

JUNE 2020

# Transit Strategic Plan FY 2021-2030



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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.<sup>1</sup> 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

<sup>1</sup> American Community Survey estimates.

percent of gross domestic product in the Virginia Beach-Norfolk-Newport News Metropolitan Statistical Area in 2017.<sup>2</sup>

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.<sup>3</sup>

### **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.

<sup>2</sup> Bureau of Economic Analysis 2017 GDP by Metropolitan Statistical Area & Industry

<sup>3</sup> HRT Bus Stop Location Policy (July 1, 2019).



Figure 1-1: HRT Service Area

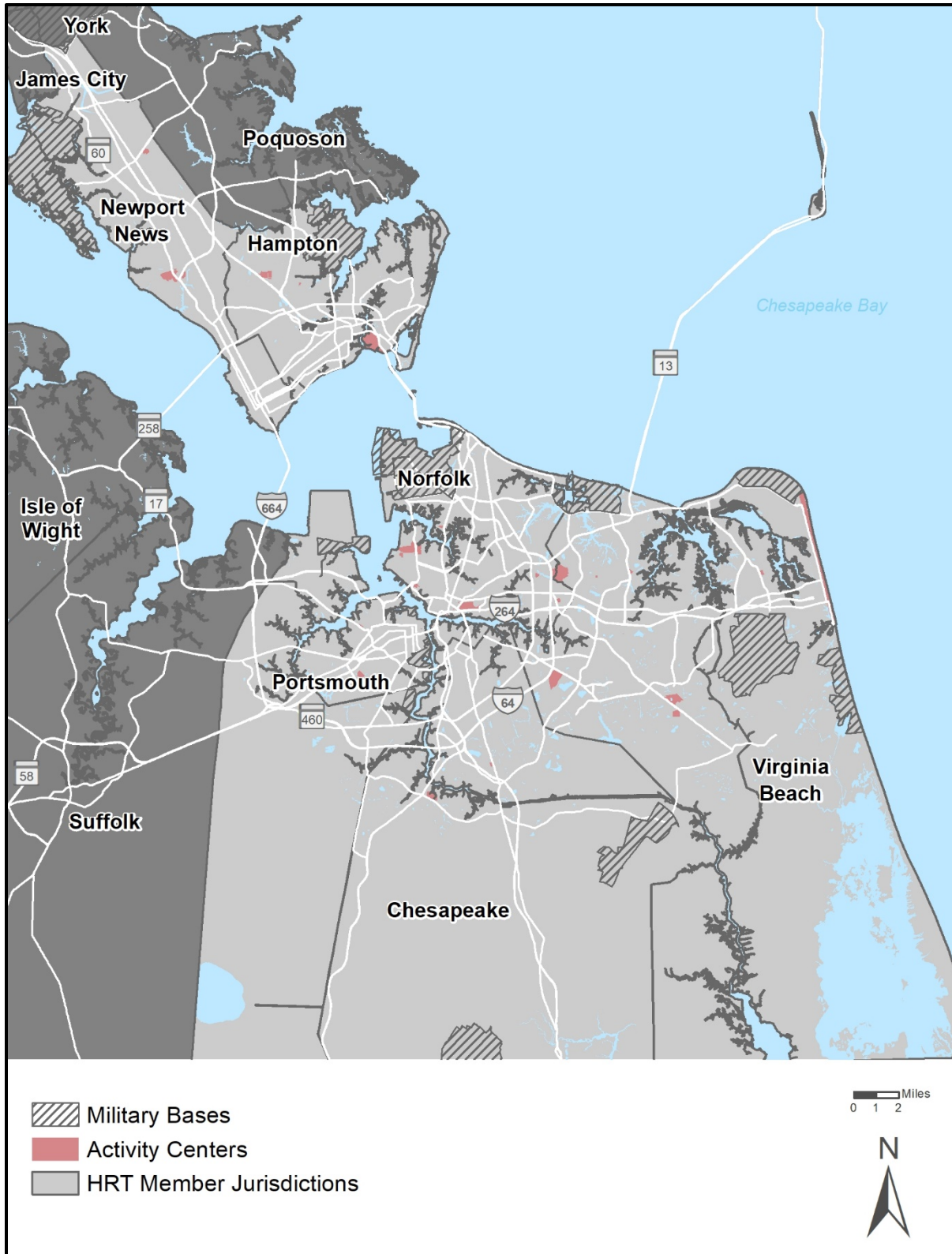


Figure 1-2: Existing Service – Southside

