DRAFT

DRAFT 2040 MASTER TRANSPORTATION PLAN

OCTOBER 7, 2025

CITY OF VIRGINA BEACH


CITY OF VIRGINIA BEACH
Planning &
Community
Development

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INTRODUCTION

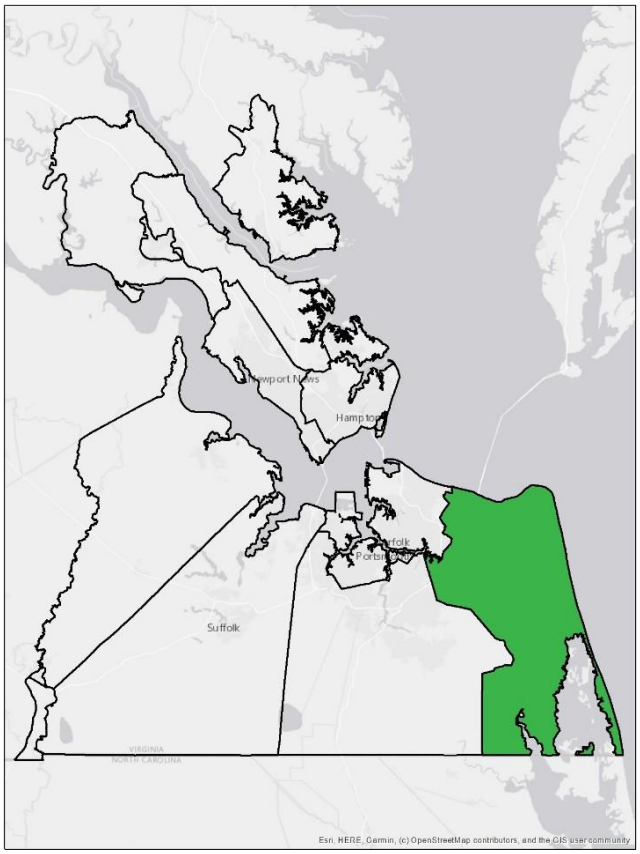
Virginia Beach is the most populous city in Virginia, located on the Atlantic Ocean at the mouth of Chesapeake Bay. It is also the largest city in the Hampton Roads Metropolitan Area, which includes 19 localities and 5 counties (**Map 1**).

The Master Transportation Plan (MTP), by the Code of Virginia §15.2-2223, is a mandatory part of each locality's comprehensive plan that designates a system of transportation infrastructure needs and recommendations.

The MTP aims to coordinate transportation policy, investment, projects, and priorities to ensure that the future transportation system supports the City's goals for land use, economic development, and residents' quality of life.

Virginia Beach is connected to Interstate I-64 via I-264, which runs from the Oceanfront, intersects with I-64 on the east side of Norfolk, and continues through downtown Norfolk and Portsmouth until rejoining I-64 at the terminus of both roads in Chesapeake, where I-664 completes the loop, forming the Hampton Roads Beltway. Other major roads include Virginia Beach Boulevard (U.S. Route 58), Shore Drive (U.S. Route 60), which connects to Atlantic Avenue at the Oceanfront, Northampton Boulevard (U.S. Route 13), Princess Anne Road (State Route 165), Indian River Road (former State Route 603), Lynnhaven Parkway, Independence Boulevard, General Booth Boulevard, Great Neck Road, London Bridge Road, Witchduck Road and Nimmo Parkway. The Chesapeake Bay Bridge Tunnel (CBBT) also connects the city to Virginia's Eastern Shore.

The City of Virginia Beach Transportation Plan envisions the future of a multi-modal local and regional transportation network.



Map 1 – Virginia Beach
Source: City Staff

This MTP aligns with *Imagine VB Comprehensive Plan 2040* by considering transportation as "a key priority, focusing on multi-modal access".

Several trends and projections will continue to influence the overall transportation needs of the City of Virginia Beach:

- **Demographic shifts**
  - By 2040, the City of Virginia Beach population is forecasted to be 483,916. Furthermore, the number of people over the age 65 is expected to increase by 77%. About one-third of those over 65 will likely have a disability that limits mobility. Their access to critical services will be more important than ever.
  - There are 73 million Millennials in the U.S. aged 18 to 34 who will be an important engine of our future economy. Millennials are driving less, as evidenced by a reduction of 20% fewer miles over the 2000s.

  - The demographic shifts identified above are influencing the need to increase the transportation choices throughout the City of Virginia Beach.
- **Physical Environment**
  - The city will address shifting travel trends and assess how to handle the changing of our physical environment. Constrained transportation corridors and limited right-of-way resulted in the city adopting the Complete Streets Policy in 2014, that enables safe road access for all users.
  - Trees and canopy were previously included in the roadway project design as aesthetic treatment. Now, they are an integral part of well-designed, multi-modal transportation infrastructure because of many benefits that they provide: interception of storm water, reduction in urban heat islands, providing shade for walkers, bikers, and transit users, and the environmental benefits of well-cared trees.
  - Greater emphasis is being placed on improving public transit service, transit-oriented development, transportation demand management, and promotion of active transportation to reduce the reliance on driving.
- **Technology**
  - There has been a notable advancement in technology that will affect modes of travel, along with implementing traffic demand management and intelligent transportation systems. There is also the implication of new methods of technology still under development, such as electric and autonomous (self-driving) vehicles.

The goals of the 2040 Virginia Beach Transportation Plan to address these trends are:

- **Safety –** provide a safe transportation system for all users.
- **Mobility –** increase the mobility of all users by improving the non-motorized transportation network and promoting walkable and bikeable communities.
- **Land use and Transportation Planning –** Design and manage transportation systems (roads, transit lines, active transportation facilities) and land development (residential, commercial, industrial, mixed-use) in a coordinated way to ensure ease of access for all users, minimize car dependency and reduce vehicle miles traveled (VMT).

The following chapters make up the framework of the MTP:

- Transportation Plan Survey, Goals and Objectives
- Roadways
- Roadway Safety

- Transit
- Active Transportation
- Freight
- Air Service

PUBLIC SURVEY ON STATE OF TRANSPORTATION IN VIRGINIA BEACH

As part of developing the goals of this transportation plan, city staff composed a transportation plan survey to get feedback from the community. The survey aimed to capture the public's feedback on transportation issues in their neighborhoods, the best ways to reduce congestion in the city, commuting patterns, and other relevant transportation topics.

City staff composed a 19-question survey that residents could fill out between January 16 and March 22, 2024. Residents were asked to identify top transportation issues in their neighborhood, ways to reduce congestion in the city, ways transportation access can be more equitable, etc. There were over 4,000 responses to this survey, which have the following groups:

- **Transportation issues in the neighborhood:** Most respondents selected speeding (21%), followed by a lack of biking and walking options (20%), transit service (14%), road safety (12%), limited connectivity to jobs, goods and services or other neighborhoods (5%), incorporating transportation planning with land use decisions (4%), mobility needs of elderly and disabled (4%), and impact to the environment (3%).
- **Transportation goals:** 28% of respondents selected safety as their first transportation goal, followed by good stewardship of taxpayer dollars (21%), enhanced mobility for all (16%), limiting environmental impact (11%), innovation (6%) and social equity (5%).
- **Ways to reduce congestion:** 17% of respondents think the best way to reduce congestion is to provide more transit service, followed by 13% who think the best way is to provide more bike lanes and sidewalks. The following options were also available to choose:
    - Match transportation improvements with plans for future development (13%)
    - Improve how existing transportation network works (12%)
    - Provide faster and more reliable transit service (7%)
    - Encourage more telecommuting/work from home (6%)
    - Add traffic circles/roundabouts (5%)
    - More or wider interstate roads (4%)
    - More or wider non-interstate roads (3%)
    - Clear crashes faster (3%)
    - Improve traveler information (2%)
- **Access to necessities:** 63% of respondents do not have any challenges or obstacles accessing work, healthcare, education, or grocery stores. 15% of respondents have challenges/obstacles to accessing work, while 10% accessing healthcare and groceries, respectively.
- **Equity concerns**: 21% of respondents think more bike/pedestrian amenities can address equity, 15% selected access to necessities (grocery stores, healthcare), 14% selected more

accessible transit, 14% selected increase safety infrastructure, 7% selected transit-oriented development, 7% selected increase access to job opportunities.

- **Means of travel**: 47% of respondents drove alone in the past 7 days, while 24% walked, 10% biked, 7% used Uber/Lyft, 10% carpooled and 1% used a bus.
- **Purpose of travel in the past 7 days**: 33% of respondents selected errands/shopping in the past 7 days, 18% selected to and/from work, 17% visited friends and family or recreational activities respectively, and 9% went to medical appointments.
- **Ridesharing**: 50% of respondents do not use ridesharing, 25% use it for personal activities, 7% use it for work.
- **Transit access:** 51% of respondents have access to public transit but do not use it, 23% have no access to public transit, 12% have access to public transit and use it occasionally, 1% have access to public transit and use it often.
- **Barriers to transit**: 24% of respondents prefer driving their car, 17% claim public transit does not go to their desired destination, or that it takes too much time, or that it does not come frequently enough, and 5% do not know enough about using transit.

According to the survey results, the transportation issues confronting our transportation system today are:

- Virginia Beach is primarily developed in a suburban, auto-centric style, which limits how people move around the city.
- A desire for sustainable transportation infrastructure investment that supports the overall transportation system.
- Increasing congestion.
- Lack of reliable transit service.
- Roadway safety concerns.

ROADWAYS

This chapter looks at existing roadway conditions in the City of Virginia Beach, compares these conditions to historical trends, and outlines policies and documents. This chapter is divided into the following sections:

- **Primary Roadway Network Plan Maps –** Includes an inventory of those roadways in the City of Virginia Beach that are classified as interstate, parkways, arterials, major and minor collectors, rural collectors and access-controlled roads. These maps also outline the future of our roadway system:
  - **Primary Roadway Network Plan Map**
  - **Access Controlled Roadways Map**
- **Roadway Congestion** – Includes an analysis of peak hour roadway congestion levels during the morning and afternoon peak travel periods and information on average travel speeds. This data is from 2023.

The city adopted a Complete Streets Policy in November 2014. This policy and Administrative Design (AD) guide transportation planners and engineers in the design and operation of the entire right-of-way to enable safer roadway access for all users, regardless of age, ability or mode of transportation. This policy and AD mean that every transportation project will make the street network better and safer for drivers, transit users, pedestrians, and bicyclists. A Complete Streets approach has been applied to all new roadways and roadway renovation projects to the greatest extent feasible, without compromising the primary functional use of right-of-way.

The goals of the City of Virginia Beach Complete Streets policy are:

- Fully consider all users in all aspects of the project development process for surface transportation projects.
- Match and balance roadway functions with user needs, both at the roadway segment level and as part of the larger transportation network.
- Develop the public rights of way in harmony with the adjacent land uses.
- Develop an attractive and sustainable transportation system.
- Promote public health by supporting healthy lifestyle choices and improved air quality.
- Promote safety and crash reduction.
- Increase the economic value of business districts and neighborhoods.
- Strengthen the community by creating a sense of place.

More information about Complete Streets can also be found on the City's Complete Streets website.

Primary Roadway Network Map

Roadways are organized into a hierarchy based on their function, and are classified as arterials, collectors, or local roads (**Figure 1**). Arterial roadways (which include Interstates, Freeways and Expressways, Other Principal Arterials, and Minor Arterials) provide more mobility, which is defined as the ability of traffic to pass through a defined area in a reasonable amount of time. Local roadways provide more accessibility, which is measured in the roadway's capability to provide access to and between land use activities within a defined area. Major and Minor Collectors offer a mix between providing mobility and accessibility.

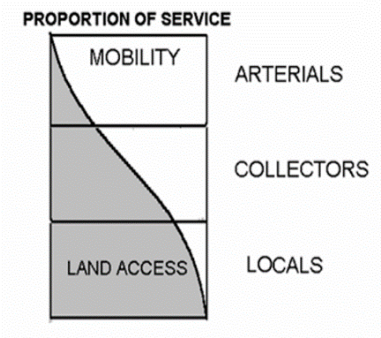
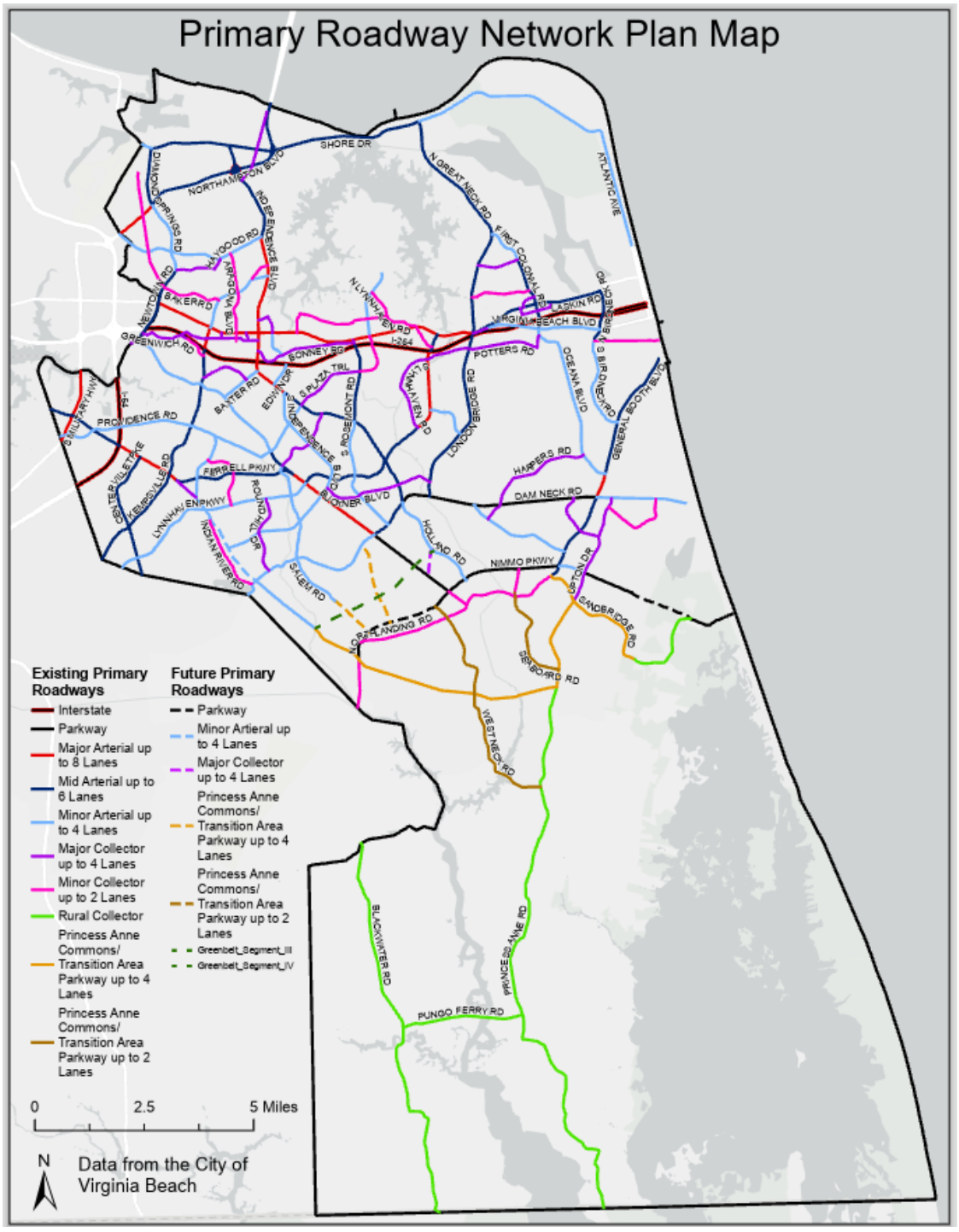


Figure 1 – Roadway Functional Classification Definition
Source: Virginia Department of Transportation

A key component of the Transportation Plan is the *Primary Roadway Network Map* (**Map 2** on **page 11**), a key planning tool for the development of the city's street network. The map was developed with current specifications and standards used by the city's Public Works Department, and it identifies the general road corridor locations, classification, and the ultimate number of proposed vehicular lanes and general configuration.



Map 2 – Primary Roadway Network Plan Map
Source: City of Virginia Beach Planning Staff

The details of what amenities are incorporated in each road section are identified in the city's typical section standards (**Figures 2** and **3**) contained within the *Public Works Design Standards Manual***.** Each roadway cross-section has alternative cross-sections for constrained conditions where right-of-way may be limited by the natural or built environment. The currently adopted typical sections serve as a guide to determine the ultimate rights-of-way required for the new road. Deviations from the typical section are subject to the approval of the Director of Public Works as per the general guidance of the city's Complete Streets Policy.

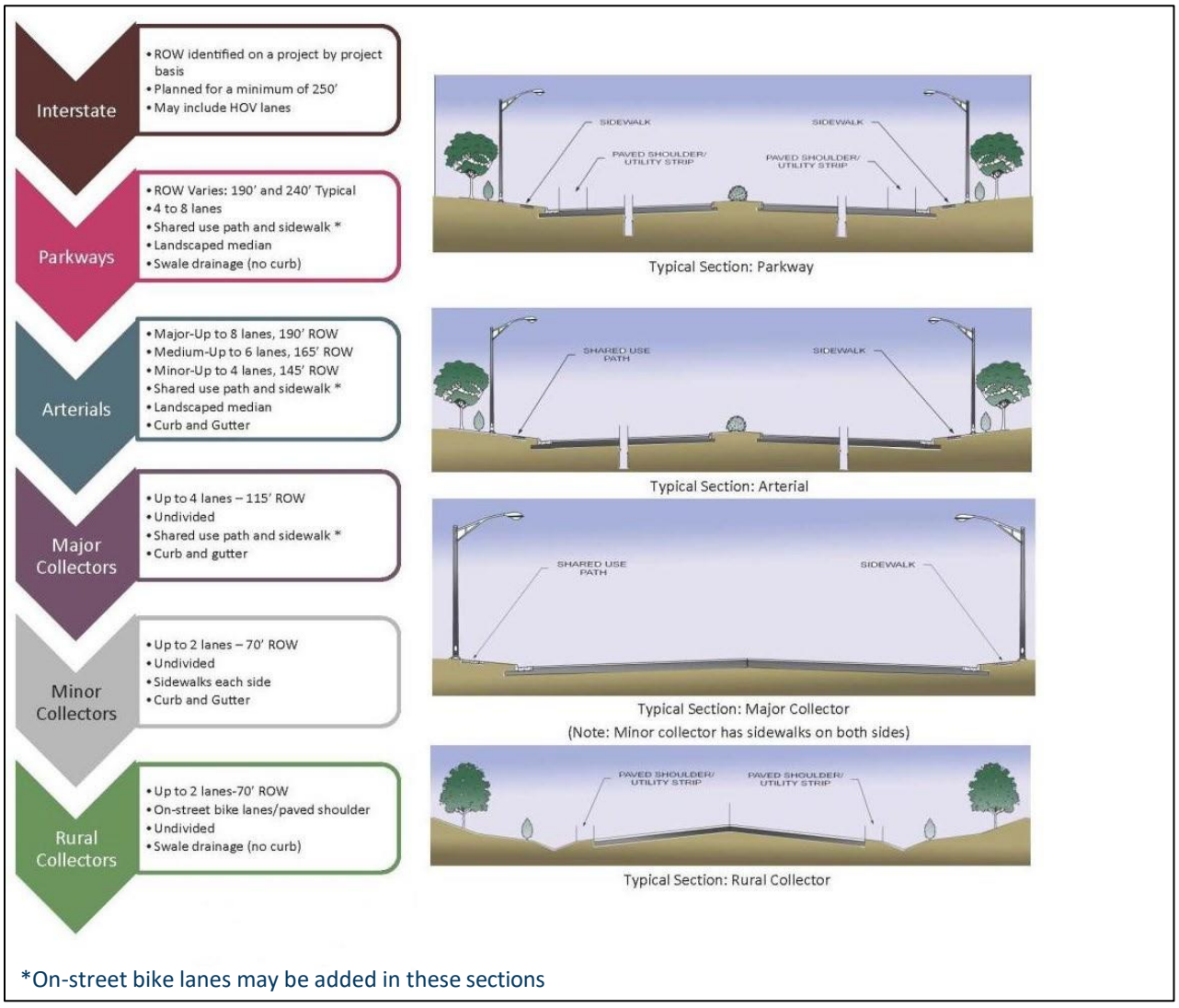


Figure 2 – Typical Standard Section

Source: City of Virginia Beach Public Works Design Standards Manual, 2022

Access Controlled Roadways

Limiting access to selected corridors is a more cost-effective method to maintain and improve corridors' capacity compared to the addition of travel lanes. Limiting the turning movement to and from these corridors can increase roadway capacity and improve traffic flows.

