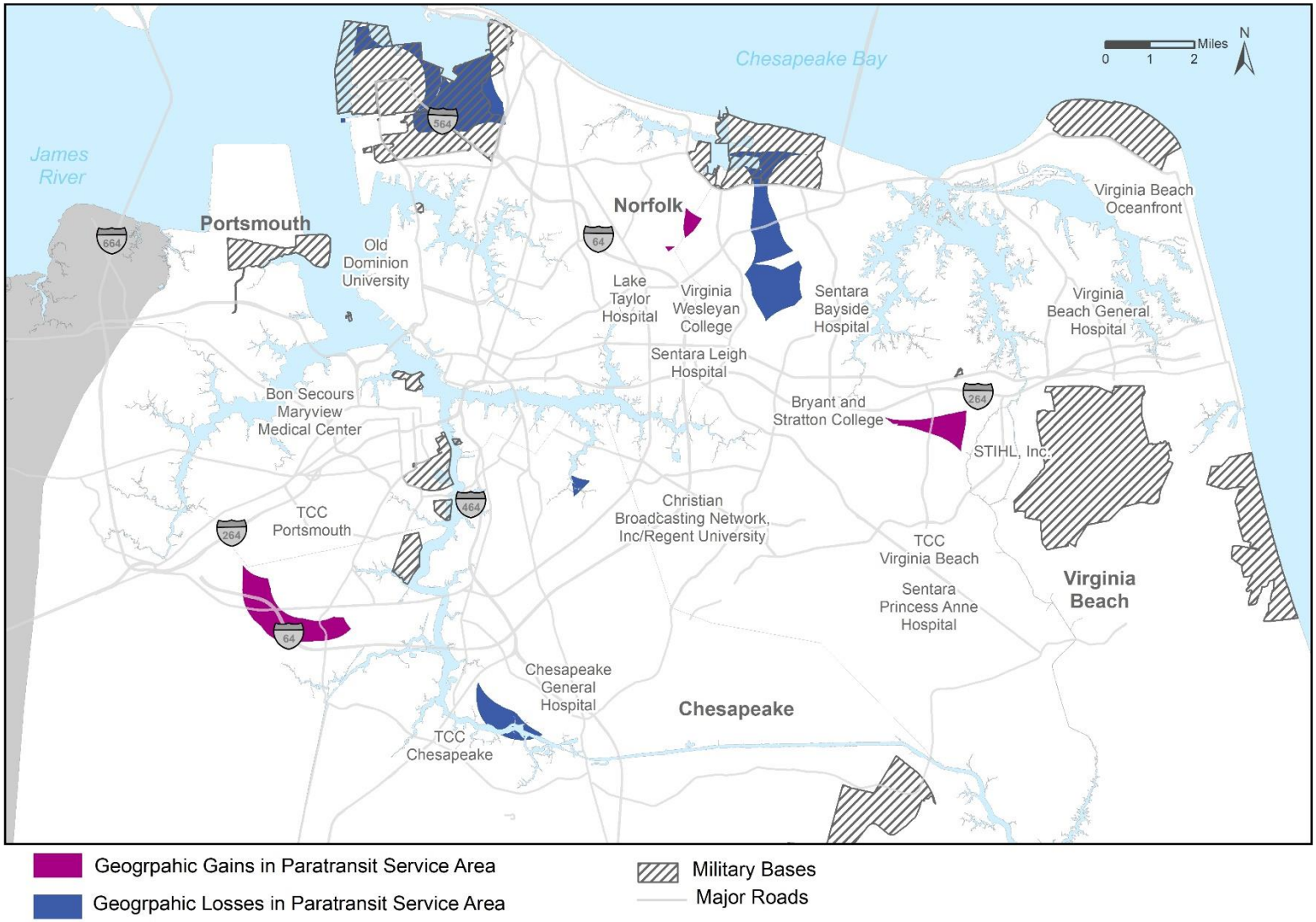


Figure 3-10: Southside Paratransit Service Area Gains and Losses



3.4.5 Title VI Program Review

FTA has found no issues in their most recent reviews of HRT that would require implementation of service changes to correct any deficiencies identified (received by HRT from FTA on August 20, 2018). However, HRT is in the process of updating its Title VI Program, which may impact how service changes are considered in the future. The following topic areas were noted in the federal review as needing attention/updating by HRT, along with the corresponding parts of the TSP which can be used as a reference and resource for updating the Title VI Program:

- Facility site equity analysis (Page 3 of 6 from FTA review; **Chapter 4** in TSP)
- Service standards and policies (Page 4 of 6 from FTA review; **Chapter 1** in TSP)
- Monitoring service standards and policies (Page 5 of 6 from FTA review; **Chapters 1 and 3** in TSP).

3.4.6 Factors Impacting Service Development

A number of different factors could impact the ability to implement the services planned through this project. These factors have been divided into three groupings: factors that address additional, current, or anticipated policy, planning, funding, or operating issues that may affect the operations of the existing or planned transit system; other planning or development projects that are either ongoing or upcoming; and where further study is needed and funding or capital needs necessary for TSP implementation.

Policy, Planning, Funding and Operating Issues

The policy, planning, funding, and operating issues that should be considered prior to the implementation of any of the recommendations include:

- **Funding for Regional Backbone Services:** The 2020 Virginia General Assembly passed legislation requiring establishment of the Hampton Roads Regional Transit Program (the Program) to define and supply resources for the development, operating, and capital needs for both expansion and state of good repair of reliable regional transit operations. Pursuant to law, the Program is responsible for a core regional network of transit routes and related infrastructure, rolling stock, and support facilities. The express goal of the Program is to provide a modern, safe, and efficient core network of transit services across the Hampton Roads region. Senate Bill 1038 and House Bill 1726 establish the Hampton Roads Regional Transit Fund which, among other things, provides operating dollars to support HRT's high frequency Regional Backbone network of bus services. Further information on the Regional Backbone Plan can be found in **Chapter 6**.
- **New Service Design Standards**: Through the TSP process, HRT has developed and will be implementing updated service categories (i.e., Limited/Express, Regional Backbone, Local Priority, Coverage, Demand-Responsive), each with its own service design standards. Each new service type has a standardized start and end time and a frequency minimum per daily service period (i.e., early morning, AM peak, midday, PM peak, evening, late night). These standards will help to create a network of transit service that provide consistent service across the region.
- **Funding for TSP recommendations**: The TSP recommendations could require a revised jurisdictional funding agreement, as the recommendations will vastly change how service is provided throughout HRT's service area. Within the locally cost-constrained plan, the hours of operation will be standardized across each of the jurisdictions based on the type of service offered on each route as dictated by the newly redeveloped service design standards.
- **ADA Paratransit Service Coverage**: With many of the routes recommended for alignment changes and nearly all HRT's routes being proposed for some sort of service level change, the HRT bus network's footprint and the hours of service operations have been altered. This change will impact the HRT ADA paratransit coverage area, as well as the hours of operation for the complementary service. HRT will review and update its ADA paratransit policies to assess how changes to the system will impact currently certified paratransit customers.
- **HRT Fleet Replacement**: HRT has a fleet replacement plan that allows the agency to replace vehicles that have reached the end of their useful lives. The Fleet Plan is updated each year through HRT's Capital Improvement Plan; **Table 3-7** details the fleet replacement schedule for FY 2020 through FY 2026, showing a need for 196 bus replacements, 24 vehicle mid-life rehabilitations, and 98 bus repowers. The replacement schedule is based on year of funding; the lag time between when funding is allocated and when a bus is received means this

timetable below is not the same as the dates for future bus delivery and retirement. The HRT Fleet Replacement plan does not consider the additional vehicles that would need to be ordered as the phased implementation plan for the locally cost-constrained plan is followed.

Table 3-7: HRT FY 2020 - FY 2026 Fleet Replacement Schedule (by Year of Funding)

	FY20 or Earlier	FY21	FY22	FY23	FY24	FY25	FY26
Replace	72	30	27	22	22	15	8
Rehabilitation	7	-	-	-	-	5	12
Repower	14	14	7	34	-	1	28

- **Operator hiring and training**: Hiring and training new operators to provide the additional bandwidth needed to operate the added service for each year of the plan will be an on-going necessity that will take careful consideration of need and an emphasis on employee retention.

Planning and Development Project Considerations

The other planning or development projects that should be considered prior to the implementation of the TSP recommendations include:

- **City of Norfolk Multimodal Transportation Master Plan:** The City of Norfolk is currently developing a Multimodal Transportation Master Plan (Multimodal Norfolk) to help define the direction that the City's transportation system will take over the coming years. This Plan will provide the framework for both large and small transportation decisions about projects, priorities, and coordinated planning with respect to land use decisions, public/private initiatives, other infrastructure projects, and more. Multimodal Norfolk will include a full redesign of the City's public transportation system, namely the HRT routes in the City, that will evaluate and recommend important policy related to route structure and stop spacing. The City will examine innovative options to deliver transit service, including microtransit and other on-demand solutions that will best serve the needs of the City. For the first annual update to the Plan, HRT will utilize the recommendation forthcoming from this study to update the TSP.
- **Peninsula Corridor Study**: In 2017 HRT completed the Peninsula Corridor Study, which determined that BRT is the right solution for faster and easier travel around the Peninsula. It identified three possible BRT corridors that serve key destinations. The agency is now in the final stages of a National Environmental Policy Act (NEPA) environmental review process and Documented Categorical Exclusion in case federal funds are used on future phases of the project.
- **Naval Station Norfolk Transit East Corridor Project**: Following the 2015 Naval Station Norfolk Transit Extension Study and the 2017 Norfolk Westside Study, this project, which began in 2019, will focus on evaluating, and ultimately identifying, a reasonable alternative and fixed guideway mode to implement high-capacity transit on the east side of the City that can be advanced as the "Build" Alternative for the DEIS under NEPA.
- **HRT Capital Improvement Plan**: This annual plan that HRT develops includes planned capital improvements for the current fiscal year and six subsequent years, and includes funding for bus replacement and expansion as well as improvements and expansions to transit passenger and operating facilities, both of which are needed to accomplish the recommendations in the TSP.

Additional Studies, Funding, and Capital Requirements

The additional studies and funding and capital requirements that should be considered prior to implementation of the TSP recommendations include:

- **Further Study of the On-Demand Microtransit Services**: Additional information should be sought or planning studies performed to further define the on-demand microtransit services in terms of the type(s) of on-demand microtransit service(s) provided, the parameters of the service(s), and a program that will help implement the

new service type, including the procurement of a service vendor. Additional information regarding the on-demand microtransit services can be found in **Appendix D: On-Demand Microtransit Services**.

- **Further Study of Regional Backbone Capital Investments**: While this plan does provide a high-level priority for transit capital investments and ballpark estimates for necessary capital improvements, additional studies at a more granular level should be undertaken in order to understand how to efficiently use capital dollars to fund the most effective and impactful transit supportive investments possible. Transit Signal Priority and other capital investments that help to increase the speed of the Regional Backbone services should be further studied in terms of where to place such investments and the likely impact of each element.
- **Additional Fleet Vehicles**: The Fleet Replacement Plan, which is part of the Capital Improvement Plan, details the need to replace current vehicles; however, in order for the TSP recommendations to be successful, additional vehicles will need to be procured prior to the implementation of the Full Plan. Currently there is funding programmed for expansion vehicles that could support implementation of the locally cost-constrained plan. Procurement planning for the additional vehicle need should begin a couple of years prior to the need for the additional vehicles so that they can be procured in concert with the larger fleet replacement purchases that the agency will be making and so that there is ample time to determine the funding source, purchase the vehicles, and then test them prior to their addition to the active fleet.
- **Marketing and Public Education**: Oftentimes, and despite the best efforts of transit agencies, transit passengers are unaware of upcoming planned service changes until the change actually happens. HRT should make a concerted effort to provide as much information as possible about upcoming TSP-related changes by providing enough funding for a full-scale marketing blitz across several different advertising mediums and a public education plan that will begin to teach the riding public and others of the upcoming service changes starting at least six months prior to the implementation date.

CHAPTER 4

Implementation Plan

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4. Implementation Plan

4.1. Asset Management

HRT is a Tier 1 agency in the Commonwealth and has developed its own Transit Asset Management (TAM) Plan. Adopted in August 2018, it is based on the HRT's asset inventory and condition assessments through May 2018. The TAM Plan's overarching purpose is to guide HRT in maintaining its assets in a state of good repair as well as developing a timeline and process for replacing those assets that are past their useful lifespans. The elements of the TAM plan are established by the Federal Transit Administration. The TAM Plan must include an asset inventory, a condition assessment of each of those assets, an analytic decision process or tools to prioritize and estimate capital needs, TAM and state of good repair policies, an implementation plan, a list of activities that occur in each year of the plan's horizon timeline, a list of resources required to carry out the TAM plan, and a description of how the TAM plan will be monitored and updated over time.[1] HRT's TAM plan will be reviewed and updated at least every four years to ensure that the asset inventory is accurate and that an attainable asset replacement schedule is being implemented.

According to the 2018 TAM Plan, HRT has over 5,600 individual assets. An asset is defined as being a revenue vehicle, a non-revenue vehicle or a support vehicle worth $50,000 in acquisition value; a facility or facility component including integral facility equipment worth more than $10,000; or bus, light rail, and/or ferry passenger amenities.

4.1.1. Fleet Policies

HRT's revenue fleet includes buses, light rail vehicles, ferries, and paratransit vehicles. HRT uses the Transit Economic Requirements Model (TERM) to assess the condition of non-facility assets such as revenue fleet vehicles. Through this process, each asset is assigned a numerical value from five (representing an asset in excellent or near new condition) to one (representing an asset that its past the end of its useful life and in need of prioritized replacement or repair). An asset receiving a score of 2.5 or less is considered to be past the end of its useful life.[2]

Revenue Fleet

As outlined in the agency's Fleet Plan from the FY 2021 Capital Improvement Plan, HRT aims to replace its 29-foot buses after 12 years of service and larger buses after 14 years of service. Due to the lead time associated with procurement, this means HRT needs to initiate procurement at 10 or 12 years respectively. The agency conducts mid-life repowers after six to seven years of service to improve vehicle reliability in the second half of its useful life. HRT updates its fleet plan each year as part of the agency's Capital Improvement Plan (CIP), which includes a replacement and rehabilitation schedule. This plan will lower the average age of the revenue fleet over time, prolong the life of its vehicle assets, and improve service reliability. HRT targets a 20 percent spare ratio for its fleet.

HRT strives to achieve an optimum fleet mix based on ridership and the required number of vehicles and vehicle size for each route and regularly reassessed needs based on changes to service and demand. HRT assesses the appropriate vehicle size by route by determining the number of seats that are available on each route and the number of passengers that utilize them. The vehicle size is determined by percentage of seats to passengers.

HRT aims to replace the paratransit vehicles it directly owns after four years of service or 100,000 miles.

HRT's light rail and ferry boat fleet have useful lives beyond the timeframe of the TSP. Starting in FY 2022, HRT will initiate its mid-life overhauls of light rail trains. The overhaul process will be spread over seven years to ensure HRT has a suitable light rail fleet availability. Ferries also undergo major overhauls during their life, however HRT recently purchased two new ferry vessels, so the ferries are not in need of major overhauls during the timeframe of this TSP.

[1] 49 CFR 625.25 Parts C and D

[2] While asset conditions are integers, condition assessments can be combined to yield fractional, weighted average values.

Non-Revenue Fleet

HRT's Fleet Plan from the FY 2021 Capital Improvement Plan uses a useful life benchmark for non-revenue fleet vehicles of between 85,000 and 110,000 miles depending on vehicle type. The agency has several vehicles beyond their useful life and the Capital Implementation Plan outlines a schedule for replacing non-revenue vehicles over the next ten years. In replacing non-revenue vehicles, HRT prioritizes replacing any vehicles critical for service delivery such as vehicles for field supervisors and bus maintenance.

4.1.2. Facilities

HRT has developed a Facility Asset Management Plan and maintains a set of Facilities Maintenance Policies and Procedures for achieving a state of good repair on its facility assets. The mission of Facility Maintenance is to "Affect a high-quality agency-wide infrastructure that is safe, functional, attractive, clean, sustainable, and sensitive the needs of [HRT's] customers". These policies outline procedures for:

- Reporting and managing facility maintenance work orders
- Centralizing and coordinating the acquisition of all furniture and the modification of HRT facilities
- Conducting required preventative maintenance in accordance with manufacturers recommendations and other regulatory requirements on facility assets.

Since 2016 the agency has been conducting annual condition assessments on all HRT facility assets. The primary purpose of this assessment is to identify existing and expected asset deficiencies that need to be addressed and funded, notably over the next 10 years. For longer-term needs, HRT relies on its TERM Lite database to forecast facility investment needs over a 20-year timeframe.

HRT's Facilities Asset Management Plan identifies a specific target service life, rehabilitation policy, and maintenance policy for each major facility type and their components. The rehabilitation and replacement of facility assets is regularly assessed based on observed physical asset conditions. The useful life of major asset types are outlined in **Table 4-1.** The Facility Asset Management Plan provides additional detail by asset type and component, including maintenance schedules.

Table 4-1: Useful Life by Asset Type

Asset Type	Useful Life
Buildings/ Renovation	10-50 years
Bus shelters & Signs	5-20 years
Shop & garage equipment	10-30 years
Security Equipment/Surveillances Equipment	3-10 years
Furniture & fixtures	3-7 years
Computer equipment	3-5 years
Money room equipment	10 years
Radio/Communication Equipment	3-8 Years
Ferry Docks	20-40 Years
Bridges	10-75 Years

Administrative and Operating Facilities

HRT owns seven operations and maintenance facilities, one administration facility, and two operator restrooms.[3] Of these facilities, only one maintenance facility, the Virginia Beach Trolley Base (Parks Avenue facility), had a condition assessment score of two or less, indicating the facility is due for refurbishment or replacement. HRT

[3] In addition to these facilities, HRT leases one facility.

utilizes its TERM Lite database to identify future facility maintenance needs. To determine future needs, the agency looks at both existing condition as well as building useful life.

HRT's Facility Asset Management Plan details the useful life of facility assets. HRT's useful life benchmarks for buildings is between 40 and 50 years, however many individual components within the interior and exterior of buildings have shorter useful lives. Major rehabilitation projects for buildings should be planned every 10 to 15 years to ensure fixtures, flooring, walls, ceilings, and mechanical systems are in a state of good repair.

Passenger Facilities, Infrastructure, and Amenities Policies

HRT's TAM Plan lists three park and ride lots, four transit centers, four ferry docks, eleven light rail stations, and five light rail bridges in the asset inventory, along with individual passenger amenity bus stops. All of these facilities have a current condition rating of three or better (as of May 2020).

HRT's Facility Asset Management Plan and Passenger Amenities Policy outlines procedures for the installation, maintenance and replacement of passenger facilities and amenities. Maintenance procedures and useful life benchmarks for components of transit centers mirrors that of HRT's operations and administrative facilities. Passenger facilities such as light rail stations and bus transfer stations are subject to different useful life benchmarks based on the assets that exist at specific locations. For example, light rail stations have a benchmark of 40-50 years for major components like platforms, elevators, and stair towers. Other station components such as shelter and benches require more frequent replacement depending on asset.

HRT determines the appropriate level of investment in passenger amenities based on a location's daily boardings, service type (e.g. fixed-guideway) and the number of routes serviced. Transit stops with greater than 25 boardings a day are candidates for enhanced amenities such as benches and trash cans. Bus shelters are prioritized for locations with 40 or more boardings a day. Transfer centers are locations with between five and nine connecting routes and are often located off of the public right of way and are candidates for restrooms, landscaping, lighting, and signage in addition to bus stop amenities like shelters and seating. Transit centers are implemented only at locations with ten or more connecting routes and may feature fully enclosed spaces with indoor seating, air conditioning, passenger information areas, and restrooms, among other features.

4.1.3. Non-Facility Assets Policies

HRT plans to refurbish and replace non-facility assets based on the useful life of these assets as well as their condition. Non-facility assets are defined in the TAM Plan as those assets that were not included in the onsite facility inspections conducted during the development of the TAM Plan. These include facilities-related equipment, storage yard, guideway, structures, and communications, electrification, and revenue collection systems. The results show that 80 percent of HRT's non-facility assets are in adequate or better condition (by replacement value), with vehicle assets comprising the majority of non-facility assets in less than adequate condition based on age in relation to useful life.

4.1.4. Technology and ITS Policies (Verify with Technology)

HRT aims to replace its ITS and technology assets when they are no longer supported by the vendor, they come to the end of their useful life, and/or the technology no longer integrates with other related systems. HRT's most recent TAM Plan does not include a full inventory of technology assets. Compared to other asset classes like vehicles and facilities, technology assets need more frequent replacement. Technology obsolescence, changing requirements, lack of vendor support, and wear and tear all impact the frequency of replacement. Much of the hardware and software HRT relies on requires replacement every four to six years.

4.2. Capital Implementation Plan

4.2.1. Background

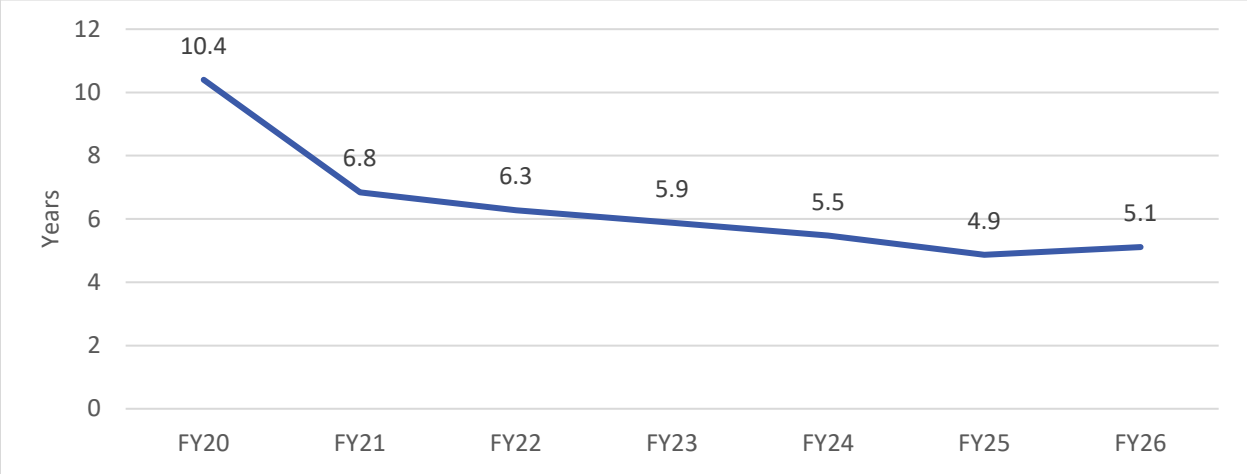
From buses and buildings to technology and transit centers, HRT relies on a wide range of capital assets to support daily operations. To help plan for and prioritize capital needs, every year the agency prepares a six-year Capital Improvement Plan (CIP). The most recent CIP covers the years FY 2021 to FY 2026 and was endorsed by the TDCHR in December 2019. The CIP is fiscally constrained and developed collaboratively across the agency's departments. Capital needs are prioritized based on metrics falling into four criteria: service delivery, operational efficiency, state of good repair, and risk reduction.

The Capital Implementation Plan outlines the capital investments necessary to maintain HRT's existing assets and implement the fiscally constrained recommendations outlined in **Chapter 3**. The TSP covers a 10-year time frame, compared to six years for the agency's annual CIP. The approved CIP remains the basis of the Capital Implementation Plan, notably the list of short- and mid-term investments. For the years beyond FY 2026, this implementation plan outlines any additional investments, such as fleet replacements, needed to implement or maintain the service recommendations in **Chapter 3**. HRT expects to further refine its capital needs as part of its annual CIP process. The financial model in **Chapter 5** projects expenses and revenue for Years 7 to 10 and beyond, which are beyond the SYIP and the CIP horizon, based on averages in line with previous years.

4.2.2. Revenue Fleet

HRT's revenue fleet has an average age of 10.4 years, shown in **Figure 4-1**. The agency is currently in the midst of a major bus fleet overhaul and expects its average fleet age to decline substantially over the next four years.

Figure 4-1: Average Bus Age



For the operations and services over the 10 years outlined in **Chapter 3**, which do not include improvements under the Hampton Roads Regional Transit Program documented in **Chapter 6**, HRT plans to replace 172 buses, conduct mid-life repowers on 242 buses, and expand the fleet by 17 vehicles (**Table 4-2**). A large portion of HRT's fleet is over eight years old today, and the agency will need to replace the majority of its buses over the next four years. This wave of replacements will be followed by substantial repower needs as buses reach their mid-life six years later.

In line with the increase in peak vehicle needs that are linked to the improvements detailed in **Chapter 3**, HRT has programmed 17 expansion buses in FY 2025 and FY 2026 in its constrained CIP. These 17 vehicles are intended to meet the TSP recommendations and spare-ratio requirements. As operating funds have yet to be identified for the TSP's long-term recommendations (that is, under the phased and constrained 10-year plan in **Chapter 3**), the proposed fleet expansion will be reevaluated under HRT's annual capital planning process. HRT's existing operating facilities in Norfolk and Hampton are sufficient to accommodate the proposed increase in fleet size in the

constrained plan. Moreover, HRT plans to replace its Parks Avenue garage in Virginia Beach with a larger facility, further expanding HRT's fleet capacity.

Table 4-2: Number of Planned Replacement, Expansion and Repowers by Year

	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Replace	30	27	22	22	15	8	0	33	2	13
Expansion	-	-	-	-	5	12	-	-	-	-
Repower	14	7	34	-	1	28	79	30	27	22

In addition to buses, HRT will need to procure 158 new paratransit vehicles over the next 10 years to maintain its existing fleet (**Table 4-3**). These replacements are intended to keep the fleet in a state of good repair and will not result in an increase in fleet size.

Table 4-3: Paratransit Replacement Schedule

	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Replacement	14	-	-	-	65	13	1	-	-	65

4.2.3. Non-Revenue Fleet

HRT's non-revenue fleet consists of the support vehicles necessary for keeping the transit system running. For capital planning purposes, the fleet is divided into seven categories:

- General Administration
- Light Rail
- Bus Operations
- Bus Maintenance
- Facilities
- Radio-Revenue
- Safety

The six-year CIP identified funding for all classes of non-revenue vehicles except for General Administration. These 85 vehicles include commercial vehicles, trucks, and passenger cars **(Table 4-4**). The agency can meet General Administration needs in the short-term by re-assigning retired vehicles to administrative functions.

Table 4-4: Non-Revenue Fleet Replacement Needs

	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Unfunded										
General Administration	15	2	0	0	1	0	0	1	2	4
Funded										
Light Rail	0	12	0	1	2	0	1	4	1	5
Bus Operations	17	0	0	0	0	0	0	6	2	1
Bus Maintenance	5	0	0	0	1	0	1	3	1	1
Facilities	1	0	0	0	1	0	0	1	0	0
Radio-Revenue			6	0	0	0	0	2	1	0
Safety		1	5	0	0	0	0	1	2	0
Funded Sub-Total	23	13	11	1	4	0	2	17	7	7

4.2.4. Operations and Maintenance Facilities

Funded Investments

HRT has identified funding in the constrained CIP for five operating and maintenance facility projects over the next 10 years. All these projects maintain or replace an existing facility and are needed to support the current system. The recommendations in **Chapter 3** do not impact these needs; no additional facilities would be needed to accommodate the cost-constrained recommendations in the TSP. All the projects, with the exception of the Norfolk Transit Center Foundation Repairs, will be initiated in the next three years.

- **Hampton Facility Renovation:** HRT is undertaking the final phase of renovations at its 3400 Victoria Boulevard facility in Hampton. These renovations are upgrading the administrative and maintenance spaces. The project is fully funded in FY 2021.
- **18th Street GFI Vault Relocation:** This project will relocate the loading lanes and vault for revenue fare collection at the 18th Street facility in Norfolk. The relocation will improve the flow of vehicles through the space and eliminate conflicts with the nearby bus wash. The project is funded in FY 2021.
- **Gate Replacement Program:** The gates securing HRT's operating facilities need replacement. The project is funded in FY 2021.
- **Parks Avenue Replacement:** The relocation and replacement of the Virginia Beach garage at Parks Avenue is the largest facility investment included in HRT's constrained capital plan. The existing facility only operates during the peak season and does not provides adequate space for vehicle storage and maintenance. The new facility would allow HRT to permanently house some of its fleet in Virginia Beach, reducing the need for lengthy deadheading to Norfolk. HRT plans to initiate planning and design for the facility in FY 2021 and would like to commence the construction phase of work by FY 2024.
- **Norfolk Tide Facility (NTF) Foundation Repair:** The foundation at the NTF is suffering from ground subsistence. HRT anticipates it will need to repair the foundation over the next six years. Funding for repair work is programmed in FY 2024.

Unfunded Facility Projects

HRT's Capital Improvement Plan includes five unfunded operations and maintenance facility projects. These facilities would expand the capabilities of HRT but are not needed to implement any particular TSP recommendations.

4.2.5. Passenger Facilities, Infrastructure, and Amenities

The TSP recommendations do not require any new investments in passenger facilities, infrastructure, and amenities beyond what is already planned for in HRT's annual capital plan. The agency has allocated funding toward five critical passenger facilities projects. With the exception of Newport News Transit Center and Hampton Transit Center, the remaining projects are expected to be completed in the mid-term (FY 2024 to FY 2026).

- **Newport News and Hampton Transit Center**: These two facilities are the main hubs for transit service on HRT's Northside. Utilizing SmartScale funding, the two facilities are undergoing a park and ride expansion. Additional funding is allocated to simultaneously implement state-of-good repair investments. HRT would like to accelerate planned renovations of these facilities to coincide with the SmartScale funded work in FY 2021.
- **Robert Hall Transfer Center Replacement:** This project would replace the Robert Hall Transfer with a new facility that will function as a hub for bus service in Chesapeake. Funding is assigned to this project in FY 2025.
- **Wards Corner Transfer Center Replacement:** This project will replace the Wards Corner facility as the transfer center reaches the end of its useful life. While the project is scheduled in the CIP to be initiated in FY 2022, the building is still in good repair and the agency plans to move back replacement of the facility to FY 2026 in the next annual capital plan.
- **Evelyn T. Butts Transfer Center:** Evelyn T. Butts is one of HRT's busiest transfer locations, however the current on-street facility is poorly located and has limited passenger amenities. The agency has assigned funding in FY 2024 to begin planning for its replacement, with full construction funded by FY 2026.

In addition to transfer center projects, HRT plans to continue applying for Federal Transportation Alternatives Program (TAP) funding to support investment in bus stop amenities and ADA access. Finally, HRT has several capital projects related to the maintenance of Tide Light Rail right-of-way and stations. These projects are scheduled to be funded and completed based on asset condition and recommended useful life.

Unfunded Needs

HRT has several passenger facility and amenity projects that are not funded within the FY 2021 to FY 2026 timeframe. None of the TSP recommendations are contingent on these long-term investments but these projects would enhance the experience for HRT's riders. The agency is continuing to explore ways to fund these investments. These projects include:

- Renovations and upgrades at the **Silverleaf, Reon Drive, and Greenbrier Mall,** passenger facilities/park and rides.
- Construction of a new transfer center at **Warwick and Elmhurst** and a replacement/relocation of **Net Center**.
- Expansion of HRT's **Bus Stop Amenity Program.**
- Installation of **Passenger Information Displays** at Light Rail stations and major bus transfer centers

4.2.6. Technology and ITS

HRT has several IT investments planned, including upgrades to passenger-facing and back-end technology. These investments are needed independent of the TSP recommendations but would be critical in supporting the implementation of new services. Most of the major IT investments are slated to occur over the next three years. Mid- and long-term investments are focused on upgrading and replacing existing software and hardware systems as they reach the end of their useful life. These projects include:

- Implement **Mobile Fare Payment** across the system in FY 2021 - FY 2022.
- Initiate planned upgrades of **Human Services Software** in FY 2021.
- Upgrade **Automatic Passenger Counters** on HRT's Light Rail fleet and backend systems in FY 2021.
- Replacement of **Video Recording Equipment** aboard HRT buses and trains in FY 2021 and FY 2022.
- Upgrading **HASTUS**, HRT's scheduling software, to the latest version in FY 2022.
- Replace **CAD/AVL** equipment systemwide by FY 2022. These onboard systems allow HRT to track the location of its vehicles and are necessary for providing accurate real-time arrival information to passengers.
- Complete upgrades of HRT's **Large Technology Infrastructure** and **Mobile and Network Hardware** such as fiber optic cables, switches, and servers. These investments are necessary to support future technology improvements and keep pace with growing bandwidth needs at the agency. The project is funded in FY 2022.
- Upgrade the agencies **Audio Monitoring System** used to monitor activity in HRT's control rooms and customer service phone line. Project funded in FY 2022.
- Implement a **Transportation Statistics Database** (funded in FY 2024) for streamlined reporting of performance data within the agency and to State and Federal partners.
- Procure a **Bus Operator Driving Simulator** to assist with driver training by FY 2024.
- Upgrade systems providing **real-time bus arrival information** to customers by FY 2025.
- Conduct additional routine upgrades to software and hardware systems at recommended intervals (typically every four or five years).

Unfunded Needs

There are several technology investments that remain unfunded in HRT's Capital Plan. While HRT is continuing to pursue additional funding opportunities, without additional revenue, these investments will not occur until sometime after FY 2026. They include:

- Replacement of **Ticket Vending Machines** systemwide.
- Implementation of an emergency **Mass Notification System**.
- Investment in a replacement **Time Collection** system for HRT staff.

- Funding for a **Technology Planning Initiative** that would allow HRT to dedicate resources toward investigating and planning for technological innovations.

4.2.7. Light Rail Infrastructure

HRT has planned investments for the Tide Light Rail in each of the next 10 years. These investments will maintain light rail in a state of good repair. Planned investments include:

- State-of-good-repair investments in light rail systems, vehicles, radio, and SCADA infrastructure (FY 2021).
- Embed tracks at HRT's Norfolk Tide Operating Facility in FY 2021.
- LRT light rail vehicle overhauls (FY 2022 to FY 2029).
- Initiate final upgrades to SCADA system for LRT by FY 2022.
- Purchase two V-plows for Light Rail winter maintenance (FY 2023).
- Upgrade the LRT operations control center emergency power source system in FY 2023.
- Fund state-of-good repair maintenance to the Smith Creek Bridge in FY 2023.
- Replace the LRT systems wayside advance warning system in FY 2023.
- Initiate 15-year renovations of LRT stations by FY 2025.

CHAPTER 5

Financial Plan

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Contents

Tables

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5. Financial Plan & Outlook

This financial plan covers Fiscal Years (FY) 2021 to 2030, for operations and capital investments of the agency. It reflects the cost-constrained plan for transit services the agency has developed with local partners. It is not a budget document. Rather, it reflects a financial snapshot in time related to the services outlined in **Chapter 3**. As the Transit Strategic Plan (TSP) undergoes annual updates, the information contained in this chapter will change year-to-year based on dynamic needs and the most current conditions.

5.1 Operating

This section describes the operating financial outlook for the ten-year plan, including known sources of funds, operating expenditures, as well as potential additional sources of funds to fill funding shortfalls.

5.1.1. Operating Sources of Funds

Table 5-1 below summarizes HRT's operating sources of funds for the ten years of the plan. Estimates include fare revenues, non-operating revenues, federal funds, state funds, and local funds.

Table 5-1: Operating Sources of Funds (YOE$ Millions)

	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Fare Revenues	13.7	14.0	14.2	14.5	14.6	15.0	15.2	15.4	15.6	15.8
Non-Operating Revenues	5.1	5.1	5.2	5.2	5.2	5.2	5.3	5.3	5.4	5.4
Federal Funds (PM, ADA, CCC)	19.7	19.4	19.3	19.0	18.7	18.5	18.4	18.2	18.0	18.3
State Funds	19.9	19.9	19.9	19.9	19.9	20.1	20.3	20.5	20.7	20.9
HRT Performance Based Allocation (%)	21.2%	21.0%	20.8%	20.5%	20.3%	20.3%	20.3%	20.3%	20.3%	20.3%
Local Funds	43.2	43.3	44.3	45.4	46.6	47.7	48.9	50.2	51.4	52.7
Total Operating Sources of Funds	**101.6**	**101.6**	**102.8**	**103.9**	**105.0**	**106.6**	**108.0**	**109.5**	**111.0**	**113.1**

Fare Revenue

HRT collects fare revenue from its bus, light rail (The Tide), ferry, and paratransit services, but does not collect fare revenue for vanpool service. Bus, The Tide, and ferry all have a $2.00 base fare; the base fare for paratransit is $3.50. The results in **Table 5-1** reflect a planned fare increase of $0.25 for bus, The Tide, and ferry (to a base fare of $2.25) in FY 2025 and a planned increase of $0.25 for paratransit in FY 2026 (to $3.75). Note that HRT may decide to postpone future fare increases based on evolving conditions of the agency.

The plan assumes that baseline bus ridership will grow at one percent annually, paratransit ridership will grow at three percent annually, and The Tide, ferry, and vanpool ridership will remain flat over the TSP planning horizon. Additionally, the plan incorporates fare elasticity assumptions to account for changes in service (for bus only) and fare increases (for all modes excluding vanpool).

Non-Operating Revenues

Non-operating revenues in **Table 5-1 i**nclude Traffic Demand Management (TDM) revenue, Unified Planning Work Program (UPWP) grants, grant reimbursements, Elizabeth River Crossing (ERC) operating assistance, advertising revenue, non-transportation revenue, and high occupancy toll (HOT) lane revenue.

Grant reimbursements and ERC operating assistance are expected to grow with the consumer price index (CPI) annually (1.6%). CPI was determined based on the FY 2009 – FY 2019 compounded annual growth rate (CAGR) based on the Bureau of Labor Statistics series "All items in South urban, all urban consumers". The remaining non-

operating revenues are assumed to be constant throughout the period, aside from high-occupancy toll (HOT) lane revenue which is non-recurring.

Federal Sources of Funds

Federal sources of funds shown in **Table 5-1** include the Federal Transit Administration's (FTA) Urbanized Area Formula Program (Section 5307) and the State of Good Repair Program (Section 5337). These programs are intended for capital expenses but can be used to fund eligible preventative maintenance (PM) expenses, paratransit service (Americans with Disabilities Act – ADA) and capital cost of contracting (CCC). Throughout the TSP period, HRT plans to gradually reduce the share of federal funds flexed to cover PM expenses, with a target of 65% of Section 5307 funds and 34.5% of Section 5337 funds to be used for PM.

State Sources of Funds

The plan assumes that HRT's state operating assistance will remain constant at $19.9 million during the first five years of the TSP period (through FY 2025), and will grow by one percent annually from FY 2026 to FY 2030.

Local Sources of Funds

HRT receives local operating assistance from its six member cities. Each cities' share of the total local operating assistance is determined based on the Cost Allocation Agreement. The total local operating assistance is determined net of federal funding, state funding, fare revenues, and other sources (e.g., ERC contributions).

Local operating assistance is assumed to remain flat between FY 2021 and FY 2022 and grow 2.5% per year from FY 2023 to FY 2030.

5.1.2. Operating Uses of Funds

Table 5-2 summarizes operating uses of funds by mode. Operating uses of funds for each mode include expenses associated with operations, maintenance, non-vehicle maintenance, and administration.

Baseline escalation for all operating expenses is 1.6%, or CPI. CPI was determined based on the FY 2009 – FY 2019 CAGR based on the Bureau of Labor Statistics series "All items in South urban, all urban consumers". Escalation assumptions are higher for expense categories such as salaries, fringe, healthcare, and fuel, and may sometimes vary by mode or between operations, maintenance, non-vehicle maintenance, and administrative expenses.

In addition to escalation, bus operating costs reflect a net increase in service during the TSP period as a result of implementing the constrained service plan outlined in **Chapter 3**.

Table 5-2: Operating Uses of Funds by Mode (YOE$ Millions)

	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Bus Operating Expenses	74.0	79.1	82.6	88.8	93.9	98.5	102.8	106.8	111.0	115.8
The Tide Operating Expenses	10.7	11.1	11.4	11.6	11.9	12.1	12.4	12.7	13.0	13.3
Paratransit Operating Expenses	15.2	15.8	16.4	17.0	17.7	18.4	19.1	19.8	20.6	21.4
Ferry Operating Expenses	1.7	1.7	1.7	1.8	1.8	1.8	1.9	1.9	1.9	2.0
Total Operating Uses of Funds	**101.6**	**107.7**	**112.1**	**119.2**	**125.2**	**130.9**	**136.2**	**141.3**	**146.5**	**152.5**

Regional Priorities and Policies

One of HRT's main priorities during the TSP period is to build the Regional Backbone network, offering high-frequency service between cities on key routes. The current cost-constrained plan in **Chapter 3** lays out service frequencies increasing on Regional Backbone routes gradually throughout the ten-year plan.

Table 5-3 depicts the increasing service hours per year by service classification.

Table 5-3: Bus Revenue Vehicle Hours by Route Type per Year (Thousands)

Classification	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Local Priority, Coverage, and PCS Routes	449.8	428.1	425.3	443.3	443.4	446.4	457.5	463.1	469.0	472.5
Regional Backbone Routes	285.8	335.7	353.4	375.7	401.2	417.4	420.8	425.1	429.3	439.1
MAX Routes	40.5	32.4	32.4	31.9	31.9	31.9	31.9	31.9	31.9	31.9
Total	**776.1**	**796.2**	**811.1**	**850.9**	**876.4**	**895.7**	**910.3**	**920.1**	**930.1**	**943.4**

Table 5-4 depicts the same service increases over the TSP period, splitting the revenue service hours by the six cities, ERC, and MAX.

Table 5-4: Bus Revenue Vehicle Hours by City (Thousands)

	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Chesapeake	45.4	45.4	48.0	52.3	53.9	58.1	62.5	63.1	64.5	66.0
Hampton	80.9	85.2	85.9	87.4	89.9	91.0	94.1	96.0	98.3	100.4
Newport News	141.1	150.4	156.3	159.4	161.3	164.5	167.4	169.2	171.0	171.3
Norfolk	264.6	267.8	268.4	294.7	302.6	308.1	308.6	310.5	311.6	314.7
Portsmouth	46.4	46.4	47.2	47.9	48.9	50.2	50.4	51.2	51.9	53.5
Virginia Beach	136.4	147.8	151.6	155.8	166.2	170.1	173.5	176.1	178.6	183.4
ERC	20.9	20.9	21.3	21.5	21.6	21.8	21.9	22.1	22.3	22.3
MAX	40.5	32.4	32.4	31.9	31.9	31.9	31.9	31.9	31.9	31.9
Total	**776.1**	**796.2**	**811.1**	**850.9**	**876.4**	**895.7**	**910.3**	**920.1**	**930.1**	**943.4**

Labor and Service Agreements

HRT's current labor agreement expires at the end of June 2021; labor costs are subject to variation based on contract renegotiation. HRT uses two major service contracts for its paratransit service and for its ferry service. As noted in **Appendix A**, the current paratransit contract has two one-year options available, which could extend the contract to January 31, 2025, and the ferry service contract has a two-year option period, which would extend the contract to July 11, 2023. Service contract costs are subject to variation after these contracts expire.

5.1.3. Potential Sources of Funds for Unfunded Operating Needs

The annual operating surplus/deficit is shown in **Table 5-5** below, where positive values indicate that additional funding or cost savings are needed. Based on current known sources of funds, annual deficits are likely to occur starting FY 2022. These annual operating deficits are due to the service changes outlined in the TSP, which will result in net operating costs growing faster than sources of funds and other changes described in the previous section. At the time the TSP was developed the amount available from other potential funding sources was uncertain. The General Assembly designated new regional transit funding for HRT as part of the 2020 legislative session, which in coming years can be used to directly support HRT capital and operating needs contained in the Hampton Roads Regional Transit Program documented in Chapter 6. As regional funds are programmed and put to use, this can be expected to significantly improve funding certainty and fiscal sustainability for regional transit and in turn improve the financial outlook that is documented in this chapter.

Table 5-5: Potential Sources of Funds for Unfunded Operating Needs (YOE$ Millions)

	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Additional Funding/Cost Savings to be identified	-	6.1	9.3	15.3	20.3	24.3	28.2	31.7	35.5	

5.2. Capital

5.2.1. Capital Sources of Funds

The capital sources of funds are separated between active and new capital projects. Active capital projects are in progress and use funds pledged in the latest Capital Improvement Plan (CIP) and grant applications to the state and/or the FTA. New projects are programmed but do not have secured funding yet. Both active projects and new capital projects are funded through a combination of federal funds (formula and discretionary), state funds, and local funds (primarily Advanced Capital Contribution or ACC). Note that the current capital program does not include CARES Act funding or regional dedicated funding approved by the General Assembly in 2020.

In **Table 5-6**, "federal funds" for active capital projects include both federal formula programs and federal discretionary programs as both are already pledged for active capital projects. For new capital projects, a distinction is made between federal formula funds and federal discretionary funds, the latter being included in "other funds". Note that no discretionary funds are assumed outside of what is programmed in the latest CIP (adopted by the TDCHR in December 2019), in the last four years of the period. Other funds are covered in more detail in **Section 3.1.5**.

Table 5-6: Capital Sources of Funds Active and New Projects (YOE$ Millions)

	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Active Capital Projects Sources of Funds										
Federal Funds	9.8	3.2	1.6	-	-	-	-	-	-	-
State Funds	14.2	1.7	2.1	1.8	0.6	-	-	-	-	-
Local Funds	0.1	0.0	0.1	0.1	0.0	-	-	-	-	-
ACC	0.9	0.0	0.5	-	-	-	-	-	-	-
Total Active Capital Projects Sources of Funds	**24.9**	**5.0**	**4.3**	**1.9**	**0.6**	**-**	**-**	**-**	**-**	**-**
New Capital Projects Sources of Funds										
Federal Formula Funds	7.0	5.4	4.8	5.2	6.5	7.3	10.5	11.3	11.4	10.7
State Funds	13.1	20.1	10.9	23.7	24.9	18.2	10.0	10.7	10.8	10.1
Other Funds (incl. discretionary)	14.4	12.5	5.7	8.5	10.1	0.3	-	-	-	-
ACC Funds	1.2	2.4	1.3	2.7	3.4	1.1	0.9	0.9	0.9	0.9
Total New Capital Projects Sources of Funds	35.6	40.5	22.7	40.2	44.8	26.8	21.3	22.8	23.1	21.7
Total Capital Sources of Funds	**60.6**	**45.5**	**27.1**	**42.1**	**45.4**	**26.8**	**21.3**	**22.8**	**23.1**	**21.7**

Federal Formula Funds

Federal capital funding sources include the following formula grant programs: Section 5307, Section 5337, and the Bus and Bus Facilities Program (Section 5339).

By FY 2030 the agency aims to reduce the amount of Section 5307 funds used for PM gradually such that the distribution would be: 25 percent for capital, ten percent for ADA, and 65 percent for PM.

By FY 2030 the agency aims to reduce the amount of Section 5337 funds used for PM gradually such that the distribution would be: 65.5% for capital and 34.5% for PM. HRT plans to dedicate unused Section 5337 funds of earlier years of the plan to support the greater needs of The Tide as the system ages starting in FY 2027, when most assets reach 15 years of usage and require significant rehabilitation or replacement. As such, the results assume that starting in FY 2027 HRT will begin to spend down the balance of Section 5337 funds that has accrued to support state of good repair (SGR) capital investments for The Tide. Section 5339 funds can only be used for capital expenses related to bus service.

State Funds

The amount of state capital funds varies annually depending on several factors such as the mix of projects (SGR, minor enhancement, or major expansion) as well as availability of federal and ACC to be leveraged against state funds. For FY 2021 – FY 2026, the state share of new projects is determined based on state funds programmed during the last CIP programming cycle. The weighted average state share of new capital projects during the first four years of the CIP period is used to plan for the state funding contribution during the last four years of the TSP. The average share of state funds based on the last CIP update is summarized in **Table 5-7**.

Table 5-7: State Funds for Capital Projects (YOE$ Millions)

	FY21	FY22	FY23	FY24	FY25	FY26
Total New Capital Projects Uses of Funds	35.6	42.5	24.7	42.2	46.8	27.0
State Funds	13.1	20.1	10.9	23.7	24.9	18.2
State Share of New Projects (%)	36.8%	47.4%	44.0%	56.2%	53.1%	67.3%

Local Funds

The local funds summarized in **Table 5-6** are previously committed local funds that are intended for specific projects. As a result, these funds can vary significantly from one year to the next.

ACC Funds

The six local jurisdictions served by HRT provide an ACC to support ongoing capital needs. This funding is largely used to match state and federal grants with the required local dollars. The ACC funding is presently set at two million dollars in new funding per year. The cumulative ACC funding surplus each year is summarized in **Table 5-8**.

Table 5-8: Cumulative ACC Funding Surplus (YOE$ Millions)

	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Cumulative ACC Funding Surplus	5.9	5.5	5.7	4.9	3.5	4.4	5.6	6.7	7.8	8.9

Other Funds

Other funds include federal, state, and regional discretionary funds. As described previously, these results only include discretionary funding during the first six years of the TSP period. For the last four years of the TSP period, the results conservatively assume no additional discretionary funding; however, discretionary funding sources such as the Congestion Mitigation and Air Quality (CMAQ), the Surface Transportation Program (STP), and the Transportation Alternatives Program (TAP) are likely to provide additional funding to alleviate capital funding shortfalls during the last four years of the TSP period.

5.2.2. Capital Uses of Funds

Capital uses of funds are summarized in **Table 5-9**, separated by active capital projects and new capital projects. Active capital projects are in progress and use funds pledged in the latest CIP and grant applications to the state and/or the FTA, whereas new projects are programmed but do not have secured funding yet. New project information for the first six years of the TSP period was incorporated during the last CIP update cycle. The first four years of the CIP were used to estimate needs during the outer four years of the TSP period. Note that the results shown in **Table 5-9** reflect the fleet needs required to deliver the cost-constrained service plan contained in **Chapter 3**. This does not include fleet needs required to implement the full Regional Backbone services that are part of the Hampton Roads Regional Transit Program. Additional investments required to support that Program are described in **Chapter 6**.

Table 5-9: Capital Uses of Funds (YOE$ Millions)

	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Active Capital Projects Uses of Funds	24.9	5.0	4.3	1.9	0.6	-	-	-	-	-
New Capital Projects Uses of Funds	35.6	42.5	24.7	42.2	46.8	27.0	41.5	42.8	44.1	45.4
Total Capital Uses of Funds	**60.6**	**47.5**	**29.0**	**44.1**	**47.4**	**27.0**	**41.5**	**42.8**	**44.1**	**45.4**

Competitive Demands on Funding

HRT has various capital needs that compete for and may exceed the limit of existing resources. This requires the agency to create a prioritization of capital projects.

5.2.3. Potential Sources of Funds for Unfunded Capital Needs

Table 5-10 summarizes HRT's unfunded capital needs. As with the unfunded operating needs, unfunded capital needs can be funded partly with dedicated funding and partly through CARES Act funds, and. For more detailed information on dedicated funding, see **Chapter 6**. Additionally, it is expected that unfunded capital needs will also be partly funded by discretionary grants at the federal, state, and regional level.

Note these results show unfunded needs during the first six years of the TSP. The TSP reflects updated information regarding federal formula allocation published by FTA since the last update to the CIP, as well as other budgetary changes that have occurred since. Unfunded needs during the CIP period will be addressed in the next update to the CIP in the fall of 2020, which will coincide with the next TSP update.

Table 5-10: Unfunded Capital Needs (YOE$ Millions)

	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Additional Funding/Cost Savings to be identified	0.0	2.0	2.0	2.0	2.1	0.2	20.2	19.9	21.0	23.7

5.3. Reserves

DRPT commissioned a Financial Management Office Review (FMOR) in 2017-18 which provided an independent analysis and report on several challenges and opportunities facing HRT. With respect to reserve funds, it was noted that "HRT currently operates on a 'zero balance' budget basis and lacks the ability to manage cash flow and expenses through an operating fund, as well as reserve funds such as a cost contingency (emergency reserve) fund and a dedicated capital improvement fund" and "HRT's use of a line of credit to manage cash flow is not consistent with the strategies employed by other transit agencies." The FMOR report recommended to "consider establishing and maintaining an operating fund as part of the budget process." HRT management concurred with this observation and committed to work with the Commission to determine options for establishing and maintaining such funds. In 1998-1999, the financial planning and formal agreement between the cities of Chesapeake, Hampton, Newport News, Norfolk, Portsmouth, Suffolk, and Virginia Beach and the Peninsula Transportation District Commission and Tidewater Transportation District Commission (resulting in the formation of HRT), called for the establishment and regular funding of two funds; a Working Capital Reserve Fund and a Capital Improvement Reserve.

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CHAPTER 6

Hampton Roads Regional Transit Program

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6. Hampton Roads Regional Transit Program

6.1. Background

The General Assembly in 2020 passed legislation requiring establishment of the Hampton Roads Regional Transit Program (the Program). In doing so the legislature emphasized the importance of having effective multimodal transportation, which is essential for the region's economic growth, vitality, and competitiveness.

To this end, the Hampton Roads Regional Transit Program is established to define and supply resources for the development, operating, and capital needs for both expansion and state of good repair of reliable regional transit operations.

The Program must be documented in an approved Transit Strategic Plan of the Transportation District Commission of Hampton Roads (TDCHR).[1] The Hampton Roads Regional Transit Program encompasses regional transit capital and operating costs that are eligible to be funded by the Hampton Roads Regional Transit Fund.[2]

6.2. Purpose and Requirements

Pursuant to law, the Hampton Roads Regional Transit Program is explicitly for "*a core regional network of transit routes and related infrastructure, rolling stock, and support facilities*". The express goal of the Program is *"to provide a modern, safe, and efficient core network of transit services across the Hampton Roads region."*

Senate Bill 1038 and House Bill 1726 also established the Hampton Roads Regional Transit Fund (the Fund). The Fund is to be administered through the Hampton Roads Transportation Accountability Commission (HRTAC). There is clear alignment between the purposes of the Hampton Roads Regional Transit Program and the Hampton Roads Regional Transit Fund. Specifically, the Fund shall be used for "*the development, maintenance, improvement, and operation of a core and connected regional network of transit routes and related infrastructure, rolling stock, and support facilities, to include the operation of a regional system of inter-jurisdictional high-frequency bus service, in a transportation district in Hampton Roads."*[3]

Additionally, per legislative guidance:

- Investments that are part of the Hampton Roads Regional Transit Program should be positively linked to factors related to *"economic development potential, employment opportunities, mobility, environmental sustainability, and quality of life."*
- The eligible geography in which Hampton Roads Regional Transit Fund moneys are to be used is a transportation district (i.e., the Transportation District of Hampton Roads comprised of the cities of Chesapeake, Hampton, Newport News, Norfolk, Portsmouth, and Virginia Beach, which is governed by the TDCHR and does business as Hampton Roads Transit).[4]
- The Fund cannot be used *"to support the expansion of light rail"* beyond the boundaries of the City of Norfolk.
- Allocations from the Fund should give priority, when possible, to the most cost-effective and sustainable investments *"to reduce or eliminate reliance upon diesel fuels."*

[1] See Chapters 1241 and 1281 of the Acts of the Assembly, passed April 22, 2020, Code of Virginia § 33.2-2600.1 A. (pursuant to HB1726 and SB1038, respectively), accessible at https://lis.virginia.gov/cgi-bin/legp604.exe?201+ful+CHAP1281.
[2] Ibid.
[3] Code of Virginia § 33.2-2600.1 C.
[4] In correspondence date May 22, 2020, Senator Lucas (chief patron of SB1038) explained the intent of law establishing the Hampton Road Regional Transit Program and Fund; "Our intent is to provide funding for Hampton Roads Transit (HRT), through its governing body (Transportation District Commission of Hampton Road - TDCHR) to design, build and operate a regional high frequency bus network across the six TDCHR cities, independent of the need for individual local government approval or additional local government funding. This is intended to be a single regional fund for this single regional project within the TDCHR footprint with money flowing directly to the single regional transit operator, which is the TDCHR and subsequently, HRT".

6.3. Framework and Justification

The Hampton Roads Regional Transit Program is documented herein consistent with the purposes and requirements outlined in the law related to the Program and the intended use of the Hampton Roads Regional Transit Fund.

Operating and capital costs (for expansion and ongoing State of Good Repair) for two classifications of bus routes are Program eligible and may be funded using moneys from the Hampton Roads Regional Transit Fund. These are Regional Backbone routes and Limited/Express routes.

Details about these routes can be found in **Section 6.6**: **Route Profiles**. The Program of improvements and their phased implementation are positively linked to factors cited in SB1038 and HB1726. These include:

- To improve **economic development potential**
- To increase **employment opportunities**
- To grow overall area **mobility**
- To support **environmental sustainability**
- To enhance **quality of life** within the region.

The Program is also aligned to the service planning principles and framework detailed in **Sections 1.2.2**. and **Section 1.2.3** of this TSP. This includes top regional priorities of providing more reliable inter-jurisdictional bus service, with priority on additional service frequency during hours of the day that most commuters are traveling between work and home. Finally, within the network of Program routes themselves, specific service improvements are warranted for different routes based on different justifications. These justifications are identified for each route and also described in **Section 6.6**: **Route Profiles**. They include:

- Key Performance Indicators, which are measures of a route's performance, are discussed when relevant to a service change (full performance analysis data can be found in **Chapter 2**, **Section 2.3**).
- Some justifications also include reference to analyses that were part of the analysis of transit demand and underserved area opportunities for improvement from **Chapter 2**, **Section 2.2.2**.
- Icons provide quick reference as to the types of justifications included for each route:

Transit demand and underserved areas-based opportunities for improvement identified in **Section 2.2.2**

Performance-based opportunities for improvement (passengers per revenue hour, passengers per one-way trip, farebox recovery, subsidy per passenger boarding) as described in **Section 2.3.2**

Efficiency-based opportunities for improvement (on-time performance and maximum load) as described in **Section 2.4.2**

Improvements to meet the service design standards and goals as described in **Chapter 1**

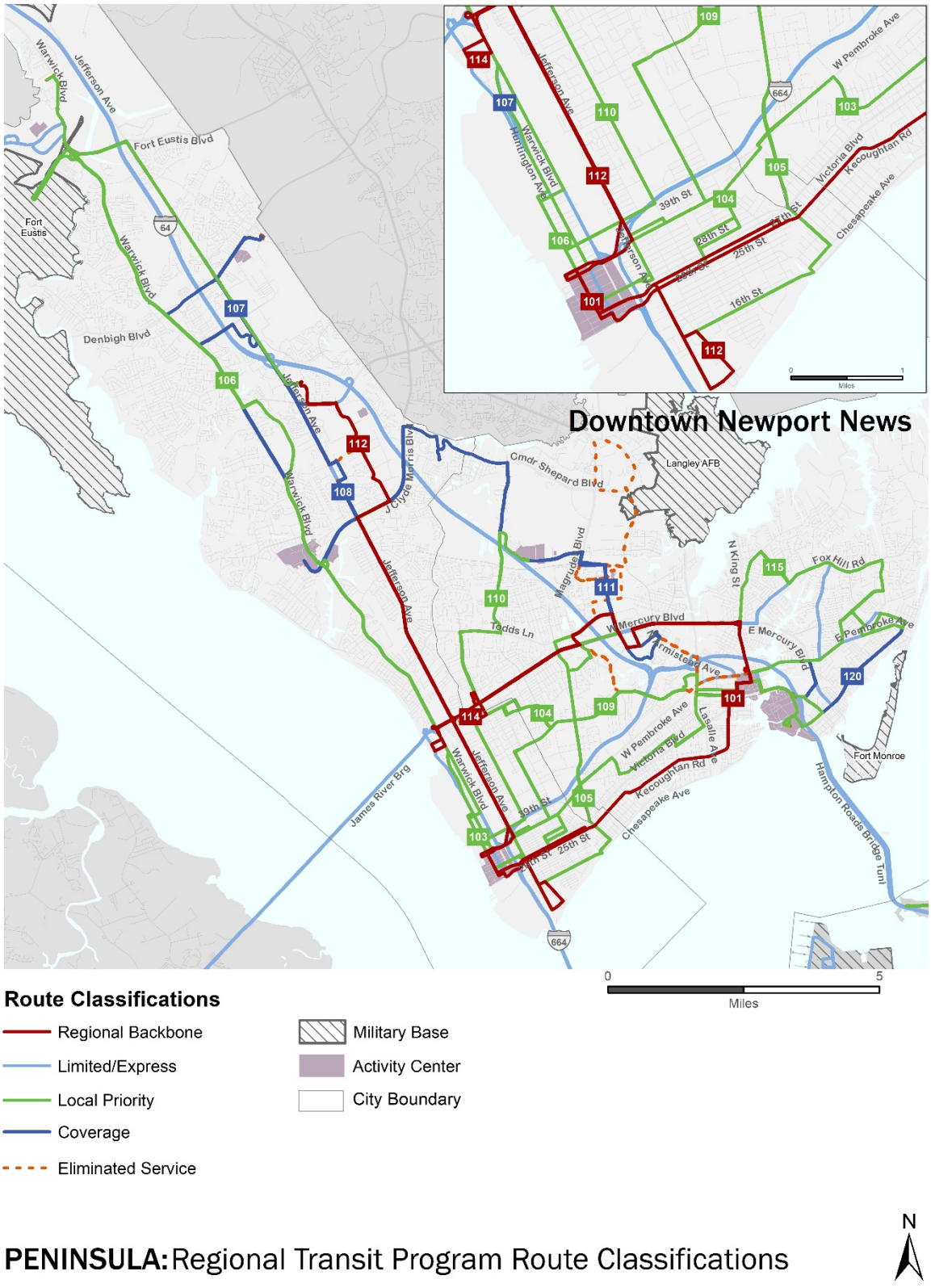
6.4. Program

This section documents the improvements that comprise the Hampton Roads Regional Transit Program within the six cities of the Transportation District of Hampton Roads (Chesapeake, Hampton, Newport News, Norfolk, Portsmouth, and Virginia Beach).

Figure 6-1 and **Figure 6-2** show route classifications and delineate two route types within the Program on both the Peninsula and Southside. Specifically, routes shown in red provide high-frequency service on the "Regional Backbone" network and routes shown in light blue are "Limited/Express" routes. The rest of the HRT network is shown on these maps to depict the supporting services that feed into the "*core and connected regional network".*[5] Program routes are described in more detail in **Section 6.4.1** and **Section 6.4.2**.