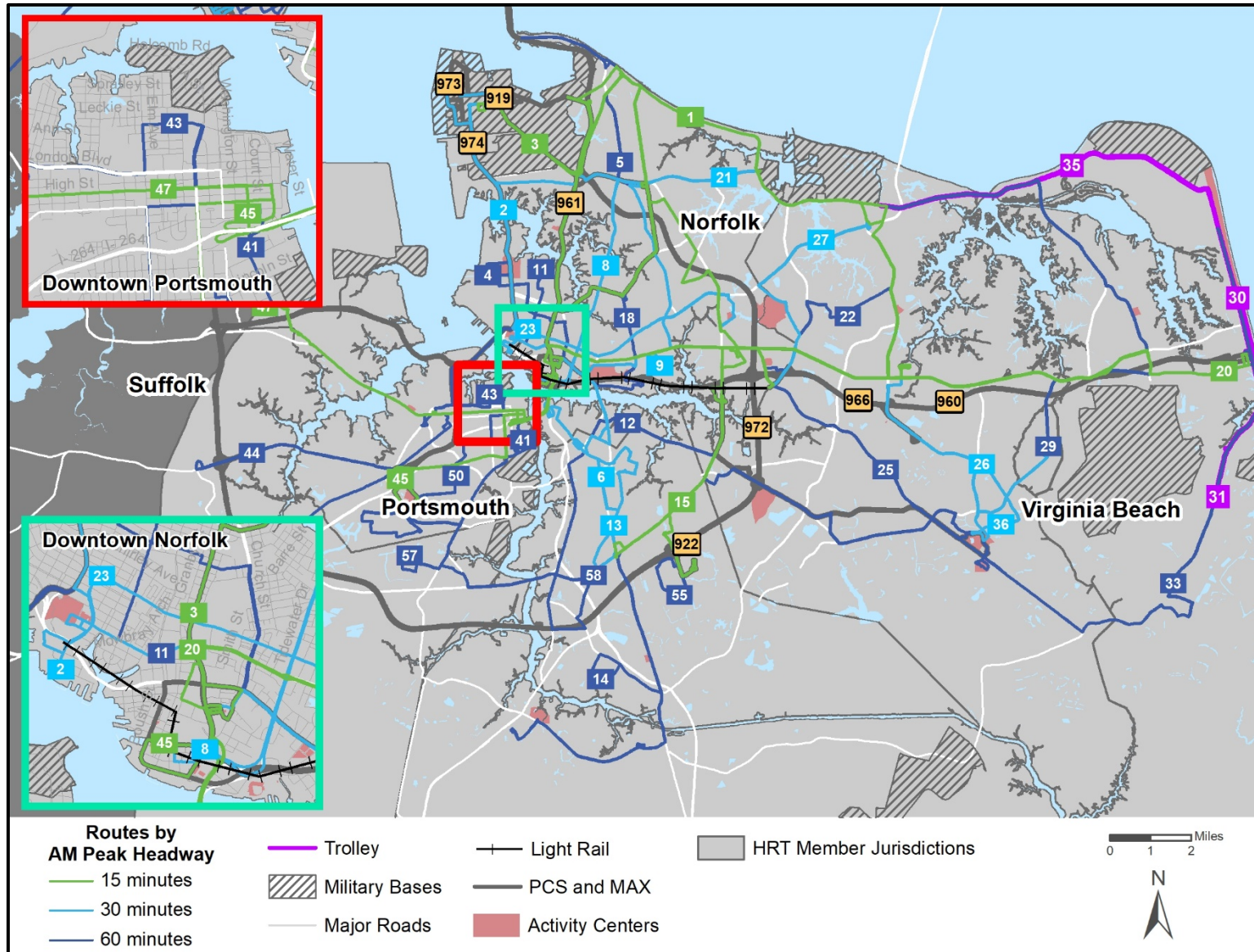


Figure 1-3: Existing Service – Peninsula

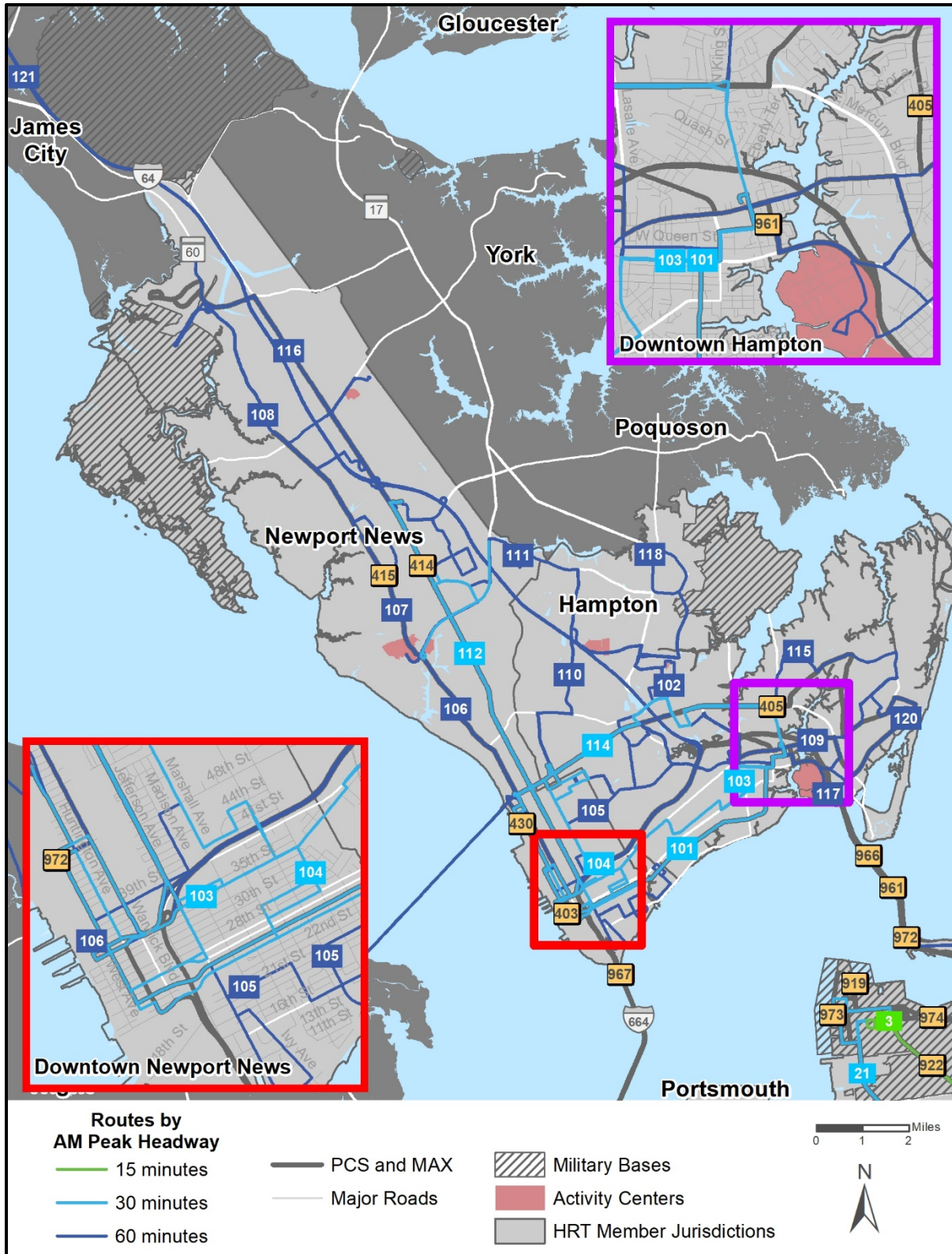


Figure 1-4: Existing Service – Light Rail

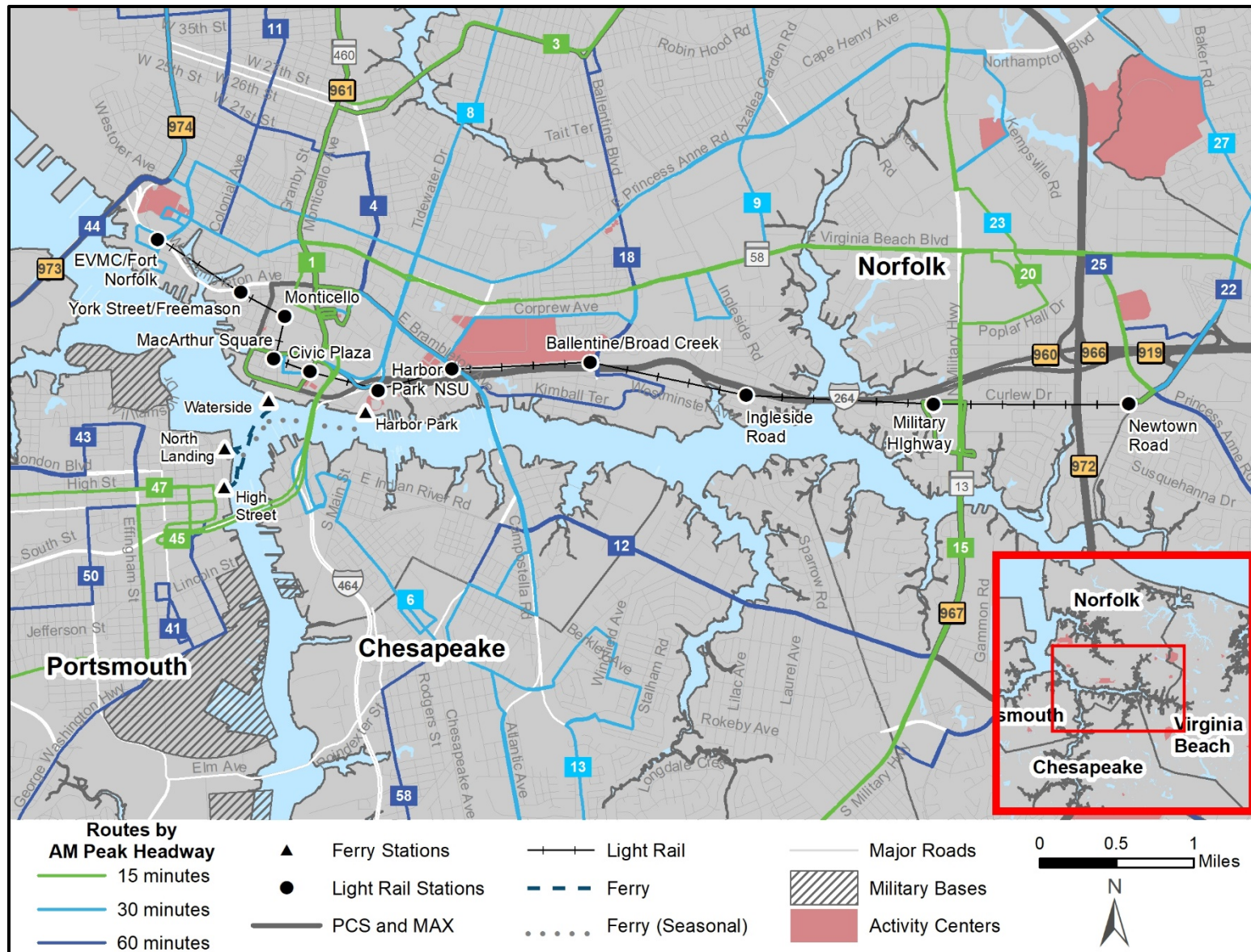
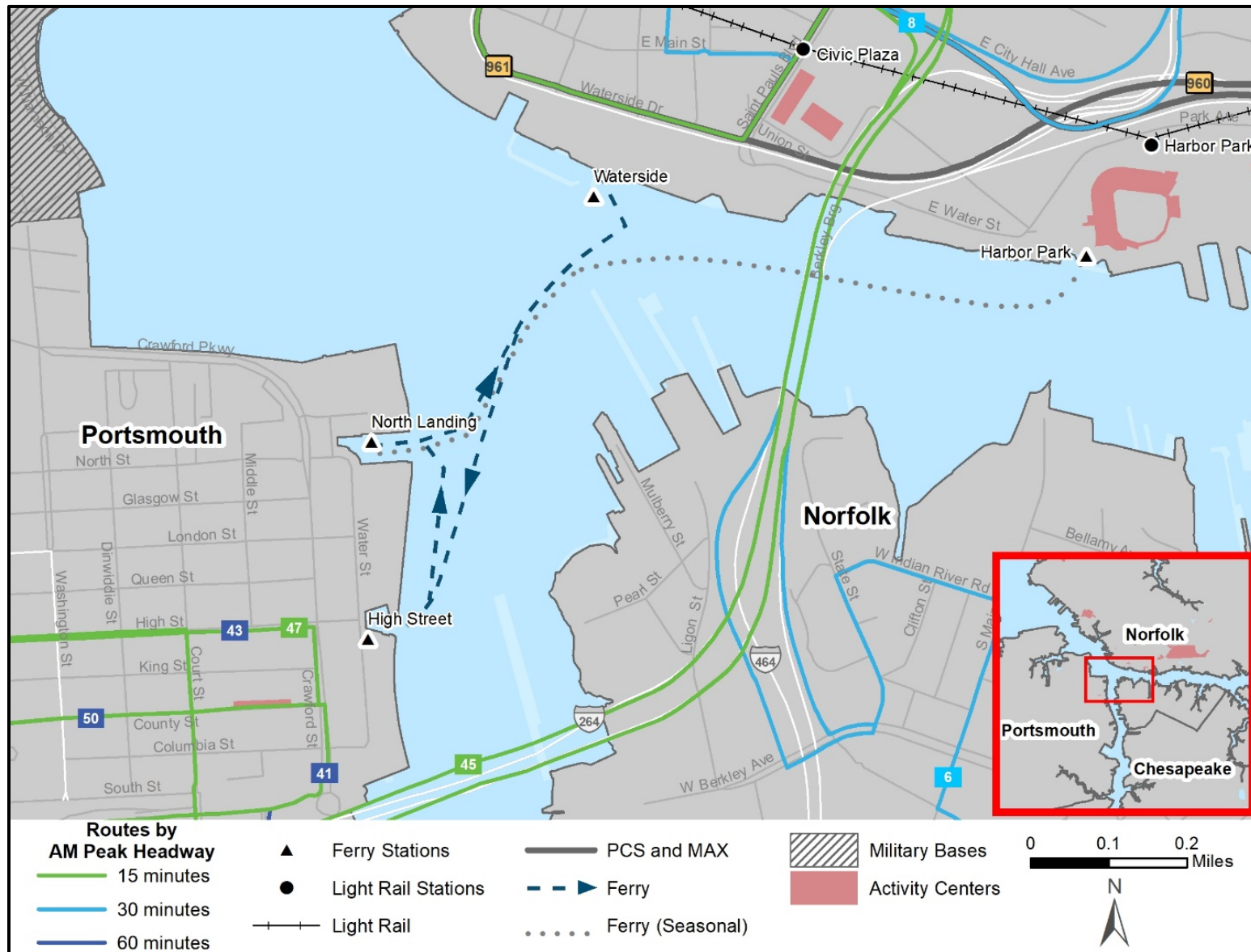