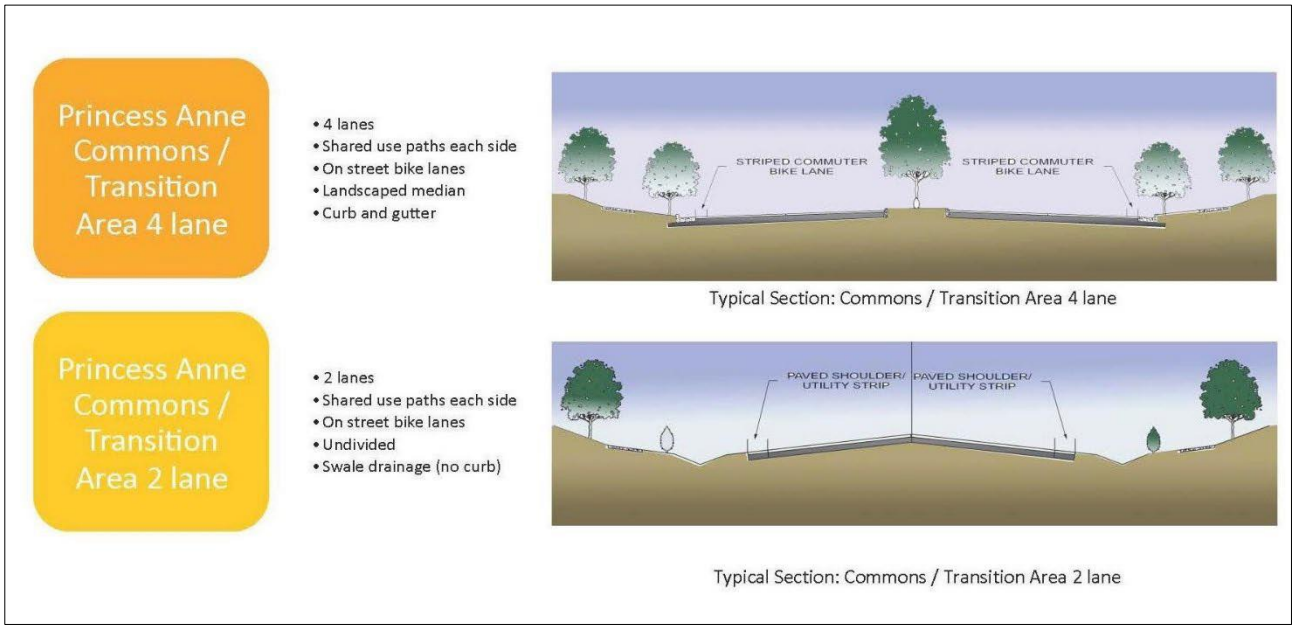


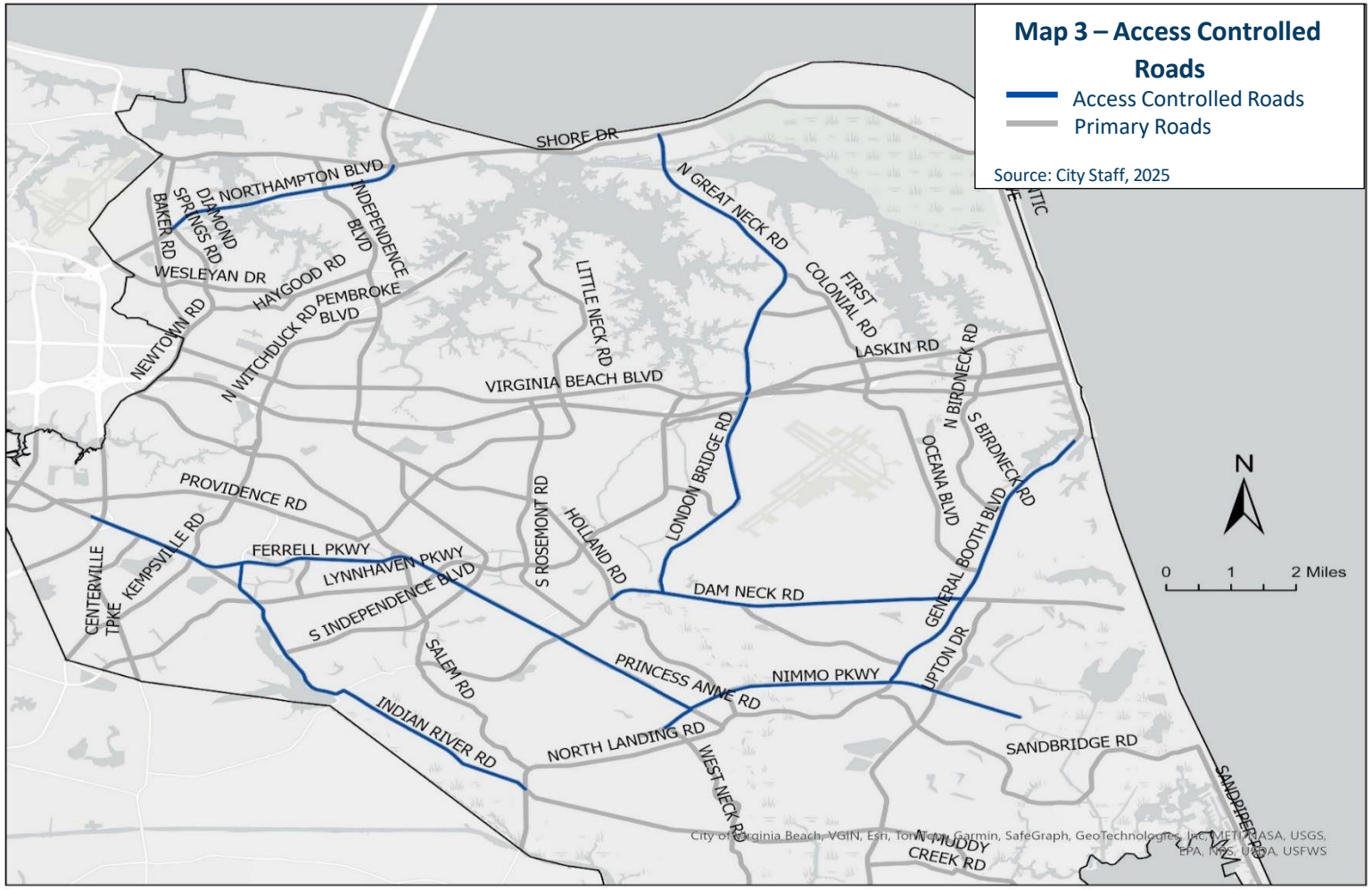
Figure 3 – Typical Section for Princess Anne Commons/Transition Area Roadways

Source: City of Virginia Beach Public Works Design Standards Manual, 2022

The management of access points (driveways, intersections, etc.) is important to the safety and acceptable functioning of our roadways. Certain roads, because of their function in the overall roadway network, need a higher level of access control than roads whose function is to provide more direct access. Roads designated as "Access Controlled" are shown on the following **Map 5** and have restricted direct access to and from that roadway segment for new development. Private direct access is not permitted on these roadway segments, unless the property in question has no other reasonable access to the circulation system. Developers are encouraged to use building orientation and signage to help identify the businesses along these corridors. The following corridors are designated as "Access Controlled":

- Northampton Boulevard between Diamond Springs Road and Shore Drive.
- Indian River Road from Providence Road to Ferrell Parkway & Indian Lakes intersection and from Ferrell Parkway & Indian Lakes intersection to North Landing Road.
- Ferrell Parkway.
- Princess Anne Road from Ferrell Parkway to Nimmo Parkway.
- Dam Neck Road from Holland Road to General Booth Boulevard.
- Nimmo Parkway.

- General Booth Boulevard.
- South Independence Boulevard from Holland Road to Lynnhaven Parkway.
- London Bridge Road/Drakesmile Road from I-264 to Dam Neck Road.
- N Great Neck Road.



Map 3 – Access Controlled Roads

Source: City of Virginia Beach Public Works Design Standards Manual, 2022

Southeastern Parkway & Greenbelt

Southeastern Parkway & Greenbelt (SEPG) was conceived as limited access, multi-lane roadway from I-64/I-464 in Chesapeake to I-264 between Virginia Beach Blvd and Laskin Rd, which would provide some congestion relief for adjacent arterial roadways. The SEPG was shown in the previous Master Transportation Plan.

SEPG was determined to be a non-viable project for several reasons:

- Environmental impacts – project was not permittable due to impacts on wetlands.
- Excessive costs – elevated roadways, bridges, and infrastructure would have been required in wetland areas.
- Limited traffic benefits.

City staff performed traffic modeling for the SEPG and based on the modeling results, recommended that only a segment from the Indian River Road to Holland Rd be retained (**Map 4**).

Due to transportation purposes, it is important for the city to retain right-of-way from Holland Rd to Indian River Rd (IRR). The transportation network has been improved to expand the future roadways. Future uses for the SEPG corridor (Holland Rd to Indian River Rd (IRR)) would include:

- Transportation: 2-lane roadway outside of Indian River Rd to Holland Rd (Greenbelt Phase III & IV, applies only to retained segments). Typical section is shown in **Figure 4** below.
- Active transportation: bike and trail facilities.
- On-road bake facilities are accommodated within the paved shoulder
- Utility corridor.

The standard Parkway typical section without curb & gutter does not have designated bike lanes.

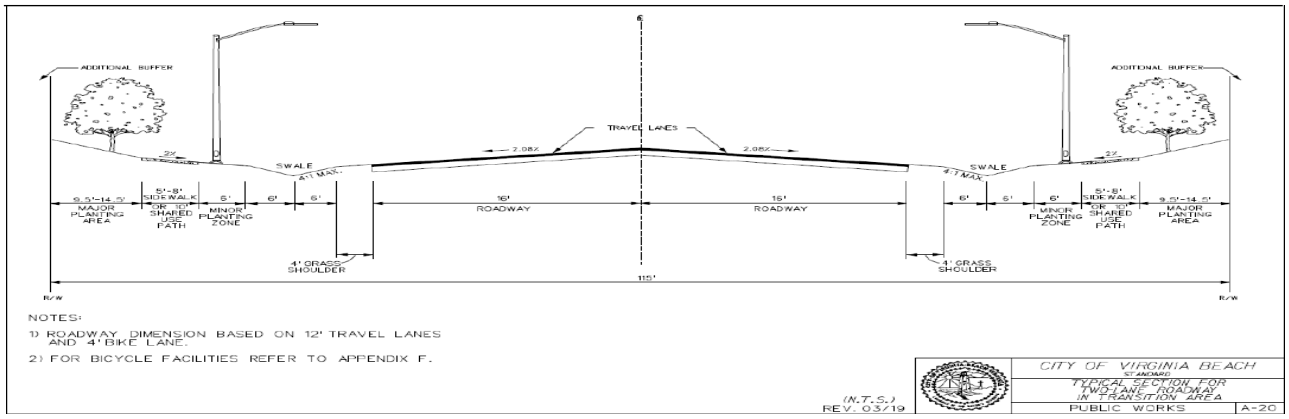
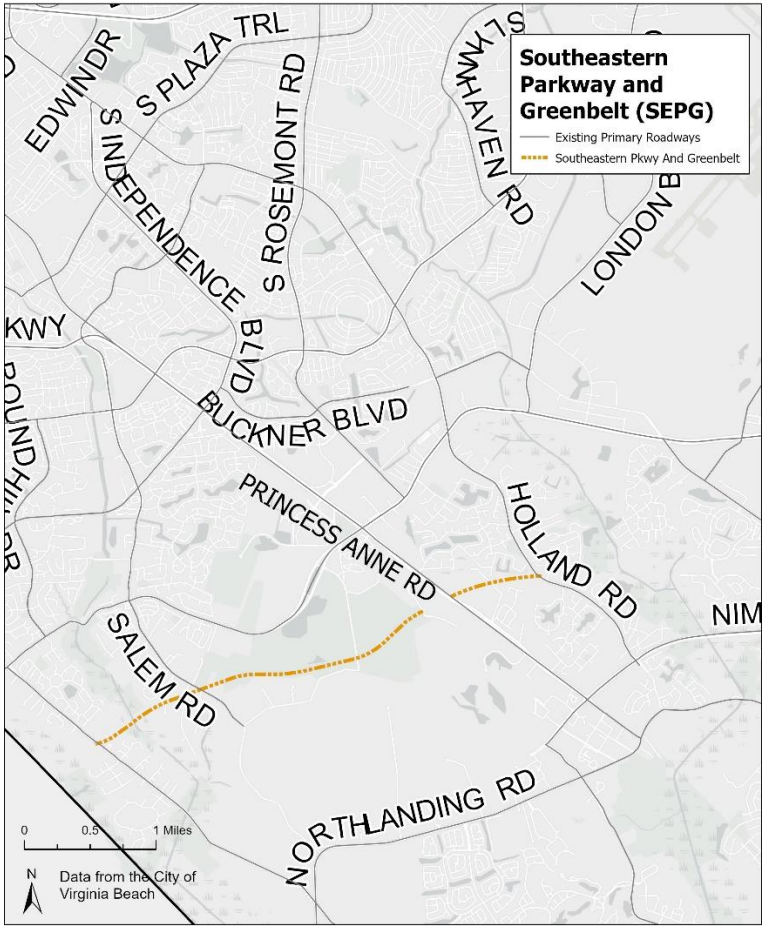


Figure 4 – Typical Section for Two-Lane Roadway in Transition Area
Source: City of Virginia Beach Public Works Design Standards Manual, 2022

Primary Roadway Network Plan Map



Map 4 – Southeastern Parkway and Greenbelt (SEPG)

Source: City of Virginia Beach Public Works Design Standards Manual, 2022

Recent Roadway Improvements

Figure 5 – below shows the list of roadway projects completed since 2016 to 2024 in Virginia Beach.

Project Name	Project Description
Lesner Bridge Replacement	Replacement of the Lesner Bridge on Shore Drive over the Lynnhaven inlet
Holland Road Widening	Widen Holland Rd to 4 lanes from 0.2 miles north of Dam Neck Rd to 0.2 miles south of Nimmo Pkwy
Indian River Road Intersection Improvement at Kempsville Rd	Construct improvement at the intersection of Indian River Rd and Kempsville Rd
Laskin Road Widening	Widen Laskin Rd to 6/8 lanes from 0.2 miles west of First Colonial Rd to 0.3 miles west of Birdneck Rd
Lynnhaven Parkway Extension Phase XI	Construct extension of Lynnhaven Pkwy from 0.5 miles east of Centerville Tpke to 0.2 miles west of Indian River Rd
Witchduck Road Widening	Widen Witchduck Rd to 6 lanes from I-264 to Virginia Beach Blvd
I-264 Interchange Improvements at I-64 and Witchduck Road Phase II	Extend roadway from Newtown Rd to Witchduck Rd, reconfigure Newtown Rd and Witchduck Rd interchange ramps south of I-264, and construct overpass connecting Greenwich Rd south of I-264 and Cleveland St on north side
Princess Anne Road Widening	Reconstruct Princess Anne Rd as 4-lane from 0.12 mile east of Dam Neck Rd to 0.11 mile east of Nimmo Pkwy
Parliament Drive Sidewalk Phase II	Construct a five-foot wide concrete sidewalk along the southern side of Parliament Dr from Green Kemp Rd to the Arrowhead Plaza Shopping Center
Three Oaks Elementary Multi-Use Path	Provide a 10-foot wide asphalt path connecting the Sherwood Lakes and Highgate Greens neighborhoods to Three Oaks Elementary School
Euclid Road Sidewalk	Provide 760 linear feet of a five-foot wide concrete sidewalk on the north side of Euclid Rd between Onondaga Rd and Kellam Rd
South Blvd Sidewalk	Provide a five-foot wide concrete sidewalk at two locations along the south side of South Blvd to provide a continuous sidewalk between Independence Blvd and Expressway Dr

This is not an exhaustive list, and it should be used as an illustration rather than a comprehensive list.

Figure 5 – below shows the list of roadway projects completed since 2016 to 2024 in Virginia Beach.