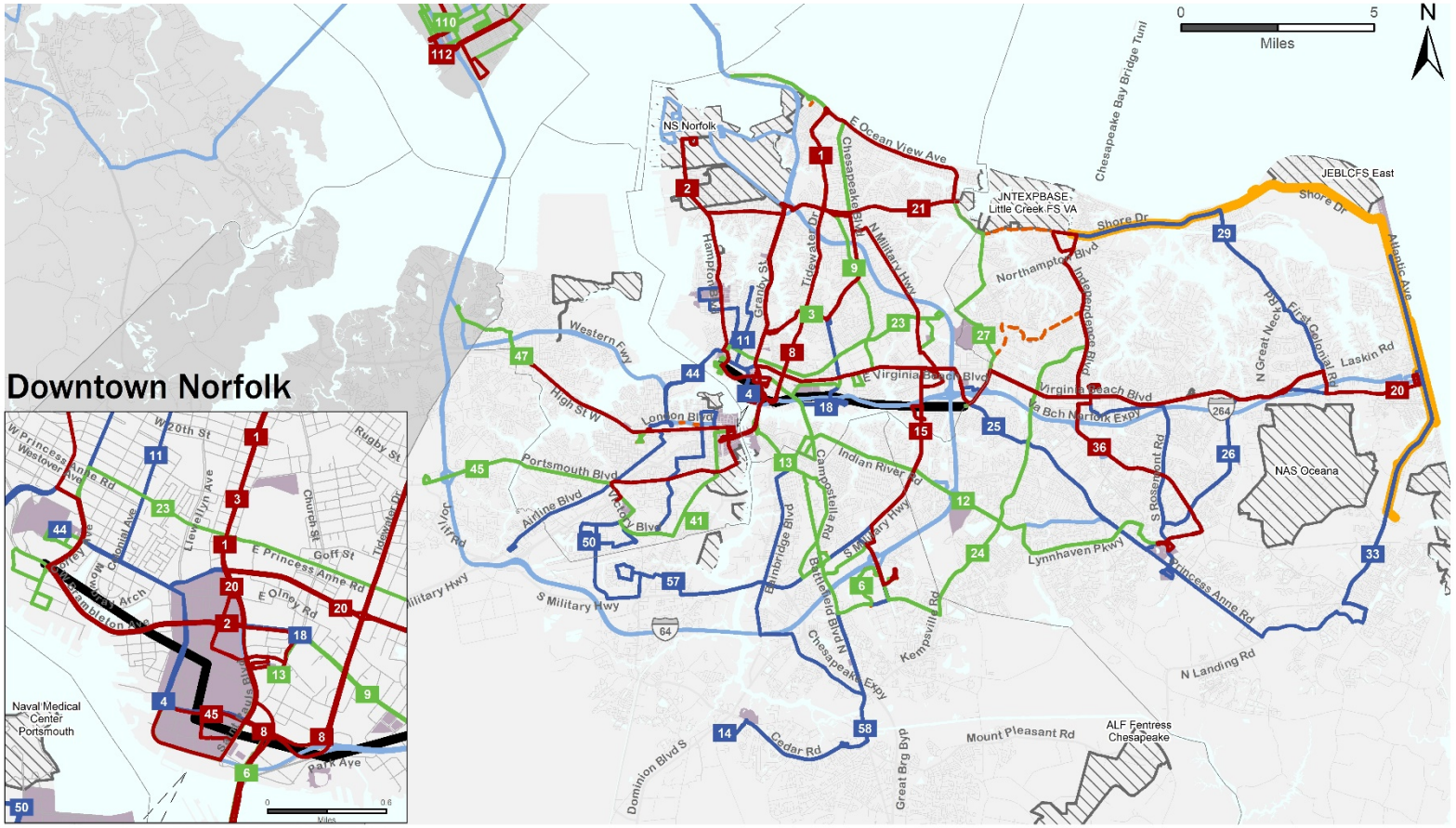
[5] Code of Virginia § 33.2-2600.1 C.

Figure 6-1: Regional Transit Program Route Classifications - Peninsula



PENINSULA: Regional Transit Program Route Classifications

Figure 6-2: Regional Transit Program Route Classifications - Southside



SOUTHSIDE: Regional Transit Program Route Classifications

6.4.1. Regional Backbone

The core of the Program is the Regional Backbone (shown in **Figure 6-3** and **Figure 6-4**), which includes thirteen (13) routes that traverse major commuting corridors that connect the highest densities of people and jobs in the region. They also feature more direct service (a ratio of 1.6 or better) than other route classifications, making these routes simple to understand and more efficient, saving travel time and operating costs compared to more circuitous routes (**Table 6-1**).

Table 6-1: Regional Backbone Route Characteristics

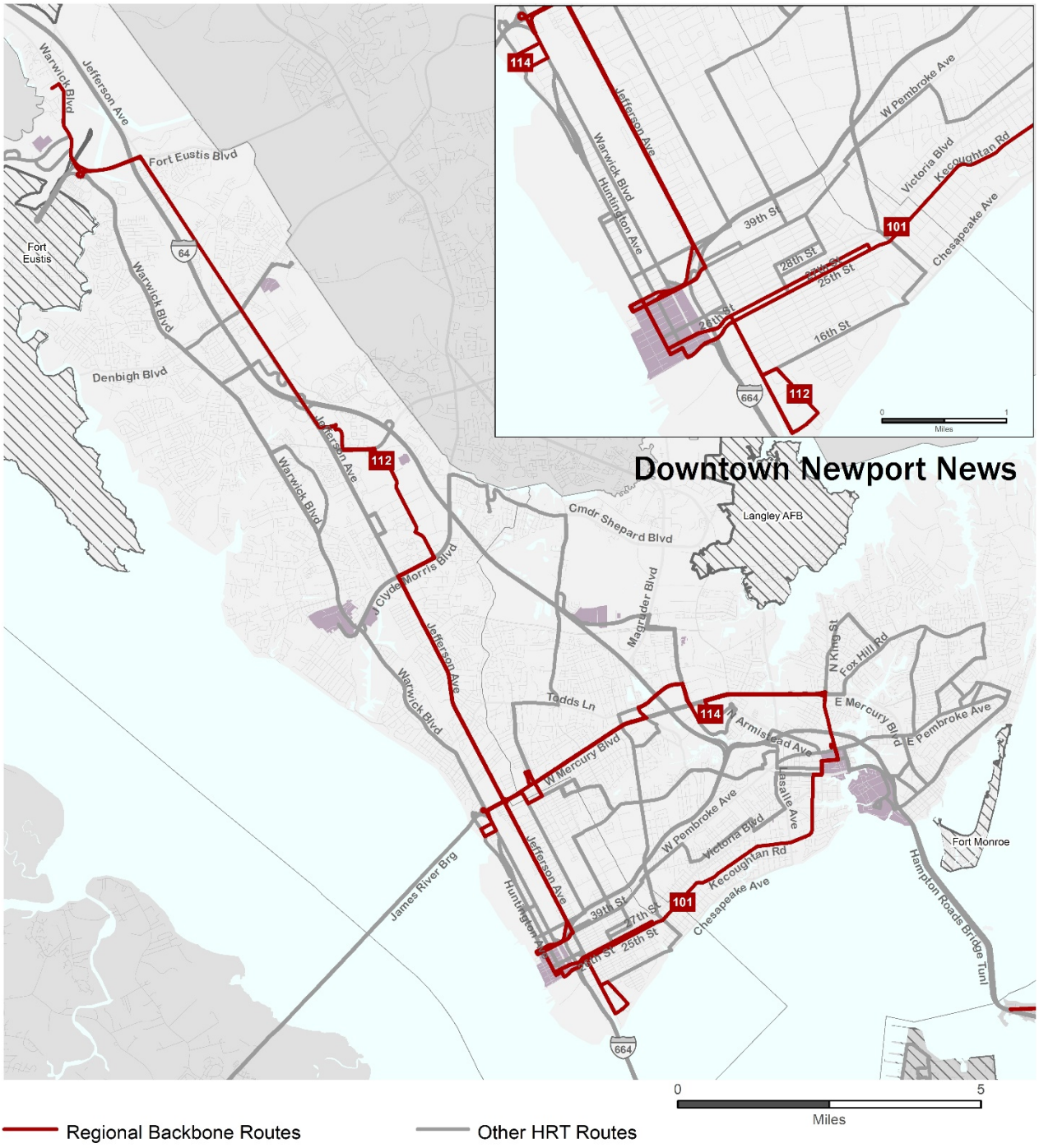
Description	Criteria		
	Interjurisdictional	Population / Job Density	Route Directness
The backbone of bus transit throughout the region, traveling on the highest-demand corridors connecting the most people to the most jobs.	Most will cross jurisdictional boundaries.	Greater than 6,500 people + jobs per square mile, averaged across whole route	1.6 or better

The Regional Backbone services will feature high-frequency, inter-jurisdictional connections, which have standardized levels of service across jurisdictional boundaries and operate seven days a week (**Table 6-2**). These routes feature the highest overall levels of fixed-route bus service HRT will offer.

Table 6-2: Regional Backbone Service Design Standards

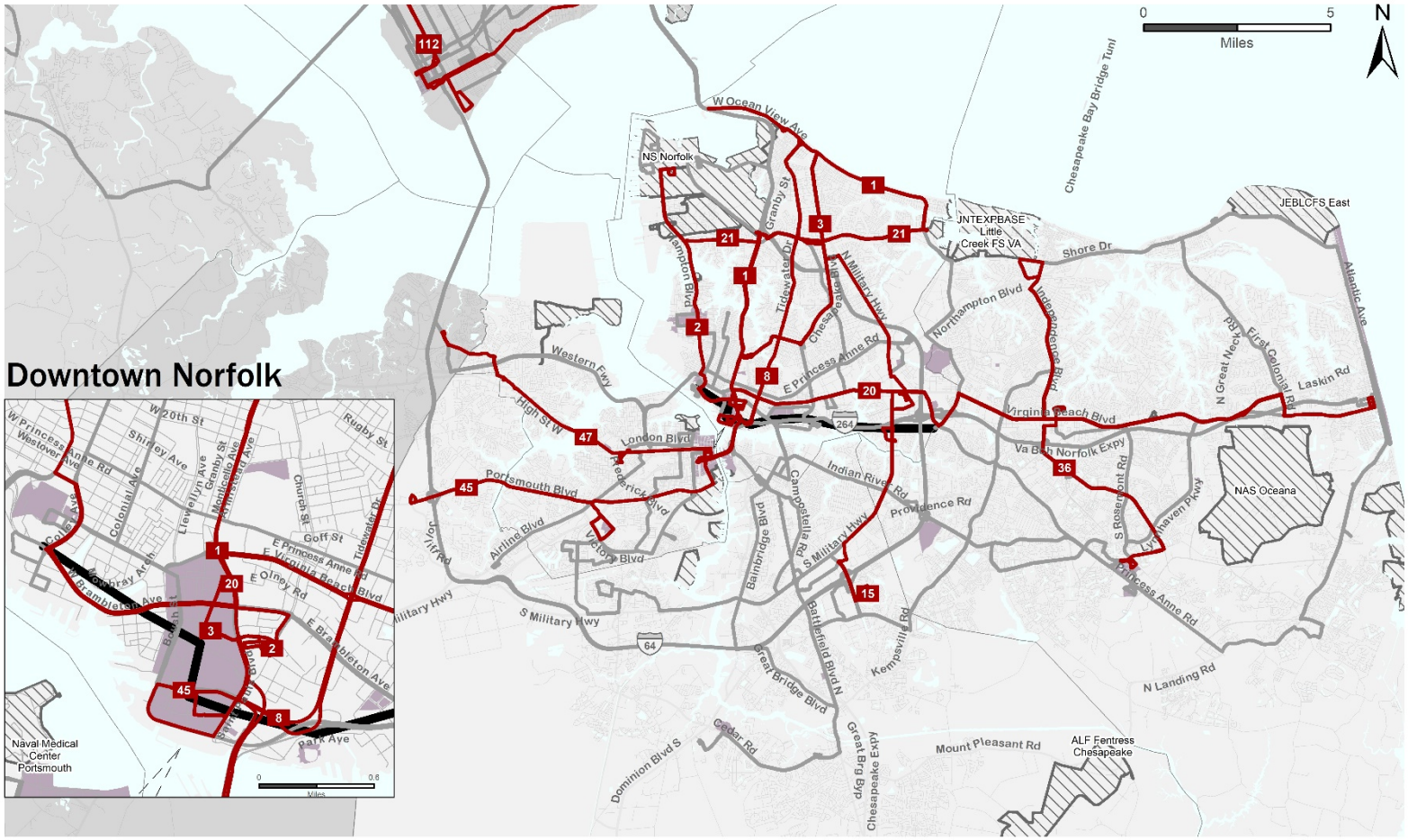
Service Headway				Span of Service
Weekday	Peak	6:00 a.m. – 9:00 a.m. 3:00 p.m. – 6:00 p.m.	15 min	5:00 a.m. – 1:00 a.m.
	Midday	9:00 a.m. – 3:00 p.m.	30 min	
	Evening	6:00 p.m. – 9:00 p.m.	30 min	
Weekend	Base	8:00 a.m. – 6:00 p.m.	30 min	6:00 a.m. – 12:00 a.m.
	Non-base	6:00 a.m. – 8:00 a.m. 6:00 p.m.– 9:00 p.m.	30 min	

Figure 6-3: Regional Transit Program Regional Backbone Routes - Peninsula



PENINSULA: Hampton Roads Transit Regional Transit Program Regional Backbone Routes

Figure 6-4: Regional Transit Program Regional Backbone Routes - Southside



SOUTHSIDE: Hampton Roads Transit Regional Transit Program Regional Backbone Routes

6.4.2. Limited/Express

Regional Metro Area Express (MAX) routes and Peninsula Commuter Service (PCS) routes also fit within parameters of the Program in order to receive support for additional service (shown in **Figure 6-5** and **Figure 6-6**). There are 13 PCS and MAX routes which all fall within the Limited/Express route classification that provide interjurisdictional connections, offering commuters limited stop and direct service to major employment centers (**Table 6-3**). Since these routes offer limited stop service designed to serve commuters traveling to and from work, the service design standards for service headway and span of service are based upon the demand and shift times of the employment centers.

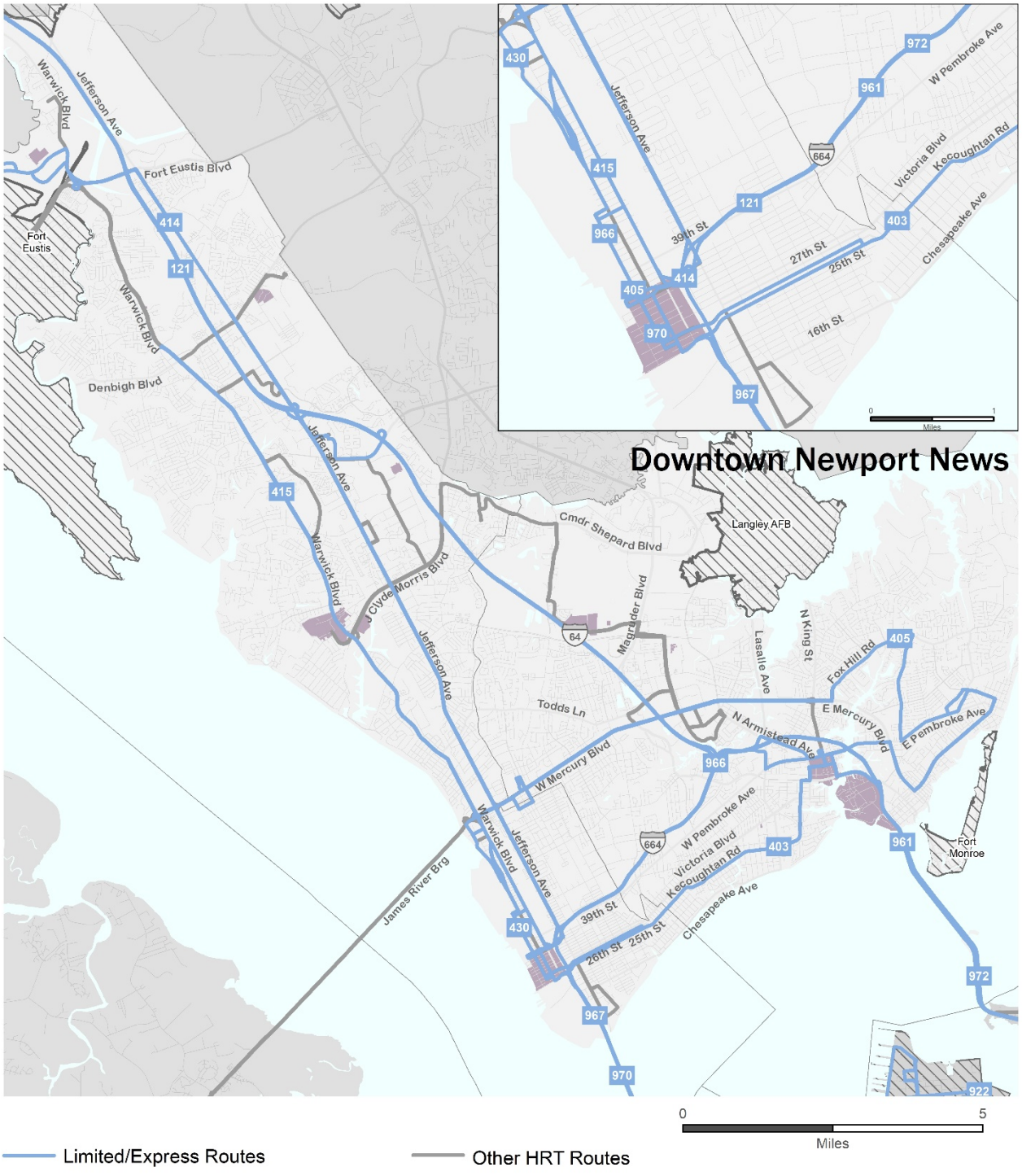
Route 970, which will provide commuter connections between Newport News and Portsmouth, is the only service not currently in operation.[6] It is proposed that Route 970 be implemented when all of the other PCS and MAX services are updated in FY 2022.

Table 6-3: Limited/Express Route Characteristics

Description	Criteria		
	Interjurisdictional	Population / Job Density	Route Directness
Bus service with limited stops connecting surrounding communities with downtown areas and other major employment sites or regional destinations, often via interstates. Some routes will operate during peak-hour commuter service only. Typically accessed via park-and-ride lots at the residential end.	Can operate within a jurisdiction or cross jurisdictional boundaries.	Route serves major trip generators and/or collection points	N/A

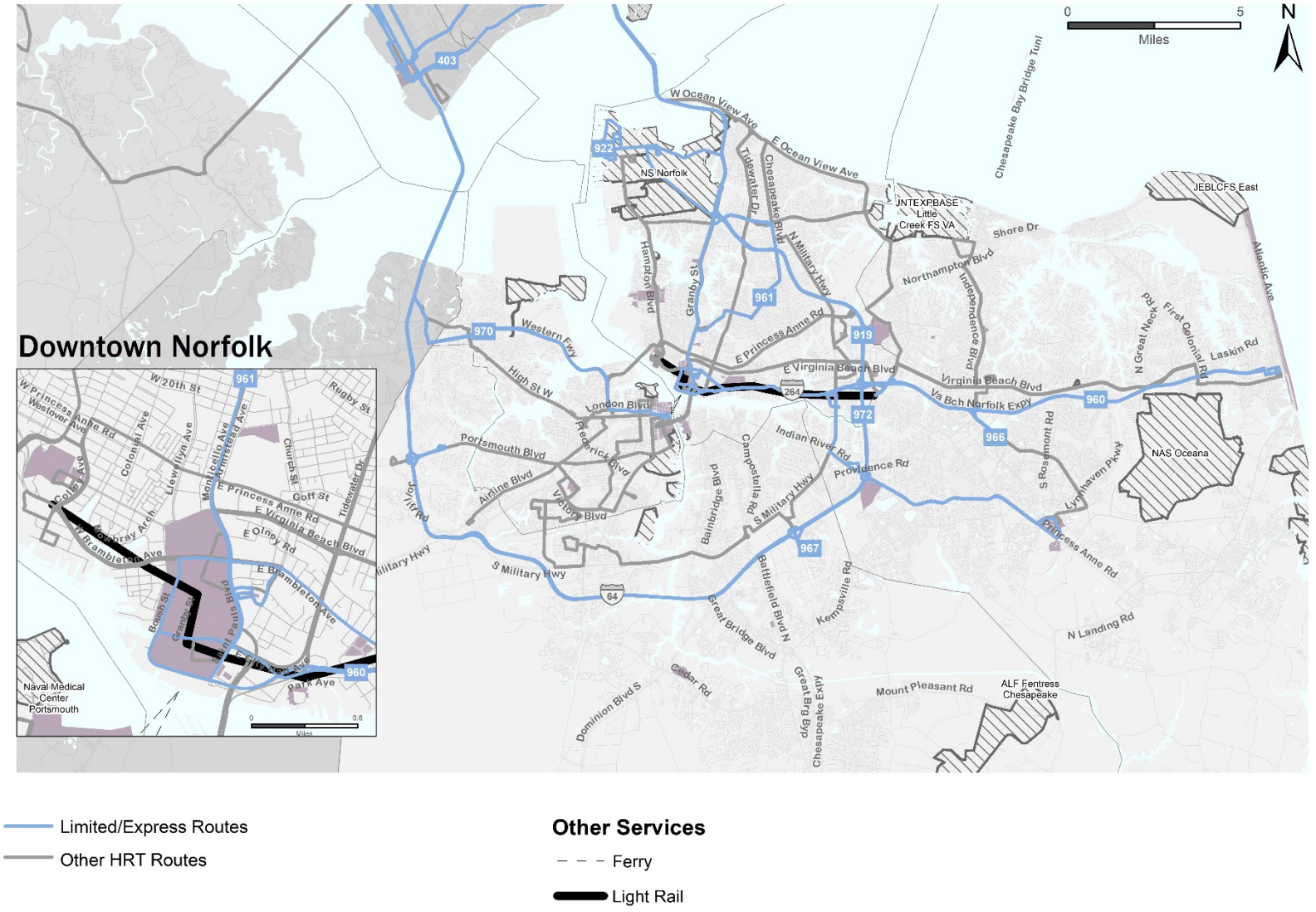
[6] Route 970 is one option for future expansion of MAX service. In the next annual update, that route plus others will be explored, including service connecting Chesapeake to Norfolk Naval Shipyard (Portsmouth).

Figure 6-5: Regional Transit Program Limited/Express Routes - Peninsula



PENINSULA: Hampton Roads Transit Regional Transit Program Limited/Express Routes

Figure 6-6: Regional Transit Program Limited/Express Routes - Southside



SOUTHSIDE: Hampton Roads Transit Regional Transit Program Limited/Express Routes

6.5. Benefits and Outcomes

As outlined in this section, the Hampton Roads Regional Transit Program of services will:

- Improve access to and from job sites and workforce development sites across the region, increasing employment opportunities and improving economic opportunity for residents.
- Improve mobility options for residents across the region.
- Provide frequent, consistent, and reliable transit options across the region; improve quality of life for HRT riders by limiting time spent at outdoor bus stops, enabling faster transfers, shortening end-to-end trip time, and allowing riders to make trips without relying on schedules; and enhance connections and transfers throughout the entire HRT system through high-frequency service on the Regional Backbone network.

These outcomes are consistent with the recommendations of the Regional Advisory Panel of HRT's *Transit Transformation Project* and the guiding principles unanimously approved by the TDCHR Board of Commissioners (December 2019) for improving a regional transit system, including: following standards to achieve a more effective bus network; prioritizing high-frequency services on a regional backbone system; and prioritizing connections across jurisdictions.

6.5.1. Regional Connectivity and Level of Service

Table 6-4 shows the jurisdictional connections and major destinations for each of the Regional Backbone routes, accounting for planned realignments where applicable. More details about these routes can be found in **Section 6.6**: **Route Profiles**. The table displays the level of service in terms of service hours. It first shows the current service hours for these routes and then shows the estimated service hours under a full implementation according to the service design standards, wherein each route will meet or exceed those standards.

Table 6-5 illustrates the jurisdictional connections and major destinations for the MAX and PCS routes, with additional details about these routes also found in **Section 6.6**: **Route Profiles**. This table also shows the level of service in terms of service hours. The current service hours for these routes are shown in comparison with the estimated service hours under a full implementation according to the service design standards, wherein each route will meet or exceed those standards.

Table 6-4: Regional Backbone Major Destinations and Service Hours

Route	Planned Jurisdictional Connections and Major Destinations	FY 2020 Service Hours	Anticipated FY 2022 Service Hours	Service Hours for Program Implementation
Route 1	Norfolk and Virginia Beach ■ Downtown Norfolk Transit Center ■ Evelyn T. Butts Avenue ■ Joint Expeditionary Base Little Creek	36,398	36,221	58,533
Route 2	Norfolk ■ Navy Exchange Mall ■ Downtown Norfolk Transit Center	19,801	19,724	26,195
Route 3	Norfolk ■ Downtown Norfolk ■ Evelyn T. Butts Avenue ■ Ocean View Avenue	28,315	28,004	31,422
Route 8	Norfolk ■ Downtown Norfolk ■ Evelyn T. Butts Avenue	16,980	16,785	25,746
Route 15	Chesapeake, Norfolk, and Virginia Beach ■ Greenbrier Mall ■ Evelyn T. Butts Avenue ■ Military Highway Light Rail Station	32,467	32,461	40,150
Route 20	Norfolk and Virginia Beach ■ Downtown Norfolk ■ Newtown Road Light Rail Station ■ Virginia Beach Oceanfront	56,053	55,787	89,876
Route 21	Norfolk and Virginia Beach ■ Navy Exchange Mall ■ Joint Expeditionary Base Little Creek	26,910	26,816	33,866
Route 36	Virginia Beach ■ Pleasure House Road ■ Pembroke East ■ TCC Virginia Beach	8,664	8,506	33,388
Route 45	Chesapeake, Norfolk, and Portsmouth ■ Downtown Norfolk Transit Center ■ Midtown Portsmouth ■ Victory Crossing ■ TCC Portsmouth	27,472	27,319	43,091
Route 47	Portsmouth and Suffolk ■ Downtown Portsmouth ■ Churchland	16,050	15,965	23,577
Route 101	Hampton and Newport News ■ Downtown Newport News ■ Downtown Hampton	11,313	11,393	16,433
Route 112	Hampton and Newport News ■ Ivy Avenue & 6th Street ■ Downtown Newport News ■ Patrick Henry Mall ■ Lee Hall	22,286	26,933	64,025
Route 114	Hampton and Newport News ■ Newmarket ■ Downtown Hampton	19,614	19,511	41,676

Table 6-5: Limited/Express Major Destinations and Service Hours

Route	Planned Jurisdictional Connections and Major Destinations	FY 2020 Service Hours	Anticipated FY 2022 Service Hours	Service Hours for Program Implementation
Route 121	Newport News ■ Newport News Transit Center ■ Williamsburg Transportation Center	973	969	969
Route 403	Hampton and Newport News ■ Buckroe Shopping Center ■ Newport News Shipbuilding	211	211	461
Route 405	Hampton and Newport News ■ Newport News Transit Center ■ Buckroe Shopping Center	470	480	914
Route 414	Hampton and Newport News ■ Newport News Transit Center ■ Jefferson/Oakland	1,704	1,192	1,192
Route 415	Hampton and Newport News ■ Newport News Transit Center ■ Denbigh	178	188	380
Route 430	Hampton and Newport News ■ Denbigh Fringe ■ Newport News Transit Center	493	487	874
Route 919	Norfolk and Virginia Beach ■ Silverleaf Part & Ride ■ Naval Station Norfolk Gate 4	1,532	1,526	1,445
Route 922	Chesapeake, Norfolk, and Virginia Beach ■ Greenbrier Mall Park & Ride ■ Naval Station Norfolk Gate 4	1,773	1,766	1,375
Route 960	Norfolk and Virginia Beach ■ Downtown Norfolk ■ Virginia Beach Oceanfront	10,408	10,411	2,322
Route 961	Hampton, Newport News and Norfolk ■ Downtown Norfolk ■ Downtown Hampton ■ Downtown Newport News	20,483	20,446	20,446
Route 966	Newport News and Virginia Beach ■ Silverleaf Park and Ride ■ Newport News Transit Center	1,067	1,045	1,485
Route 967	Chesapeake, Newport News, Norfolk, and Virginia Beach ■ Downtown Newport News ■ Greenbrier Mall ■ Military Highway Light Rail Station	3,607	3,719	3,719
Route 970 (proposed new route)	Newport News and Portsmouth ■ Downtown Newport News ■ Downtown Portsmouth	-	-	2,902
Route 972	Virginia Beach and Newport News ■ Downtown Newport News ■ TCC Virginia Beach	594	589	1,060

6.5.2. Program Factors, Objectives, and Metrics

This section further documents positive linkages of Program investments to factors proscribed in SB1038 and HB1726: economic development potential, employment opportunities, mobility, environmental sustainability, and quality of life metrics. **Table 6-6** links the five factors specified in the law, with each factor associated with related objectives and metrics. The objectives represent the outcome that can be anticipated upon full Program implementation.

Table 6-6: Program Investment Factors, Objectives, and Metrics

Factor	Objective	Metrics
Economic Development Potential	Support businesses and support future economic development at local level.	■ Integration with and support for local comprehensive plans, transportation plans, and local or regional economic development strategies. ■ Number of economically distressed areas served.
Employment Opportunities	Provide access to and from jobs and workforce development sites.	■ Number of jobs with access to transit.
Mobility	Provide consistent and reliable transit options across the region.	■ Number of residents with access to transit. ■ Number of jobs and residents with access to high-frequency service with 15-minute headways in the peak period. ■ Access to multi-modal transit options.
Environmental Sustainability	Contribute to improved air quality and reduction of energy use.	■ Equivalent VMT reduction (based on avg. trip length) to Fleet Capacity (multiplied by existing system efficiency of passengers per revenue hour)
Quality of Life	Improve transit travel time and average wait for transit; Provide increased access to transit for disadvantaged populations (low-income, minority, or limited English proficiency).	■ Transit travel time. ■ Average wait for transit. ■ Access to transit for disadvantaged populations (low-income, minority, or limited English proficiency).

6.5.3. Baseline Analyses

The Regional Backbone and Limited/Express routes are measured against a subset of the metrics in **Table 6-6** to determine how best to prioritize the use of Hampton Roads Regional Transit Fund moneys in the phased implementation of the Program. The results of these analyses are discussed below.

Employment Access to Transit

Access to **Employment Opportunities** is a primary factor. The Regional Backbone and Limited/Express route improvements will improve access to and from job sites and workforce development sites across the region, increasing employment opportunities and improving economic opportunity for residents. Employment access to transit measures the number of jobs located within walking distance of the Regional Backbone routes and within two miles of the Limited/Express routes' stops. Employment data used in this analysis is from the Census Longitudinal Employer-Household Dynamics dataset (LEHD).

For Regional Backbone routes (**Table 6-7**), employment was measured within one-half mile of segments with high-frequency service (15-minute headways in the peak periods).[7] For the routes that operate with a short turn during the peak periods (Routes 3, 45, 47, and 112), 15-minute service is offered on the short turn and 30-minute service is offered along the rest of the route. The 30-minute segments were analyzed with a one-quarter mile buffer, as customers are willing to walk slightly further for higher frequency service. Regional Backbone routes which provide access to the highest number of jobs are, in order, Route 20, Route 112, and Route 2.

[7] As with other metrics in Table 6-6, this methodology is consistent with Virginia's MERIT (Making Efficient and Responsible Investments in Transit) program, the statewide transit capital program, in evaluating capital projects for funding; HRT is adapting MERIT metrics where applicable for use with Hampton Roads Regional Transit Program.

Table 6-7: Employment Access to Regional Backbone Routes

Route	Employment Within 1/4 Mile	Employment Within 1/2 Mile	Total Employment Access to Regional Backbone Routes
Route 1	N/A	32,519	**32,519**
Route 2	N/A	47,451	**47,451**
Route 3	1,163	26,332	**27,495**
Route 8	N/A	27,303	**27,303**
Route 15	N/A	42,687	**42,687**
Route 20	N/A	82,471	**82,471**
Route 21	N/A	10,867	**10,867**
Route 36	N/A	26,525	**26,525**
Route 45	2,049	33,779	**35,828**
Route 47	931	15,302	**16,233**
Route 101	N/A	11,003	**11,003**
Route 112	5,457	45,319	**50,776**
Route 114	N/A	21,390	**21,390**

For Limited/Express routes (**Table 6-8**), the analysis was conducted at the stops rather than along the full alignment as these routes make few stops but travel great distances. A two-mile buffer was used to capture the average distance a commuter would be willing to travel to their workplace via other modes once disembarking from the Limited/Express route. Due to the unique nature of the two largest employment areas in the region, Naval Station Norfolk and Newport News Shipbuilding, Limited/Express routes which serve either of those locations were allotted the full count of employment of these facilities based on the assumption that even if the stop buffer did not encompass the full facility, a commuter would still have access to all of those jobs via other transit options. The PCS/MAX routes which provide access to the highest number of jobs are, in order, Route 961, Route 967, and the new Route 970.

Table 6-8: Employment Access to Limited/Express Routes

Route	Employment Within Two Miles of Stops	Employment at Naval Station Norfolk	Employment at Newport News Shipbuilding	Total Employment Access to Limited/Express Routes
Route 121	103,474		15,380	**118,854**
Route 403	97,003		15,380	**112,383**
Route 405	91,640		15,380	**107,020**
Route 414	129,859		15,380	**145,239**
Route 415	116,330		15,380	**131,710**
Route 430	120,243		15,380	**135,623**
Route 919	37,486	60,000		**97,486**
Route 922	68,785	60,000		**128,785**
Route 960	124,612			**124,612**
Route 961	175,740		15,380	**191,120**
Route 966	99,961		15,380	**115,341**
Route 967	162,458		15,380	**177,838**
Route 970	137,612		15,380	**152,992**
Route 972	104,011		15,380	**119,391**

Residential Access to Transit

Mobility is another primary factor of consideration. The objective here is to provide consistent and reliable transit options across the region. Metrics under this factor include the number of residents with access to transit.

The Regional Backbone and Limited/Express route improvements will improve mobility options for residents across the region. Residential access to transit measures the number of people living within walking distance of the Regional Backbone routes and within two miles of the Limited/Express routes' stops. Population data for this analysis is from the American Community Survey (ACS) 2018 Five-Year estimates.

Following a similar method to the analysis for employment, for Regional Backbone routes (**Table 6-9**), population was measured within one-half mile of segments with high-frequency service (15-minute headways in the peak periods). For the routes that operate with a short turn during the peak periods (Routes 3, 45, 47, and 112), 15-minute service is offered on the short turn and 30-minute service is offered along the rest of the route. The 30-minute segments were analyzed with a one-quarter mile buffer, as customers are willing to walk slightly further for higher frequency service. Regional Backbone routes which provide access to the highest number of residents are, in order, Route 20, Route 1, and Route 3.

Table 6-9: Population Access to Regional Backbone Routes

Route	Population Within 1/4 Mile	Population Within 1/2 Mile	Total Population Access to Regional Backbone Routes
Route 1		80,457	**80,457**
Route 2		52,616	**52,616**
Route 3	14,586	51,638	**66,224**
Route 8		45,113	**45,113**
Route 15		49,038	**49,038**
Route 20		93,009	**93,009**
Route 21		48,418	**48,418**
Route 36		64,244	**64,244**
Route 45	6,199	34,393	**40,592**
Route 47	4,033	25,758	**29,791**
Route 101		32,591	**32,591**
Route 112	9,935	48,344	**58,279**
Route 114		34,286	**34,286**

For Limited/Express routes (**Table 6-10**), the analysis was conducted around the stops rather than along the full alignment because these routes make few stops but travel great distances. A two-mile buffer was used to capture the average distance a commuter would be willing to travel from their home to board a commuter bus, usually by parking at a park-and-ride lot. The results of these analyses are shown in **Table 6-10**. The Limited/Express routes which provide access to the highest number of employed residents are, in order, Route 961, Route 414, and Route 967.

For Regional Backbone routes, total population was utilized, while for Limited/Express routes, employed population was utilized. The market for commuter trips on Limited/Express routes is a subset of the whole population (e.g., commuters who are traveling to and from work), whereas trips on the Regional Backbone network serve all kinds of destinations throughout the day and week.

Table 6-10: Employed Population Access to Limited/Express Routes

Route	Employed Population Within Two Miles of Limited/Express Routes
Route 121	48,977
Route 403	73,008
Route 405	68,439
Route 414	109,309
Route 415	75,575
Route 430	83,389
Route 919	74,023
Route 922	83,460
Route 960	81,994
Route 961	147,735
Route 966	63,403
Route 967	94,752
Route 970	42,808
Route 972	86,492

Access to High-Frequency Transit

With **Mobility** as a primary factor with the objective of providing consistent and reliable transit options across the region, another important metric is the combined number of jobs and residents with access to high-frequency services. High-frequency service is defined as service having 15-minute headways in the peak period. This was another area targeted for improved regional transit service as part of HRT's *Transit Transformation Project* and the Transit Strategic Plan.

The high-frequency service offered by the Regional Backbone routes will provide consistent and reliable transit options across the region and improve mobility. Access to high-frequency transit was determined based on the residents and jobs within a half-mile of Regional Backbone routes as described in the **Employment Access to Transit** section and the **Residential Access to Transit** section. The results of this analysis are shown in **Table 6-11**. The routes with the with the highest combined population and employment access to high-frequency transit are Route 1, Route 20, and Route 112, which all serve over 109,000 people and jobs. Route 1 and Route 20 serve a larger population than the other Regional Backbone routes with high-frequency service; while Route 2, Route 20, and Route 112 serve the greatest number of jobs with high-frequency service.

Table 6-11: Regional Backbone Routes - Population and Employment Access Within Half-Mile

Route	Population	Employment	Combined Population & Employment
Route 1	80,457	32,519	112,976
Route 2	52,616	47,451	100,067
Route 3	51,638	26,332	93,719
Route 8	45,113	27,303	72,416
Route 15	49,038	42,687	91,725
Route 20	93,009	82,471	175,480
Route 21	48,418	10,867	59,285
Route 36	64,244	26,525	90,769
Route 45	34,393	33,779	76,420
Route 47	25,758	15,302	46,024
Route 101	32,591	11,003	43,594
Route 112	48,344	45,319	109,055
Route 114	34,286	21,390	55,676

Multi-Modal Transit Connections

A third metric under the **Mobility** factor is access to multi-modal transit options. Implementing the high-frequency network will not only increase levels of service on those routes but will enhance connections and transfers throughout the entire HRT system. The increased frequency of these routes plus the standardization of span across the region for all routes will result in more consistent and reliable transfer opportunities for all riders.

Table 6-12 shows the transit connections each Regional Backbone route provides. The results are broken down into different types of HRT service classifications, as well as other non-HRT services. Route 20, Route 101, and Route 112 have the highest number of connections to all types of HRT routes. Routes 2, 8, 15, 20, and 45 connect to The Tide light rail system. Routes 45, 47, and 112 connect to neighboring transit systems.

Table 6-12: Multi-Modal Transit Connections

Route	Number of Connections to Limited/Express Routes	Number of Connections to Other Regional Backbone Routes	Number of Connections to Local Priority and Coverage Routes	Total Number of Connections to Other HRT Routes	Connection to Light Rail	Connection to Other Systems
Route 1	2	7	9	18		
Route 2	2	6	8	16	Yes	
Route 3	2	7	8	17		
Route 8	2	7	8	17	Yes	
Route 15	3	5	8	16	Yes	
Route 20	2	7	16	25	Yes	
Route 21	1	5	2	8		
Route 36	3	1	7	11		
Route 45	3	6	10	19	Yes	Suffolk
Route 47	0	1	3	4		Suffolk
Route 101	11	2	9	22		
Route 112	11	2	9	22		WATA
Route 114	6	2	10	18		

Average Wait for Transit

Time is a valuable commodity for Hampton Roads commuters. The stated objective for the **Quality of Life** factor is to improve transit travel time and average wait times for transit, and to provide increased access to transit for disadvantaged populations (low-income, minority, or limited English proficiency). Average wait for transit is a useful metric for this factor.

Reducing wait time on the Regional Backbone routes will improve quality of life for HRT riders by limiting time spent at outdoor bus stops, enabling faster transfers, shortening end-to-end trip time, and allowing riders to make trips without relying on schedules. The average wait time for transit is measured as half the time in between bus arrivals, or half the headway, for each route. **Table 6-13** shows the current and planned average wait time for the peak, midday, and evening weekday periods. For routes with short turn service where effective headways are shorter, the average wait time for the short turn segment is shown. Under the planned service in the Program, many routes would have wait times cut in half, with all Regional Backbone average wait times at 7.5 minutes during peak periods, either 7.5 or 15 minutes during the midday, and 15 minutes during the evening.

Table 6-13: Regional Backbone Average Wait Time

Route	Weekday Peak		Weekday Midday		Weekday Evening	
	Current average wait (mins)	New average wait (mins)	Current average wait (mins)	New average wait (mins)	Current average wait (mins)	New average wait (mins)
Route 1	7.5	7.5	15.0	7.5	20.0	15.0
Route 2	15.0	7.5	15.0	15.0	15.0	15.0
Route 3	7.5	7.5	15.0	7.5	15.0	15.0
Route 8	15.0	7.5	15.0	15.0	15.0	15.0
Route 15	7.5	7.5	15.0	15.0	15.0	15.0
Route 20	7.5	7.5	15.0	7.5	15.0	15.0
Route 21	15.0	7.5	15.0	15.0	15.0	15.0
Route 36	15.0	7.5	30.0	15.0	30.0	15.0
Route 45	7.5	7.5	15.0	15.0	15.0	15.0
Route 47	7.5	7.5	15.0	15.0	15.0	15.0
Route 101	17.5	7.5	17.5	15.0	30.0	15.0
Route 112	15.0	7.5	15.0	7.5	15.0	15.0
Route 114	15.0	7.5	15.0	7.5	30.0	15.0

HRT will carefully track performance and build upon this baseline assessment of program factors, objectives, and metrics used for the Hampton Roads Regional Transit Program as it is implemented.

6.6. Route Profiles

This section contains route profiles that describe the planned service improvements under the Program. There are 13 Regional Backbone routes and 14 Limited/Express routes in the Program. Each route profile contains:

- A description of the service changes.
- The justifications for the service changes.
  - Key Performance Indicators, which are measures of a route's performance, are discussed when relevant to a service change (full performance analysis data can be found in **Chapter 2**, **Section 2.3**.
  - Some justifications also include reference to analyses that were part of the analysis of transit demand and underserved area opportunities for improvement from **Chapter 2**, **Section 2.2.2**.
  - For each of the justifications, icons provide quick reference as to the types of justifications included for each route:

Transit demand and underserved areas-based opportunities for improvement identified in Section 2.2.2

Performance-based opportunities for improvement (passengers per revenue hour, passengers per one-way trip, farebox recovery, subsidy per passenger boarding) as described in **Section 2.3.2**

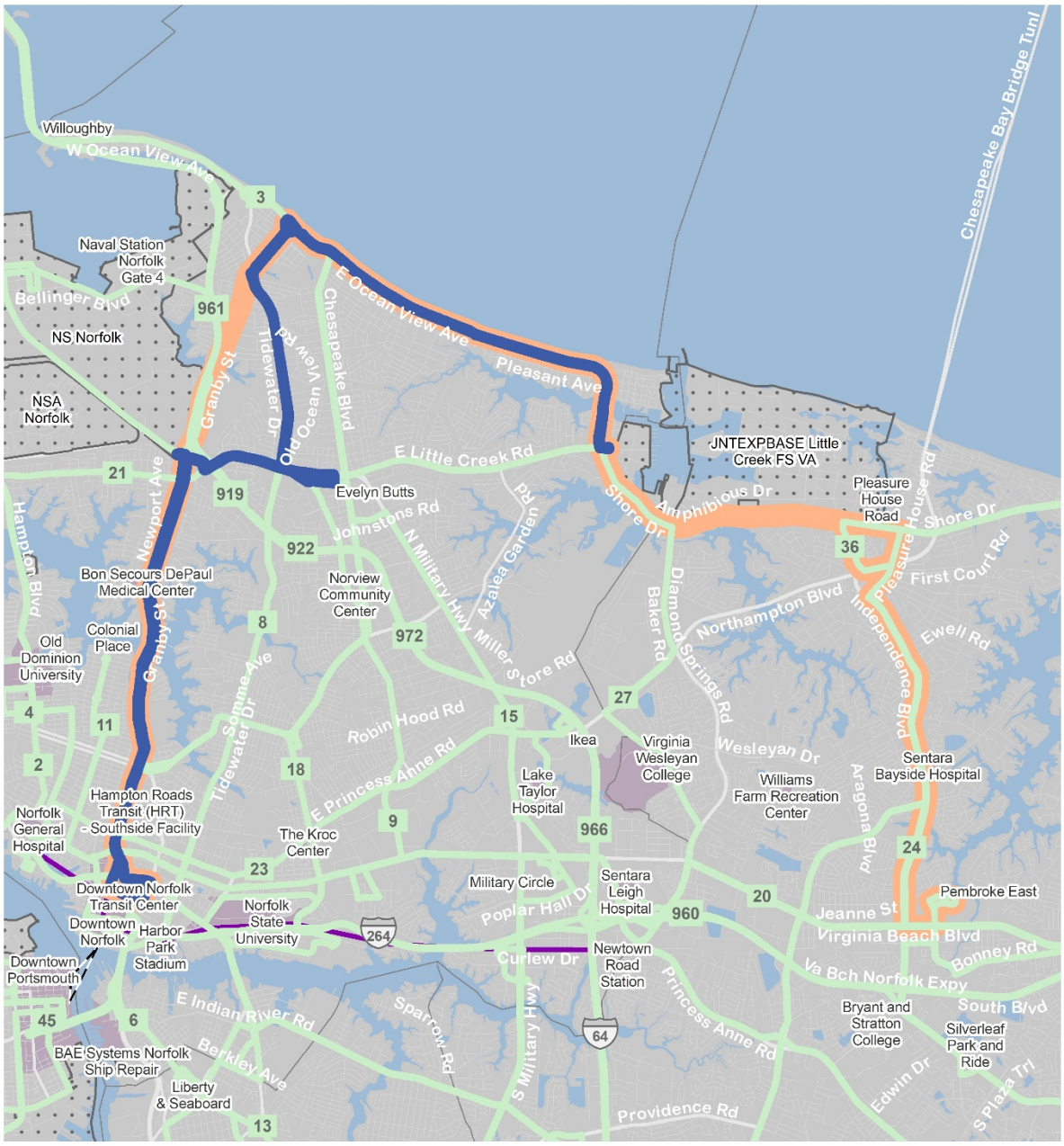
Efficiency-based opportunities for improvement (on-time performance and maximum load) as described in Section 2.4.2

Improvements to meet the service design standards and goals as described in Chapter 1

- A table showing the route's service classification.
- A table showing the origins and destinations as well as the jurisdictions served, comparing existing service to the planned service.
- A table comparing level of service—span and headway—between the existing service and the service targets[8] for the route:
  - On weekdays the periods shown are approximately associated with the following times, but would vary based on demand:
    - **Early:** Before 6:00 AM
    - **AM Peak:** 6:00 AM to 9:00 AM
    - **Midday:** 9:00 AM to 3:00 PM
    - **PM Peak:** 3:00 PM to 6:00 PM
    - **Evening:** 6:00 PM to 11:00 PM
    - **Late Night:** After 11:00 PM
  - On weekends the periods shown are approximately associated with the following times:
    - **Base:** 8:00 AM – 6:00 PM
    - **Non-Base:** 6:00 AM. – 8:00 AM and 6:00 PM – 9:00 PM
    - **Early/Late:** before 6:00 AM and after 9:00 PM
- A place for any special notes that apply to the route.
- A map showing the route, other related routes, and other relevant transportation information.

[8] The service targets describe the span and frequency a route would need to achieve in order to fulfill the service design standards for its service classification. Not all routes' service targets are met due to individual cost constraints of each of the jurisdictions.

Route 1



Route 1

Miles
0 0.5 1 1.5 2 2.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 1

Service Classification
Regional Backbone

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Downtown Norfolk Transit Center / Pembroke East	Downtown Norfolk Transit Center / Joint Expeditionary Base Little Creek
Jurisdictions	Norfolk, Virginia Beach	Norfolk, Virginia Beach

Level of Service			
Span			
		Existing	**Service Target**
Weekday		4:44 AM - 1:30 AM	4:44 AM - 1:30 AM
Saturday		4:40 AM - 1:31 AM	4:40 AM - 1:30 AM
Sunday		5:37 AM - 1:30 AM	4:40 AM - 1:30 AM
Headway			
		Existing	**Service Target**
Weekday	**Early**	30	30
	AM Peak	15	15
	Midday	30	15
	PM Peak	15	15
	Evening	40	30
	Late Night	60	60
Saturday	**Base**	30	15
	Non-Base	30	30
	Early / Late	60	60
Sunday	**Base**	60	15
	Non-Base	60	30
	Early / Late	60	60

Note
This route's existing service operates with regular short turns. The existing headways that are listed in this table may not necessarily apply to the full length of the existing route.

Service Changes

- Route 1 will operate along its current alignment between the Downtown Norfolk Transit Center (DNTC) and Wards Corner. It will be realigned at Wards Corner and deviate onto Little Creek Boulevard to service Evelyn T. Butts. Route 1 will travel on Tidewater Drive between Little Creek Boulevard and Lenox Avenue, replacing existing service on Granby Street. Between Lennox Avenue and Joint Expeditionary Base (JEB) Little Creek Route 1 will operate along its existing alignment on Ocean View Avenue. Service east of the JEB Little Creek will be discontinued on Route 1; however, much of the service along the discontinued segments will be covered by Routes 27 and 36.
- Eliminate short turns on Route 1 so that all trips operate the full length of the route.
- Weekday span of service remains the same as current Route 1 service. Route 1 will operate with 15-minute service between the AM and PM peak periods. In the early and evening periods service will be provided at half hour intervals. The route will operate hourly after 11:00 PM.

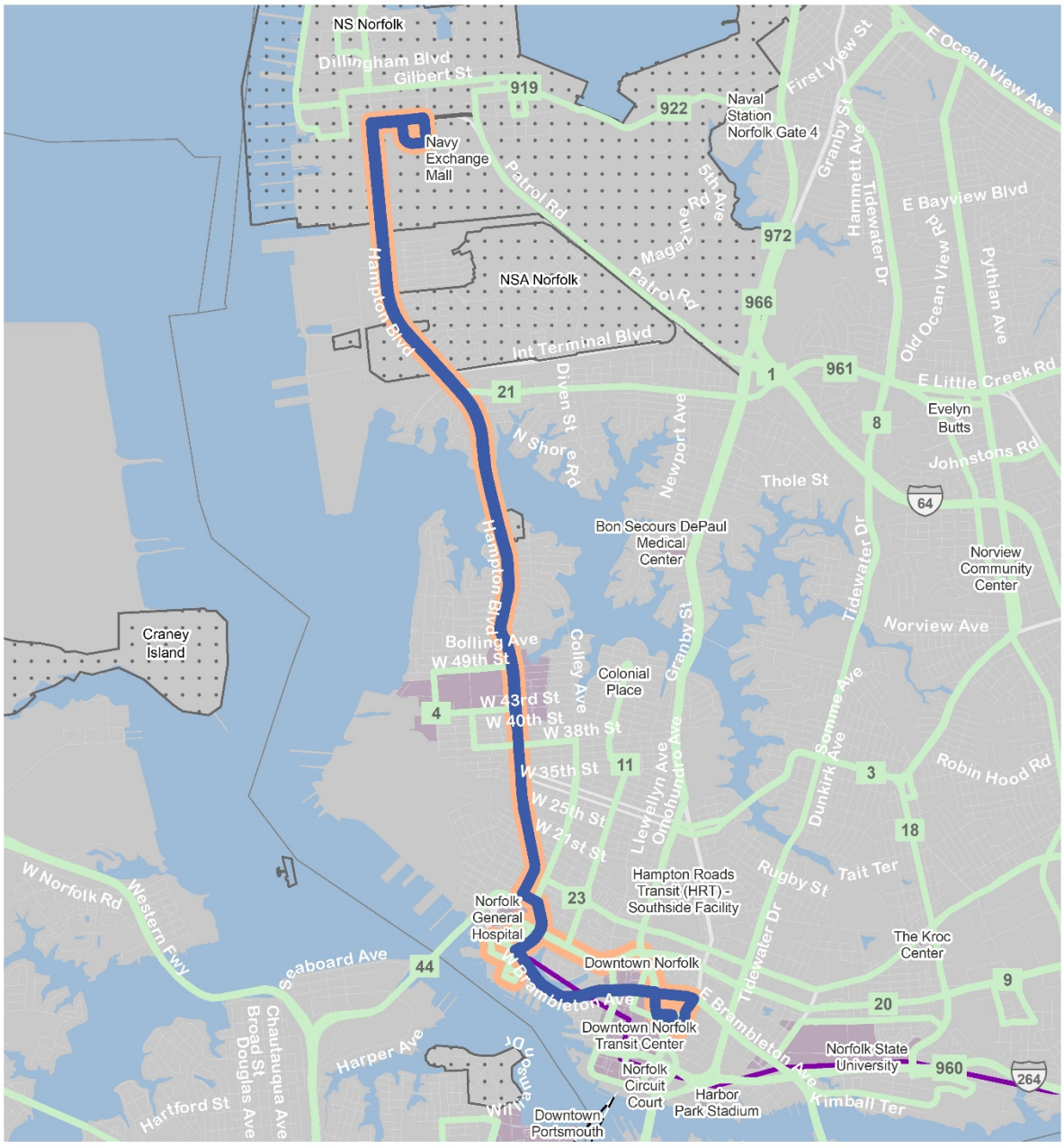
  Saturday service span on Route 1 will be offered between 4:40 AM and 1:30 AM, which matches the current Route 1 service, with 15-minute service through much of the day. Sunday service will be provided at levels that match Saturday service.

TD SD

Justification

- Simplifying the route by shortening it and eliminating short turns will standardize service levels across the entire route and will create a simpler schedule and map for customers to understand.
- This corridor warrants 15-minute service on weekdays in the peak periods and midday due to the transit market demand and activity centers served along the alignment (Granby Street is a key north-south corridor in Norfolk). This corridor has a high concentration of multimodal service areas identified in the level of service analysis.
- The service levels for Route 1 meet the service standards defined for Regional Backbone routes.

Route 2



Route 2

0 0.5 1 1.5 Miles

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 2

Service Classification
Regional Backbone

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Navy Exchange Mall / Downtown Norfolk Transit Center	Navy Exchange Mall / Downtown Norfolk Transit Center
Jurisdictions	Norfolk	Norfolk

Level of Service			
Span			
		Existing	**Service Target**
Weekday		4:51 AM - 11:42 PM	4:51 AM - 1:00 AM
Saturday		5:11 AM - 1:04 AM	5:11 AM - 1:00 AM
Sunday		5:28 AM - 12:10 AM	5:11 AM - 1:00 AM
Headway			
		Existing	**Service Target**
Weekday	**Early**	30	30
	AM Peak	30	15
	Midday	30	30
	PM Peak	30	15
	Evening	49	30
	Late Night	60	60
Saturday	**Base**	60	30
	Non-Base	60	30
	Early / Late	60	60
Sunday	**Base**	60	30
	Non-Base	60	30
	Early / Late	60	60

Service Changes

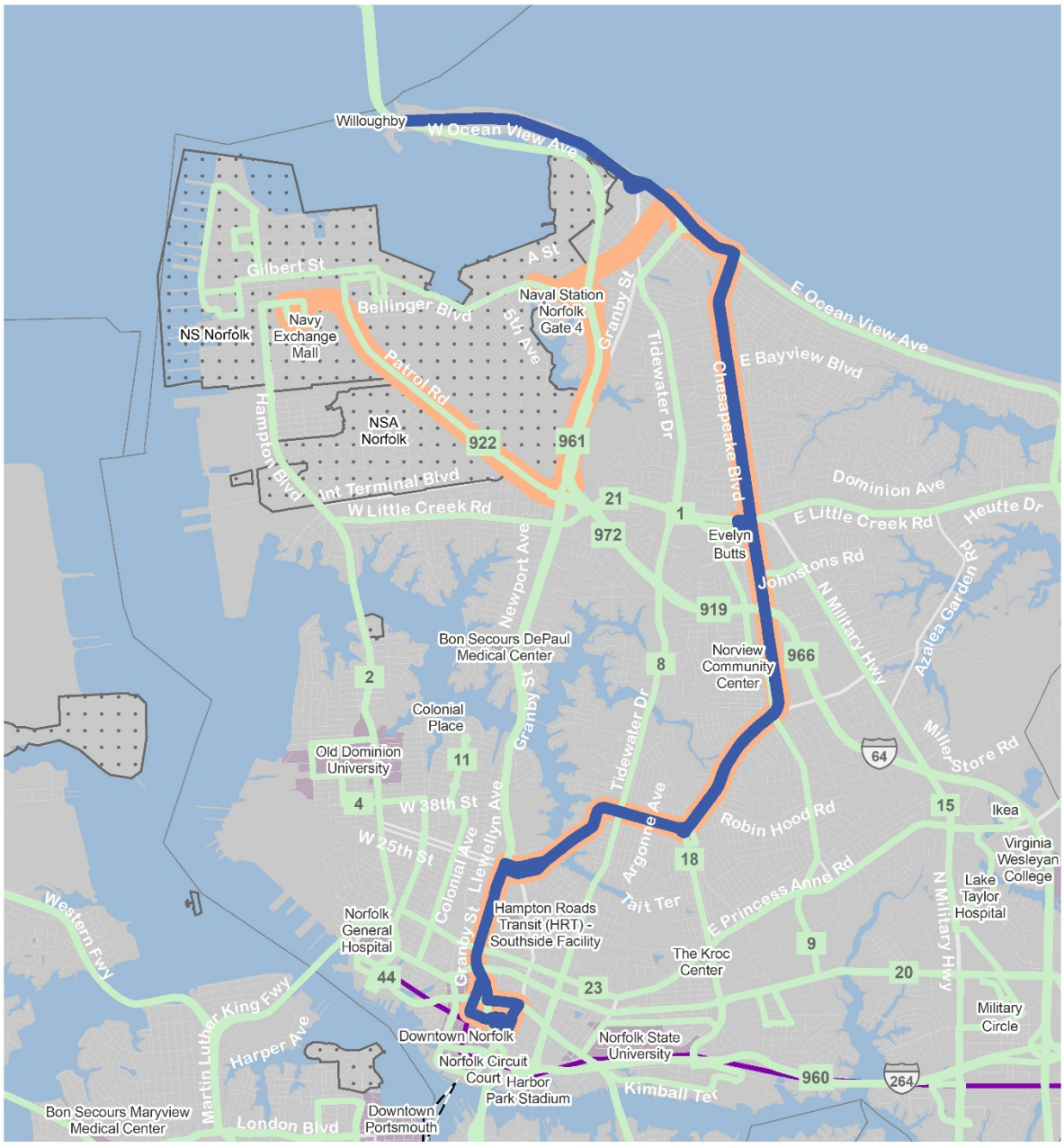
- Route 2 will be realigned to travel on Hampton Boulevard, Redgate Avenue, Colley Avenue, and Brambleton Avenue in order to streamline the service through Downtown Norfolk. The realigned Route 2 will be more direct compared to its existing alignment. Route 2 will still operate within a short walking distance of Norfolk General Hospital via Colley Avenue. Route 23 will continue to serve the Fort Norfolk area where Route 2 will no longer serve. Route 2 will no longer service Virginia Beach Boulevard or Olney Road, which will be covered by service on the realigned Route 4.
- On weekdays during the peak period, Route 2 will operate every 15 minutes. During the evenings the route will operate every 30 minutes. Weekday span is increased with service ending at 1:00 AM.
- Weekend service will be provided between 5:11 AM and 1:00 AM and will be offered at half hour intervals through much of the service day.

TD SD

Justification

- The multimodal service index analysis reveals areas served by Route 2 as major activity generators. Providing more direct service and shorter headways will improve this route and could attract more riders.
- The service levels for Route 2 meet the service standards defined for Regional Backbone routes.

Route 3



Route 3

Miles
0 0.5 1 1.5 2

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 3

Service Classification
Regional Backbone

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Downtown Norfolk / Naval Station Norfolk	Downtown Norfolk / Evelyn T. Butts Avenue / Ocean View Avenue
Jurisdictions	Norfolk	Norfolk

Level of Service			
Span			
		Existing	**Service Target**
Weekday		4:51 AM - 1:27 AM	4:51 AM - 1:27 AM
Saturday		5:21 AM - 1:27 AM	5:21 AM - 1:34 AM
Sunday		5:59 AM - 12:31 PM	5:21 AM - 1:34 AM
Headway			
		Existing	**Service Target**
Weekday	**Early**	30	30 / 60
	AM Peak	15	15 / 30
	Midday	30	15 / 30
	PM Peak	15	15 / 30
	Evening	49	30 / 60
	Late Night	60	60
Saturday	**Base**	30	30
	Non-Base	30	30 / 60
	Early / Late	60	60
Sunday	**Base**	60	30
	Non-Base	60	30 / 60
	Early / Late	60	60

Note
This route's existing service operates with regular short turns. The existing headways that are listed in this table may not necessarily apply to the full length of the existing route. This route's planned service also operates with short turns. The two numbers listed in the table show the headways for the portions of the route with and without the short turn. To see where the short turn operates, please refer to the Service Changes bullets.

Service Changes

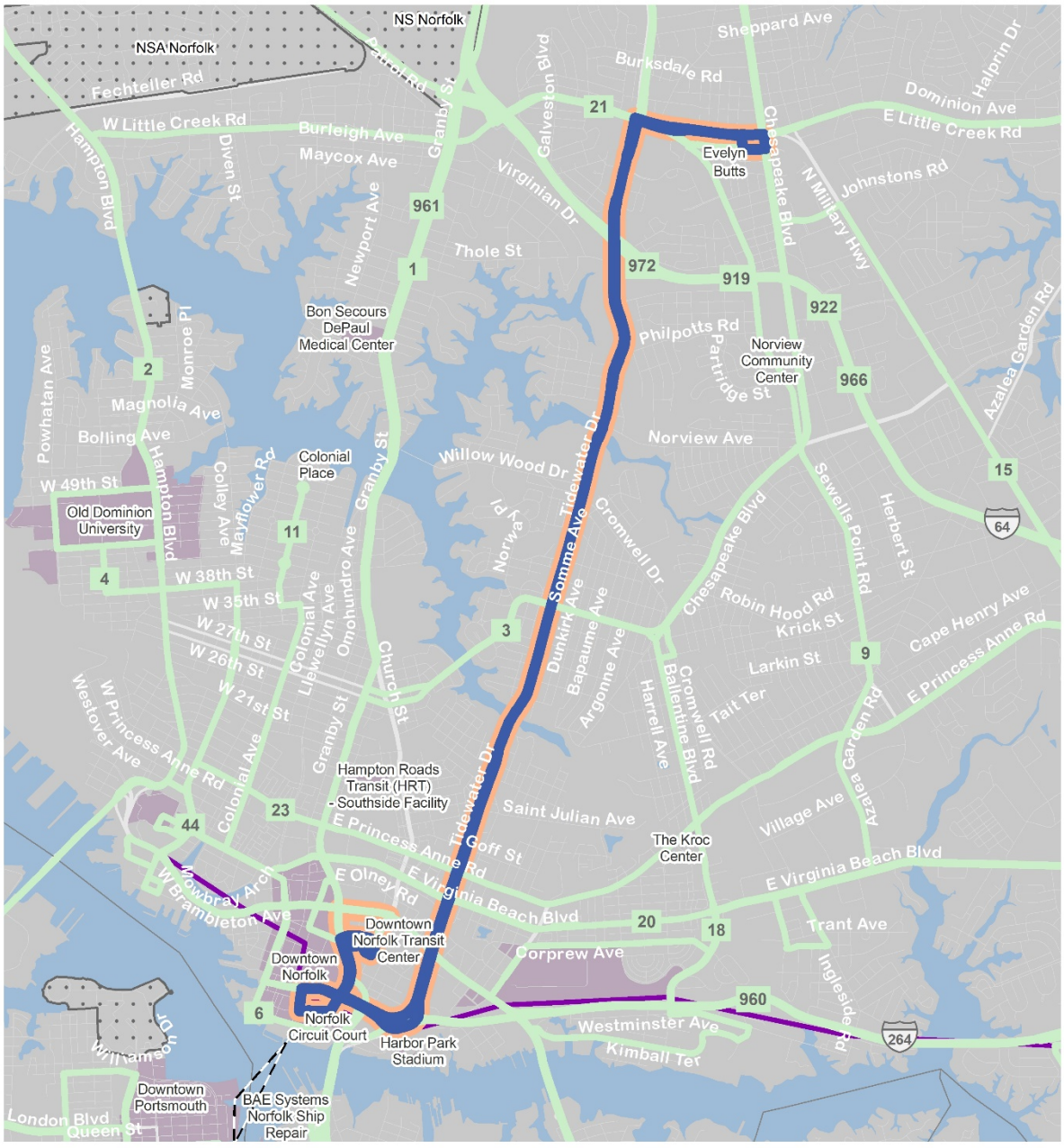
- The northern end of Route 3 will be realigned to serve Ocean View Avenue to Willoughby (covering a portion of the eliminated Route 5), providing a one-seat ride between Willoughby and Downtown Norfolk. Navy Exchange Mall will no longer be served via Route 3. To reach the Navy Exchange Mall passengers may transfer at Evelyn T. Butts to Route 21.
- On weekdays during the peak periods and midday period service will operate on a short turn between DNTC and Evelyn T. Butts every 15 minutes. During the early and evening time periods the short turn service will operate every half hour half. Hourly service will be offered the full length of the route from Willoughby to DNTC late night. Service to Willoughby will be hourly in the early and evening periods, and during the peak periods and midday it will increase to half hour headways. Route 3 will maintain its existing weekday span.
- Weekend service will operate half hourly between 6:00 AM and 9:00 PM from Willoughby to DNTC. In the non-peak weekend period, service will operate every half hour on the short turn between Evelyn T. Butts and DNTC, and hourly along the full length of the route. In the early/late period hourly service will be offered on the full length of the route. Sunday has the same level of service as Saturday.