Figure 1-5: Existing Service – Ferry



**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
<b>Local Bus, Light Rail, &amp; Ferry</b>		
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
<b>VB Wave</b>		
Cash	\$2.00	\$1.00
1-Day Pass	\$4.50	\$2.25
3-Day Pass	\$8.00	\$4.00
<b>MAX</b>		
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
<b>Paratransit<sup>4</sup></b>		
Clients - Cash	\$3.50	-
Personal Care Attendant <sup>5</sup>	-	-
Guests - Cash	\$3.50	-

<sup>4</sup> Certified paratransit customers are also eligible for free fares on HRT fixed route services (bus, light rail, ferry).

<sup>5</sup> 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
<b>Transit Transformation Project</b>	A comprehensive review and planning effort to improve the design and performance of HRT services incorporating new regional standards.
<b>FY 2018 – FY 2027 Transit Development Plan (TDP)</b>	Included a comprehensive analysis of existing service, projected changes in demand for transit service, and made recommendations to improve existing bus routes.
<b>Draft Environmental Impact Statement for High Capacity Transit Extension to Naval Station Norfolk (East Side)</b>	Ongoing alternatives analysis and environmental documentation for various high-capacity transit modes to Naval Station Norfolk.
<b>Peninsula Bus Rapid Transit Categorical Exclusion</b>	Ongoing corridor alternatives analysis and environmental review for BRT service between Hampton and Newport News.
<b>Light Rail Automatic Passenger Counts</b>	Certification of APC units on all light rail vehicles. No installation needed, as APC units already in place.
<b>Automated Bus Consortium</b>	HRT participation in a national consortium of transit agencies to investigate the feasibility of implementing pilot automated full-size bus projects.
<b>Electrification of the Fleet</b>	HRT pilot program that will invest and learn from the deployment of electric bus vehicles and charging stations.
<b>Mobile Ticketing</b>	Introduction of HRT’s first mobile-ticketing fare payment on Trolley routes with the goal of potential adoption of similar technology system-wide.
<b>TAP Grant</b>	Federal funding being used to retrofit bus stops which are not compliant with the Americans with Disabilities Act.
<b>2021 Origin-Destination On-Board Survey</b>	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.