Source: City Staff, 2025

Project Name	Project Description
Parliament Dr Sidewalk Phase I	Install a five-foot wide concrete sidewalk along the southern side of Parliament Dr from Coventry Rd to Green Kemp Rd
Foxfire Pedestrian Trail Phase I	Construct a pedestrian and bicycle trail and bridge between North Landing Rd and Foxfire Park/Esplanade Dr - provides connectivity from Virginia Beach Municipal Center to Pungo neighborhoods
Independence Blvd/Columbus St Pedestrian Improvements	Provide an at-grade pedestrian crossing at the Independence Blvd/Columbus St intersection. Improvements include removal of a southbound left-turn lane on Independence Blvd, a pedestrian refuge, striping, pedestrian signals, and curb ramps
Sandbridge Rd Sidewalk	Provides a six-foot wide concrete sidewalk along the north side of Sandbridge Rd from Red Mill Elementary School to the existing city ballfields at Red Mill Farms Park
Salem Rd Sidewalk	Provide a five-foot wide sidewalk from Salem Lakes Blvd to Rock Lake Loop
Providence Rd Sidewalk	Construct a sidewalk from Kempsville Rd to Indian Lakes/Churchill Dr
West Great Neck Rd	Construct a sidewalk from Keeling Rd to Southern tip of Long Creek Bridge
Virginia Beach Blvd at First Colonial Rd Intersection Improvements	Intersection widening
Virginia Beach Blvd Sidewalk	Construct sidewalk from Louisa Ave to N Oceana Blvd
Pacific Ave Pedestrian	Active transportation improvements from 5th St to 39th St
Princess Anne Phase VII	Roadway reconstruction from General Booth Blvd to 1214 ft east of Upton Dr
Indian River Rd Intersection Improvement at Providence Rd	Construct improvement at the intersection of Indian River Rd and Providence Rd
Mediterranean Ave/Cypress Ave Sidewalk	Reconstruct sidewalk on Mediterranean Ave/Cypress Ave
Seaboard Rd	Roadway reconstruction and improvements to Seaboard Rd
West Neck Rd Phase IV	Roadway improvements to West Neck Rd

Figure 5 – Completed Roadway Improvement Projects in Virginia Beach 2016-2024
Source: City Staff, 2025

Summary of Transportation Improvement Projects from FY26 CIP			
Project Name	**Project Description**	**Project Type**	**Cost Estimate**
Indian River Road Bridge (Speed Fentress)	This project replaces the aging bridge that spans West Neck Creek. The project will expand the bridge limits to span the flood plain along West Neck Road to provide reliable access during flooding events and will combat sea level rise.	New Facility Construction /Expansion	**$104,491,414**
Shore Drive Corridor Improvements Phase III	This project begins at Vista Circle, near the eastern end of the Lesner Bridge, and extends eastward through the Great Neck Road intersection and terminates at Beech Street. This project will improve vehicular and pedestrian traffic flow and safety in the roadway and intersections; i	New Facility Construction /Expansion	**$72,165,498**
Centerville Turnpike Phase II	This project is for the construction of a four-lane divided highway within a 130-foot right-of-way from Indian River Road to Kempsville Road, a distance of 1.85 miles.	New Facility Construction /Expansion	**$77,072,398**
Independence Blvd/Pleasure House Rd	This project will convert the existing signalized intersection at Independence Blvd and Pleasure House Rd to a Continuous Green-T innovative intersection type. Improvements also include installing a median break approximately 650-feet to the north of the intersection for U-turn movements	Rehabilitation/Replacement	**$7,604,264**
Dam Neck Road/Holland Road Intersection Improvements	This project is for the addition of a second left turn lane from westbound Dam Neck Road to southbound Holland Road. The improved geometry will also require reconstruction of the existing refuge island on the northeast corner of the intersection.	New Facility Construction /Expansion	**$3,296,658**
Elbow Road Extended Phase II-B	This project will provide two lanes of the ultimate four-lane right-of-way footprint on Elbow Road from Meadow Crest Way/Margaret Drive to the Chesapeake City Line at Stumpy Lake, a distance of approximately 1.3 miles	New Facility Construction /Expansion	**$68.050,361**
First Colonial Rd & VA. Beach Blvd. Intersection Imp	This project will improve the First Colonial Road and Virginia Beach Boulevard intersection with the addition of turn lanes and traffic signalization improvements. This project will include widening areas of First Colonial Road from the I-264 overpass to 1,000 feet south of Oceana Boulevard from four lanes to six lanes in a 130-foot right-of-way.	New Facility Construction /Expansion	**$34,765,516**
City-Wide Street Reconstruction II	This work may include but is not limited to replacement of curb and gutter systems when needed for pavement performance and ADA improvements in the right-of-way including curb ramps and sidewalk. Street Reconstruction is an eligible expenditure for VDOT maintenance funds.	Rehabilitation/Replacement	**$61,522,635**
City-Wide Traffic Safety Improvements IV	This project provides for modification of existing roadways by constructing turn lanes and bypass lanes, realignment of existing roadways, installing traffic signals, installing guardrails, installing sidewalks, removing visual obstructions, and funding various other traffic safety improvements.	New Facility Construction /Expansion	**$65,207,409**

Figure 6 – Summary of Transportation Improvement Projects from FY26 CIP

* Projects funded in the VDOT Six Year Progra

Roadway Congestion

Designing and building new roads to reduce traffic is becoming more challenging for the city. Construction costs and the price of buying land have gone up, especially after the COVID-19 pandemic. At the same time, budgets are tighter, and traffic is growing in many areas, leading to more congestion. This means it's more important than ever to carefully plan and analyze how transportation money is spent.

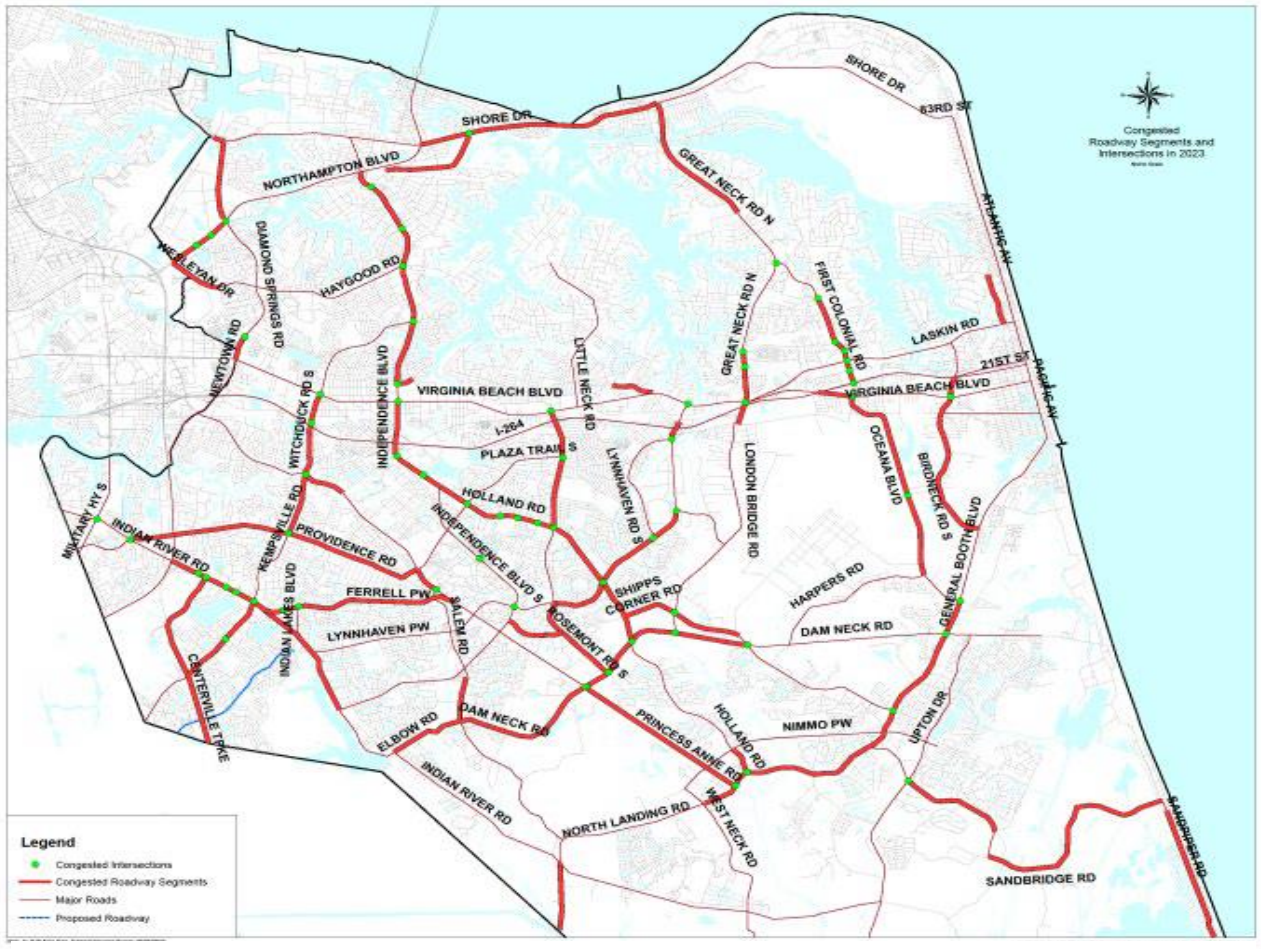
One simple way to measure congestion is by looking at the volume-to-capacity ratio (v/c). If the v/c is 1 or higher, it means that part of the road or intersection is congested. If it's below 1, it's not considered congested. While basic, this method helps highlight where more attention is needed.

However, it's important to understand congestion in context. In this analysis, congestion means a road or intersection has a v/c of 1 or more. But traffic patterns mean many cars may be on the road at the same time, causing short bursts of congestion. Once cars reach their destination, traffic decreases and congestion eases. Road segment v/c is measured over 24 hours, while intersection v/c is based on the busiest hour of the day—often referred to as the "peak hour." This kind of analysis is useful for a few key reasons:

1. A road or intersection might only be congested for a short time, but this analysis doesn't show how long that lasts—it could be 5 minutes or 3 hours.
2. It doesn't show exactly when during the day the congestion happens. Two roads could both be busy, but at different times.
3. It doesn't explain why congestion happens in a specific spot. It could be due to weather, road work, bad signal timing, or traffic spilling over from another area.

Furthermore, vehicle volumes used in this analysis are average. Traffic volume is highly variable. Even those segments or intersections not identified as congested may have certain times where they are considered congested.

Map 5 shows the congested roadway segments and intersections in the city in 2023.



Map 5 – Congested Roadway Segments and Intersections in 2023

Source: City Staff, 2025

Recommended Policies: Roadways

- Require traffic impact studies for any development proposal that yields a net 150 trips or more during the a.m. or p.m. peak hour.
- Evaluate funding options for infrastructure needs created by new development.
- Promote mixed-use development and transit-oriented development (TOD), higher density development, and transportation demand management (TDM), especially in strategic growth areas and activity centers, to reduce the need for single occupancy vehicle trips.
- Continue to implement transportation policies that reduce the need for single-occupancy vehicles and vehicle miles traveled.
- Evaluate the specific transportation project's impacts on quality of life and aesthetics for surrounding and proposed land uses.
- Continue to implement the City of Virginia Beach Complete Streets policy.

Key Points: Roadways

- Roadway inventory and classification is a key information in planning for future roadways, roadway improvements and any type of development in the city. This information is shown with the Primary Roadway Network map and the Access Controlled Roadways map.
- Southeastern Parkway & Greenbelt (SEPG) corridor was determined to be a non-viable project. The city will keep a section from Holland Rd to Indian River Rd.
- A list of recent roadway projects is included in the chapter and congestion map.

ROADWAY SAFETY

Roadway crashes have a wide range of impacts, not only on the transportation system but also on families, friends, and society. Because of these impacts, roadway safety must be one of the highest priorities in the transportation planning process.

The City of Virginia Beach Local Road Safety Action Plan (LRSAP) is a comprehensive roadway safety plan aimed at improving the safety of all road users through a data-driven, equitable approach. The LRSAP explored historical crash data to better understand trends and patterns that can be mitigated through engineering treatments and/or strategic initiatives.

Source: City of Virginia Beach LRSAP, 2024

The city accepts the challenge to further national and state initiatives to mitigate fatalities and serious injuries on city roadways through innovative design and strategic initiatives. **As part of the LRSAP, the city aims to reduce fatal and serious injury crashes by half by 2055 with an aim toward zero beyond 2055.**

While reducing fatal and serious injury crashes is the primary goal of the LRSAP, there are four objectives for the LRSAP that should support reaching the goal of Roadway Safety :

- Reduce Fatal and Serious Injury Crashes
- Maximize Opportunities to Fund Safety-Related Roadway Improvements
- Promote Public Awareness of Roadway Safety
- Implement an equitable Approach to Safety Improvements

Within the City of Virginia Beach, 25,430 reportable crashes occurred during the five-year2018-2022 analysis period 122 fatal and 739 serious injury crashes. While the traffic volume changed year-to-year, the number of fatal and serious injury crashes within the city remained relatively steady in the same period. During the COVID-19 pandemic in 2020, traffic volumes significantly dropped; however, fatal and serious injury crashes continued to rise despite volume reduction. The highest number of total fatal crashes, 29, was in 2018 and 2021, while the lowest number of total fatal crashes in the city was in 2019 (**Figure 6** on **page 24**). The total number of serious injuries peaked in 2022 (163); the lowest total number of serious injuries was in 2019 (124).

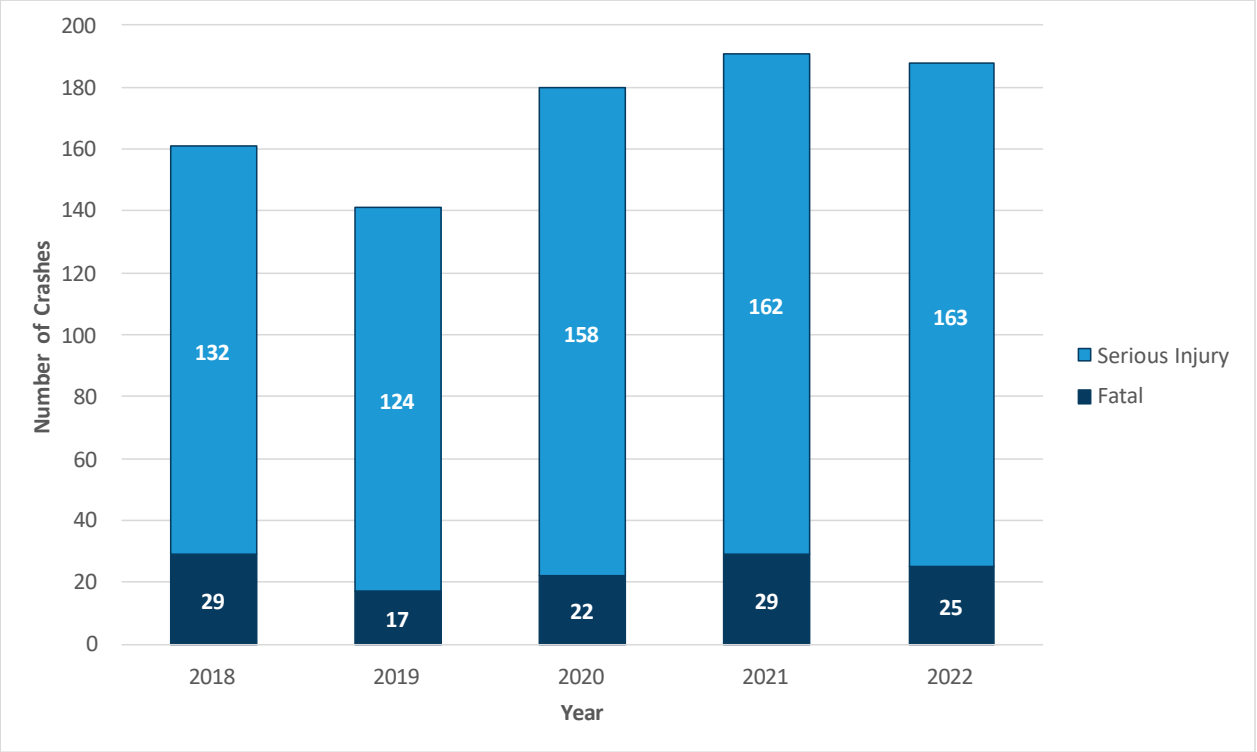


Figure 6 – Total Fatal and Serious Injury Crashes in Virginia Beach 2018-2022
Source: City of Virginia Beach LRSAP, 2024

Safety analysis conducted in the LRSAP focused on city-maintained roadways during a five-year period between 2018 and 2022 and it can be divided into the following analysis:

- Crash trends
  - Crash types - the most common crash type among the fatal and serious injury crashes in the five-year period were angle crashes (approximately 36% of all fatal and serious crashes), followed by fixed object, off-road crashes (16%), rear-end crashes (13%), and pedestrian crashes (12%).
  - Variable conditions – approximately 57% of fatal and serious injury crashes reported occurred during daylight conditions with 33% occurring during dark conditions with the road lighted.
  - Temporal patterns were evaluated to understand crash trends related to time of day, weekday, and month. The summer months (May-September) are the most common time of the year for crashes, with May experiencing the highest overall number of fatal and serious injury crashes, which aligns with the increase in tourists and visitors to the area in the summer months. Historically, 47% of all crashes reported in the five-year period analysis period occurred on a Friday,

Saturday, or Sunday. A small uptick of fatal and serious injury crashes correlates with typical morning peak traffic period (between 6:00 AM and 8:00 AM) and a more significant increase during the typical evening peak traffic periods (4:00 PM and 6:00 PM).

- High-risk locations – The city annually monitors and maintains a list of signalized intersections, urban roadway segments, and rural roadway segments that combined help identify high-risk locations. The city can monitor and track intersections or segments that have historically been on the list or have experienced an increase in ranking on the list, which is used by the city to identify locations with safety concerns. High-risk locations are divided as:
    - Priority intersections
    - Priority segments
- Emphasis areas were established in collaboration with the Task Force to understand safety challenges on city roadways. By analyzing crash data within these emphasis areas, the countermeasures identified result in a more comprehensive and equitable list of safety improvements to be implemented. 14 emphasis areas, listed below, were analyzed in the LRSAP:
    - Impaired driving
    - Signalized intersections
    - Speeding
    - Unsignalized intersections
    - Roadway departure
    - Motorcyclists
    - Adult and aging road users
    - Unprotected occupants
    - Youth and inexperienced drivers
    - Pedestrians
    - Bicyclists
    - Heavy vehicles
    - Rural areas
    - School zones

Of these emphasis areas, signalized intersections experienced the highest number of total crashes – nearly two times that of any other emphasis area. However, impaired driving accounted for the highest number of fatal and serious injury crashes. Of all emphasis areas, impaired driving accounts for the highest percentage of all citywide crashes. Impaired driving includes distracted and drowsy driving and drug and alcohol use (per VDOT). Of these contributing factors, distracted driving accounts for the largest

percentage of impaired driving crashes and was found to be a contributing factor in many other emphasis areas.

The LRSAP assesses how safety effects may vary amongst socioeconomic groups and to ensure countermeasures proposed are diverse in project type and location. By taking an equitable approach to safety and infrastructure investments, all individuals can be represented and benefit from implementing countermeasures. The equity component of the countermeasure prioritization process comprised the following subcategories:

- Disproportionate impact – the applicable emphasis area(s) are more common in identified disadvantaged tracts.
- Transportation stress – the project is in a tract that is above the 90th percentile for traffic proximity and volume, and above the 65th percentile for low-income.
- Disadvantaged community – the project is in a Historically Disadvantaged Community (HDC), an Area of Persistent Poverty (APP), or is a systemic countermeasure that can apply to these areas.
- Vulnerable road users – the project applies to pedestrians and/or bicyclists.
- Accessibility – the project eliminates a barrier or gap in connectivity or improves transit access.