EB SD

Justification

- Route 3's underperformance on on-time performance warrants a change in service in an effort to make the route operate more efficiently: its on-time performance is 59 percent, well short of the benchmark of 85 percent.
- Shortening headways on the weekend should encourage additional service usage.
- Service to Willoughby, which is currently offered every hour during weekday periods, will now be offered every half hour during the peak periods, which should help encourage additional service usage.
- The service levels for Route 3 meet the service standards defined for Regional Backbone routes.

Route 8



Route 8

Miles
0 0.5 1

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 8

Service Classification
Regional Backbone

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Downtown Norfolk / Evelyn T. Butts Avenue	Downtown Norfolk / Evelyn T. Butts Avenue
Jurisdictions	Norfolk	Norfolk

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:18 AM - 12:15 AM	5:00 AM - 1:00 AM
Saturday		5:42 AM - 12:45 AM	5:40 AM - 12:00 AM
Sunday		6:40 AM - 8:58 PM	5:40 AM - 12:00 AM
Headway			
		Existing	**Service Target**
Weekday	**Early**	30	30
	AM Peak	30	15
	Midday	30	30
	PM Peak	30	15
	Evening	42	30
	Late Night	60	60
Saturday	**Base**	30	30
	Non-Base	30	30
	Early / Late	60	60
Sunday	**Base**	60	30
	Non-Base	-	30
	Early / Late	-	60

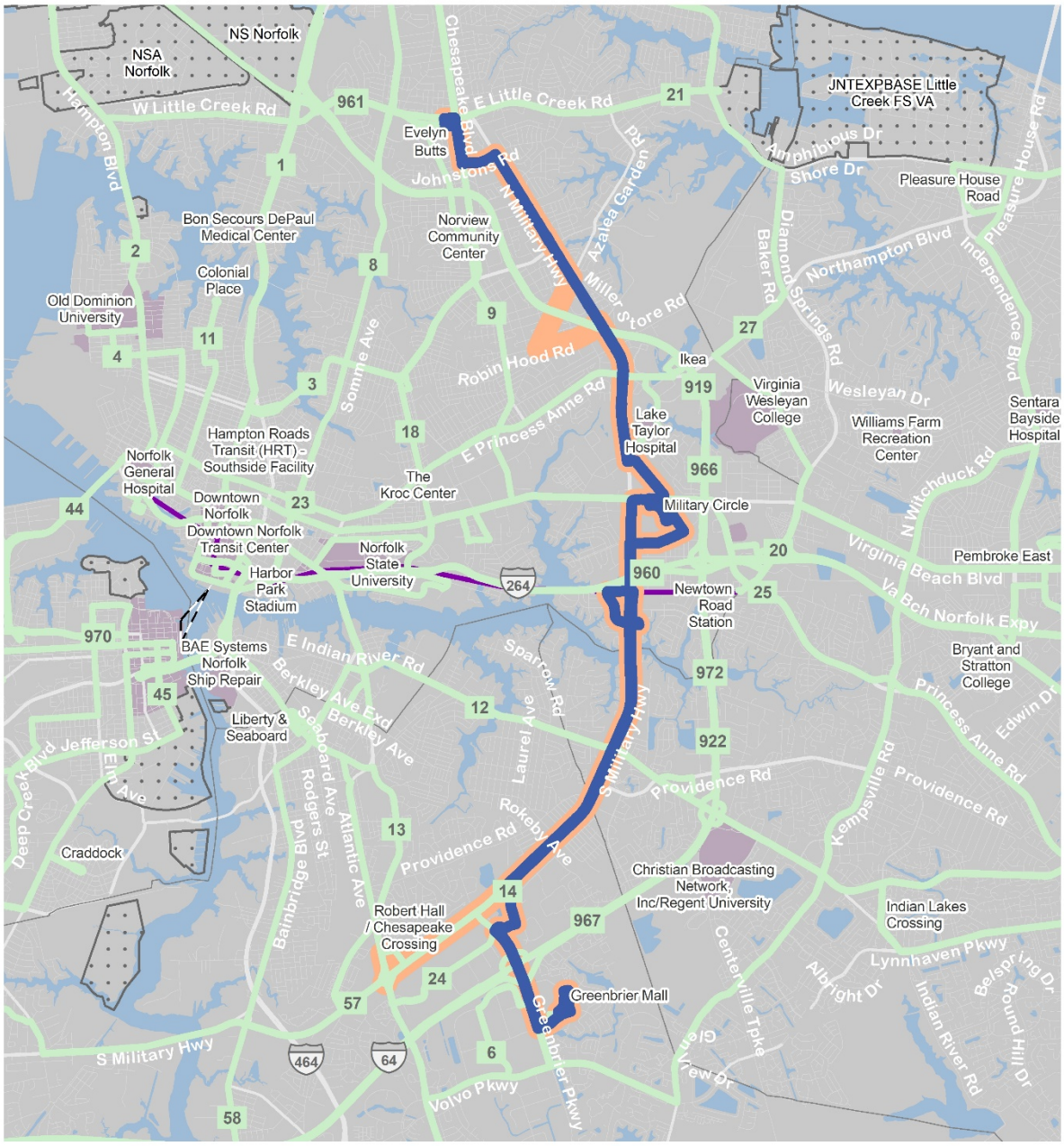
Service Changes

- There are no alignment changes.
- As a Regional Backbone route, on weekdays Route 8 will provide service between 5:00 AM and 1:00 AM and will operate with 15-minute service in the AM and PM peak periods; half hour service in the early, midday, and evening periods; and hourly service in the late-night period.
- On weekends Route 8 will operate between 5:40 AM and 12:00 AM, which is a slight decrease in hours on Saturday but a longer day of service on Sunday. Half hour service will be offered through much of the day, with hourly service being offered during the early and late-night hours.

Justification

- Overall, Route 8 performs very well based on the six Key Performance Indicators (KPI). Its farebox recovery ratio is over 25 percent and passengers per revenue mile is 22.
- Increasing peak period service to 15-minute headways along the existing alignment should help increase service utilization and will also act as an important connecting service to several other routes.
- The service levels for Route 8 meet the service standards defined for Regional Backbone routes.

Route 15



Route 15

Miles
0 0.5 1 1.5 2 2.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 15

Service Classification
Regional Backbone

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Robert Hall Boulevard / Evelyn T. Butts Avenue	Greenbrier Mall / Evelyn T. Butts Avenue
Jurisdictions	Chesapeake, Norfolk, Virginia Beach	Chesapeake, Norfolk, Virginia Beach

Level of Service			
Span			
		Existing	**Service Target**
Weekday		4:48 AM - 1:17 AM	5:00 AM - 1:15 AM
Saturday		5:18 AM - 12:45 AM	5:18 AM - 12:00 AM
Sunday		6:46 AM - 12:45 AM	5:18 AM - 12:00 AM
Headway			
		Existing	**Service Target**
Weekday	**Early**	30	30
	AM Peak	15	15
	Midday	30	30
	PM Peak	15	15
	Evening	30	30
	Late Night	60	60
Saturday	**Base**	30	30
	Non-Base	60	30
	Early / Late	60	60
Sunday	**Base**	60	30
	Non-Base	60	30
	Early / Late	60	60

Note
This route's existing service operates with regular short turns. The existing headways that are listed in this table may not necessarily apply to the full length of the existing route.

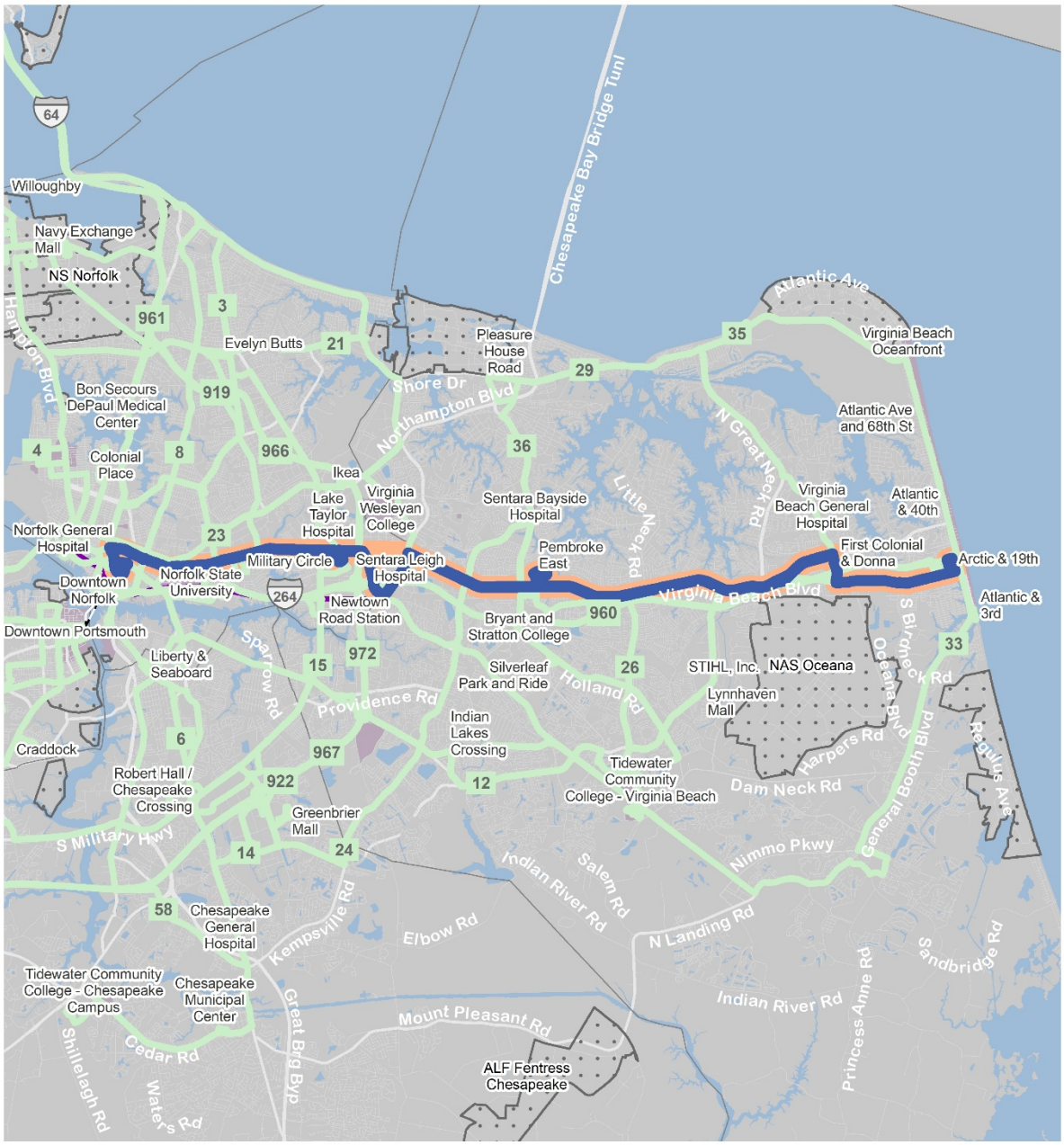
Service Changes

- Route 15 will be streamlined along Military Highway by eliminating the diversion onto Azalea Garden Road and Robin Hood Road. Upon reaching Old Greenbrier Road, it will serve Greenbrier Mall using the route's current alignment.
- The streamlined short turn between Evelyn T. Butts and Curlew Boulevard, serving the Military Highway light rail station, will be maintained for some years until it can be eliminated. The elimination of the short turn will create improved levels of service across the entire route.
- The current service to Chesapeake Crossing via Military Highway will be removed from Route 15 and replaced with service on the realigned Route 57. Route 15 will serve Greenbrier Mall in lieu of Chesapeake Crossing, which will allow Route 15 to provide connections where there is a higher concentration of other HRT routes.
- The current weekday service levels will be maintained, starting service at 5:00 AM and ending at 1:15 AM. AM and PM peak service will be provided at 15-minute intervals; half hour service will be provided during the early morning, midday and evening periods; and hourly service will be provided during the late-night period. While the short turn still exists, the shorter headways will only be offered on the short turn, and double the headway will be offered on the pattern operating between Evelyn Butts and Greenbrier; once the short turn is eliminated, the shorter headways will be offered along the full length of the route.
- Saturday service on Route 15 will be offered between 5:18 AM and midnight at half hour intervals through much of the service day. Sunday service will be offered at the same level as provided on Saturdays.

Justification

- Route 15 performs well on the six Key Performance Indicators (KPI), especially the passengers per hour measures—Route 15 has 19, well above the Southside average of 14. Farebox recovery ratio and subsidy per passenger are within the top quarter of all routes. Route 15's performance indicates a demand for this service and warrants increases in service.
- The changes to Route 15 will help to decrease overall route travel time, improve route directness, and enhance frequent connections between Norfolk and Chesapeake, all factors that will help to increase the attractiveness of this service.
- The service levels for Route 15 meet the service standards defined for Regional Backbone routes.

Route 20



Route 20

Miles
0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 20

Service Classification
Regional Backbone

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Downtown Norfolk / Virginia Beach Oceanfront	Downtown Norfolk / Virginia Beach Oceanfront
Jurisdictions	Norfolk, Virginia Beach	Norfolk, Virginia Beach

Level of Service			
Span			
		Existing	**Service Target**
Weekday		4:52 AM - 1:15 AM	4:52 AM - 1:15 AM
Saturday		5:22 AM - 1:14 AM	5:00 AM - 1:14 AM
Sunday		6:23 AM - 1:13 AM	5:00 AM - 1:14 AM
Headway			
		Existing	**Service Target**
Weekday	**Early**	30	30
	AM Peak	15	15
	Midday	30	15
	PM Peak	15	15
	Evening	46	30 until 7:00 PM, 60 after
	Late Night	60	60
Saturday	**Base**	30	15
	Non-Base	30	30
	Early / Late	60	60
Sunday	**Base**	30	15
	Non-Base	60	30
	Early / Late	60	60

Note
This route's existing service operates with regular short turns. The existing headways that are listed in this table may not necessarily apply to the full length of the existing route.

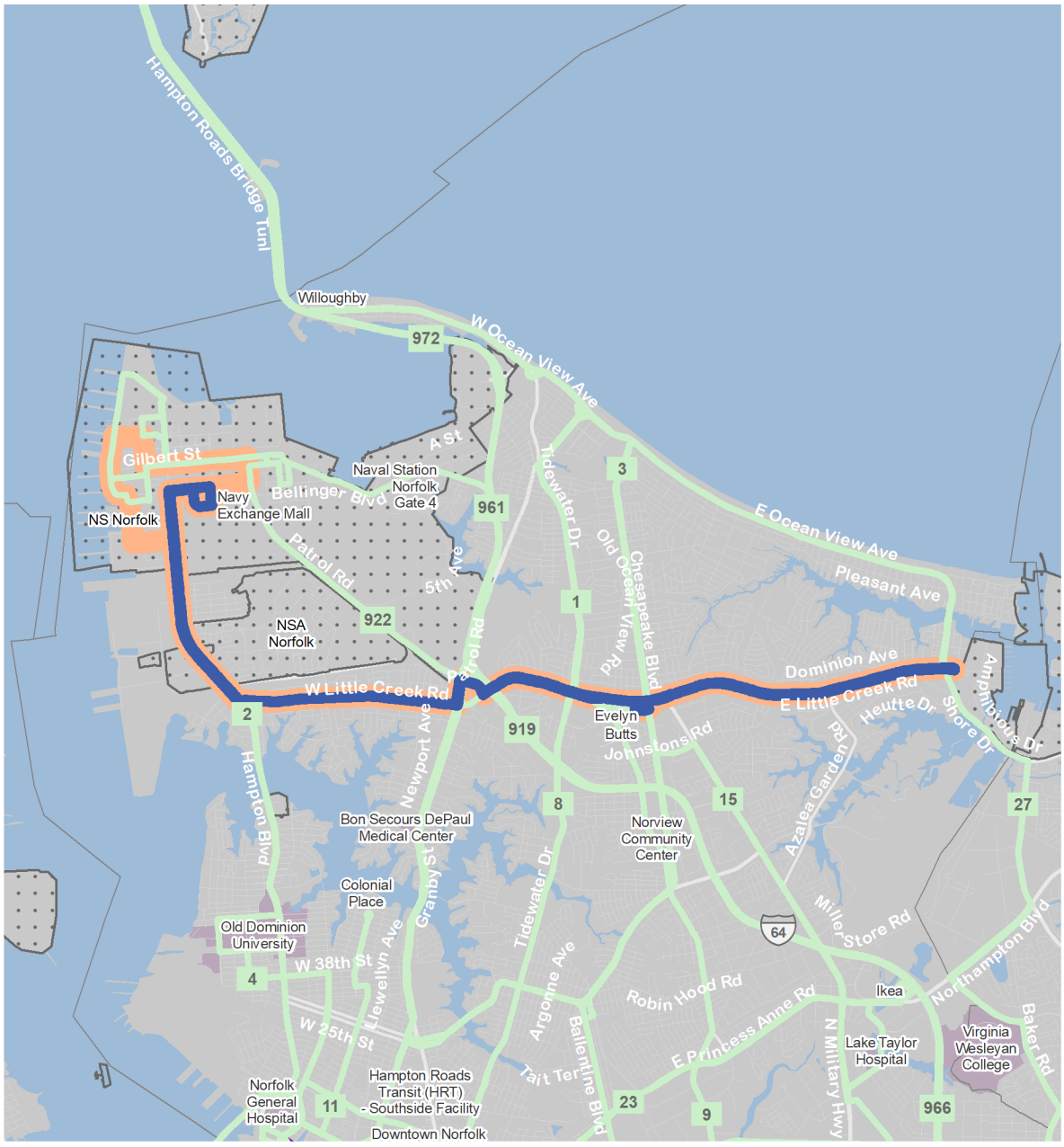
Service Changes

- Route 20 will be realigned to serve the Newtown Road light rail station via Kempsville Road and Newtown Road instead of going up and down Kempsville Road in both directions. Short turns on this route will be eliminated.
- The current weekday span will be maintained, operating between 4:52 AM and 1:15 PM, with service provided every 15-minutes between the AM and PM peak periods across the whole length of the route. During the early morning and evening periods service will be increased to half hour intervals across the whole route, with hourly service being offered in the late-night period.
- Saturday service will be offered between 5:00 AM and 1:14 AM with 15-minute service being offered through much of the day. Sunday service will be increased to match Saturday levels.

Justification

- Route 20 performs well on the six Key Performance Indicators (KPI) and is one of the highest performing routes in the system. Planned improvements will eliminate short turns on this route, providing continuous high-frequency service between Virginia Beach and Norfolk during the peak periods and providing consistent service across the whole length of the route in the other periods.
- This high-frequency Regional Backbone service will provide an enhanced regional connection between Downtown Norfolk and Virginia Beach, addressing a peak coverage demand gap in Virginia Beach.
- The service levels for Route 20 meet the service standards defined for Regional Backbone routes.

Route 21



Route 21

0 0.5 1 1.5 2 Miles

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 21

Service Classification
Regional Backbone

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Naval Station Norfolk / Navy Exchange Mall / Joint Expeditionary Base Little Creek	Navy Exchange Mall / Joint Expeditionary Base Little Creek
Jurisdictions	Norfolk	Norfolk, Virginia Beach

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:11 AM - 1:17 AM	5:00 AM - 1:00 AM
Saturday		5:12 AM - 1:38 AM	5:00 AM - 1:00 AM
Sunday		6:43 AM - 1:38 AM	5:00 AM - 1:00 AM
Headway			
		Existing	**Service Target**
Weekday	**Early**	30	30
	AM Peak	30	15
	Midday	30	30
	PM Peak	30	15
	Evening	43	30
	Late Night	60	60
Saturday	**Base**	30	30
	Non-Base	30	30
	Early / Late	60	60
Sunday	**Base**	60	30
	Non-Base	60	30
	Early / Late	60	60

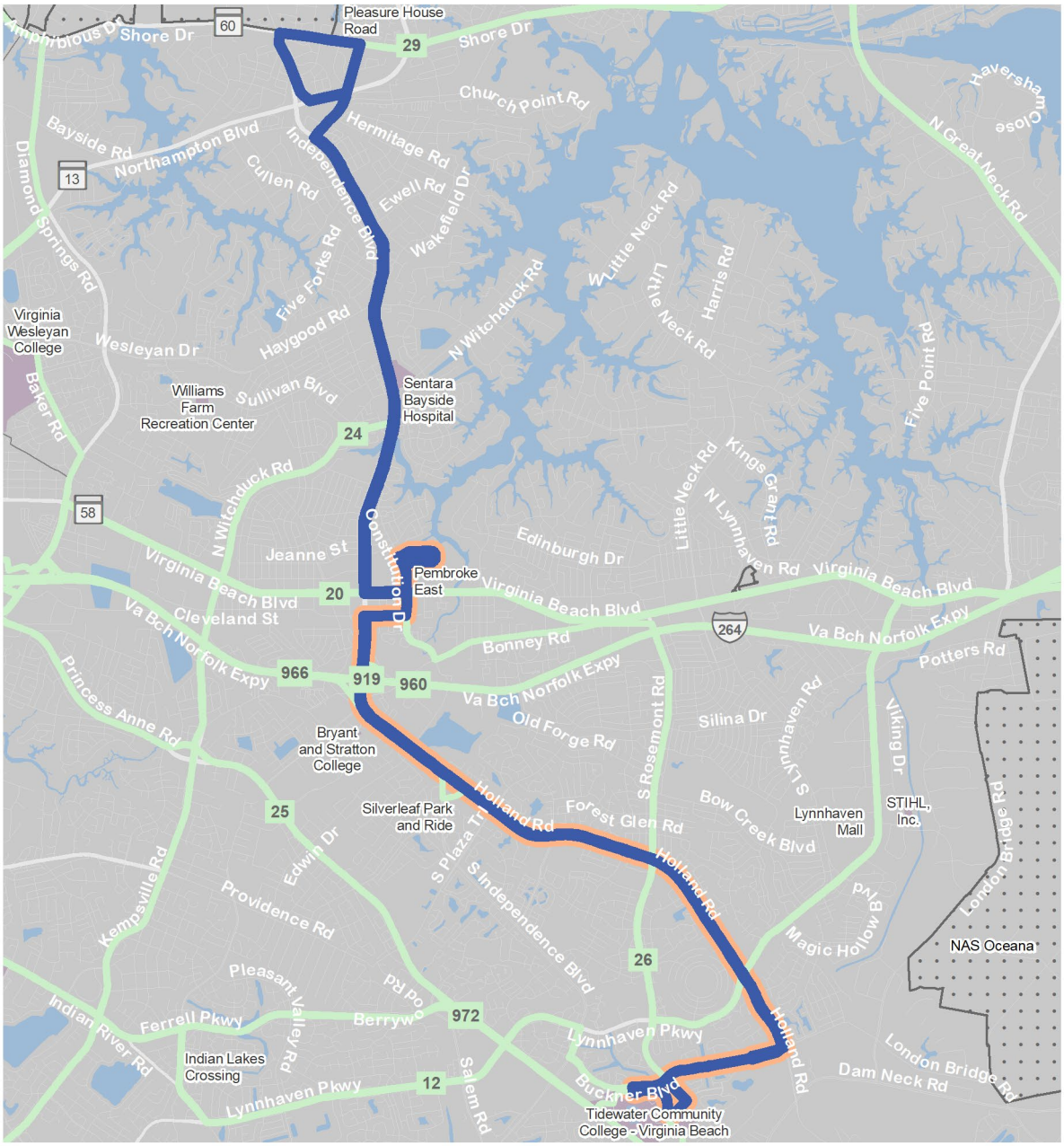
Service Changes

- All trips will go directly to Navy Exchange Mall and not deviate through the naval base, no longer serving the B Avenue and Virginia Avenue stop.
- Route 21 is a Regional Backbone route and service will be increased to every 15-minutes in the peak periods on the weekdays to meet the service classification standard, and evening service will be improved to every half hour.
- Weekday and weekend service will be offered between 5:00 AM and 1:00 AM. On Saturdays there will be half hour service through much of the day, representing an increase over the existing Saturday service. Sunday service will be increased to match Saturday levels.

Justification

- Route 21 performs well on the six KPIs and will continue providing east-west connections in Norfolk in a similar fashion as currently operated.
- As a Regional Backbone route, Route 21 provides important crosstown connections between Route 1, Route 3, Route 8, and Route 15, the high-frequency services providing north-south trips in Norfolk. Shortening peak period headways on Route 21 addresses a peak coverage demand gap between JEB Little Creek and Naval Station Norfolk.
- The service levels for Route 21 meet the service standards defined for Regional Backbone routes.

Route 36



Route 36

Miles
0 0.5 1 1.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 36

Service Classification
Regional Backbone

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Pembroke East / TCC Virginia Beach	Pleasure House Road / Pembroke East / TCC Virginia Beach
Jurisdictions	Virginia Beach	Virginia Beach

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:48 AM - 10:41 PM	5:00 AM - 1:00 AM
Saturday		6:10 AM - 10:43 PM	5:00 AM - 12:00 AM
Sunday		-	5:00 AM - 12:00 AM
Headway			
		Existing	**Service Target**
Weekday	**Early**	30	30
	AM Peak	30	15
	Midday	60	30
	PM Peak	30	15
	Evening	60	30
	Late Night	-	60
Saturday	**Base**	60	30
	Non-Base	60	30
	Early / Late	60	60
Sunday	**Base**	-	30
	Non-Base	-	30
	Early / Late	-	60

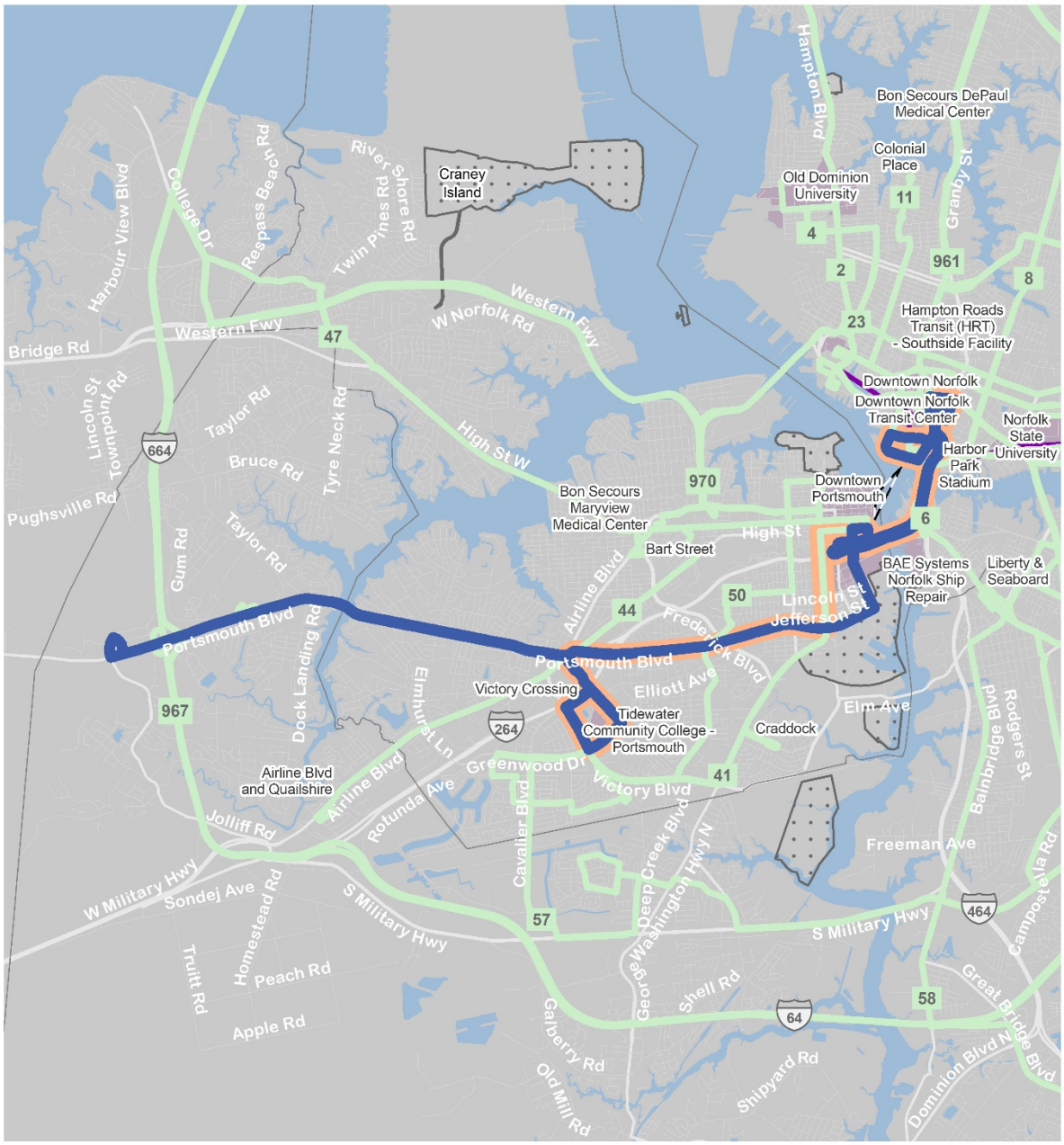
Service Changes

- Route 36 will be extended to Pleasure House Road and Shore Drive north of Pembroke East. Route 36 will cover the Independence Boulevard corridor currently served by Route 1.
- On weekdays Route 36 will provide 15-minute service during the peak periods and 30-minute service during the early, midday, and evening periods. Hourly service will be provided from 9:00 PM to 1:00 AM. Weekday span of service will be extended to operate between 5:00 AM and 1:00 AM.
- On weekends, Sunday service will be added and the span of service for both weekend days will be from 5:00 AM to midnight. Route 36 will operate with 30-minute headways throughout much of the weekend service day.

Justification

- Route 36 performs above average on most of the six Key Performance Indicators (KPI). The new extension of service on Route 36 connecting high-production areas will further improve the performance of the route.
- The extension of the service to Pleasure House Road will help to allow for the truncating of the current Route 1 to JEB Little Creek by providing the north-south connection between Virginia Beach Avenue and Pleasure House Road in this area. This new connection via the extended Route 36 addresses a gap in all-day transit demand and provides a higher level of service to the area. Route 36 will provide a cross-regional connection between Shore Drive and TCC Virginia Beach, which previously required a transfer.
- The service levels for Route 36 meet the service standards defined for Regional Backbone routes.

Route 45



Route 45

Miles
0 0.5 1 1.5 2 2.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 45

Service Classification
Regional Backbone

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Downtown Norfolk Transit Center / Victory Crossing	Downtown Norfolk Transit Center / Midtown Portsmouth
Jurisdictions	Norfolk, Portsmouth	Chesapeake, Norfolk, Portsmouth

Level of Service			
Span			
		Existing	**Service Target**
Weekday		4:39 AM - 11:54 PM	4:39 AM - 1:00 AM
Saturday		5:10 AM - 12:51 AM	5:10 AM - 12:51 AM
Sunday		6:06 AM - 10:51 PM	5:10 AM - 12:51 AM
Headway			
		Existing	**Service Target**
Weekday	**Early**	30	30/60
	AM Peak	15	15 / 30
	Midday	30	30
	PM Peak	15	15 / 30
	Evening	30	30 /60
	Late Night	60	60
Saturday	**Base**	30	30
	Non-Base	30	30 / 60
	Early / Late	60	60
Sunday	**Base**	60	30
	Non-Base	60	30 / 60
	Early / Late	60	60

Note
This route's existing service operates with regular short turns. The existing headways that are listed in this table may not necessarily apply to the full length of the existing route. This route's planned service also operates with short turns. The two numbers listed in the table show the headways for the portions of the route with and without the short turn. To see where the short turn operates, please refer to the route description in the Service Changes bullets.

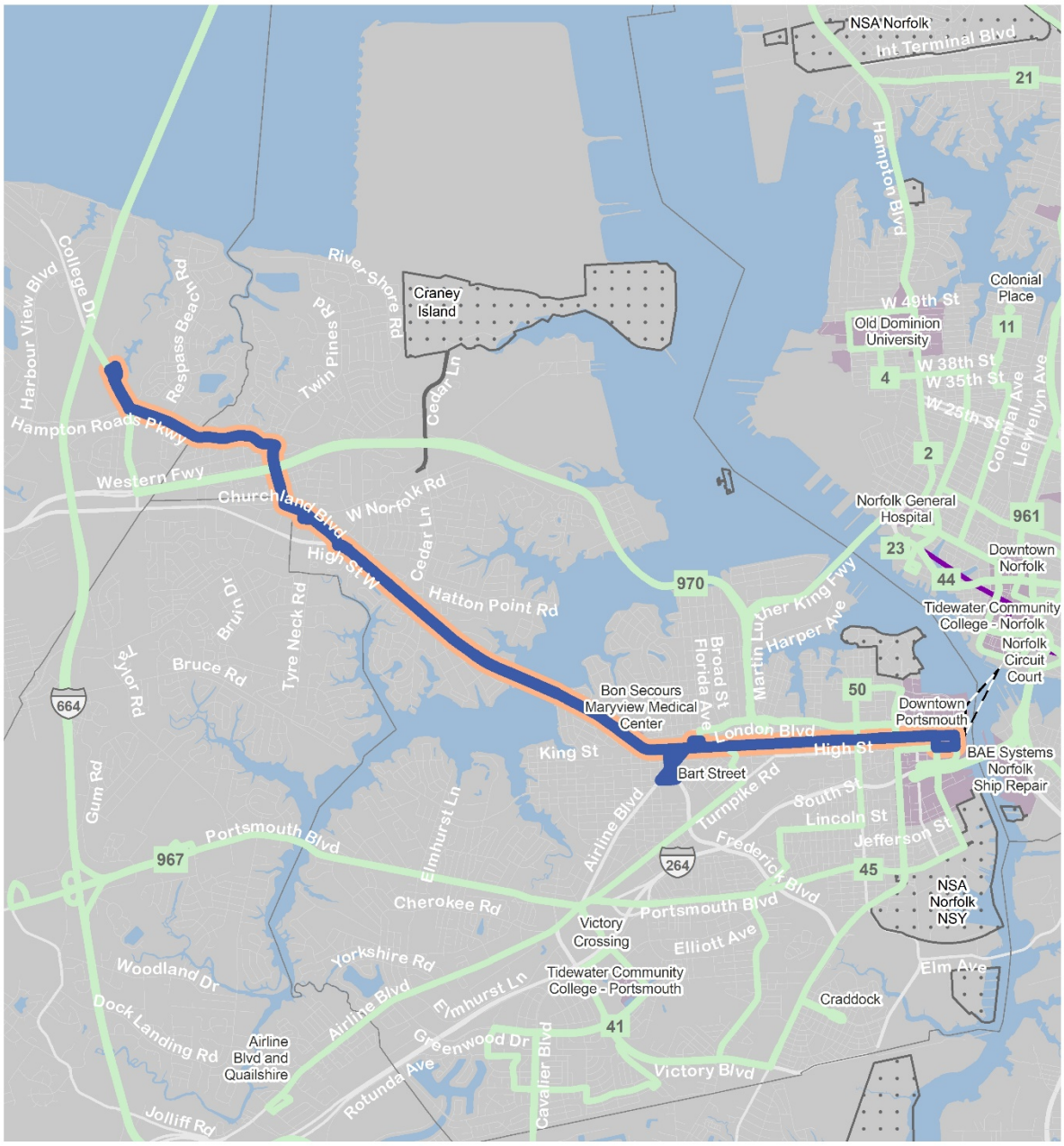
Service Changes

- Route 45 will be extended to Starmount Parkway and Joliff Road to cover the eliminated segment of Portsmouth Boulevard currently served by Route 44.
- In Downtown Portsmouth, Route 45 will operate via Port Centre Parkway and Portsmouth Boulevard instead of via Effingham Street and Court Street (service along these corridors will be replaced with the realigned Route 41). Transferring the service onto Port Centre Parkway will improve route directness and decrease travel time.
- Route 45 is a Regional Backbone service that will operate on weekdays between 4:39 AM and 1:00 AM between Victory Crossing, Downtown Portsmouth, and Norfolk. Route 45 will provide 15-minute service between Victory Crossing and Downtown Norfolk during AM and PM peak periods, with non-peak period (except late night) service being offered at half hour intervals within Portsmouth and to Norfolk.
- Throughout the span of service, hourly service will be provided between Norfolk and Starmount Parkway and Joliff Road. After 7:00 PM service will be provided to TCC Portsmouth (College/McLean) and will still serve Starmount Parkway and Joliff Road.
- The Saturday span of service will be maintained from the current Route 45 service levels, beginning at 5:10 AM and ending at 12:51 AM. Half hour service will be offered between Norfolk and Victory Crossing, and hourly service will be offered across the whole length of the route before and after that time period. No Saturday service will be provided to College/McLean.
- Sunday service will be extended to 12:51 AM and will offer the same levels of service as provided on Saturdays. No Sunday service will be provided to College/McLean.

Justification

- The service changes for Routes 41, 44, and 45 work in tandem to help improve route directness for each of the routes by providing efficient services that operate along single corridors for longer distances with fewer turns. These changes will help to improve on-time performance for each of these routes and will simplify service patterns; these are characteristics which will help to improve service utilization.
- The service levels for Route 45 meet the service standards defined for Regional Backbone routes.

Route 47



Route 47

Miles
0 0.5 1 1.5 2

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 47

Service Classification
Regional Backbone

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Downtown Portsmouth / Churchland	Downtown Portsmouth / Churchland
Jurisdictions	Suffolk, Portsmouth	Suffolk, Portsmouth

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:49 AM - 10:30 PM	5:00 AM - 1:00 AM
Saturday		6:03 AM - 10:30 PM	5:00 AM - 12:00 AM
Sunday		6:33 AM - 7:30 PM	5:00 AM - 12:00 AM
Headway			
		Existing	**Service Target**
Weekday	**Early**	30	30 / 60
	AM Peak	15	15 / 30
	Midday	30	30
	PM Peak	15	15 / 30
	Evening	30	30 / 60
	Late Night	-	60
Saturday	**Base**	30	30
	Non-Base	60	30 / 60
	Early / Late	-	60
Sunday	**Base**	60	30
	Non-Base	60	30 / 60
	Early / Late	-	60

Note
This route's existing service operates with regular short turns. The existing headways that are listed in this table may not necessarily apply to the full length of the existing route. This route's planned service also operates with short turns. The two numbers listed in the table show the headways for the portions of the route with and without the short turn. To see where the short turn operates, please refer to the route description in the Servce Changes bullets.

Service Changes

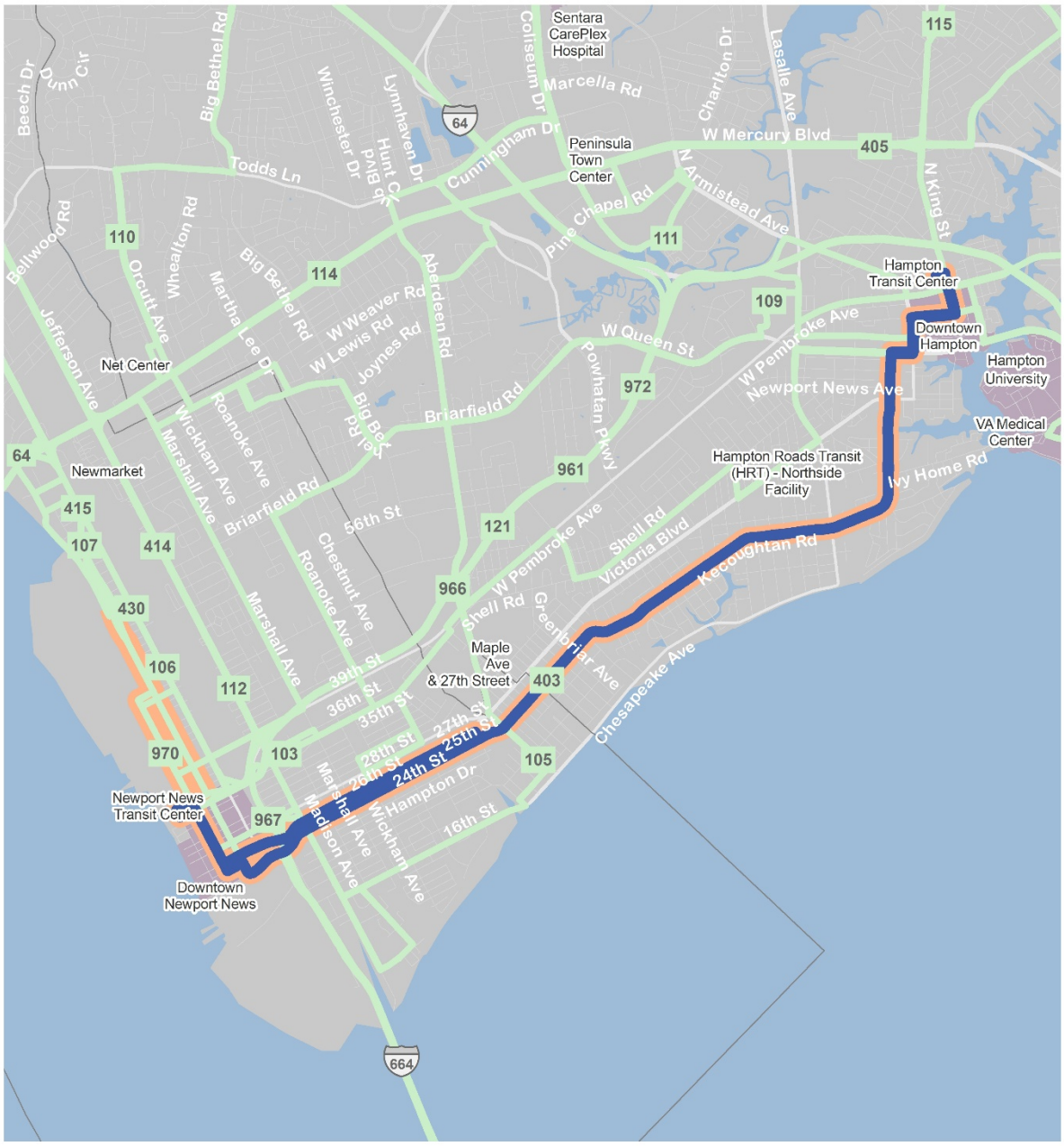
- The alignment for Route 47 will remain predominantly the same as existing, with the addition of providing hourly service between downtown Portsmouth and the Walmart/Frederick Boulevard commercial area; with the elimination of Route 43, Route 47 will continue to provide this connection at an hourly interval and will also provide a longer span of service between Downtown Portsmouth and the commercial area.
- Weekday peak period service and midday service is to remain the same as existing: during weekday peak periods there will be 15-minute high-frequency service between Village Street and Churchland Boulevard and County Street and Court Street and 60-minute service from College Drive and Lake View Parkway to County Street and Court Street. During the weekday midday period there will be 30-minute service between Village Street and Churchland Boulevard and County Street and Court Street and 60-minute service from College Drive and Lake View Parkway to County Street and Court Street.
- The span of service will be extended, with service starting at 5:00 AM and ending at 1:00 AM, meeting Regional Backbone standards. The route will have increased weekday evening service every 30-minutes between Village Street and Churchland Boulevard and County Street and Court Street and extended hourly service to College Drive and Lake View Parkway.
- Early and late-night service should operate every 60-minutes between College Drive and Lake View Parkway and County Street and Court Street.
- During the weekend period, the span will be extended to 5:00 AM to midnight to meet Regional Backbone service design standards, with 30-minute service from 6:00 AM to 9:00 PM on the short-turn and hourly service along the whole length of the route for the full span of service.

TD SD

Justification

- The current Route 47 service offers an important connection between Downtown Portsmouth and the neighboring City of Suffolk, enabling a direct connection to the Suffolk Transit bus system.
- The service levels for Route 47 meet the service standards defined for Regional Backbone routes.

Route 101



Route 101

Miles
0 0.5 1 1.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 101

Service Classification
Regional Backbone

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	(Kecoughtan) owntown Newport News / Downtown Hampton	(Kecoughtan) owntown Newport News / Downtown Hampton
Jurisdictions	Hampton, Newport News	Hampton, Newport News

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:15 AM - 12:10 AM	5:00 AM - 1:00 AM
Saturday		5:15 AM - 12:10 AM	5:15 AM - 12:10 AM
Sunday		5:45 AM - 7:38 PM	5:15 AM - 12:10 AM
Headway			
		Existing	**Service Target**
Weekday	**Early**	30	30
	AM Peak	35	15
	Midday	35	30
	PM Peak	35	15
	Evening	60	30
	Late Night	60	60
Saturday	**Base**	35	30
	Non-Base	60	30
	Early / Late	60	60
Sunday	**Base**	60	30
	Non-Base	60	30
	Early / Late	-	60

Service Changes

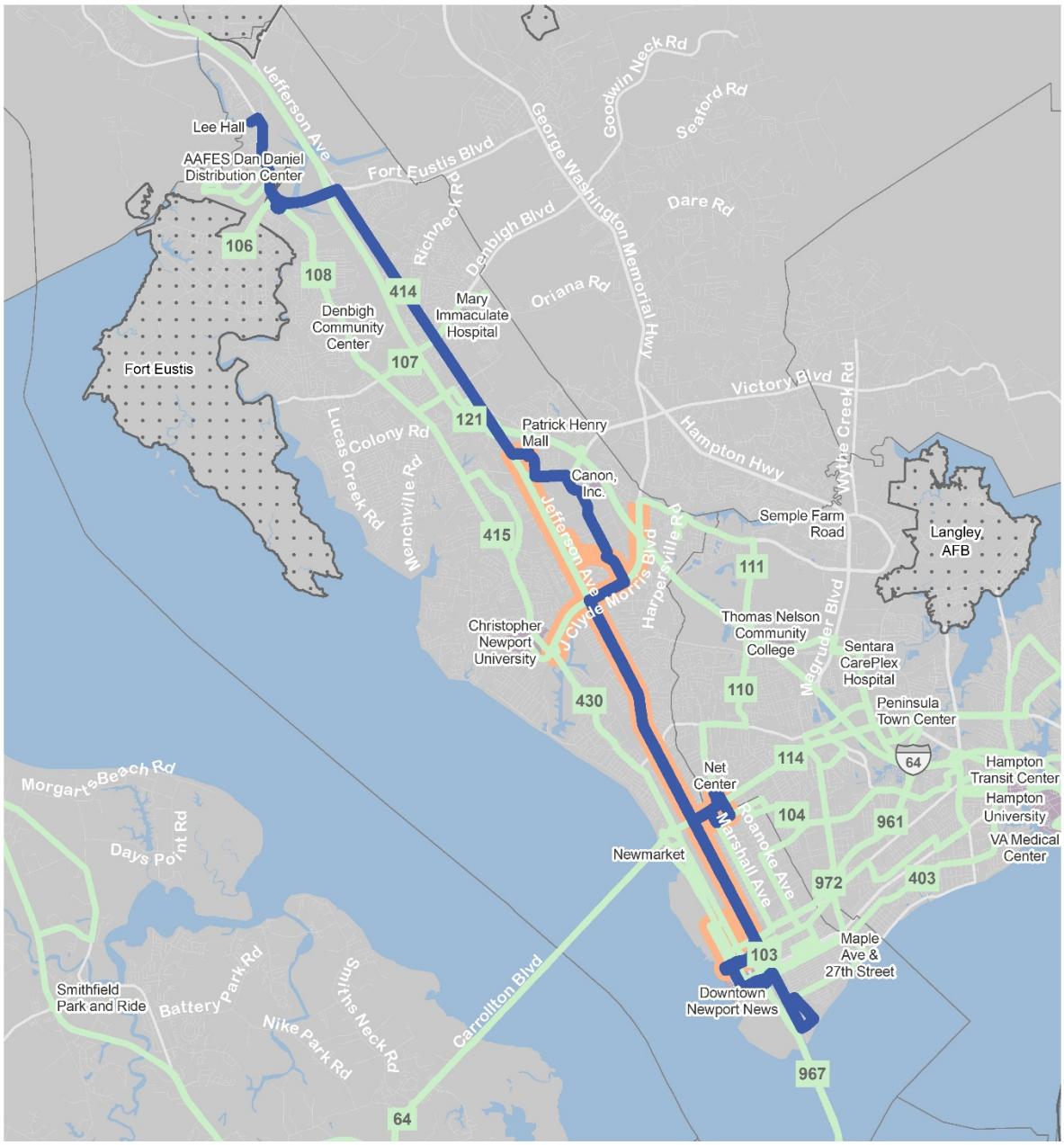
- Route 101 will operate between the Newport News Transfer Center (NNTC) and Hampton Transfer Center (HTC), no longer serving Northgate (the current 3:40 PM trip will be provided by an additional trip on Route 403).
- Weekday service will be offered between 5:00 AM and 1:00 AM. On weekdays, service in the AM and PM peak periods will be every 15 minutes, and in the early, midday, and evening periods will be every 30 minutes.
- On weekends, Sunday service is expanded to match current Saturday levels of service from 5:15 AM to 12:10 AM. On weekends service will operate with 30-minute headways from 6:00 AM to 9:00 PM and 60-minute headways during other times.

PB SD

Justification

- Route 101 performs well on the six Key Performance Indicators (KPI) and warrants an increase in service.
- The service levels for Route 101 meet the service standards defined for Regional Backbone routes.

Route 112



Route 112

0 0.5 1 1.5 2 2.5 3 3.5 4 Miles

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 112

Service Classification
Regional Backbone

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Downtown Newport News / Patrick Henry Mall	Ivy Avenue & 6th Street / Downtown Newport News / Patrick Henry Mall / Lee Hall
Jurisdictions	Hampton, Newport News	Hampton, Newport News

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:15 AM - 12:35 AM	5:00 AM - 1:00 AM
Saturday		5:15 AM - 12:35 AM	5:15 AM - 12:35 AM
Sunday		6:15 AM - 8:01 PM	5:15 AM - 12:35 AM
Headway			
		Existing	**Service Target**
Weekday	**Early**	30	30 / 60
	AM Peak	30	15 / 30
	Midday	30	15 / 30
	PM Peak	30	15 / 30
	Evening	30	30 / 60
	Late Night	30	60
Saturday	**Base**	30	15 / 30
	Non-Base	30	30 / 60
	Early / Late	60	60
Sunday	**Base**	60	15 / 30
	Non-Base	60	30 / 60
	Early / Late	-	60

Note
This route's planned service operates with short turns. The two numbers listed in the table show the headways for the portions of the route with and without the short turn. To see where the short turn operates, please refer to the route description in the Service Changes bullets.

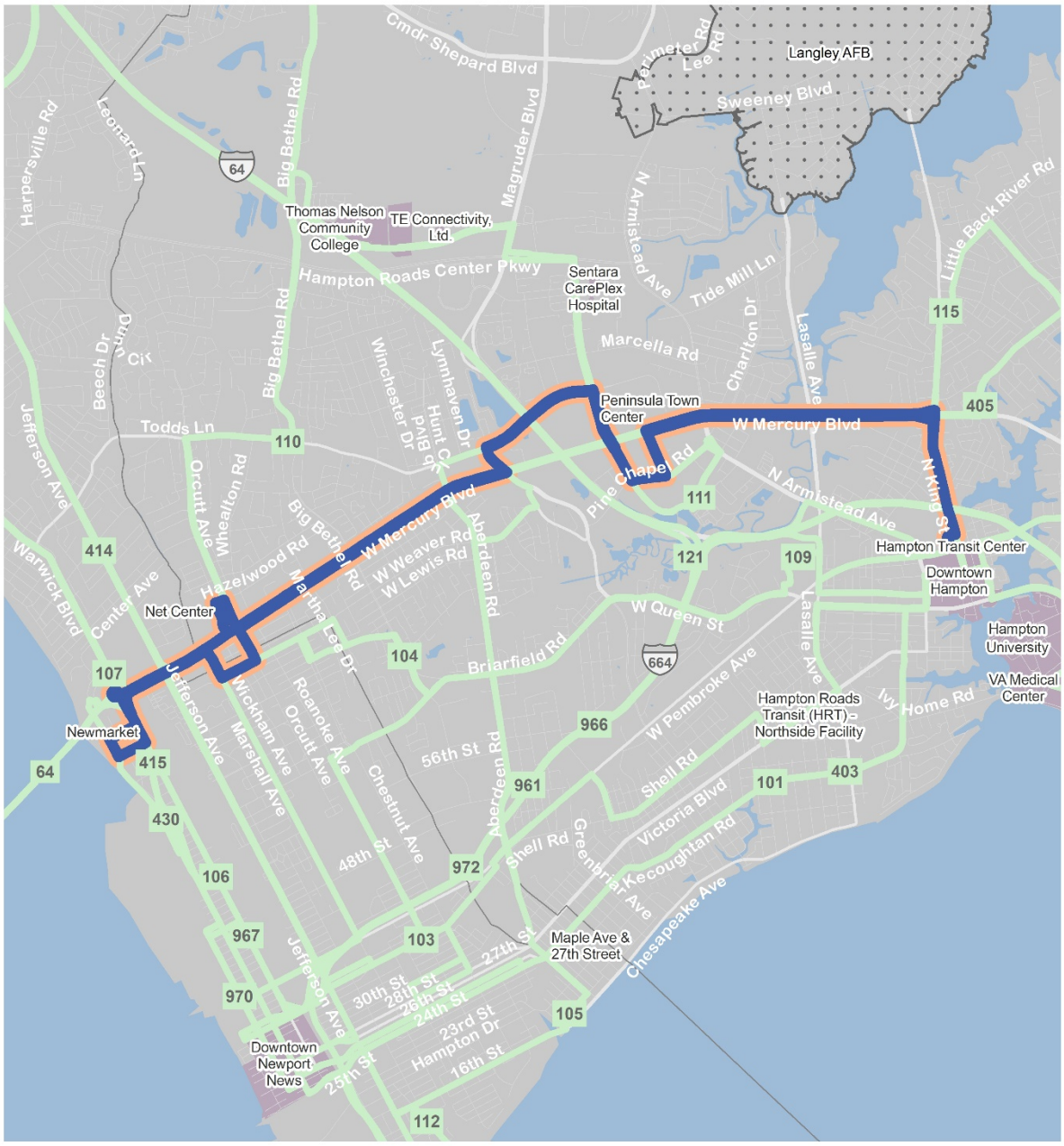
Service Changes

- Route 112 will operate high-frequency service between NNTC and Patrick Henry Mall, following the alignment as designated in the Peninsula BRT corridor study plan. Select trips will continue north to Lee Hall (covering a portion of the eliminated Route 116) and south to 6th Street and Ivy Avenue, to cover service removed from Routes 106 and 107. Route 112 will be diverted from Jefferson Avenue between J. Clyde Morris Boulevard and Patrick Henry Mall to service City Center. Service along Jefferson Avenue between J Clyde Morris Boulevard and Patrick Henry Mall will be offered via Routes 108 and 111. Route 108 will also cover service on J Clyde Morris to Riverside.
- On weekdays, Route 112 will offer a small increase in service during the early morning period and an additional half hour of service in the late-night period. Service will operate every 15-minutes between 6th and Ivy and Patrick Henry Mall from 6:00 AM to 6:00 PM and every 30-minutes on the extensions to Lee Hall in the north. Before 6:00 AM and between 6:00 PM and 11:00 PM service will operate every 30-minutes between 6th and Ivy and Patrick Henry Mall and hourly on the extension. After 11:00 PM, service will operate hourly along the entire alignment.
- The existing Saturday span of service will be maintained; the Sunday span of service will be increased to match Saturday. The frequency of weekend service will be increased to 15-minute headways between 6th and Ivy and Patrick Henry, and 30-minutes on the north extension through much of the service day. Morning and evening service will be offered half hourly between 6th and Ivy and Patrick Henry and hourly on the extension. Throughout the weekend span of service, Route 112 will operate hourly to Lee Hall in the north. Weekend service before 6:00 AM and after 9:00 PM will operate hourly on the full length of the route.

Justification

- Route 112 is performing well based on the six Key Performance Indicators (KPI). Route 112 is one of the alignments identified in the Peninsula BRT corridor study plan. The alignment will be streamlined to match the alignment from the Peninsula BRT corridor study plan, and to make service more direct and improve on-time performance. Route 112 service will be increased, in line with the travel demand along the route and the BRT study plan.
- These service changes address an all-day service gap in Newport News.

Route 114



Route 114

Miles
0 0.5 1 1.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 114

Service Classification
Regional Backbone

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Newmarket / Downtown Hampton	Newmarket / Downtown Hampton
Jurisdictions	Hampton, Newport News	Hampton, Newport News

Level of Service			
Span			
		Existing	**Service Target**
Weekday		6:20 AM - 11:38 PM	5:00 AM - 1:00 AM
Saturday		6:45 AM - 11:32 PM	6:00 AM - 12:00 AM
Sunday		6:45 AM - 7:30 PM	6:00 AM - 12:00 AM
Headway			
		Existing	**Service Target**
Weekday	**Early**	-	30
	AM Peak	30	15
	Midday	30	15
	PM Peak	30	15
	Evening	60	30
	Late Night	60	60
Saturday	**Base**	30	15
	Non-Base	60	30
	Early / Late	60	60
Sunday	**Base**	60	15
	Non-Base	60	30
	Early / Late	-	60

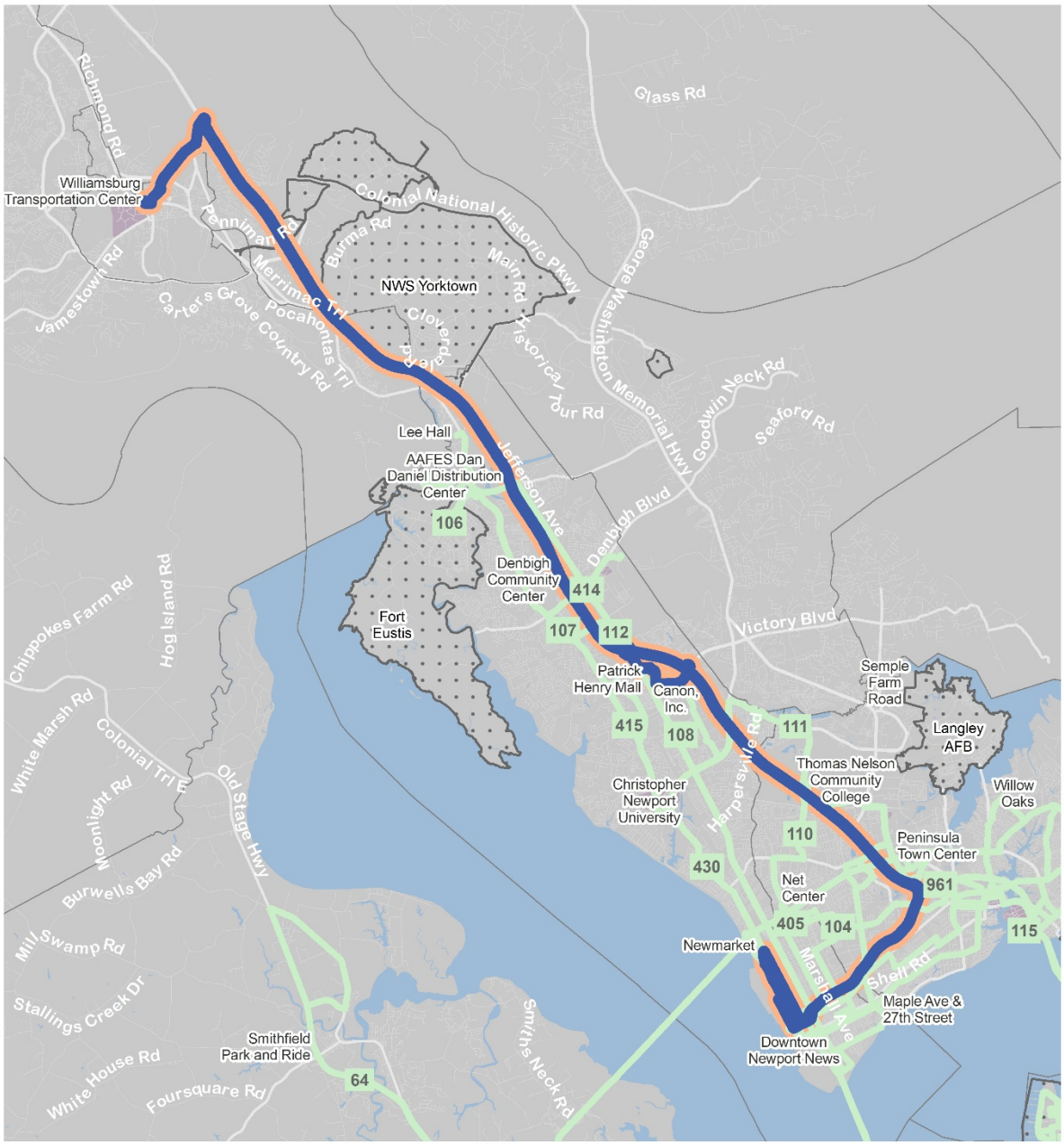
Service Changes

- No change to existing alignment.
- On weekdays, expand the span of service to match the service design guidelines for Regional Backbone, starting at 5:00 AM and ending at 1:00 AM.
- From 6:00 AM to 6:00 PM, the service will operate every 15-minutes. Before 6:00 AM and between 6:00 PM and 11:00 PM, service will operate at half hour intervals. After 11:00 PM, service will be offered hourly.
- On weekends, the span of service will be expanded to match the service design standards for Regional Backbone routes, starting at 6:00 AM and ending at 12:00 AM, with 15-minute service being provided through much of the day.

Justification

- Route 114 is performing well on the six Key Performance Indicators (KPI). Route 114 is one of the alignments identified in the Peninsula BRT corridor study plan—the planned and existing alignment match that from the corridor plan. Route 114 service will improve in line with the travel demand along the route and the BRT study plan.
- These service changes address an all-day service gap between Newport News and Hampton by increasing midday service in this area.
- The levels of service for Route 114 meet the service standards defined for Regional Backbone routes.