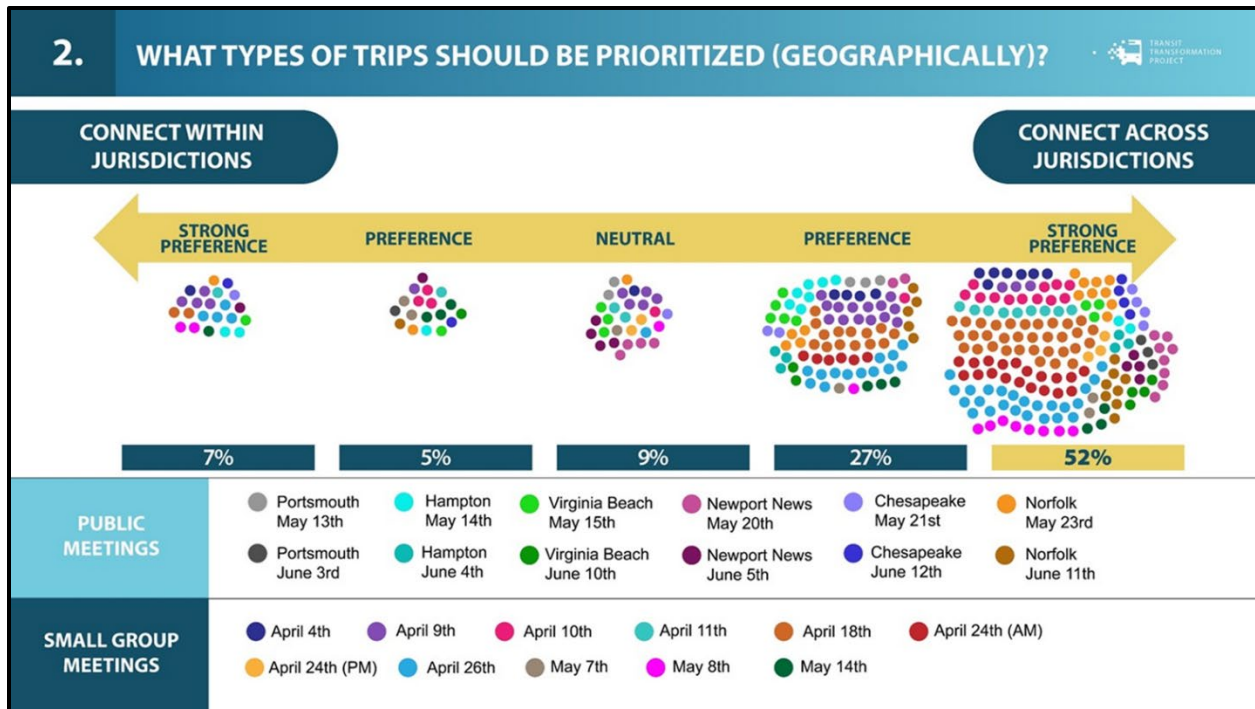
To explore priorities and preferences that should guide plans for improved transit in the HRT service area, HRT posed several trade-off questions during public meetings and stakeholder workshops that included representatives from healthcare, education, military and federal facilities, economic development,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