Twelve Census Tracts in Virginia Beach are classified as disadvantaged by HDC and/or APP; many are next to the I-264 and military installations comprising 9% of the city's total land area and 8% of the City's total population, according to 2020 census. The impaired driving, roadway departure, adult and aging road users, unprotected occupants, youth and inexperienced drivers and pedestrian emphasis areas appeared to have higher rates of fatal and serious injury crash rates within disadvantaged communities. Based on this equity assessment, the safety risk for disadvantaged communities appears to be heightened compared to the Citywide safety risk. This plan aims to implement safety improvements holistically that can be broadly applied to all areas and benefit all users, including those in disadvantaged communities.

Safety countermeasures were identified though data-driven safety analyses and collaboration with stakeholders and community during the LRSAP development and they support the goals and objectives to reduce fatal and serious injury crashes by being widely applicable to the various trends, communities, and geographic areas within the city.

An important part of the LRSAP was the prioritization of countermeasures to help with allocation of the funds for safety improvements. The prioritization process had three categories:

- Safety
- Equity

- Benefit to Cost

The LRSAP is an evolving document and will be updated every 5 years to document progress in implementation and changes in safety challenges. Annual monitoring of the plan in compliance with the Safe Streets and Roads for All (SS4A) program will be implemented, will be publicly available and should document progress towards reducing roadway fatalities and serious injuries based on the city's target goal of reducing fatal and serious injury crashes by half by 2055.

Recommended Policies: Roadway Safety

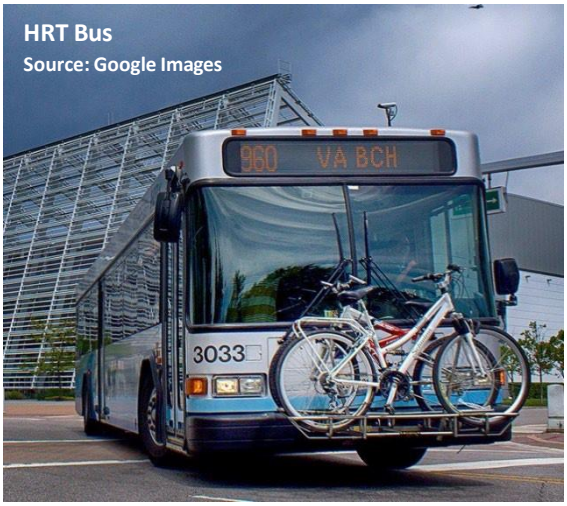
- Adhere to the recommendations of the Virginia Beach Local Road Safety Action Plan.
- Coordinate with Public Works Traffic Engineering and other relevant stakeholders regarding the update of the LRSAP that will document progress in implementation and changes in data and safety challenges.
- Annually monitor the plan in compliance with the SS4A program, which should be publicly available and should document progress towards reducing roadway fatalities and serious injuries based on the city's target goal of reducing fatal and serious injury crashes by half by 2055.

Key Points: Roadway Safety

- The City of Virginia Beach recently completed a Local Road Safety Action Plan (LRSAP) that aims to improve roadway safety for all users.
- Primary goal of the LRSAP is to reduce fatal and serious injury crashes by half by 2055 with an aim toward zero beyond 2055.
- Four objectives of the LRSAP are:
    - Reduce fatal and serious injury crashes.
    - Maximize opportunities to fund safety-related roadway improvements.
    - Promote public awareness of roadway safety.
    - Implement an equitable approach to safety improvements.
- To support the objective and goals of the LRSAP, safety countermeasures were developed.
- LRSAP is an evolving document that will be updated every 5 years to document progress in implementation and changes in safety challenges.
- Annual monitoring of the plan in compliance with the Safe Streets and Roads for All (SS4A) program will be implemented.

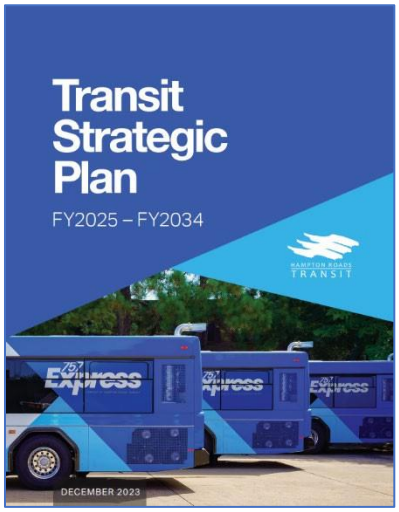
PUBLIC TRANSPORTATION

This section of the MTP includes details on the public transportation services that are currently provided throughout Virginia Beach and the plan's recommended policies.



HRT Bus
Source: Google Images

Transit services in Virginia Beach are provided by Hampton Roads Transit (HRT), which serves a 438 square mile area within the Hampton Roads region. HRT comprises six member cities:
Chesapeake, Hampton, Newport News, Norfolk, Portsmouth, and Virginia Beach, with a combined population of approximately 1.35 million).
HRT is a local government agency, a body corporate and politic, created under the Transportation District Act of 1964, Virginia Code e §§ 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 Transit Strategic Plan (TSP) is a changing document that serves as the 10-year blueprint for improving transit across the region that is served by HRT. It is updated annually and will undergo major update every five years, which are important to support flexibility for HRT and its partners to make the best use of resources and continuously improve and adapt to changes in demand and mobility.

HRT's strategic vision, mission, goals, objectives, and performance measures are outlined in the TSP that were developed by gathering input from employees, customers, HRT's governing board, and stakeholders through surveys, focus groups, strategic retreats, and other special meetings.

The agency's goals and objectives (recently updated in 2022) are:

1. **Provide a high-quality service that is easy to use and enhances people's lives.**
    - **a.** Provide reliable, equitable, and desirable service, amenities, and information
    - **b.** Serve people where and when they need to travel
    - **c.** Achieve and maintain a high rate of customer satisfaction
2. **Foster regional quality of life and economic vitality**.
    - **a.** Contribute to regional congestion mitigation and environmental health and sustainability
    - **b.** Maximize access for residents, employees, and visitors to and between regional activity centers, job centers, and workforce development opportunities
    - **c.** Build community trust as a valuable partner in a thriving region
3. **Ensure financial stewardship and cost-effective operations.**
    - **a.** Provide cost-efficient transit service that leverages all available resources to offer the best value for the investment
    - **b.** Perform asset management that achieves and maintains a state of good repair and sustainability and maximizes investment impacts
    - **c.** Effectively align and manage resources and processes to maximize workplace productivity, achieve agency goals, and show safe and sustainable business practices to ensure long—term viability
4. **Build a culture of innovation and workforce success to ensure HRT remains relevant to the dynamic needs of the region.**
    - **a.** Continue to progress and innovate collaboratively with our partners and stakeholders to improve services to customers.
    - **b.** Support a diverse and empowered workforce to strengthen core competencies and support an inclusive and productive workplace.
    - **c.** Be an employer of choice and inspire and invest in our workforce and develop future leaders.

HRT identified the top six priorities:

- More reliable service (on-time arrivals and drop-offs).
- Frequent service during rush hour (5:00-9:00 a.m. and 3:00-7:00 p.m., Monday-Friday).
- Real-time bus arrival information.
- Safety and security.
- Mobile ticketing and fare payment options.
- More sheltered stops.

Service Overview

This section outlines the HRT's primary services in Virginia Beach and includes the planned service improvements designed to increase service efficiency and the attractiveness of using the HRT system, while increasing route directness, which helps to improve overall transit trip speed and on-time performance.

HRT provides the following primary services in Virginia Beach: bus, trolley, demand response paratransit, and Transportation Demand Management (TDM) vanpools.

Bus and Trolley

There are 16 bus routes, and 4 trolley routes operated by the HRT in the City of Virginia Beach. Weekday service runs between approximately 4:30 a.m. and 1:30 a.m. (until 2:00 a.m. on the Virginia Beach (VB) Wave Trolley service in the summer). The VB Wave and Bayfront Shuttle comprise four routes that operate seasonal service for residents and tourists in the Virginia Beach resort area during the summer. The VB Wave (Routes 30, and 31) use replica trolley-style diesel buses, and the Bayfront Shuttle (Route 35) uses 29-ft diesel buses.

Demand Response Paratransit

According to the Americans with Disabilities Act (ADA), federal requirements for paratransit service state that public transit agencies must provide "complementary paratransit" to individuals with disabilities who cannot use the fixed-route system because of their disability and this service must be provided within a ¾ mile radius of a bus stop or rail station, operating during the same hours and days as the fixed route service; essentially acting as a supplement to the regular transit system. HRT Paratransit service transports passengers using accessible lift vans and sedans that are a combination of owned and leased vehicles. Certified customers can schedule a ride by phone (from 8:00 a.m. to 5:00 p.m.), through an online portal or using a new Paratransit app (launched in August 2020). All rides are booked by 5:00 p.m. the day prior to requested service and can be booked up to seven days in advance.

Paratransit Van
Source: HRT

Paratransit services accounts for approximately 25 percent of the revenue hours and miles across all of HRT's modes. **Figure 7** exhibits paratransit ridership in Virginia Beach between FY2019 and 2023.

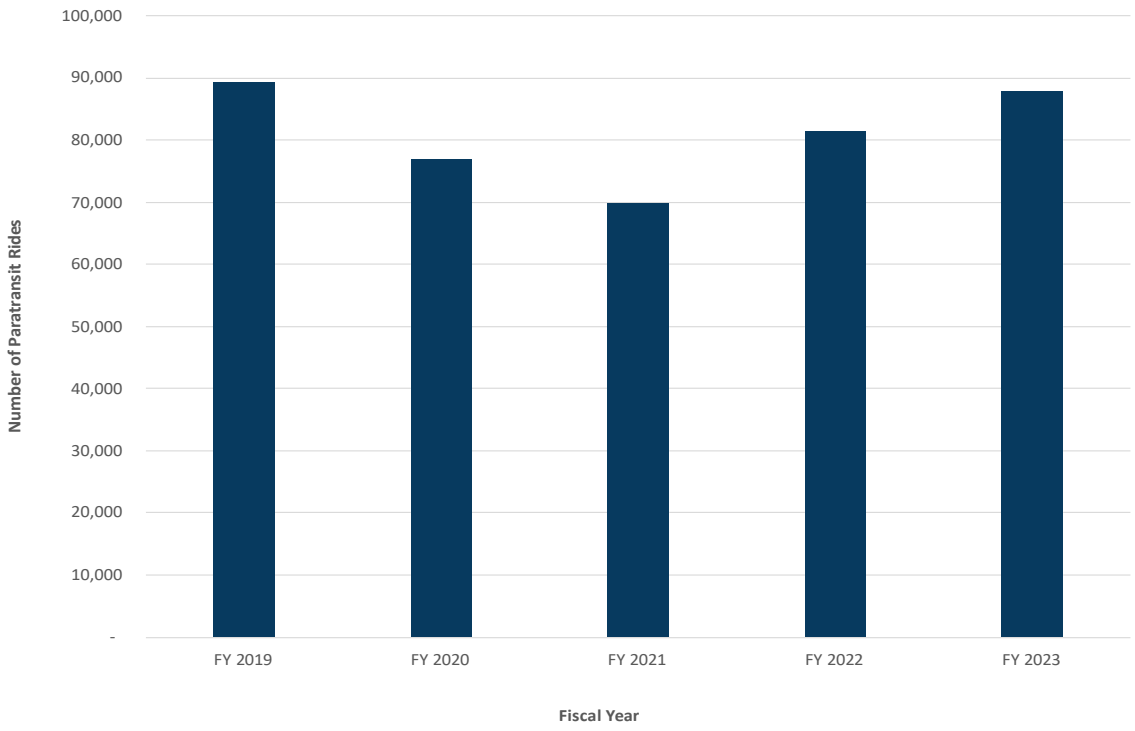


Figure 7 – Paratransit Ridership in Virginia Beach (FY19 – FY23)
Source: Staff analysis of HRT data

Paratransit ridership experienced a decrease from approximately 89,000 paratransit riders in FY 2019 to approximately 70,000 paratransit riders in FY 2021, which is a decrease of 21%. Paratransit ridership increased from approximately 70,000 paratransit riders in FY 2021 to approximately 88,000 paratransit riders in FY 2023, which is an increase of 20%. Therefore, the latest trend of increased paratransit ridership (from 2021 to 2023) means that paratransit ridership is recovering from COVID-19 disruptions.

Transportation Demand Management (TDM) Program – goCommute

The U.S. Department of Transportation defines TDM: "*Managing demand is about providing travelers, regardless of whether they drive alone, with travel choices, such as work locations, route, time of travel, and mode. In the broadest sense, demand management is defined as providing travelers with effective choices to improve travel reliability.".*

goCommute (formerly called TRAFFIX), established in 1995 as Hampton Roads' regional transportation demand management (TDM) program, focuses on commuter ridesharing, air quality mitigation, reduced trip generation or parking needs, increased multi-modal options in transportation plans, and traveler choice. The program's mission statement is: "*To assist in the continued efforts to decrease congestion and greenhouse emissions in southeastern Virginia by reducing the number of Single Occupancy Vehicles (SOVs) commuting to work through ridesharing. Encourage the usage of alternatives to driving such as public transportation, carpooling and vanpooling, biking, walking, and teleworking in the establishment of employer transportation programs and incentives."* [1]

Figures 8 and **9** below exhibit Total Commuters and Vehicle Miles Traveled (VMT) per Fiscal Year. We can observe a steady increase in the number of total commuters from FY 2019 (approximately 13,300 total commuters) to FY 2021 (approximately 14,700 total commuters). In FY 2022, the number of total commuters dropped to approximately 13,840, while in FY 2023 this number rose to approximately 14,730 total commuters. There was approximately 10.6% change in total commuters from FY 2019 to FY 2023. Reduced VMTs are steadily increasing from approximately 2.6 million (FY 2019) to approximately 4.8 million (FY 2023), a 77.6% change.

1 https://www.gocommute.org/about-us

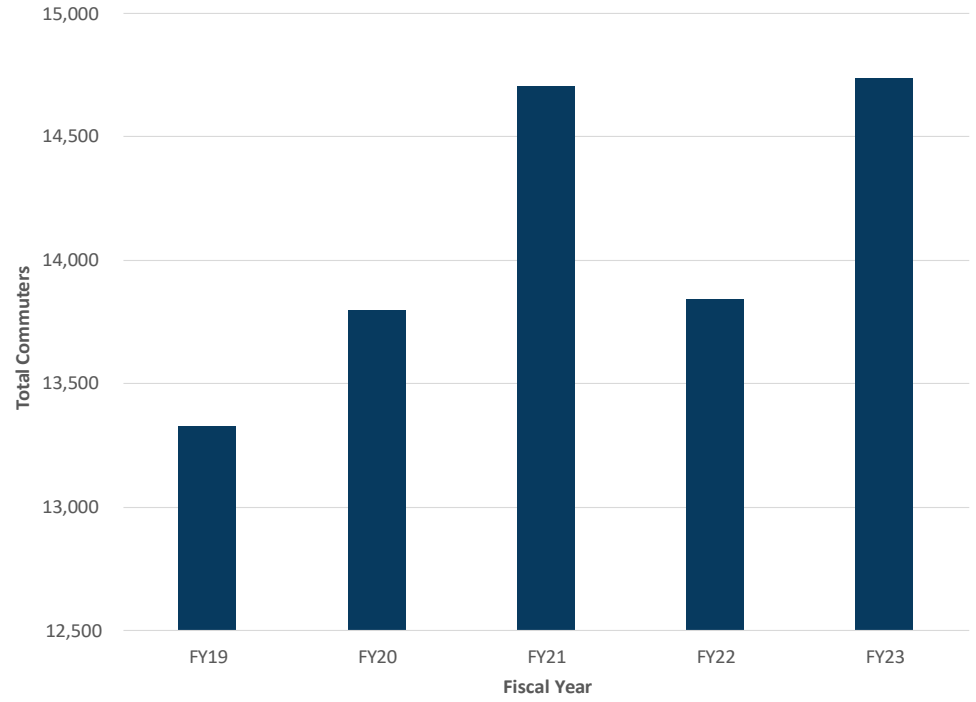


Figure 8 – TRAFFIX Total Commuters in Virginia Beach (FY19 – FY23)
Source: Staff analysis of HRT Data

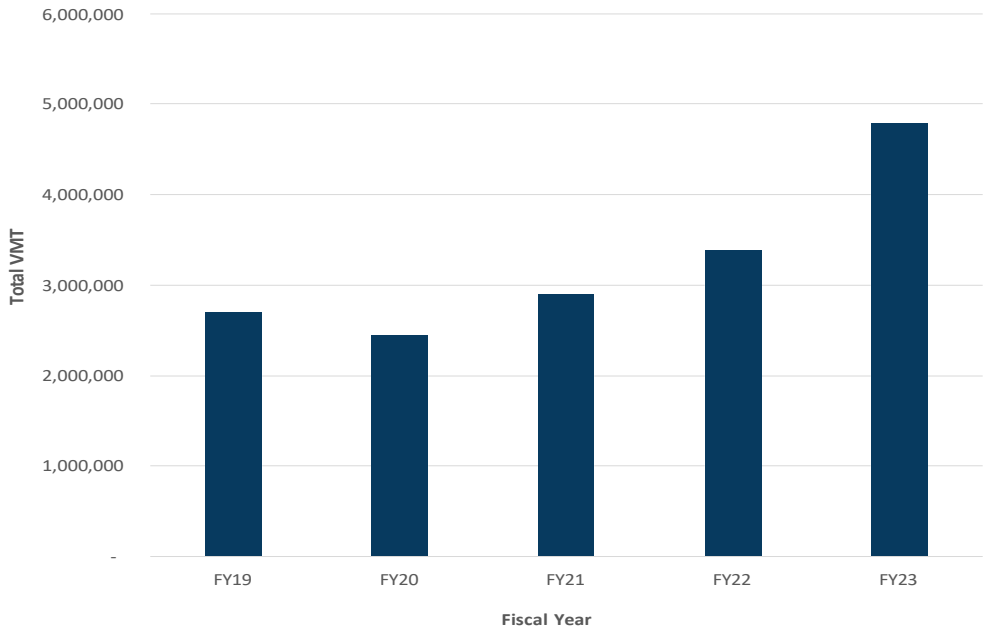


Figure 9 – TRAFFIX VMT reduced in Virginia Beach (FY19 – FY23)
Source: Staff analysis of HRT Data