Route 121



Route 121

0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5 5.5 6 Miles

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 121

Service Classification
Limited/Express

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Newport News Transit Center / Williamsburg Transportation Center	Newport News Transit Center / Williamsburg Transportation Center
Jurisdictions	Newport News	Newport News

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:30 AM - 7:00 AM; 3:40 PM - 5:50 PM	5:30 AM - 7:00 AM; 3:40 PM - 5:50 PM
Saturday		-	-
Sunday		-	-
Headway			
		Existing	**Service Target**
Weekday	**Early**	1 Trip	1 Trip
	AM Peak	1 Trip	1 Trip
	Midday	-	-
	PM Peak	2 Trips	2 Trips
	Evening	-	-
	Late Night	-	-
Saturday	**Base**	-	-
	Non-Base	-	-
	Early / Late	-	-
Sunday	**Base**	-	-
	Non-Base	-	-
	Early / Late	-	-

Service Changes

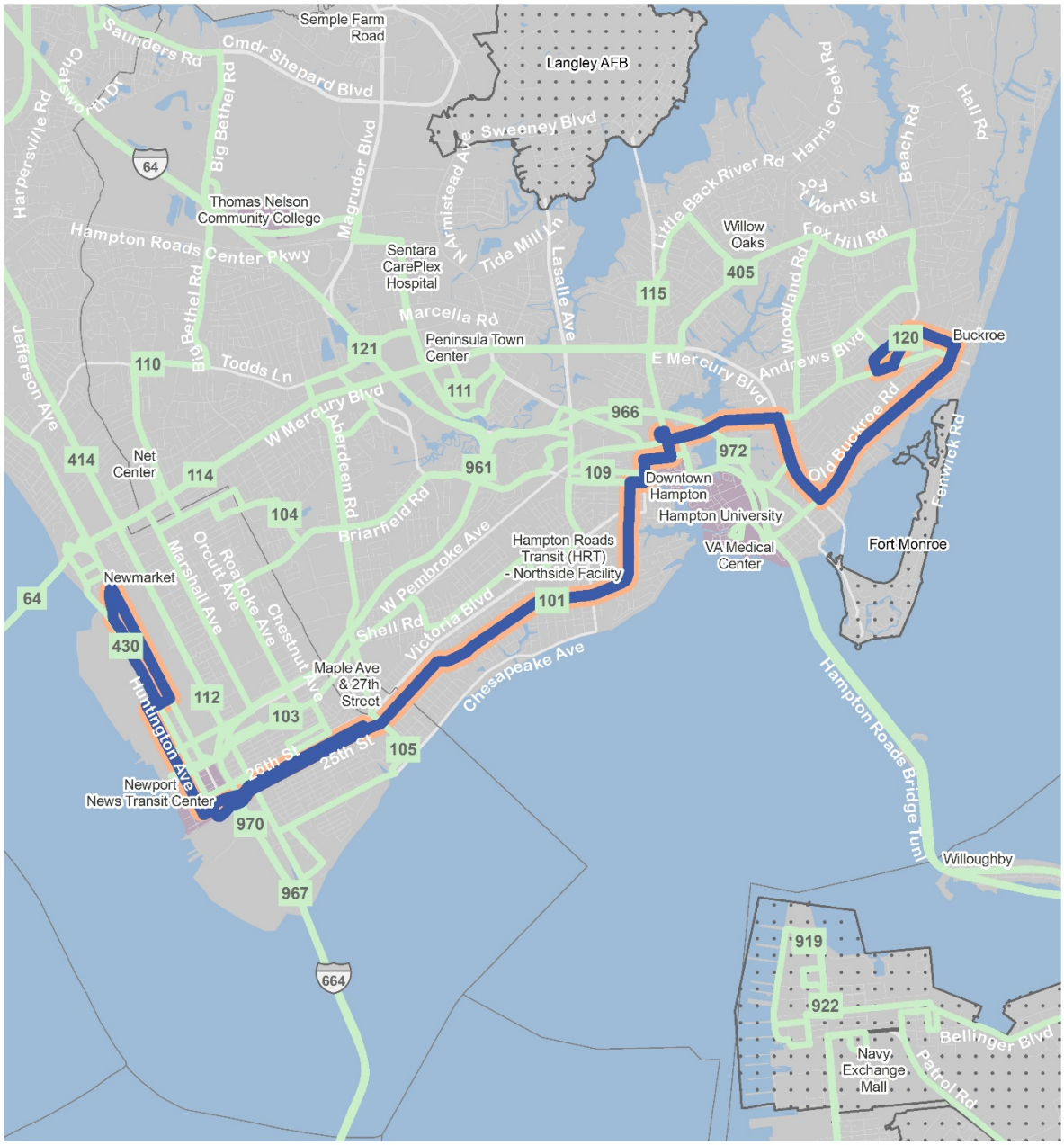
- Route 121 will be re-classified as a MAX route (a limited/express service), as it only has four trips a day.
- No schedule or alignment changes.

SD

Justification

- Route 121 service will remain unchanged from what is currently offered; however, the route will now be classified as a MAX route.

Route 403



Route 403

Miles
0 0.5 1 1.5 2 2.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 403

Service Classification
Limited/Express

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Buckroe Shopping Center	Buckroe Shopping Center
Jurisdictions	Hampton, Newport News	Hampton, Newport News

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:28 AM - 6:18 AM	5:28 AM - 6:18 AM; 3:40 PM - 4:15 PM
Saturday		-	-
Sunday		-	-
Headway			
		Existing	**Service Target**
Weekday	**Early**	1 Trip	1 Trip
	AM Peak	-	-
	Midday	-	-
	PM Peak	-	1 Trip
	Evening	-	-
	Late Night	-	-
Saturday	**Base**	-	
	Non-Base	-	
	Early / Late	-	
Sunday	**Base**	-	-
	Non-Base	-	-
	Early / Late	-	-

Service Changes

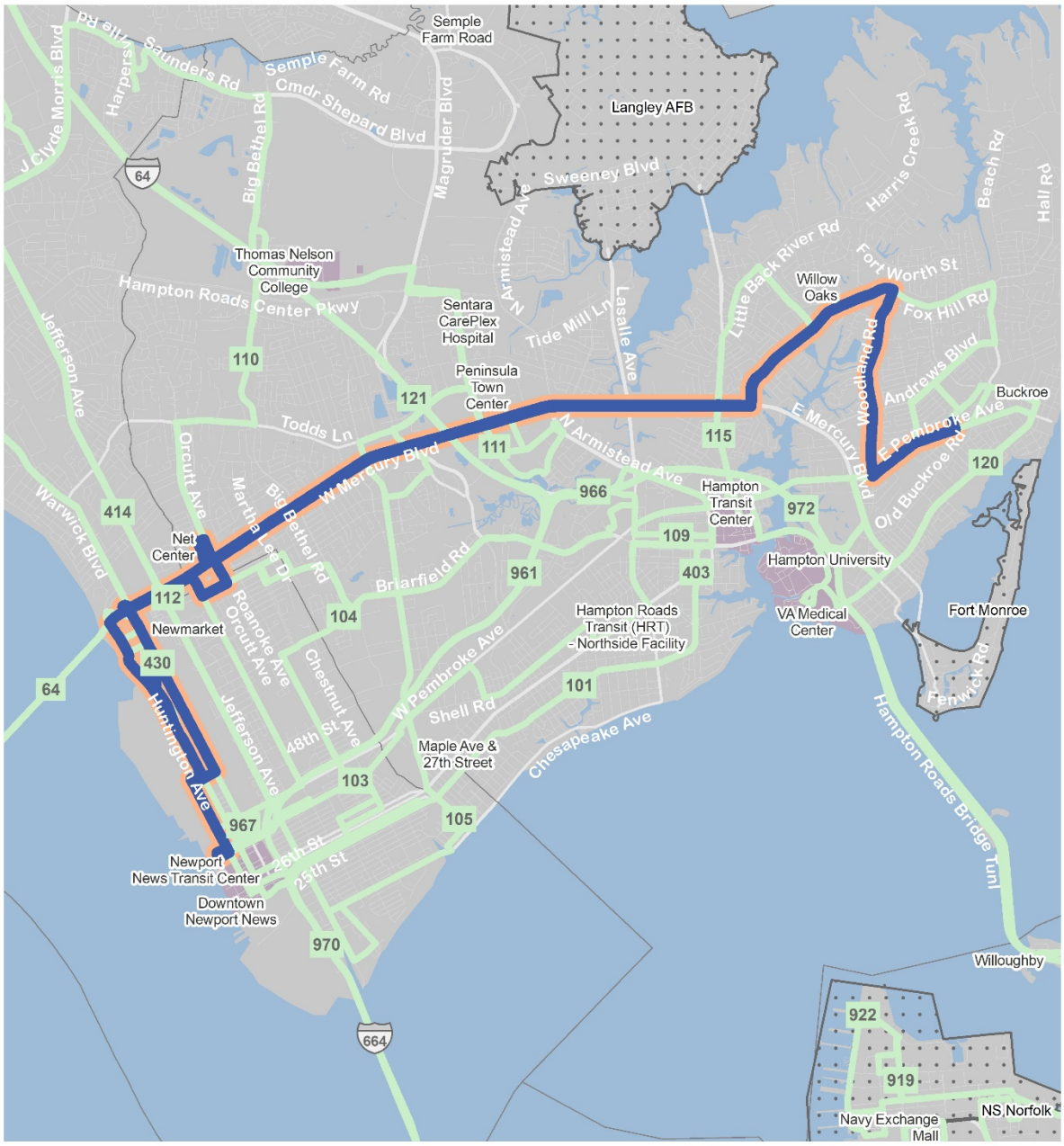
- One trip will be added to Route 403 in the PM peak period at 3:40 PM. The 3:40 PM trip is a trip that is being transferred from Route 101.

PB SD

Justification

- An additional trip will be added to Route 403 will replace service removed from Northgate currently being provided by Route 101. This service change will help bring the Route 101 in line with service design standards.

Route 405



Route 405

Miles
0 0.5 1 1.5 2

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 405

Service Classification
Limited/Express

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Newport News Transit Center / Buckroe	Newport News Transit Center / Buckroe
Jurisdictions	Hampton, Newport News	Hampton, Newport News

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:50 AM - 6:31 AM; 2:40 PM - 3:38 PM	4:50 AM - 6:31 AM; 2:40 PM - 4:38 PM
Saturday		-	-
Sunday		-	-
Headway			
		Existing	**Service Target**
Weekday	**Early**	1 Trip	2 Trips
	AM Peak	-	-
	Midday	-	-
	PM Peak	1 Trip	2 Trips
	Evening	-	-
	Late Night	-	-
Saturday	**Base**	-	
	Non-Base	-	
	Early / Late	-	
Sunday	**Base**	-	-
	Non-Base	-	-
	Early / Late	-	-

Service Changes

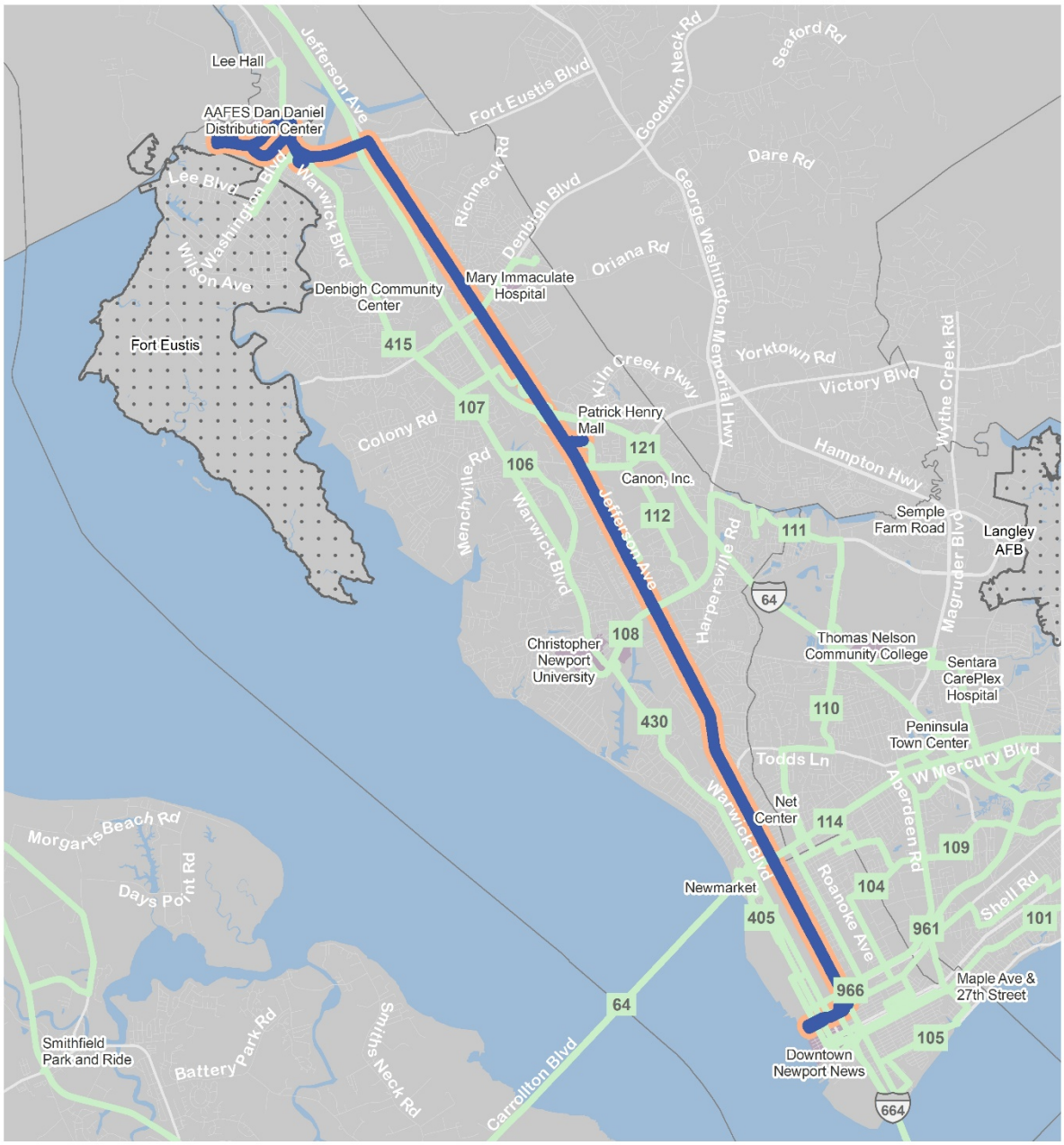
- Two trips will be added to Route 405: one in the early period at 4:50 AM and one additional trip in the PM peak period at 3:40 PM.

TD

Justification

- Additional trips will be added to Route 405 to meet shift-specific demand.

Route 414



Route 414

0 0.5 1 1.5 2 2.5 3 3.5 Miles

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 414

Service Classification
Limited/Express

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Newport News Transit Center / Jefferson / Oakland	Newport News Transit Center / Jefferson / Oakland
Jurisdictions	Newport News	Newport News

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:20 AM - 7:49 AM; 4:04 PM - 6:33 PM	5:20 AM - 7:49 AM; 4:04 PM - 6:33 PM
Saturday		-	-
Sunday		-	-
Headway			
		Existing	**Service Target**
Weekday	**Early**	1 Trip	1 Trip
	AM Peak	1 Trip	1 Trip
	Midday	-	-
	PM Peak	3 Trips	3 Trips
	Evening	-	-
	Late Night	-	-
Saturday	**Base**	-	
	Non-Base	-	
	Early / Late	-	
Sunday	**Base**	-	-
	Non-Base	-	-
	Early / Late	-	-

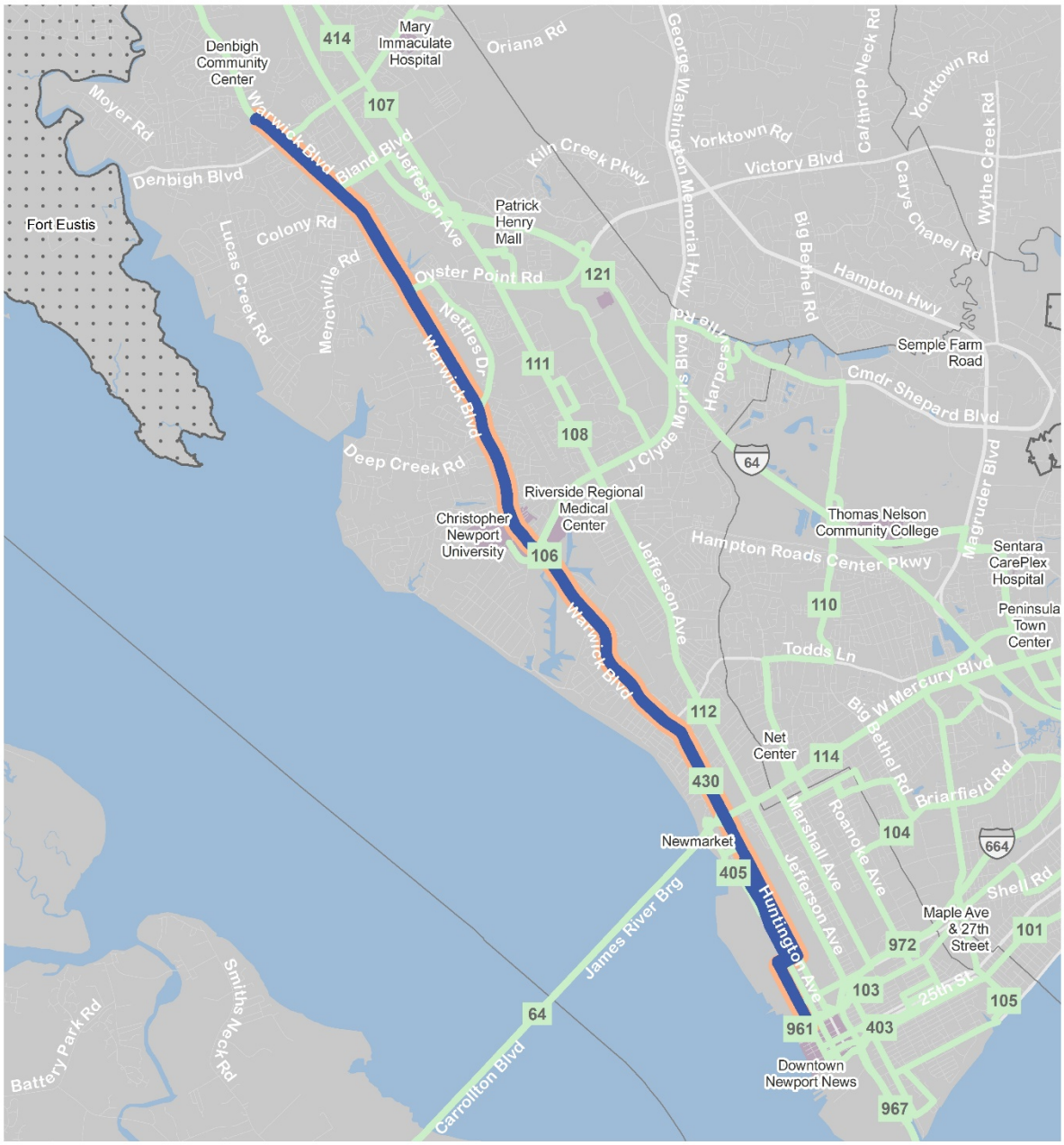
Service Changes

- No alignment or level of service changes are proposed.

Justification

- Route 414 fulfills a need in terms of getting employees to work at specific shift times and will remain unchanged.

Route 415



Route 415

0 0.5 1 1.5 2 2.5 Miles

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 415

Service Classification
Limited/Express

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Newport News Transit Center / Denbigh	Newport News Transit Center / Denbigh
Jurisdictions	Newport News	Newport News

Level of Service			
Span			
		Existing	**Service Target**
Weekday		3:45 PM - 4:27 PM	6:00 AM - 6:42 AM; 3:45 PM - 4:27 PM
Saturday		-	-
Sunday		-	-
Headway			
		Existing	**Service Target**
Weekday	**Early**	-	-
	AM Peak	-	1 Trip
	Midday	-	-
	PM Peak	1 Trip	1 Trip
	Evening	-	-
	Late Night	-	-
Saturday	**Base**	-	
	Non-Base	-	
	Early / Late	-	
Sunday	**Base**	-	-
	Non-Base	-	-
	Early / Late	-	-

Service Changes

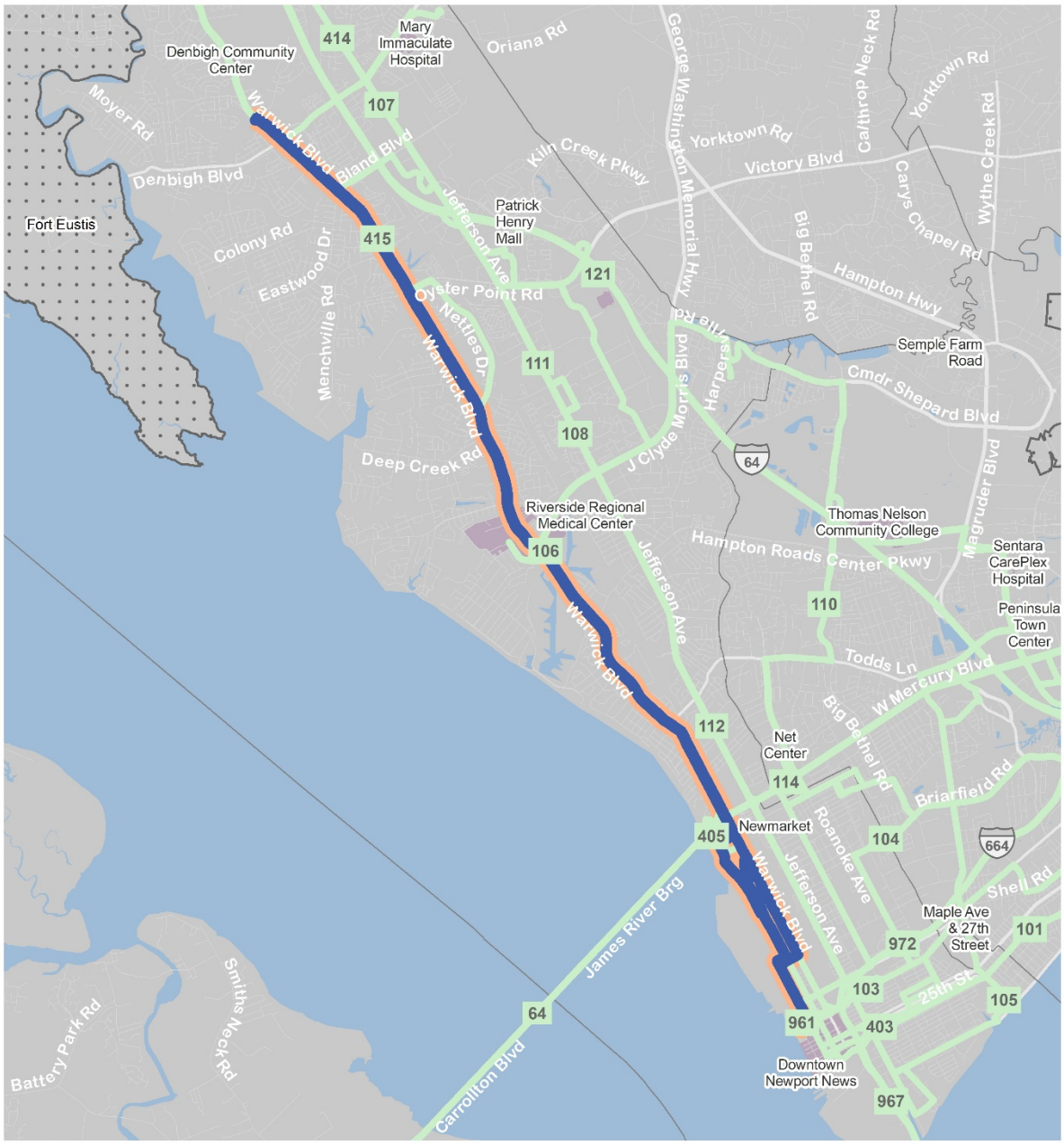
- One trip will be added to Route 415 at 6:00 AM.

TD

Justification

- The additional trip will be added to meet shift-specific demand.

Route 430



Route 430

Miles
0 0.5 1 1.5 2 2.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 430

Service Classification
Limited/Express

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Denbigh Fringe	Denbigh Fringe
Jurisdictions	Newport News	Newport News

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:35 AM - 6:30 AM; 3:45 PM - 4:29 PM	5:00 AM - 6:30 AM; 3:40 PM - 4:29 PM
Saturday		-	-
Sunday		-	-
Headway			
		Existing	**Service Target**
Weekday	**Early**	2 Trips	3 Trips
	AM Peak	-	-
	Midday	-	-
	PM Peak	1 Trip	2 Trips
	Evening	-	-
	Late Night	-	-
Saturday	**Base**	-	
	Non-Base	-	
	Early / Late	-	
Sunday	**Base**	-	-
	Non-Base	-	-
	Early / Late	-	-

Service Changes

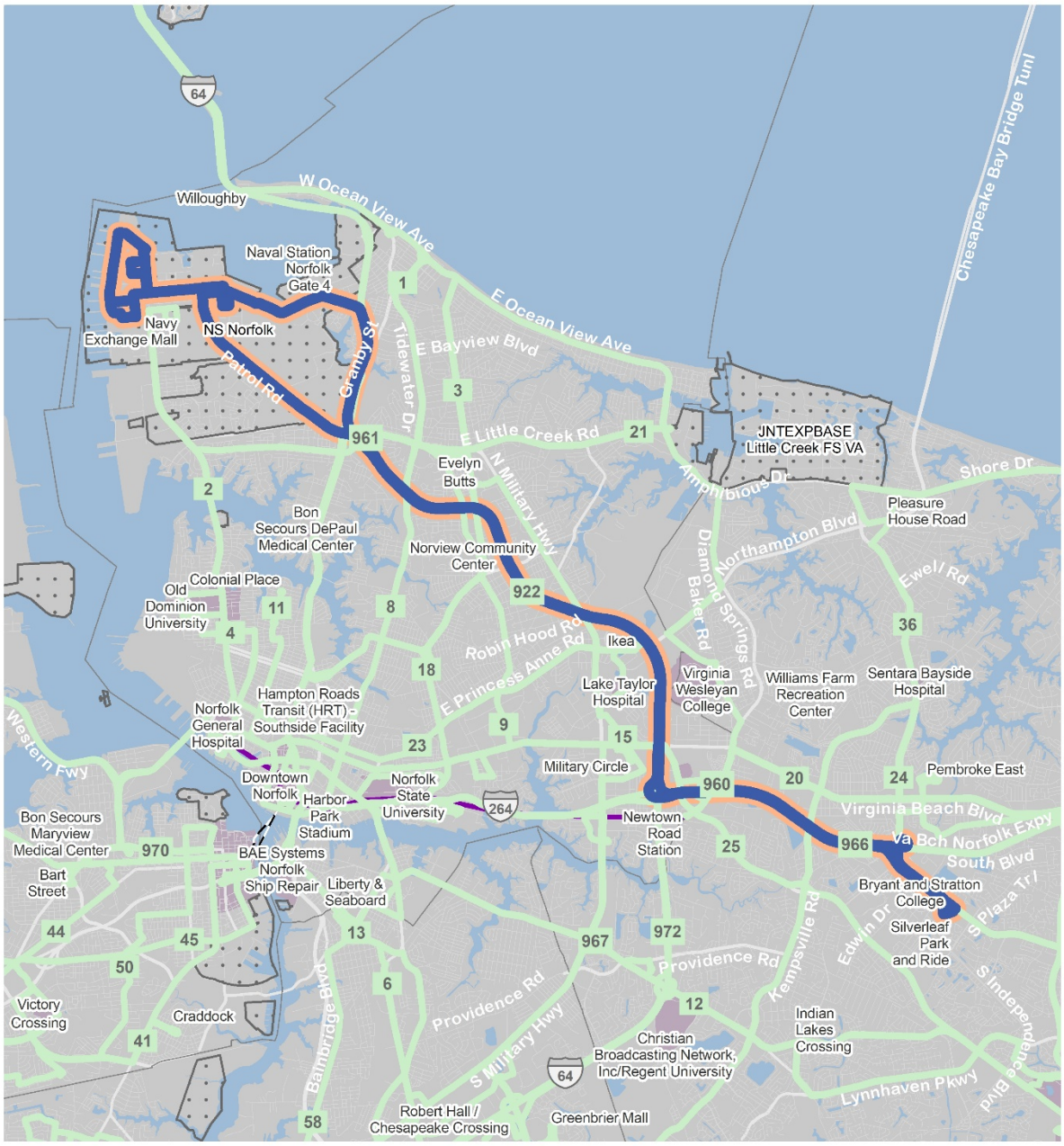
- One trip will be added to Route 430 at 5:00 AM. Another will be added at 3:40 PM.

TD

Justification

- The additional trips will be added to meet shift-specific demand.

Route 919



Route 919

Miles
0 0.5 1 1.5 2 2.5 3 3.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 919

Service Classification
Limited/Express

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Silverleaf Park & Ride / Naval Station Norfolk Gate 4	Silverleaf Park & Ride / Naval Station Norfolk Gate 4
Jurisdictions	Norfolk, Virginia Beach	Norfolk, Virginia Beach

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:10 AM - 7:26 AM; 2:54 PM - 5:03 PM	5:10 AM - 7:26 AM; 2:54 PM - 5:03 PM
Saturday		-	-
Sunday		-	-
Headway			
		Existing	**Service Target**
Weekday	**Early**	1 Trip	1 Trip
	AM Peak	2 Trips	2 Trips
	Midday	-	-
	PM Peak	4 Trips	3 Trips
	Evening	-	-
	Late Night	-	-
Saturday	**Base**	-	
	Non-Base	-	
	Early / Late	-	
Sunday	**Base**	-	-
	Non-Base	-	-
	Early / Late	-	-

Service Changes

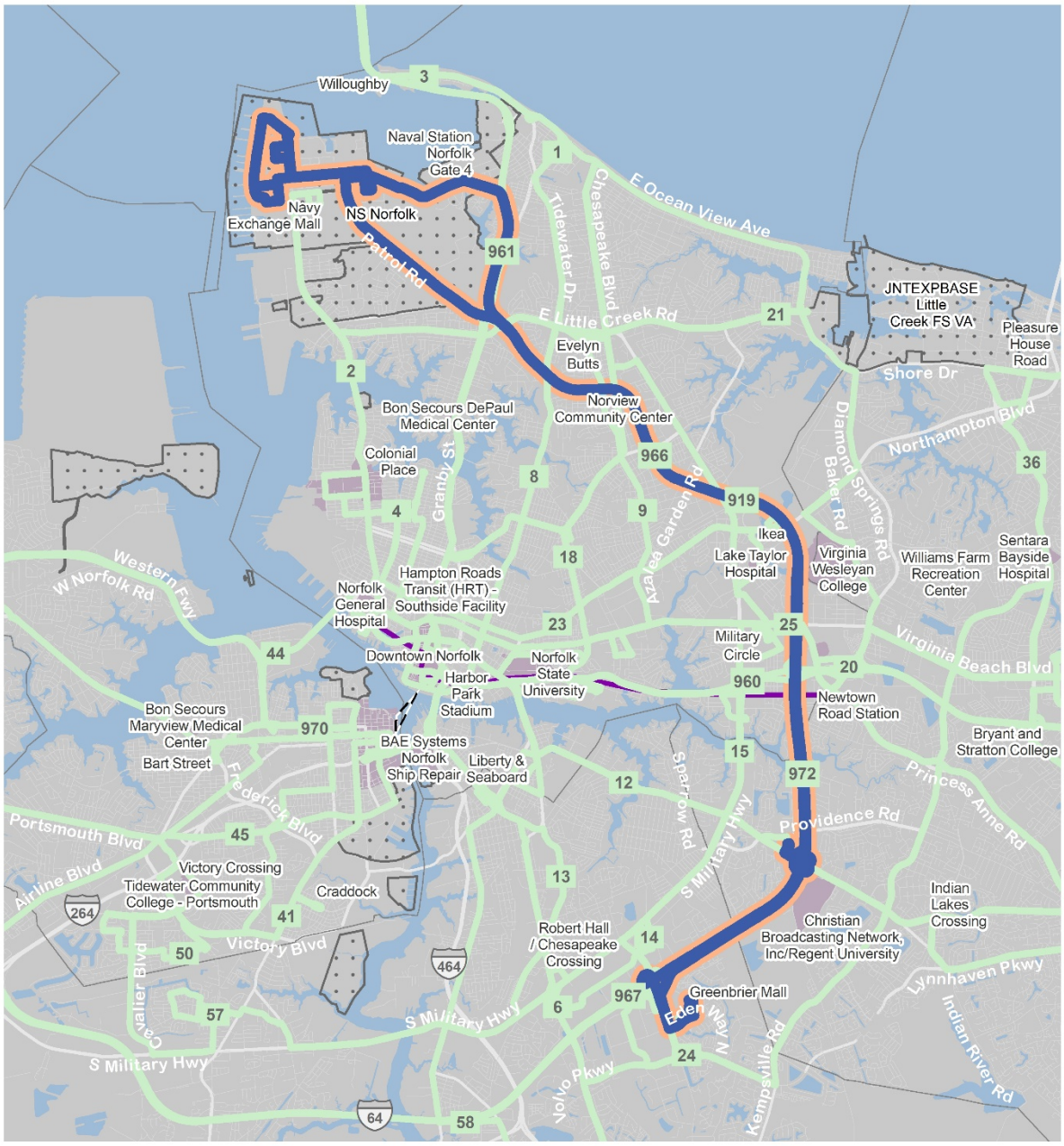
- The 3:18 PM trip on Route 919 will be eliminated.

TD

Justification

- Few passengers utilize the 3:18 PM trip on the current Route 919 service. The resources from this trip will be used more effectively elsewhere in the system.

Route 922



Route 922

Miles
0 0.5 1 1.5 2 2.5 3 3.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 922

Service Classification
Limited/Express

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Greenbrier Mall Park & Ride / Naval Station Norfolk Gate 4	Greenbrier Mall Park & Ride / Naval Station Norfolk Gate 4
Jurisdictions	Chesapeake, Norfolk, Virginia Beach	Chesapeake, Norfolk, Virginia Beach

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:00 AM - 7:13 AM; 2:55 PM - 4:42 PM	5:00 AM - 6:52 AM; 2:55 PM - 4:23 PM
Saturday		-	-
Sunday		-	-
Headway			
		Existing	**Service Target**
Weekday	**Early**	3 Trips	3 Trips
	AM Peak	1 Trip	-
	Midday	-	-
	PM Peak	3 Trips	2 Trips
	Evening	-	-
	Late Night	-	-
Saturday	**Base**	-	
	Non-Base	-	
	Early / Late	-	
Sunday	**Base**	-	-
	Non-Base	-	-
	Early / Late	-	-

Service Changes

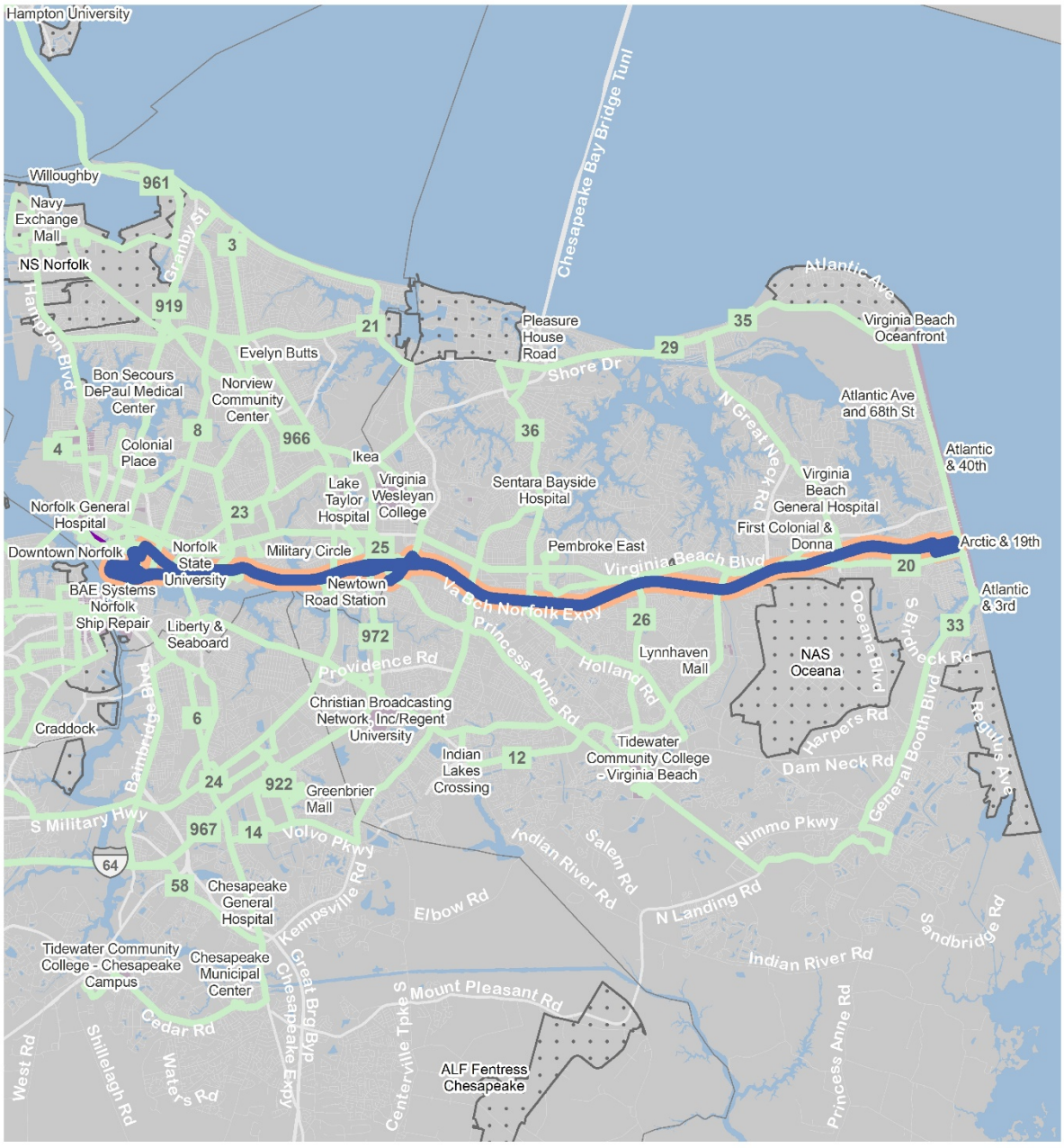
- The 6:10 AM and 3:44 PM trips on Route 922 will be eliminated.

PB

Justification

- Few passengers utilize the 6:10 AM and 3:44 PM trips on the current service. The resources from these trips will be used more effectively elsewhere in the system.

Route 960



Route 960

0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5 Miles

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 960

Service Classification
Limited/Express

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Norfolk to Virginia Beach	Norfolk to Virginia Beach
Jurisdictions	Norfolk, Virginia Beach	Norfolk, Virginia Beach

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:35 AM - 8:27 PM	6:00 AM - 9:00 AM; 3:00 PM - 7:35 PM
Saturday		6:30 AM - 8:19 PM	-
Sunday		7:50 AM - 8:44 PM	-
Headway			
		Existing	**Service Target**
Weekday	**Early**	60	-
	AM Peak	60	3 Trips
	Midday	60	-
	PM Peak	60	3 Trips
	Evening	60	-
	Late Night	-	-
Saturday	**Base**	60	-
	Non-Base	60	-
	Early / Late	-	-
Sunday	**Base**	60	-
	Non-Base	60	-
	Early / Late	-	-

Service Changes

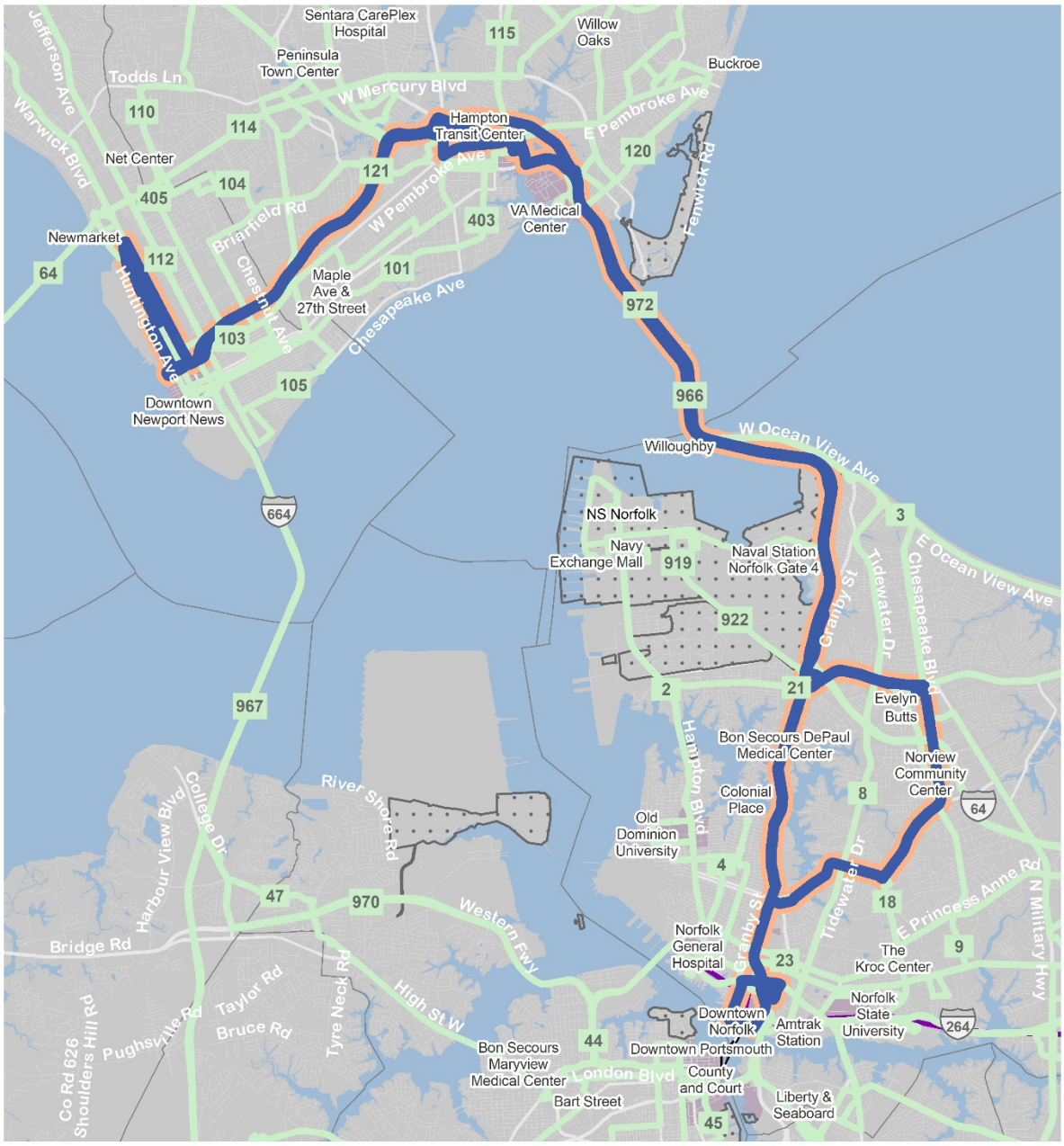
- Six trips in each direction per weekday will be maintained on Route 960: three AM peak and three PM peak. All other weekday trips will be eliminated.
- All weekend service will be eliminated.

PB

Justification

- Service will be reduced on Route 960 as a result of the Route 20 service being increased, providing service between the same key points, and because Route 960 has low performance metrics.

Route 961



Route 961

Miles
0 0.5 1 1.5 2 2.5 3 3.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 961

Service Classification
Limited/Express

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Newport News / Hampton / Norfolk	Newport News / Hampton / Norfolk
Jurisdictions	Norfolk, Hampton, Newport News	Norfolk, Hampton, Newport News

Level of Service			
Span			
		Existing	**Service Target**
Weekday		4:55 AM - 11:12 PM	4:55 AM - 11:12 PM
Saturday		4:58 AM - 10:57 PM	4:58 AM - 10:57 PM
Sunday		7:00 AM - 8:58 PM	7:00 AM - 8:58 PM
Headway			
		Existing	**Service Target**
Weekday	**Early**	30	30
	AM Peak	30	30
	Midday	30	30
	PM Peak	30	30
	Evening	60	60
	Late Night	60	60
Saturday	**Base**	40	40
	Non-Base	60	60
	Early / Late	-	-
Sunday	**Base**	60	60
	Non-Base	60	60
	Early / Late	-	-

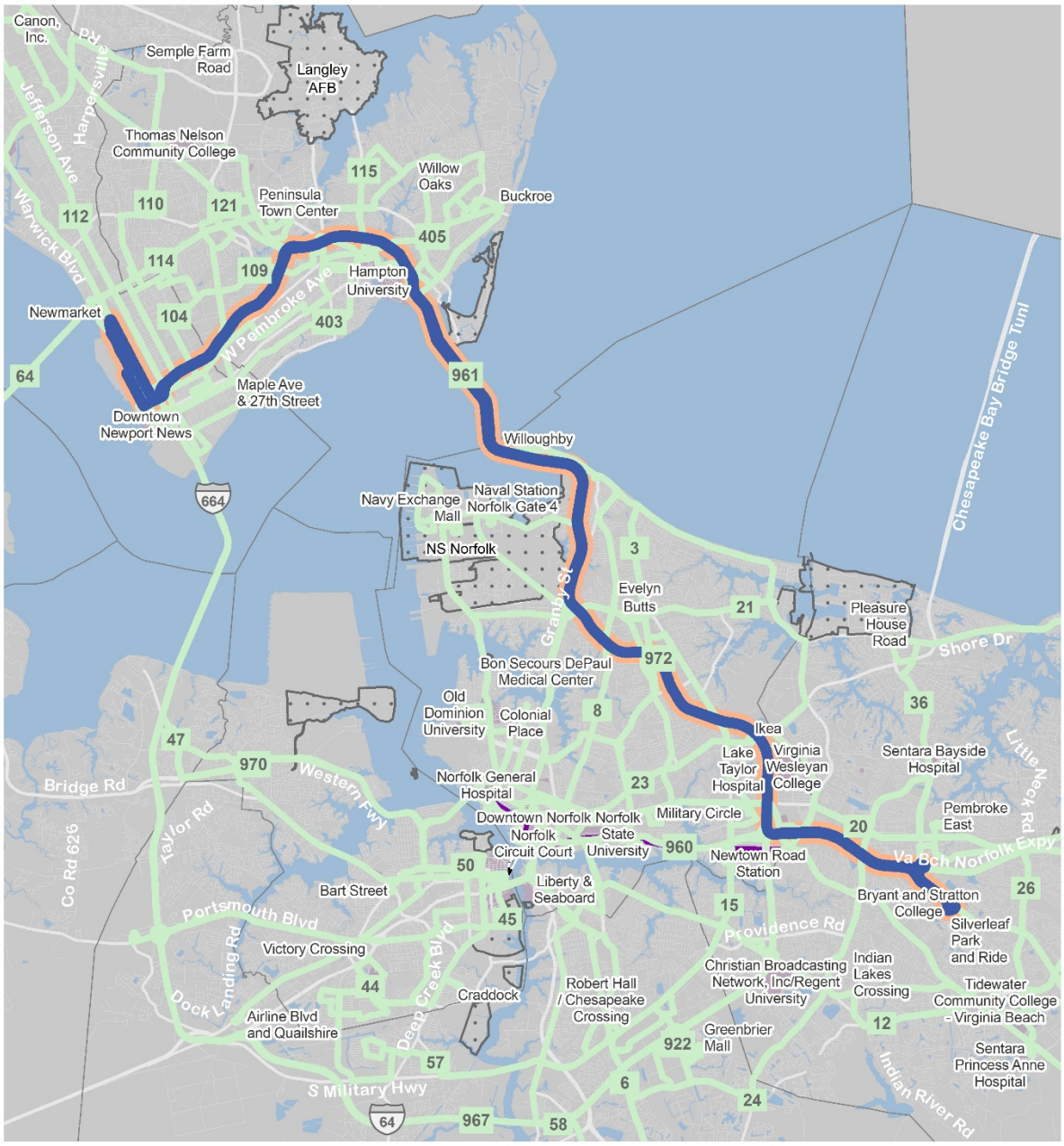
Service Changes

- No alignment or level of service changes are proposed.

Justification

- Route 961 fulfills a need in terms of getting employees to work throughout the day and will remain unchanged.

Route 966



Route 966

Miles
0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5 5.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 966

Service Classification
Limited/Express

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Silverleaf Park & Ride / Newport News Transit Center	Silverleaf Park & Ride / Newport News Transit Center
Jurisdictions	Newport News, Virginia Beach	Newport News, Virginia Beach

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:20 AM - 6:31 AM; 3:40 PM - 5:03 PM	5:20 AM – 7:00 AM; 3:40 PM - 5:45 PM
Saturday		-	-
Sunday		-	-
Headway			
		Existing	**Service Target**
Weekday	**Early**	2 Trips	2 Trips
	AM Peak	-	1 Trip
	Midday	-	-
	PM Peak	2 Trips	3 Trips
	Evening	-	-
	Late Night	-	-
Saturday	**Base**	-	-
	Non-Base	-	-
	Early / Late	-	-
Sunday	**Base**	-	-
	Non-Base	-	-
	Early / Late	-	-

Service Changes

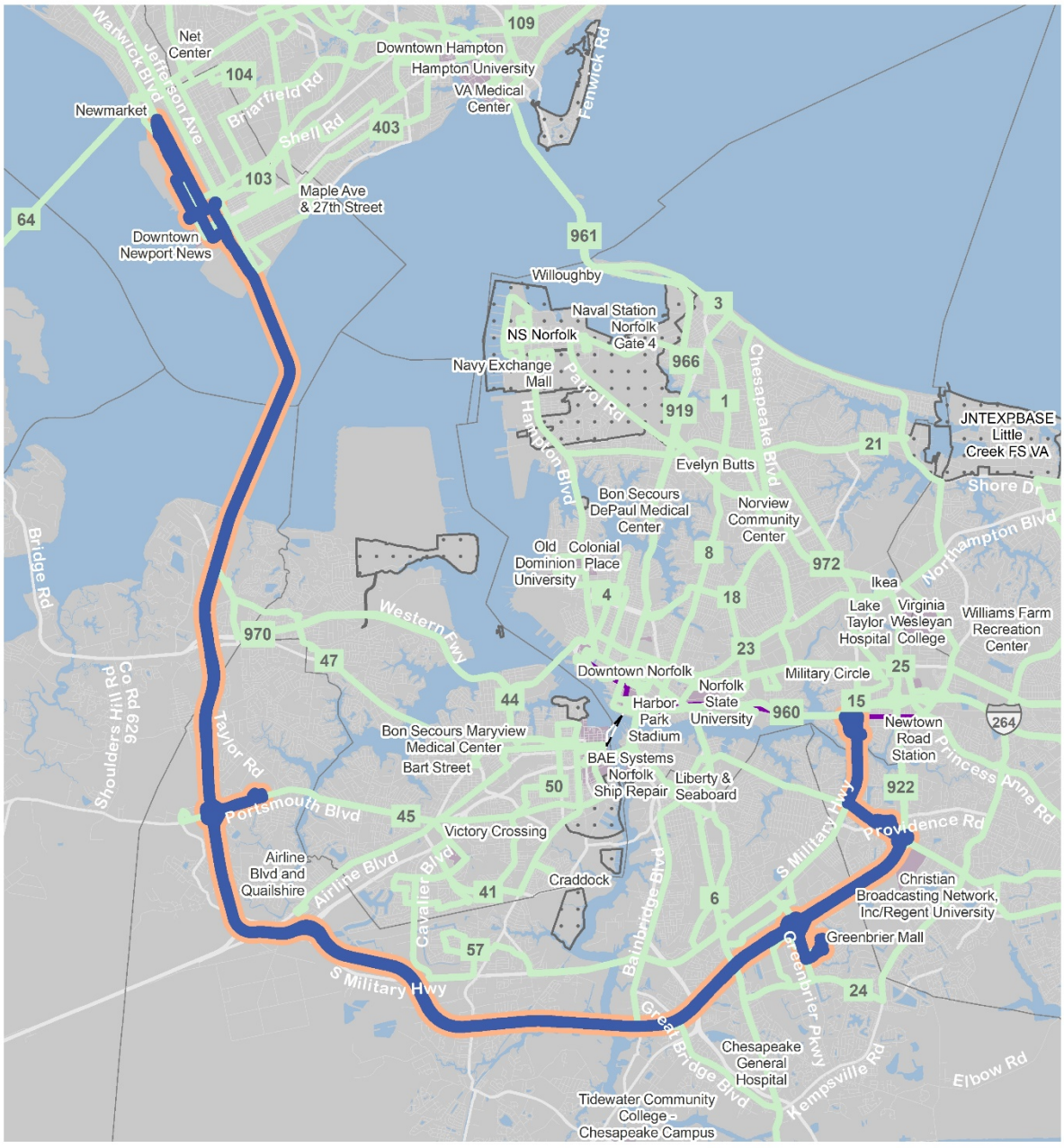
- One AM peak trip and one PM peak trip will be added to Route 966.

TD

Justification

- The additional trips will be added to meet shift-specific demand.

Route 967



Route 967

Miles
0 0.5 1 1.5 2 2.5 3 3.5 4 4.5

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 967

Service Classification
Limited/Express

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Virginia Beach / Chesapeake / Newport News	Virginia Beach / Chesapeake / Newport News
Jurisdictions	Chesapeake, Newport News, Norfolk, Virginia Beach	Chesapeake, Newport News, Norfolk, Virginia Beach

Level of Service			
Span			
		Existing	**Service Target**
Weekday		4:25 AM - 7:14 AM; 3:00 PM - 6:24 PM	4:25 AM - 7:14 AM; 3:00 PM - 6:24 PM
Saturday		-	-
Sunday		-	-
Headway			
		Existing	**Service Target**
Weekday	**Early**	5 Trips	5 Trips
	AM Peak	1 Trip	1 Trip
	Midday	-	-
	PM Peak	6 Trips	6 Trips
	Evening	-	-
	Late Night	-	-
Saturday	**Base**	-	-
	Non-Base	-	-
	Early / Late	-	-
Sunday	**Base**	-	-
	Non-Base	-	-
	Early / Late	-	-

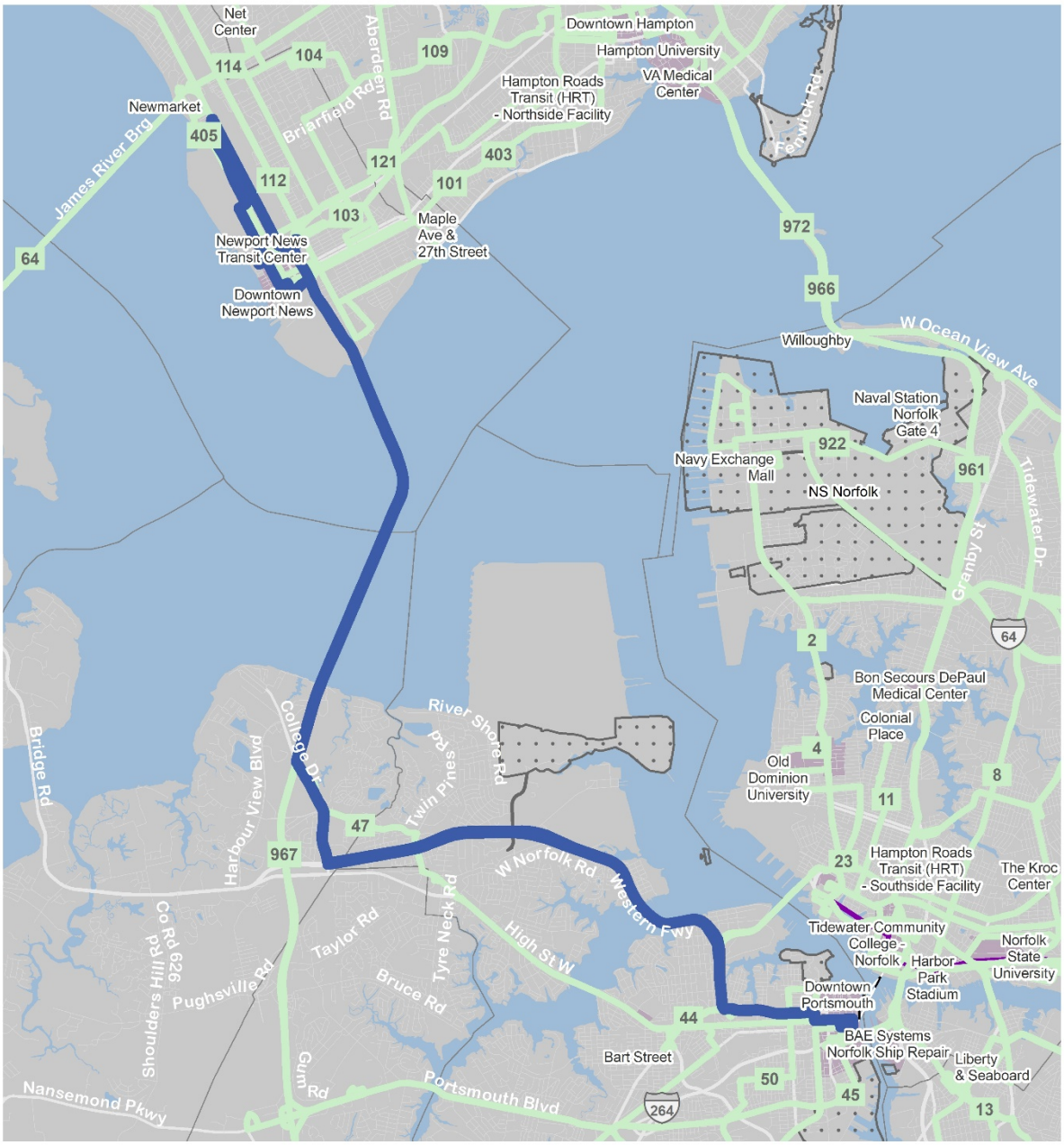
Service Changes

- No alignment or level of service changes are proposed.

Justification

- Route 967 fulfills a need in terms of getting employees to work at specific shift times and will remain unchanged.

Route 970



Route 970

0 0.5 1 1.5 2 2.5 3 Miles

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 970

Service Classification
Limited/Express

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	-	Newport News / Portsmouth
Jurisdictions	-	Newport News, Portsmouth

Level of Service			
Span			
		Existing	**Service Target**
Weekday		-	6:00 AM - 8:30 AM; 3:00 PM - 5:40 PM
Saturday		-	-
Sunday		-	-
Headway			
		Existing	**Service Target**
Weekday	**Early**	-	-
	AM Peak	-	4 Trips
	Midday	-	-
	PM Peak	-	4 Trips
	Evening	-	-
	Late Night	-	-
Saturday	**Base**	-	-
	Non-Base	-	-
	Early / Late	-	-
Sunday	**Base**	-	-
	Non-Base	-	-
	Early / Late	-	-

Service Changes

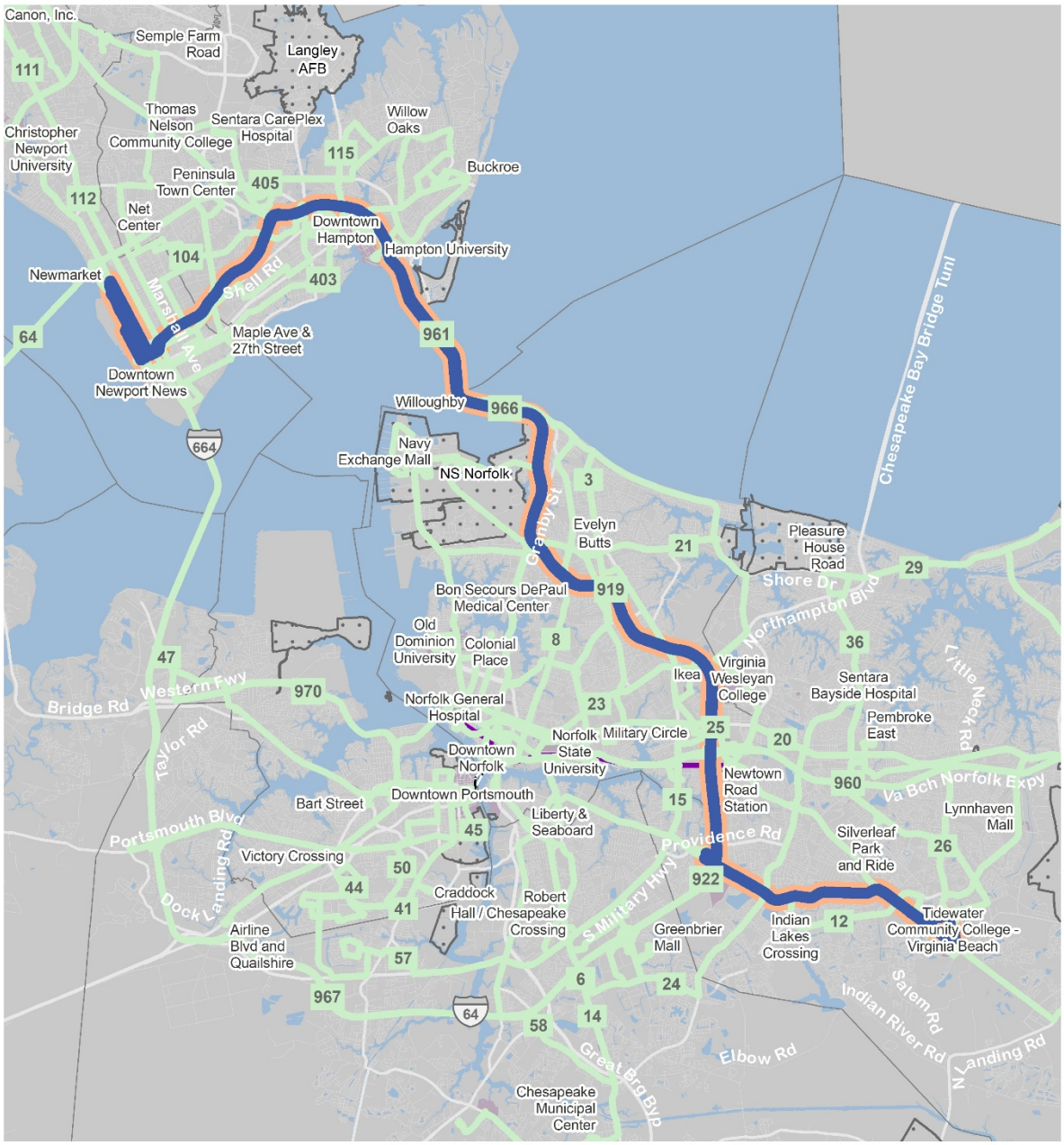
- This new route would provide express service between Downtown Portsmouth and Newport News. It would operate four trips in the morning and afternoon peak periods, operating in both directions.
- Route 970 would begin at the County Street & Court Street Hub, traveling west on County Street, turn right onto Court Street, left onto High Street, right onto Effingham Street, and left on London Street. Continue straight onto London Boulevard, merge onto SR 164, then merge onto I-664. Exit onto 35th Street, take a right onto Warwick Boulevard, turn left onto Huntington Avenue, and serve the Newport News Shipbuilding.
- The return trip would begin at Newport News Shipbuilding, continuing straight on Huntington Avenue, right onto 50th Street, left onto Washington Avenue, right onto 35th Street, left on West Avenue, and left onto 34th Street, serving the Newport News Transit Center, continuing east on 34th Street, followed by a right onto Washington Avenue, left on 25th Street, right onto Huntington Avenue, left onto US-60, and right onto I-664. The route would then exit onto SR 164, and then quickly exit onto London Boulevard eastbound, then turn right onto Effingham Street, left onto High Street, right onto Crawford Street, and right onto County Street to terminate at the County Street & Court Street Hub.
- Route 970 is one option for future expansion of MAX service. In the next annual update, that route plus others will be explored, including service connecting Chesapeake to Norfolk Naval Shipyard (Portsmouth).

TD

Justification

- Route 970 would serve a need for a new peak hour service between Downtown Portsmouth and Newport News Transit Center and Shipyard. This route would be the final missing link in a proposed comprehensive MAX service across the region.

Route 972



Route 972

0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5 5.5 6 Miles

Focus Route

- Planned Alignment
- Existing Alignment
- Planned System
- Light Rail
- Ferry
- Military Bases
- City Boundary
- Activity Centers

N

Route 972

Service Classification
Limited/Express

Origin and Destinations & Jurisdictions Served		
	Existing	**Planned**
To / From	Virginia Beach / Newport News	Virginia Beach / Newport News
Jurisdictions	Newport News, Virginia Beach	Newport News, Virginia Beach

Level of Service			
Span			
		Existing	**Service Target**
Weekday		5:15 AM - 6:17 AM; 3:40 PM - 4:58 PM	5:15 AM - 7:30 AM; 3:40 PM - 5:30 PM
Saturday		-	-
Sunday		-	-
Headway			
		Existing	**Service Target**
Weekday	**Early**	1 Trip	1 Trip
	AM Peak	-	1 Trip
	Midday	-	-
	PM Peak	1 Trip	2 Trips
	Evening	-	-
	Late Night	-	-
Saturday	**Base**	-	-
	Non-Base	-	-
	Early / Late	-	-
Sunday	**Base**	-	-
	Non-Base	-	-
	Early / Late	-	-

Service Changes

- One AM peak trip and one PM peak trip will be added to Route 972.