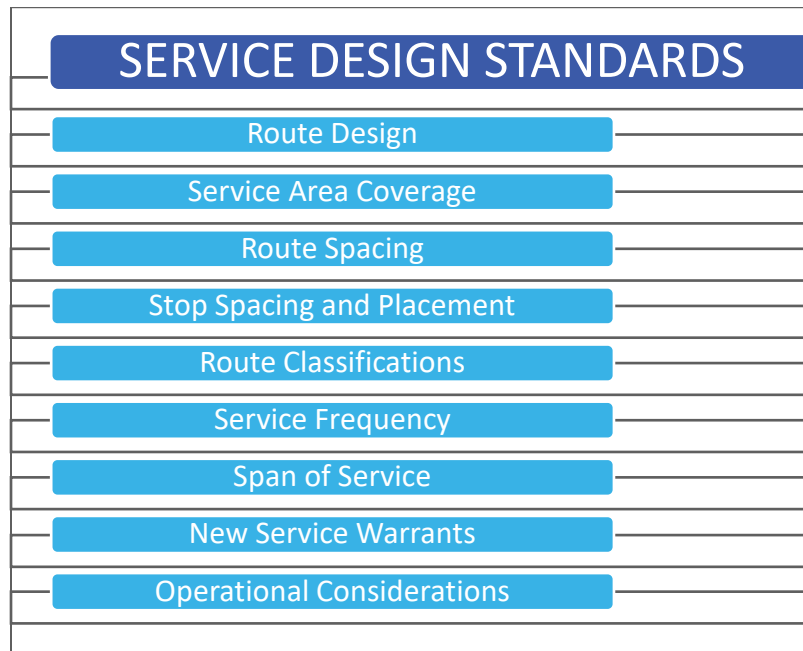
Hampton Roads is a diverse region with unique local needs and priorities for investing in public transportation improvements. The services outlined in **Chapter 3** are based on guiding input from city leaders and staff about local priorities and planning for the best use of limited financial resources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

**$(Pt * T)/Pd \leq 10$  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:<sup>6</sup>

- 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

<sup>6</sup> 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
<b>Regional Backbone</b>	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
<b>Local Priority</b>	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
<b>Coverage</b>	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
<b>Limited/ Express</b>	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
<b>On-Demand</b>	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<sup>7</sup> and LEHD 2015 data<sup>8</sup> 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.

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<sup>7</sup> American Community Survey (ACS) 2016 5-year estimates.

<sup>8</sup> 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.<sup>9</sup> 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.

<sup>9</sup> “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
<b>Passengers per One-way Trip</b>	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
<b>Farebox Recovery</b>	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
<b>Subsidy per Passenger Boarding</b>	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
<b>On-time Performance</b>	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
<b>Maximum Load</b>	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
<b>Low-performing service</b>	50% of system average and below.	Segment Level and Operational Analyses to identify potential route issues, which could result in: <ul style="list-style-type: none"> <li>■ Targeted Marketing.</li> <li>■ Rider Outreach.</li> <li>■ Change in Service Levels.</li> <li>■ Discontinuation.</li> </ul>
<b>Average-performing service</b>	Between 51% and 149% of system average.	<ul style="list-style-type: none"> <li>■ Periodic Trip-by-Trip Segment Analysis to identify potential route issues.</li> </ul>
<b>High-performing service</b>	150% of system average or better.	<ul style="list-style-type: none"> <li>■ Increase service levels.</li> <li>■ Upgrade transit operating environment.</li> <li>■ Introduce additional service types.</li> </ul>

### 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
<b>Provide reliable and desirable service, amenities, and information.</b>	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)
<b>Serve people where and when they need to travel.</b>	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
<b>Offer a safe and secure transportation service for all customers.</b>	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
<b>Achieve and maintain a high rate of customer satisfaction.</b>	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
<b>Contribute to congestion mitigation and improved mobility.</b>	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
<b>Contribute to regional air quality and pollution reduction goals.</b>	VOC and NOX, CO, PM10, PM2.5 reduced as a result of HRT services (data collected and reported by HRTPO)
<b>Build community trust as a valuable partner in a thriving region.</b>	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
<b>Provide cost-efficient transit service that leverages all available resources to offer the best value for the investment</b>	Overhead burden as percent of operating costs
	Average fare per rider / Average fare per GoPass rider
	Average cost per rider
<b>Perform asset management that achieves and maintains a state of good repair and sustainability and maximizes investment impacts.</b>	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
<b>Effectively align and manage resources and processes to maximize workplace productivity and achieve agency goals.</b>	Difference between agency-wide budget to actual (end-of-year)
	Differences between budgets and actual expenses by department
<b>Demonstrate safe and sustainable business practices to ensure long-term viability.</b>	Percent of capital and operating budgets funded by different sources
	Percent of auxiliary revenue target achieved
	Farebox recovery ratio
<b>Continue to change and innovate collaboratively with our partners and stakeholders to improve service to customers.</b>	Number of partnerships with business and community organizations
	Number of outreach events participated
<b>Support an empowered workforce to strengthen core competencies and generate efficiencies and innovation within Hampton Roads Transit.</b>	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
<b>Be an employer of choice in the region and in the industry.</b>	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
<b>Inspire and invest in our workforce and develop future leaders.</b>	Number of professional development training sessions held
	Number of online university courses taken