Micro transit Pilot Program in Virginia Beach

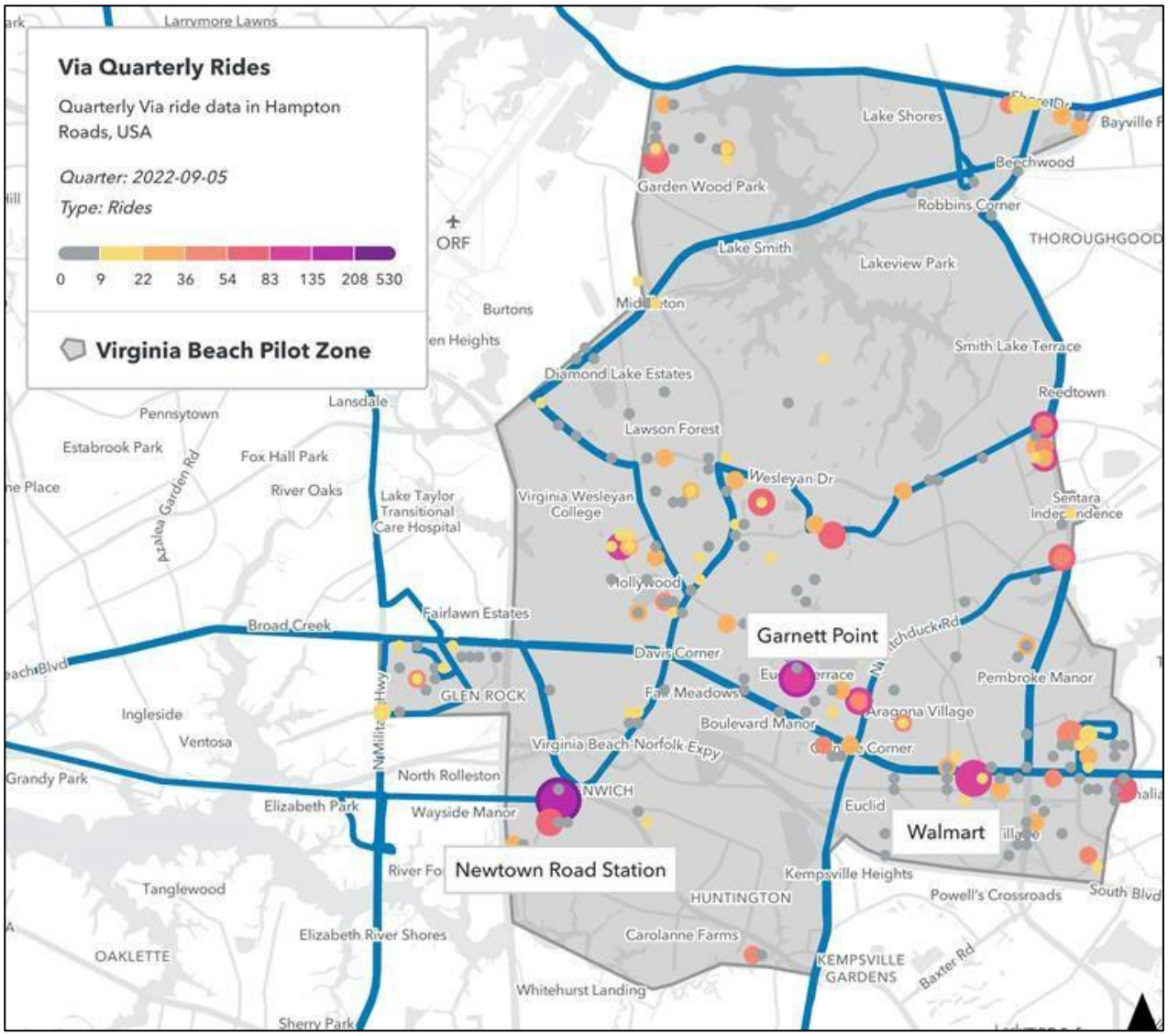
Micro transit in the United States has seen an extraordinary growth in recent years as improvements to ride-matching and dynamic routing algorithms have improved to match riders and drivers with increased efficiency. The flexible nature of micro-transit services, when compared to traditional fixed-route transit services, has attracted the interest of public transit providers who are looking for ways to improve access to transportation services in communities where traditional fixed-route transit has underperformed, or where land uses have prevented otherwise transit-dependent communities from being considered for fixed-route bus service.

HRT was awarded a State Demonstration Grant for approximately $1.6 million for two pilot programs in Newport News and Virginia Beach with each of the cities providing a 20% local match, to use app-based booking rides to move people around the defined zone in a shared ride mode using passenger vans (six regular vans and 2 wheelchair-accessible vans). This service launched in July 2022 with hours of operation between 5 a.m. – 9 p.m. (Monday-Friday) and between 7 a.m. – 8 p.m. (Saturday and Sunday) as a "turnkey" service. Demonstration grant goals were:

1. Does microtransit improve mobility options for communities in a cost-effective manner?
2. Is there a role in the future for microtransit in the HRT service area?
3. Can the state translate the Pilot project(s) experience to other areas in the Commonwealth?

Trips were shared with other customers who had similar destinations and originated at "virtual" bus stops. **Map 6** shows Virginia Beach microtransit 15 square mile zone.

Microtransit Van
Source: HRT



Map 6 – Virginia Beach Micro transit Zone
Source: HRT, 2024

The Virginia Beach zone sought to connect residents to the Newtown Light Rail Station and other intra-zone points, with the potential to serve adjacent portions of Norfolk. Multiple points of interest can be observed in **Map 6**, including Sentara Leigh hospital, grocery stores, Virginia Wesleyan University, Pembroke Mall/Town Center, and Kempsville Plaza Shopping Center. From **Map 6,** we can observe that popular destinations for micro transit riders were Newtown Light Rail Station, Walmart Grocery Store, Garnett Point apartments and the Town Center area.

Figures 10 and **11** exhibit the total number of passengers by day and the total number of completed rides by month.

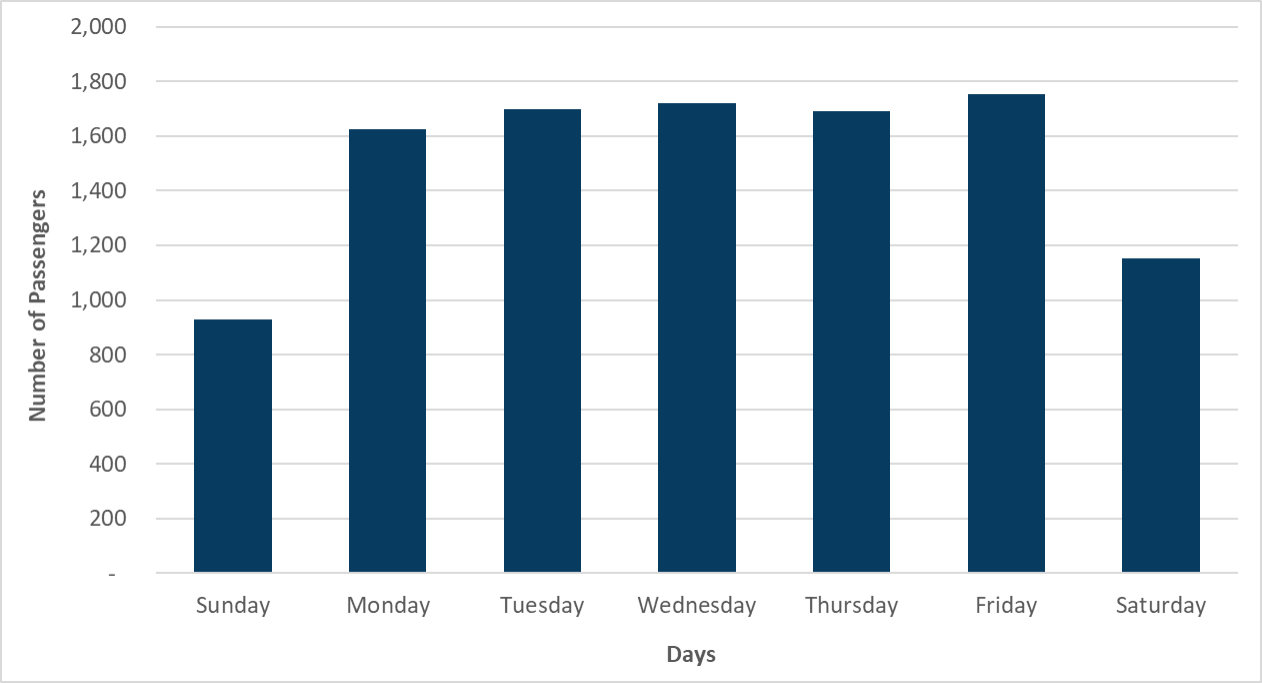


Figure 10 – Total Number of Passengers by Day
Source: HRT, 2024

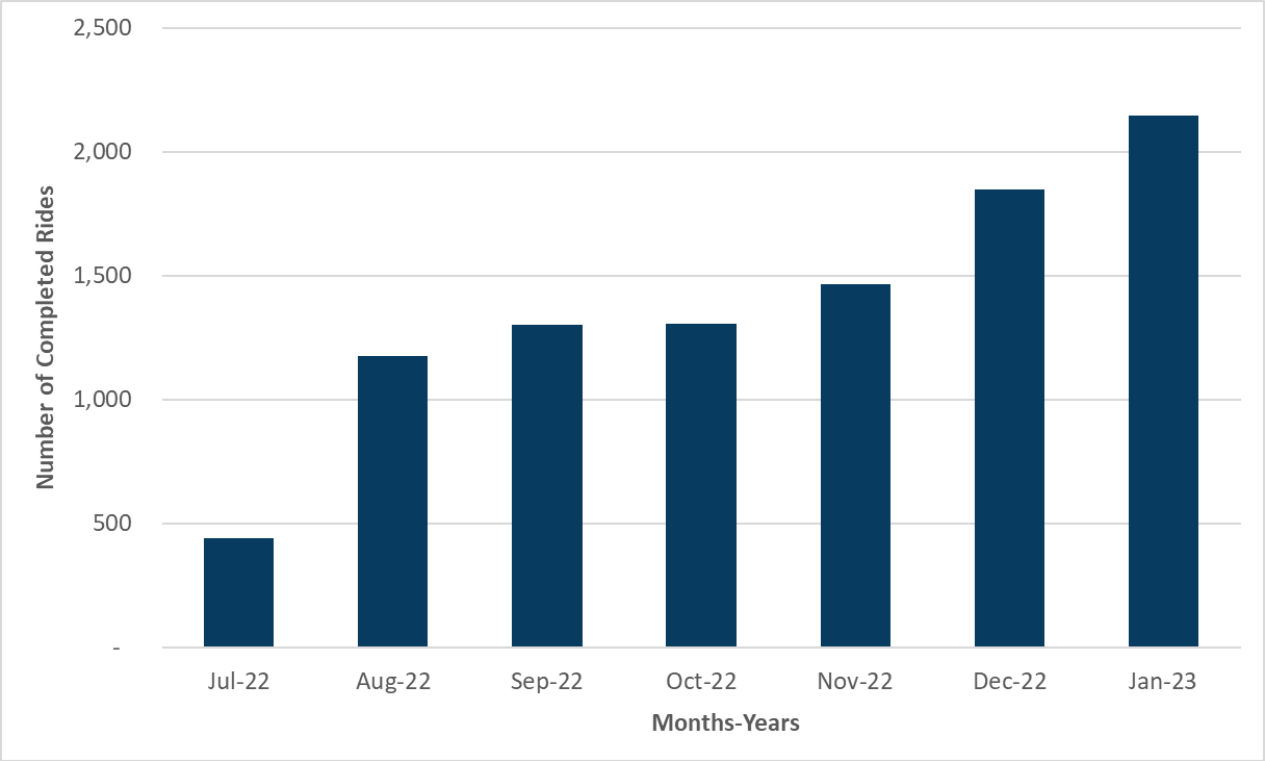


Figure 11 – Total Number of Completed Rides by Month
Source: HRT, 2024

Total number of passengers during weekdays is between 1,600 and 1,800 passengers per day, with the highest number of passengers on Friday (1,753 passengers), while during the weekend the total number of passengers is 929 on Sunday and 1,154 on Saturday (**Figure 10**).

Total number of completed rides experienced a 168% increase from July to August 2022 (from 439 to 1,177 completed rides), followed by 11% increase between August and September 2022. The number of completed rides stagnated between September and October 2022, followed by a steady increase: a 13% increase from October to November 2022, a 26% increase from November to December, and a 16% increase from December 2022 to January 2023.

More than half of survey respondents in Virginia Beach stated that the journey to work/home was their purpose for using micro transit. Half of the Virginia Beach passengers connected with other HRT fixed route services. Fleet size for this pilot program appeared to have been accurate, however, the agency will consider increasing the number of wheelchair accessible (WAVs) because medical facilities were a popular destination. HRT asserts the following lessons learned:

- Match fare structure to existing HRT fares

- Conduct longer pilots to allow for ridership maturity
- Zone modification to match passenger destinations to travel generators
- Explore other service delivery methods; “turnkey” may not be the most cost-effective

Recommended Policies: Transit

- Establish a Council-appointed Transit Advisory Committee (TAC) for the City to bolster outreach and support for transit-oriented development, advise City Council on proposed changes in service levels, and advocate for system improvements and new technology. The TAC would be composed of one member from each of the City Council Districts (10) and staffed with transportation planning personnel.
- Continued support of the TDM programs (goCommute), which offers programs and incentives for can/van pooling and other trip reducing services.
- Assist HRT in implementing the Transit Strategic Plan's vision and goals in the city.
- Continued involvement with HRT's studies and plans that are concerned with City's Transit Service, such as System Optimization Plan, which aims to improve performance and efficiency to ensure long-term fiscal sustainability.
- Study travel corridors that would be suitable for premium transit options in the future.

Key Points: Transit

- Hampton Roads Transit (HRT) is the transit service provider in Virginia Beach.
- HRT operates 16 bus routes, 3 trolley routes (VB Wave), offers paratransit and goCommute (Vanpools, Carpools) services in the city.
- Each fiscal year, city staff collaborates with HRT staff in composing a Transportation Service Plan that outlines HRT's service in the city.

FREIGHT

The multimodal freight transportation system is a foundation for economic activities and the city must strategically maintain, operate, and expand it in a timely manner to ensure economic health and vitality.

The transportation and distribution of freight occurs via the regional freight network that Virginia Beach is a part of. This section summarizes regional freight plan and freight facilities in Virginia Beach. It summarizes the following freight facilities in Virginia Beach:

1. Warehouses
2. Manufacturing facilities
3. Business and industrial parks
4. Top freight employers
5. Truck roadway performance
    a. Truck volumes
    b. Truck percentages

Networks Design and Operations

Inland Freight Corridors are designed to maintain targeted roadway levels of service D or better at intersections and along corridors. The roadways design standards are to accommodate truck traffic (i.e., turning radius). The freight corridor network design guidelines refer to countermeasures from the Local Road Safety Action Plan with a Primary Emphasis Area of heavy Vehicles.

Hampton Roads Regional Freight Study

HRTPO completed the latest update to the Regional Freight Study in July 2017. This study understands the impact of freight movement on regional and statewide employment, income, and economic growth to guide policy and investment decisions, particularly for prioritizing transportation projects that will improve connectivity, efficiency, reliability, and safety of the Hampton Roads freight system.

Freight Facilities in Virginia Beach

Many freight generators in Virginia Beach are connected to an extensive roadway network:

1. Warehouses
2. Manufacturing facilities
3. Business and industrial parks
4. Top freight employers
5. Truck roadway performance

a. Truck volumes
b. Truck percentages

Figure 12 exhibits freight facilities with information such as address and number of employees. **Map 7** exhibits the locations of the Freight Facilities in Virginia Beach listed in **Figure 12**.

Business and Industrial Parks	
Name	**Address**
Airport Industrial Park	5800 Thurston Ave
Cleveland St Office Park	Cleveland St & Clearfield Ave
Corporate Landing Business Park	Corporate Landing Pkwy & Dam Neck Rd
Oceana East Industrial Park	Central Dr & London Bridge Rd
Oceana South Industrial Park	Taylor Farm Rd & Hornet Dr
Oceana West Industrial Park	International Pkwy & Luynnhaven Pkwy
Pembroke Office Park	Independence Blvd & Jeanne St
Princess Anne Commons	3740 Dam Neck Rd
Reflection Office Park	S Lynnhaven Rd & Lynnhaven Pkwy
Rosemont Interstate Center	Rosemont Rd & Sentara Way
Town Center	222 Central Park Ave
Virginia Beach Innovation Park	1924 Landstown Centre Way

Manufacturing Facilities		
Name	**Services**	**Number of Employees**
Stihl Inc.	Miscellaneous Manufacturing	1000+
Mancon Inc.	Packaging Machinery	1000+
Raytheon Technical Svc Co LLC	Detection, Naviation, Guidance, Aeronautical and Nautical System and Instrument Manufacturing	250-499
Eagle Industries Unlimited Inc.	Men's and Boy's Cut and Sew Apparel Manufacturing	250-499
Kauffman Engineering Inc.	Wire Product Manufacturing	100-249
Busch LLC	Commercial and Service Industry	100-249
Atlantic Dominion Distributors	Tobbacco Manufacturing	100-249
Controls Corp of America	Welding and Soldering Equipment Manufacturing	100-249
Gordon Paper Co Inc.	Converted Paper Producing Manufacturing	100-249
ARAI Americas Inc.	Rubber Product Manufacturing	100-249
Dynaric Inc.	Fabric Machinery	100-249
NGK-LOCKE Polymer Insulators	Miscellaneous Manufacturing	100-249