TD

Justification

- The additional trips will be added to meet shift-specific demand.

6.7. Phasing and Implementation

As discussed above, Regional Backbone and Limited/Express routes will provide access to high-quality transit throughout the region. This section outlines phasing and implementation of the planned improvements under the Program.

6.7.1. Phasing

Several factors influence phasing and implementation of Program services and improvements:

- Demonstrated fit of Program investments to the key factors and requirements outlined in legislation;
- Schedule of availability and amounts of Hampton Roads Regional Transit Fund moneys and other requisite funding;
- Implementation feasibility based on procurement schedules, staffing, and other operational action plans for successful marketing and roll-out of service improvements.

Purchasing new buses to support the Regional Backbone is a critical early procurement action. The average time span from the placement of a new bus order to the delivery of the bus and getting the bus ready to deploy into revenue service is between 18-22 months. Other early procurement actions include acquiring new customer amenities and technology upgrades. For operating the Program of enhanced service frequencies on the 13 routes in the Regional Backbone network, HRT will need to hire and train 290 additional operators. HRT will implement the Program service improvements in phases. This will allow for time to hire and train new operators on a continual basis and execute other action plans for successful marketing and roll-out of service improvements.

6.7.2. Service Grouping

The phased implementation of the Program is designed around three groups of regional transit service improvement. Group A, Group B, and Group C each consist of Regional Backbone and/or Limited/Express routes and also have associated Local Priority and Coverage routes that should be implemented concurrently in cases where there are changes in route alignment.[9] While the timeframe for the start of revenue service is distinct for each group, there are underlying activities that are ongoing concurrently for all three groups. These include bus purchases, shelter purchase and installation, upgrades to technology infrastructure, installation of signage, real-time passenger information displays at transit centers, and completion of needs assessments, design, and engineering for new transit and passenger facilities.

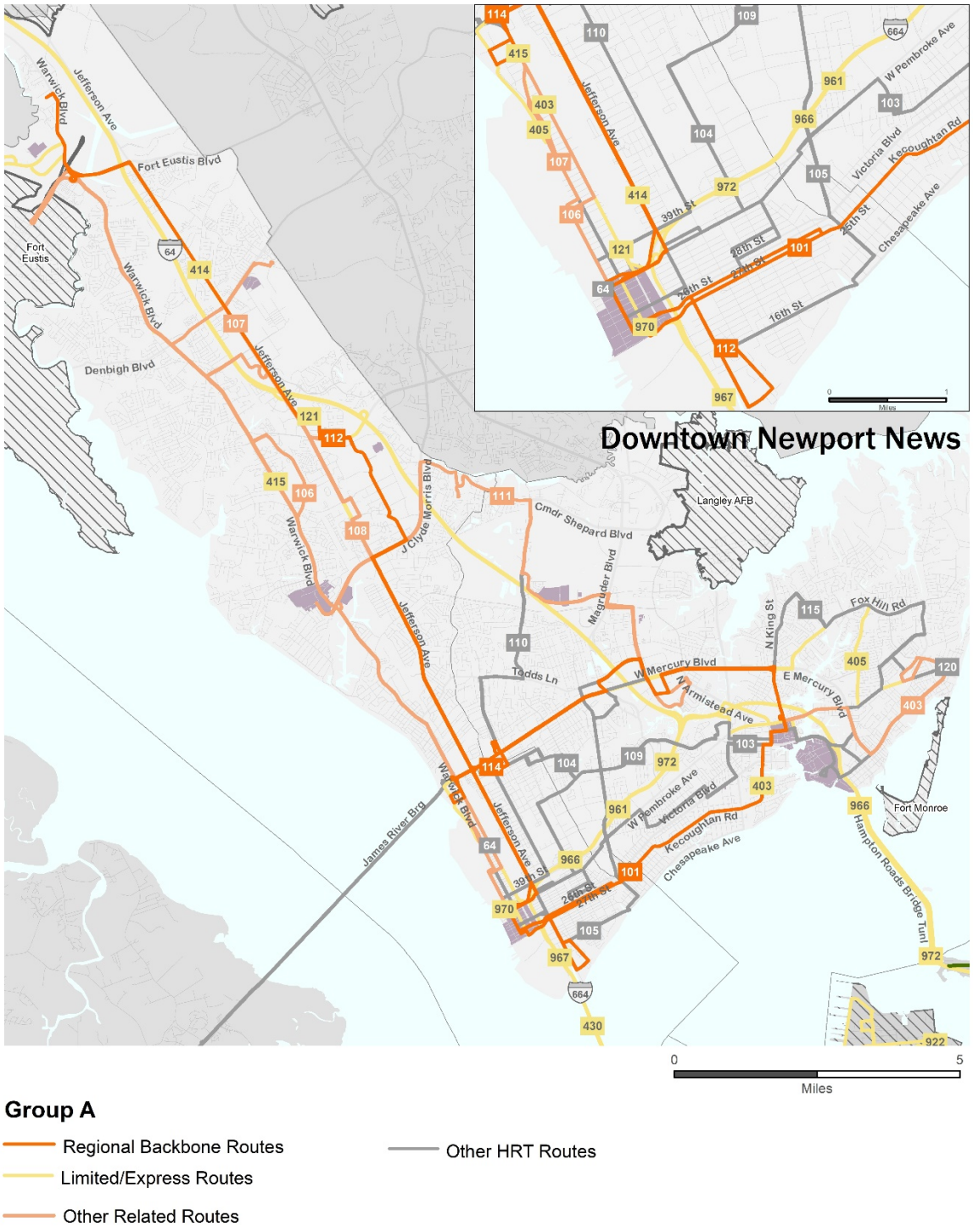
The three groupings of services for implementation are shown in **Figure 6-7** and **Figure 6-8**. The routes included in each group are listed in **Table 6-14**.

[9] There are several routes which are being realigned and segments of routes are being taken over by other routes. Because of this, the phasing of the route changes needs to consider how some route changes are interdependent with other services. This is one justification for bundling routes into "buckets" that group together routes whose alignment changes should happen simultaneously in order to maintain a maximum amount of coverage and ridership potential in the system.

Table 6-14: Phasing Groups

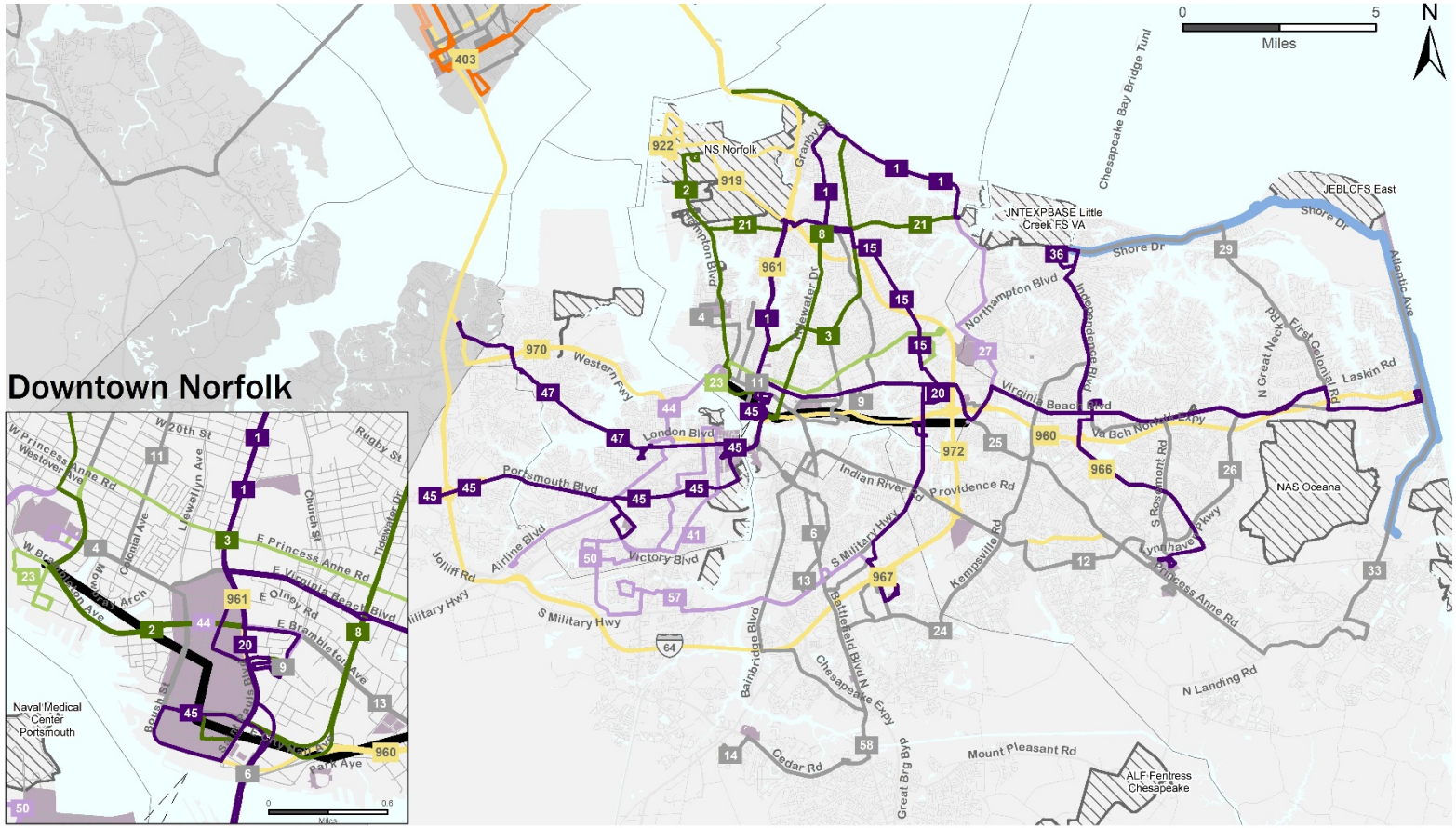
Group A		Group B		Group C	
Program Funded	**Related Routes**	**Program Funded**	**Related Routes**	**Program Funded**	**Related Routes**
Route 101		Route 1 Route 36	■ Route 22 (eliminated) ■ Route 27	Route 2	■ Route 23
Route 112	■ Route 106 ■ Route 107 ■ Route 108 ■ Route 111 ■ Route 116 (eliminated) ■ Route 118 (eliminated)	Route 15 Route 45 Route 47	■ Route 41 ■ Route 43 (eliminated) ■ Route 44 ■ Route 50 ■ Route 57	Route 3 Route 21	■ Route 5 (eliminated)
Route 114		Route 20		Route 8	
Route 121					
Route 403					
Route 405					
Route 414					
Route 415					
Route 430					
Route 919					
Route 922					
Route 960					
Route 961					
Route 966					
Route 967					
Route 970					
Route 972					

Figure 6-7: Grouping - Peninsula



PENINSULA: Hampton Roads Transit Regional Transit Program Grouping

Figure 6-8: Grouping - Southside

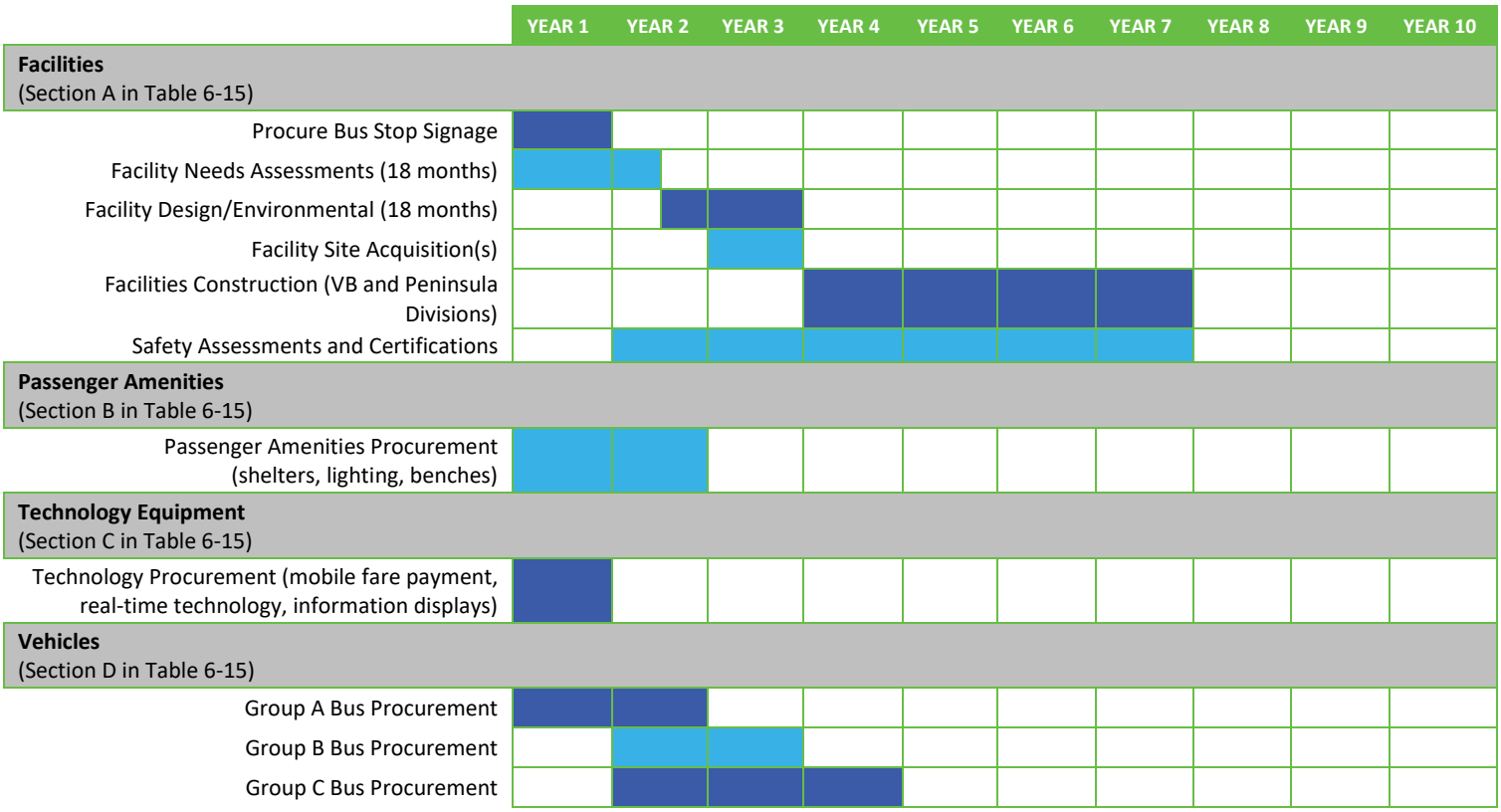


SOUTHSIDE: Hampton Roads Transit Regional Transit Program Grouping

6.7.3. Capital Investments

In addition to the purchase of rolling stock (i.e., buses) and hiring and training operators and mechanics, the Regional Backbone network will require the implementation of technology investments related to real-time passenger information as well as installing Real-Time Passenger Information displays at the Downtown Norfolk Transit Center, the Newport News Transit Center (NNTC), and the Hampton Transit Center (HTC); mobile fare payment capabilities; and, facility upgrades. The implementation horizon for capital investments is shown in **Figure 6-9** and the segmentation of capital project types are shown in **Table 6-15**.

Figure 6-9: Implementation Horizon for Regional Backbone Network - Capital



Facility investment needs will include a new bus operating division in Virginia Beach to replace the undersized and functionally obsolete Parks Ave facility as well as a new satellite bus operating division in Newport News to accommodate the enlarged fleet needed to support the high-frequency network. The sole operating division on the Peninsula (3400 Victoria Boulevard facility) has no room for expansion and is "landlocked" by surrounding residential neighborhoods.

Other facility investments will include the addition of bus bays at the NNTC and HTC facilities to accommodate the peak period arrival and departure demands of the high frequency routes. A new off-street transit transfer center will be constructed in the city of Chesapeake to replace the current on-street operations. This facility will provide customer amenities such as restrooms and organized arrangement of bus bays, similar to HRT's Wards Corner transfer facility. In the City of Norfolk, a new Evelyn Butts transfer facility will also be constructed to replace the current on-street operations. This facility will have ten bus bays, passenger restrooms, and passenger information displays.

The final facility investments related to supporting the Regional Backbone network will be the installation of approximately 525 new passenger shelters, benches, trash receptacles, and bus pads along the Regional Backbone routes. This will provide shelter for over 50 percent of stops on those routes. The bus stops will be fully ADA accessible and will include solar lighting at each shelter.

To delineate capital investments for the Program, Hampton Roads Transit (HRT) is utilizing a framework that adapts the project types utilized by the Virginia Department of Rail and Public Transportation (DRPT) in its administration of the statewide transit capital program, as shown in **Table 6-15**.

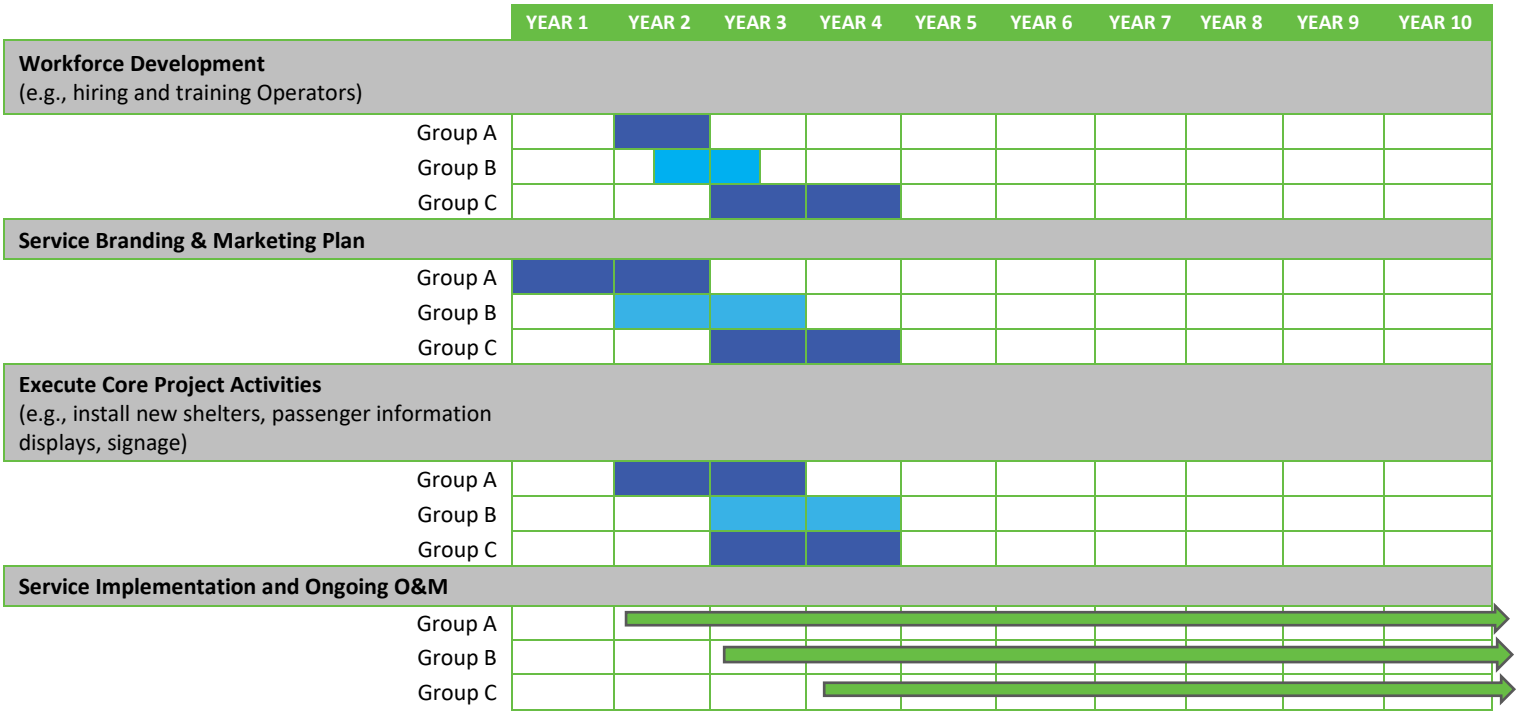
Table 6-15: Capital Projects Typology

Primary	Secondary
A. Facilities	i. Planning, engineering, and design ii. Real property acquisition iii. Construction iv. Maintenance
B. Passenger Amenities	i. Bus shelters (expansion) ii. Bus shelters (maintenance/parts or replacement) iii. Benches (expansion) iv. Benches (maintenance/parts or replacement) v. Trash receptacles (new) vi. Trash receptables (maintenance/parts or replacement) vii. Signage (static or electronic) viii. Other
C. Technology Equipment	i. Customer assistance and support systems ii. Ridership information systems iii. Fare systems iv. IT infrastructure v. CAD / AVL systems vi. Safety video systems vii. Other
D. Vehicle	i. Bus purchase (expansion) ii. Bus purchase (replacement) iii. Vehicle graphics package iv. Engine replacement v. Operations support vehicle (expansion) vi. Operations support vehicle (replacement) vii. Other
E. Maintenance Equipment / Parts	i. Fueling station ii. Maintenance inspection iii. Replacement bus batteries iv. Vehicle mid-life overhaul v. Other

6.7.4. Ongoing Operations & Maintenance

While capital costs are primarily focused on the acquisition of rolling stock, the purchase and installation of passenger amenities (e.g., shelters, benches, trash receptacles), the construction of new bus operating facilities, and investments in technology infrastructure so that passengers have the ability to access real time information and pay fares through mobile technology, Operating and Maintenance (O & M) costs are focused on the ongoing support of operating and maintaining a state of good repair of all assets in the Program. The implementation horizon for O & M investments is shown in **Figure 6-10**.

Figure 6-10: Implementation Horizon for Regional Backbone Network - Operating and Maintenance (O & M)



The list below provides the types of Operating and Maintenance costs that will be involved for the implementation of all three groups of service improvements:

- Bus Fleet State of Good Repair (engines, body, tires, exhaust systems, passenger comfort systems)
- Facility landscaping, janitorial services, HVAC maintenance and ongoing utility costs
- Bus stop and bus shelter cleaning and trash pick up
- Bus stop signage maintenance and replacement
- On-board technology equipment maintenance, yearly software upgrades, farebox maintenance
- Safety and Security certifications
- Threat and vulnerability assessments per state and federal regulations
- Fire & Life Safety and Security code and regulation compliance assessments
- Safety and Security Management Plan (SSMP)
- Conduct an All Hazard Analyses for new bus routes and changes in existing routes, including the placement of new bus shelters
- Website rebranding and update
- Integrate Info Web (GTFS Real Time) into GoHRT.com
- Printing of customer schedules and system maps
- Annual market research and outreach
- Rebranding of buses for Regional Backbone routes
- IT Infrastructure annual upgrades
- Maintenance of TVM machines at new passenger facilities
- Annual maintenance of Real time passenger information displays at Transit Centers
- Pavement maintenance at all bus loops and park-and-rides at transit centers
- Maintaining Bus infrastructure such as security cameras, WiFi, Automatic Passenger Counters, etc.
- IT software and Hardware annual upgrades

This list is a fair representation of the types of activities that are captured in the category of annual Operating and Maintenance costs. It does not provide an exhaustive list of every element to support the ongoing operations of the Regional Backbone network.

In addition to the physical aspects of maintaining the assets for the Regional Backbone network, there are the human resources needs that the Program will require. These include the following positions and/or functional areas:

- Bus Operator
- Mechanic
- Street Supervisor
- Revenue services support
- Bus cleaner
- Bus hosteler
- Storeroom clerk
- Bus operator trainer
- Fleet support personnel
- Facility cleaner
- Human Resource technician
- Technology personnel
- Outreach coordinator
- Service Scheduler
- Customer Service representatives
- Contracted security personnel
- Contracted services for additional cleaning and trash pick up

All operating costs related to the support of the Program will be fully segmented out by HRT, which in turn is the basis for utilization of Hampton Roads Regional Transit Fund moneys. As the new services come on-line, there will be a robust public outreach and market campaign that will be focused to educate area residents about the new high-frequency service improvements that are coming to their neighborhoods. Public education of the new services will be one of the keys to attracting choice riders to the system and ensuring there will be robust ridership. In addition, HRT will rebrand the new services to ensure that the routes in the Program have a distinct look, capitalizing on the appeal of a coordinated high-frequency network that is seamless, easy to use, and integrated in all cities. This will help to ensure the success of the new services.

6.8. Measuring Performance

Once Program services have been implemented the performance of these routes will be evaluated in accordance with DRPT guidance as outlined in the TSP Guidelines.[10] These guidelines indicate that the performance of a bus service should be measured against several metrics, such as:

- **Ridership:** passengers per mile, passengers per hour, total passenger miles, etc.
- **Cost efficiency**: cost per mile, cost per hour, cost per trip, farebox recovery, etc.
- **Safety**: accidents, injuries, etc.
- **System accessibility:** residential access to the system, jobs accessible to the system, etc.

All of these measures will be important to assess on an annual basis in order to best understand the usage of each Regional Backbone and Limited/Express service and to identify where adjustments could be made to improve operations (e.g., scheduling, blocking, run-cutting, etc.). Additionally, the TSP Guidelines call for an efficiency evaluation assessing reliability and on-time performance, two qualities that are essential for understanding and maintaining 15-minute headways as reflected in the Program. These measures should also be assessed annually.

Additional measures may be included that address other agency goals and objectives. HRT will measure the performance of Program services based on factors cited by the relevant legislation which indicates that investments should be positively linked to factors of *"economic development potential, employment opportunities, mobility, environmental sustainability, and quality of life."* The metrics outlined in **Section 6.5.2: Program Factors, Objectives, and Metrics** will be evaluated and improved upon annually in an effort to understand the impact of the Program on the communities they serve and the economies they support.

[10] http://www.drpt.virginia.gov/media/2526/transit-strategic-plan-guidelines-draft_clean_082918.pdf.

Routes that perform as well as or better than expected should be considered for additional resource investment, while routes that perform below expectations should be put under performance review with remedial service change actions. HRT's existing service design standards will be followed to monitor the on-going success of the Regional Backbone routes. Any remedial actions towards Regional Backbone routes will also follow existing HRT Service Standards policy. While it is important to measure the performance of each Regional Backbone service annually, at least 18 months should be given to routes that have received alignment adjustments in order for those routes to build a market and awareness of recent upgrades.

6.9. Next Steps

At the time of the TDCHR adopting its inaugural TSP, organizing to plan for and deploy regional transit services that make up the Hampton Roads Regional Transit Program is in early stages. Initial steps that need to be accomplished in order for improvements associated with Regional Backbone and Limited/Express services to be implemented in FY 2022 and beyond are listed below.

These action steps will allow for HRT administration to move forward with vehicle and other capital investments, to begin necessary studies for said capital investments, and for the hiring and training of the vehicle operators and maintenance staff. These next step items include:

- Validate the schedule and availability of Hampton Roads Regional Transit Fund moneys through HRTAC.
- Establish a Memorandum of Understanding (MOU) between HRT and HRTAC to support implementation of the Hampton Roads Regional Transit Program utilizing Hampton Roads Regional Transit Fund resources.
- Process applications to encumber regional funds and execute early procurement actions (e.g., shelter purchases, bus purchases).

6.10. Planning and Program Integration and Coordination

HRT will work directly with the Hampton Roads Transportation Accountability Commission (HRTAC) to solidify short-term (FY 2021 - FY 2023), mid-term (FY 2024 - FY 2027) and long-term (FY 2028 - FY 2030) plans – which shall be updated on an annual basis – to effectively leverage Hampton Roads Regional Transit Fund resources to implement the Program. On an annual basis HRT will explore and evaluate opportunities for effectively leveraging the resources of the Fund. HRT expects this to result in consistent and reliable dedicated regional funding for the Program.

In support of coordinated regional planning – in particular as it relates to collaboration and interfacing between services of HRT, Suffolk Transit, and Williamsburg Area Transit Authority (WATA) – HRT will directly collaborate with other transit systems and the Hampton Roads Transportation Planning Organization (HRTPO) as it coordinates a regional transit planning process as required in Virginia code section § 33.2-286 D.

HRT expects annual updates to its Transit Strategic Plan to achieve integration of planning and programming for both transit operations and funding, in order to maximize productivity and returns on investment for all improvements contained in the Program.

APPENDIX A

Agency Profile and System Overview

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Appendix A: Agency Profile and System Overview

A.1 History

Hampton Roads Transit (HRT) serves a 431 square mile area within the Hampton Roads region. HRT consists of six member cities: Chesapeake, Hampton, Newport News, Norfolk, Portsmouth, and Virginia Beach. The combined population of the six jurisdictions is approximately 1.35 million;[1] the 2045 projected population for the six jurisdictions is 1.53 million, a 13 percent increase over a 30-year period. Out of the six cities, Chesapeake is projected to see the largest actual and percentage population increase over that period, with a projected growth of 78,383 people or 33 percent.[2] The average population density of the six cities is approximately 3,100 persons per square mile; however, there is a wide range of population densities in the service area, from over 22,000 persons per square mile in part of Downtown Norfolk to less than 20 persons per square mile in Chesapeake near the Great Dismal Swamp National Wildlife Refuge. The six cities served by HRT account for approximately 58.4 percent of economic activity in the region.[3]

The service area is divided by the James River. The service area on the *Southside* of the river consists of Chesapeake, Norfolk, Portsmouth, and Virginia Beach, and the service area on the *Peninsula* or *Northside* (between the James River, York River and Chesapeake Bay) is made up of Hampton and Newport News.

All six jurisdictions in the service area are home to United States military installations and various federal facilities, including: Naval Station Norfolk, Joint Expeditionary Base Little Creek – Fort Story, Naval Air Station Oceana, and Joint Base Langley-Eustis; there are approximately 150,000 active duty and civilian personnel in the region, and Norfolk is home to the world's largest naval base. The command headquarters of the North Atlantic Treaty Organization (NATO) is also located in Norfolk. Estimated Department of Defense (DOD) direct spending in Hampton Roads is estimated at $22.1 billion dollars in 2019.[4]

Originally, two transit systems developed independently on the Southside and Peninsula, Tidewater Regional Transit and Pentran, respectively. Electric trolleys operated in both areas before the turn of the 20th century and were gradually replaced by buses between the 1920s and 1940s. Paratransit service began in both areas of the region in 1979-1980, and ferry service between Norfolk and Portsmouth – operated by Tidewater Regional Transit – was established in 1983. Late night bus service began on the Peninsula in 1991.

Tidewater Regional Transit and Pentran merged in 1999 to create the Transportation District Commission of Hampton Roads (TDCHR), which operates as HRT. In 2008, HRT began an eight-route express bus service linking the seven jurisdictions that were part of the TDCHR at the time. In 2011, HRT completed and opened Virginia's first light rail line, The Tide, which provides service connecting Downtown Norfolk to the border of Norfolk and Virginia Beach. HRT currently operates 67 fixed-route bus services, including three seasonal routes serving oceanfront and recreational destinations in Virginia Beach.

A.2 Governance

HRT is a local government agency, a body corporate and politic, created pursuant to the Transportation District Act of 1964, Virginia Code §§ 33.2-1900, et seq. A thirteen-member board of commissioners (Commission) governs the affairs of HRT, including its statutorily mandated functions as a regional transportation authority. The Commission typically meets on the fourth Thursday of every month and alternates meeting locations between its facility in the City of Norfolk and its headquarters in the City of Hampton.[5] In addition to monthly meetings of the full board, governance and oversight activities of the Commission are carried out with the advisement of several committees. These include: Audit and Budget; Operations and Oversight; Planning and New Starts Development;

[1] HRTPO, "Hampton Roads 2045 Socioeconomic Forecast and Transportation Analysis Zone Allocation" Accessed at https://www.hrtpo.org/uploads/docs/Hampton%20Roads%202045%20Socioeconomic%20Forecast%20and%20TAZ%20Allocation%20Report.pdf
[2] Ibid.
[3] 2019 Hampton Roads State of the Region Report, Dragas Center for Economic Analysis and Policy, Old Dominion University, Accessed at https://www.ceapodu.com/wp-content/uploads/2019/10/SOR%202019.pdf
[4] Ibid.
[5] http://www.gohrt.com/about/governing-board/

External and Legislative Affairs; Smart Cities and Innovation, Paratransit Advisory Committee; and the Transit Riders Advisory Committee.

A.2.1 Membership

The Transportation District of Hampton Roads (TDCHR) has six member cities: Chesapeake, Hampton, Newport News, Norfolk, Portsmouth, and Virginia Beach and a 13-member board of commissioners. Terms of commissioners are typically four years. The board is comprised of two commissioners from each of its six member cities. This includes one commissioner appointed by the member city, usually a city council person, and one non-legislative citizen commissioner who resides in the member city and is appointed by the Governor of Virginia. The Chairman of the Commonwealth Transportation Board (CTB), or his/her designee, serves as a commissioner *ex officio*, with voting privileges. **Table A-1** lists current TDCHR Commissioners. Officers of the Commission, elected at the annual meeting of the Commission to a one-year term, are also noted in **Table A-1**.

Table A-1: TDCHR Officers[6]

Location	Officer	Term Expires
Virginia Beach	Hon. Aaron Rouse	City Council Appointed
	Hon. Amelia Ross-Hammond	June 30, 2022
Newport News	Hon. Patricia P. Woodbury	City Council Appointed
	Comm. Robert "Rob" Coleman	June 30, 2020
Hampton	Hon. Jimmy Gray *(Vice Chair)*	City Council Appointed
	Comm. Gaylene Kanoyton	June 30, 2022
Portsmouth	Hon. John L. Rowe, Jr.	City Council Appointed
	Comm. Brad Hunter *(Chair)*	June 30, 2022
Chesapeake	Comm. Matthew "Matt" Hamel	City Council Appointed
	Comm. Douglas W. Fuller	June 30, 2022
Norfolk	Hon. Andria McClellan	City Council Appointed
	Comm. Keith Parnell	June 30, 2020
CTB	Comm. Jennifer Mitchell	Appointed

A.2.2 Funding

The TDHCR is divided into two divisions for the allocation of operating revenue and costs: the Southside Division (Chesapeake, Norfolk, Portsmouth, and Virginia Beach) and the Peninsula Division (Hampton and Newport News). Funding for HRT services has traditionally been provided by federal, state, and local subsidies, as well as passenger revenues. Local funding is provided based on a Cost Allocation Agreement, where service allocation in each city is based on the subsidy it provides after all federal, state, and farebox revenues are applied.[7] HRT, as with its predecessor agencies, has had no dedicated revenue source since its founding in 1999. In 2020, the Virginia General Assembly passed historic legislation to create dedicated regional funding for public transportation in the HRT service area. Through Senate Bill 1038 and House Bill 1727, which require the establishment of the Hampton Roads Regional Transit Program, the General Assembly emphasized the importance of having effective multimodal transportation, as it is essential for the region's economic growth, vitality, and competitiveness.

To this end, the Hampton Roads Regional Transit Program is established to define and supply resources for the development, operating, and capital needs for both expansion and state of good repair of reliable regional transit operations. The Program must be documented in the Transit Strategic Plan (TSP) approved by the TDCHR. The Program adopted by the Commission becomes the foundation for any complementary regional transit planning,

[6] Transportation District Commission of Hampton Roads, Accessed at http://www.gohrt.com/about/governing-board/transportation-district-commission-of-hampton-roads/
[7] TDCHR Cost Allocation Agreement

and encompasses the operating and capital costs for transit infrastructure and operations that are eligible to be funded by the Hampton Roads Regional Transit Fund. The Hampton Roads Regional Transit Fund is a dedicated regional transit fund to be administered through the Hampton Roads Transportation Accountability Commission.

There is express parity in the legislative statutes between the purposes of the Hampton Roads Regional Transit Program and the Hampton Roads Regional Transit Fund. Specifically, pursuant to Virginia Code section 33.2-2600.1, et seq., the Hampton Roads Regional Transit Program is explicitly for a "core regional network of transit routes and related infrastructure, rolling stock, and support facilities". The express goal of the Program is "to provide a modern, safe, and efficient core network of transit services across the Hampton Roads region." Meanwhile, the Fund shall be used for "the development, maintenance, improvement, and operation of a core and connected regional network of transit routes and related infrastructure, rolling stock, and support facilities, to include the operation of a regional system of inter-jurisdictional high-frequency bus service, in a [the] transportation district in Hampton Roads".

The Hampton Roads Regional Transit Program is documented in **Chapter 6**, consistent with the purposes and requirements outlined in the Code of Virginia related to the Program and usage of the Hampton Roads Regional Transit Fund. The Program is also aligned to the service planning principles and framework detailed in **Section 1.2.2.** and **Section 1.2.3**. This includes top regional priorities of providing more reliable inter-jurisdictional bus service, with priority on more service frequency during hours of the day that most commuters are traveling between work and home.

A.2.3 Special Advisory Committees

Transit Riders Advisory Subcommittee

The Transit Riders Advisory Committee (TRAC) is a subcommittee to the TDCHR Executive Committee. The TRAC may have up to 14 members, including residents from each city in the service area; these residents are HRT customers. TRAC's function is to:

- Provide HRT administration with input and information on issues affecting HRT customers
- Suggest ideas for improving operations and services
- Provide input into HRT's customer outreach activities
- Share information with HRT customers and the community at large about HRT services and avenues for providing input concerning service improvements.

Paratransit Advisory Subcommittee

The Paratransit Advisory Committee (PAC) is a subcommittee to the TDCHR Executive Committee. The PAC may have up to 21 members; of those, up to 14 may be consumers, and up to seven may be service provider agency representatives. The TDCHR defines a consumer as "an individual, or parent, guardian, or caregiver of an individual with a disability, who is certified eligible for ADA paratransit services and has been using the Paratransit services of the Commission during the past six months."[8] The PAC's function is to:

- Advise TDCHR on implementation of HRT's Unified Service Plan & Policy for Complementary Paratransit Services Under the Americans with Disabilities Act
- Advise TDCHR on compliance issues relative to the Plan
- Share information with HRT customers and community-at-large about HRT's paratransit services
- Share information with HRT staff and the TDCHR regarding paratransit customer needs
- Provide input to the staff and the TDCHR on quality of service issues relative to paratransit services provided.[9]

[8] Paratransit Advisory Committee, Accessed at https://gohrt.com/agency/governing-board/pac/

[9] Bylaws of the Transportation District Commission of Hampton Roads, Accessed at http://www.gohrt.com/wp-content/uplaods/2016/01/revised-bylaws.pdf

Management and Financial Advisory Committee

The Management / Financial Advisory Committee (MFAC) includes a designee of the CTB Chair and staff of HRT and member cities. Members serve as liaisons between the agency and City Managers of the component governments. Some of the key functions of MFAC include:

- To serve as an advisory body to make general or specific recommendations to the Commission
- To review the monthly financial statements as they pertain to each component government
- Ensure all financial information is communicated to the City Managers of the component governments on a regular basis
- To assist HRT in the development of transit services and programs that will complement component government plans and projects
- To facilitate development of HRT annual budgets in coordination with the component government budget development process
- To provide input to the Chief Financial Officer on improving HRT's financial and accounting practices.

A.3 Organizational Structure

A.3.1 Organization

TDCHR staff provide management and administrative support and serve to achieve the agency's goals and objectives. TDCHR staff includes the President and Chief Executive Officer (CEO), the Commission Secretary, Internal Auditor and the Chief Financial Officer/Commission Treasurer.

The General Counsel and Internal Auditor serve at the pleasure of the Commission and have direct access to the Commission as required. On daily business matters, they report to the President and CEO. Additionally, the following HRT staff report to the President and CEO:

- Chief of Staff
- Chief Safety Officer
- Chief Financial Officer
- Chief Transit Operations Officer
- Chief Planning and Development Officer
- Chief Information and Technology Officer
- Director of Marketing & Communications
- Chief Engineering & Facilities Officer
- Chief Human Resources Officer
- Corporate Counsel

Table A-2 provides an overview of these staff and associated departmental responsibilities. **Figure A-1** illustrates the organizational structure.

Table A-2: HRT Executive Team and Departments

Department	Title	Staff	Department Responsibility
Executive Department	President & CEO	William Harrell	Responsible for oversight of all functional areas within HRT. This includes leadership and unity of effort to achieve the vision and mission of the agency, as well as: ■ **Internal Audit:** Provides assurances on HRT's governance, risk management and control processes to help the organization achieve its strategic operational and financial and compliance objectives. ■ **Government Relations**: Facilitates the development and implementation of the legislative and policy agenda of the TDCHR. ■ **Records Management:** Maintenance of all policies, agreements, transactions, and official correspondence of HRT.
	Internal Auditor	Shanti Mullen	
	Chief of Staff	Brian Smith	
	TDCHR Secretary	Luis Ramos	
Technology	Chief Information & Technology Officer	Michael Price	■ **Office of the CIO/CTO (Support Services):** Directs and coordinates agency-wide information resource planning to ensure that agency information technology (IT), information management (IM), and IT security resources are selected and managed to provide maximum value to the agency. The CIO/CTO has oversight responsibility over the entire Technology Department IT portfolio and has operational responsibilities consisting of local area networks, wide area networks, desktops and backend services for all HRT modes. The CIO/CTO also promotes entrepreneurship, innovation, investment and alliances to address transit issues by creating technology solutions. The CIO/CTO is also implementing a holistic cybersecurity plan to strengthen HRT's security framework. The CIO/CTO also directly maintains the Technology Project Management Office (TPMO), Fare Technology Operations Office (FTOO) and the Information Technology Security Office (ITSO). ■ **Technology Project Management Office (TPMO):** Serves as the primary point of contact for all technology-related project requests. The TPMO was established in 2017. The TPMO focuses on prioritizing projects and strategically utilizing resources to move projects to success. ■ **Fare Technology Operations Office (FTOO):** Serves as the primary administrator and project management office for all fare and revenue technology systems. The FTOO works collaboratively with Revenue Services, Planning and Fleet Services to procure and manage all fare collection and revenue systems, equipment, hardware and software. ■ **IT Security Office (ITSO):** Responsible for ensuring network and information system security. Goals include establishing a standard, integrated approach to ensure the Agency becomes secure and compliant as well as making sure that everyone who uses computer or network services understands how to keep their computer, data, and other electronic devices secure are critical to keeping the agency and its assets protected. ■ **Technology Infrastructure & Operations Services (TIOS):** Provides wired and wireless connections between customer devices (such as workstations and laptops) and agency networks, providing internet access and Agency IT and OT systems, services and applications. Network Services assists with knowledgeable technical support to help manage relationships between HRT and external suppliers such as equipment supply houses and system maintenance vendors. Network Services also aims to provide reliable, high speed, secure, and accessible network services to sustain Agency business needs. The Technology Department runs the agency IT Helpdesk that includes support for all agency workstations, laptops, agency-procured cellular phones, multi-function devices for printing, faxing, scanning and copying, working hard to ensure all staff can work effectively. The Technology Department keeps key software and hardware up-to-date, available and secure.

Department	Title	Staff	Department Responsibility
			■ **Intelligent Transportation Systems (ITS):** HRT's ITS division focuses on intelligent vehicles, intelligent infrastructure and the creation of an intelligent transportation system through integration with and between these two components. ITS staff manage and support a variety of on-vehicle transit technologies and applications. advanced sensors, computers, electronics, and communications technologies as well as management strategies – in an integrated manner – providing traveler information – to increase the safety and efficiency of the transit system. ■ **Enterprise Technology Solutions (ETS):** Responsible for managing the IT Services portfolio which consists of projects that have been approved by the CIO/CTO in collaboration with Agency Executive Management. Maintaining business relationships to ensure awareness of customer needs is the primary focus of ETS. Responsibilities include Identifying, prioritizing, authorizing, managing, and controlling information technology projects, programs, and other related work, to achieve specific strategic agency objectives. Revenue Systems Support, Database Services, Web Services, Business Intelligence and Analytics are managed through this division. ■ **Enterprise Resource Planning (ERP) Services:** Responsible for providing implementation services and technical support, primarily for users of the agency's ERP systems including: PeopleSoft HCM, PeopleSoft Financials and the new Microsoft Dynamics 365 implementation. ERP Services Staff specialize in application-level technical services and management of the support process with a focus on results oriented, quality support and responsiveness.
Marketing & Communications	Director of Marketing & Communications	Gene Cavasos	Works across a range of disciplines to share information about the agency's policies and practices using traditional and web-based platforms. Works to refine and improve the agency's brand while supporting HRT departments with initiatives and programming through public outreach, planning and communication development.
Engineering & Facilities	Chief Engineering & Facilities Officer	Sibyl Pappas	Responsible for managing and maintaining HRT's engineering, construction projects and facilities. This includes the development, implementation, and continual improvement of HRT's physical infrastructure. Emphasis is placed on reducing costs, minimizing liability and improving efficiency and quality of services. The Department is organized into six divisions: Construction; Engineering; Environmental Compliance & Sustainability; Facilities Maintenance; Asset Management and Project Management. Facilities Maintenance & Asset Management: Provides day to day operational support to all HRT departments, facilities, major systems and routine equipment maintenance, surplus property management, and the general upkeep of HRT properties. Also manages all contracts supporting HRT facilities. ■ **Office of Project Management (OPM):** Provides oversight of HRT capital projects. ■ **Environmental Compliance and Sustainability (EMS):** Works with employees and departments to coordinate EMS procedures and sustainability initiatives to minimize HRT's environmental impacts, energy use, and resource use. Responsible for facilitating HRT's Environmental Policy and ensuring HRT's compliance with all federal, state, and local environmental laws and regulations.
Finance Department	Chief Financial Officer	Conner Burns	Responsible for developing strategic goals and objectives, assessing and monitoring financial and administrative performance, safeguarding the agency's assets, and ensuring the effective use of financial resources. ■ **Accounting:** Provide accurate and timely financial accounting and reporting services. Responsible for the post-award financial management and fiscal reporting functions for all Hampton Roads Transit grant awards. Analyze and prepare monthly financial reports and Comprehensive Annual Financial Report. ■ **Budget & Financial Analysis:** Prepare and submit annual operating budget that supports the agency's goals and objectives. Establish budgetary guidelines, communicates policies, procedures and best business practices and monitors compliance

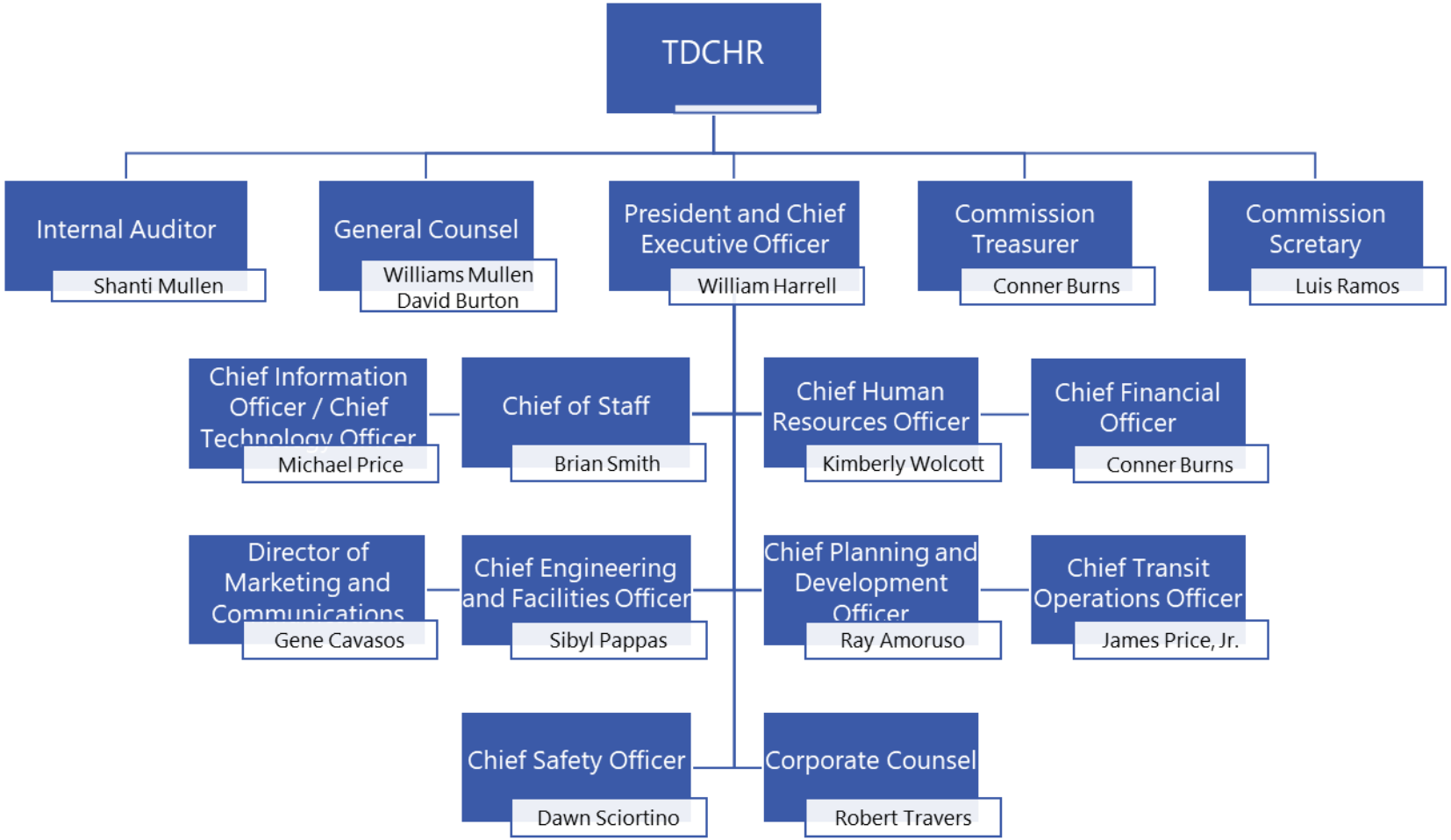
Department	Title	Staff	Department Responsibility
			with HRT, federal and state policies. Reports statistical data to FTA, DRPT, and the American Bus Benchmarking Group (ABBG). ■ **Procurement:** Acquire supplies and professional and construction services in accordance with Virginia law and FTA regulations. Provide support to DBE efforts, helps identify opportunities for cost-savings. ■ **Revenue Services:** Collects, deposits, and accounts for all farebox revenue, is responsible for fare media purchases, and maintains control over fare media inventory.
Planning & Development Department	Chief Planning & Development Officer	Ray Amoruso	Direct and support the development and implementation of short and long-range service and system plans and programs for public transportation services and facilities, including HRT's Six Year Capital Improvement Program and Transit Development Plan (TDP), as well as the development of the information for High Capacity transit corridors, bus routes, schedules, and the annual Transportation Service Plans for member cities in accordance with the Cost Allocation Agreement. ■ **Service Planning & Scheduling:** Provides service planning and scheduling for all bus and trolley services, as well as strategic planning and quality assurance. Develops new routes and schedules and modifies and redesigns existing routes and schedules to improve the efficiency and effectiveness of HRT's service structure. Manages the route planning process including bus stop locations, identification of locations for passenger shelters and coordination with local governments and businesses. Maintains the agency database for bus stops and passenger shelters. Examines ridership counts, on time performance data and conducts ride checks to ensure that services are being provided properly. Coordinates long range planning for future routes and services. Conducts data collection, not only for the National Transit Database, but also the Planning and Scheduling staff when data is required for scheduling improvements and passenger loads. ■ **Fare Media and Advertising Sales:** Works to increase the sale of fare media through partnerships with area businesses. Responsible for all internal and external bus and rail advertising, direct oversight over sales advertising, the GoPass 365 program and fare media sales. ■ **Transportation Demand Management (TDM) program (TRAFFIX):** The regional TDM program, TRAFFIX grant funds are directed through HRT, which oversees the administration of the program.[9] TRAFFIX provides commuter programs for vanpools, carpools, biking, walking, riding transit and telework options. TRAFFIX staff work closely with DRPT, VDOT, the military, and various employers and local governments to administer programs associated with transportation alternatives. ■ **Customer Relations:** Provides customer service via the contact center and the transit centers. The contact center is the central point in which all customer contacts are managed via the telephone, email and web. Information is entered into a formal database called the Customer Assistance System (CAS). The database is used to measure customer perceptions related to Key Performance Indicators. ■ **Grants Administration and DBE Compliance:** Pre- and post-award grant administration, including the submission of grant applications, amendments, revision, and closeouts. Has a shared responsibility for the development of the capital budget. Responsible for the preparation of requests for federal, state, and local funding, as well as managing the Disadvantaged Businesses Enterprise (DBE) Program. ■ **Long Range Planning & Transit Development:** Facilitates the planning and management of fixed guideway and High Capacity studies, major capital investment planning as well as transit-oriented development projects. Supports the preparation of requests for federal, state and local funding and manages the planning and environmental assessment for new rail, bus, ferry, and intermodal transportation. Responsible for the development of the six-year Capital Improvement Plan and Transit Strategic Plan. Develops and implements the HRT Title VI program, including: Title VI service and fare equity analyses, Title VI complaints and agency compliance.

Department	Title	Staff	Department Responsibility
Safety	Chief Safety Officer	Dawn Sciortino	■ **Safety:** Achieve the highest practical level of safety for all HRT modes of transit to protect passengers, employees, revenues, and property. HRT has implemented a proactive, agency-wide safety program plan supported by the Federal Transit Administration (FTA). Responsible for the development and implementation of the Safety Management System for HRT. Supports HRT Departments in meeting the requirements set forth in the Public Transit Agency Safety Plan. ■ **Safety Policy:** Promote commitment to safety performance through SMS — Establish clear safety objectives, and commitment to manage to those objectives — Define methods, processes, and organizational structure needed to meet safety goals — Establish transparency in management of safety through fully documented policy and processes, employee hazard reporting and resolution system, and accountability of management and employees — Facilitate cross-organizational communication and cooperation ■ **Safety Risk Management (SRM):** Determine the need for, and adequacy of, new or revised risk controls based on the assessment of system risks. Develop formal process within the SMS composed of: Identifying hazards, Assessing the risk, Analyzing the risk, and Controlling the risk ■ **Safety Assurance (SA):** Evaluate the continued effectiveness of implemented risk control strategies — SMS process management functions that systematically provide confidence that HRT meets or exceed safety requirement — Ensure compliance with SMS requirements and FTA standards, policies, and directives — Provide insight and analysis regarding methods/opportunities for improving safety and minimizing risk through Information Acquisition, Data Analysis, and System Assessment ■ **Safety Promotion:** Includes training, communication, and other actions to create a positive safety culture within all levels of the workforce. Safety promotion activities within the SMS framework include: — Advocating/strengthening a positive safety culture — System and safety communication and awareness — Matching competency requirements to system requirements — Disseminating safety lessons learned
Operations	Chief Transit Operations Officer	James Price, Jr.	Bus Maintenance Departments ■ **Fleet Maintenance:** Vehicle maintenance services, as well as management of all corporate inventory functions. There are three maintenance facilities; one in Norfolk, one in Hampton and one seasonally operated facility in Virginia Beach. ■ **Inventory Services:** Responsible for management and operation of two storage and distribution centers, as well as management of all purchase requisitions, delivery schedules, and storage levels of petroleum products, oils, and lubricants. ■ **Fleet Support Services:** Provides maintenance and support for mobile and portable radios, Advanced Communication System, fare collection, Wi-Fi on buses and digital security camera systems, fare collection units, isolation boxes, Ticket Vending Machines, receivers, bus Wi-Fi systems, mobile radios, portable radios, base stations, dispatcher consoles, towers, emergency call boxes and mobile camera systems. Support Services team members are on-call 24 hours a day to respond to service needs.

Department	Title	Staff	Department Responsibility
			Bus Transportation Service Departments ■ **Transportation Services:** More than 500 bus operators, about 46 supervisors and dispatchers (during seasonal service). ■ **Bus Training:** Responsible for training all Bus Operators and Bus Supervisors on the operation of bus vehicles and operating rules and procedures. Rail Maintenance Service Departments ■ **Light Rail Vehicle Maintenance**: Preventive and corrective maintenance, which is accomplished by a preventive maintenance program, nightly cleaning and servicing, and from direct feedback received from the operators on corrective maintenance needs. ■ **Light Rail Inventory:** Ensure material needs for the department are met, including consumable supplies and spare parts for both LRV maintenance and System's maintenance divisions. ■ **Light Rail Systems**: Responsible for all maintenance along the Light Rail Right of Way and all HRT Operations Facilities equipment. Staffed 24 hours a day, 7 days a week. Rail Transportation Service Departments ■ **Light Rail Transportation Services**: The department consists of 23 light rail operators, 12 controllers/dispatchers and 1 Manager of Rail. ■ **Rail Training:** The Rail Training department is responsible for training all Rail Operators and Rail Controllers on the operation of the rail vehicles and associated operating rules and procedures. ■ **Ferry Services:** HRT contracts with Norfolk-by-Boat to provide ferryboat service on the Elizabeth River between Downtown Norfolk and Olde Town Portsmouth. Ferry service is also provided for special events at Harbor Park Stadium, home to Norfolk's Minor League Baseball team. The fleet consists of three, HRT-owned T-class, 150-passenger ferries that operate with dual control twin diesel engines. ■ **Paratransit Services:** Works side-by-side with HRT fixed route services in a "demand-response" capacity; eligible customers call in advance for the service. A fare is required for each ride. These services are federally mandated by the American with Disabilities Act (ADA) of 1990. Paratransit services operate the same days and hours as the regular service and are limited to the same areas as HRT's fixed route bus service. HRT provides an origin to destination service within ¾ miles of the nearest fixed route service. The fleet dedicated to HRT's Paratransit service is comprised of 76 Agency-owned lift-equipped cutaway passenger vans and 3 Agency owned 15-passenger vans complemented by 29 sedans which are provided by the service contractor. ■ **Support Vehicle Services:** Staff maintains a fleet of 134 non-revenue (or support) vehicles used by HRT employees for company business. The department performs all scheduled maintenance and repairs for the support vehicles and is responsible for tracking mileage and drivers and ensuring proper usage of fleet vehicles. ■ **Security Department:** HRT's President/CEO is ultimately responsible for secure operations and communicating security as a top priority for all employees. The Director of Transportation and Security leads the security department and has primary responsibility for implementing the tasks and requirements set forth in the HRT SEPP and responsible for developing relationships and agreements with external organizations that contribute to the security program; Manages security services for all HRT facilities, including transfer centers, light rail vehicles, revenue vehicles, as well as non-revenue vehicles; Security card access, surveillance camera systems, and key and lock systems for all agency facilities are also overseen by the Security department. Staff works with police departments throughout the Hampton Roads area.

Department	Title	Staff	Department Responsibility
Human Resources	Chief Human Resources Officer	Kimberly Wolcott	HRT has over 1,000 employees who maintain the fleet, operate buses and light rail vehicles, and maintain support services to the organization. Human Resources staff plays an integral role in providing quality supportive and innovative service and advice to our employees and to our management team while promoting a positive, safe, productive working environment that supports a work/life balance. Human Resources departments include Compensation & Benefits, Recruitment, Employee/Labor Relations, Performance Management and Compliance.
Legal	General Counsel	David Burton, Williams Mullen	The Legal Department is comprised of a Corporate Counsel who serves as a member of the Senior Executive Team and is responsible for providing legal advice and services to the President & CEO, other members of the Senior Executive Team, all departments, as well as the Board of Commissioners upon request.
	Corporate Counsel	Robert Travers	

Figure A-1: HRT Transportation District Commission of Hampton Roads – Organizational Chart



A.3.2 Contracted Transportation Services

HRT owns its ferry vessels and contracts to provide ferryboat service on the Elizabeth River between Downtown Norfolk and Olde Town Portsmouth, as well as special event services from April-September to Harbor Park Stadium, home to the Norfolk Tides, Norfolk's Minor League Baseball team. HRT contracts with VIA to provide daily paratransit operations (**Table A-3**).

Table A-3: HRT Contracted Transportation Services

Service	Contractor	Contract Expiration
Elizabeth River Ferry	Norfolk-by-Boat	July 11, 2021[10]
Paratransit Operation	VIA	Jan. 31, 2023[11]

A.3.3 Labor Unions and Contracts

HRT's contract with Amalgamated Transit Union (ATU) Local 1177 is approved through June 2021 (**Table A-4**)**.** ATU Local 1,177 represents full- and part-time operators and permanent full-time hourly maintenance department employees at HRT, excluding clerical employees, guards, professional employees, or supervisors.[12]

Table A-4: HRT Labor Unions and Contracts

Union	Contract	Contract Length
Amalgamated Transit Union Local 1177	Agreement between ATU Local 1177 and HRT	July 1, 2018 – June 30, 2021

A.4 Services Provided and Areas Served

A.4.1 Area Served

HRT serves a 431 square mile area within the Hampton Roads Region. HRT consists of six member jurisdictions: Chesapeake, Hampton, Newport News, Norfolk, Portsmouth, and Virginia Beach. The population of the six jurisdictions combined is approximately 1.35 million.[13]

A.4.2 Services Provided

HRT provides the following service:

- Local, limited stop, regional express, and seasonal bus
- Demand response paratransit
- Passenger ferry
- Light rail
- Transportation demand management vanpools

Table A-5 details the total vehicles operated in maximum service for each mode in FY 2020.

[10] The Norfolk-by-Boat contract has a two-year option period, which would extend the contract to July 11, 2023.
[11] The current paratransit contract has two one-year options available, which could extend the contract to January 31, 2025.
[12] Agreement between ATU Local 1177 and HRT, Contract Term July 1, 2018-June 30, 2021. Accessed at https://www.gohrt.com/public-records/Commission-Documents/Governance/Collective-Bargaining-Agreement.pdf
[13] ACS 2011-2015 5-year estimates

Table A-5: Vehicles Operated in Maximum Service, FY 2020

Mode	Number of Vehicles
Bus	198
Demand Response	98
Ferry Boat	3
Light Rail	6
Vanpool	26

Local Bus Service
HRT operates 53 local bus fixed-routes, 33 routes on the Southside and 20 routes on the Peninsula. Fixed-route buses are equipped with bicycle racks and have low floors, ramps, or wheelchair lifts to assist the elderly and passengers with disabilities. Weekday service runs between approximately 4:30 AM and 1:30 AM (until 2:00 AM on the Virginia Beach (VB) Wave service in the summer).

Peninsula Commuter Service
HRT's Peninsula Commuter Service (PCS) is a five route, limited stop bus service that provides service to major employers on the Peninsula, including the Huntington Ingalls Shipyard in Newport News. PCS routes offer commuter service with only one or two trips per day, designed to coincide with shift change times of major employers.

Metro Area Express Service
HRT's Metro Area Express (MAX) is a seven route regional express bus service operating between Hampton / Newport News and Norfolk / Chesapeake / Virginia Beach, mostly along the interstate highways. The routes are designed for commuters; MAX service is limited stop and operates on coach style buses with free Wi-Fi. Some MAX routes operate throughout the day; others are designed for commuter service, only operating during peak periods.

Virginia Beach Wave and Bayfront Shuttle
The VB Wave and Bayfront Shuttle consist of three routes that operate seasonal service for residents and tourists in the Virginia Beach resort area. The VB Wave (Routes 30 and 31) use replica trolley-style diesel buses and the Bayfront Shuttle (Route 35) uses 29-ft diesel buses. These routes operate approximately from April to October 1st, from 8:00 AM to 2:00 AM.

The Tide Light Rail
HRT opened Virginia's first fixed guideway light rail system in August 2011, called "The Tide." It operates on 7.4 miles of track in the City of Norfolk, stopping at eleven stations and connecting downtown Norfolk with the western edge of Virginia Beach. The Tide operates nine light rail vehicles, powered by an overhead electrical system. Each vehicle can carry up to 160 passengers. Nineteen HRT bus routes offer direct connections to eight Tide stations, and four Tide stations have a combination of almost 800 free parking spaces.

Passenger Ferry
HRT contracts with Norfolk-by-Boat to provide daily service on the Elizabeth River between Downtown Norfolk and Downtown Portsmouth, using three 150-passenger ferries. Ferry service is also provided to the Harbor Park baseball stadium between April and September when the Norfolk Tides (Minor League Baseball team) play home games.

Demand Response Paratransit
HRT contracts with VIA to provide demand response paratransit service for persons with disabilities. Paratransit service is offered within three-quarters of a mile of any fixed-route bus service during the same hours of service as bus operations. Performance tracking for paratransit operations is accessible at HRT's online Accountability Center at www.gohrt.com/agency/accountability-center/.

A.4.3 Bus Stop and Shelter Placement

Bus Stop Location Guidelines

When establishing new bus stops or replacing existing bus stops, HRT coordinates with local jurisdictions to locate and identify mutually acceptable locations. Local jurisdictions make the final decisions about new bus stop placement or relocation. HRT considers many elements when locating a new bus stop:

- Stops should be placed based on population density and/or major passenger generators (i.e. major employment centers, regional shopping centers, hospitals, etc.)
- Distance between bus stops should be a minimum of 1,056 feet (one-fifth mile) and a maximum of 1,320 feet (one-quarter mile) apart or three to four blocks apart
- Presence of sidewalks, marked crosswalks, and curb ramps
- Protected crossings at signalized intersections
- Connection to nearby pedestrian circulation system
- Access for elderly and people with disabilities
- Convenient passenger transfers to other routes
- Effect on adjacent property owners.

Further guidelines for new bus stops – including bus operations, traffic and rider safety, placement at intersections, passenger boarding areas, bus stop access, and ADA requirements – can be found in HRT's *Bus Stop Location Policy* (updated May 5, 2016).[14]

Shelters

HRT's Passenger Guidelines classify different types of transit stops by level of use, and identify the appropriate amenities for each stop type, including bus stop shelters (**Table A-6**). Bus benches are typically placed at stops with an average of 25 or more daily boardings. Stops with 40 or more average daily boardings typically would warrant installation of a bus shelter unless there are right-of-way constrictions. Shelters are required to be ADA accessible, and include both an interior bench and nearby trashcan.

Table A-6: HRT Shelter Placement Guidelines[15]

Stop Type	Average Daily Boardings	Bench, Trash Can	Shelter
Standard	0-24	N	N
Enhanced	25-39	Y	N
Sheltered	25+ Priority 40+	Y	Y
Transfer Center	5-9 routes	Y	Y
Transit Center	10+ routes	Y	Y
Fixed Guideway	Tide, Ferry	Y	Y

A.4.4 Bicycle Amenities

All HRT buses and light rail vehicles are equipped with bike racks. Bicycle amenities at HRT transit stops include bicycle parking, bicycle lockers, on-bus racks, bike share programs, or other infrastructure. The distribution of these amenities may be based on a number of factors, including bicycle ridership, local infrastructure requirements, and connectivity. However, bicycle amenities are not currently required at transit stops – for each type of transit stop, HRT's amenity guidelines note that the bicycle amenities will vary.

[14] HRT Bus Stop Location Policy, PD 106, July 1, 2019.
[15] HRT Passenger Amenity Policy, PD 113, July 12, 2019.

A.4.5 Pedestrian Amenities

HRT's guidelines for pedestrian amenities, as found in its Passenger Amenity Policy, are classified by level of transit stop. All HRT bus transit stops are required to have an ADA-accessible alighting pad, cover ADA accessibility, a minimum sidewalk width of five feet, and basic signage.[16] At a standard stop, HRT only requires a sidewalk, signage and an ADA alighting pad; however, enhanced stops, which expect 25-39 average daily boardings, are required to have a bench and trash receptable. Additional amenities, for stops with higher average daily boardings, include shelters, food and beverage vending machines and vendors, restrooms, and water fountains.

A.4.6 ADA Requirements

HRT provides demand response paratransit service for persons with disabilities. Paratransit service is offered to origins and destinations within three-quarters of a mile of any fixed route during the same hours of hours of service as bus, light rail and/or ferry operations. All paratransit riders must be certified through an eligibility application process.[17]

All HRT transit services are wheelchair accessible. HRT's Bus Stop Location Policy also includes ADA design requirements for passenger boarding areas and bus stop sites.[18]

The HRT Paratransit Advisory Committee (PAC) is a subcommittee under the TDCHR Executive Committee. The PAC provides a vital communication link between the TDCHR, persons with disabilities who use or may use HRT services, and service providers to the disabled community on matters related to paratransit service within HRT's service area.

A.4.7 TDM Program (TRAFFIX)

Overview

TRAFFIX was established in 1995 as Hampton Roads' regional Transportation Demand Management (TDM) program. TDM, also called transportation demand management, has traditionally focused on commuter ridesharing, air quality mitigation, reduced trip generation or parking needs, and increased multi-modal options in transportation plans. However, the U.S. Department of Transportation has updated the definition of TDM to focus on traveler choice:

"Managing demand is about providing travelers, regardless of whether they drive alone, with travel choices, such as work location, route, time of travel, and mode. In the broadest sense, demand management is defined as providing travelers with effective choices to improve travel reliability."[19]

TRAFFIX receives funding through the Virginia Department of Rail and Public Transportation as well as federal funding administered through the Hampton Roads Transportation Planning Organization (HRTPO). HRT administers TRAFFIX, and program grants are directed through HRT.[20] Through TRAFFIX, commuters have better access to vanpools, carpools, telework options, as well as parking options.

TRAFFIX Program[21]

- **Vanpools/Carpools/Telework:** TRAFFIX provides and facilitates access to vanpools, carpools, and telework options for commuters; in FY 2019, 92 vanpools were registered with TRAFFIX and 721 commuters participated in vanpools via the TRAFFIX program. TRAFFIX is a partner in the Telework!Va Program and promotes in conjunction with the DRPT for the annual Telework Week in March as well as other telework messaging.

[16] HRT Passenger Amenity Policy (7-1-2019)
[17] HRT Paratransit, Accessed at http://www.gohrt.com/services/paratransit/
[18] HRT Bus Stop Policy (5-10-16)
[19] U.S. Department of Transportation Federal Highway Administration, "Transportation Demand Management." Accessed at http://www.ops.fhwa.dot.gov/plan4ops/trans_demand.htm
[20] TRAFFIX Long-Range Transportation Demand Management (TDM) Plan, 2010. Accessed at http://www.drpt.virginia.gov/media/1256/traffix-tdm-plan_feb-2010.pdf
[21] 2019 TRAFFIX Annual Report

- **Employer Services:** TRAFFIX TDM Programs include Agilemile, a ride-matching and commuter reward program that offers rewards to commuters logging non-SOV trips. In FY 2019, 13,324 commuters were members of the TRAFFIX Program with 2.3 million reduced vehicle miles traveled were recorded in AgileMile, including carpooling, vanpooling, biking, walking, telecommuting, and taking public transportation. Guaranteed Ride Home: Provides carpool, vanpool, transit or active transportation commuters with a reliable ride home if an unexpected emergency occurs after they arrive at work. Commuters can use this program up to two times or month, or six times a year. In FY 2019, 197 rides were given under this program. Registration for the program also increased from 159 new registrations with a total of 1,542 commuters in the program.
- **GoPass365 Program:** GoPass365 is a discounted bus pass that allows users unlimited usage of HRT's services (light rail, bus, ferry, VB Wave and MAX) by showing a GoPass365 and photo ID. The passes are purchased by colleges, employers and other businesses to provide a transit incentive or benefit to students or employees. In FY 2019, GoPass365 ridership reached 1,002,607. The top three GoPass365 clients were Newport News Shipbuilding, Tidewater Community College, and Portfolio Recovery Associates.
- **Military Benefits:** To reduce the number of commuters driving alone to military installations, the U.S. Navy, Marines, and Air Force offer a Transportation Incentive Program (TIP) to their members, and the U.S. Army offers a Mass Transportation Benefit Program (MTBP). These transportation benefits are issued as debit cards, which can be used at HRT ticket vending machines or customer service centers.

A.4.8 Transportation Network Companies (TNCs)

Ride hailing services like Uber and Lyft are available across the entire HRT service area, shown in **Figure A-2** and **Figure A-3**, respectively. Both Uber and Lyft offer on-demand services in mid-size or larger vehicles; ride-pooling services (such as UberPOOL or Lyft Line) are not available in the region.

Figure A-2: Uber Service in HRT Service Area

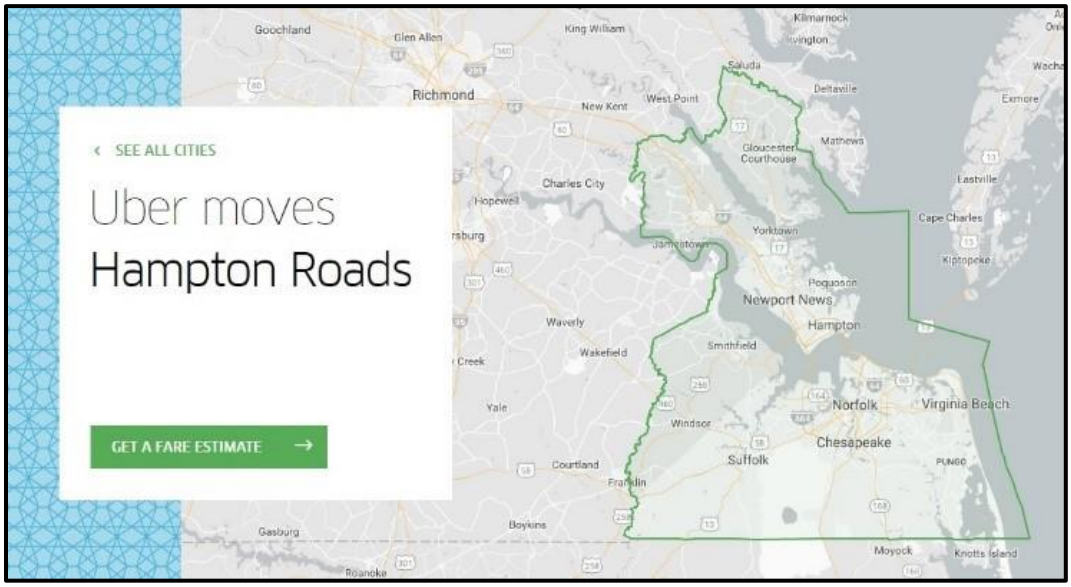
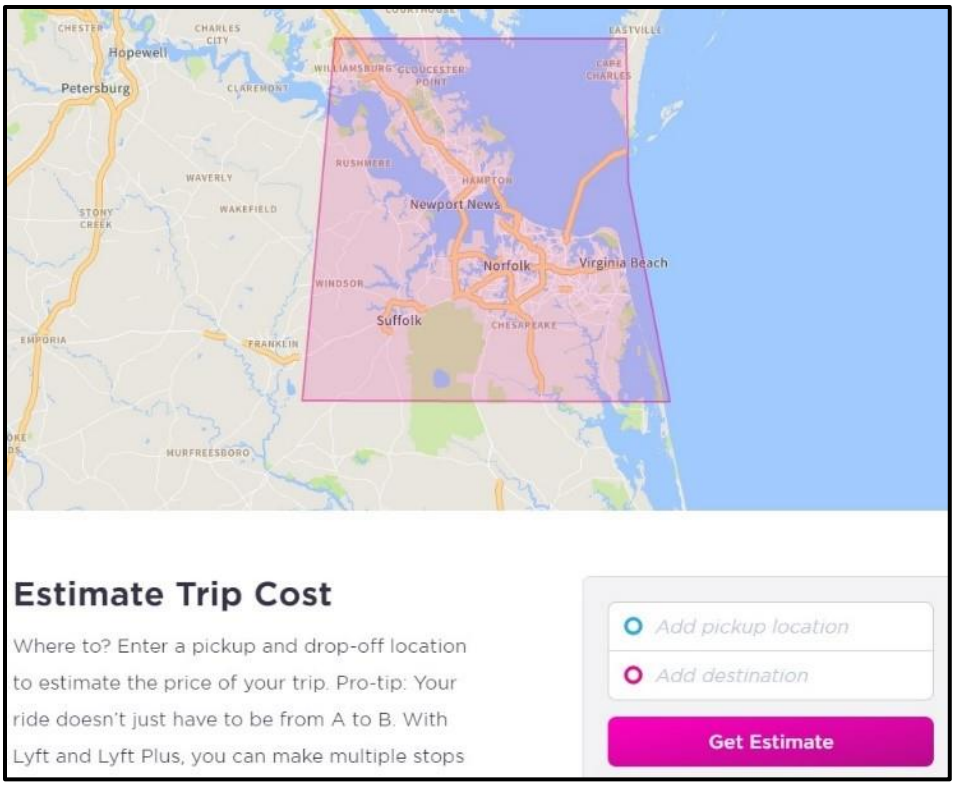


Figure A-3: Lyft Service in HRT Service Area



A.4.9 Taxi

For-hire vehicles, including taxis, are governed by each city's local ordinances rather than a taxicab commission. Some cities (e.g., Norfolk) allow the City Manager or a Board to create additional regulations for taxis.

Hampton Roads Transportation, Inc., provides a regional taxi dispatch service in the HRT service area. Taxis in the service (**Table A-7**) can be booked through phone, desktop website, or the smartphone app, App-a-Cab.[22] A full list of taxicabs authorized to operate in the Hampton Roads service area can be found on the Virginia Department of Motor Vehicles website.[23]

Table A-7: HRT Regional Taxi Services

Service	Location
Black and White Cabs	Norfolk
Black and White Cabs	Virginia Beach
Coastal Ride	Virginia Beach
Norfolk Checker Taxi	Norfolk
Yellow Cab of Norfolk	Norfolk
Yellow Cab of Hampton	Hampton
Yellow Cab of Newport News	Newport News
Hampton Roads Transportation, Inc.	Regional Taxi Dispatch/Aggregation

[22] Hampton Roads Transportation, Inc. Accessed at http://www.hrtitaxi.com/about-us
[23] Virginia DMV, Search/Filter Licensed Transportation Services. Accessed at http://www.dmv.virginia.gov/as/mcs/default/aspx

A.4.10 Transportation for Seniors

Seniors over the age of 65 qualify to ride HRT fixed-route services for a discounted fare. Seniors who are also paratransit customers using fixed-route services can present valid forms of identification to receive free service on HRT's bus, light rail, and ferry service. Several other organizations in the HRT service area offer senior transportation, including those listed in **Table A-8**.

Table A-8: Senior Transportation HRT Service Area

Organization	HRT Service Area	Service Name
Senior Services of Southeastern Virginia	Chesapeake, Norfolk, Portsmouth, Virginia Beach	I-Ride Transit[24]
Peninsula Agency on Aging, Inc.	Hampton, Newport News	PAA Transportation Services[25]

A.4.11 Other Transportation Services

Amtrak

Amtrak service is available at the Newport News station on the Peninsula and Harbor Park station in Norfolk. Amtrak service is also available in Williamsburg. Both the Norfolk and Newport News stations provide connections to Amtrak's Northeast Regional service, which operates on the Northeast Corridor between Boston and Washington, D.C., with several additional Virginia destinations (**Table A-9** and **Figure A-4**).[26]

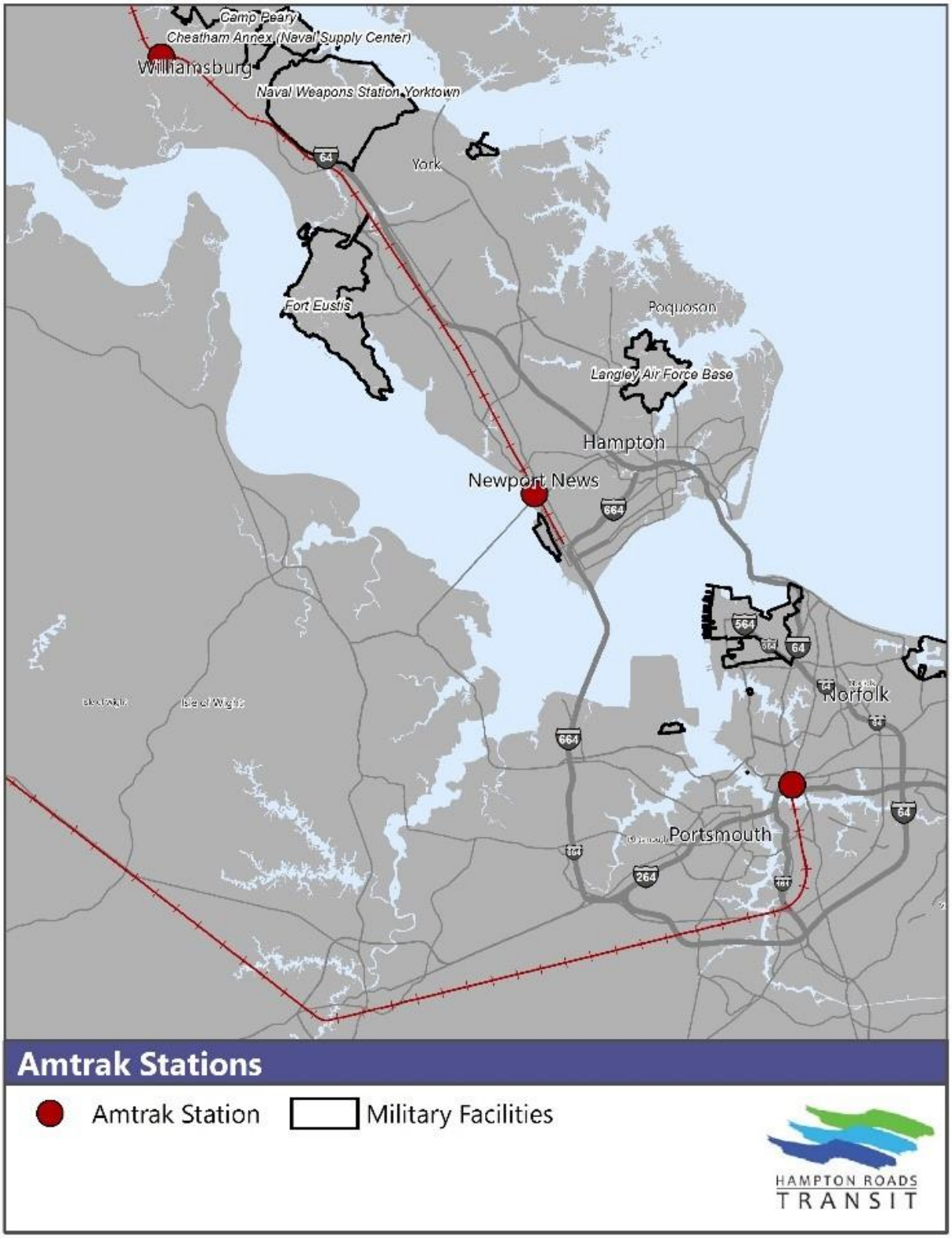
On the Peninsula, the City of Newport News is nearing completion of a new multi-modal station near Bland Boulevard in Newport News, which will replace the current Amtrak station near Mercury Boulevard. The new facility is planned to accommodate HRT buses, as well as taxis and airport shuttles. The new station is expected to open in 2021.[27]

Table A-9: Amtrak Service in Hampton Roads

Station	Trains per day	Amtrak Bus Service	HRT Routes
Newport News	**Monday-Thursday:** two arrivals, two departures **Friday:** three arrivals, two departures **Saturday-Sunday:** two arrivals, one departure	Norfolk, Virginia Beach	106, 107
Norfolk	**Monday-Friday:** Two arrivals, two departures daily **Saturday-Sunday**: one arrival, one departure daily	Virginia Beach	The Tide
Williamsburg	**Monday-Thursday:** two arrivals, two departures **Friday:** three arrivals, three departures **Saturday-Sunday:** two arrivals, two departures		121

[24] I-Ride Transit. Accessed at https://www.ssseva.org/page/i_ride-transit/
[25] PAA Transportation Services, Accessed at https://www.paainc.org/transportation-services.html
[26] Amtrak Virginia Service Timetable, Updated November 2016. Accessed at https://www.amtrak.com/ccurl/1018/288/Northeast-Corridor-Scheudle-W06-11416.pdf
[27] The Daily Press, "Newport News transportation center construction planned for early next year." Nov. 26, 2016. Accessed at http://www.dailypress.com/news/newport-news/dp-nws-nn-transportation-center-update-20161123-story.html

Figure A-4: Hampton Roads Amtrak Train Station Locations[28]



[28] Amtrak Across Virginia and the Northeast, Accessed at https://www.amtrak.com/Virginia/traveling-with-amtrak-in-virginia

Regional Bus

Greyhound, an intercity bus service with over 2,700 destinations in the United States, stops at four locations in the HRT service area: Hampton, Norfolk, Virginia Beach, and Williamsburg.[29] Megabus, which provides intercity regional bus service in many parts of the United States, stops at the Hampton Transit Center and at the bus pullout on Pacific Avenue in Virginia Beach **(Table A-10)**.[30]

Table A-10: Intercity Bus Service in HRT Service Area

Station	Address	Bus Services
Hampton Bus Station	2 W Pembroke Avenue, Hampton, VA	Greyhound, Megabus, HRT Routes 101, 102, 103, 109, 110, 114, 115, 117, 118, 120, 403, 961
Norfolk Bus Station	701 Monticello Avenue, Norfolk, VA	Greyhound, HRT Routes 1, 3
Circle D Food Market	971 Virginia Beach Boulevard, Virginia Beach, VA	Greyhound, HRT Route 20
Virginia Beach Bus Stop	1900 Pacific Avenue, Virginia Beach, VA	Megabus, HRT Routes 20, 33, 35, 960
Williamsburg Bus Stop	468 N Boundary Street, Williamsburg, VA	Greyhound, HRT Route 121, WATA Routes Blue, Gray, Jamestown, Orange, Red, Tan

Other Public Transit

The City of Suffolk, located just west of HRT's Southside communities, operates Suffolk Transit, which provides fixed-route and paratransit service to Downtown Suffolk and surrounding areas. Suffolk Transit was formed in January 2012, utilizing Virginia Regional Transit as the City's contracted service provider. Suffolk Transit operates six fixed routes. The Purple route currently connects with HRT Route 47 at the Walmart in Suffolk, and the Pink route connects with HRT Route 45 at Chesapeake Square shopping area.

The Williamsburg Area Transit Authority (WATA) operates twelve routes serving the City of Williamsburg and parts of James City County, Surry County, and York County. Six WATA routes (Route 1: Gray Line, Route 2: Blue Line, Route 3: Orange Line, Route 5: Red Line, Route 7: Tan Line, Route 9: Purple2 Line) serve the Williamsburg Transportation Center, which connects to HRT Route 121. HRT Routes 108 and 116 also connect with the WATA Route 1: Gray Route at Lee Hall in Newport News.

Carshare

Zipcar, a short-term car-rental service, has cars at Old Dominion University in Norfolk and the College of William and Mary in Williamsburg.[31]

A.5 Fare Structures, Payments, and Purchasing

A.5.1 HRT Fare Structure and Types

Fare Structure

Passenger boardings on HRT buses are subject to the fares shown in **Table A-11**. In 2014, after nine public hearings, HRT raised fares for the first time in 15 years, from $1.50 to $1.75; the fares increased again in October 2017 from $1.75 to $2.00.

Under HRT's fare policy (revised in 2018) HRT staff report annually to the TDCHR with a "review of farebox revenues, farebox recovery ratio and ridership for the entire system and by mode." Tracking and reporting of these metrics and other key performance information is also done on a monthly basis during TDCHR committee and

[29] Greyhound Bus Station Locator, Accessed at http://locations.greyhound.com/
[30] Megabus Route Map, Accessed at https://us.megabus.com/journey-planner/map
[31] Zipcar, Where the Cars Are. Accessed at http://www.zipcar.com/cities

board meetings. Additionally, HRT staff make recommendations for solutions, which may include fare adjustments, to maximize transit service usage and achieve farebox revenue goals.[32]

Table A-11: HRT Fares

Ticket/Pass Type	Adult	Discounted Fare
Local Bus, Light Rail, & Ferry		
Cash	$2.00	$1.00
1-Day Pass	$4.50	$2.25
1-Day Pass *(Bundle of 5)*	$21.00	$10.50
7-Day Pass	$22.00	n/a
30-Day Pass	$70.00	$40.00
VB Wave		
Cash	$2.00	$1.00
1-Day Pass	$4.50	$2.25
3-Day Pass	$8.00	$4.00
MAX		
Cash	$4.00	$2.00
1-Day Pass	$7.50	n/a
1-Day Pass *(Bundle of 5)*	$35.00	n/a
30-Day Pass	$125.00	n/a
Paratransit		
Clients - Cash	$3.50	-
Personal Care Attendant[33] - Cash	$0.00	-
Guests - Cash	$3.50	-

Bus/Light Rail Fare Types

The following fare types are available for all HRT bus and light rail services.

- **One Day GoPass:** Unlimited access to all HRT services, except MAX, which requires an additional fee. The One Day GoPass is good for bus, light rail and ferry services.
- **Children/Youth:** Those 17 years old and younger can ride on any HRT vehicle for free if they:
  - Are accompanied by an adult fare-paying passenger
  - Use a Student Freedom Pass
  - Provide a valid proof of age, including a school ID with photo, DMV identification card, or HRT Youth ID.
- **Senior citizens:** Those 65 years old and over can pay a reduced fare for local bus, light rail, ferry, VB Wave, and MAX cash fare (half the full fare for all products except the 30-day pass) with a DMV ID, Medicare ID (with photo ID), HRT's Discounted Fare ID, or any other proof of age that includes a photograph.
- **Persons with Disabilities:** Persons with disabilities can pay a reduced fare for local bus, light rail, ferry, VB Wave, and MAX cash fare (half the full fare for all products except the 30-day pass) with an HRT Discounted Fare ID, or an ADA Paratransit ID (with photo). Identification is also required at time of farecard purchase.

[32] Hampton Roads Transit Fare Policy (5-2018)
[33] A personal care attendant (PCA) provides personal assistance to disabled passengers.

- **Medicare Cardholders:** Medicare cardholders can pay a reduced fare for local bus, light rail, ferry, VB Wave, and MAX cash fare (half the full fare for all products except the 30-day pass) with a Medicare card ID or HRT Discounted Fare ID.
- **Cash fare:** HRT accepts exact fare only; bus/light rail/ferry operators cannot make change.
- **MAX:** Passengers can board the MAX using any valid fare pass, but an additional fee may be required for some passes, including the One Day GoPass.
- **Paratransit:** Persons with disabilities who have applied for and received an ADA Paratransit ID can use this service and bring a personal care attendant (PCA) at no additional cost and a guest at the same fare as the paratransit-eligible rider.

HRT's complete Discounted Fare ID guidelines and a list of accepted forms of ID are available at https://gohrt.com/fares/discounted-fare-id/ or on an HRT route schedule. HRT does not give refunds on any purchase.

A.5.2 HRT Fare Payment

On-Board Payment Methods

All HRT buses, trolleys, and ferries are equipped with electronic fareboxes which accept cash, coins, and HRT magnetic-stripe farecards.

Ticket Vending Machines

Ticket vending machines (TVMs) are located at transfer centers, Tide Light Rail stations, Naval Station Norfolk, the High Street ferry dock, and several VB Wave stops (**Table A-12**). TVMs sell fare cards for local bus routes, MAX services, VB Wave, and ferries, as well as reduced fare passes for seniors and persons with disabilities. TVM screens prompt customers to select and purchase a fare card, which is then dispensed from the machine. TVMs accept cash, credit, and debit transactions. Passes are not active until inserted into a farebox.

Table A-12: Ticket Vending Machine Locations

Locations	Address
Downtown Norfolk Transfer Center	434 St Pauls Boulevard, Norfolk
Newport News Transfer Center	150 35th Street, Newport News
Hampton Transfer Center	2 W Pembroke Avenue, Hampton
Silverleaf Transit Center	4300 Commuter Drive, Virginia Beach
Naval Station Norfolk	Building C-9, Bacon & Gilbert, food court/mini-mart area
Elizabeth River Ferry	1 High Street, Portsmouth
The TIDE Light Rail Stations	EVMC/Fort Norfolk York Street/Freemason Monticello MacArthur Square Civic Plaza Harbor Park Norfolk State University Ballentine/Broad Creek Ingleside Road Military Highway Newtown Road

Retail Outlets

HRT fare cards are also sold in numerous retail outlets in Chesapeake, Hampton, Newport News, Norfolk, Portsmouth, and Virginia Beach. Retail locations include approximately 95 grocery stores, 10 gas stations, 24

convenience stores, 34 tourism centers, and three military bases. A full list of retail outlets, organized by jurisdiction, is available on the HRT website here: https://gohrt.com/fares/where-to-buy/.

Bulk Purchases
HRT administers bulk purchases of fare cards. Orders can be placed online at HRT's website. There is a $300 minimum purchase for mail orders.

Transfer Agreements
HRT does not currently have any transfer agreements between HRT transit services and other transit services in the region (for example, free or reduced-price transfers, etc.).

A.6 Transit Asset Management Plan - Existing Facilities and Vehicle Fleet

In October 2018, HRT developed and began implementation of its Transit Asset Management Plan (TAM) to achieve a state of good repair (SGR) for all public transit assets. The TAM Plan supports a data-driven approach to maintenance, rehabilitation, enhancement, and replacement. With over $796 million in value, HRT's assets represent a significant public investment in public transit infrastructure and services. HRT monitors and manages its assets to enhance safety, reduce maintenance costs, increase reliability, and improve performance by implementing the following initiatives:

- Building an inventory of capital assets with up-to-date asset condition.
- Identifying risks and level of impact from asset management activities.
- Setting condition and performance targets for major asset classes.
- Developing prioritization criteria and methods for smart investments.
- Implementing specific asset maintenance, rehabilitation, enhancement, and retirement actions.
- Evaluating and reporting agency performance against targets.
- Identifying and acquiring the necessary resources to meet these targets.

These initiatives are guided by HRT's Asset Management Policy, which includes five Guiding Principles for Transit Asset Management:

1. Quality, reliable, and safe service
2. Financial stewardship
3. Success through a diverse, innovative, and inspired workforce
4. Sustainable and efficient service, growth, practices, and assets
5. Accountability and integrity

HRT's TAM Plan contains fundamental guidance for today and serves as the baseline for HRT's future asset management efforts. It is an essential tool for the agency to undergird an organization-wide culture and directive to achieve State of Good Repair (SGR) through a data-driven approach to maintaining, rehabilitating, enhancing, and replacing assets in an efficient, financially responsible, and sustainable way. The plan also demonstrates compliance with the FTA's associated reporting requirements.

Every department at HRT is responsible for implementing asset management practices for their assets. The President and CEO is responsible for overseeing the development of asset management plans and procedures, enforcing policy, and reporting to HRT's governing board on the status of asset management. The Engineering and Facilities department leads the coordination of these activities and maintains the TAM Plan.

HRT will review and update the plan at least once every four years to ensure continued improvement and a relevant strategy for achieving SGR and levels of service commensurate with the needs of HRT's customers. More frequent updates of this plan may occur based on the process for evaluation described in the plan.

HRT acknowledges the challenge of managing key public transit assets for the region under realistic budget constraints. Therefore, HRT is committed to implementing a data-driven, outcome-based approach to maintaining

assets in SGR and prioritizing reinvestments in critical assets. To support ongoing improvement in asset management practices, the TAM Plan includes an Improvement Program to guide HRT's short, medium and long-term actions to achieve the best level of service from existing assets.

A.6.1 Existing Facilities

HRT service delivery relies on four key asset groups:

- Revenue Vehicle Fleet (see **Section A.6.2 Vehicle Fleet.**)
  - Bus Fleet
  - Ferry Fleet
  - Light Rail Fleet
  - Demand Response Fleet.
- Light Rail Guideway and Systems
  - Bridges
  - Track
  - Signaling and Power (catenary).
- Passenger Facilities
  - Bus stops and amenities
  - Transit Centers
  - Light Rail Stations/Platforms
  - Ferry Docks
  - Park & Ride lots.
- Support Facilities
  - Administrative and Employee Restrooms
  - Maintenance Facilities
  - Maintenance Equipment.

Light Rail Bridges

The Tide light rail system includes five bridges, of various lengths, which are inspected periodically and maintained by the Facilities department. These bridges include:

- Smith Creek Bridge
- Lamberts/Brambleton Viaduct
- Sewells Point Branch Bridge
- Moseley Creek Bridge
- Broad Creek Bridge.

Passenger Facilities

Bus Stops & Amenities

HRT operates bus services at approximately 2,600 bus stops – including bus bays at Transit Centers. A majority of these stops, over 2,300, are "signage only" stops where HRT only owns the bus route signs. The remainder of stops include HRT-owned passenger amenities, which can be any combination of the following:

- Signage/Display Cases
- Shelter(s)
- Benches/seating.
- Trash cans

- Lighting
- Bike Rack
- Security Cameras
- Site Improvements (pedestrian sidewalks, paving, landscaping, etc.).

Transit Centers

HRT owns and operates three transit centers, the most recent opening in 2016:

- Downtown Norfolk Transit Center
- Hampton Transit Center
- Newport News Transit Center.

A fourth transit center, Silverleaf, supports HRT operations but is not owned by HRT. The assets at this location are included in the condition assessment and needs reports that follow, as they may be included under MAP-21 rules as an HRT facility.

Light Rail Stations and Platforms

As already noted, The Tide includes 11 passenger stations all opened in 2011.

Ferry Docks

HRT operates its Elizabeth River Ferry from four ferry docks. The oldest ferry dock, Waterside, is assumed to have opened in 1983 – though the structure may be older. Harbor Park and High Street opened in 1997, and North Landing in 2001. Ferry upgrades and new amenities are scheduled for construction in 2020.

Park & Ride Lots

There are twelve Park & Ride Lots listed on HRT's website for transit services (**Table A-13**); however, HRT only owns three of these lots. All lots are monitored by security officers and parking is free. The lots service six cities in the Hampton Roads Area. Lot sizes range from 32 to over 458 parking spaces (average 199) and feature passenger waiting pavilions, lighting and surveillance systems, emergency call boxes, signs, and public address systems. The three HRT-owned Park and Ride Lots are all in Norfolk, and are the only lots included in the condition and needs assessment:

- **Newtown Road:** 125 spaces
- **Military Highway:** 541 spaces
- **Ballentine Boulevard:** 278 spaces

Table A-13: HRT Park & Ride Lots

City	Number of Lots	Parking Spaces
Chesapeake	1	50
Hampton	1	138
Newport News	2	297
Norfolk	5	1,237
Portsmouth	1	119
Virginia Beach	2	543
Total	**12**	**2384**

Support Facilities

Administrative and Employee Restrooms

HRT operates two employee restrooms and one building strictly for administration, as listed in **Table A-14**.

Table A-14: HRT Administrative and Restroom Facilities

Facility	Facility Type	Municipality
Newtown Road Operator's Restroom	Restroom	Norfolk
Ward's Corner Operator Restroom	Restroom	Norfolk
Southside Complex (4 small buildings)	Administration	Norfolk
Southside Operations & Maintenance / Administration Facility, Building 4	Administration	Norfolk

Maintenance Facilities

Facilities that mix administrative, operations and maintenance functions are described in the TAM Plan "Maintenance Facilities" which include:

- Norfolk Tide Facility (NTF)
- Northside Operations & Maintenance / Administration. Facility
- Mangrove Warehouse
- Southside Operations & Maintenance / Administration Facility, Building 1
- Southside Operations & Maintenance / Administration Facility, Building 2
- Southside Parking Deck Building 3
- Northside Daily Services Building
- Virginia Beach Trolley Base.

HRT owns its maintenance, operations and administration facilities, with the exception of the Rail Operations warehouse at Mangrove Avenue, which is leased. Maintenance equipment in the facilities include bus and train lifts, bus and train washers, fueling stations, oil tanks and air compressors, etc. The maintenance equipment located at the maintenance and operations facilities is owned by HRT.

Bicycle Facilities

Transit

HRT transit stop bicycle amenities include bicycle parking, bicycle lockers, on-bus racks, bike share programs, or other infrastructure. The distribution of these amenities may be based on a number of factors, including bicycle ridership, local infrastructure requirements, and connectivity. Bicycle amenities, while listed in the HRT Amenity guidelines, are not currently required at transit stops – for each type of transit stop, the amenity guidelines note that the bicycle amenities will vary.[34]

Paths and Trails

There are over 1,300 miles of shared use paths, bike lanes, paved shoulders, wide sidewalks, signed shared roadways, shared roadways, and trails in the Hampton Roads metropolitan planning organization area.[35] Major trails (two miles or longer) in the HRT service area include: (descriptions of existing trails adapted from the Rails to Trails Conservancy). [36]

- **South Hampton Roads Trail:** A planned 41-mile trail connecting Suffolk and the Virginia Beach Waterfront. Over three miles of the trail near the Suffolk Seaboard Coastline is currently open[37]

[34] HRT Passenger Amenity Policy (7-1-2019)
[35] Hampton Roads TPO, "The State of Transportation in Hampton Roads – 2018."
[36] Rails-to-Trails Conservancy, Accessed at www.traillink.com
[37] Hampton Roads TPO, "The State of Transportation in Hampton Roads – 2018."

- **Elizabeth River Trail Atlantic City Spur (9.5 miles):** The Elizabeth River Trail–Atlantic City Spur runs between Harbor Park Stadium and the Norfolk International Terminals
- **Wesley Drive/Haygood Road Trail (2.7 miles):** The trail runs parallel to its namesake roads between Independence Boulevard and Baker Road (Virginia Beach)
- **Little Neck Road Trail (3.3 miles):** The trail runs parallel to its namesake road between W. Little Neck Road and Virginia Beach Boulevard (US 58) (Virginia Beach)
- **Cape Henry Trail (7.5 miles):** The Cape Henry Trail crosses the heavily wooded First Landing State Park, located on Cape Henry north of Virginia Beach. The trail provides access to the Narrows Recreation area, located in the park, as well as to neighborhoods and shops just west of the park boundary (Virginia Beach)
- **General Booth Boulevard Trail (6.1 miles):** The trail runs parallel to its namesake road between Princess Anne Road and Norfolk Avenue (Virginia Beach)
- **Virginia Beach Boardwalk (2.6 miles):** The trail runs between 40th Street on the north and Rudee Inlet on the south with access to the Atlantic Ocean the whole way (Virginia Beach)
- **Birdneck Road Trail (2.1 miles):** The trail runs parallel to its namesake road between Norfolk Avenue and General Booth Boulevard (Virginia Beach)
- **Great Neck Road/London Bridge Road Trail (11.5 miles):** This 11.5-mile paved trail begins in the busy commercial area just south of Shore Drive/US 60 in Virginia Beach, and ends at the Virginia Beach Boardwalk (Virginia Beach)
- **Rosemont Road Trail (3.5 miles):** The trail runs parallel to its namesake road between Holland Road and Whiteberry Lane (Virginia Beach)
- **Dam Neck Road Trail (7.9 miles):** The trail runs parallel to its namesake road between Salem Road and Terrier Avenue, along the southern border of the Dam Neck Naval Air Station (Virginia Beach)
- **Lynnhaven Parkway Trail (6.4 miles):** The trail runs parallel to its namesake road between Lishelle Place and Stewart Drive (Virginia Beach)
- **Independence Boulevard Trail (3.8 miles):** The trail runs parallel to S. Independence Boulevard in two disconnected segments (Virginia Beach)
- **Kempsville Road Trail (7.3 miles):** The trail runs parallel to its namesake road between Providence Road (SR 40) and Battlefield Boulevard (Virginia Beach/Chesapeake)
- **Trillium Trail - Sandy Bottom Nature Park (3.3 miles):** Sandy Bottom Nature Park is a 456-acre recreational oasis in Hampton, bordered on the northeast side by Interstate 64 and surrounded by busy residential, shopping and entertainment areas (Hampton)[38]

A.6.2 Vehicle Fleet

The following sections summarize the revenue fleet by mode and the non-revenue fleet by type. The FY 2018 Capital Improvement Plan provides in-depth fleet asset management plan, with a detailed schedule for replacement, expansion, overhaul and rebuild for each vehicle within the fleet.

Revenue Fleet

The HRT fixed-route bus fleet consisted of 279 vehicles, as of August 2019. Ninety percent of the fleet, or 253 total buses, were manufactured by Gillig. The HRT fleet also includes four Optima buses, seven Nova buses, and 14 Hometown Trolley buses. Hometown Trolley buses are only operated on VB Wave routes, which operate during summer months. Aside from the trolley-style buses, the remainder of HRT's fleet is standard buses that range in length from 29-ft to 40-ft. HRT has no articulated buses or over-the-road coaches.

[38] Rails-to-Trails Conservancy, Accessed at www.traillink.com

In addition to the buses listed above, HRT owns three ferry vessels, nine light rail transit vehicles, and 79 paratransit vehicles (including 76 cutaway vans and three vans). HRT is also responsible for the federal reporting of an additional 29 sedans leased and operated by VIA, HRT's current paratransit service contractor. Regardless of ownership, all paratransit vehicles are operated by VIA.

HRT does not own the vehicles used in its vanpool program. Instead, vanpool drivers use a van leased from a third-party or one that they themselves own. The vanpool drivers are also responsible for vehicle maintenance.

Table A-15 summarizes the number of revenue vehicles in HRT's fleet by mode, across both fixed route and demand responsive vehicles. Because HRT rotates vehicles between routes to ensure mileage is distributed appropriately among its vehicles, individual vehicles are not separated into an active or reserve fleet. HRT's spare ratio for its bus fleet is 17 percent, slightly under the FTA's recommended spare ratio of 20 percent for fleet of HRT's size. However, the agency will maintain the 20 percent spare ratio as new equipment is placed in service and older equipment is retired.

Table A-15: Revenue Fleet by Mode

Mode	Fleet Size	Vehicles Operated in Maximum Service	Spare Ratio
Bus	279	235	17%
Light Rail	9	7	22%
Ferry	3	2	33%
Paratransit	108	98	10%

Non-Revenue Fleet

HRT's non-revenue fleet consists of sedans, vans, SUVs, pick-up trucks and special purpose vehicles that are used as system support vehicles by HRT's administrative and maintenance staffs. In total, there are 102 non-revenue vehicles employed by HRT for purposes that range from revenue vehicle maintenance to facility upkeep to sedans driven by HRT staff for field work purposes (**Table A-16**).

Table A-16: Non-Revenue Fleet by Type

Type	Count of Vehicles
Van	44
SUV	14
Pickup Truck	28
Other Utility Vehicle	8
Sedan	8
Total	**102**

ADA Accommodations

Transit

HRT fixed route buses offer low floor "kneeling" buses, which allow the operator to bring the entire bus down to curb level, eliminating steps for boarding passengers, as well as wide doors and front aisles, interior visual and audio destination and stop announcements, and priority seating for those in need. In addition, the buses are equipped to accommodate two wheelchairs at one time.

HRT Tide Light Rail Stations offer tactile strips on every platform, audio and Braille Ticket Vending Machines, directional Braille tablets at platform entrances, height accessible 911 emergency call buttons on platforms, platform level train vehicles for easy boarding, and priority seating for those in need. Visual and audio departure,

arrival, and destination signage and announcements are used on all trains/stations, as well as visual and audio indicators for door opening and closing operations. Each train vehicle is equipped to accommodate four wheelchairs.[39]

All HRT ferries are accessible; ramps and boarding docks allow for level boarding.

Paratransit

HRT provides demand response paratransit service for persons with disabilities. Paratransit service is offered within three-quarters of a mile of any fixed route service during HRT's hours of operation. All paratransit riders must be certified through an eligibility application process.[40]

A.7 Transit Security Program

HRT has a commitment to creating a quality safety and security program.

- In 2000, HRT developed the Security Manager position
- In 2004, the TDCHR approved the support to pursue a Special Police appointment
- In 2011, HRT hired a Chief of Safety and Security Officer and a Safety Manager
- In 2019, HRT reorganized the Safety and Security Department, separating the two and placing the Security Department under Operations
- In 2019, HRT hired the Emergency Management Security Specialist
- In 2019, HRT hired the Security Specialist
- In 2019 HRT hired the Security System Specialist
- Currently, HRT has an additional Extra Duty Officer (EDO) Supervisor, 30 law enforcement officers, and additional contracted security.

A.7.1 Security and Emergency Preparedness Plans

HRT has completed a Security and Emergency Preparedness Plan (SEPP).

The SEPP establishes methodologies for threat and vulnerability assessments for the LRT. HRT also has a security plan for buses and ferry. The plan delineates security practices for HRT's security contractors, off-duty police officers working for HRT, and all pertinent safety and security employees.

In accordance with the Public Transportation Agency Safety Plan (PTASP) 49 CFR Part 673, the Safety Department is required to document its Integration with Public Safety and Emergency Management. This ensures integration of programs that have input into, or output from, the SMS. Safety and Security work in parallel to establish procedures for both external organizations and internal departments for dealing with emergencies and abnormal operations, as well as the return to normal operations. Emergency Preparedness procedures are developed to ensure the safety of employees, passengers, assets, and the community, which in turn helps to protect the business investment itself.

Emergency Preparedness Preparations include:

- Developing plans
- Involving the entire management team
- Ensuring customers will be safe in emergencies
- Ensuring employees will be safe in emergencies
- Planning for business continuity into the future

[39] HRT Service Accessibility, Accessed at http://www.gohrt.com/services/hrt-accessibility/
[40] HRT Paratransit Service, Accessed at http://www.gohrt.com/services/paratransit

- Preparing contingency plans
- Conducting drills with multiple stakeholders
- Preparing back-up equipment and processes for operations.

HRT has always worked to be prepared, to the greatest extent possible, to respond to all-hazard disasters and emergencies. However, HRT has become increasingly aware of how disasters and emergencies could interrupt its primary mission of moving people. Considering this, HRT has determined to develop and maintain a Continuity of Operations (COOP) Plan, an Emergency Operations Plan (EOP), and a Contagious Virus Response Plan (CVRP). COOP, EOP, and CVRP planning is designed to develop and maintain a program that preserves, maintains, and reconstitutes its ability to function effectively in the event of the threat or occurrence of any disruptive disaster or emergency.

A.7.2 Fare Inspection

HRT conducts fare inspection on its light rail system Monday - Thursday, 5:00 AM - 10:00 PM, Friday - Saturday, 5:00 AM - 11:00 PM, and Sunday, 10:00 AM - 9:00 PM. In 2019, HRT inspected approximately eight percent of fares on the light rail system.

A.7.3 Security Features on Vehicles

HRT maintains video cameras on both its buses and light rail vehicles that can be used to investigate incidents onboard HRT vehicles, as well as to validate customer complaints about operators, justify employee discipline and/or termination, and verify workers' compensation claims and auto claims from drivers involved in crashes with HRT buses.

HRT also has in place an audio monitoring system that records calls between bus operators and dispatchers, which can aid in investigations of safety or security incidents onboard HRT vehicles. Each vehicle has security features to enable the driver or operator to contact dispatch for emergency situations, as well as contact local police enforcement, and GPS systems.

A.7.4 Security Features at Transit Stations and Facilities

At Tide Light Rail stations, emergency call boxes can be used to contact the City of Norfolk's 911 system. The FY 2019 HRT Capital Improvement Plan also proposed passenger information display systems for both Tide stations and key bus transfer locations, which could provide both audio and visual security alerts to passengers. Transit stations are monitored and patrolled by contract security and augmented by a municipal police presence, as available.

HRT facilities are secured through, security card badges key and lock systems, and surveillance cameras. Cameras benefit riders, employees, and the general public alike by both deterring crime and helping to investigate incidents on HRT property. Gates and guards also secure entrances to HRT's 18th Street (Southside) and 3400 Victoria Boulevard (Peninsula) facilities. All HRT properties are fenced and are designed using Crime Prevention Through Environmental Design (CPTED) concepts.

At HRT's 18th Street (Southside) and Virginia Beach bus operating facilities, mobile vaults are used to create a secure system for transferring cash from vehicle fareboxes to secure vaults. HRT's 3400 Victoria Boulevard facility uses an in-wall vault system that the agency plans to replace.

A.7.5 Security Training Programs

Currently, there is safety and security training for new employees. All Operations employees receive a security awareness training, based on the National Transit Institute (NTI). In addition, segments of the monthly Operations Safety and Security Committee meetings are devoted to security and emergency preparedness training topics for HRT management personnel.

In accordance with a Department of Homeland Security directive, HRT has trained its mid-level through senior management in the National Incident Management System (NIMS), which will include an annual refresher course.

Two safety/security drills (locational and a tabletop) are required annually by FTA and VDRPT on the light rail system; five were conducted prior to the start of light rail revenue operations. Also, TSA VIPR readiness drills are performed annually.

A.8 Intelligent Transportation Systems Programs

HRT is currently in the process of documenting its Intelligent Transportation Systems (ITS) plan in conjunction with its Technology Project Management Plan. The following sections summarize the agency's current ITS programs and projects. HRT maintains a policy of updating its software assets at the end of their useful life, typically every four years, in accordance with State of Good Repair principles.

A.8.1 Computer Aided Dispatch / Automatic Vehicle Locator Systems

HRT's bus fleet is equipped with Trapeze TransitMaster Computer Aided Dispatch/Automatic Vehicle Location (CAD/AVL) system. The system includes onboard software and hardware for vehicles, radio communications infrastructure, as well as fixed side software, computing, and networking infrastructure. AVL hardware is installed and in use on all buses in HRT's fleet. AVL hardware is also installed on ferry vessels.

A.8.2 Automatic Passenger Counters

Automated Passenger Counter (APC) units are installed on HRT's bus and light rail fleet. Approximately 67 percent of HRT's bus fleet and 100 percent of light rail fleet is equipped with APC. Approximately 36 percent of the APC units on the bus fleet are beyond their useful life. Moving forward, it is HRT's policy to equip with APC units any buses purchased as replacements for the current fleet. HRT has plans to purchase APC units for remaining buses in the future.

A.8.3 Traffic Signal Priority

Traffic Signal Priority and traffic signal pre-emption is used to improve travel times and reliability on The Tide Light Rail System. HRT is studying the introduction of signal priority at select intersections for its bus services.

A.8.4 Trip Planners

HRT provides a Google Maps-based trip planning tool to its customers via the gohrt.com website. Customers can also access trip planning assistance from HRT by calling the Customer Service Center.

HRT also makes schedules available to the public via the General Transit Feed Specification (GTFS), which is used by websites and apps such as Google Maps to help plan trips using HRT services.

A.8.5 Scheduling Software

HRT uses GIRO HASTUS software for bus, light rail, and ferry route planning and scheduling. HRT's Service Planning and Operations departments use the software to create bus schedules, construct bus runs, and schedule operators. HASTUS is also used to geographically locate and analyze routes and bus stops and monitor the performance of the system.

For paratransit scheduling, VIA (HRT's contracted paratransit service provider) uses its proprietary software. The software compiles customer profiles, fixed route service geography, and operating hours, along with fleet and driver information, to schedule paratransit trips.

A.8.6 Maintenance, Operations and Yard Management Systems

The Operations Department uses Infor Spear fleet maintenance management software to store information and schedule activities relevant to fleet maintenance. HRT's Capital Improvement Plan proposes upgrading this software to a newer transit asset management system that would allow the agency to more effectively track its fleet, vehicle ages, and their repair and replacement schedules in one system. HRT also uses FTA's Transit Economic Requirements Model (TERM) Lite tool to track the condition of assets and the level of investment necessary to reach a State of Good Repair. TERM Lite measures:

- **State of Good Repair (SGR) backlog**: Total dollar value and by asset type

- **Level of Annual Investment:** To attain SGR or other investment objective
- **Impact of Variations in Funding:** Regarding future asset conditions and reinvestment needs
- **Investment Priorities:** By mode and asset type.

In addition, efforts are underway to inventory HRT's facility assets and to procure a facility asset management system that will track facility assets and repair and replacement schedules. HRT is in the process of Implementing Trapeze EAM software to provide a modern asset management system.

A.8.7 Information Displays

HRT currently does not provide passenger information displays at its transit facilities.

A.8.8 Real Time Arrival

Upgrades to HRT's CAD/AVL systems in 2019-2020 are making it possible for HRT to provide real-time information for HRT transit services, for the first time in the agency's history, starting in 2020. HRT expects to launch its own customer tools later in 2020, and also makes its schedules (as well as newly available real-time information) available to app developers in the General Transit Feed Specification (GTFS) format, which enables trip planning for HRT services on mobile apps like Google Maps. Future upgrades will include real-time arrival information to customers, including through passenger information displays, mobile applications, and Interactive Voice Response (IVR) phone systems.

A.8.9 Information to Mobile Devices or Applications

HRT distributes information about its services and collects feedback from customers through a variety of mobile devices and applications. Customers can engage with HRT through Facebook, Twitter, and YouTube mobile apps, where HRT also distributes important service alerts and information.

HRT makes its schedules available to app developers in the General Transit Feed Specification (GTFS) format, which enables trip planning for HRT services on mobile apps like Google Maps. Additionally, AVL data has been made available on to third-party app developers, who have created a real-time arrival application for HRT services.

In addition, the CIP-funded bus video surveillance equipment project will equip the bus fleet with cellular connectivity. Fleet wide connectivity to the high-speed broadband will open new possibilities for real-time data acquisition and delivery across all vehicle systems (e.g., passenger amenities in the form of Transit WiFi, information display systems, connectivity to the smart fareboxes, greater bandwidth for ITS systems, remote access to security systems, and possibility of monitoring the vehicle vital systems). While every system mentioned will not be able to leverage all the broadband capabilities, they will be developed over time; broadband connectivity is now part of the standard revenue vehicle build order.

A.9 Data Collection and Ridership/Revenue Reporting Method

HRT's methods for collecting, processing, verifying, storing, and reporting ridership and revenue service data vary based on the data source and report format required.

A.9.1 Electronic Registering Fareboxes

HRT uses Electronic Registering Fareboxes manufactured by Odyssey and Fast Fare to collect ridership and fare revenue data. Fareboxes are the source of the vast majority of ridership counts for HRT's bus services, with remaining counts obtained manually (see **Section A.9.3** Manual Ridership Counts). Data from fareboxes is stored in a Genfare database before being imported into HRT's CRIS database, the internal system of record for National Transit Database (NTD) reporting (see **Section A.9.13** National Transit Database Data Submission Practices**.**). For ferry services, farebox ridership reports are further adjusted in the CRIS database based on manual counts.

A.9.2 Automatic Passenger Counters (APCs)

Iris IRMA and Trapeze TransitMaster APCs are installed on approximately 67 percent of HRT's fixed route buses and 100 percent of HRT's light rail vehicles. APCs track the number of boardings and alightings by stop for each vehicle. Raw APC data is transmitted from each vehicle in real-time or in a batch upload when the vehicle returns to a garage. Each service day, this data is processed and stored in a data mart.

In 2019, the light rail APCs were certified and will be used in future NTD reporting. Manual sampling of bus trips based on NTD sampling guidelines are used to generate the number of passenger miles traveled. This process is described in the following section.

A.9.3 Manual Ridership Counts

HRT employs data collectors whose primary purpose is to gather data required to meet the FTA/NTD Sampling requirements. Manual forms include: the name of data collector, date, weather, bus number, boardings, alightings, load, the time the scheduled trip starts and ends, as well as scheduled time at the timepoints are included on the form. Each data collector is provided with individual training on the detail and regulations of capturing the data and meeting the sampling requirements.

For ferry services, manual counts are the primary source of ridership data. Not only are manual counts of passengers boarding and alighting at each stop required by the US Coast Guard, the fareboxes used for ferries have been found to produce inconsistent counts of ridership. After ferry farebox data is extracted to a GFI database and transferred to HRT's CRIS database for NTD reporting, an adjustment figure is added to match farebox counts to counts of total ridership obtained manually.

Vanpool services operated by Enterprise and V-Ride also provide ridership counts to HRT through manual counts. Daily ridership logs are imported into the CRIS database for further reporting.

A.9.4 Scheduling Software

HASTUS data is stored in an Oracle database for at least five years before it is expunged. Exports from this database are used to support both NTD reporting and other internal reports.

A.9.5 Accounting/Payroll Systems

HRT uses Oracle PeopleSoft Financials and Human Capital Management (HCM) software for its accounting, financial management, human resources, and payroll processes. These systems manage the collection, processing, verification, storage and reporting of such data. Data from accounting and payroll systems are reported in the agency's annual budget and Comprehensive Annual Financial Reports, as well as reports for various internal, local, state, and federal stakeholders.

A.9.6 Mobile Data Terminals

HRT's paratransit provider MV uses tablet devices as mobile data terminals (MDTs). These tablets download schedules from Trapeze and provide drivers with turn-by-turn directions. While the vehicle is in operation, the tablets also transmit information to the Trapeze system, including vehicle location, arrivals, and departures. In the event of a Trapeze system outage, the devices store up to two hours of schedules in memory.

Using information generated from these MDTs, Trapeze generates a monthly route productivity report. This report is imported into HRT's CRIS database for further reporting.

A.9.7 Automatic Vehicle Locator

Trapeze TransitMaster AVLs are installed on all of HRT's revenue vehicles. These devices track and report vehicle location for use by dispatchers, ridership reporting, and planning activities.

As with APC data, AVL data on schedule adherence and location is transmitted from each vehicle in real-time or in a batch upload when the vehicle returns to a garage. This data is ultimately processed and stored in a data mart.

A.9.8 Odometer Readings for Mileage

Bus mileage is automatically collected by Fleet Watch, a system used to monitor fuel and fluid usage in the fleet. This data is uploaded to the Spear fleet management system on a daily basis.

Fleet Watch generates reports on the fuel efficiency of the fleet and a variety of other canned reports for use by bus maintenance staff. Odometer readings are also reported in the agency's annual Capital Improvement Plan.

For the purposes of calculating revenue miles and hours, however, HRT utilizes the scheduled miles and hours, generated from the HASTUS scheduling software, and deducts the exceptions. This process is performed for both bus and rail. Revenue hours and miles data for paratransit service are generated from the vendor's system.

A.9.9 Operating Expense and Revenue Data

The system of record for operating expense and revenue data is HRT's PeopleSoft systems, which include revenues from fares, leases, advertising, contract service and other sources. These systems comprehensively manage the collection, processing, verification, storage and reporting of such data.

A.9.10 Agency Accountability Policy

HRT's Comprehensive Annual Financial Reports are audited by an independent public accounting firm. Submissions to NTD are certified by the HRT CEO or his designee.

A.9.11 On-Line Grant Administration Performance Data Submission

HRT complies with DRPT's On-Line Grant Administration (OLGA) submission requirements by submitting required data into OLGA by the 20th day of each month. The same data reported to NTD is also reported here, including measures such as revenue hours, revenue miles, and ridership for each mode.

In 2016, HRT entered into a contract with CelWell Services to provide Vehicle Miles Reduced tracker application software and support services. The system collects information on TRAFFIX programs, and data on employers and their commuter programs. The system supports monthly Online Grant Administration (OLGA) reporting requirements (daily, weekly, monthly, and annually) for the TRAFFIX program.[41]

A.9.12 Executive Director or Board Certification of Adherence to Standards and Accuracy of Data Submitted to OLGA

HRT does not currently have a certification process for OLGA submission, as it is not required.

A.9.13 National Transit Database Data Submission Practices

To produce HRT's submissions to the NTD, HRT compiles data from various departments into the HRT CRIS database. This database is the repository of data for various NTD measures and includes built-in reports

The Finance Department and Safety and Security Departments enter data for NTD submission separately, and these submissions are reviewed by Chief Financial and Safety Officers. All submissions are ultimately certified by the CEO. Submissions to NTD take place on a monthly or annual basis, depending on the type of data.

A policy document describing the processes for NTD data collection and submission was adopted by the agency in July 2019.[42]

A.9.14 Financial Audit Review of Verification Method

HRT publishes a Comprehensive Annual Financial Report, which includes an independent audit of the agency's financial statements by an outside accounting firm.

[41] TDCHR Commission Meeting Packet, April 28, 2015. Hampton Roads FY2016 Financial Report, Accessed at https://gohrt.com/wp-content/uploads/2015/12/April-TDCHR-Meeting-Package.pdf
[42] PD-111 - NTD Random Sampling Procedures

A.10 Coordination with Other Transportation Service Providers

Section 2.5 of the TSP contains detailed information about HRT's efforts to coordinate transit service with surrounding jurisdictions.

A.11 Public Outreach/Engagement/Involvement

A.11.1 Public Outreach - Major Service Changes

HRT's Marketing and Communications Public Outreach staff is notified by the Chief of Planning and Development when the agency is proposing a major service change(s), elimination of a route, or fare increase. HRT's Public Hearings and Meetings policy details the formal process of scheduling public hearings and meetings relative to these service/fare changes, including internal procedures, external communications, and follow-up.

A.11.2 Public Participation Plan Overview

Besides actions defined as a fare change or a major reduction in service, any change in HRT service will be the subject to "meaningful public engagement methods as appropriate to the nature of the proposed change."

HRT uses a broad range of outreach tools, documented in its Title VI Program Public Participation Plan and the HRT Policy and Procedures Manual for Public Hearings and Meetings, to conduct meaningful public engagement, which can include:

- **Public Meetings and Hearings:** Open public meetings and formal public hearings are frequently used in an effort to gain public review and comment
- **Stakeholder Communications:** Public agencies and elected officials may be notified by mail of significant service changes
- **Community-based Organizations:** HRT is in communication with many community-based organizations throughout the region, including cultural organizations, senior organizations, city partners, and business associations. HRT staff often attends meeting and events sponsored by these groups
- **Social Media:** Facebook status updates, Twitter feeds, and website comment forms may be used to provide access through the internet
- **Distribution of Written Materials:** At major transfer points
- **Informational Postings:** Flyers in public places and postings on the HRT website:
  - Notices (signs and brochures) describing proposed action(s), date(s) and location(s) of any hearings or meetings posted on buses and at transfer centers
  - Notices may also be published in major local and/or relevant neighborhood newspapers and on the HRT website

All public comments submitted to HRT through any of these outreach tools become part of the official record. If special accommodation is needed at an HRT public meeting, meeting attendees can call HRT Customer Service 48 working hours before the meeting to arrange proper accommodations, which include language translation services. HRT selects meeting and hearing locations to provide reasonable accommodations in accordance with the Americans with Disabilities Act of 1990.

A.11.3 HRT's Public Participation Process

HRT adheres to a proactive public participation process. All public involvement activities must be functional for HRT decisions and must be meaningful to the public. HRT benefits from public involvement by engaging the public at the earliest project stages from the development of the purpose and need through project implementation. HRT's public involvement activities increase public awareness and give the public an active voice in planning decisions. HRT's public participation process includes the following steps:

- **Step 1:** Outline a public participation plan at the beginning of key HRT planning projects
- **Step 2:** Previously established mailing and email lists are identified

- **Step 3:** Update existing mailing and email lists; new lists are identified
- **Step 4:** All project documentation is archived with HRT's records management department throughout the life of the project
- **Step 5:** Based on a project's milestones and requirements, a public involvement timeline is created. The public involvement timeline outlines each activity of the project's outreach efforts
- **Step 6:** The effectiveness of the public participation plan is periodically assessed throughout the life of the project, to determine if the public involvement objectives were achieved:
  - The public participation strategy is assessed at different stages of a project to determine if the practices were effective in reaching each of the expected population and whether the events created opportunities for meaningful involvement
  - HRT will change the public participation strategy to improve future performance in response to the assessment

A.11.4 Customer Satisfaction and Feedback

HRT gauges customer satisfaction throughout the year during focused efforts on surveys, customer outreach and public meetings. As a matter of routine, data is compiled monthly on the number and nature of complaints and commendations received in-person or via social media, phone, email and mail. Complaints per 100,000 Boardings are summarized monthly.

Additionally, the Transit Riders Advisory Committee, comprised of two representatives from each of the six cities, provides bimonthly input on customer perceptions and areas of interest. The Paratransit Advisory Subcommittee (PAC) provides input on quality of service issues related to paratransit services provided.

A.11.5 Transit Transformation Project Public Involvement

Community feedback for the *Transit Transformation Project* was gathered in person through public meetings, small group workshops and "pop-up" meetings. Comments were also solicited through a regional survey and "trade-off" exercises, which were done both in-person and online through the project website. The project website also provided additional information and project documentation.