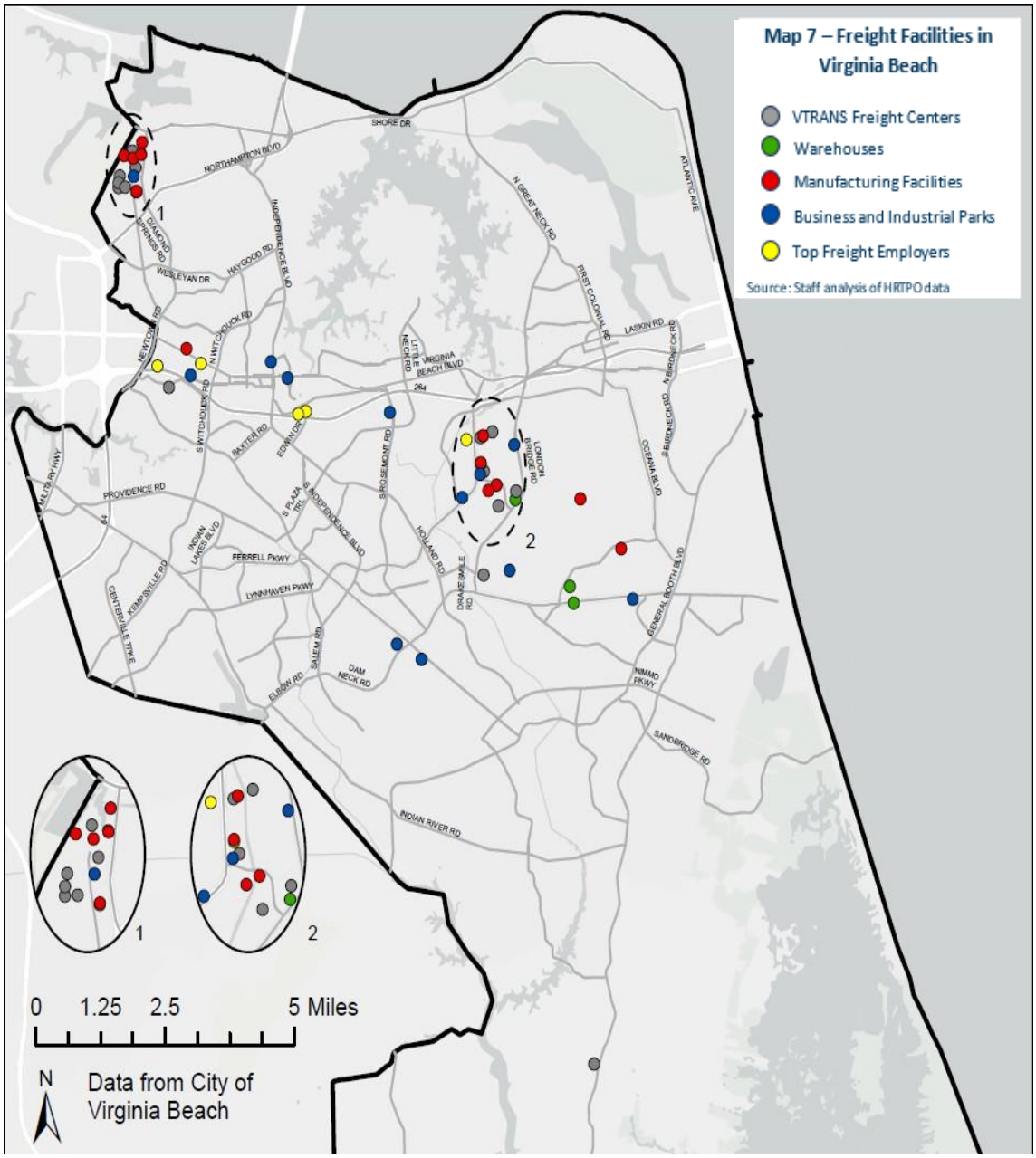
Freight Employers		
Name	**Services**	**Number of Employees**
AMSEC Corporation	Military/Shipbuilding	700
The Penrod Company	Distribution/Transportation/Logistics/Public Utility	500
Hall Automotive Group	Services	1300
Checkered Flag Motors	Services	570
General Foam Plastics Corporation	Manufacturing	400

Warehouses		
Name	**Address**	**Number of Employees**
Lillian Vernon Corp	2600 International Pkw	450

Figure 12 – Freight Facilities in Virginia Beach

Source: HRTPO Freight Facilities Interactive Map, 2024

VTrans is Virginia's statewide transportation plan that is prepared by the Commonwealth Transportation Board (CTB) by the Office of Intermodal Planning and Investment (OIPI). This plan lays out the overarching vision and goals for transportation in the commonwealth and plans to achieve those goals. Freight Activity Centers are locations of concentrated employment or other clusters of economic or social activity that are primary attractors of travel trips.



Map 7 – Freight Facilities in Virginia Beach

Source: City of Virginia Beach Public Works Design Standards Manual, 2022

Trucks are the primary mover of Freight within Hampton Roads. Roadway congestion adds to the operation costs of companies and shippers, affecting the economic competitiveness of the Port of Virginia, Hampton Roads and State of Virginia. Regional freight bottlenecks have been identified by HRTPO. Virginia Beach is fortunate to not contain any of these bottlenecks within its borders. However, all the major routes out of Hampton Roads to the west of Virginia Beach contain major bottlenecks which affect many Virginia Beach residents and businesses.

Recommended Policies: Freight

Support the regional and federal freight initiatives to enhance the state and regional economy, while ensuring that the effects of the freight operations on the region are mitigated.

ACTIVE TRANSPORTATION

Active transportation refers to human-powered mobility, such as biking, walking, small-wheeled-transport (skates, skateboards, push scooters, and hand carts), and wheelchair travel that directly replaces motor vehicle miles traveled. Hence, these modes are effective at conserving fuel, reducing vehicle emissions, bridging the first mile and last-mile gap, and improving individual and public health.

Virginia Beach Active Transportation Advisory Committee (ATAC) was originally established by City Council on October 2004, as the Bikeways and Trails Advisory Committee with a mission to: "*serve in an advisory capacity to City Council with respect to implementation and coordination of the Active Transportation Plan (ATP) and to coordinate the timely construction of active transportation facilities under the priorities established by ATP, to promote a balanced approach between and among various users' interests in the City, and to provide a forum for continued citizen and governmental input in the planning and programming of future active transportation facilities."* ATAC meets 2nd Monday each month and has 14 members in total (9 citizens and 5 non-voting members: 2 high-school students, 1 member from City Council, Planning Commission and Parks and Recreation Commission).

City of Virginia Beach Active Transportation Plan, completed in 2021, outlines the following goals that will lay the groundwork for specific strategies for the city to improve the walking and biking experience:

1. **Connectivity** – Grow the city into a complete transportation network that integrates active transportation into the lifestyles of the communities for the health, safety and welfare of all users.
2. **Safety** – Create a safe, attractive experience for walking and biking by providing convenient, connected and equitable development of active transportation facilities.
3. **Economic Vitality** – Develop an active transportation network that supports a strong and thriving economy by increasing commuting options, enriching recreational and tourism opportunities, and making the city a more attractive place to live and work.
4. **Technology** – Prepare our streets for changing needs and technologies (ridesharing, micromobility, autonomous vehicles).
5. **Health** – support public health benefits by creating an active transportation network that values and supports physical activity for people of all ages and abilities.

Existing Conditions

There are approximately 350 miles of bikeway facilities in Virginia Beach, which are shown on **Map 8** on **page 49**. Some areas of the city such as Bay Area/Cape Henry Trail, Dam Neck/Nimmo/Princess Anne Road, Oceanfront, and General Booth/Birdneck/Norfolk Ave Trail Loop are in excellent condition with ample space for people to walk and bike safely and comfortably. However, in much of the city, particularly older communities in the northern and western city parts, there are notable gaps in active transportation facilities, or none were present at all.

There are five types of active transportation facilities identified in the City of Virginia Beach ATP:

- **Shared Use Paths (Multi Use Paths)** – with enough room to accommodate pedestrians and bicyclists next to a street.
- **Trails** – shared by pedestrians and bicyclists separated from a street.
- **Sidewalks** – five feet wide concrete facilities. These facilities are not included in the plan's inventory.
- **Sidepaths (wide sidewalks)** – next to a street, designated for pedestrians but may have enough room to accommodate bicyclists. They are narrower than a shared use path and are physically separated from motor vehicles.

Multi-Use Path
Source: City of Virginia Beach

- **On-street bike lanes** - a portion of the roadway that has been designated by striping, signage, and pavement markings for the preferential or exclusive use of bicyclists with no physical barriers (bollards, medians, raised curbs, etc.). They run curbside when no parking is present or next to parked cars. There are many types of bike lanes, including conventional, buffered, and contra-flow bike lanes.

Bike Lane
Source: Google

Figure 13 lists the length of each type of active transportation facility in the city, while **Figure 14** on **page 48** displays the percentages of each type of facility as part of the existing network.

Existing Facilities	Existing Miles
Shared Use Path	89
Sidepath	59
Soft Trail	14
Bike Lane	30.4
Neighborhood Connectors	4
Park Path	2.6
Shared Roadways	5.3
Total	**204.3**

Figure 13 – Existing Active Transportation Mileage Facilities
Source: City of Virginia Beach, 2024

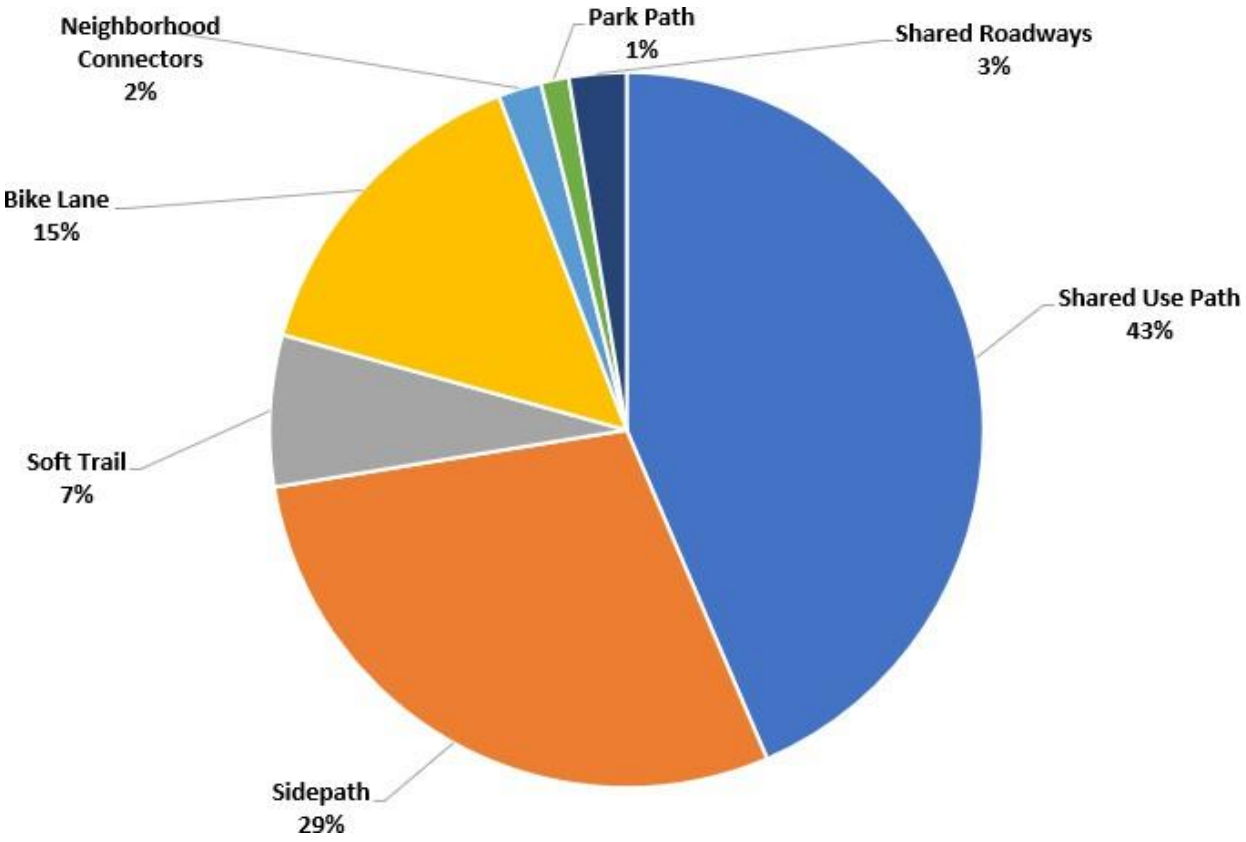
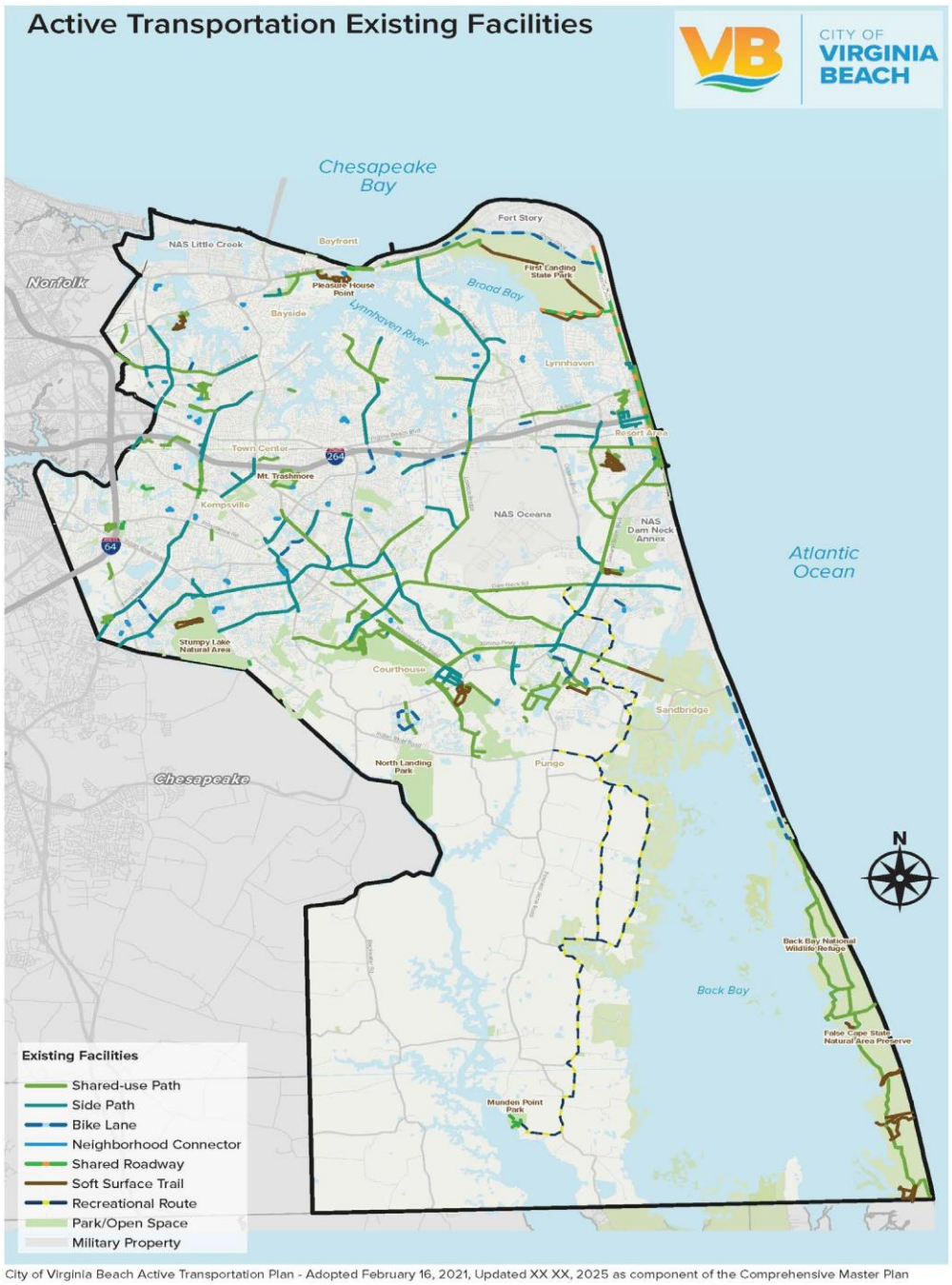


Figure 14 – Percentage of Existing Active Transportation Mileage Facilities
Source: City of Virginia Beach, 2024

Shared Use Paths have the highest mileage out of all active transportation facilities (89 miles or approximately 39% of total existing miles), followed by sidepaths/wide sidewalk (59 miles or approximately 26% of the total existing miles). Park paths have the lowest mileage (3 miles or approximately 1% of the total existing miles). Facilities not included are: 20 miles of trails in First Landing State Park, 17 miles of trails in Falls Cape State Park and 8 miles of trails in Back Bay National Wildlife Refuge.



Map 8 – Existing Active Transportation Facilities

Source: City of Virginia Beach Parks and Recreation Department, 2025

The existing active transportation network in Virginia Beach has many barriers and challenges. These challenges and barriers include water, military installations, lack of connectivity between different areas, high-traffic roadways, overpasses, and a lack of adequate active transportation facilities. These gaps of active transportation facilities discourage people walking and/or bicycling by requiring them to take long, circuitous routes, or even preventing certain trips from being made altogether.

Many of Virginia Beach's key destinations are dispersed throughout the city; developing a high quality and cohesive, active transportation network will help residents and visitors access these destinations. Currently, there are major gaps in sidewalk and bicycle connectivity between key destinations. Some areas include pedestrian infrastructure, but it may be in disrepair and/or lack adequate safety features. The existing active transportation infrastructure provides a good starting point and needs to be built upon and transformed into a well-connected network by installing and maintain high quality infrastructure.

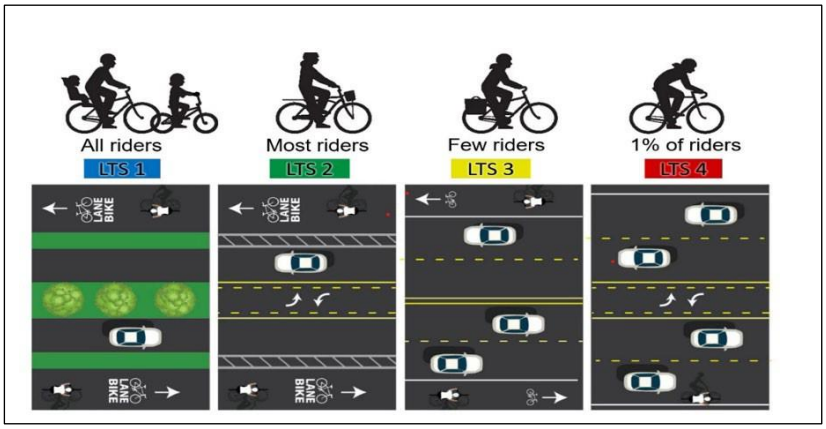
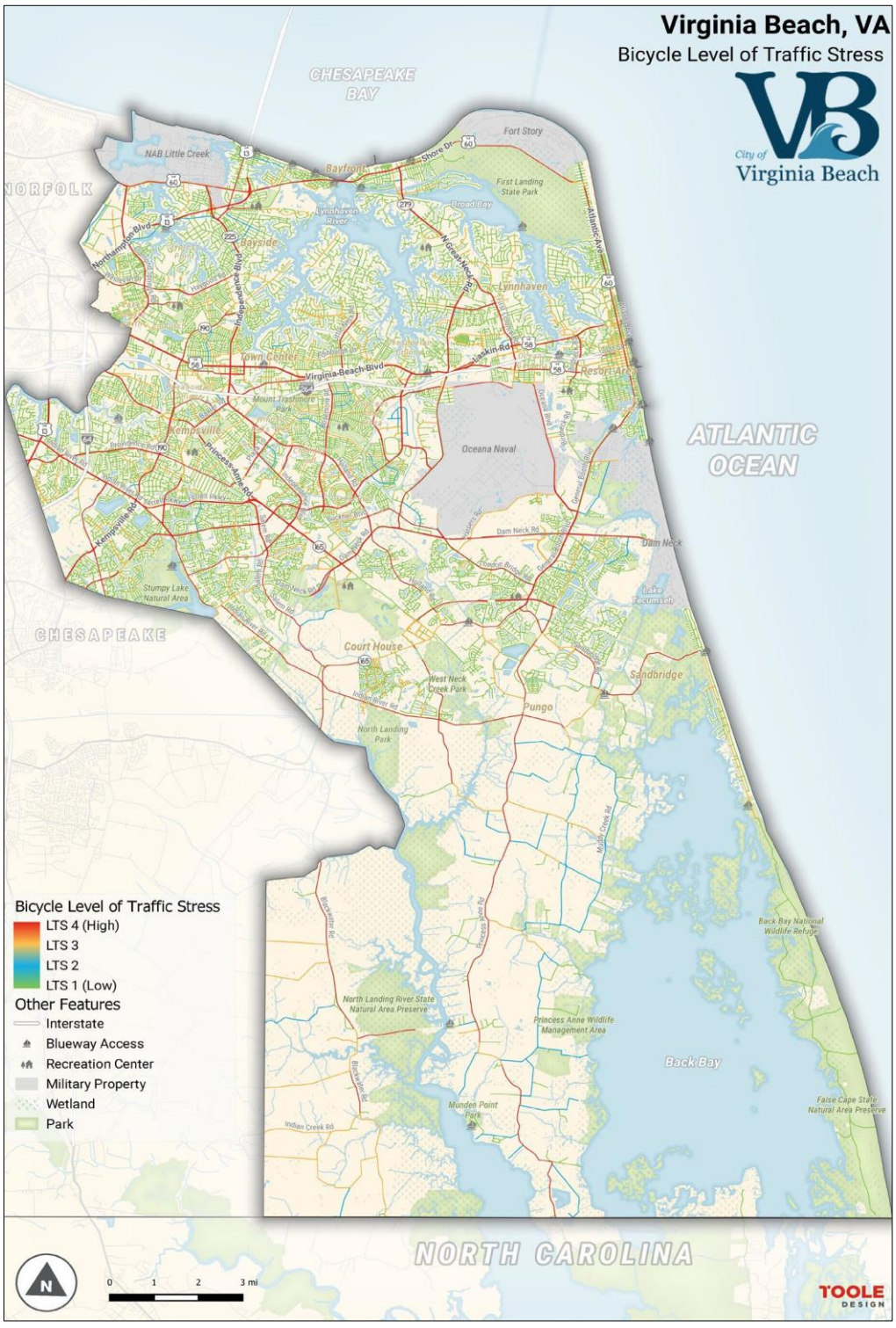


Figure 15 – Different Levels of Traffic Stress
Source: Washington State Department of Transportation

Bicycle Level of Traffic Stress (**Figure 15**) is an approach that quantifies the amount of discomfort that people feel when they bicycle close to traffic by giving different ratings to road segment or crossing. This type of analysis was done in the ATP to better assess the barriers to active transportation. This analysis (**Map 9** on **Page 52**) found that most streets in Virginia Beach are low-stress routes, many of which are small residential streets that carry little through traffic. Larger streets (collector roads, arterials) are high-stress walking and bicycling routes, which are especially severe in the Strategic Growth Areas and along Virginia Beach Boulevard. These corridors that provide direct access to destinations are vehicle-oriented with large rights-of-way, high speeds, heavy traffic volumes and unsafe for pedestrians and bicycle uses. Improving bicycle and pedestrian infrastructure along major streets and key high-volume interchanges or providing

alternative accessible routes will increase non-vehicular transportation options. Improvements to high-stress routes are crucial for the active transportation network.



Map 9 – Bicycle Level of Traffic Stress

Source: City of Virginia Beach Active Transportation Plan, 2021

The ATP asserts that there are three distinct components of the active transportation network in the city:

- **Core City Network** – composes of major roads, such as Independence Boulevard, Princess Anne Road, and Shore Drive, which are the most direct routes between destinations, and where walking and biking can be the most dangerous. Many HRT bus stops are on roads on the Core Network, allowing travel throughout the city and region. Safe and convenient access to these transit routes along major roads is crucial for multimodal transportation in Virginia Beach. This network includes the proposed Virginia Beach Trail, Southeastern Parkway Trail and a proposed pedestrian overpass on I-264 near Independence Boulevard connecting Town Center and Mount Trashmore.
- **Local Connectors –** provide access to the city's residential neighborhoods. Smaller commercial districts and rural areas should serve routes to support short trips and long trips alike. These types of facilities serve local destinations, such as schools, libraries, recreational centers, and neighborhood commercial areas. While most Local Connectors are on existing streets, others are off-street trails following power lines, former railroad corridors, or other rights-of-way not yet developed.
- **Neighborhood Routes –** previously included in other planning efforts that provide local, small-scale connections between existing or proposed facilities tying the Core City Network and Local Connectors to homes and businesses. Many multimodal trips will begin and end on Neighborhood Routes.

Recommended Facilities: Active Transportation

The ATP outlines several distinct recommendations for policy, planning, and routes designed primarily for walking, and routes designed for bicycling. The recommendations in this plan support short walking trips within the high-demand areas by eliminating gaps between existing facilities in the walking network, and to support bicycling trips within and between high demand areas. These recommendations are:

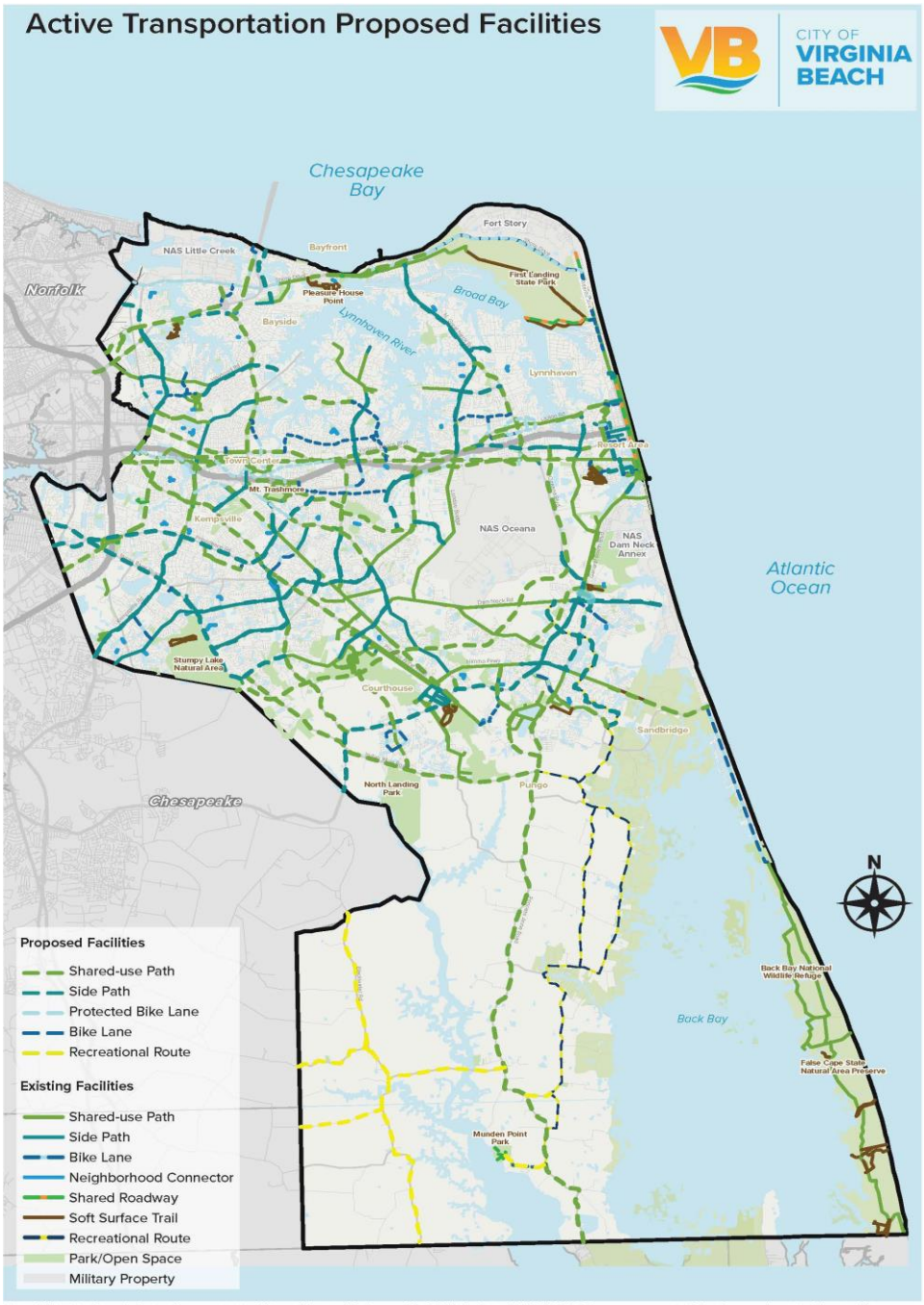
- **Sidepaths** between five and ten feet wide for both pedestrians and bicyclists regarding space constraints.
- **Shared Use Paths or Trails** are typically 11 feet wide or greater that provide a physical buffer from vehicle traffic and can accommodate pedestrians and bicyclists passing one another.
- **Separated Bike Lanes** also known as protected bike lanes, have a buffer (either physical or visual) from vehicle traffic.

Map 10 on **Page 55** displays the proposed pedestrian and bicycle routes and their relevant facilities.

Design principles for active transportation facilities included in the plan are:

1. Active transportation (AT) facilities should be safe; sidewalks, walkways, crosswalks, path, bike lanes, trails and crossings should be designed and built to be free of hazards, offer a sense of security and minimize conflict.
2. Active transportation network should be accessible to all. Active transportation facilities should ensure the mobility for all users by accommodating the needs of people regardless of age or ability.
3. Active transportation network should connect to places people want to go by providing continuous direct routes and convenient connections between destinations.
4. The AT facilities should be designed so people can easily find a direct route to a destination and will experience minimal delay.
5. AT facilities' environment should provide a sense of place; good design should enhance the look and feel of the facilities' environment. Amenities, such as wayfinding, banners, art, trees, plantings, shading, special paving, along with historical elements and cultural references, should promote a sense of place. It should be a place where public activities are encouraged.
6. AT facilities should welcome other travel modes where appropriate; small, low-speed vehicles such as scooters and skateboards should be able to use facilities when they do not interfere with safety and accessibility.

7. Active transportation facilities improvements should preserve and enhance the qualities of the city.



City of Virginia Beach Active Transportation Plan - Adopted February 16, 2021, Updated XX XX, 2025 as component of the Comprehensive Master Plan

Map 10 – Existing and Proposed Active Transportation Facilities

Source: City of Virginia Beach Parks and Recreation Department, 2025

Limited funding and institutional capacity dictate how and when the city will improve the existing active transportation network. The plan identified six major active transportation projects that the city should pursue for short-, medium- and long-term implementation that were identified using the following criteria:

- Key network connectivity
- Public support
- Recognition of existing planning efforts
- Consultation with stakeholders
- Improving access
- Increasing safety
- Promoting economic development

Six major active transportation projects are as follows (**Map 10**):

- **The Virginia Beach Trail** – transforming the historic Norfolk Southern rail corridor into a 12-mile contiguous trail will provide a fully separated, off-street trail connection between six of the eight Strategic Growth Areas, from the Newton Road HRT hub, through Virginia ma comfortable connection across the interstate.
- **Shore Drive Protected Bicycle Lane at First Landing State Park** – running between Kendall Street and Atlantic Avenue, it would improve bicycle safety while calming traffic.
- **Seaboard Road Shared Use Path** – passes through the Transition Zone, while providing access to two local schools and emerging residential areas.

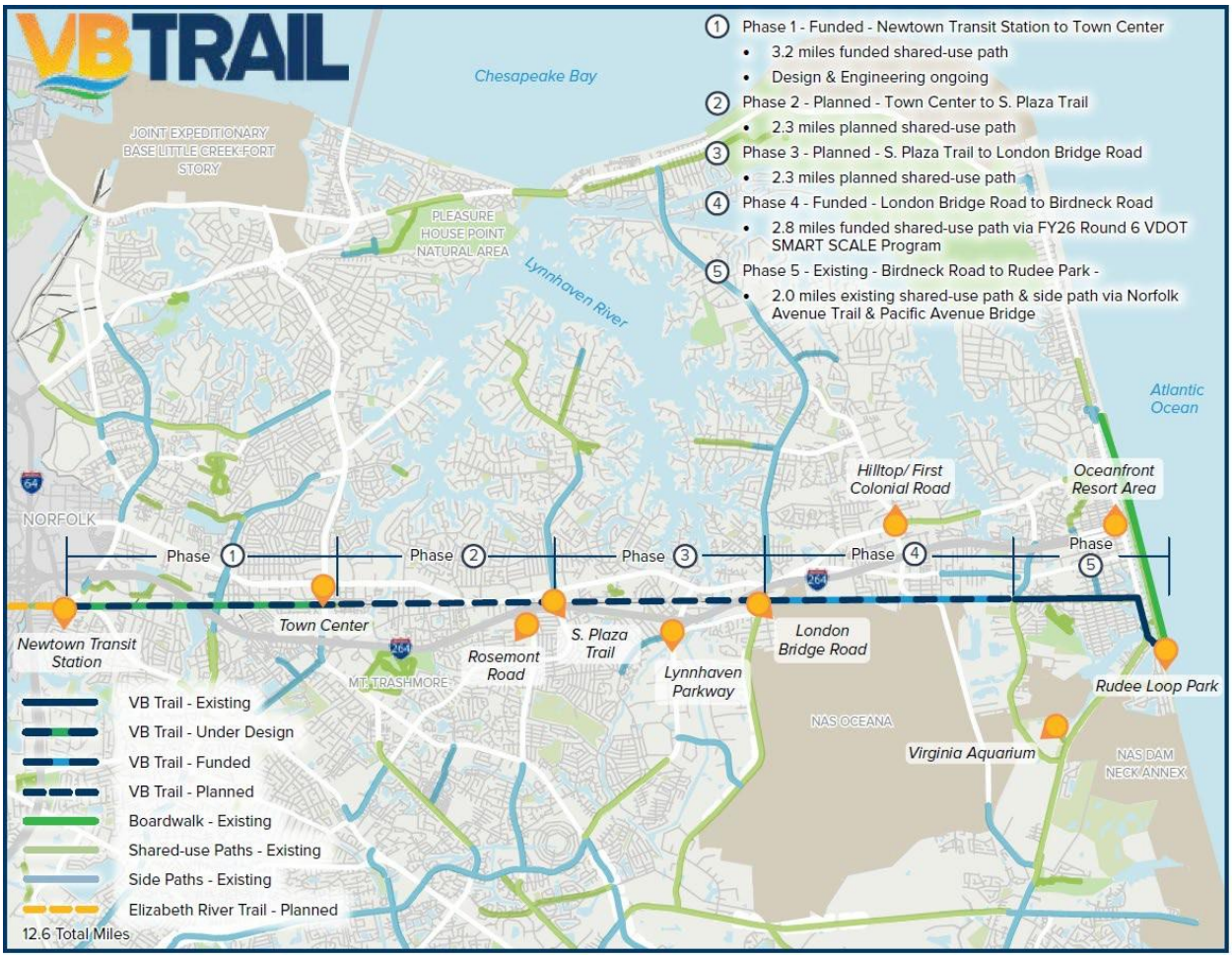
Other active transportation projects should be broken up into three phases:

1. **Short-Term (1-5 years)**: projects that build upon the existing foundation of walking and bicycling, especially by completing gaps between existing facilities that will make them more effective or improving existing facilities to modern standards.
2. **Medium-Term (5-10 years):** projects that will meaningfully expand the system, with a focus on new facilities that may be more time- and capital-intensive to implement.
3. **Long-Term (10+ years):** this phase will see both smaller projects that fill in gaps within the network and large, transformative projects that fill in gaps within the network and large, transformative projects that may require the most planning and funds.

Virginia Beach (VB) Trail

The Virginia Beach Trail (VB Trail) will be a 12-mile-long, 14-foot-wide, paved, shared-use path spanning our city from the Norfolk border at the Newtown Road Light Rail Station to the Oceanfront. The VB Trail has been in City of Virginia Beach plans since 1981.

The easternmost 1.5 miles of the trail is already constructed in the Resort Area, on the north side of Norfolk Avenue between Birdneck Road and Pacific Avenue (**Map 11**). The funding of Phase 1 of the VB Trail project will provide a three-mile section of a 14-foot wide paved shared-use path that will connect Norfolk to Virginia Beach Town Center, following the former Norfolk Southern railroad alignment now owned by the City of Virginia Beach. Securing the funding is a significant step towards promoting equitable access to a more complete active transportation network, increase pedestrian and bicycle user safety, and spur economic strength and vitality.



Map 11 – VB Trail Phases

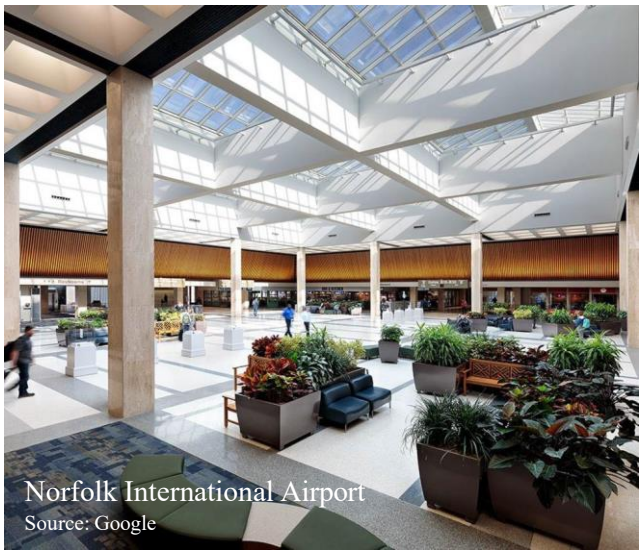
Source: City of Virginia Beach Parks and Recreation, 2023

Key Points: Active Transportation

- Although there are approximately 300 miles of bikeway facilities in Virginia Beach, there are a lot of gaps in Active Transportation infrastructure.
- Planning of Active Transportation facilities is directed by the City of Virginia Beach Active Transportation Plan (ATP) by outlining several distinct recommendations for policy, planning, and routes designed primarily for walking, and routes designed for bicycling and identifying bikeway design guidelines.
- Six major active transportation projects are:
    - The Virginia Beach Trail
    - Constitution Drive Protected Bicycle Lane
    - Interstate 264 Pedestrian Bridge/Flyover
    - Shore Drive Protected Bicycle Lane at First Landing State Park
    - Seaboard Road Shared Use Path

AIR SERVICE

Air service in Virginia Beach is primarily served by the Norfolk International Airport (ORF). This service is owned and operated by the Norfolk Airport Authority (NAA). ORF is located approximately 10 miles from Town Center of Virginia Beach (15-minute ride by car), and approximately 20 miles from the Oceanfront (25-minute ride by car). The airport was first established in 1938 as the Norfolk Municipal Airport. In 1968, the airport changed its name to the Norfolk Regional Airport, and in 1976 it was finally renamed to the Norfolk International Airport.



Norfolk International Airport
Source: Google

The Norfolk International Airport covers approximately 1,300 acres at an elevation of 27 feet mean sea level (MSL). The Airport has two passenger concourses: Concourse A (gates A1-A11), and Concourse B (gates B16-B30).