A.12 Current Initiatives

A.12.1 Transit Transformation Project

HRT initiated the *Transit Transformation Project* in November 2018, a comprehensive review and planning effort to improve the design and performance of HRT services based on new regional standards. With input from community stakeholders, including a Regional Advisory Panel of representative business and civic leaders from public, private, and non-profit sectors, eight overarching goals for the project were defined:

1. Present a truly regional, cross-boundary analysis of service needs based on a blank-slate analysis of current travel demand, demographics, land uses, and new service design in comparison to current system performance.
2. Be open to hard conversations on service trade-offs such as frequency vs. coverage, on system inefficiencies, and on planning and funding while explaining the steps necessary to implement service changes.
3. Think outside the box to propose solutions to operational, service provision, and financial issues: consider testing and revisiting new service/service changes, pilots for new technologies and mobilities, different service patterns for different areas, etc.
4. Describe and promote the value of transit as a critical regional need for supporting economic growth and access to jobs in the region, as well as transit branding, including vehicles.
5. Present clear and new options of service models for transit in Hampton Roads including high-frequency service and on-demand service, while considering local needs.
6. Develop a final cost-neutral plan with recommendations for service, cost allocation and funding strategy (if different from current model), and customer-oriented improvements, which shall be adopted by HRT's

governing board and endorsed by the Hampton Roads Metropolitan Planning Organization as required by the Commonwealth of Virginia.

7. Develop additional options for targeted capital and operating investments for the cities and the region, including improvements to reduce trip time and appropriate vehicle investments and amenities.
8. Communicate broadly, spread the enthusiasm, and engage the cities, regional stakeholders, the HRT governing board, and the general public, including current users, in decision-making at all stages of the project.

For an improved HRT system, the project identified six specific goals:[43]

1. **Provide multimodal options** for access to major activity centers, jobs, higher education, schools, healthcare, grocery stores, cultural and sports venues and community services across the region, regardless of jurisdictional boundaries.
2. **Provide safe and accessible service** to all users including people with disabilities, people who depend on transit, seniors, and youth.
3. **Provide frequent and reliable service** that offers regional connections in line with travel demand.
4. **Provide a customer-centric service** by making it easier to understand and more attractive, leveraging up-to-date technology for providing real-time information and payment options.
5. **Support economic and land use development** plans and attract new businesses to the region.
6. **Reduce congestion and limit the environmental impacts of transportation** by making a more efficient use of roadway space, taking cars off the road, and reducing bus emissions.

The *Transit Transformation Project* involved a route-by-route evaluation and network scenario planning and modeling to illustrate the relative tradeoffs associated with different transit network options, including a better match of supply and demand, a focus on high frequency service, and a focus on broad geographic coverage (see **Chapter 1** for details and results from the tradeoff exercises). Outcomes of the *Project* formed the foundation upon which legislation was developed and adopted by the Virginia General Assembly in 2020, to create the Hampton Roads Regional Transit Program and Fund. As new and improved services are implemented by HRT in the coming years, the *Transit Transformation Project* will be an ongoing initiative. **Chapter 3** of the TSP contains service recommendations resulting from the *Transit Transformation Project*.

A.12.2 HRT 2019 Strategic Planning

In concert with the *Transit Transformation Project,* HRT reevaluated its vision, mission, core values, and agency goals and objectives that were part of previous planning efforts. Following a Senior Executive Team retreat, employees across the agency provided input through a survey in addition to employee focus group meetings, to help set the strategic direction for HRT. Moving into the 2020, HRT will be utilizing the Transit Strategic Plan and outcomes from these efforts to implement organizational improvements. Additionally, in 2020 HRT adopted new organizational policy in support of an improved Strategic Planning Process (SPP). The SPP is the process by which HRT develops strategic goals and objectives and implements, monitors, and continuously improves on key processes, plans, programs and business activities to achieve the agency's vision and mission.

A.12.3 FY 2018 - FY 2027 Transit Development Plan

Per Virginia state guidelines, HRT completed a TDP most recently in 2017. The TDP effort involved a comprehensive analysis of existing service, projected changes in demand for transit service, and recommendations to improve existing bus routes. This plan was approved by the agency's board in January 2018. The state requirement to complete a TDP is being superseded by the new requirement to complete a Transit Strategic Plan

[43] https://transformtransit.com/about/goals-for-the-project/

A.12.4 Draft Environmental Impact Statement for High Capacity Transit Extension to Naval Station Norfolk (East Side)

HRT, the City of Norfolk, and the Hampton Roads region have identified a need for high-capacity transit mobility and connectivity from the light rail system to Naval Station Norfolk. In 2015, HRT, in partnership with the City of Norfolk, completed the Naval Station Norfolk Transit Extension Study (NSNTES), which functioned as an Alternatives Analysis to look at a wide variety of alignments and technologies throughout the City of Norfolk.[44] As documented in the NSNTES, no consensus was achieved regarding the precise alignment connecting from the light rail to Naval Station Norfolk on the east side of the City. HRT and the City of Norfolk have evaluated initial corridors and development needs within the City and have determined that a connection along the eastern side of Norfolk would serve this need at a regional level and would provide for resiliency and redevelopment opportunities to support both the City of Norfolk and the greater Hampton Roads region.

As an outcome of the 2015 NSNTES study and at the request of the FTA, a refined analysis of alignment alternatives on the west side of the City of Norfolk was conducted in order to evaluate the feasibility of high capacity transit. The conclusion of the Norfolk Westside Transit Study was a "No-Build" solution for the west side of the City of Norfolk.

HRT is currently evaluating a reasonable alternative and fixed guideway mode to implement high capacity transit on the east side of the City and began work on the preparation of a draft Environmental Impact Statement in fall 2019. The DEIS will re-examine the alignment options to connect the Tide to Naval Station Norfolk and will look at technology options that include Bus Rapid Transit and light rail. The DEIS process is anticipated to take 24-30 months to complete.

A.12.5 Peninsula Bus Rapid Transit Categorical Exclusion

In 2016 and into 2017, the Peninsula Corridor Study defined potential high-capacity transit connections between existing and future activity centers in Hampton and Newport News.[45] The study identified two bus rapid transit (BRT) corridors—the Jefferson and Mercury corridors—as the most feasible and cost-effective alternatives, representing the Peninsula's best opportunity to meet the high-capacity transit needs of the community and effectively compete for FTA funding. These corridors provide the best mobility and community benefits with the least impacts to the existing environment.

This project will address a number of key opportunities including using transit to connect activity centers, decreasing travel times on the BRT vehicle, and the storage and maintenance of BRT vehicles. HRT will evaluate and document the project's effects on the natural, cultural, and human environment; potential property impacts; and transit-oriented development (TOD) opportunities.

The Peninsula BRT project will further define corridor alternatives and environmental documentation will be completed to prepare for future processes an application under the federal Capital Investment Grant Program. NEPA documentation is required for projects seeking federal funds. Environmental documentation considers the natural, cultural, and human elements of the project as they relate to the environment as well as local and regional travel changes. The Documented Categorial Exclusion process is expected to conclude by Spring 2020. Subsequent to the completion of the NEPA process, it will be the decision of both City Councils if they wish HRT to proceed with the next phase of project development under the Capital Investment Grant process.

A.12.6 Light Rail Automatic Passenger Counters

Automatic Passenger Counters (APCs) are installed on each light rail vehicle. These APCs have recently been certified by the Federal Transit Administration for NTD reporting purposes. This certification process involved validating the data generated by the APCs, outlining processes related to data cleaning, and creating a maintenance plan. HRT is now able to use APC-generated data to report ridership and passenger miles traveled to NTD, beginning in 2020. The certification is valid for three years.

[44] https://gohrt.com/wp-content/themes/gohrt_com/includes/reports/20161103_FINAL-NSN_Report_05122015_V2_with-Appendices.pdf
[45] https://www.peninsulabrt.com/

A.12.7 Autonomous Bus Consortium

HRT is participating in a consortium of transit and transportation agencies called the Autonomous Bus Consortium (Consortium), which is a collaboration designed to investigate the feasibility of implementing "Level 4" pilot automated bus routes across the United States.[46] Established by AECOM, the Consortium is a first-of-its-kind approach to accelerate the deployment of automated transit technologies and will combine the purchasing power and collaborative decision-making of these founding transit agencies nationwide. The pilot projects will use full-sized, full-speed buses and enable Consortium members to collectively demonstrate and deploy automated technologies in live service environments.

The Consortium's founding members include the following U.S. transit and transportation agencies: Dallas Area Rapid Transit (DART); Foothill Transit; Long Beach Transit (LBT); Los Angeles County Metropolitan Transportation Authority (Metro); MetroLINK (Moline); Metropolitan Atlanta Rapid Transit Authority (MARTA); Michigan Department of Transportation (MDOT)/Michigan's mobility initiative, PlanetM; Minnesota Department of Transportation/Rochester Public Transit (MnDOT); Pinellas Suncoast Transit Authority (PSTA), and Virginia Department of Rail and Public Transportation (DRPT)/Hampton Roads Transit.

Consortium members will define candidate deployment routes and locations, operating plans, autonomous bus specifications, financial plans and deployment strategies. AECOM will manage the planning, assessment, implementation and evaluation of the program's rollout in all locations. The Consortium will make an expected initial purchase of 75 to 100 full-sized, automated buses. By joining the Consortium, the cost of conducting local autonomous bus projects should be reduced for each agency. Lessons learned and best practices from each pilot project will be shared among member agencies to promote better and faster learning and adoption of safety protocols and operational insights. The Consortium's plan calls for a 12-month feasibility phase, followed by implementation within a two-year time frame, currently estimated to begin between 2021 and 2022. Each agency will make their own decisions regarding future additional automated bus purchases and deployment following the completion of the feasibility phase.

A.12.8 Alternative Fuel Vehicle Pilot

HRT has successfully been awarded grant funding which totals $7.8 million and is funded by two Low or No Emission Vehicle (LoNo) Program awards for the federal share, and a combination of Volkswagen Environmental Mitigation Trust and DRPT state funding, as well as a local capital contribution. In partnership with Proterra Bus, HRT will be acquiring six full sized, all-electric buses and supporting charging stations to demonstrate the capabilities of all electric buses on a Southside route. The Southside bus maintenance facility in Norfolk at 18th Street will be retrofitted with charging stations and will be connected to the Dominion Power electric grid. Only the Southside facility can support the charging infrastructure at this time due to insufficient power capacity elsewhere. If the all-electric buses prove to have advantageous operating characteristics, HRT will explore the opportunity to diversify the composition of the fleet.

A.12.9 Mobile Ticketing

In July 2018, HRT introduced its first mobile ticketing app on the three VB Wave trolley routes as part of an initial introduction to the technology. In years past, VB Wave trolley passengers would have needed exact change or a pre-purchased fare card to ride. In April 2019, the second phase commenced, and the 2019 summer season kicked off a week early for the inaugural Something in the Water music festival. There were many improvements from the 2018 season's "Phase 1" of the pilot program. All 14 trolleys were fitted with fare validator equipment that can scan fare barcodes on mobile devices, eliminating the need for operators to visually inspect customers' mobile devices, allowing for a more efficient and accurate boarding process. During 2019, HRT also worked with the vendor, Moovel, to pilot a Loyalty/Reward program as an opportunity to grow ridership. Moving forward, it is HRT's intent to implement mobile ticketing agency-wide for all services, based on grant funding availability.

[46] Level 4 automation is defined by NHTSA as "An Automated Driving System (ADS) on the vehicle can itself perform all driving tasks and monitor the driving environment – essentially, do all the driving – in certain circumstances. The human need not pay attention in those circumstances." Source: "Automated Vehicles for Safety." NHTSA. Available at https://www.nhtsa.gov/technology-innovation/automated-vehicles-safety.

A.12.10 Peninsula TAP Grant

HRT has nearly 2,800 bus stops in the six cities of its service district that serves over 50,000 passenger trips per day. Currently nearly 65% of its bus stops are still out of compliance with Americans with Disabilities (ADA) requirements regarding accessible ramps for wheelchairs and sidewalks at our bus stops. HRT has been awarded $350,000 under the TAP grant program to retrofit some of the most utilized, non-compliant, bus stops with sidewalks and wheelchair accessible ramps. HRT anticipates continuing to retrofit non-compliant bus stops in its system.

A.12.11 2021 Origin-Destination On-Board Survey

HRT is planning to conduct an on-board customer survey to understand the travel patterns of riders and demographic and attitudinal information. This project is in the planning phase. The effort is planned as an initial RFI as it may be coordinated with other agency initiatives, such as the bus APC validation initiative or others.

APPENDIX B

Phased System Maps for Chapter 3 Cost Constrained Plan

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Figures

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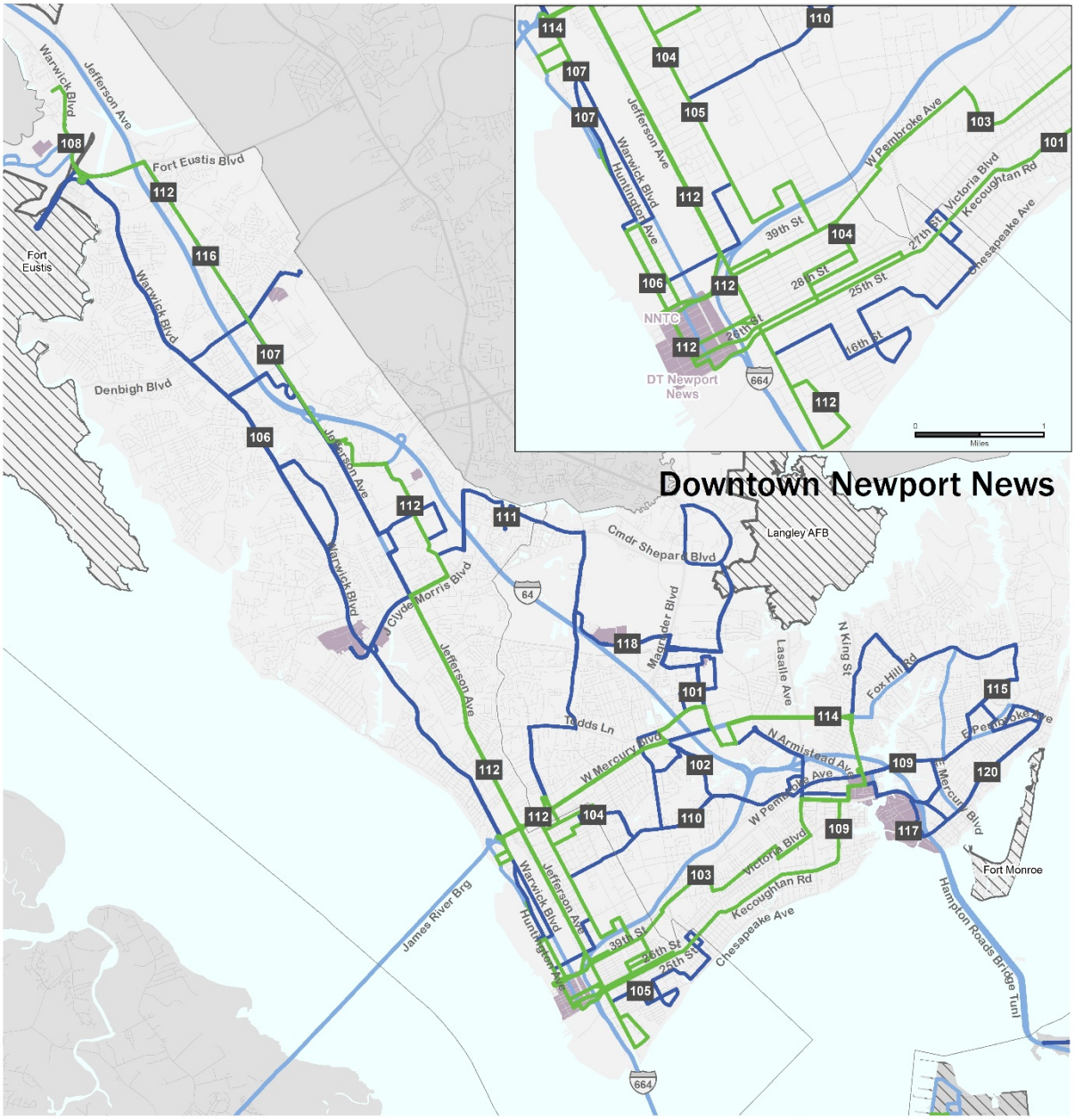
Appendix B: Phased System Maps for Locally Cost-Constrained Plan

This appendix contains 22 maps depicting HRT's bus system throughout the ten years of the TSP under the locally cost-constrained plan as described in **Chapter 3**. Maps depict route headways during the Weekday AM Peak time period.

Figure B1: FY 2021 Weekday AM Peak Frequency (Peninsula)



FY 2021 Headway

Weekday AM Peak

- 15 minutes
- 30 minutes
- 60 minutes
- Eliminated Service

Other Services

- PCS, MAX, Limited
- Trolley
- Light Rail
- Ferry

- Military Base
- Activity Center
- City Boundary

PENINSULA: FY 2021 Weekday AM Peak

Figure B2: FY 2021 Weekday AM Peak Frequency (Southside)

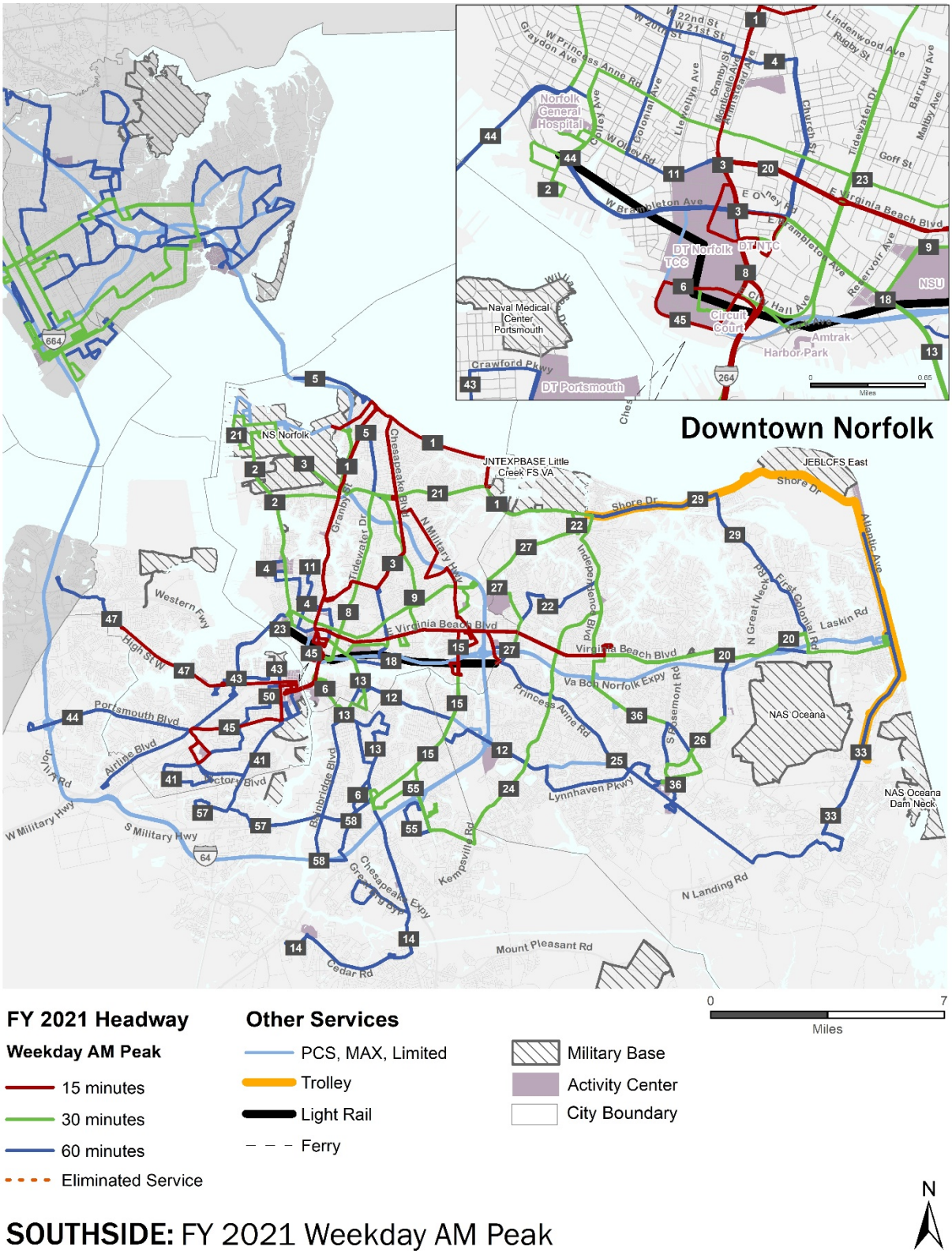
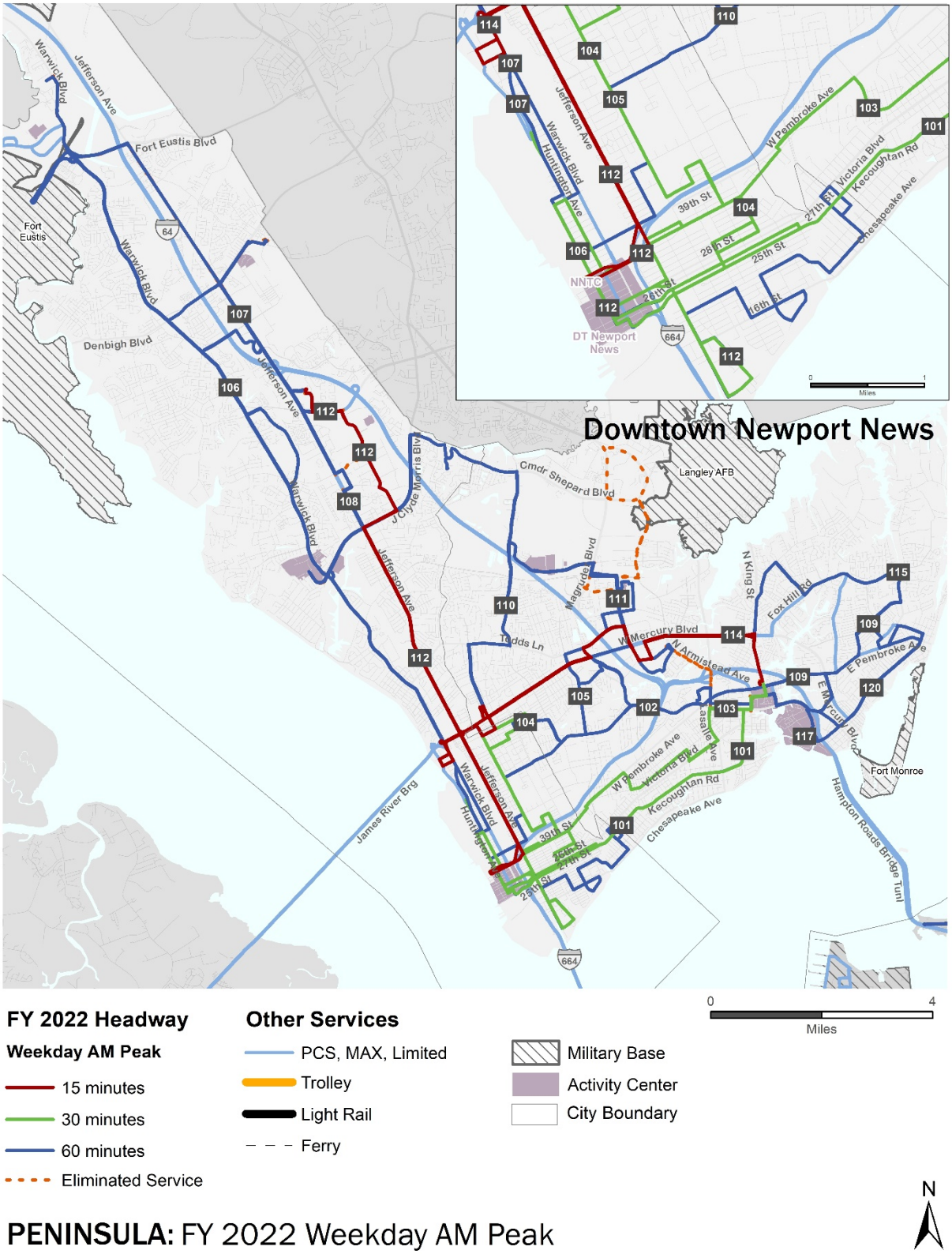


Figure B3: FY 2022 Weekday AM Peak Frequency (Peninsula)



PENINSULA: FY 2022 Weekday AM Peak

Figure B4: FY 2022 Weekday AM Peak Frequency (Southside)

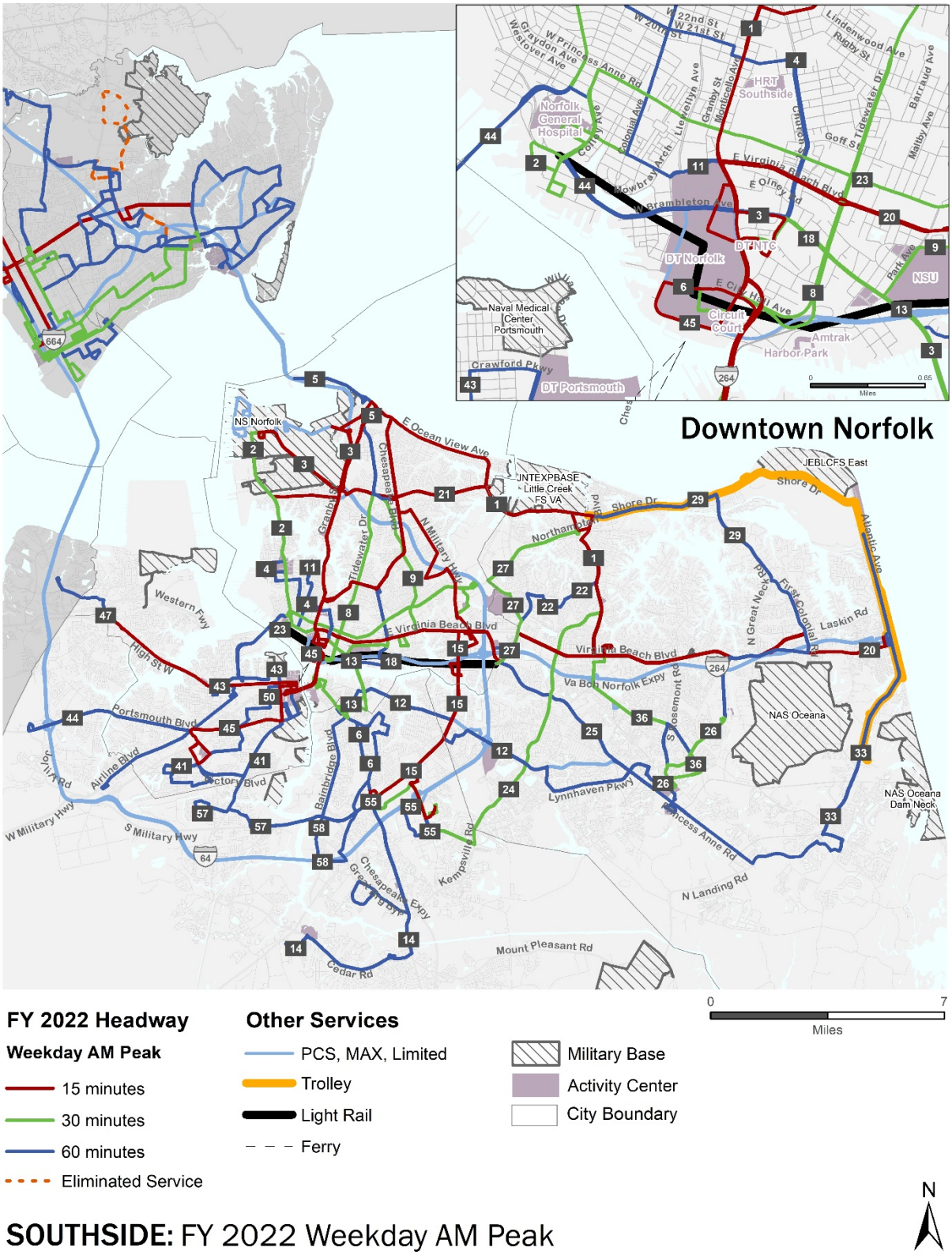


Figure B5: FY 2023 Weekday AM Peak Frequency (Peninsula)

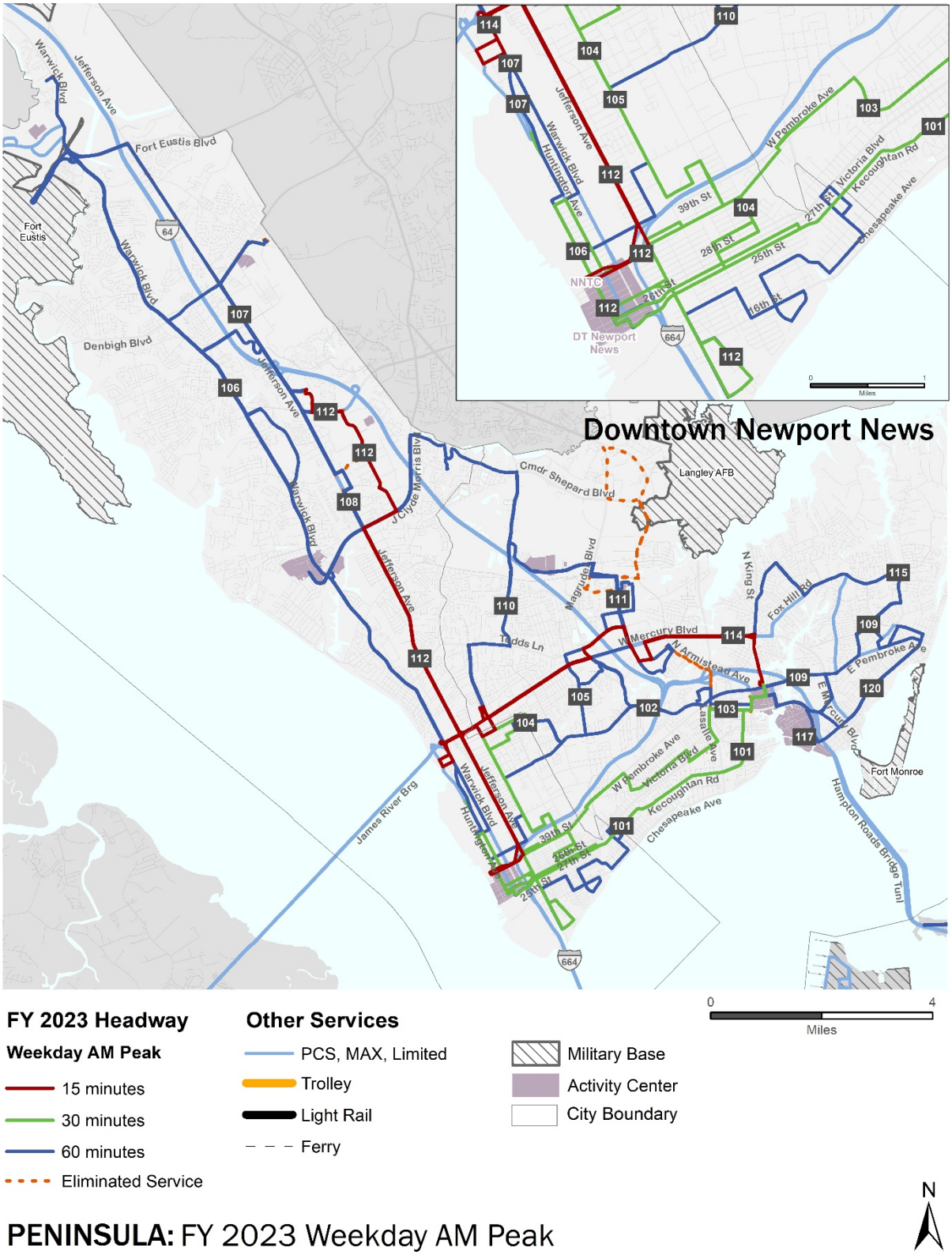


Figure B6: FY 2023 Weekday AM Peak Frequency (Southside)

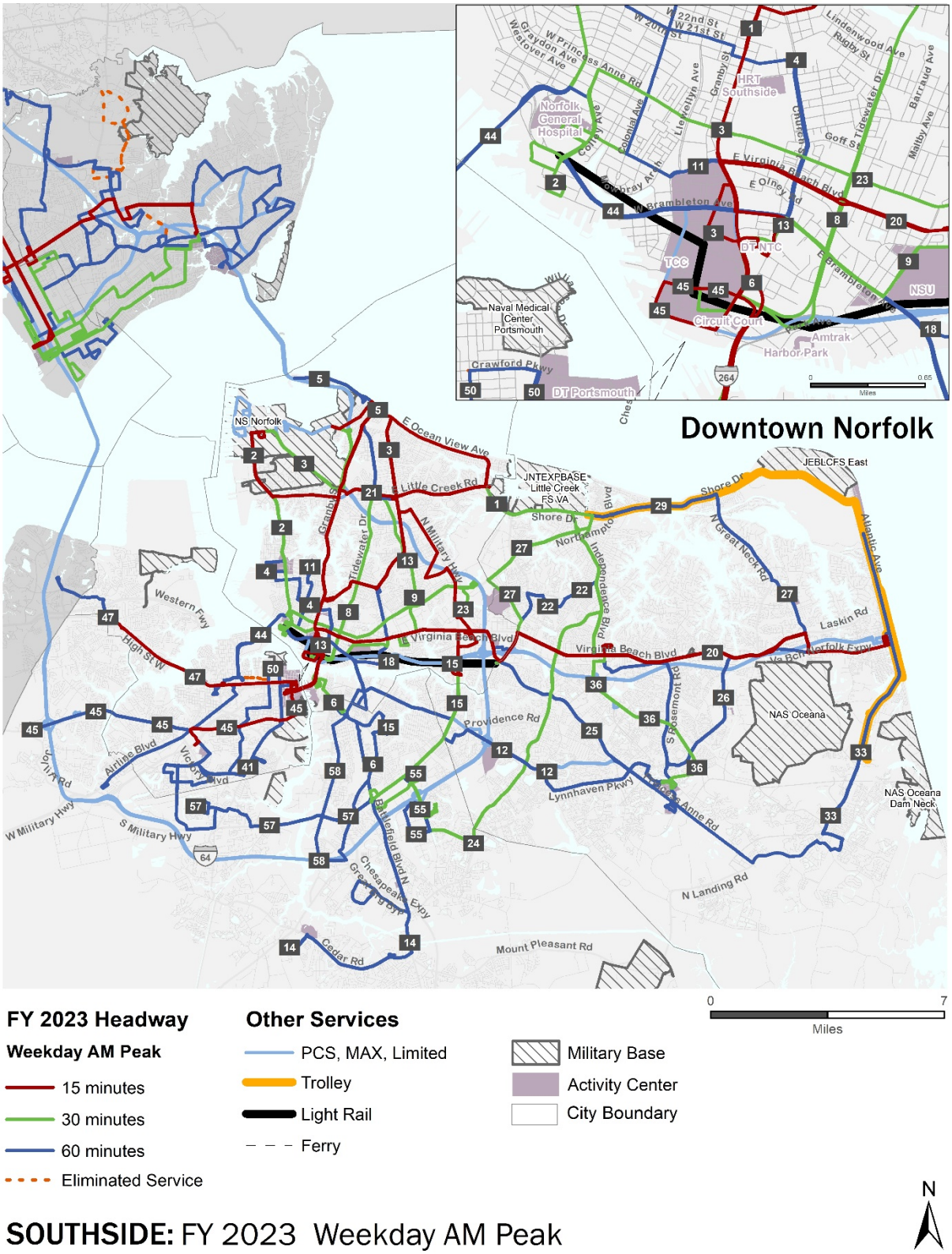


Figure B7: FY 2024 Weekday AM Peak Frequency (Peninsula)

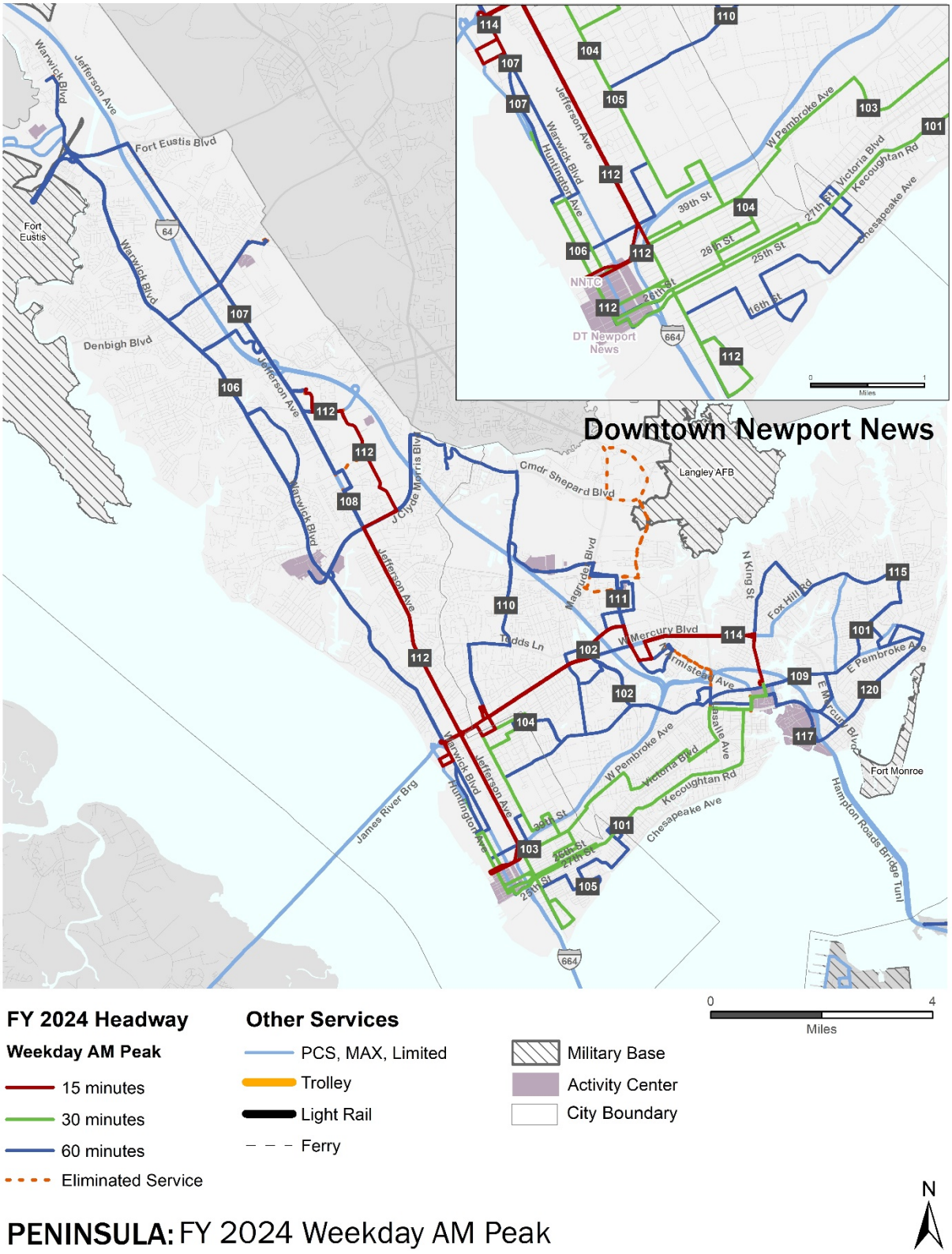
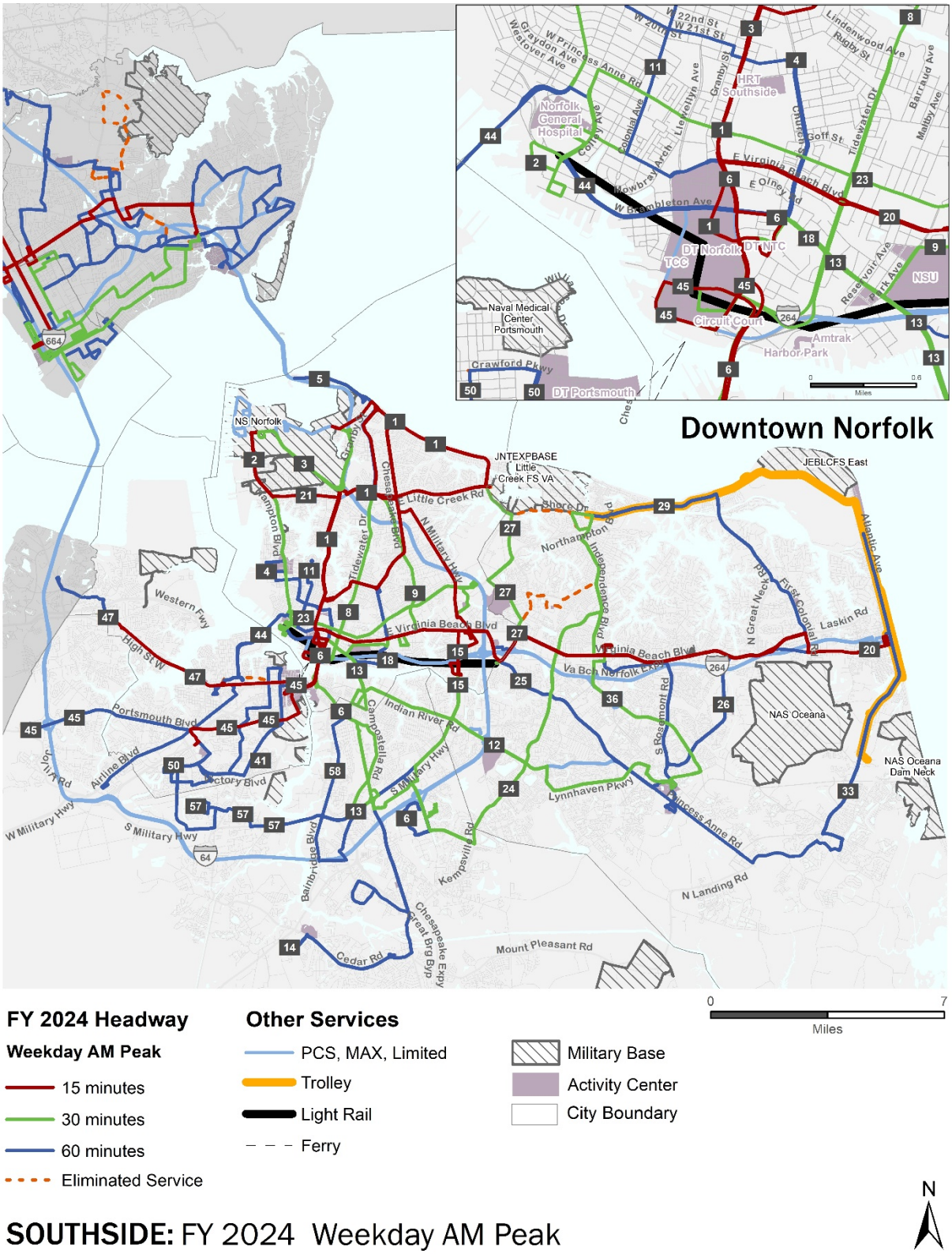
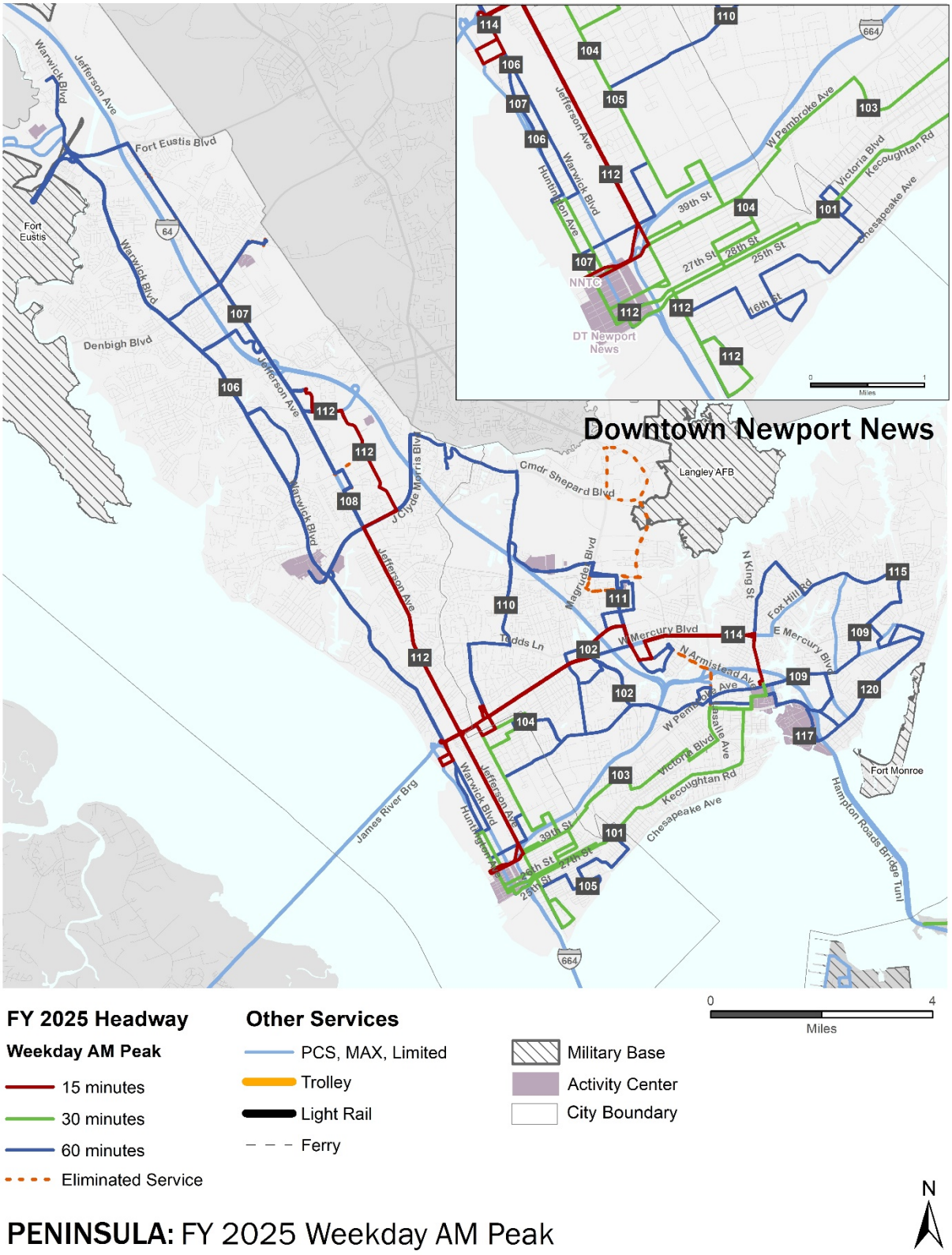


Figure B8: FY 2024 Weekday AM Peak Frequency (Southside)



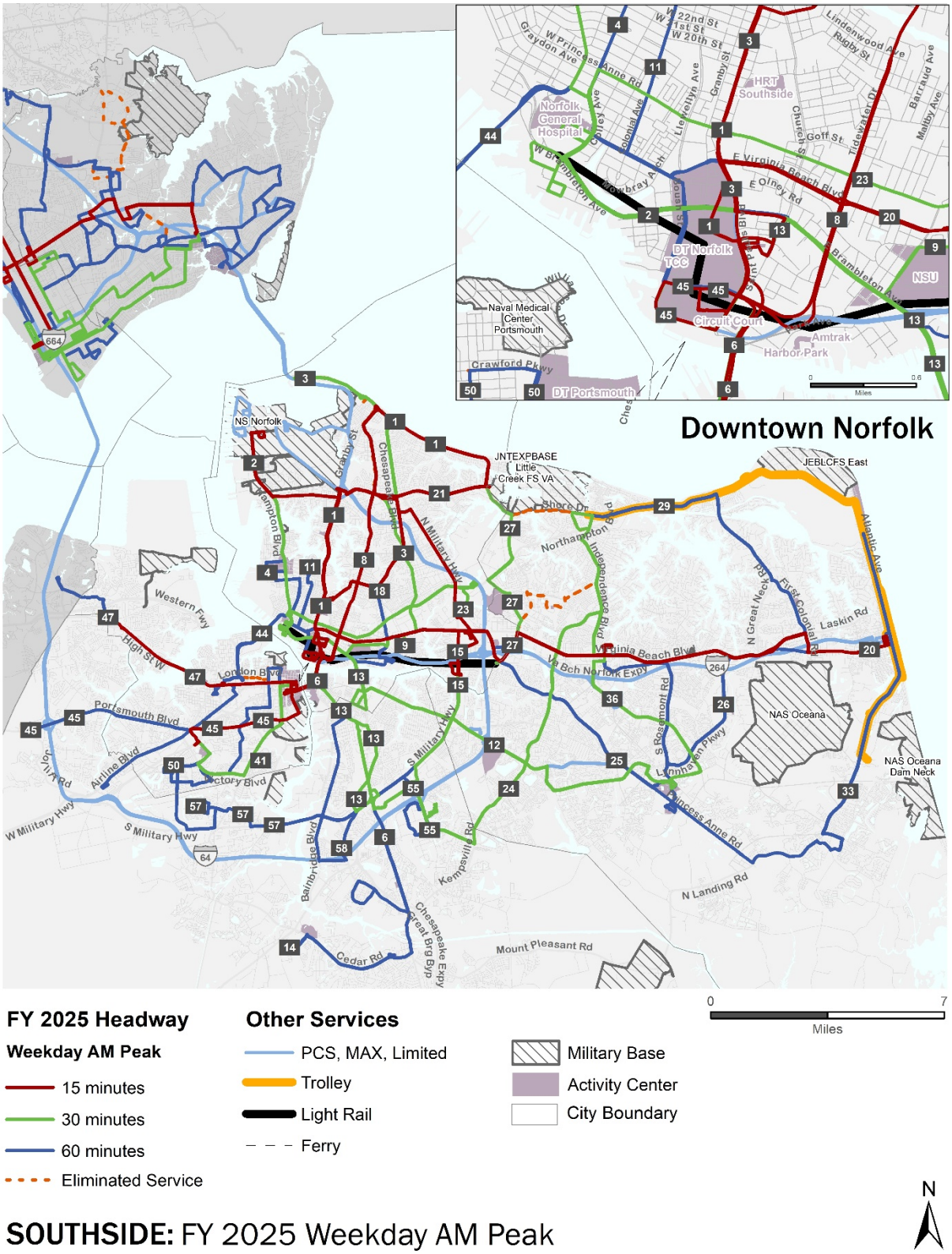
SOUTHSIDE: FY 2024 Weekday AM Peak

Figure B9: FY 2025 Weekday AM Peak Frequency (Peninsula)



PENINSULA: FY 2025 Weekday AM Peak

Figure B10: FY 2025 Weekday AM Peak Frequency (Southside)



SOUTHSIDE: FY 2025 Weekday AM Peak

Figure B11: FY 2026 Weekday AM Peak Frequency (Peninsula)

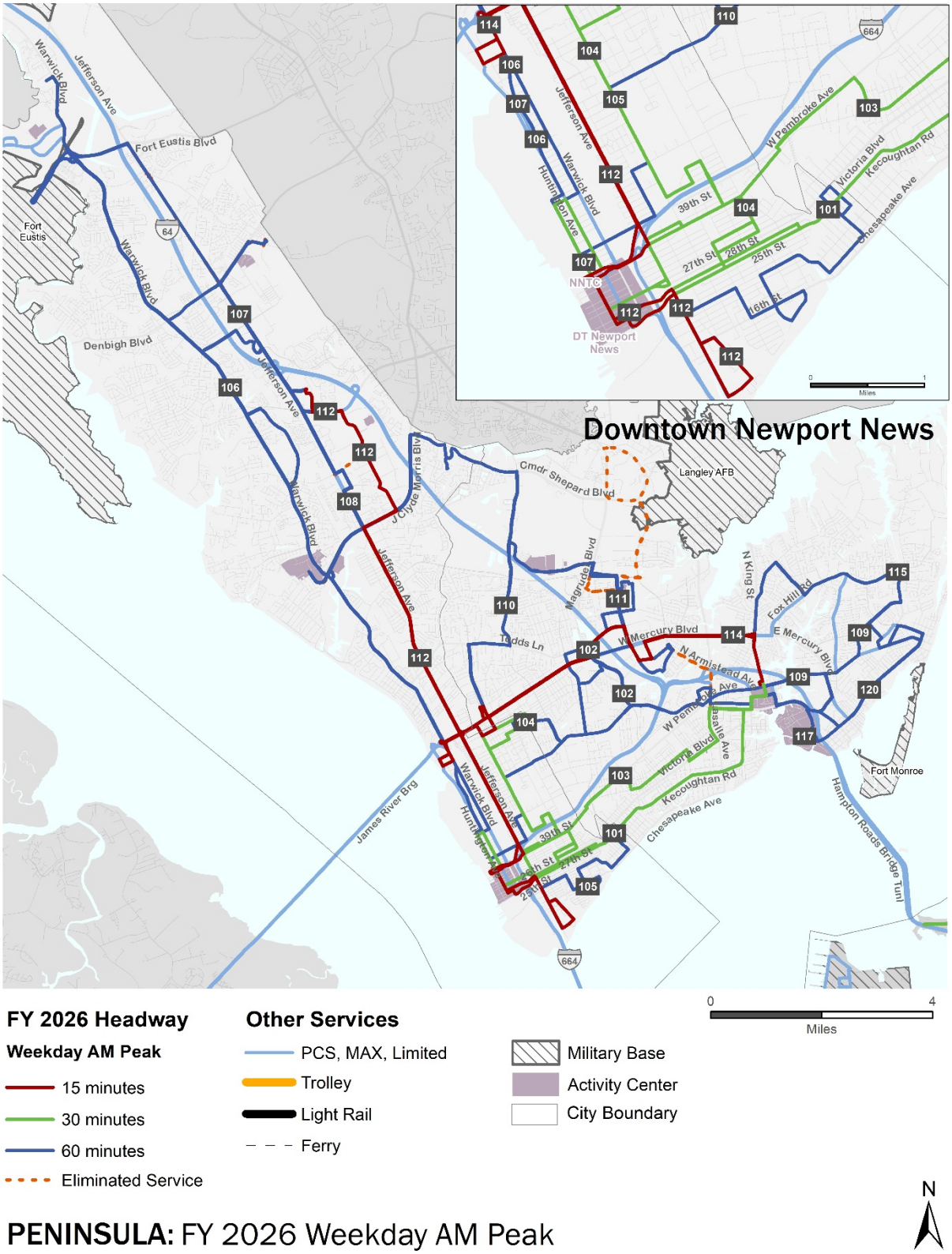
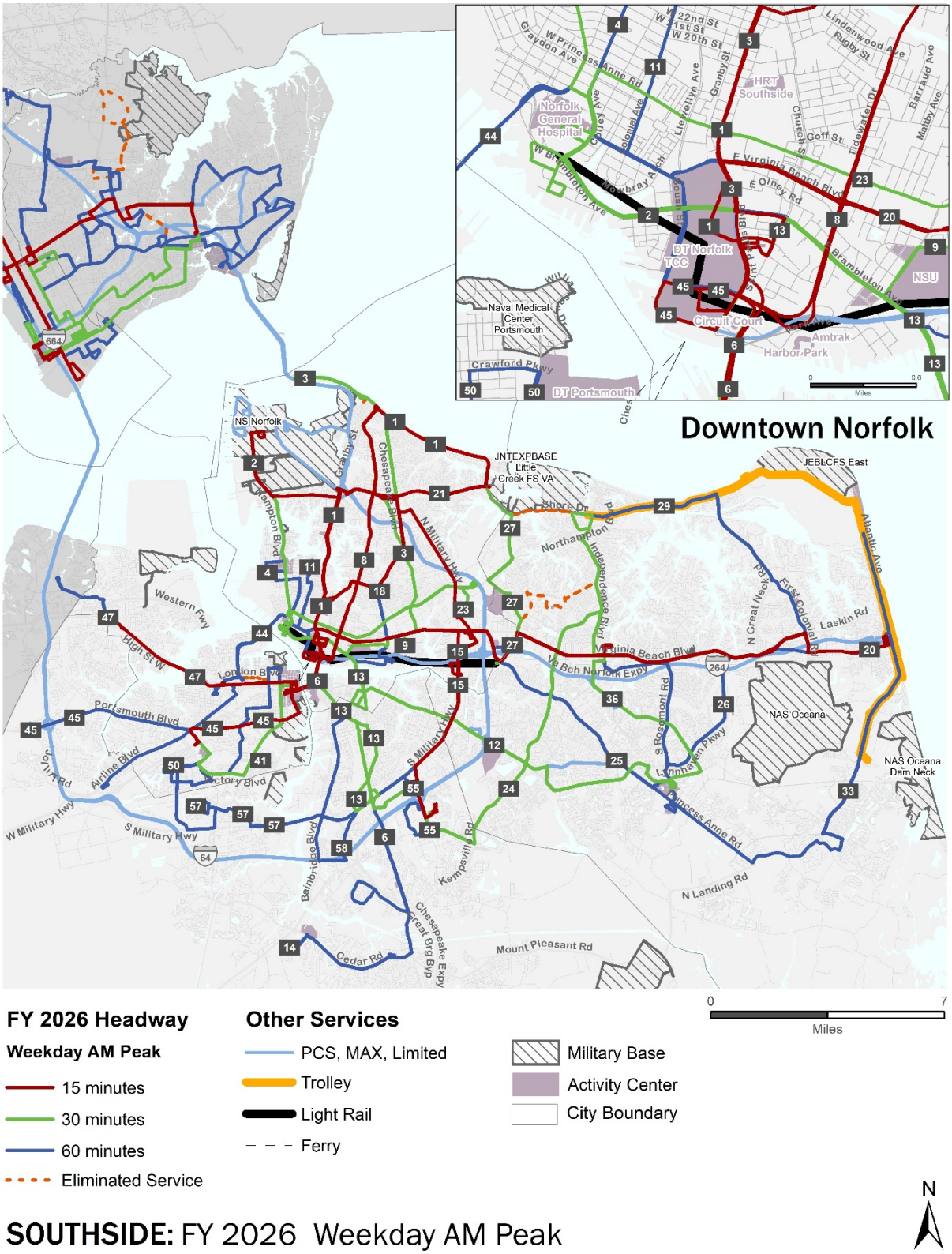
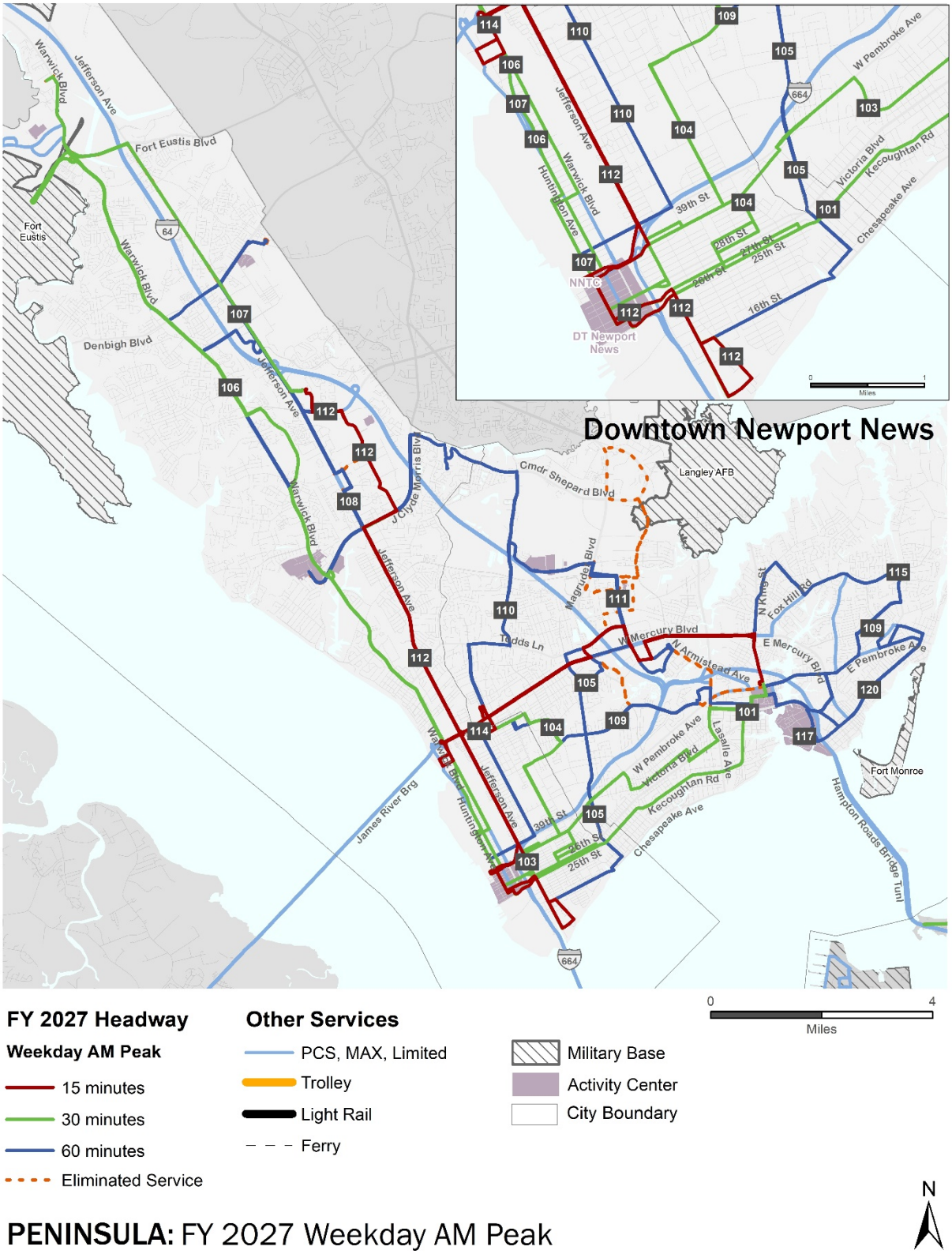


Figure B12: FY 2026 Weekday AM Peak Frequency (Southside)