There is no bus or shuttle services to and from Norfolk International Airport. The nearest bus connection (HRT Route 15) is approximately 1.5 miles away at the intersection of Military Highway and Norview Avenue. All ground transportation services are in the arrivals terminal. There are several on-site rental car companies, an authorized shuttle service providing door-to-door service to the entire Hampton Roads area, and taxis are available throughout several companies.

Enplanements refer to the number of revenue-paying passengers boarding a departing aircraft at an airport. ORF is classified as a small-hub primary commercial service airport. Small hubs are defined as airports that enplane 0.05 percent to 0.25 percent of total U.S. passenger enplanements.

Figure 16 below displays the enplanements of Norfolk International Airport (ORF) between 2011 and 2022.

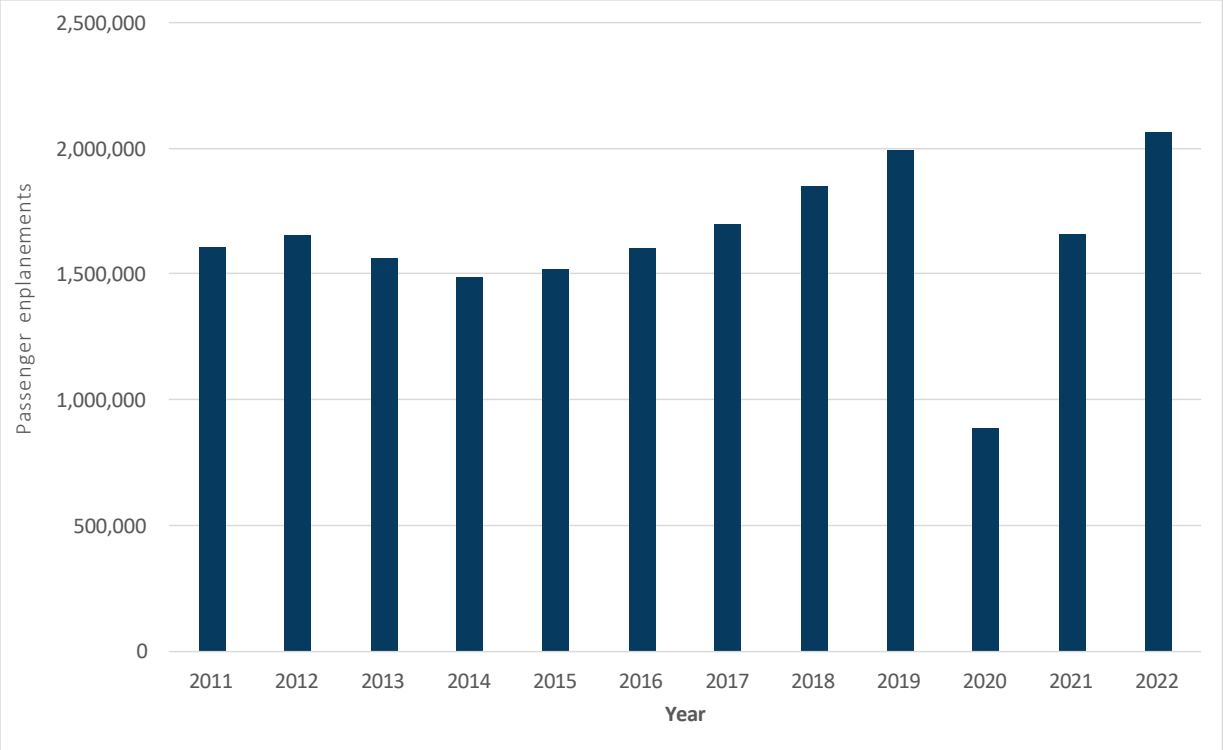


Figure 16 – Passenger Enplanement at Norfolk International Airport (ORF), 2011-2022
Source: Staff analysis of FAA data

ORF enplanements experienced a steady decrease between 2012 and 2014, from approximately 1.65 million to 1.48 million. Between 2014 and 2019, ORF experienced an increase in enplanements from approximately 1.48 million to approximately 2 million. Between the calendar years 2019 and 2022, the following trends can be observed:

- From 2019 to 2020, enplanements declined from approximately 2 million to 885 thousand, a direct result of the COVID-19 pandemic
- From 2020 to 2021, enplanements increased from 885 thousand to approximately 1.7 million
- In 2022, there were approximately 2.1 million enplanements at ORF, the highest seen since the decrease in 2020 because of the COVID-19 pandemic

Norfolk International Airport Master Plan Update

This subchapter outlines the goals and objectives of the Norfolk International Airport (ORF) Master Plan Update (MPU) and includes details of the relevancy of the plan's impact in the City of Virginia Beach.

An airport master plan is a comprehensive study of an airport that evaluates existing facilities, identifies expected stakeholder's needs, and plans short-, medium-, and long-term development plans to meet future aviation demand.

The Norfolk International Airport (ORF) MPU is reviewed every 10 years so that the Norfolk Airport Authority (NAA) can effectively prepare and accommodate for growing demand at the Airport. MPU has been approved by the Federal Aviation Administration and the Virginia Department of Aviation and includes projects that will extend the useful life and value of the airport to meet the future air transportation needs of the region.

Goals and objectives showed by the NAA that are listed in the MPU include:

- Airfield safety and standards, such as Runway Safety Areas and Runway Protection Zones.
- Runway and taxiway systems to meet long-term needs of users.
- Roadway access and parking accommodations to adequately serve users.
- Key terminal building planning issues, such as functional, safety, security, aesthetic, sustainability, and economic concerns.
- Land use/economic development issues such as infrastructure, access, and the best use of surface access/parking considerations.
- Environmental considerations, including air quality, stormwater management, and sustainability.
- Financial viability of recommended actions.

The proposed airport development plan includes recommendations for airfield, passenger terminal, landside, general aviation (GA), and air cargo development:

1. **Short-Term (5-10 Years, 2024-2028):**
    - Taxiway 'C' north rehabilitation.
    - Runway 5/23 phase 3 construction.

- Construction of a New Cargo Facility (landside area dedicated to loading and unloading of cargo, parking for ground-cargo vehicles and cargo operator employees, etc.) and shift taxiway 'V' (approximately 114 ft. northeast).
- Develop a remote terminal apron for deicing operations.
- Move fuel facility in the previous rental car overflow lot.
- Repurpose old employee lot as a merged Quick Turnaround facility.
- Expand the General Aviation apron.

2. **Mid-Term (10-15 Years, 2029-2033)**
   - Convert the lower levels of garage B and C into a new rental car facility.
3. **Long-Term (15-20 Years, 2034-2038)**
   - Combine the split ticketing halls and move to the west side of the departures building.
   - Reconfigure terminal roadways.
   - Expand outbound baggage facilities.
   - Closure of runway 14/32 (Approximately 45 acres to the northwest and approximately 19 acres to the southeast). Land from this runway closure will be repurposed for either commercial or aeronautical use.
4. **Beyond the 20-Year Planning Horizon**
   - Construct New Runway (9,001 ft. x 150 ft.) – Runway 5R/23L.

Recommended Policies: Air Service

Support the implementation of the Norfolk International Airport Master Plan to ensure its continued role in serving Southside Hampton Roads with convenient air travel, while ensuring that future actions of the airport properly consider the impacts on the adjacent built and natural environment. This includes opportunities to enhance multi-modal connections to and from the airport.

Intelligent Traffic Systems (ITS)

According to the World Health Organization (WHO), Intelligent Traffic Systems can reduce traffic accidents by 20-30% through adaptive traffic signals and driver alerts. This section describes both the regional and local implementation of ITS technology by discussing the city's Traffic Management System; the effects of Artificial Intelligence (AI) and big data; the city's Parking Management approach; a variety of future trends in transportation; and recommended future action items.

Various cities throughout the region maintain ITS infrastructure as part of their transportation management systems. At a regional level, VDOT maintains infrastructure at nearly every mile along the interstate highway. Technology, currently in use by VDOT, includes:

- *Transportation Operation Centers* – centers that incorporate various ITS technologies to assist staff with traffic monitoring, incident response, and information dissemination.
- *CCTV cameras* – provide roadway images to transportation operations centers and the public.
- *Vehicle Detection Devices* – Records traffic volumes and speeds. Notifies transportation operations center staff of congestion and incidents.
- *Electronic Toll Collection* – Allows travelers to pass quickly through special lanes, avoiding backups and delays because of paying tolls.
- *Reversible Roadway Gates* – Allows traffic on limited access roadways to be reversed based on commuting patterns, maximizing the use of the existing roadway.
- *511 Virginia* – Provides up-to-date traveler information via telephone, the internet, and other methods.
- *Transit Automatic Vehicle Location (AVL)* – Provides the location of transit vehicles, aiding on-time performance.
- *Emergency Vehicle Signal Preemption* – Changes the traffic signal when emergency vehicles approach, improving the safety and response time of emergency vehicles.
- *Changeable Message Signs* – Provides up-to-date information to the traveling public.
- *Advanced Signal Systems* – Improves the coordination and timing of traffic signals in a corridor or throughout an entire city, reducing the number of stops and delays.

In January 2006, the City of Virginia Beach formed the Traffic Management Center (TMC). The TMC has a direct connection to VDOT's TOC, which allows for data and video sharing. The TMC facilitates a transportation communication network applying technology and engineering to traffic management and disseminating traffic related information. The City of Virginia maintains a traffic management system which:

- Consists of a 165-mile fiber optic cable backbone, 30-miles of twisted pair copper cable and 127 closed-circuit television cameras.
- Controls all the city's 400 traffic signals.
- Provides a connection to the Virginia Department of Transportation's Traffic Operations Center (TOC) and will provide the City of Virginia Beach with direct access to video from the TOC'S interstate cameras.
- Includes 10 permanent, changeable message signs and 60 systems detectors (to detect instantaneous changes in traffic flow).
- Features Video Detections to collect traffic counts to provide updated information.

With urban growth, people need better wats to move around. Smart traffic management solutions are predicted to become essential. New tools, like Artificial Intelligence (AI) and cloud systems could help make roads safer, faster and more eco-friendly. Many cities and localities are already using these technologies to reduce traffic and cut pollution.

AI- Powered Traffic Control Systems and Big Data

Modern transportation technologies enable smart traffic signals to self-regulate through sensor network and artificial intelligence systems. These systems leverage AI to reliably predict and effectively manage traffic congestion. Through machine learning technologies, traffic control systems could automatically adjust signal phase durations and reconfigure traffic patterns based on real-time conditions. These implementations could improve road safety and traffic flow capacity.

Big data is transforming traffic management by providing insight into travel patterns. Urban planners use data-driven analytics to improve road infrastructure, predict traffic congestion, and create better traffic management solutions that focus on safety, environment and better mobility.

Autonomous Vehicles (AVs)

Self – driving cars could revolutionize travel. With AI at the wheel, these vehicles could reduce human error, making roads safer. Using real-time data, advanced navigation, and Vehicle to All (V2X) communication, AV would help reduce congestion, increase efficiency, and improve accessibility.

Electric and Hydrogen-Powered Vehicles

The transition to clean energy is speeding up, with electric and hydrogen-powered vehicles already present. Due to improvements in battery and fuel cell technology, these vehicles are more effective and cheaper to run, reducing emissions and our dependency on fossil fuels.

Urban Air Mobility (UAM)

Urban air mobility (UAM) refers to the integration of aerial vehicles into urban transportation network for cargo transport. It involves using smaller, electric powered aircraft, including drones, to operate within and around cityscapes, leveraging airspace above urban areas. UAM aims to alleviate congestion on roads and improve transportation efficiency.

Parking Management

The Virginia Beach Parking Management Office manages over 8,250 off-street spaces in eight parking garages and ten surface lots at the Oceanfront (Resort), Croatan Beach, Sandbridge Beach, Little Island, and Town Center. These locations should accommodate long-term parking use and to provide overnight parking. Monthly leases are available at the Oceanfront and Town Center garages. Weekly leases are available at the Oceanfront garages to accommodate hotel guests that have multiple vehicles. When there is coordination of effective parking management with transit infrastructure and services, it can have a combined positive impact on traffic congestion. The City of Virginia Beach has implemented the use of mobile payment technology at all parking locations at the Oceanfront. The city created a native app called “VBGo” to show occupancy of parking locations along with driving directions via Google maps. Parking payment can also be remitted through Google’s third-party vendor.

Recommended Policies: Intelligent Transportation Systems (ITS)

- Use Intelligent Transportation Systems (ITS) to maximize the efficiency of the existing transportation system.
- Encourage the use of ITS to optimize road capacity, with VDOT and regional efforts. Examples of ITS include traffic signal systems, variable message signs, traffic cameras, and electronic toll collection.
- Consider leveraging third party traffic data and analytics for real-time traffic management, incident response and how data from apps and other credible sources can assist in future planning and predicting trends.
- Continue to develop technology to manage varying transportation needs that take into consideration the characteristics of urban development areas.
- Continue to support ITS technology as developed and maintained by VDOT at the regional level.
- Work in unison with all Hampton Road cities, the Hampton Roads Transportation Planning Organization (HRTPO) and VDOT to improve effective regional planning with coordination provided through the Transportation Operations Committee (TOC).

Agenda for Future Action Recommendations: Intelligent Transportation Systems (ITS)

- The city staff plans to do a trail and demo of three proposed traffic signal hardware and software within the next 6-12 months to replace the existing ATMS.
- The city staff plans to test three proposed software and hardware to decide which system best suits them for their future-years' growth/development and filling any critical functionality gaps within their dated current central traffic signal system.
- Update plans for traffic signalization every three years.
- Monitor trends regarding emerging technologies in Information and Communication (ICT), Global Positioning Systems (GPS), and ITS. Stay current with trends in ITS to develop it as an ongoing resource for transportation network infrastructure.
- Create parking strategies that merge technology and infrastructure. Adopt innovations to deliver live parking data to citizens, including heat maps that can show drivers available parking on a block-by-block basis. Consider dynamic meter pricing, raising the price for on-street parking during peak time to make some spaces available. When spaces are available, drivers search less for parking.
- Consider developing dynamic pricing mechanisms for roads, parking spaces, and shared-use assets to balance supply and demand.
- Continue to develop and implement adaptive signal control in coordination with FHWA. The City is currently developing an application and is awaiting approval from the FHWA.
- To promote the use of local transit, consider equipping parking garages with more internal directional signage to show the location of transit stops.

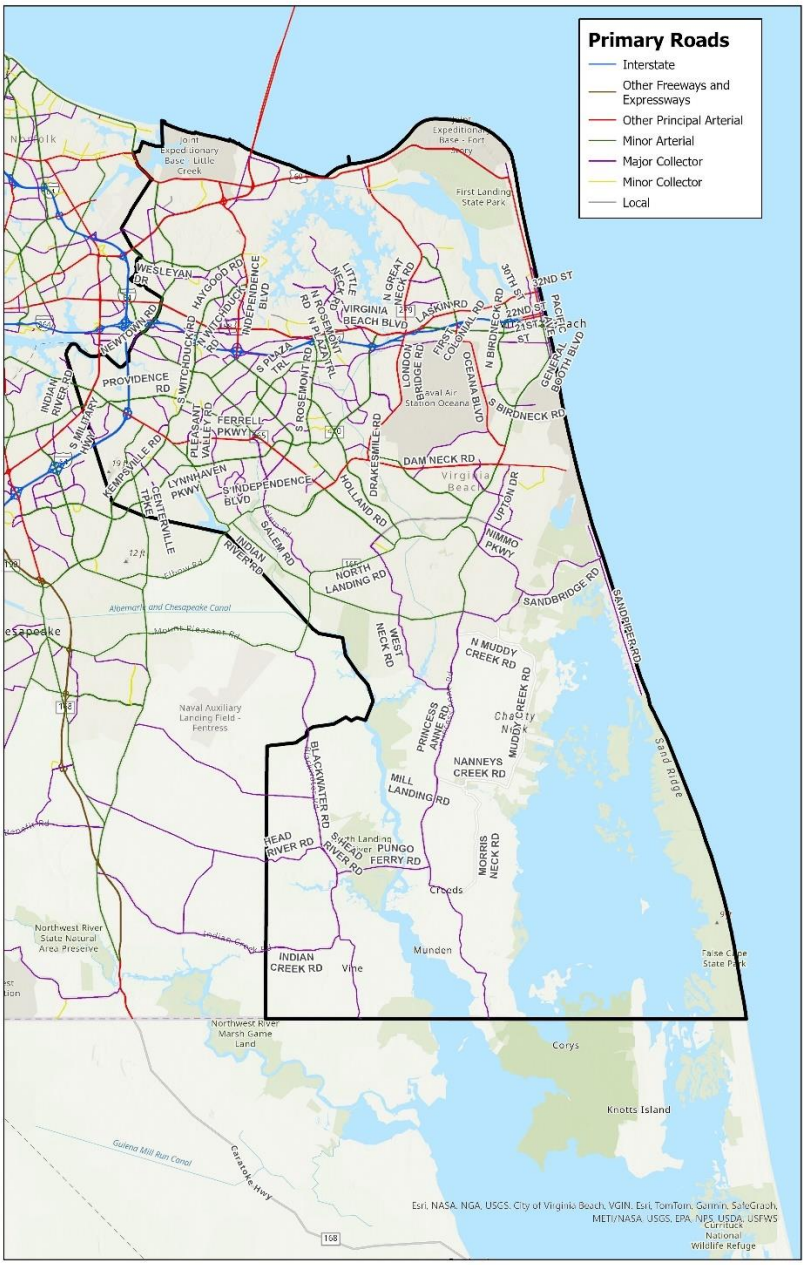
Key Points: Intelligent Traffic Systems (ITS)

- Examples of ITS are traffic signal systems, variable message signs, traffic cameras, electronic toll collections, etc.
- The city maintains ITS to maximize the efficiency of its existing transportation network.
- The city staff are monitoring trends regarding emerging technologies.

References

1. Design Standards Manual, City of Virginia Beach, Virginia, Department of Public Works, Engineering Group, 2022.
2. Local Road Safety Action Plan, A Component of the Comprehensive Plan, City of Virginia Beach, 2024.
3. Hampton Roads 2045 Socioeconomic Forecast and Traffic Analysis Zones (TAZ) Allocation, Hampton Roads Transportation Planning Organization, 2019.
4. Transit Strategic Plan FY2025-FY2034, Hampton Roads Transit, 2023.
5. Hampton Roads Regional Freight Study 2017 Update, Hampton Roads Transportation Planning Organization, 2017.
6. Active Transportation Plan, The Bikeways & Trails Component of the Comprehensive Master Plan, City of Virginia Beach, 2021.
7. Norfolk International Airport Master Plan Update, Norfolk Airport Authority and CHA, 2021.

Map 12 – VDOT Functional Classification Roadway Map



Map 12 – VDOT Functional Classification Roadway Map

Source: VDOT's Functional Classification Roadway Map