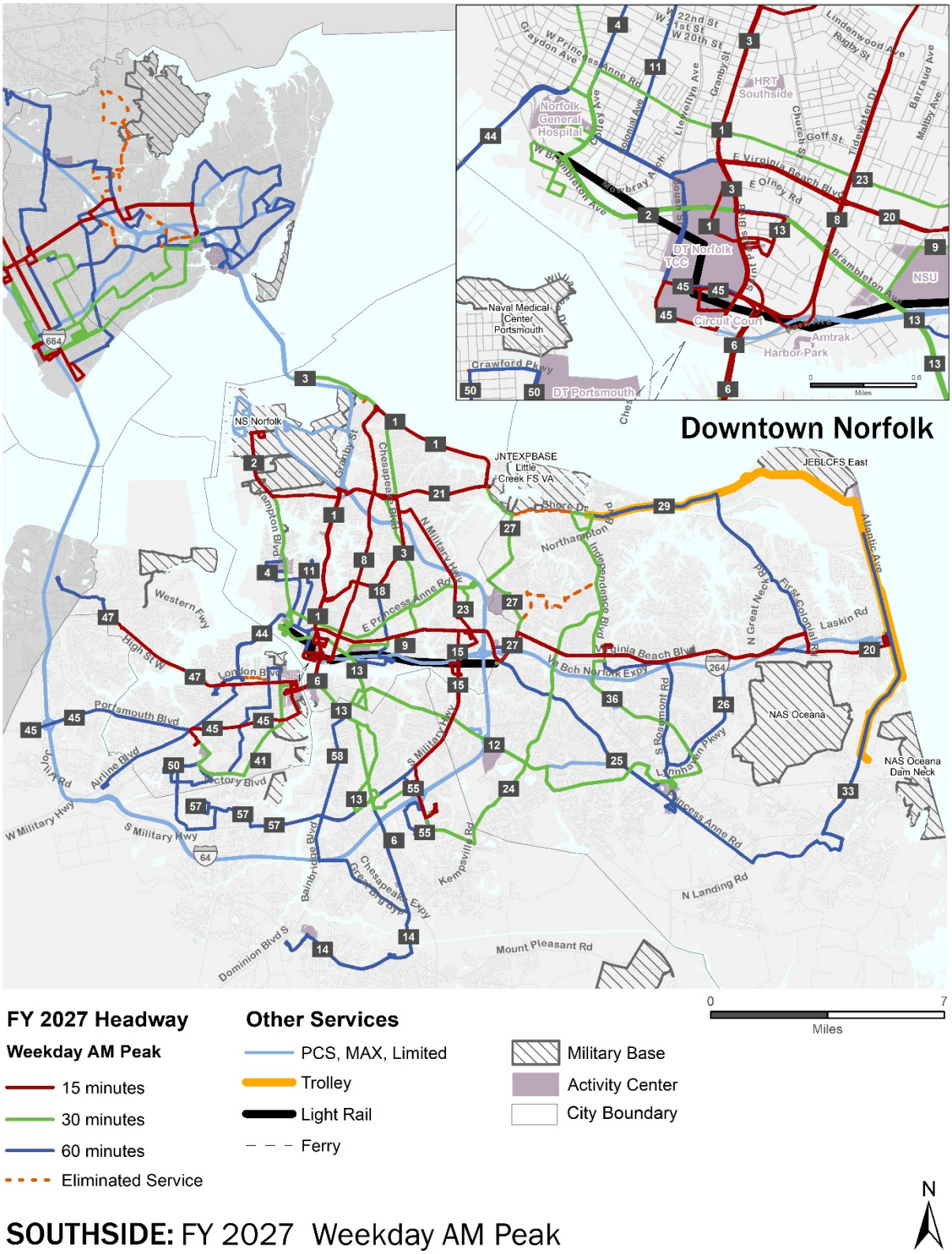
SOUTHSIDE: FY 2026 Weekday AM Peak

Figure B13: FY 2027 Weekday AM Peak Frequency (Peninsula)



PENINSULA: FY 2027 Weekday AM Peak

Figure B14: FY 2027 Weekday AM Peak Frequency (Southside)



SOUTHSIDE: FY 2027 Weekday AM Peak

Figure B15: FY 2028 Weekday AM Peak Frequency (Peninsula)

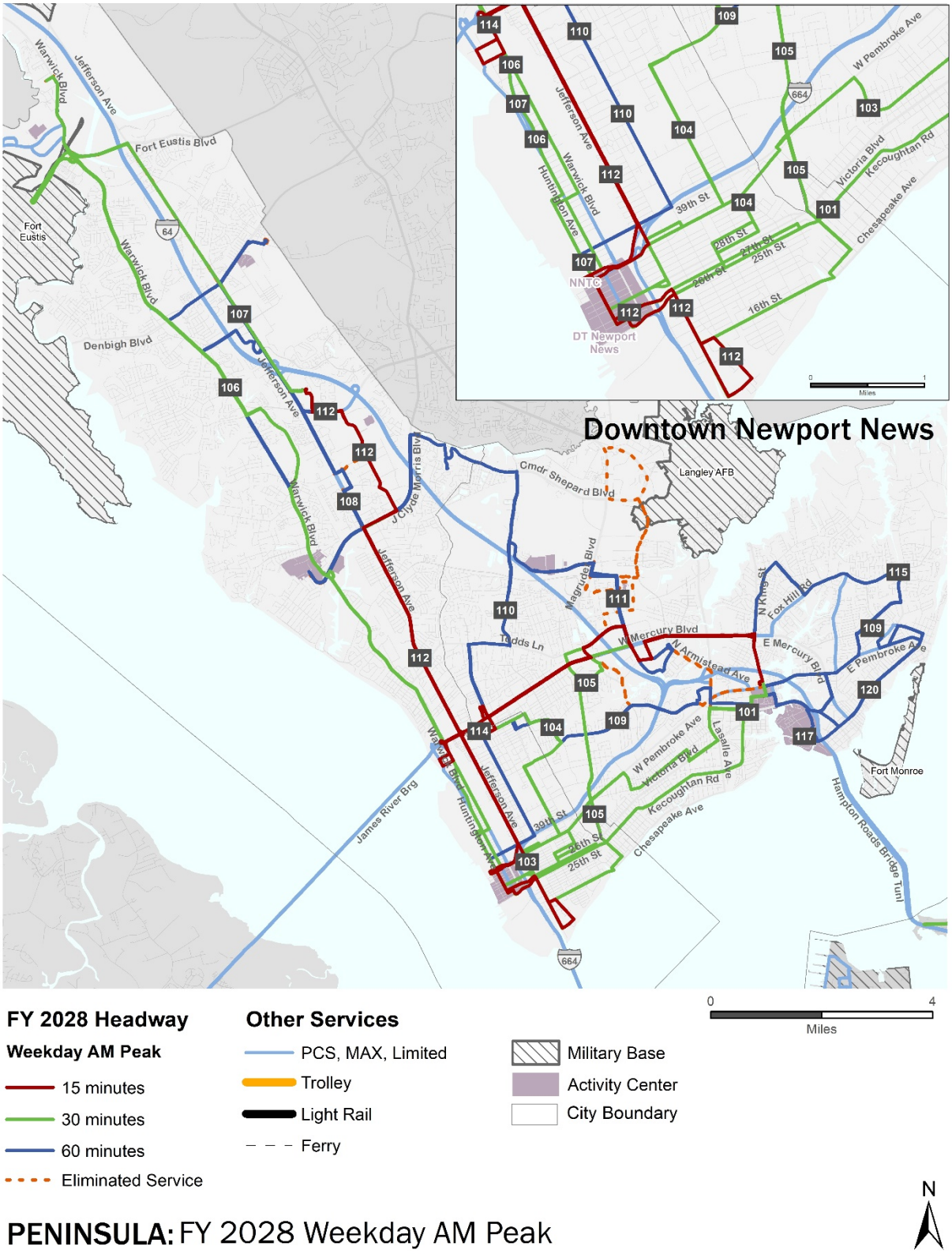


Figure B16: FY 2028 Weekday AM Peak Frequency (Southside)

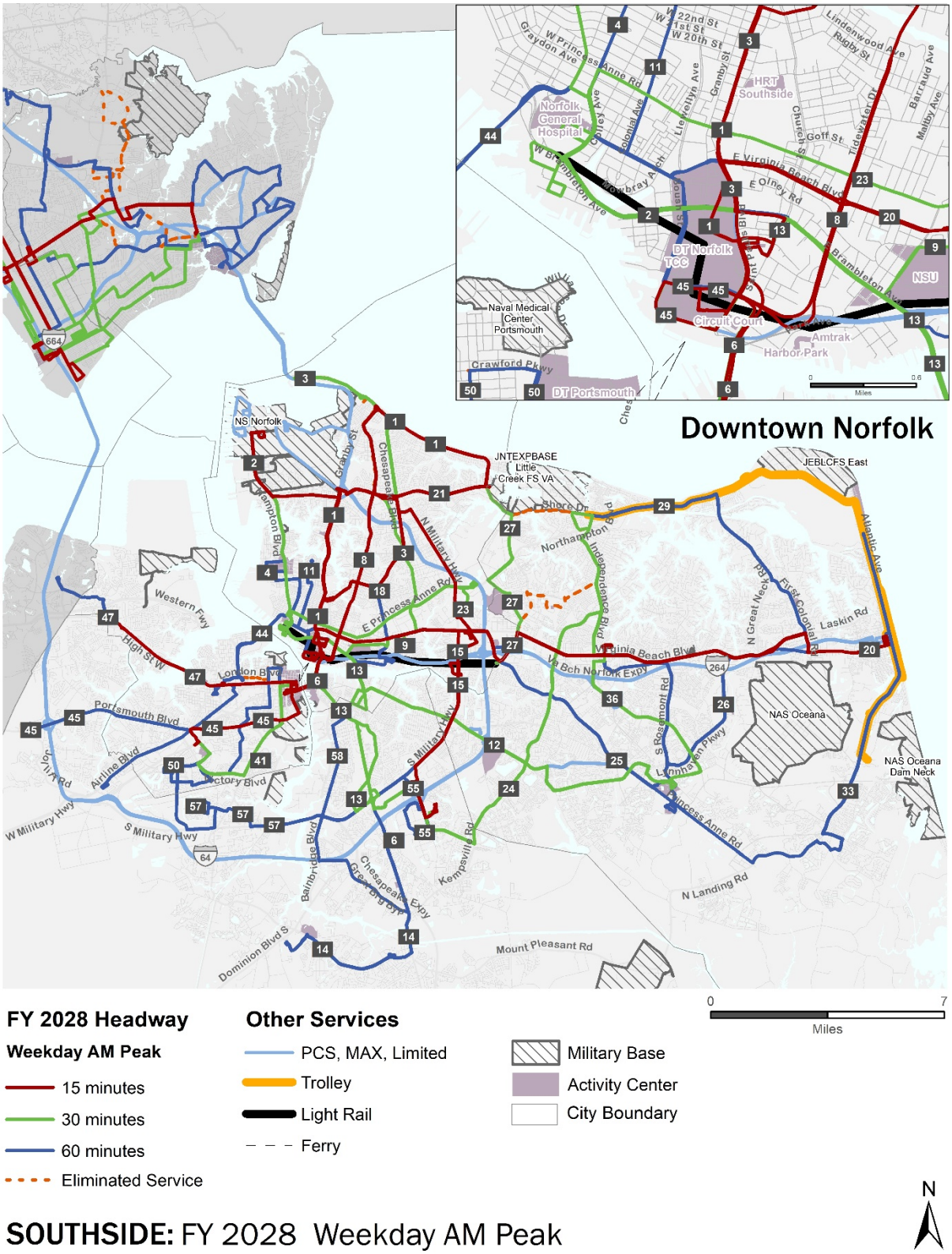
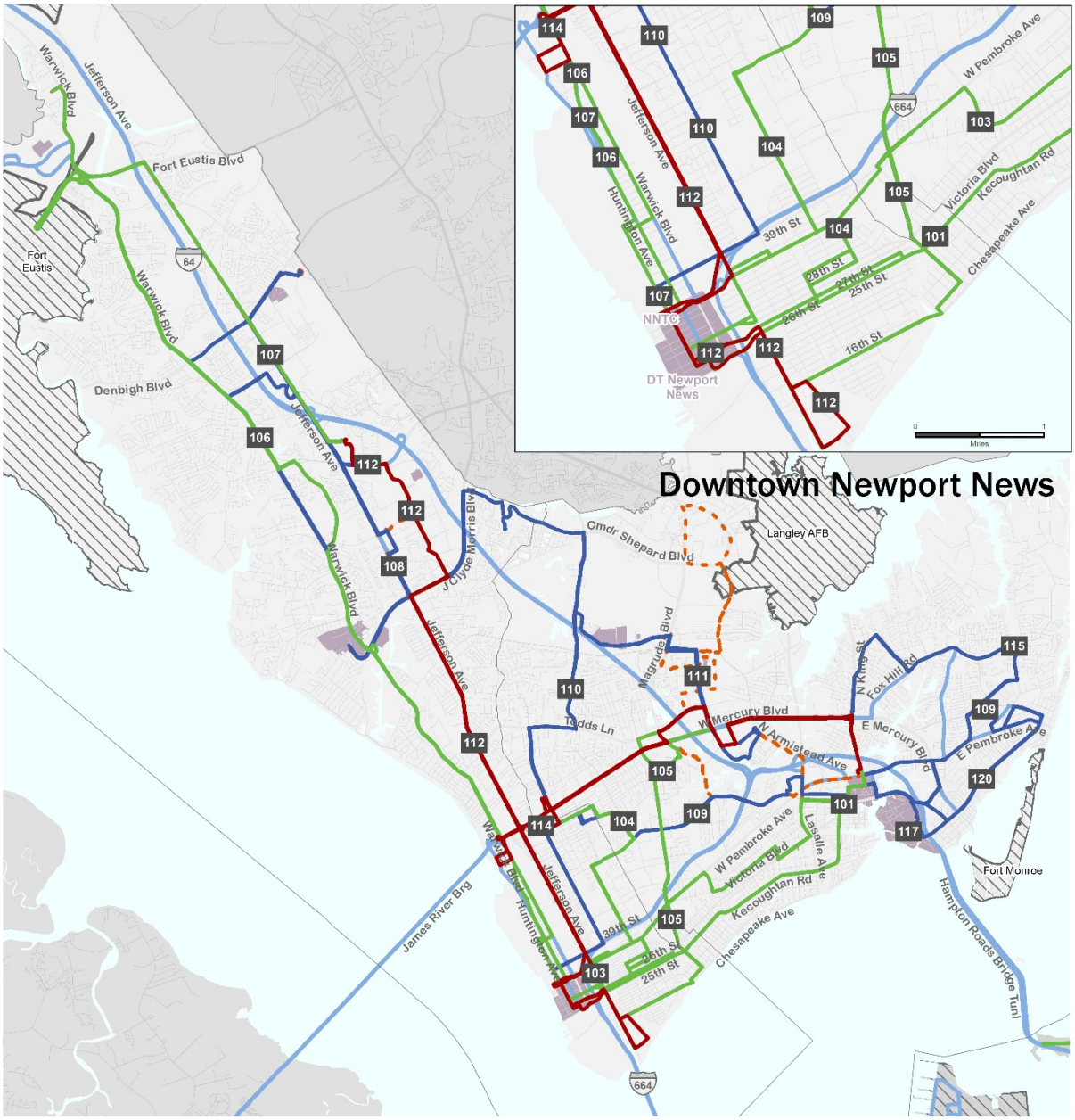


Figure B17: FY 2029 Weekday AM Peak Frequency (Peninsula)



PENINSULA: FY 2029 Weekday AM Peak

Figure B18: FY 2029 Weekday AM Peak Frequency (Southside)

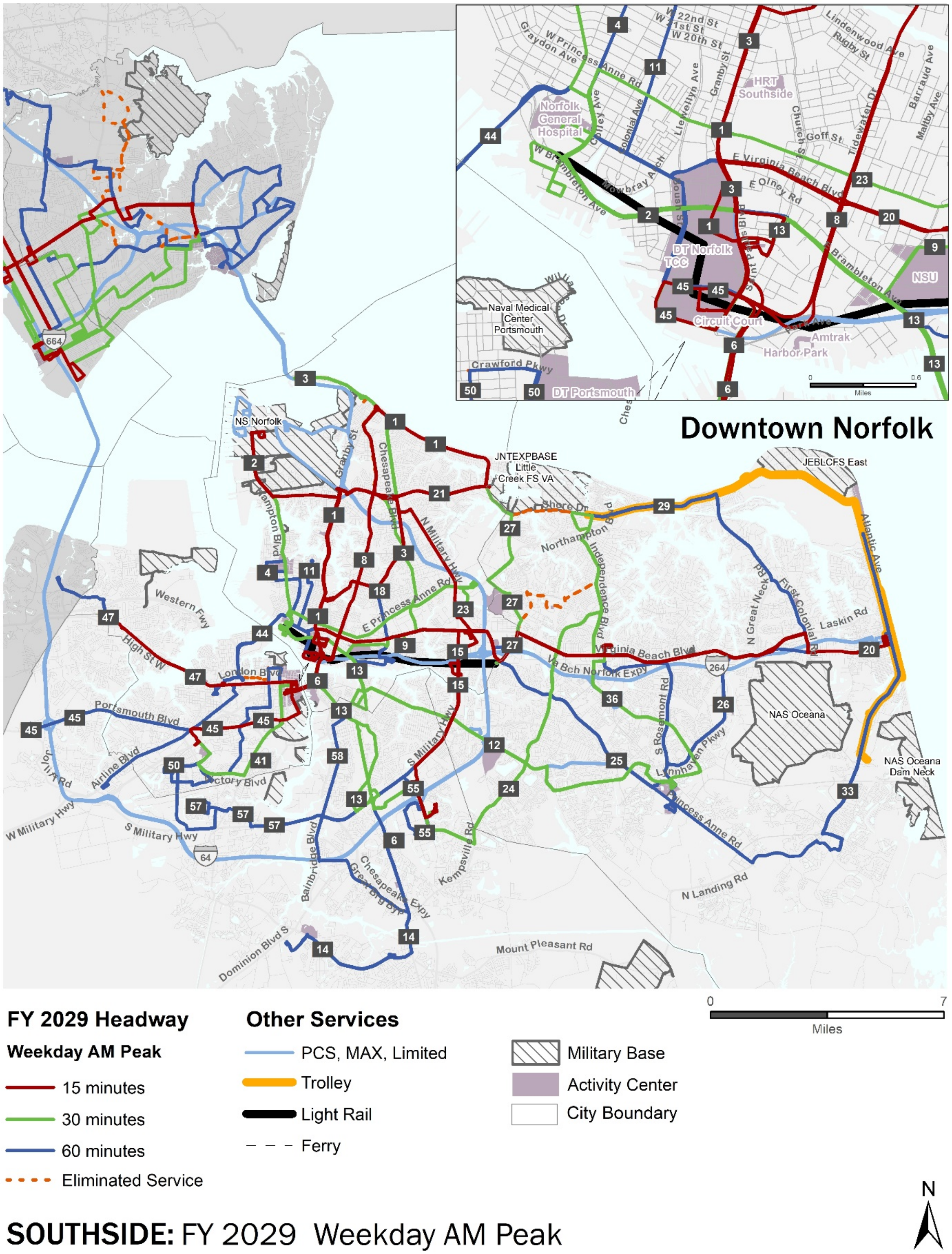


Figure B19: FY 2030 Weekday AM Peak Frequency (Peninsula)

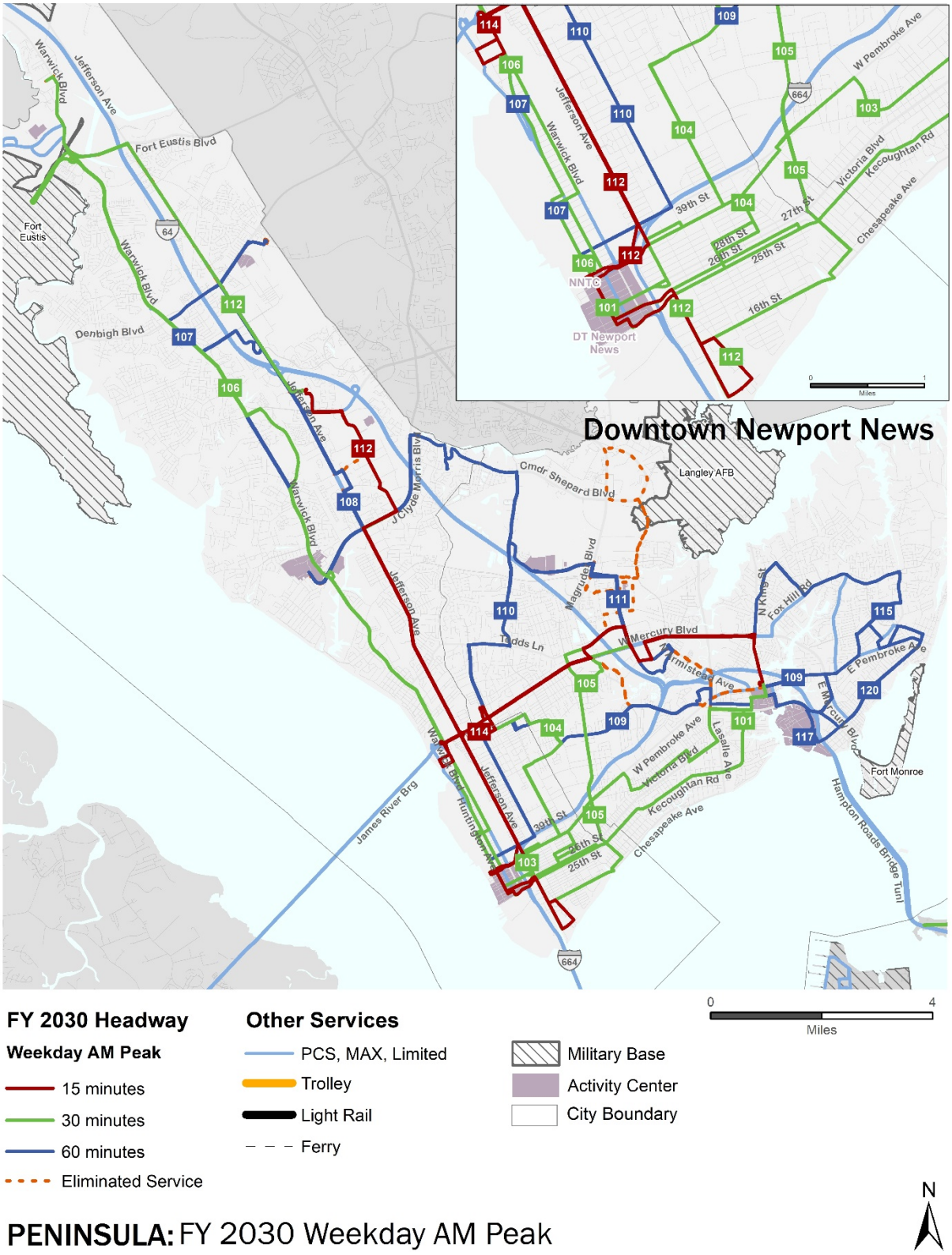
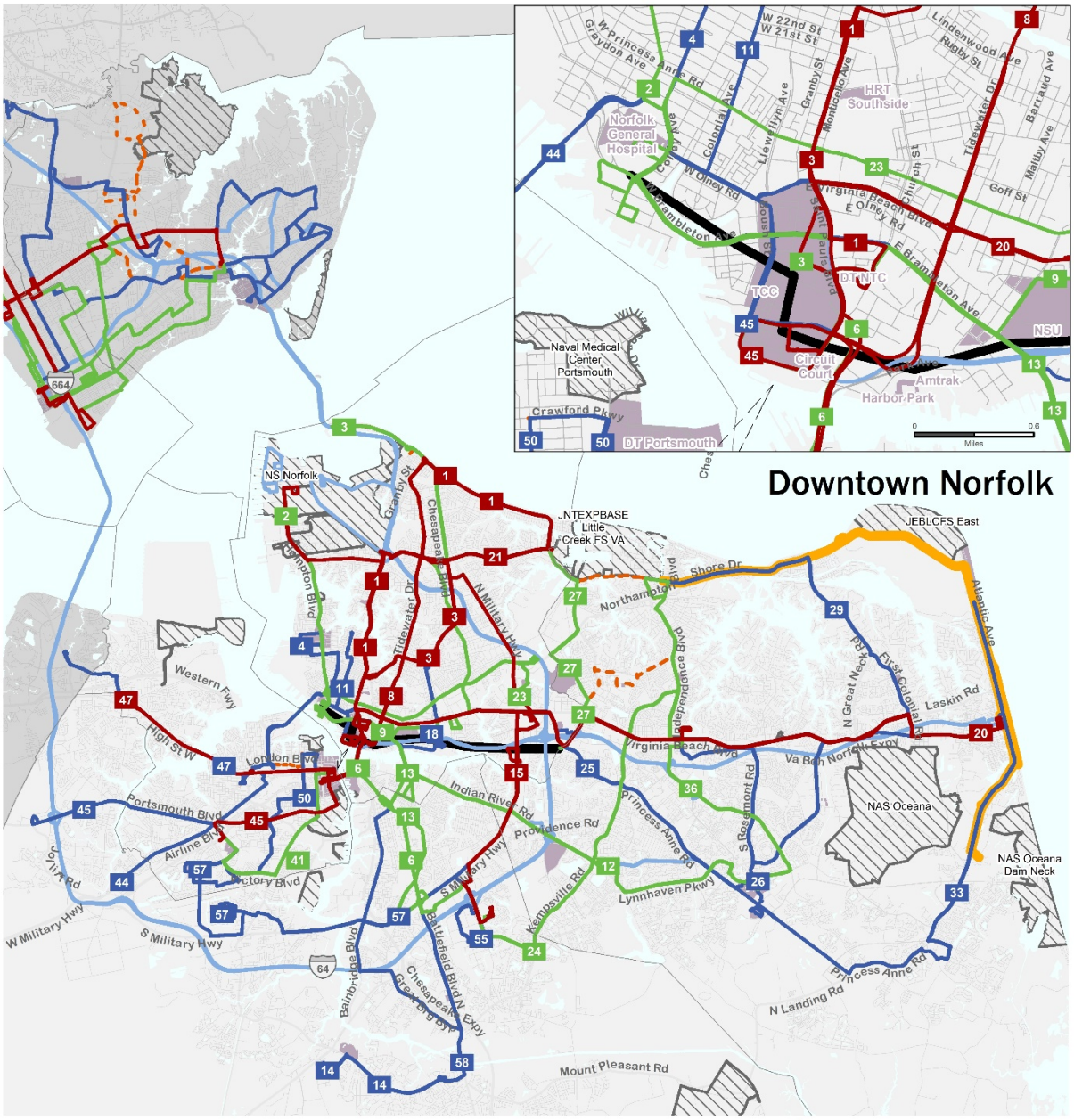
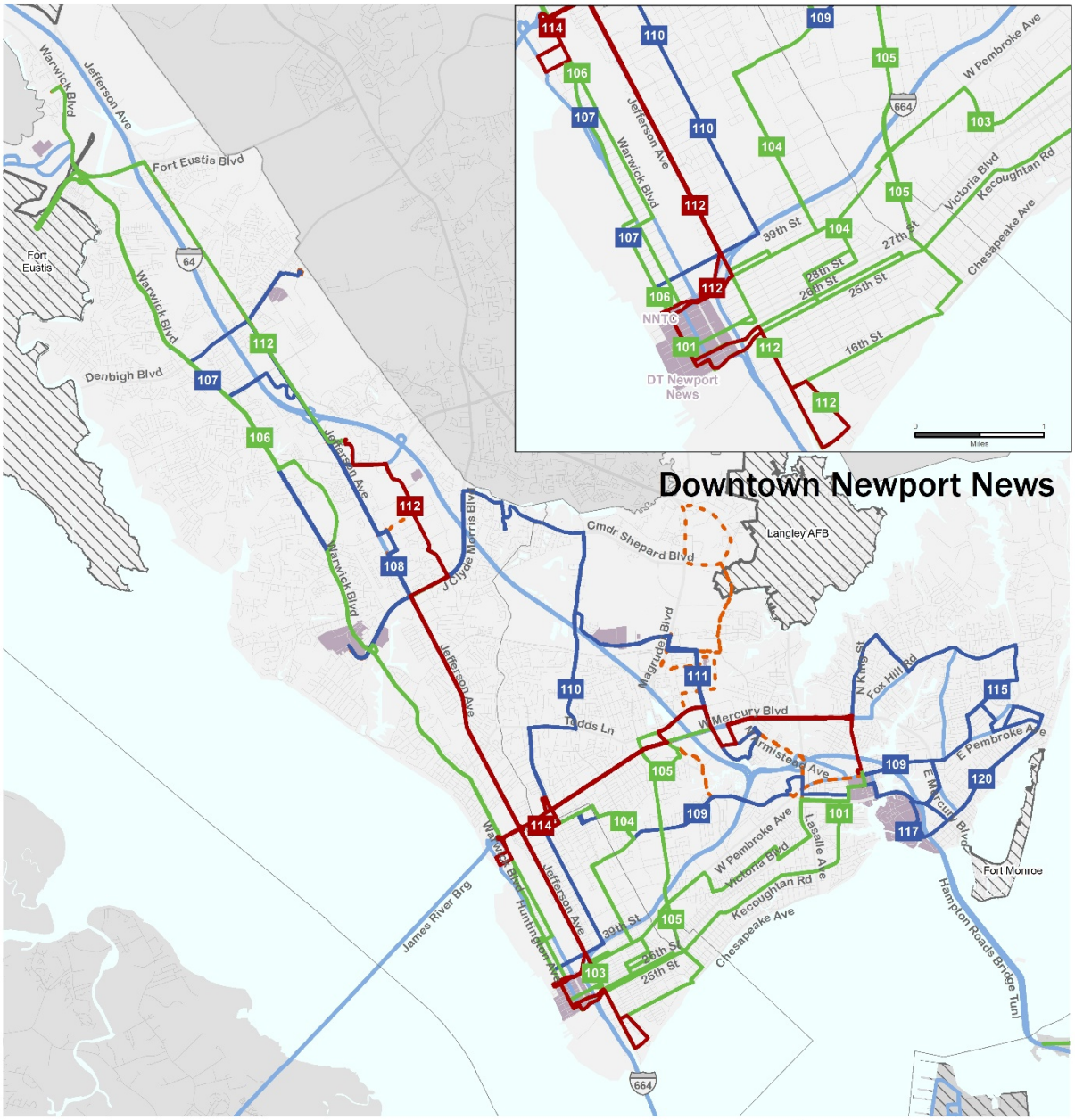


Figure B20: FY 2030 Weekday AM Peak Frequency (Southside)



SOUTHSIDE: FY 2030 Weekday AM Peak

Figure B21: Future Weekday AM Peak Frequency (Peninsula)



Service Target Headway

Weekday AM Peak

- 15 minutes
- 30 minutes
- 60 minutes
- Eliminated Service

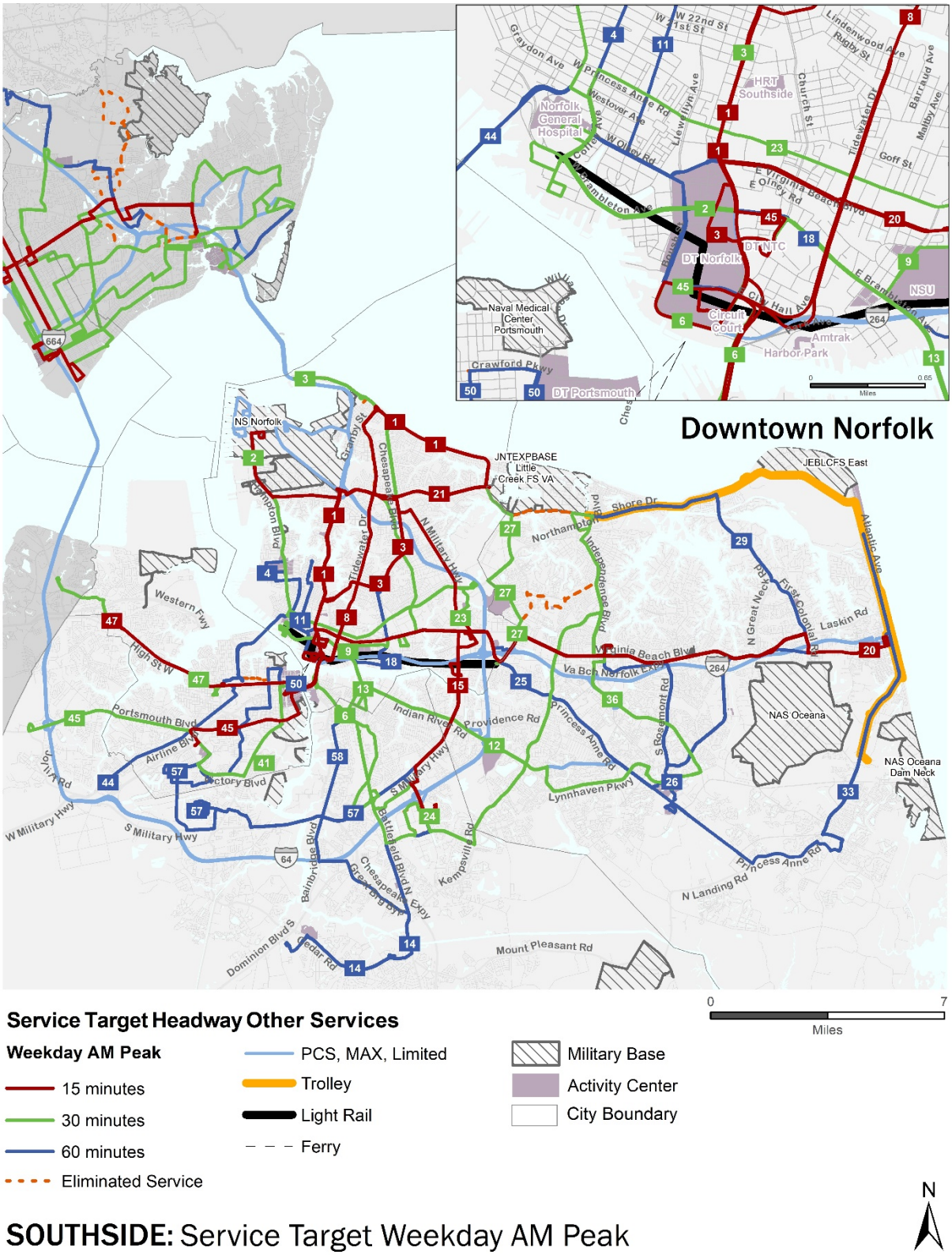
Other Services

- PCS, MAX, Limited
- Trolley
- Light Rail
- Ferry

- Military Base
- Activity Center
- City Boundary

PENINSULA: Service Target Weekday AM Peak

Figure B22: Future Weekday AM Peak Frequency (Southside)



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APPENDIX C

Estimated Ridership Methodology and Results

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Appendix C: Estimated Ridership Methodology and Results

This appendix explains the methodology used to estimate ridership for the proposed FY 2030 fixed-route system. and presents the results for weekdays, Saturdays and Sundays. Ridership estimation results are presented in **Chapter 3**.

C.1. Overview

Future-year ridership was estimated for each local bus route (Regional Backbone, Local Priority, and Coverage service types) by estimating the ridership impact for every service change between the existing and proposed system. Three types of service changes were defined, with a separate estimation method for each: alignment changes, span changes, and headway changes. The impacts of these changes were estimated in order, starting with stop-level ridership adjustments caused by alignment changes, followed by the application of ridership demand elasticities for span and headway changes. These methods are described in further detail in the following sections.

Ridership for limited and express bus routes, including Peninsula Commuter Service (PCS) and Metro Area Express (MAX) routes, was estimated at the trip level. Ridership estimation was not conducted for service modes without proposed changes in **Chapter 3**, including demand response service, the Elizabeth River Ferry, and the Tide Light Rail.

For all routes, ridership estimates were calculated separately for weekdays, Saturdays, and Sundays, according to the routes and levels of service provided on each service day. The estimates for these days were then used to find a total annual ridership estimate, based on the number of weekdays, Saturdays, and Sundays (or holidays) occurring in a calendar year.

C.2. Alignment Changes

First, the ridership impacts of alignment changes were estimated at the stop level. FY 2019 average weekday boardings data by stop and route served as the baseline ridership for every route. In order to reflect the stops newly served or no longer served by a route due to realignment, boardings were added or subtracted from each route's baseline ridership.

For every realigned route, the existing stops served by the route before and after the proposed realignment were cataloged. From the existing alignment to the proposed alignment, stops were either eliminated from the route, swapped to replace the eliminated service from another route, or added to the HRT system as new fixed-route coverage.

C.2.1 Stops Eliminated from a Route

Boardings at stops eliminated from a route were subtracted from the route's average daily ridership. In cases where one or more other routes were proposed to replace the route's service at a stop, those boardings were captured by those routes as described in the next section. In cases where all service to a stop is eliminated, those boardings were removed from the system entirely.

C.2.2. Stops Added to a Route

Boardings at stops added to a route were estimated using the ridership from existing routes which serve those stops. First, the route captured any boardings belonging to a route that currently serves the stop but for which service at that stop (or along the whole route) is eliminated. In this way, the new route serves as a replacement for the eliminated service. At stops where no service was eliminated, the new route was allocated an even share of the existing boardings at the stop (i.e., the total existing boardings divided by the number of routes with proposed service at that stop).

C.2.3 New Stops

Some proposed route alignments provide service along street segments that do not have existing HRT service. For those segments, the number of new bus stops was estimated using 1,000-foot spacing in each direction. The boardings at each new stop were then estimated using the average existing boardings per stop for a similar route. Similar routes were identified separately for each new road segment, based on similarities in the areas served and service characteristics between the proposed service and existing routes.

C.3. Level of Service Changes

Ridership impacts of the two types of level of service changes, span and headways, were estimated using ridership demand elasticities. These elasticities represent the change in transit demand, or ridership, caused by a change in level of service. The equation shown below demonstrates the usage of ridership demand elasticities, where ε represents the elasticity value and x represents either the span or headway.

$$Boardings_2 = Boardings_1 \cdot e^{\varepsilon \cdot \ln\left(\frac{60/x_1}{60/x_2}\right)}$$

In application, the span elasticity value is positive, since an increase in span of service affects an increase in demand. In contrast, the headway elasticity value is negative, since an increase in headways results in decreased demand. Elasticity values are calculated based on the observed effects of level of service changes on transit demand in existing fixed-route bus systems. The elasticity values used in this analysis were 0.83 for span and -0.46 for headways, which represent averages of the observed transit demand patterns of bus systems in the United States.[1]

C.3.1 Span Elasticity

After estimating ridership changes due to realignments, the span elasticity was applied to each route. The total number of hours of daily service (not revenue hours) was calculated for the existing and proposed conditions. For routes with short turns, the span for the short turn and full-length segments were applied separately, according to the ridership along each segment.

C.3.2 Headway Elasticity

Following span elasticity, the headway elasticity was applied for each route. Many routes have varying headways throughout the day, so the existing and proposed PM Peak headways were used for calculating the impacts of headway changes. In the case that PM Peak headways did not change in the proposed plan, midday headways were used to apply headway elasticity. Similar to span elasticity, routes with short turns were split into the respective boardings on each segment, with the headway elasticity applied to each segment according to the effective headway.

C.4. Weekend Ridership

Ridership for Saturday and Sunday planned service were estimated using the same methodology as weekday estimates, although data limitations required adaptations in the analysis. Existing weekend ridership data was not available at the stop level, so the impacts of alignment changes on the weekend could not be directly estimated in the same way as they were for weekdays. Instead, the resulting percent change in boardings from alignment changes on the weekday was applied to the existing Saturday and Sunday ridership for each route. In addition, the lack of stop-level data required that routes with short turns be calculated as a whole, instead of split into short turn and full-route segments. In those cases, the span and headway elasticities were applied to the whole route using the existing and proposed level of service on the short turn segment. Finally, for routes which do not currently have Sunday service but will in the future, Sunday ridership was assumed to be 25 percent of the estimated weekday ridership, based on existing ridership patterns.

[1] TCRP Report 95, "Traveler Response to Transportation System Changes Chapter 9—Transit Scheduling and Frequency." It is important to note that these values carry uncertainties which limit the precision of final ridership estimates.

C.5. Limited/Express Routes

Future-year ridership on limited and express routes, including PCS and MAX routes, Route 64, and Route 121 (which will be reclassified as a MAX route in FY 2021), was estimated at the trip level. For routes with eliminated trips, the observed average daily boardings for those specific trips were subtracted from the existing route's ridership. For routes with added trips, the route's existing average boardings per trip was added for each new trip.

C.6. Limitations

The ridership estimates in this report contain a set of uncertainties which limit their potential accuracy. A major source of uncertainty for this methodology were the exclusion of future-year socioeconomic conditions. The results of this analysis are based only on existing ridership levels and the estimated impacts of changes to level of service. This approach does not employ population, employment, or land use forecasts to develop estimates, though population increases in the Hampton Roads region may cause greater ridership increases than have been estimated. While the proposed service changes are designed to accommodate anticipated changes to land use and employment destinations, the method of using existing ridership data as a base for estimating future ridership does not account for such changes to transit demand, which may have varying ridership effects on different areas or routes within the transit network.

In addition, limitations in the existing ridership data created uncertainty for Saturday and Sunday estimates. The lack of stop-level ridership for weekend service required the assumption that realignments cause the same relative change to weekday and weekend ridership.

Finally, the impacts of service changes on each route did not affect the results for other routes, since estimates for each route are calculated independently, with the exception of realignments that shift boardings at certain stops from one route to another. Changes in waiting times for transfers may result in further ridership changes that are not reflected in these estimates.

C.7. Estimation Results

Table C-1 shows the existing and forecasted average daily ridership by route for the FY 2030 proposed fixed-route system. Regional Backbone Routes are highlighted with a light grey background, and routes with newly introduced Sunday service are marked with "New" in the percent change column.

Table C-1: Weekday, Saturday, and Sunday Average Daily Ridership Estimates

	Route	Existing Daily Ridership (FY 2019)			Forecasted Daily Ridership (FY 2030)			Percent Change		
		Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
Southside Total		**32,001**	**15,021**	**6,749**	**36,803**	**16,201**	**10,552**	**15%**	**8%**	**56%**
Southside Routes	1	3,058	1,319	740	4,425	1,909	1,531	45%	45%	107%
	2	997	278	215	810	293	239	-19%	5%	11%
	3	2,214	1,018	681	2,035	939	925	-8%	-8%	36%
	4	331	160	110	386	178	131	17%	11%	19%
	5	279	150	0	0	0	0	Route Eliminated		
	6	823	363	104	1,210	363	115	47%	0%	10%
	8	1,343	821	492	1,931	795	831	44%	-3%	69%
	9	966	306	0	966	306	0	0%	0%	0%
	11	213	76	41	213	76	41	0%	0%	0%

	Route	Existing Daily Ridership (FY 2019)			Forecasted Daily Ridership (FY 2030)			Percent Change		
		Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
	12	566	265	0	753	246	0	33%	-7%	0%
	13	1,178	546	229	1,197	503	237	2%	-8%	3%
	14	465	175	0	379	140	0	-19%	-20%	0%
	15	2,543	1,179	525	2,322	1,447	688	-9%	23%	31%
	18	172	78	0	172	78	0	0%	0%	0%
	20	4,368	2,081	1,329	5,314	2,571	1,716	22%	24%	29%
	21	2,017	974	487	2,652	918	674	32%	-6%	38%
	22	348	135	0	0	0	0	Route Eliminated		
	23	1,441	711	313	1,499	495	530	4%	-30%	69%
	24	107	59	37	107	59	37	0%	0%	0%
	25	583	179	0	618	174	154	6%	-3%	New
	26	264	110	0	779	312	195	195%	182%	New
	27	436	175	0	403	143	101	-7%	-18%	New
	29	394	146	0	266	90	66	-33%	-38%	New
	30	551	605	533	551	605	533	0%	0%	0%
	31	118	161	148	118	161	148	0%	0%	0%
	33	518	247	45	518	247	45	0%	0%	0%
	35	64	70	55	64	70	55	0%	0%	0%
	36	656	269	0	1,289	537	322	97%	100%	New
	41	473	217	0	762	254	0	61%	17%	0%
	43	159	123	0	0	0	0	Route Eliminated		
	44	515	238	0	743	326	186	44%	37%	New
	45	1,711	882	441	1,742	828	652	2%	-6%	48%
	47	1,044	386	193	1,235	594	362	18%	54%	88%
	50	253	90	30	414	116	38	64%	29%	30%
	55	179	99	0	179	99	0	0%	0%	0%
	57	406	207	0	465	195	0	15%	-6%	0%
	58	251	120	0	289	132	0	15%	10%	0%
Peninsula Total		**13,282**	**6,668**	**3,680**	**15,231**	**7,568**	**5,593**	**15%**	**13%**	**52%**
Peninsula Routes	101	1,045	474	285	1,164	503	365	11%	6%	28%
	102	259	74	61	0	0	0	Route Eliminated		
	103	1,082	488	242	1,082	488	242	0%	0%	0%
	104	941	387	160	795	227	151	-15%	-41%	-5%
	105	769	444	248	810	468	261	5%	5%	6%
	106	1,351	627	347	1,616	542	311	20%	-14%	-10%

	Route	Existing Daily Ridership (FY 2019)			Forecasted Daily Ridership (FY 2030)			Percent Change		
		Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
	107	986	555	337	879	473	320	-11%	-15%	-5%
	108	435	362	210	680	536	415	56%	48%	97%
	109	237	138	97	818	475	335	245%	243%	247%
	110	591	258	157	622	272	166	5%	5%	6%
	111	539	213	135	847	334	212	57%	57%	57%
	112	1,780	1,121	565	2,892	1,808	1,661	62%	61%	194%
	114	1,309	778	383	2,031	1,134	965	55%	46%	152%
	115	414	163	94	414	163	94	0%	0%	0%
	116	267	158	88	0	0	0	Route Eliminated		
	117	274	51	30	274	51	30	0%	0%	0%
	118	726	287	181	0	0	0	Route Eliminated		
	120	182	89	62	214	94	65	17%	5%	5%
	64	94	0	0	94	0	0	0%	0%	0%
PCS Total		**284**	**0**	**0**	**432**	**0**	**0**	**52%**	**0%**	**0%**
PCS Routes	403	25	0	0	49	0	0	100%	0%	0%
	405	51	0	0	102	0	0	100%	0%	0%
	414	112	0	0	112	0	0	0%	0%	0%
	415	26	0	0	51	0	0	100%	0%	0%
	430	71	0	0	118	0	0	67%	0%	0%
MAX Total		**1,775**	**466**	**323**	**1,609**	**290**	**156**	**-9%**	**-38%**	**-52%**
MAX Routes	121	37	0	0	37	0	0	0%	0%	0%
	919	153	0	0	145	0	0	-5%	0%	0%
	922	71	0	0	56	0	0	-21%	0%	0%
	960	269	176	168	126	0	0	-53%	-100%	-100%
	961	859	290	156	859	290	156	0%	0%	0%
	966	49	0	0	49	0	0	0%	0%	0%
	967	311	0	0	311	0	0	0%	0%	0%
	972	26	0	0	26	0	0	0%	0%	0%
System Total		**47,341**	**22,156**	**10,752**	**54,075**	**24,059**	**16,301**	**14%**	**9%**	**52%**

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APPENDIX D

On-Demand (Microtransit) Service

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Appendix D: On-Demand Microtransit Service

D.1 Overview

Appendix D documents how on-demand microtransit has been an integral part of the *Transit Transformation Project* and Transit Strategic Plan process and the next steps toward future implementation through initial pilot projects.

The transportation marketplace is continuously evolving. Reliable fixed-route bus service is the centerpiece of public transportation in communities across the United States. This will continue to be essential for Hampton Roads. At the same time, it is essential for agencies to adapt and innovate to meet the needs of current and would-be customers as the mobility landscape changes.

One of the specific goals of the *Transit Transformation Project* was to "think outside the box to propose solutions to operational, service provision, and financial issues: consider testing and revisiting new service/service changes, pilots for new technologies and mobilities, different service patterns for different areas, etc."

HRT embraces this concept as part of its vision to function as ***a progressive mobility agency*** and to fulfill its mission ***to connect Hampton Roads with transportation solutions that are reliable, safe, efficient, and sustainable.***

Figure D-1: Example of On-Demand Shuttle Vehicle

HRT believes that achieving this vision and mission must include exploring new partnerships, service models, and leveraging new technologies. Exploring on-demand "microtransit" operations is an example of this.

The new regional standards outlined in **Chapter 1** will guide the design and operation of different types of services in the years ahead. This includes "On-Demand" as one of five new classifications of HRT route types. Another term for this is "microtransit." In contrast to fixed-route bus services, microtransit is characterized by flexible on-demand scheduling, routing, and customer experiences that resemble private industry ride-hailing, ride-sharing activities. This will be a new type of service in Hampton Roads. **Table D-1** shows the characteristics of the On-Demand service classification.

Table D-1: On-Demand Classification

Route Classification	Description	Interjurisdictional	Population / Job Density
On-Demand	On-Demand transit service will operate in specified zones, connecting lower-density areas to local destinations and transfer opportunities to fixed-route service.	Can operate within a jurisdiction or cross jurisdictional boundaries.	Densities warrant transit service but are low enough that regular fixed route service would be less effective

D.2 Strategic Approach

HRT believes on-demand service is an important innovation that needs testing in Hampton Roads. Microtransit may effectively serve multiple goals and objectives (e.g., new transit usage, more cost-effective operations to replace lesser-performing service, etc.). A pilot project(s) approach would be ideal to assess this. This would allow

for experimentation so that microtransit's viability can evaluated in different use cases. The objective is to empirically determine how on-demand service characteristics and performance may work as a sustainable new travel option, especially as compared to fixed-route bus service.

The specific approach for piloting microtransit would be to use small- or medium-size vehicles to operate within a pre-defined zone or zones to provide transit trips based on passenger requests. Results of pilot projects would ultimately inform broader planning and implementation efforts, which in turn would be included in updates to HRT's Transit Strategic Plan.

D.3 Background: Preliminary Planning Snapshot

As part of a potential bus system redesign and implementation of new services, the *Transit Transformation Project* planning team identified several "flex zones" in which new on-demand services could potentially be deployed. Seven zones were initially identified. At HRT's direction, an additional zone was subsequently analyzed for the City of Newport News using other professional service resources, bringing the number of zones to eight, with at least one in each HRT member city.

The basic concept was for on-demand transit service to potentially operate in these specified zones, connecting lower-density areas to local destinations and transfer opportunities to fixed-route service (for example, connecting to the Regional Backbone high-frequency bus system). As initially conceived, these zones were relatively small in size (an average of 8.6 square miles) and located strictly within a city's boundaries rather than crossing any jurisdictional boundaries.

As the planning process evolved, HRT recognized the need to consult more in-depth with experts who work directly in planning and operating microtransit. For this purpose, HRT contracted with RideCo.

D.4 Additional Due Diligence Planning

RideCo assisted HRT to further evaluate and improve upon the eight preliminary flex zones. This resulted in significant modifications and improvements for defining the most feasible operating scenarios in these areas.

D.4.1 Methodology

Each zone was evaluated and scored based on seven criteria. These high-probability success criteria included:

- **Local, limited stop, regional express, and seasonal bus**
- **Zone Size & Boundaries**: Ideal zone size spans from 10 to 35 square miles; rounded shape (not too long/narrow)
- **Population Density:** Population plus Jobs > 35,000; density to warrant transit, but low enough that high-quality fixed route is ineffective
- **Land Usage:** Combination of residential, commercial and sometimes industrial; not overly concentrated in any one of these; potential to serve many types of trips, e.g. commute, shopping, seniors, students
- **Major Points of Interest:** 1 to 5 major points of interest that serve many trips per day, e.g., high-quality transit hub, large mall, Costco, Target, Walmart; characteristics that typically drive repeat usage
- **Income Levels:** Best adoption is typically in areas of medium to medium-low wealth bracket; patrons that are price sensitive
- **Connection to Existing Transit:** High-quality transit connections that leave the zone (e.g. LRT, frequent bus); little overlap with transit within the zone
- **Community Trips:** Evaluated for strong intra-zone travel patterns; commutes, local trips, shopping, etc.

Empirical data was combined in a zone quality index. The index aggregated independent scores from the analysis of each high-probability success criteria, for each zone, resulting in a standardized score for zone strength. HRT provided route, cost, and ridership data for existing services, as needed, and population and employment data

based on U.S. Census. A workshop with HRT cities was conducted October 24, 2019, reviewing outcomes from this additional due diligence work and solidifying zones and use cases that fit best for a Regional Microtransit Demonstration Project.

Based on this methodology, initial zones identified in Hampton and Norfolk did not merit further consideration for an initial round of pilot projects.[1] The zones that were considered include:

- **Zone 1:** Portsmouth
- **Zone 2:** Virginia Beach West
- **Zone 3:** Virginia Beach East
- **Zone 4:** Chesapeake
- **Zone 5:** Hampton
- **Zone 6:** Norfolk
- **Zone 7:** Virginia Beach Salem
- **Zone 8:** Newport News

Meanwhile, as shown in **Table D-2**, Zone 2 (Virginia Beach West) and Zone 8 (Newport News) were highest rated by RideCo's methodology. Follow up meetings with Newport News and Virginia Beach further scrutinized these zones to finalize initial planning to pilot on-demand (microtransit) service. In January 2020, HRT submitted a FY 2021 demonstration grant request to the Virginia Department of Rail and Public Transportation to help fund the Regional Microtransit Demonstration Project.

Table D-2: On-Demand Success Criteria

High-Probability Success Criteria	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8
	Portsmouth	Virginia Beach West	Virginia Beach East	Chesapeake	Hampton	Norfolk	Virginia Beach Salem	Newport News
Overall Average	4.9	5.6	4.0	2.9	-	-	5.3	5.4
Zone Boundaries	6	5	5	5	-	-	6	5
Population + Jobs	5	6	4	4	-	-	6	6
Land Usage Distribution	6	4	5	2	-	-	6	5
Major Points of Interest	4	6	2	3	-	-	6	5
Income Levels	4	6	3	2	-	-	4	5
Connection to Existing Transit	5	6	5	2	-	-	6	6
Community Trips	4	6	4	2	-	-	3	6

D.5 Pilot Project(s) Recommendation Summary

Based on consultation with experts, HRT expects average wait times of 15-20 minutes or less when deploying a fleet of small vehicles in each zone initially recommended for piloting on-demand microtransit. The innovation objective would be to leverage cloud-based route optimization technology and app-based booking of rides to move people around the defined zones with better frequency and shorter trip times than offered by some

[1] At Hampton's request, Zone 5 was subsequently reevaluated, and a new Hampton East zone identified; this zone is subject to further scrutiny and HRT will work with the City of Hampton before the next annual TSP update to identify the correct demand responsive service to cover areas losing service due to the planned elimination of Route 118.

conventional fixed-route transit options, and in geographies traditionally harder to serve with conventional fixed-route transit efficiently.

D.5.1 Zone Descriptions

Newport News - Zone 8

The unique, elongated northwest-southeast shape of Newport News has over time lent to development and concentration of more commercial and mixed-use activities along in the middle portion of the city (westward), generally aligned along Jefferson Boulevard, and more residential and lower-density development generally aligned with Warwick Boulevard in areas eastward. Fixed-route bus services along major arterial roadways has effectively supported north-south travel. However, achieving effective east-west transit connectivity has been a challenge, which on-demand service could potentially help remedy. Employment and residential densities are shown in **Figure D-3** and **Figure D-4**.

Figure D-3: Zone 8 Employment Density

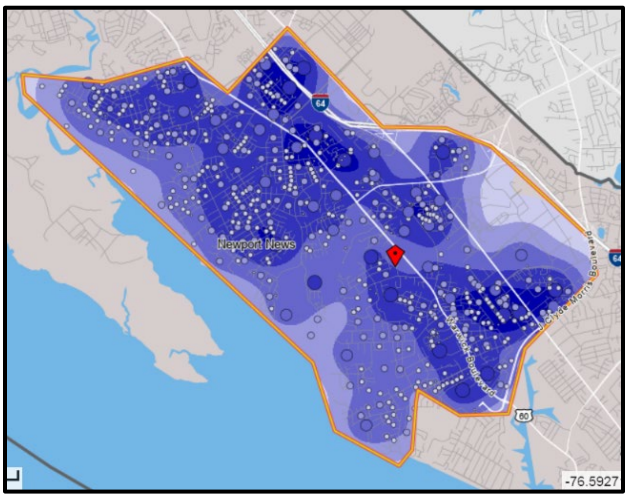


Figure D-6: Zone 8 Residential Density

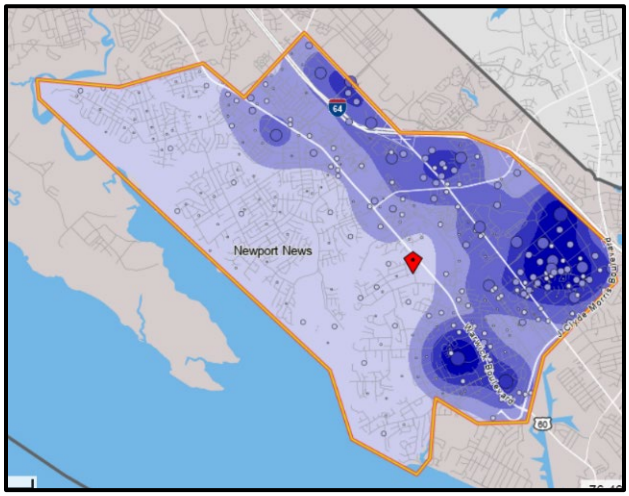
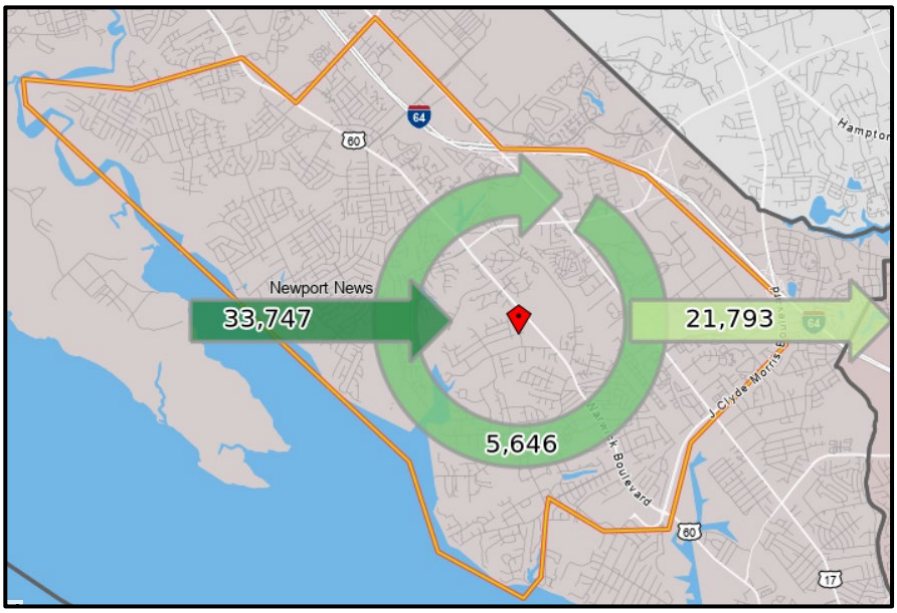


Figure D-5: Zone 8 Inflow, Outflow and Intra-Zone Commutes



Virginia Beach West – Zone 2

Zone 2 in Virginia Beach seeks to connect residents to the Newtown LRT terminus and other intra-zone points. This zone serves people who live in residential areas northward and directly connects to job centers via access to the commercial and economic activity concentrated along Virginia Beach Boulevard.

Figure D-5: Zone 2 Employment Density

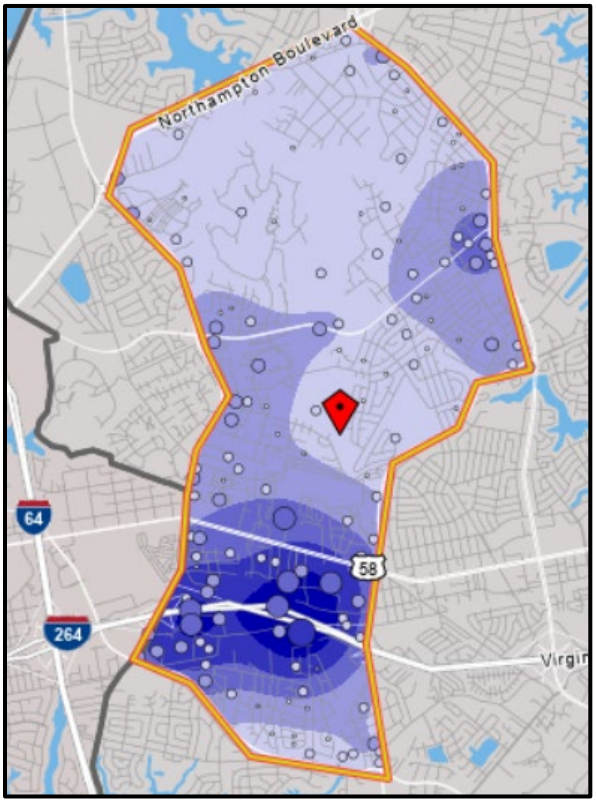


Figure D-6: Zone 2 Residential Density

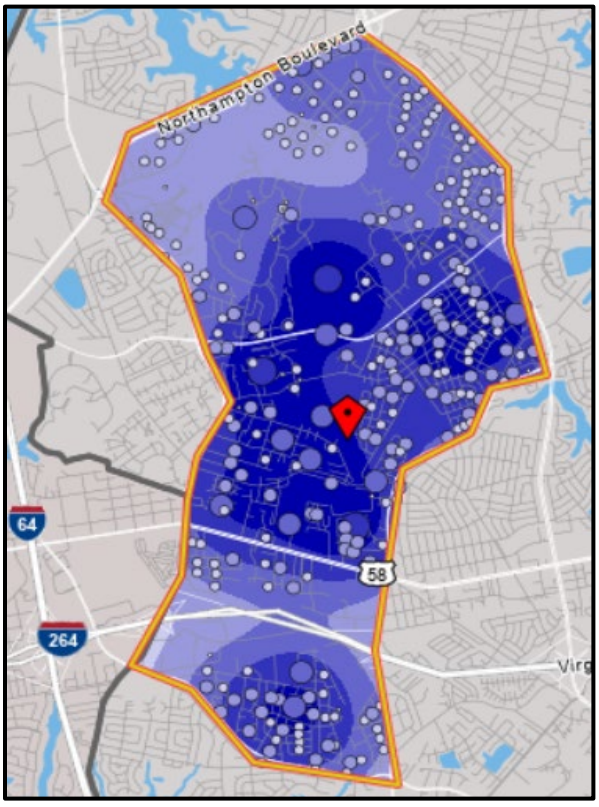
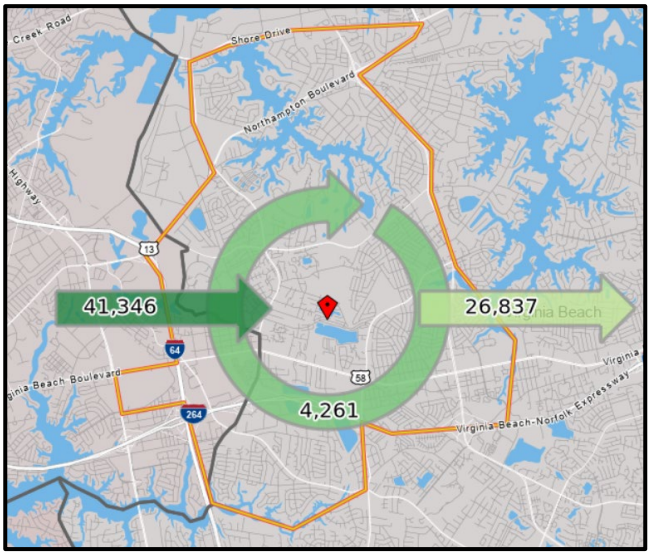


Figure D-7: Zone 2 Inflow, Outflow and Intra-Zone Commutes



D.5.2 Project Design

As noted above, microtransit could effectively serve multiple goals and objectives (e.g., new transit usage, more cost-effective operations to replace lesser-performing service, etc.). Unique factors will affect the success and lessons learned for new on-demand service in any particular zone.

Depending on costs and available resources, initially piloting services in only one zone may be warranted. An intentional two-city pilot design, however, would allow for clear differentiation and comparative post-hoc assessments to provide HRT and others with the richest possible data and learning to be shared.

D.6 Conclusion

The justifications and benefits for piloting on-demand transit services in the HRT service area include:

- Allowing the region to effectively determine microtransit as a feasible alternative and complement to fixed-route transit with respect to customer experiences, performance KPIs, and cost-effectiveness
- Exploring new markets for transit that could reduce reliance on single-occupancy vehicles
- Enabling HRT to enhance organizational capacities (i.e., human resources, organizational learning, etc.) for innovation, service planning, customer-centric operations, and responsiveness to the dynamic environment
- Supporting knowledge transfer to benefit other agencies as HRT partners with the Virginia Transit Association and others to document and share lessons learned via webinars, conference presentations, and other information sharing opportunities
- Informing updates to 10-year the Transit Strategic Plan that will further refine and potentially expand the use of on-demand services throughout the HRT service area, in accordance with new regional standards and route classifications
- Aligning with a mission and vision of becoming a progressive mobility agency that provides transportation solutions that are reliable, relevant and responsive to the needs of today's commuters.